Table of Contents

APPENDICES

Page

Appendix 4.1	Mine Geotechnical
Appendix 5.1	KP Geotechnical Interpretative Report
Appendix 6.1	PFS Testwork Report
Appendix 6.2	OMC Report 7557.35-01
Appendix 6.3	DFS Testwork Report
Appendix 6.4	ChemCentre Cyanide Speciation Assays
Appendix 6.5	Metso Thickening Testwork Reports
Appendix 6.6	DFS Update Testwork Memorandum
Appendix 6.7	DFS Update Testwork Interpretation Memorandum
Appendix 6.8	OMC Report A046-01
Appendix 6.9	OMC Report A046-02
Appendix 6.10	OMC Report A046-03
Appendix 7.1	Process Design Criteria
Appendix 7.2	Process Flow Diagrams
Appendix 7.3	Mechanical Equipment List
Appendix 7.4	Plant Layout Drawings
Appendix 7.5	Single Line Diagrams
Appendix 7.6	Power Distribution Layout
Appendix 7.7	Load List
Appendix 7.8	Electrical Equipment List
Appendix 7.9	Cable Schedule
Appendix 7.10	Instrument List
Appendix 7.11	Communication Block Diagram
Appendix 7.12	First Fills and Opening Stock
Appendix 7.13	Process Control Philosophy
Appendix 8.1	Knight Piésold DFS Report
Appendix 9.1	Site Layout Drawings
Appendix 9.2	Buildings List
Appendix 9.3	Doropo Power Supply Options
Appendix 9.4	Site Data Sheet (PFS)
Appendix 12.1	Estimate Summaries and Detail
Appendix 12.2	Estimate Scope and Responsibilities Matrix
Appendix 12.3	Work Breakdown Structure
Appendix 13.1	Operating Cost Estimate
Appendix 15.1	Attendance List
Appendix 15.2	Hazard Rating Matrix
Appendix 15.3	Hazard Register
Appendix 16.1	Basis of Schedule
Appendix 16.2	Schedule Summary
Appendix 16.3	Detailed Schedule
Appendix 16.4	Critical Activities
Appendix 16.5	Doropo EPCM Organisation Chart

Table of Contents

Page

Appendix 16.6 Doropo Project Execution Plan

APPENDIX 4.1

MINE GEOTECHNICAL

srk consulting

SRK Consulting (Canada) Inc.
320 Granville Street, Suite 2600
Vancouver, BC V6C 1S9
Canada

+1 604 681 4196 office
+1 778 508 3584 fax
vancouver@srk.com
www.srk.com

Final

Memo

To	Luciano Giancristofaro	**Client**	Resolute Mining Inc.
From	Sam Tims	**Project**	CAPR004078
Cc	Bruce Mowat, Ed Saunders, Rob Cicchini, Andrew Hollis (Orelogy)	**Date**	November 26, 2025
Subject	2025 Definitive Feasibility Study Detailed Review Memo – Doropo Project		

File name: SRKCA_Dorop_ 2025 Geotechnical Review Memo_CAPR004078_Memo_20251126.docx

1 Introduction

SRK Consulting (Canada) Inc. (SRK) is an associate company of the international group holding company, SRK Consulting (Global) Limited (the SRK Group). SRK has been requested by Resolute Mining Inc. (Resolute) to undertake a geotechnical review of updated pit designs for the Doropo Project (Doropo) located in north-east Côte d'Ivoire about 480 km from the capital Abidjan.

SRK Consulting (UK) Ltd. previously completed a geotechnical investigation and pit slope design recommendations in support of a Definitive Feasibility Study (DFS) for the Doropo Project (SRK 2024). Resolute has prepared updated pit slope designs that reflect adjusted mining input parameters since the previous study carried out. The resulting pit designs are larger than those previously evaluated by SRK, and therefore, geotechnical review was requested to confirm the established pit slope design recommendations (SRK, 2023). has increased the estimated price of gold since the previous DFS which has resulted in significantly larger open pits from the initial study.

This memorandum provides a high-level summary of the main geotechnical concepts, methodologies, and recommendations for the Doropo Project DFS, with specific consideration of implications for redesigned pit shells based on an updated gold price of USD 1,950/oz and other mining input parameters. The review draws on the comprehensive geotechnical investigation, slope design, and operational recommendations provided in the referenced report.

1.1 Project Context and Scope

The Doropo Project, located in north-east Côte d'Ivoire, comprises several open pit gold deposits. The geotechnical feasibility study evaluates eight primary pits (Chegue Main, Chegue South, Enioda, Han, Kekeda, Kilosegui, Nokpa, and Souwa). The previous DFS integrated data from recent and historical geotechnical drilling, laboratory testing, and site investigations (SRK, 2023). The updated gold price of

USD 1,950/oz resulted in expanded pit shells with deeper and larger geometries than previously considered in 2024.

The workflow was assessed in two phases: an initial exploratory review of the revised pit designs with respect to the previous pit designs and an update to analyses where required to review potential impacts or limitations to designs

2 Initial Exploratory Review

The Doropo project comprises 8 prospective deposits with planned pits and other exploration targets in a 30 km^2 area. The geotechnical analysis was consolidated as much as practicable to develop the design recommendations for each area. Designs for the open pits were developed considering the following major aspects:

- Lithological context
- Tropical weathering of the rock mass
- Regional and local structural models
- Changes in hydrogeological conditions
- Planned mining depths limited to less than 150 m

The review was focused on understanding whether the changes to the geometries and extents of the pits would deviate from design assumptions made for the 2024 DFS study. Initial optimization shells were provided to SRK and individually reviewed for changes to these considerations (Table 1). Review of structural controls was completed on all pits owing to potential geometrical changes that may impact stability.

Table 1: Changes to major assumptions in the geotechnical domain model using the optimization shells

Domain	Pit	Length	Max Depth FS (m)	Max Depth 2025 (m)	Saprolite Thickness	Saprolite Domain	Groundwater Domain	Host Lithology
Enioda	**Enioda**	1900	90	105	20 - 35	Enioda	Enioda	Granite, Gneiss, Amphibolite
North	**Chegue Main**	2000	90	130	30-40, thins to SW	Doropo	Topographic High	Granodiorite
	Chegue South	1150	90	170	40 (North), 5 - 10 (South)	Doropo	Topographic High	Granodiorite with Mafic Dyke
	Han	1400	100	115	< 10	Doropo	Topographic Low	Granodiorite
South	**Kekeda**	1300	90	110	10 - 20	Doropo	Topographic Low	Granodiorite
	Nokpa	1400 (+650)	120	240	5 - 15 (Main North Pit), 20 - 30 (South Satellite)	Doropo	Topographic High	Granodiorite with Mafic Dyke
	Souwa	2500	140	180	25 - 40	Doropo	Topographic High	Granodiorite
Kilosegui	**Kilosegui A (NW)**	2700	100	175	< 5	Kilosegui	Kilosegui	Granodiorite
	Kilosegui B (SE)	4300 (+600)	125	145	30 - 40 (Centre of deposit), 5 - 10 (elsewhere)	Kilosegui	Kilosegui	Granodiorite

Following the initial review of the optimization shells, recommendations were provided prior to proceeding with detailed pit designs (Table 2). Designs were revised for Nokpa owing to the significant changes in pit dimensions for Nokpa and expected challenging rock mass conditions. Design recommendations from the 2024 DFS study were used to develop detailed pit designs, with additional review required to validate design assumptions prior to finalizing the updated DFS study.

Table 2: Initial review considerations and recommendations

Pit	Current Design Modifications	Short Term Path Forward	Specific Aspects
Enioda	No design change required	No design change required	No material change
Chegue Main	No design change required	Detailed review required	Pit walls moved significantly from DFS. Review of available data and structural considerations in Fresh Rock
Chegue South	No design change required	Modelling, kinematic, structural review required	Pit walls moved significantly from DFS. Review of available data and structural considerations in Fresh Rock
Han	No design change required	No design change required	No material change
Kekeda	No design change required	No design change required	No material change
Nokpa	Design change & review required	Modelling, kinematic, structural review required	Pit walls moved significantly from DFS. Rock mass in Nokpa significantly faulted and damaged compared to other deposits. Initial design suitable for shallow depths only.
Souwa	No design change required	Modelling, kinematic, structural review required	Pit walls moved significantly in specific areas from DFS. Review of available data and structural considerations in Fresh Rock
Kilosegui	No design change required	Modelling, kinematic, structural review required	Initial DFS saprolite designs do not consider greater thickness in centre of deposit. Review walls in Fresh Rock where design significantly different

3 Detailed Review

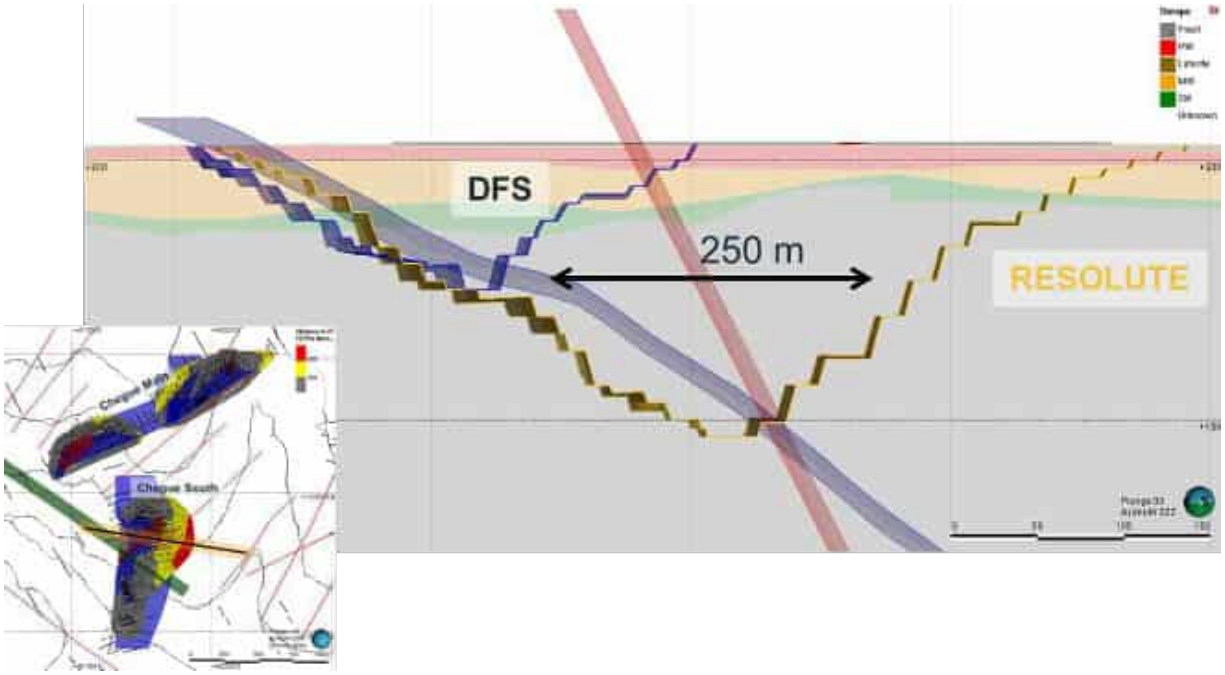
The detailed review process was focused on aspects that had changed since the 2024 design recommendations, namely:

- Suitability of geotechnical data collected previously,
- Potential changes in saprolite thicknesses (Weathering)
- Potential geometrical impacts from structures and potential risks to bench design in the Fresh Rock unit (Structural)
- Planned mining depths exceeding 150 m in areas, necessitating a revision of design recommendations to consider geotechnical berms and manageable stack heights to reduce potential future access and safety hazards.

3.1 Geotechnical Data

Geotechnical drilling completed for the PFS and DFS studies was targeted towards understanding wall conditions of the proposed pits. Changes in the mining assumptions have resulted in significant changes in the locations of the design pit walls (Figure 1).

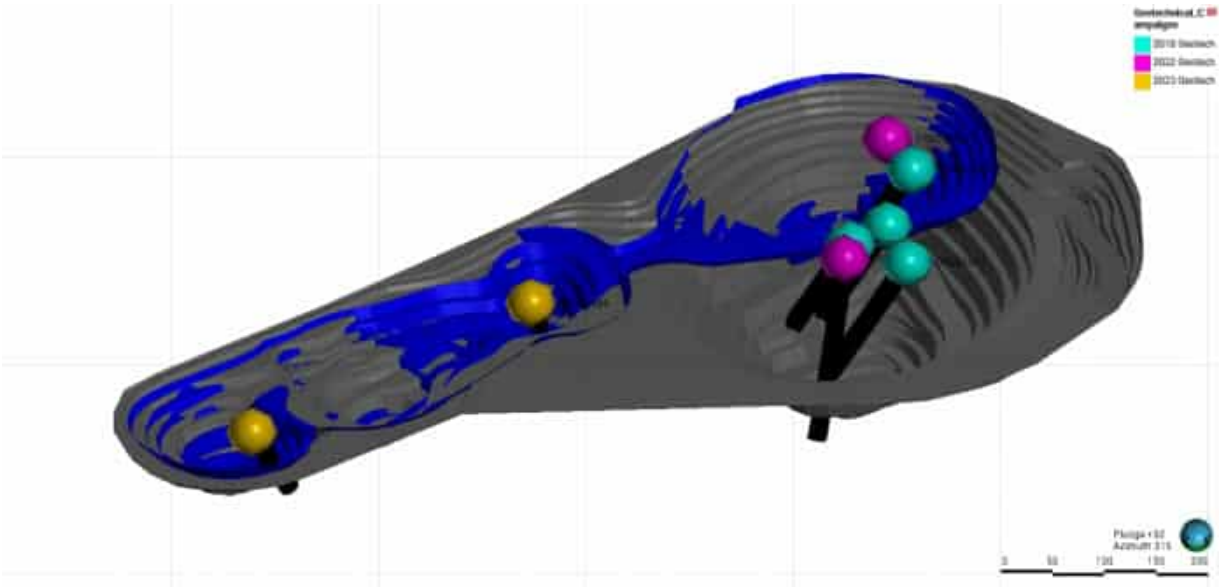
Figure 1: Example of changes in highwall position for Chegue South



These expanded pits have resulted in previously collected geotechnical data, largely targeting highwall conditions of the pits, being located significantly away from the updated designs. Majority of the geotechnical data does not intersect the revised final walls (Figure 2). **Owing to the consistency of**

the geology and expected structural orientations, the data is usable for design purposes but potential risks behind pit walls may exist.

Figure 2: Geotechnical drilling available at Chegue South

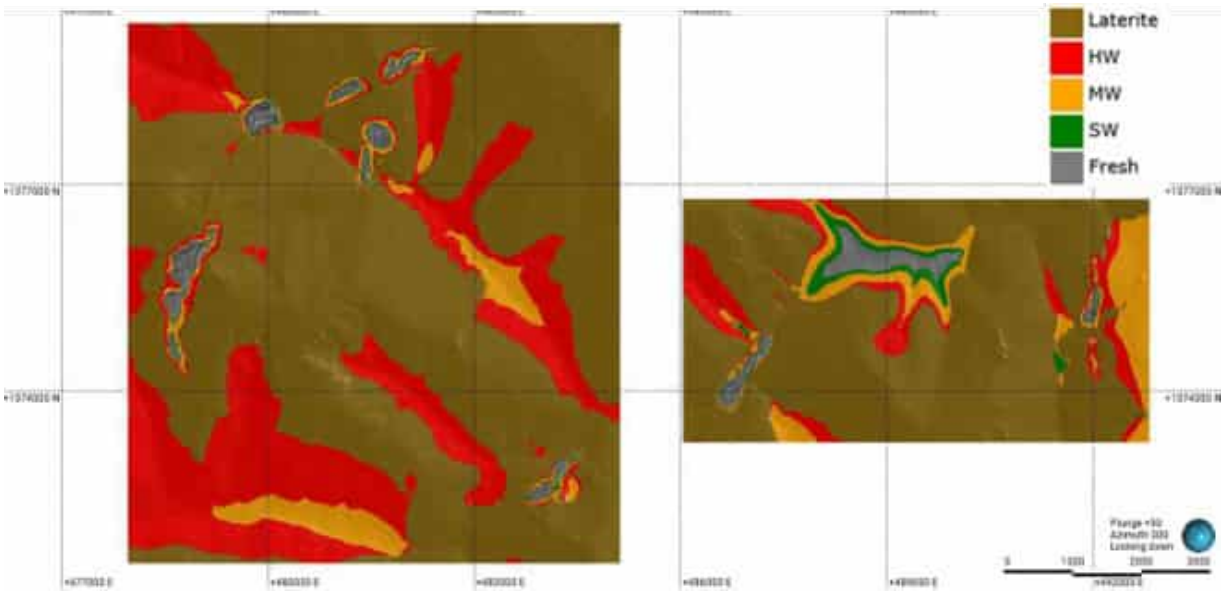


Notes: Geotechnical drilling previously completed behind the proposed pit walls is now located in the centre of the pit

3.2 Weathering Model and Saprolite Design

The pits exhibit a typical tropical weathering profile, transitioning from completely weathered laterite/saprolite (CW/HW) at surface, through moderately weathered saprock (MW/SW), to unweathered fresh rock (FR). The previously developed weathering model was revised and clipped against the updated pit designs to review the weathering profile in the walls. The weathering model was constructed using weathering surfaces provided by the client during the initial 2024 DFS assessment (Figure 3).

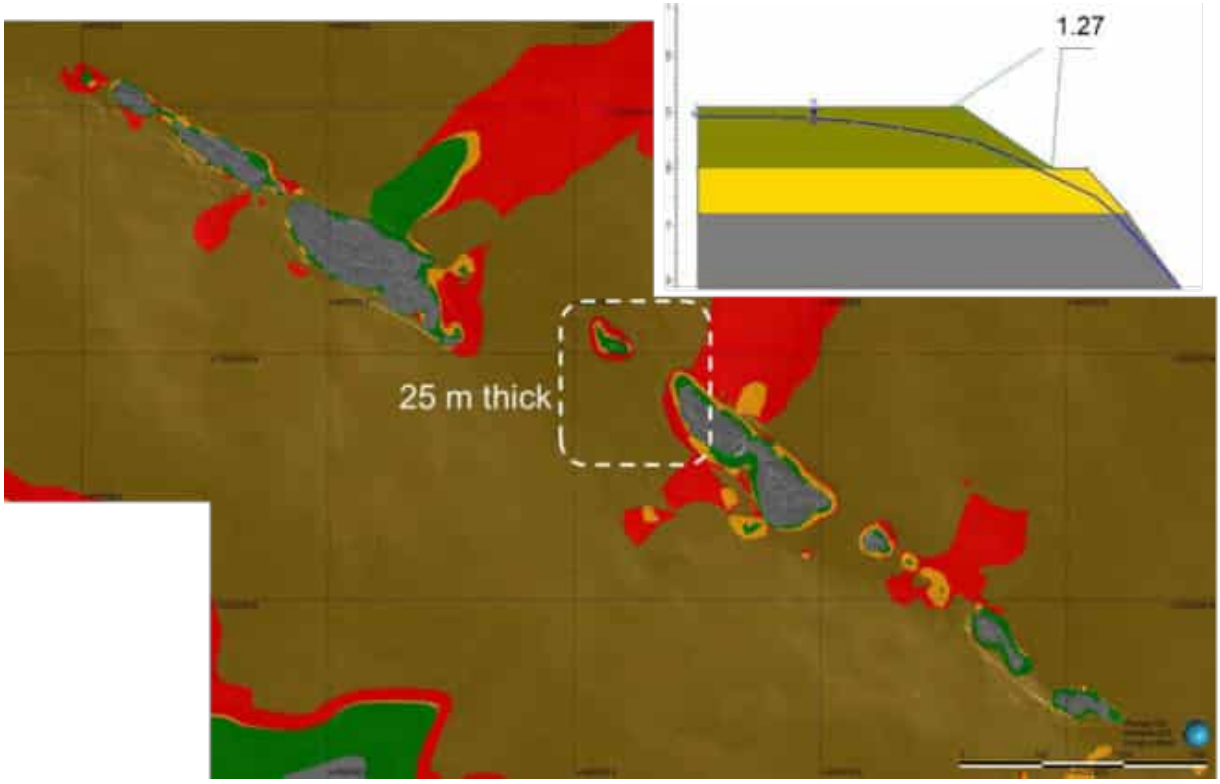
Figure 3: Pit-clipped weathering models for Doropo area



Notes: Areas of red, yellow, and green exposed on surface are a modelling artifact and not representative of true conditions. The weathering model should only be relied on in close proximity to drilling data.

For all areas except Kilosegui, the thicknesses of saprolite and saprock units remains within the initial design considerations. For Kilosegui, the central portion of the pit contains a potentially thicker saprolite profile, with measured thickness of approximately 25 m (Figure 4). Saprolite stability models were revised to consider a potentially higher slope height of 25 m and assessed considering the two groundwater scenarios. Resultant Factor of Safety estimates of 1.27 are acceptable, and the maximum stack height recommendation for Kilosegui was revised.

Figure 4: Kilosegui weathering model clipped to the revised pit designs



Notes: The highlighted region identifies a potentially deeper weathering profile outside of initial design considerations. Revised numerical models indicate an acceptable FOS at 25 m stack height

3.3 Structural Model and Kinematics

Deposit-scale structures typically emulate regional-scale structures. The dominant structural patterns in the deposits formed during regional deformation which resulted in brittle-ductile shear zones that are overprinted by later brittle faults. Structural data, such as the orientation of faults, fractures and joints in drill holes, geotechnical logging data (RQD/recoveries) and gold grade interpolants, allow for the modelling of mineralized structures and structural discontinuities in the deposit, that can be linked to shear zones, faults, and cross-cutting dykes.

The orientations of the deposit-scale mineralized structures, interpreted as brittle-ductile shear zones and veins in the Doropo deposits, show variable trends from NE-SW, NW-SE, E-W to N-S. The dominant trends in Cheque, Enioda, Han, Kekeda, Nokpa and Souwa is N-S and NE-SW, whereas Kilosequi and Attire show NW-SE and WNW-ESE trends. Regionally, the orientations of major and minor structures are predictable, however locations of faults may be uncertain.

The structural model is data limited, with a significant amount of the drilling having been completed using reverse circulation (RC) techniques. Modelled faults should be interpreted as indicative of fault patterns and considered in the bench and overall scale designs.

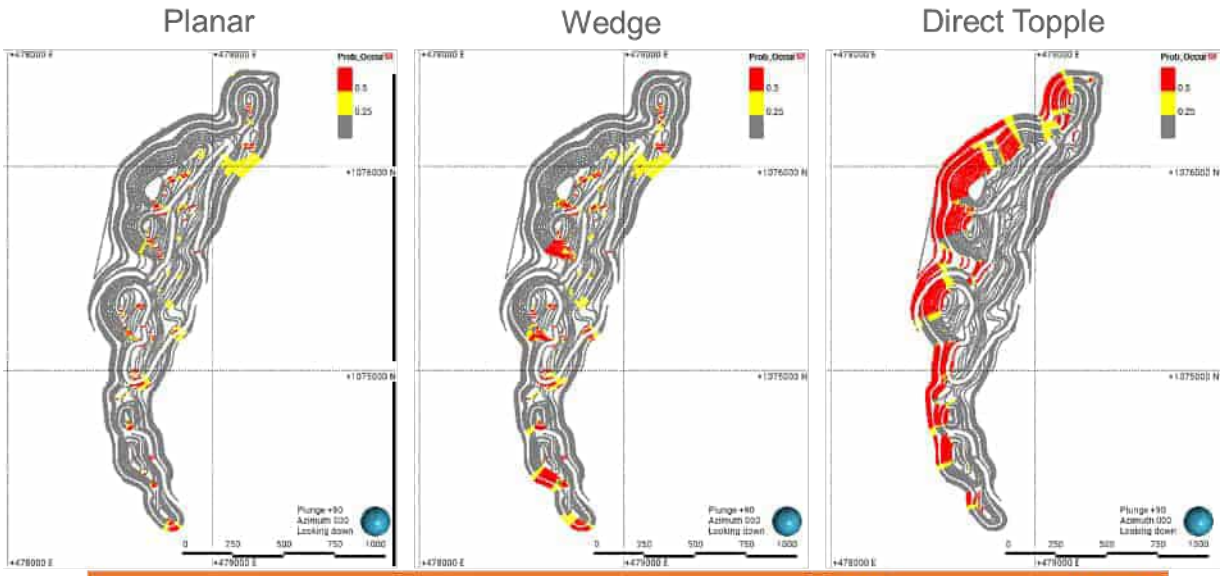
The analyses were carried out to identify the potential kinematic failure modes that could limit the design. An SRK developed script, based on the work of Venter (2022) and revised in Tims & Venter (2025), was used to assess the probability of occurrence of the major failure types. Probability of occurrence helps identify domains that may need additional considerations or management based on the likelihood of kinematic failures. Joints (for single plane failures), and all combinations of joints (for double plane failures), are assigned a cumulative probability of occurrence based on the variability of the orientation, persistence, spacing, and friction angle.

A risk-based matrix was developed for each domain based on the potential kinematic failure mode for a given pit wall direction prior to design mitigation. The risks are based on the following semi-quantitative criteria:

- **Low:** the frequency and orientation of the analyzed discontinuity sets indicate that a kinematic failure is not probable for a given bench/inter-ramp angle, and slope face direction. Total probability of occurrence is <25%.
- **Moderate:** the frequency and orientation of the analyzed discontinuity sets indicates there is a potential kinematic failure for a given bench/inter-ramp angle, and slope face direction; however, the frequency or persistence of the discontinuity may be low or is oriented obliquely to the analyzed slope face. Total probability of occurrence is 25 – 50%.
- **High:** the frequency and orientation of the analyzed discontinuity sets indicates there is a potential kinematic failure for a given bench/inter-ramp angle, and slope face direction. The potential kinematic failure could limit the design recommendations and may require operational management strategies. Total probability of occurrence is >50%.

For the detailed review, the kinematics for all pits was regenerated to develop kinematic risk maps (example shown in Figure 5). These risk maps give an indication of which areas of the pits are expected to have regular bench-scale kinematic failures and the designs modified in these sectors to mitigate rockfall risks and maintain sufficient catchment.

Figure 5: 3D kinematic analyses of Souwa design pit

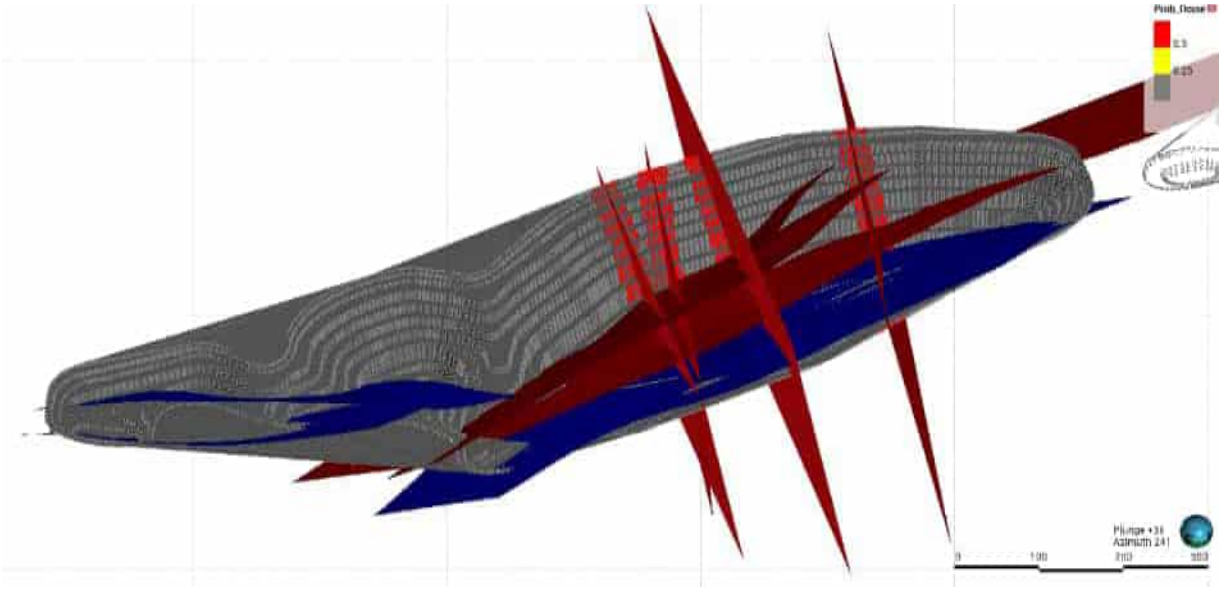


Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
South	Saprock (MW/SW)	020	300	10	6.5	75	47.4	120
South	Saprock (MW/SW)	300	020	10	8	75	43.1	120
South	Fresh	020	300	20	8.5	75	55.3	120
South	Fresh	300	020	20	11	75	50.7	120

Notes: Example of kinematic risk maps and design considerations show where catchment has been increased in the south to manage potential planar and wedge sliding failures. Direct topple risks are managed with a shallower bench face angle.

The kinematics were also assessed in 3D against the modelled fault wireframes to understand potential slope azimuths and areas of the pits where elevated risks of multi-bench scale failures may exist (Figure 6). Kilosegui is the only pit where regular wedge failures are predicted along fault surfaces with structures obliquely intersecting the hangingwall. Given the additional complexity, the hangingwall designs were already relaxed in the 2024 DFS designs owing not only to fault-on-joint wedges but joint-on-joint wedges.

Figure 6: Example of fault kinematics review of Kilosegui pit showing potential highwall risks



Notes: Fault-on-joint probability of occurrence calculations give an indication of where faults are likely to contribute to performance issues in the walls (red points around red faults). Note that the blue structures are more favourably oriented and not likely to cause issues in wall performance.

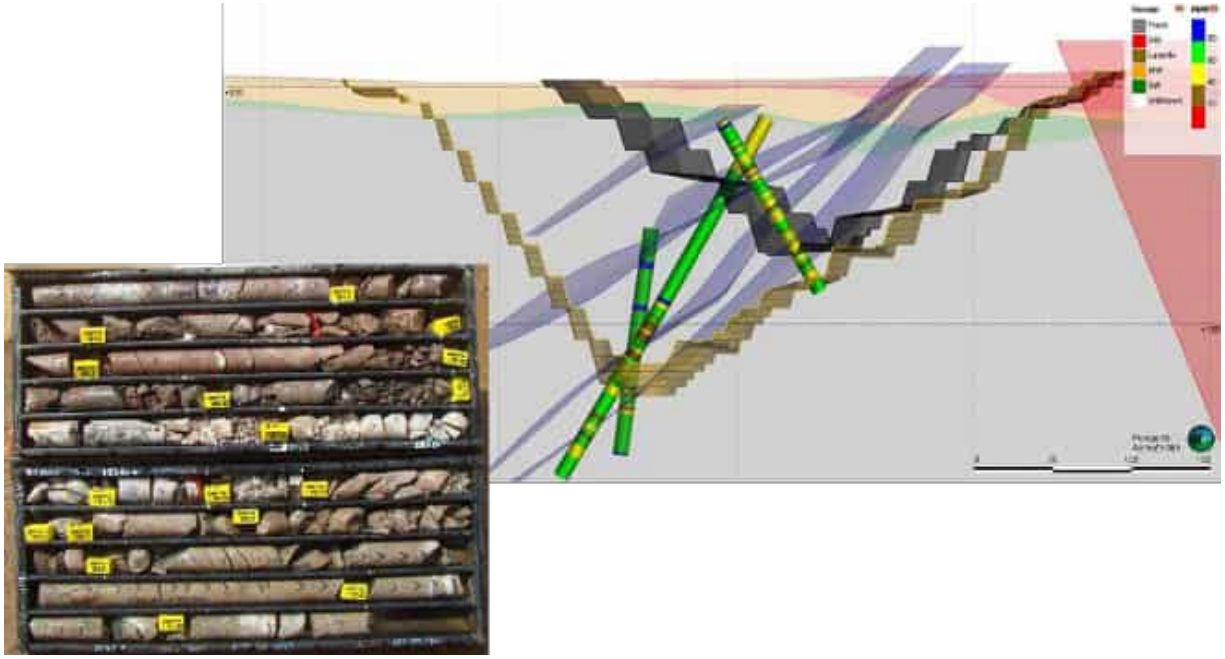
3.4 Planned Mining Depths

Initial design recommendations were provided under the assumption that all pits had Fresh rock designs with less than 100 m wall height and no guidance for geotechnical berms outside of the contact between saprolite and saprock was provided. Initial optimization shells showed significant increases in planned depths of the pits and stack heights potentially exceeding 120 m in several of the pits. Guidance was provided limiting maximum stack heights to 120 m and requiring a 20 m geotechnical berm to decouple stacks and allow for operational flexibility to manage potential instabilities or poor implementation quality.

3.5 Nokpa

Nokpa was identified in the 2024 DFS as having worse rock mass conditions owing to a confluence of faulting and dykes in the deposit. DFS recommendations for the hangingwall were kept relatively aggressive owing to short stack heights of 2 benches or less and Fresh rock heights of less than 40 m total. Preliminary designs for the updated mining assumptions were provided to SRK for Nokpa showing a significant increase in pit size and depth, with the hangingwall modelled at 175 m height with an aggressive design and no mitigation (Figure 7).

Figure 7: Preliminary Nokpa design without geotechnical berm mitigation

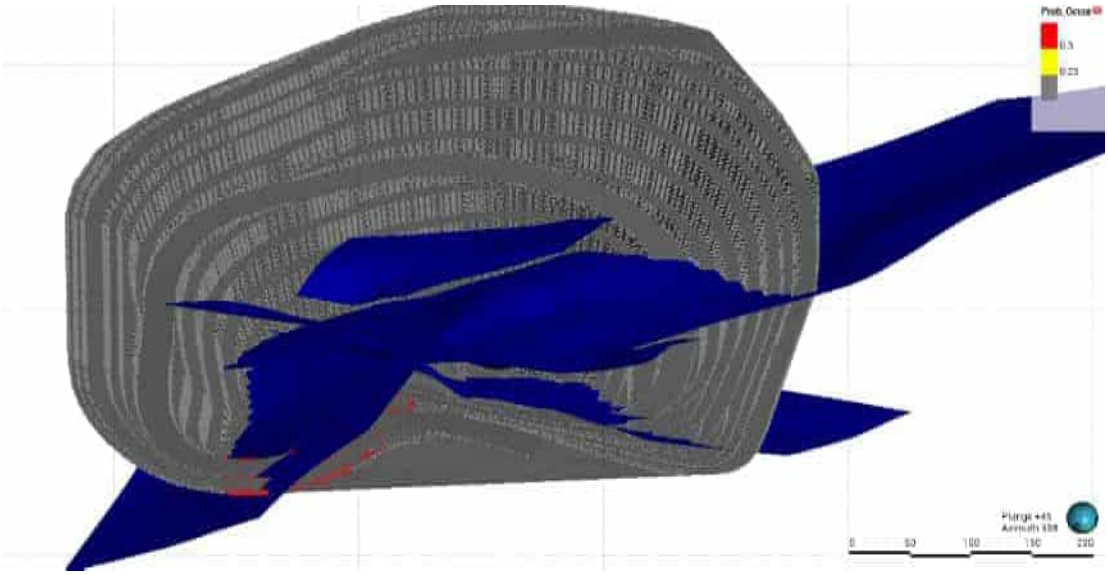


Notes: Core box photograph illustrating rock mass conditions near faults (blue wireframes). Initial Nokpa design (gold) without geotechnical berms showed a significant slope height of 175 m.

The geotechnical design for Nokpa was updated to reduce slope angles and to introduce a geotechnical berm at mid-slope height (100 m max stack height), addressing the increased pit depth and the more challenging rock mass conditions identified in the previous study. The orientation of fault structures are generally favorable, with faults dipping shallowly into the hangingwall, which helps to reduce the likelihood of large-scale slope failures on that side of the pit (Figure 8). However, the footwall remains an area of concern due to persistent structural risks. Footwall risks still exist for the deposit but are generally mitigated with shallower slope angles to follow mineralization trends. The design incorporates a large bullnose in this area, however the risks of unconfinement are likely mitigated with the approximately 35° overall slope angle.

The revised design also incorporates geotechnical berms to manage potential instabilities and accommodate variations in implementation quality. This approach ensures that both the structural complexities and the increased mining depths are adequately addressed, supporting safe and efficient pit operations.

Figure 8: Revised Nokpa pit with fault structures



4 Updated Design Recommendations

4.1 Saprolite Design

Bench face design philosophy in saprolites represents a compromise between minimizing erosion from surface water run-off (steeper bench faces more favourable) while maintaining mass stability. Benches in Saprolite will be free dug using the excavator and cut back to the desired bench face angle (BFA).

Bench and inter-ramp design in the Saprolite will be dependent on the overall thickness of the saprolite horizons and will be managed by increasing bench widths to reduce the IRA as the thickness of the weathered domain increases (Table 3). Bench face angles for the Saprolite will be set at 60° to encourage drainage off the faces. Berms should be graded at 2-3% into the pit to encourage sheet flow and surface water run-off, thus reducing erosion.

Mining in the Saprolite will be unpredictable at times, with local changes in material properties, groundwater conditions, or relict structures that may cause instabilities. Saprolite mining must be dynamic, with the technical services team empowered to implement design or sequence changes and dewatering wells or drains as required. Inter-ramp stack heights should be limited to 20 m, with a 15 m geotechnical berm placed between stacks. The base of the saprolite should also have a 15 m geotechnical berm before entering the Saprock and Fresh Rock domains. These geotechnical berms serve two purposes: to decouple the slopes and promote local depressurization of the stacks, and to enable access to the slopes for remediation and surface water management. Potentially thicker

saprolite horizons were reviewed for Kilosegui at 25 m height using the revised 2025 designs. Groundwater inputs for the models were provided by Piteau Associates (Piteau 2024).

Table 3: Saprolite (CW & HW) design recommendations

Domain	Design Domain	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Maximum Stack Height (m)	Factor of Safety (Hu = 0.8)
Enioda	Sap & Lat	5	5.5	60	30.8	20	1.3
Doropo < 20 m	Sap & Lat	5	4	60	36	20	1.6
Doropo < 40 m	Sap & Lat	5	5	60	32.4	20	1.3
Kilosegui[1]	Sap & Lat	5	4.5	60	34.1	25	1.3

[1] Kilosegui saprolite models were revised using a maximum thickness of 25 m for 2025 pit designs.

4.2 Saprock and Fresh Rock Design

Bench design for the Saprock and Fresh Rock domains is driven by kinematic instabilities and increasing bench widths to maintain suitable catchment. The achievable inter-ramp angles are a function of the bench geometries. The contact between the Saprock and Fresh Rock is expected to be variable in terms of depths around the pits, and some flexibility will be required during implementation. The Saprock designs will be limited to a bench height of 10 m to mitigate potential kinematic failures exacerbated by weathered fractures and local depressions in the profile that can undercut the surrounding more component rock. The Fresh Rock will optimize to a 20 m bench height based on improved geotechnical conditions (Table 4).

The most significant pit change since the 2024 study is Nokpa, which potentially extends and additional 100 m of depth. Higher overall slope heights in Nokpa coupled with a weaker rock mass from a higher degree of faulting has changed design recommendations, significantly by reducing hangingwall slope angles and requiring a geotechnical berm every 100 m. Geotechnical berms of 20 m width are required throughout the deposits for stack heights within the Fresh Rock unit that exceed 120 m. The requirement for a geotechnical berm at the top of the Saprock/base of Saprolite of 15 m remains.

Table 4: Saprock and Fresh Rock design recommendations

Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
Enioda	Saprock (MW/SW)	140	220	10	10	75	38.3	120
		220	140	10	6.5	75	47.4	120
	Fresh	100	140	20	10	75	52.5	120
		140	220	20	12	75	49	120
		220	100	20	8.5	75	55.3	120
North	Saprock (MW/SW)	040	320	10	6.5	75	47.4	120
		320	040	10	10	75	38.3	120
	Fresh	060	320	20	8.5	75	55.3	120
		320	060	20	13	75	47.4	120
Nokpa[1]	Saprock (MW/SW)	000	360	10	8	75	43.1	100
	Fresh	000	360	20	11	75	50.7	100
South	Saprock (MW/SW)	020	300	10	6.5	75	47.4	120
		300	020	10	8	75	43.1	120
	Fresh	020	300	20	8.5	75	55.3	120
		300	020	20	11	75	50.7	120
Kilosegui	Saprock (MW/SW)	100	340	10	6.5	75	47.4	120
		340	100	10	8	75	43.1	120
	Fresh	000	060	20	12	75	49	120
		060	120	20	10	75	52.5	120
		120	360	20	8.5	75	55.3	120

[1] Nokpa has been provided with a separate design owing to more heavily fractured rock mass and higher slope heights than considered in 2024 DFS.

5 Conclusions and Recommendations

Pit designs have significantly expanded considering a higher gold price for the current 2025 DFS study. These expanded pits have resulted in previously collected geotechnical data, largely targeting highwall conditions of the pits, being located significantly away from the updated designs. Majority of the geotechnical data does not intersect the revised final walls. Owing to the consistency of the geology and expected structural orientations, the data is usable for design purposes but potential risks behind pit walls may exist.

Specifically, the Nokpa pit changed the most significantly with the updated mining inputs adopted by Resolute in 2025. Previously identified poor rock conditions in the highwall were mitigated previously owing to shallow overall slope heights and shallow slope angles. Designs for Nokpa were updated including the requirement for a geotechnical berm in the hangingwall.

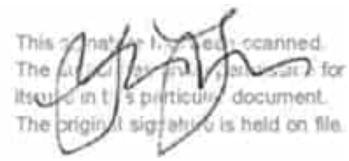
The following summary conclusions are provided:

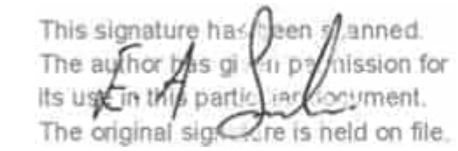
- Although geotechnical drilling no longer intercepts final wall locations, geological conditions are not expected to be significantly different from those previously considered. Potential risks behind pit walls may exist and further drilling should be completed before mining.
- No significant changes to the weathering models or assumed thickness of saprolite and saprock units has occurred across the project area. Potentially thicker saprolite in Kilosegui was assessed for stability and design recommendations updated accordingly.
- No significant changes to the structural model or implications to stability have occurred since the 2024 DFS. Bench scale and fault kinematics were reviewed against design recommendations in 3D for all pits.
- Planned mining depths are deeper than assumed in 2024 DFS. Recommendations have been revised to incorporate a geotechnical berm of 20 m at 120 m maximum stack height.

The following recommendations for future work are provided:

- Targeted additional drilling behind pit walls. This program can be developed incrementally with pit schedules, prioritizing pits that are developed earlier. Drillholes should target a final spacing of less than 250 m strike length.
- Assuming 3 initial pits with a strike length of approximately 5000 m, approximately 20 drillholes would be required for 4000 m total depth, with further drilling required for prospects that will be mined later in the schedule.
- Drilling should be completed a minimum of 9 – 12 months prior to mining pit walls to allow for appropriate time for analysis and any potential modifications to designs.
- Review and revision of major structural model pending additional data collection. Geotechnical stability analyses should be updated as required.

Regards,
SRK Consulting (Canada) Inc.





Samson Tims, PGeo
Senior Consultant

Edward Saunders, PEng
Principal Consultant & Practice Leader

Attachments:

Attachment 1 Detailed Review Findings

SRK Consulting (Canada) Inc. has prepared this document for Resolute Mining Inc., our client. Any use or decisions by which a third party makes of this document are the responsibility of such third parties. In no circumstance does SRK accept any consequential liability arising from commercial decisions or actions resulting from the use of this report by a third party.

The opinions expressed in this document have been based on the information available to SRK at the time of preparation. SRK has exercised all due care in reviewing information supplied by others for use on this project. While SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information, except to the extent that SRK was hired to verify the data.

References

SRK Consulting (UK) Ltd. 2024 (SRK 2024) A Geotechnical Feasibility Study Report on the Doropo Project, Cote D'Ivoire, 32094, August 2024

Tims, S & Venter, J 2025, 'An update to kinematic analysis of pit shells', in JJ Potter & J Wesseloo (eds), SSIM 2025: Fourth International Slope Stability in Mining Conference, Australian Centre for Geomechanics, Perth, https://doi.org/10.36487/ACG_repo/2535_37

Venter, J. & Hamman, E. C. F. 2022. Kinematic Analysis of Pit Shells. In: Proceedings of Slope Stability 2022, Tucson, USA. 10 p.

Piteau Associates, (Piteau 2024) Definitive Feasibility Study of dewatering requirements for the Doropo Project open pits, July 2024. 4609R2v1.0

Attachment 1 Detailed Review Findings



CAPR004078
Attachment 1: Detailed Review Findings

November 26 2025

srk consulting

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

Summary

Pit	Current Design Modifications	Short Term Path Forward (DFS Signoff)	Specific Aspects
Enioda	No design change required	No design change required	
Chegue Main	No design change required	Detailed review required	Pit walls moved significantly from DFS. Review of available data and structural considerations in Fresh Rock
Chegue South	No design change required	Modelling, kinematic, structural review required	Pit walls moved significantly from DFS. Review of available data and structural considerations in Fresh Rock
Han	No design change required	No design change required	
Kekeda	No design change required	No design change required	
Nokpa	Design change & review required	Modelling, kinematic, structural review required	Pit walls moved significantly from DFS. Rock mass in Nokpa significantly faulted and damaged compared to other deposits. Initial design suitable for shallow depths only.
Souwa	No design change required	Modelling, kinematic, structural review required	Pit walls moved significantly in specific areas from DFS. Review of available data and structural considerations in Fresh Rock
Kilosegui	No design change required	Modelling, kinematic, structural review required	Initial DFS saprolite designs do not consider greater thickness in centre of deposit. Review walls in Fresh Rock where design significantly different

- Revised Nokpa design considers significantly deeper planned depth from initial DFS. Nokpa has highest concentration of structures and damaged rock mass, South Domain design will be too aggressive at planned slope height
- Short term path forward in support of signing off on DFS will seek to confirm design recommendations, especially where designs have moved significantly away from available geotechnical data. Specific aspects to be reviewed include:
  - Numerical models for Fresh Rock and Saprolite designs for various domains and deposits considering higher overall slope heights
  - Review of structural controls including influences of faults and kinematic designs for the major deposits
  - Core photograph and any new information available will be considered in areas where walls have moved away from available geotechnical data

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

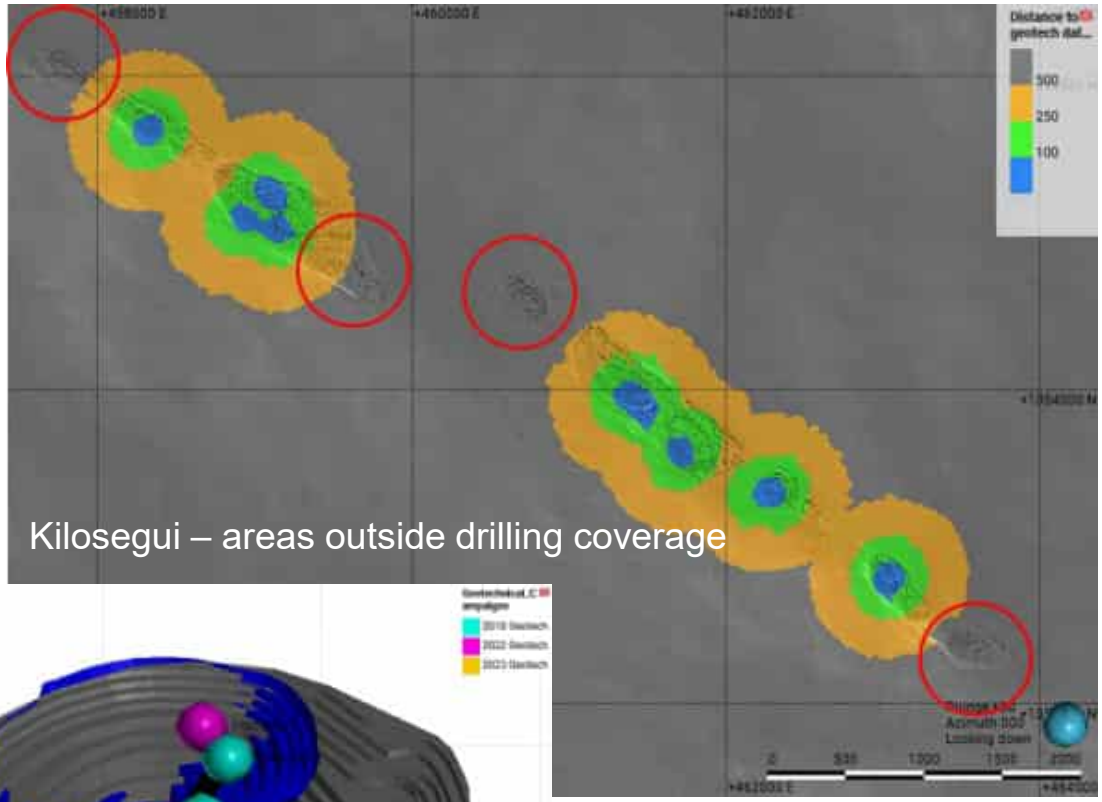
Approach

- The Doropo project comprises 8 prospective deposits with planned pits and other exploration targets in a 30 km2 area. The geotechnical analysis was consolidated as much as practicable to develop the design recommendations for each area. Designs for the open pits were developed considering the following major aspects:
  - Lithological context
  - Tropical weathering of the rock mass
  - Regional and local structural models
  - Changes in hydrogeological conditions
  - Planned mining depths limited to less than 150 m
- The review was focused on understanding whether the changes to the geometries and extents of the pits would deviate from design assumptions made for the 2024 DFS study.
- Initial optimization shells were provided to SRK and individually reviewed for changes to these considerations
- Review of structural controls was completed on all pits owing to potential geometrical changes that may impact stability.
- The detailed review process was focused on aspects that had changed since the 2024 design recommendations, namely:
  - Suitability of geotechnical data collected previously,
  - Potential changes in saprolite thicknesses (Weathering)
  - Potential geometrical impacts from structures and potential risks to bench design in the Fresh Rock unit (Structural)
  - Planned mining depths exceeding 150 m in areas, necessitating a revision of design recommendations to consider geotechnical berms and manageable stack heights

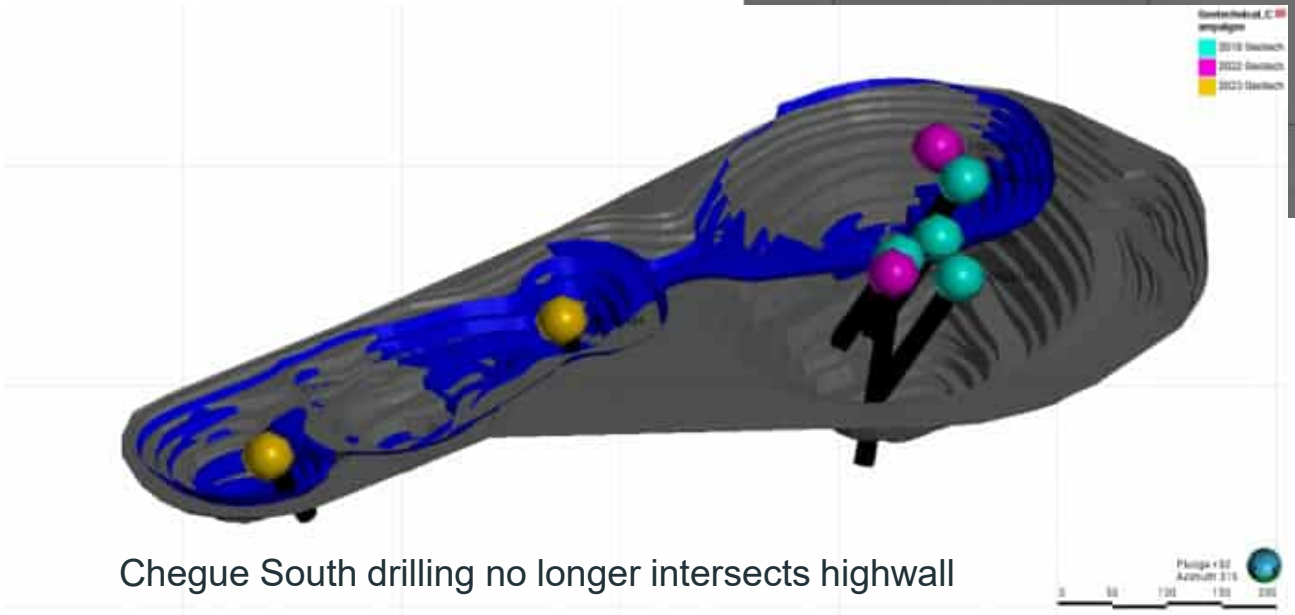
© SRK Consulting (Canada) Inc. 2025. All rights reserved.

Expanded Shells and Data Suitability

- Expanded shells have significantly moved highwall positions relative to geotechnical drilling data
- Limited/no geotechnical data is available for current highwalls
- Some of the planned pits are > 500 m away from available geotechnical drilling



Kilosegui – areas outside drilling coverage



Chegue South drilling no longer intersects highwall

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

- Designs were updated for Nokpa specifically and were validated for the remaining pit areas
- No change in design but significant changes in locations of final walls relative to geotechnical drilling
- Some risks to ramps and access based on bullnoses and unconfined geometries, however pits are planned with multiple and redundant accesses

Fresh and Saprock Designs

Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
Enioda	Saprock (MW/SW)	140	220	10	10	75	38.3	120
		220	140	10	6.5	75	47.4	120
	Fresh	100	140	20	10	75	52.5	120
		140	220	20	12	75	49	120
		220	100	20	8.5	75	55.3	120
North	Saprock (MW/SW)	040	320	10	6.5	75	47.4	120
		320	040	10	10	75	38.3	120
	Fresh	060	320	20	8.5	75	55.3	120
		320	060	20	13	75	47.4	120
Nokpa[1]	Saprock (MW/SW)	000	360	10	8	75	43.1	100
	Fresh	000	360	20	11	75	50.7	100
South	Saprock (MW/SW)	020	300	10	6.5	75	47.4	120
		300	020	10	8	75	43.1	120
	Fresh	020	300	20	8.5	75	55.3	120
		300	020	20	11	75	50.7	120
Kilosegui	Saprock (MW/SW)	100	340	10	6.5	75	47.4	120
		340	100	10	8	75	43.1	120
	Fresh	000	060	20	12	75	49	120
		060	120	20	10	75	52.5	120
		120	360	20	8.5	75	55.3	120

[1] Nokpa has been provided with a separate design owing to more heavily fractured rock mass and higher slope heights than considered in 2024 DFS.

Saprolite Designs

Domain	Design Domain	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Maximum Stack Height (m)	Factor of Safety (Hu = 0.8)
Enioda	Sap & Lat	5	5.5	60	30.8	20	1.3
Doropo < 20 m	Sap & Lat	5	4	60	36	20	1.6
Doropo < 40 m	Sap & Lat	5	5	60	32.4	20	1.3
Kilosegui[1]	Sap & Lat	5	4.5	60	34.1	25	1.3

[1] Kilosegui saprolite models were revised using a maximum thickness of 25 m for 2025 pit designs.

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

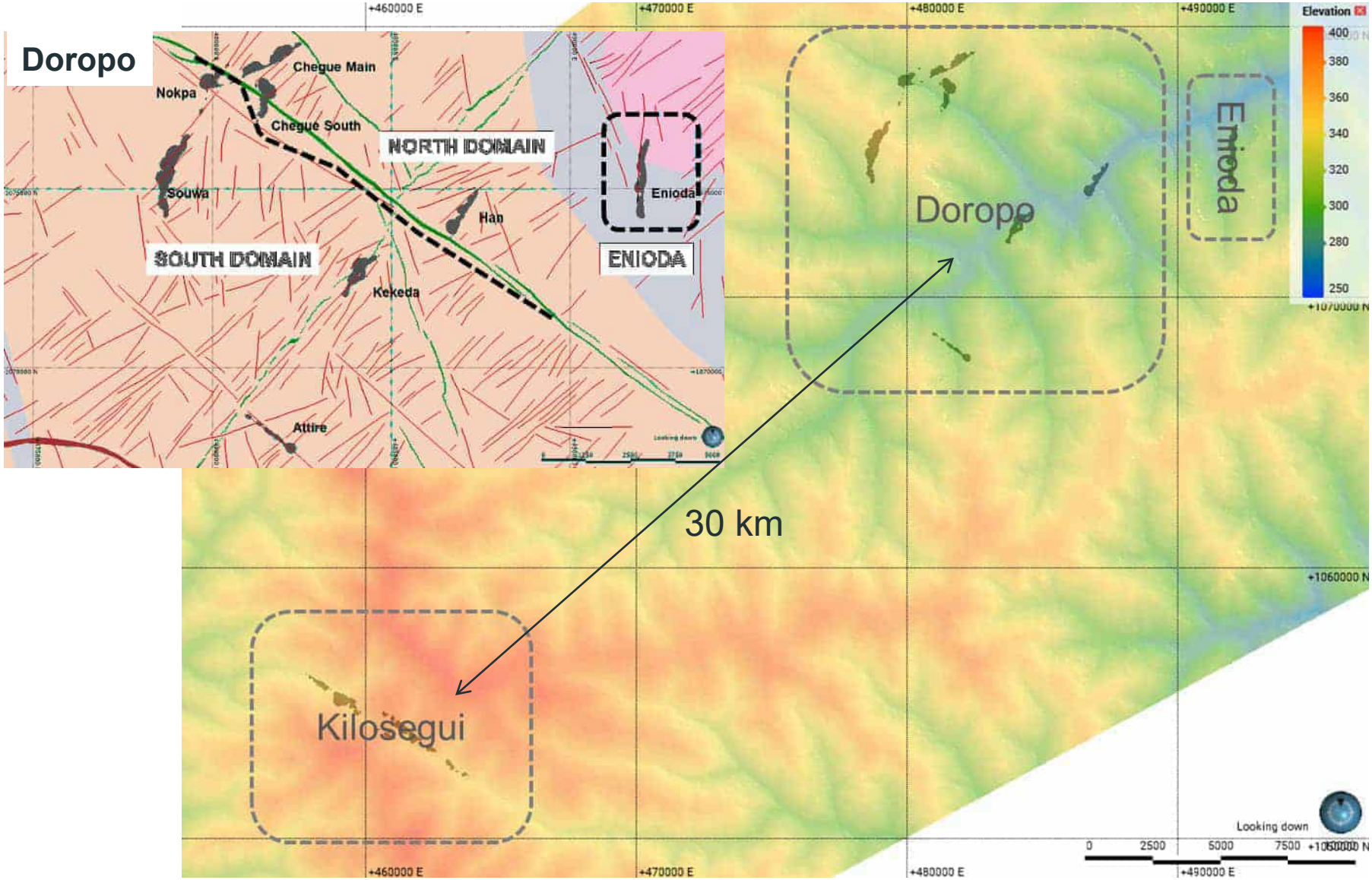
Optimization Shell Summary

Design Domain	Pit	Length	Max Depth FS (m)	Max Depth 2025 (m)	Base of Sap/Lat (CW/HW) Depth (m)	Saprolite Domain	Groundwater Domain	Host Lithology
Enioda	**Enioda**	1900	90	105	20 - 35	Enioda	Enioda	Granite, Gneiss, Amphibolite
North	**Chegue Main**	2000	90	130	30-40, thins to SW	Doropo	Topographic High	Granodiorite
	Chegue South	1150	90	170	40 (North), 5 - 10 (South)	Doropo	Topographic High	Granodiorite with Mafic Dyke
	Han	1400	100	115	< 10	Doropo	Topographic Low	Granodiorite
South	**Kekeda**	1300	90	110	10 - 20	Doropo	Topographic Low	Granodiorite
	Nokpa	1400 (+650)	120	240	5 - 15 (Main North Pit), 20 - 30 (South Satellite)	Doropo	Topographic High	Granodiorite with Mafic Dyke
	Souwa	2500	140	180	25 - 40	Doropo	Topographic High	Granodiorite
Kilosegui	**Kilosegui A (NW)**	2700	100	175	< 5	Kilosegui	Kilosegui	Granodiorite
	Kilosegui B (SE)	4300 (+600)	125	145	30 - 40 (Centre of deposit), 5 - 10 (elsewhere)	Kilosegui	Kilosegui	Granodiorite

Minor Changes

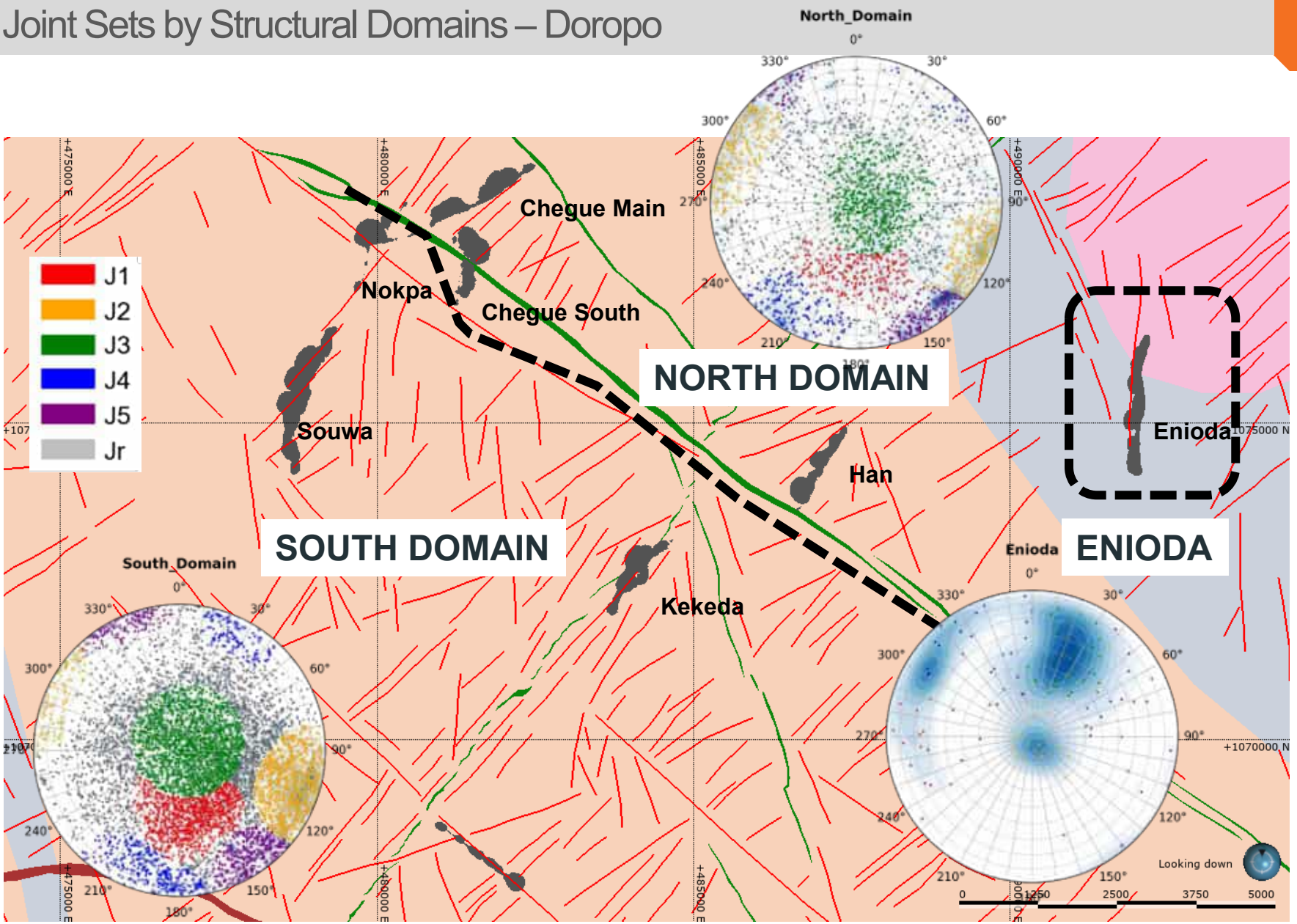
Significant Changes

© SRK Consulting (Canada) Inc. 2025. All rights reserved.



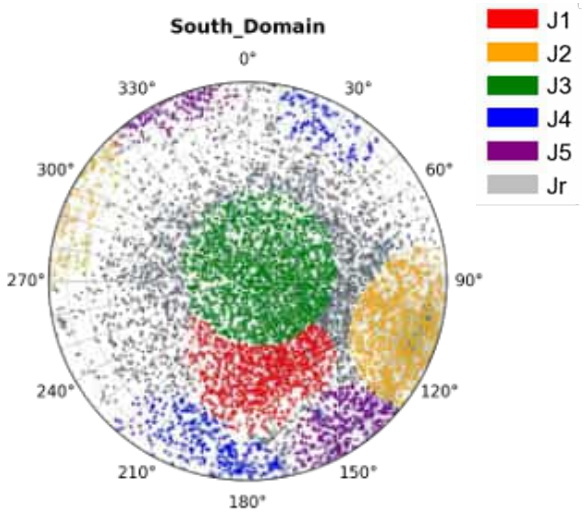
© SRK Consulting (Canada) Inc. 2025. All rights reserved.

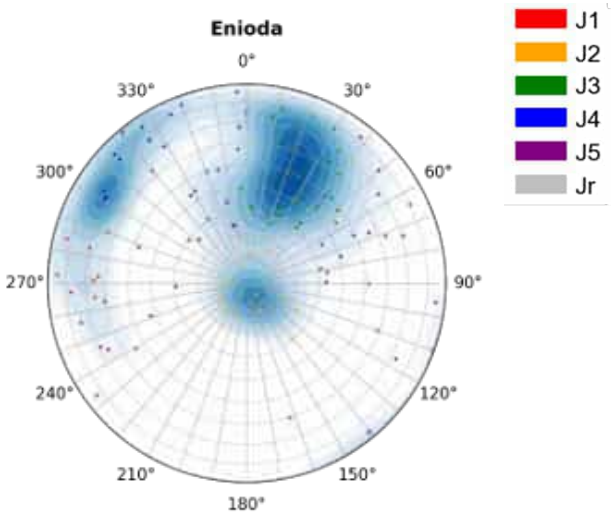
Joint Sets by Structural Domains – Doropo

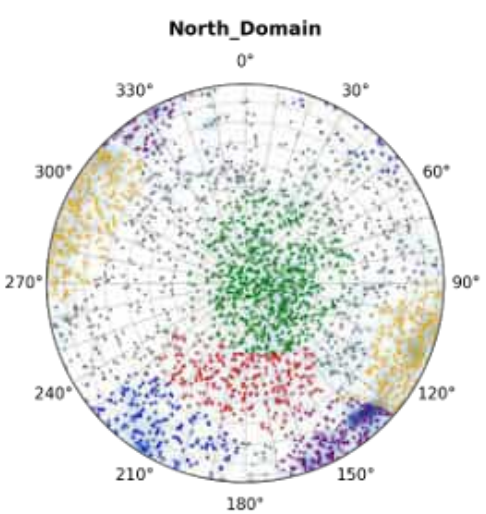


© SRK Consulting (Canada) Inc. 2025. All rights reserved.

Joint Sets by Domain (Doropo Area)







Count (All)	Joint Set	Dip	Dip Direction
1099	J1	39	349
1164	J2	72	288
2247	J3	8	248
448	J4	82	17
555	J5	81	329
1816	Jr		
7329			

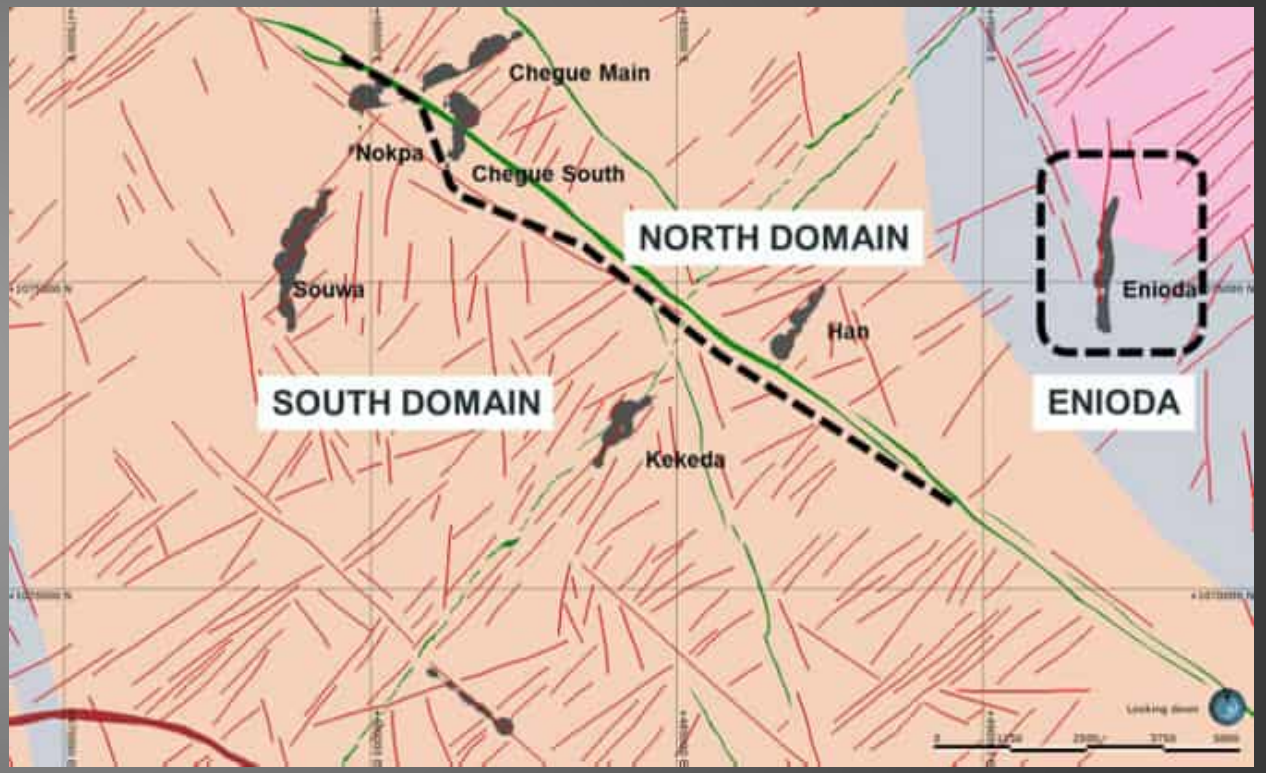
Count (All)	Joint Set	Dip	Dip Direction
0	J1	-	-
17	J2	71	85
24	J3	6	326
39	J4	50	205
14	J5	80	138
32	Jr	35	209
126			

Count (All)	Joint Set	Dip	Dip Direction
300	J1	41	359
532	J2	89	293
824	J3	10	265
219	J4	77	32
264	J5	84	329
589	Jr		
2728			

*Note that J1 was not identified at Enioda and not used for analysis

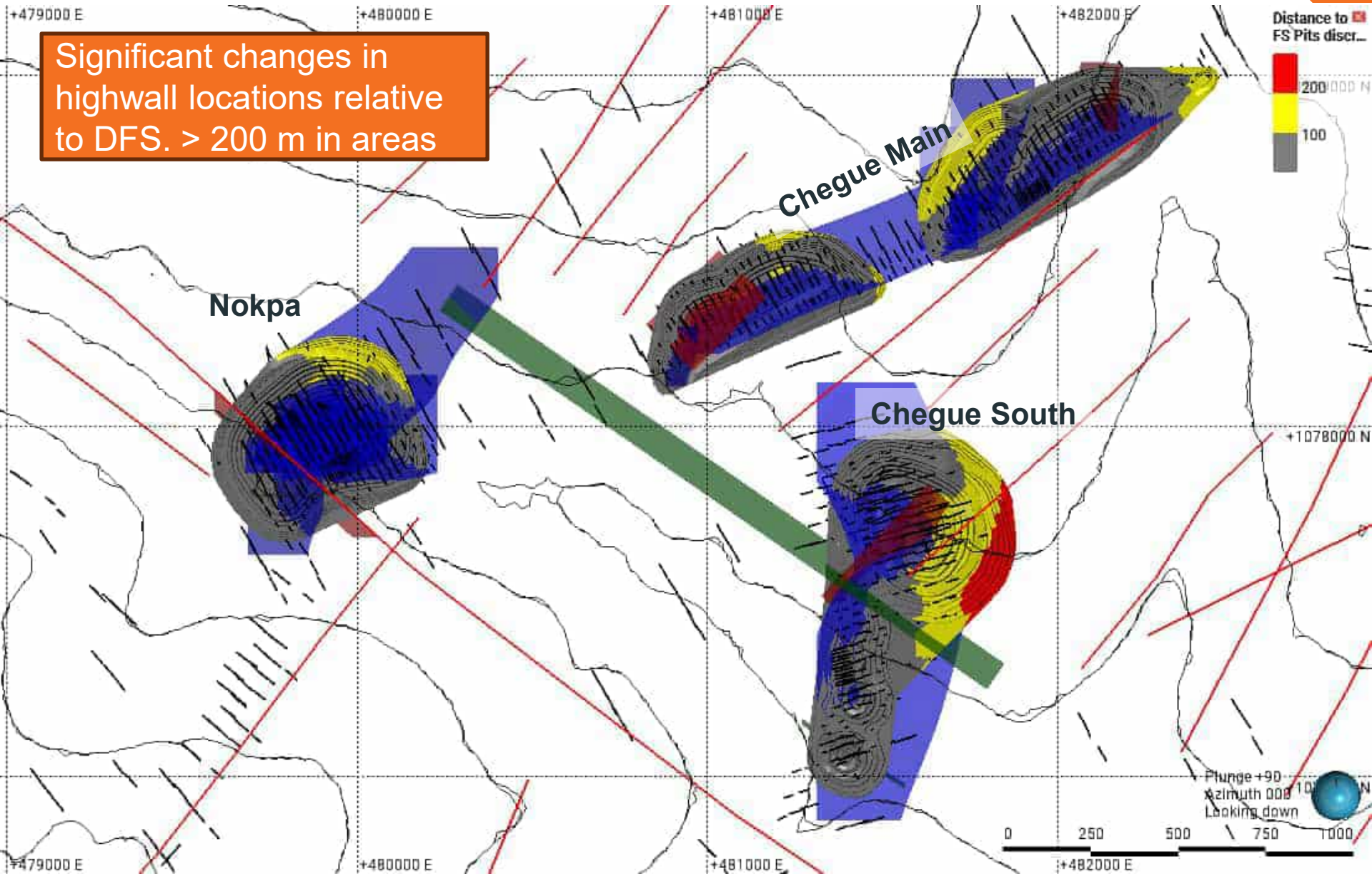
© SRK Consulting (Canada) Inc. 2025. All rights reserved.

NORTH DOMAIN



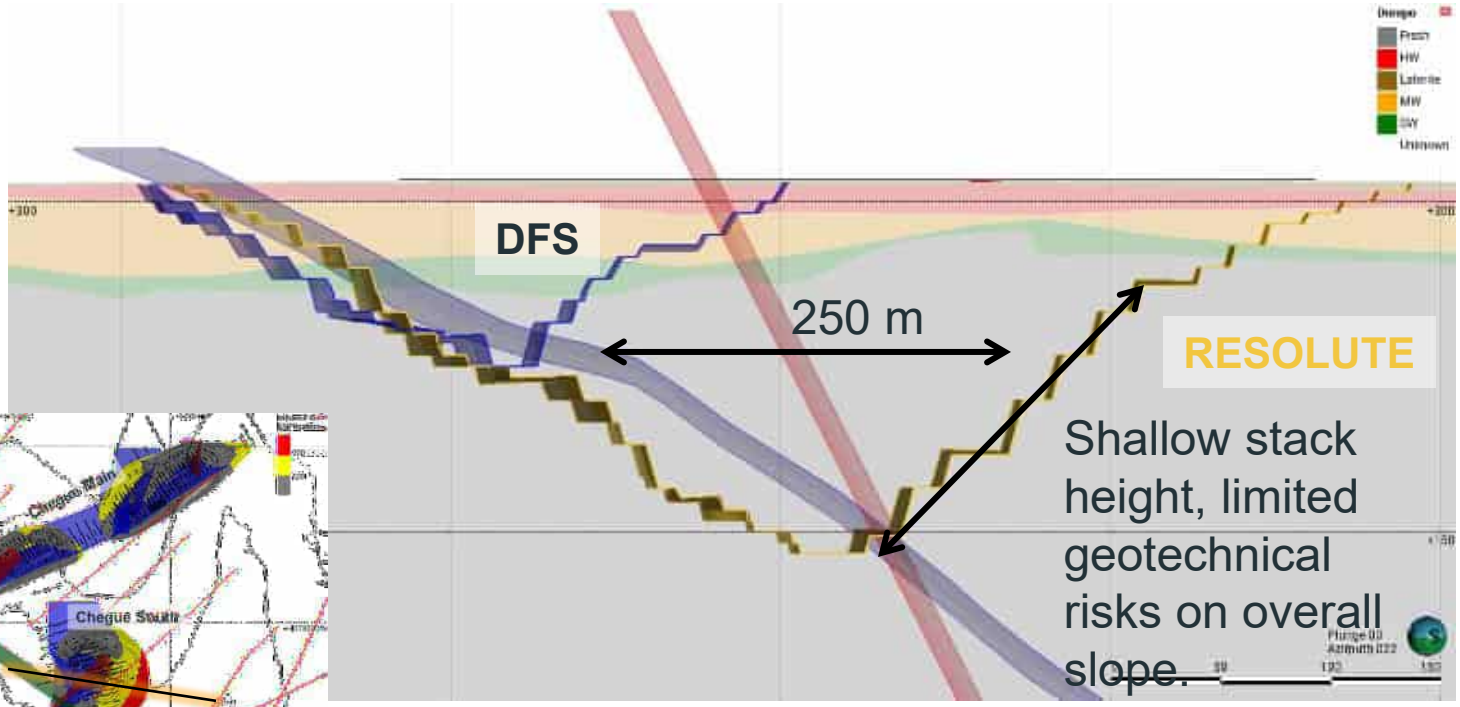
© SRK Consulting (Canada) Inc. 2025. All rights reserved.

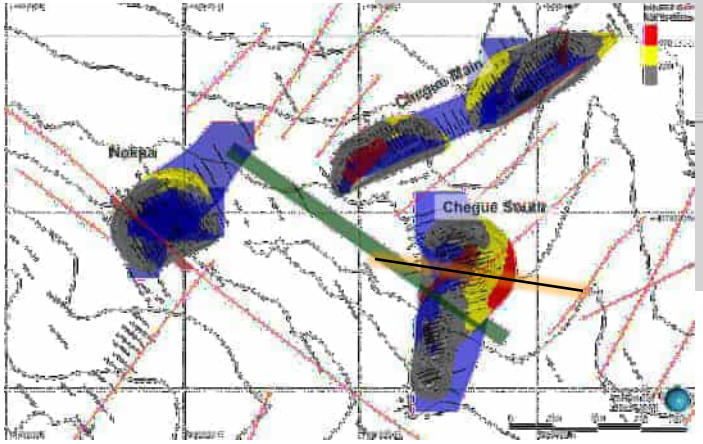
Chegue and Nokpa



© SRK Consulting (Canada) Inc. 2025. All rights reserved.

Chegue South

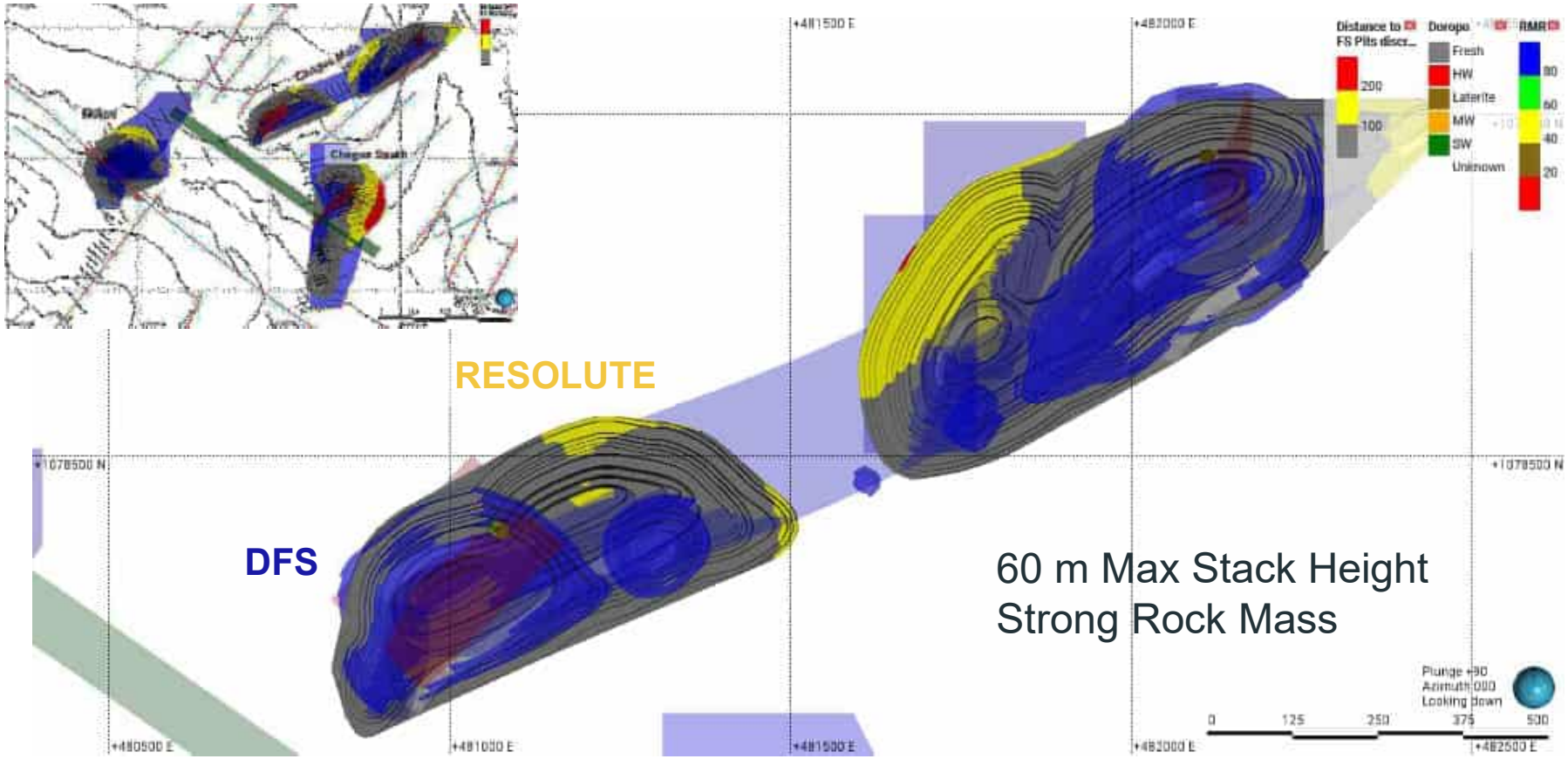




45° OSA
125 m Height
Strong Rock Mass

Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
North	Saprock (MW/SW)	040	320	10	6.5	75	47.4	120
North	Saprock (MW/SW)	320	040	10	10	75	38.3	120
North	Fresh	060	320	20	8.5	75	55.3	120
North	Fresh	320	060	20	13	75	47.4	120

© SRK Consulting (Canada) Inc. 2025. All rights reserved.



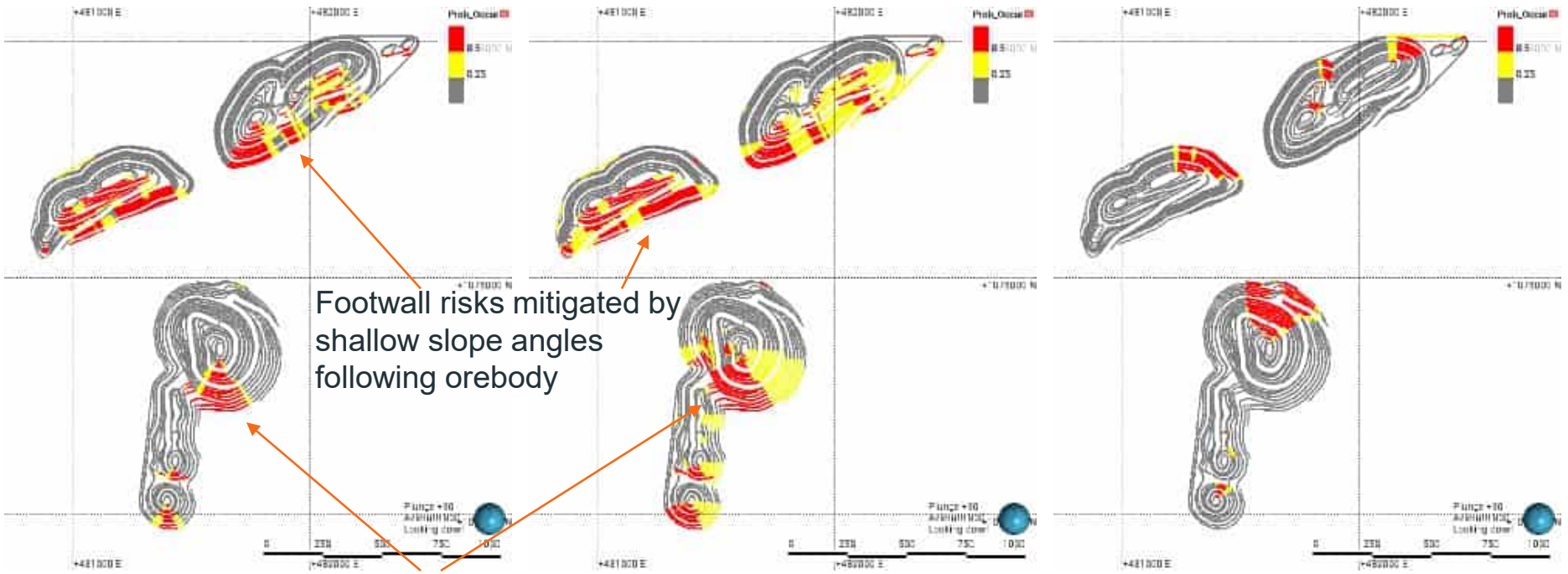
Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
North	Saprock (MW/SW)	040	320	10	6.5	75	47.4	120
North	Saprock (MW/SW)	320	040	10	10	75	38.3	120
North	Fresh	060	320	20	8.5	75	55.3	120
North	Fresh	320	060	20	13	75	47.4	120

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

Planar

Wedge

Direct Topple

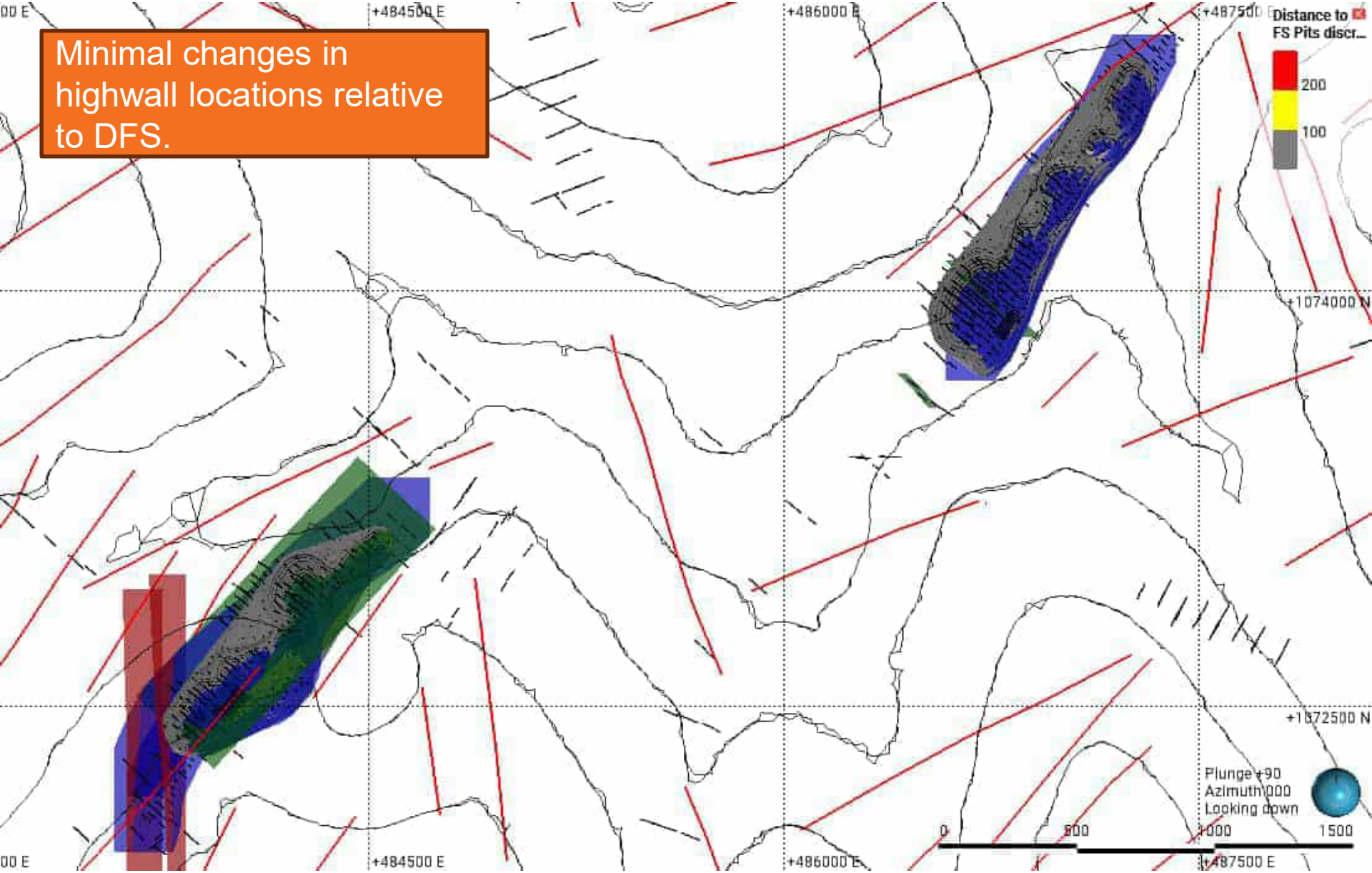


Footwall risks mitigated by shallow slope angles following orebody

Kinematic risks managed through design modifications

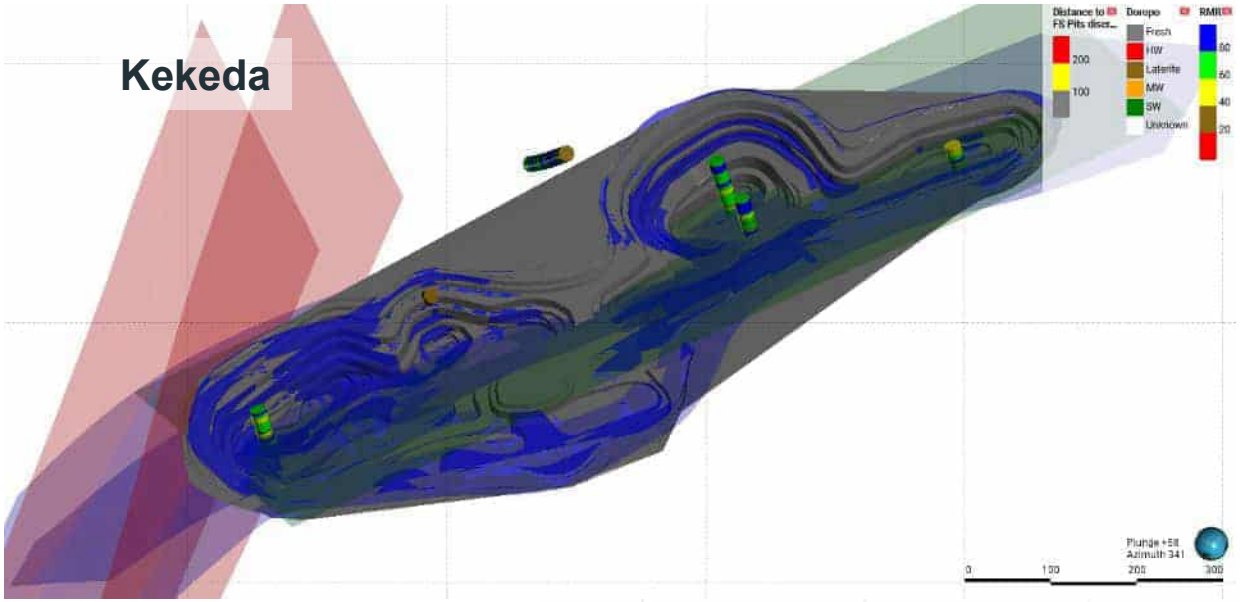
Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
North	Saprock (MW/SW)	040	320	10	6.5	75	47.4	120
North	Saprock (MW/SW)	320	040	10	10	75	38.3	120
North	Fresh	060	320	20	8.5	75	55.3	120
North	Fresh	320	060	20	13	75	47.4	120

© SRK Consulting (Canada) Inc. 2025. All rights reserved.



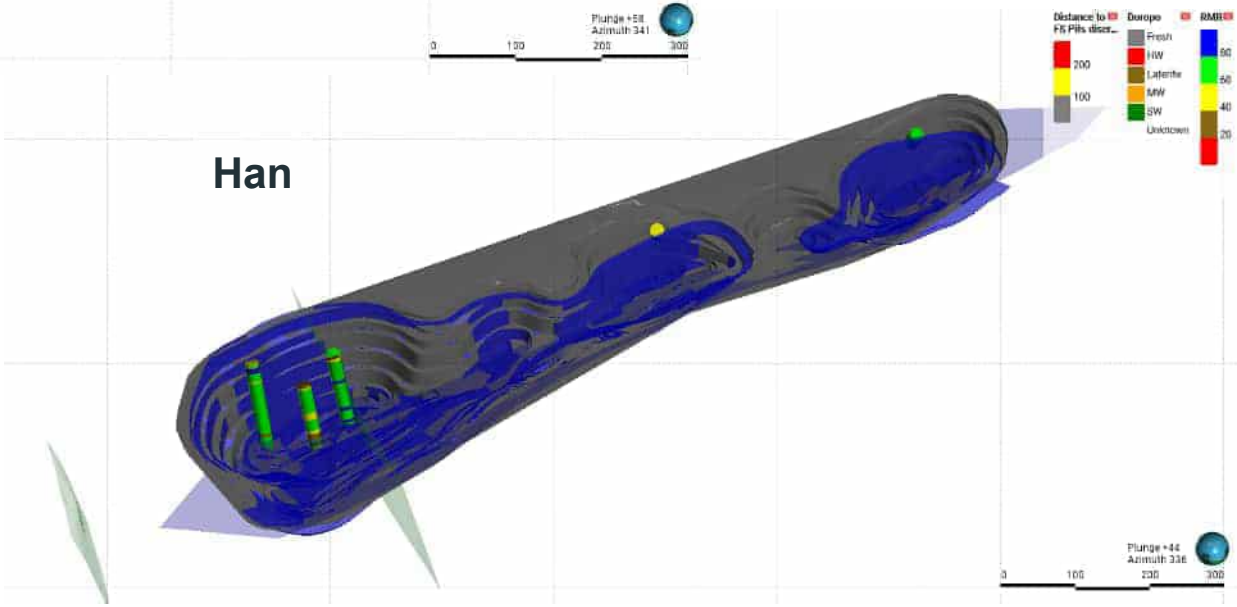
© SRK Consulting (Canada) Inc. 2025. All rights reserved.

Kekeda



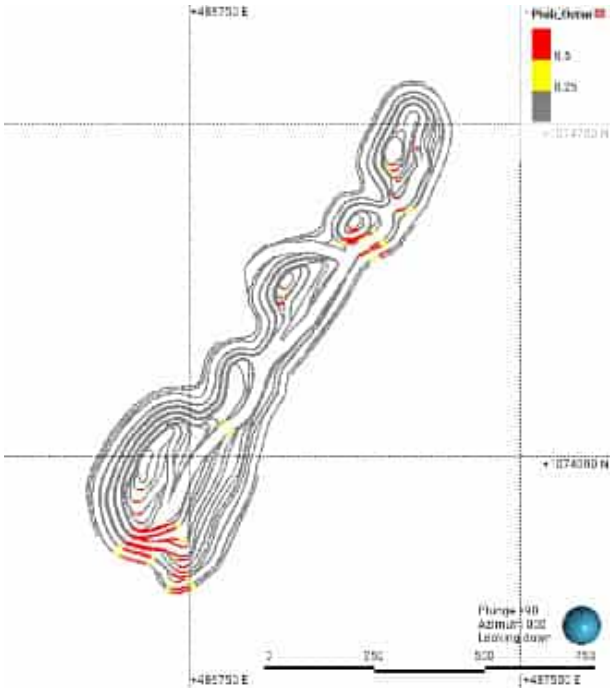
Minimal change from DFS

Han

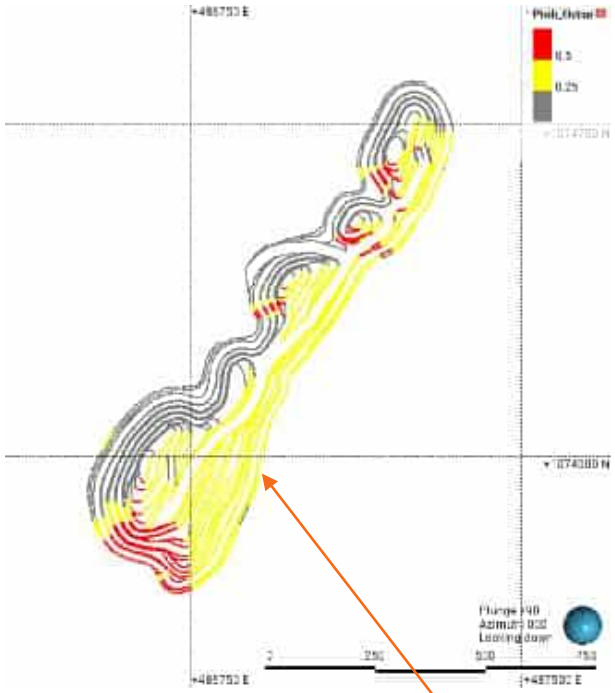


© SRK Consulting (Canada) Inc. 2025. All rights reserved.

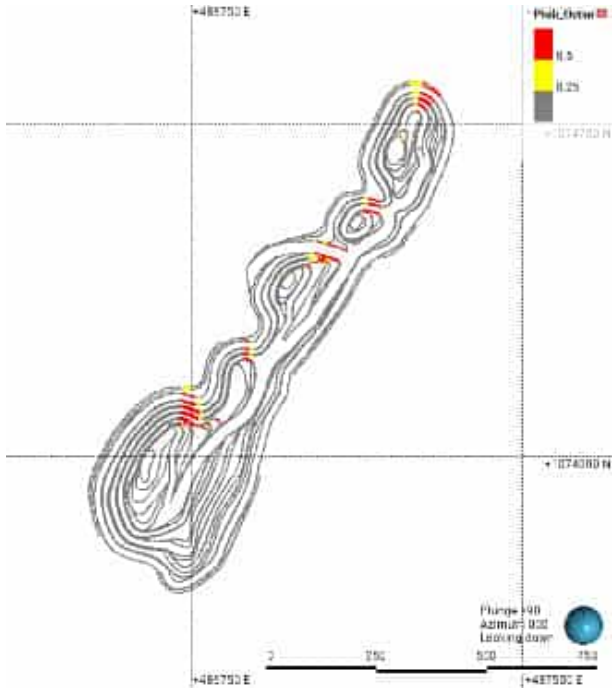
Planar



Wedge



Direct Topple

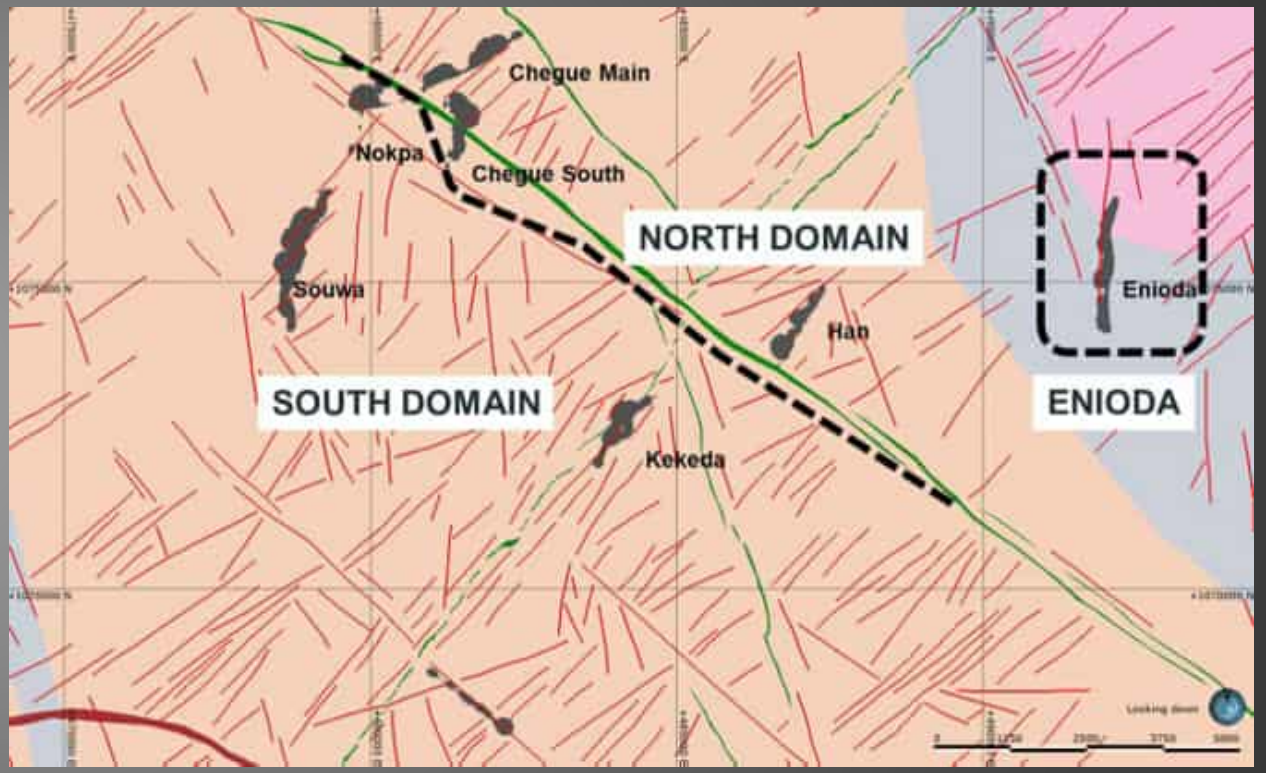


Footwall risks mitigated by shallow slope angles following orebody

Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
North	Saprock (MW/SW)	040	320	10	6.5	75	47.4	120
North	Saprock (MW/SW)	320	040	10	10	75	38.3	120
North	Fresh	060	320	20	8.5	75	55.3	120
North	Fresh	320	060	20	13	75	47.4	120

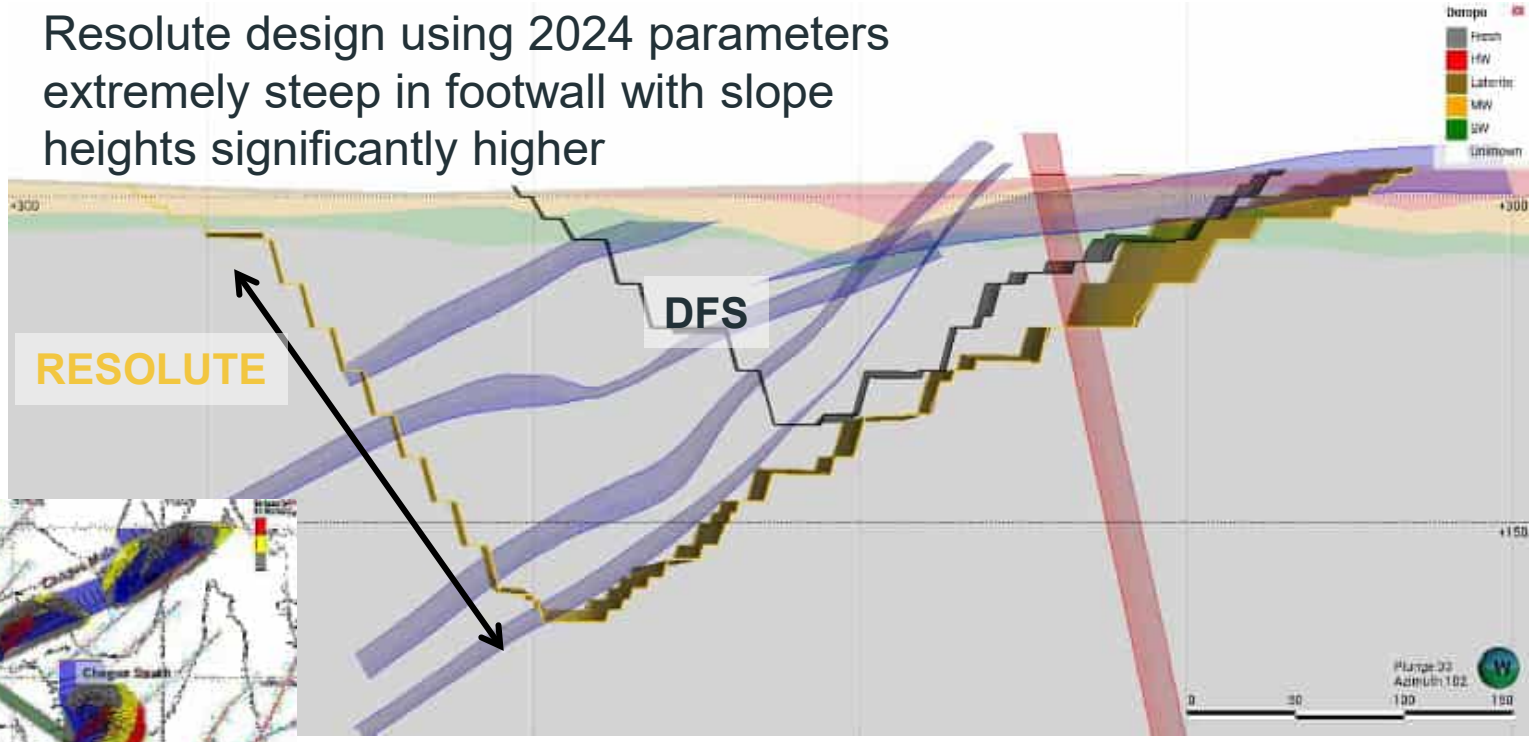
© SRK Consulting (Canada) Inc. 2025. All rights reserved.

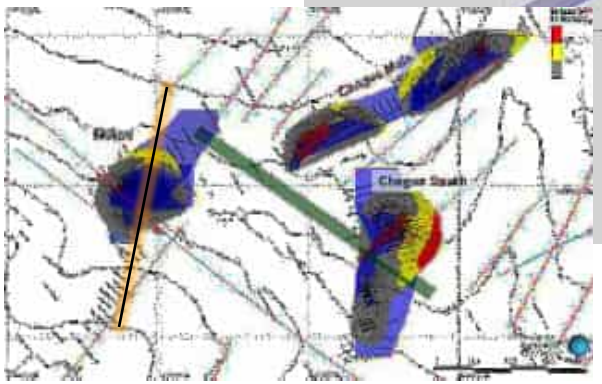
SOUTH DOMAIN



© SRK Consulting (Canada) Inc. 2025. All rights reserved.

Resolute design using 2024 parameters extremely steep in footwall with slope heights significantly higher





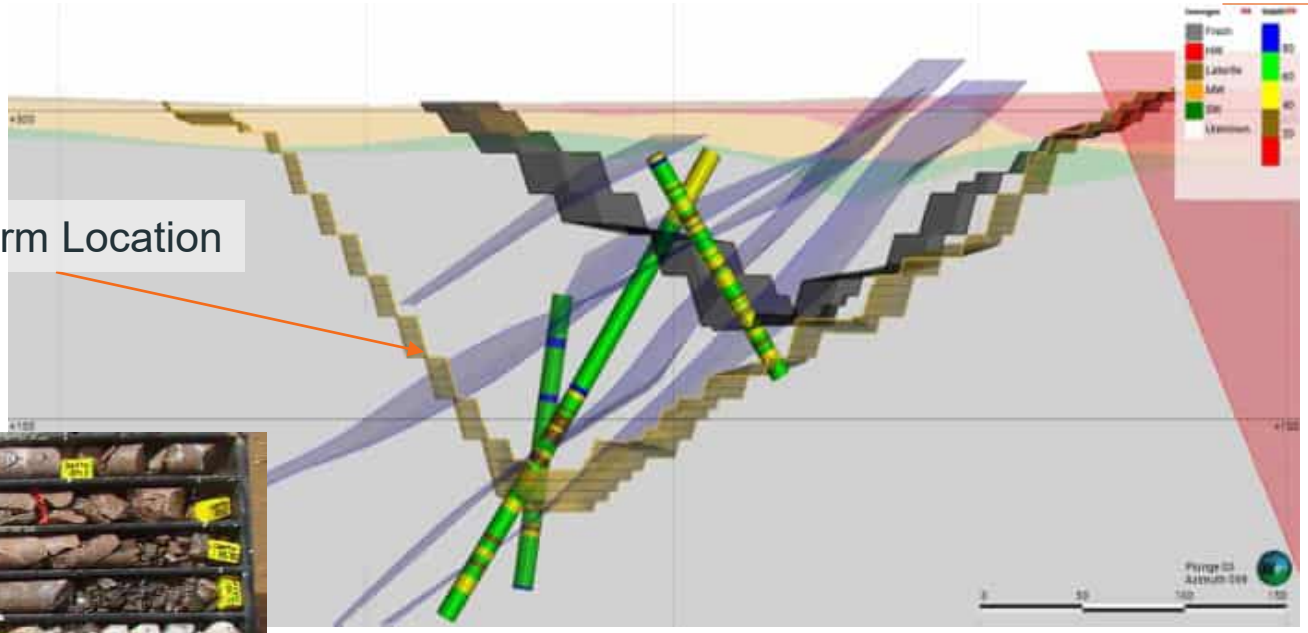
56° OSA
175 m Height
Weak Rock Mass
Design too aggressive for slope height

Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
South	Saprock (MW/SW)	020	300	10	6.5	75	47.4	120
South	Saprock (MW/SW)	300	020	10	8	75	43.1	120
South	Fresh	020	300	20	8.5	75	55.3	120
South	Fresh	300	020	20	11	75	50.7	120

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

Nokpa Revised Design Recommendations

Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
Nokpa	Saprock (MW/SW)	000	360	10	8	75	43.1	100
Nokpa	Fresh	000	360	20	11	75	50.7	100

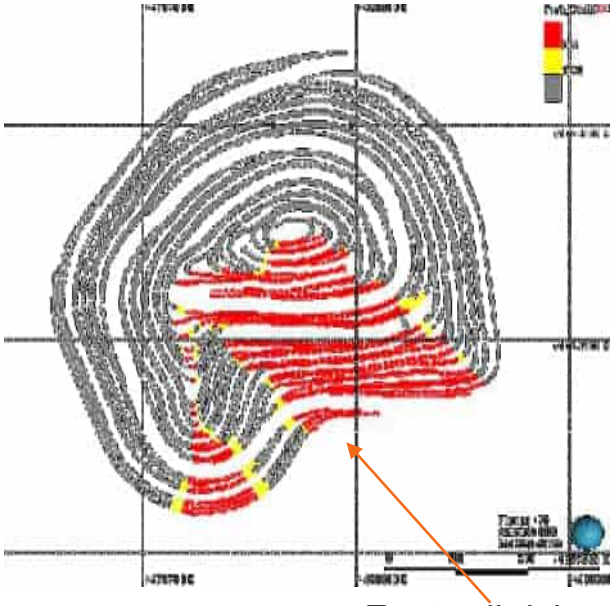




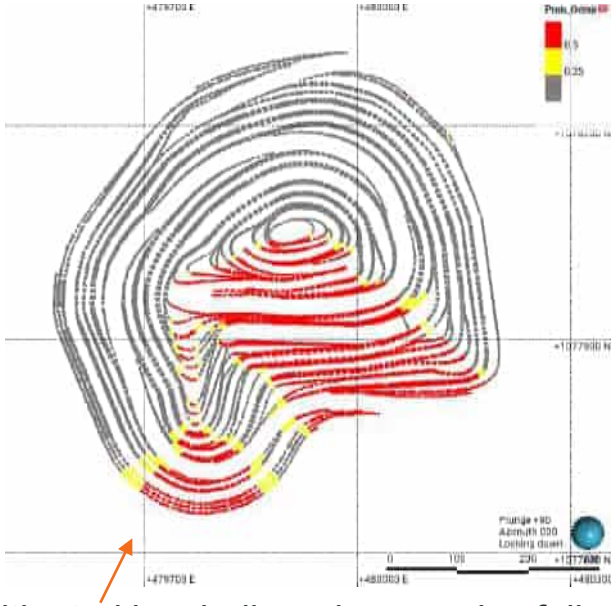
- Revised Nokpa design considers significantly deeper planned depth from initial DFS. Nokpa has highest concentration of structures and damaged rock mass, South Domain design will be too aggressive at planned slope height
- **A 20 m geotechnical berm is required every 100 m in Fresh Rock domain and should be placed approximately halfway down slope**

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

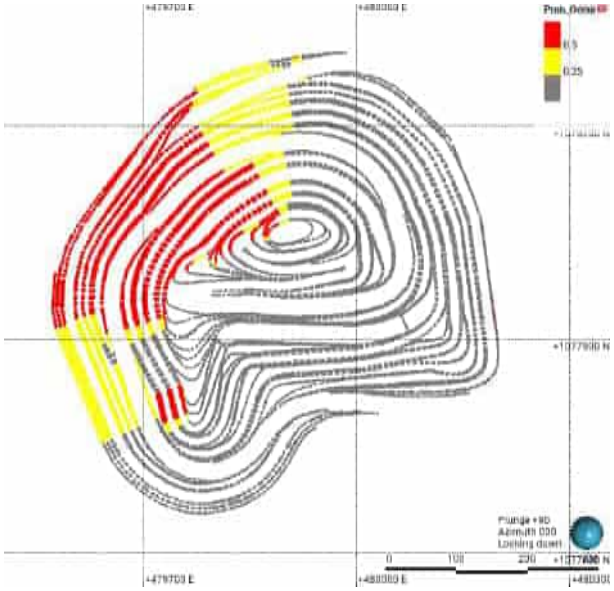
Planar



Wedge



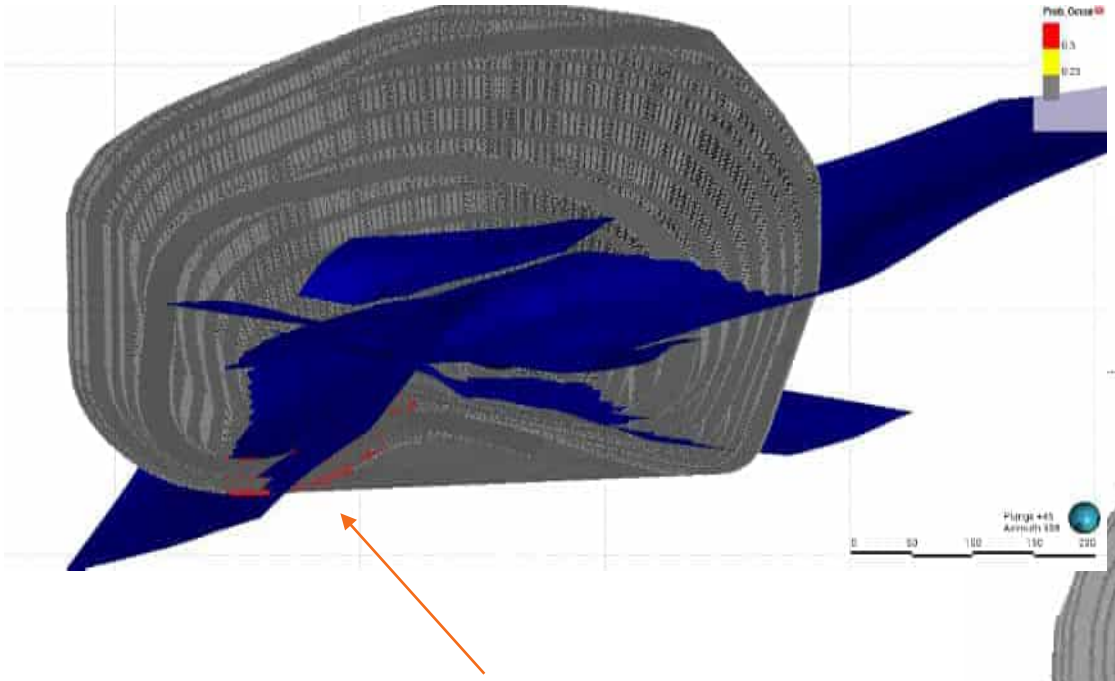
Direct Topple



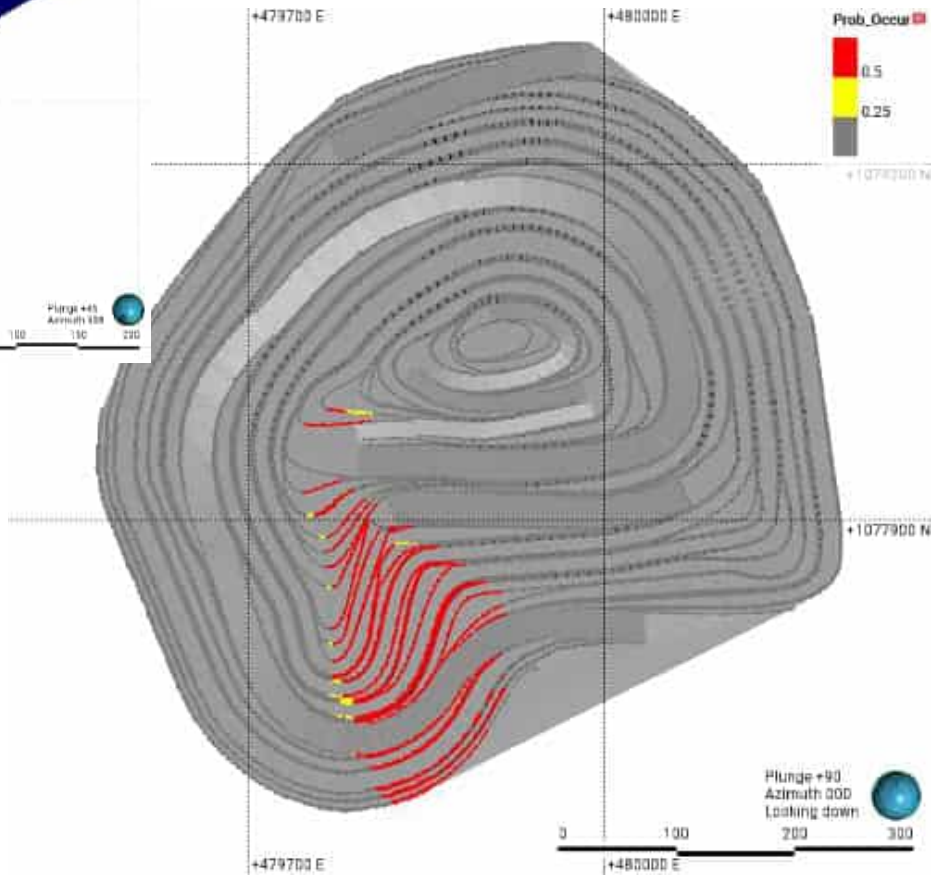
Footwall risks mitigated by shallow slope angles following orebody. Unfavourable bullnose in this area potentially mitigated with shallow (<35°) overall slope angle

Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
Nokpa	Saprock (MW/SW)	000	360	10	8	75	43.1	100
Nokpa	Fresh	000	360	20	11	75	50.7	100

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

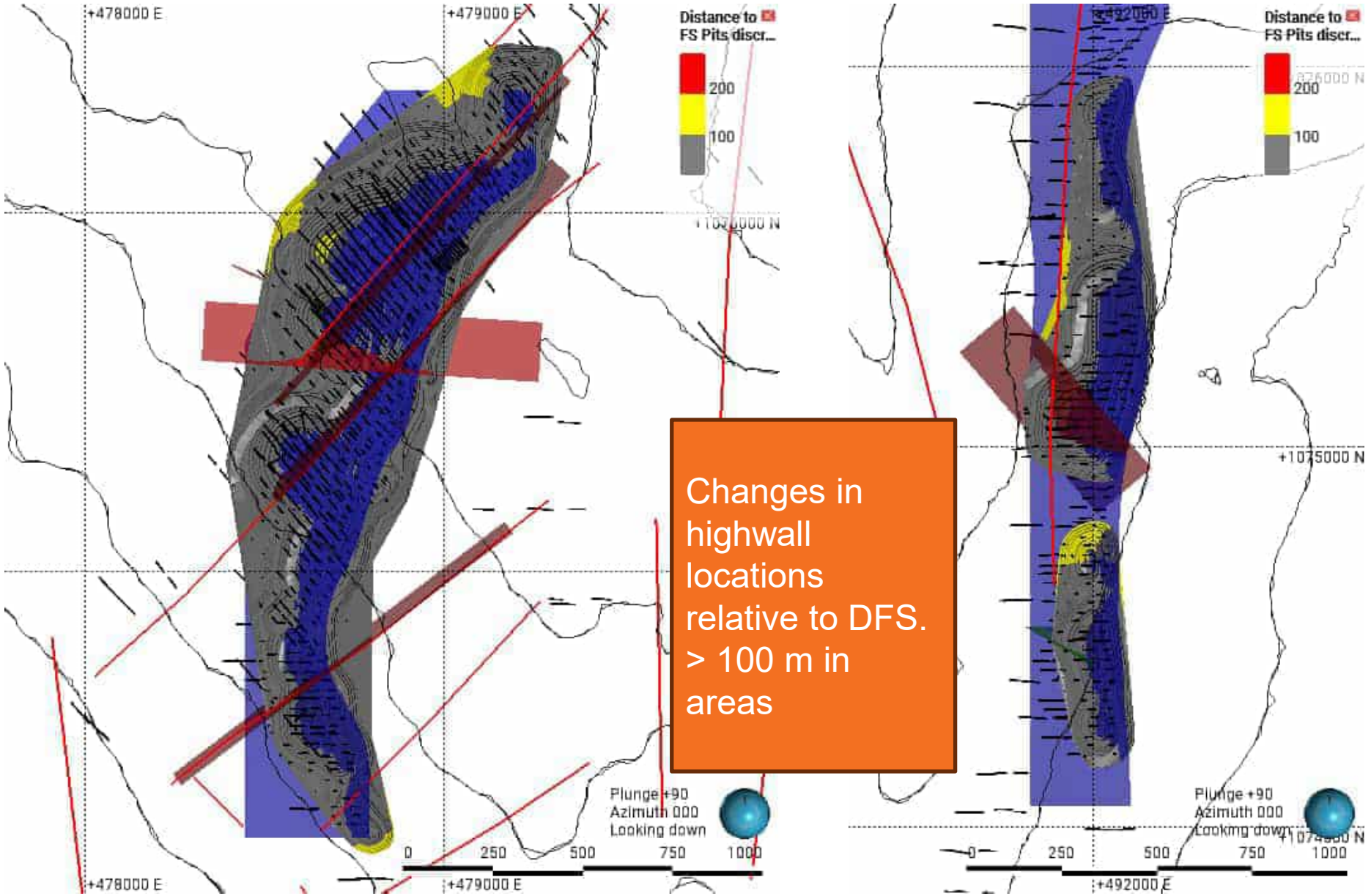


Probability of Occurrence Joint-on-Fault Wedges

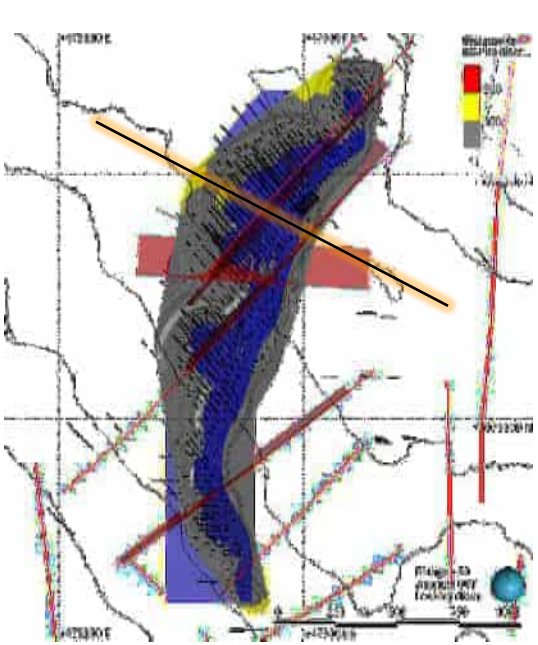


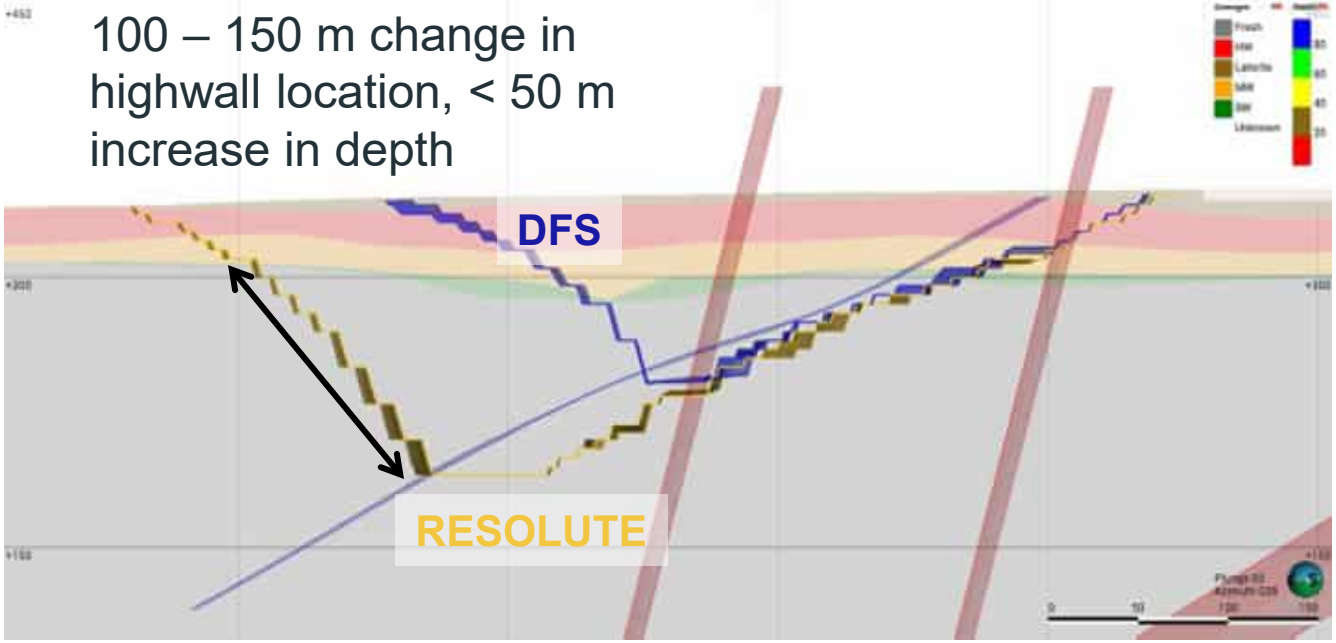
- Nokpa structures remain favourably oriented relative to prevailing joint sets, with only southwest aspect expected to be impacted by adverse wedge formations on fault NP_SZ3
- Footwall risks mitigated by shallow slope angles following orebody.
- Unfavourable bullnose in this area potentially mitigated with shallow (<35°) overall slope angle

© SRK Consulting (Canada) Inc. 2025. All rights reserved.



© SRK Consulting (Canada) Inc. 2025. All rights reserved.



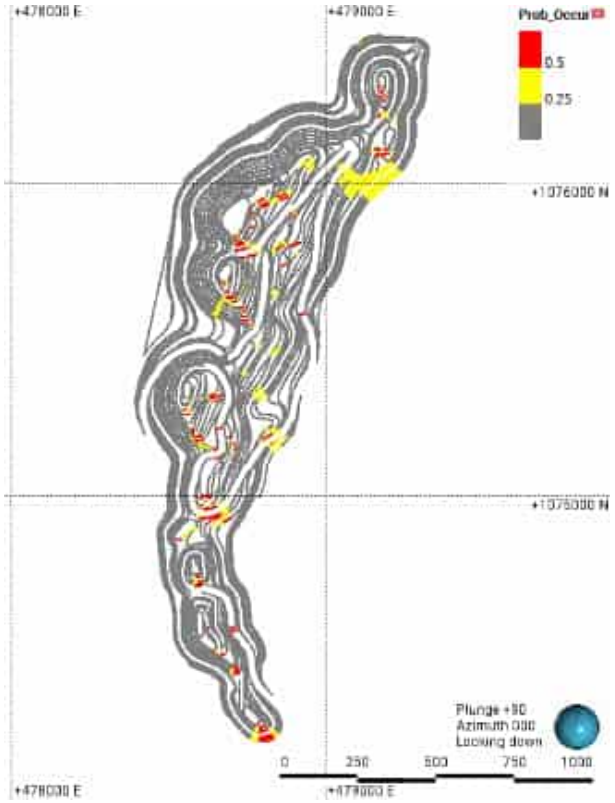


51° OSA
110 m Height
Strong Rock Mass

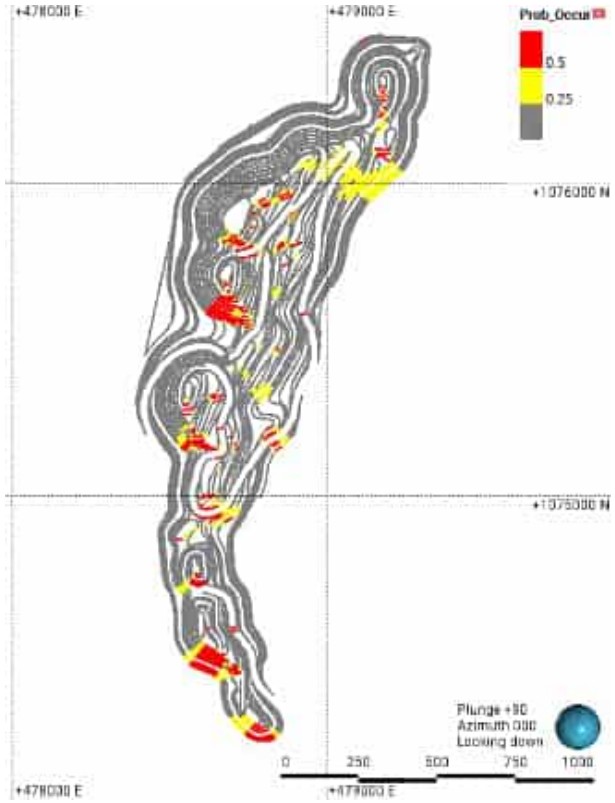
Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
South	Saprock (MW/SW)	020	300	10	6.5	75	47.4	120
South	Saprock (MW/SW)	300	020	10	8	75	43.1	120
South	Fresh	020	300	20	8.5	75	55.3	120
South	Fresh	300	020	20	11	75	50.7	120

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

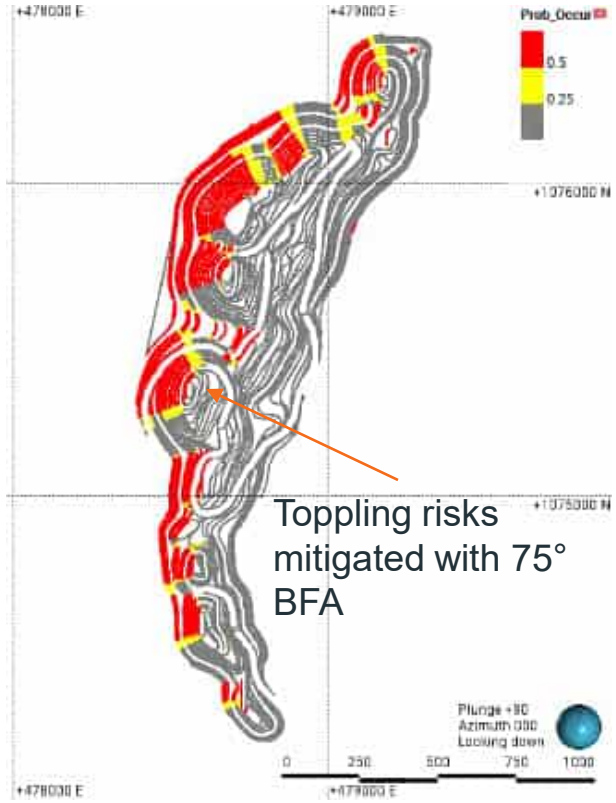
Planar



Wedge



Direct Topple

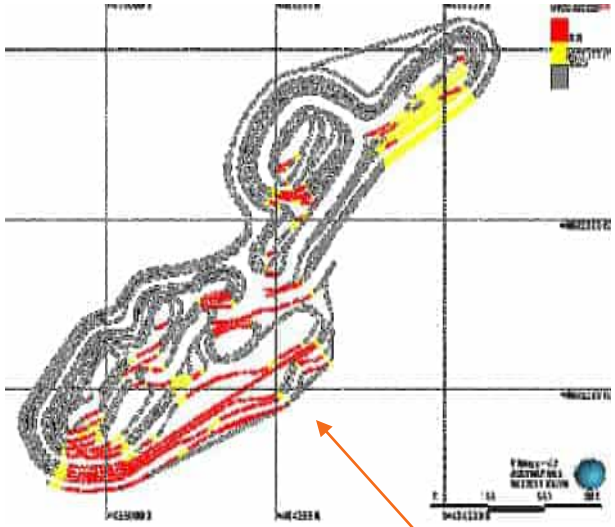


Toppling risks mitigated with 75° BFA

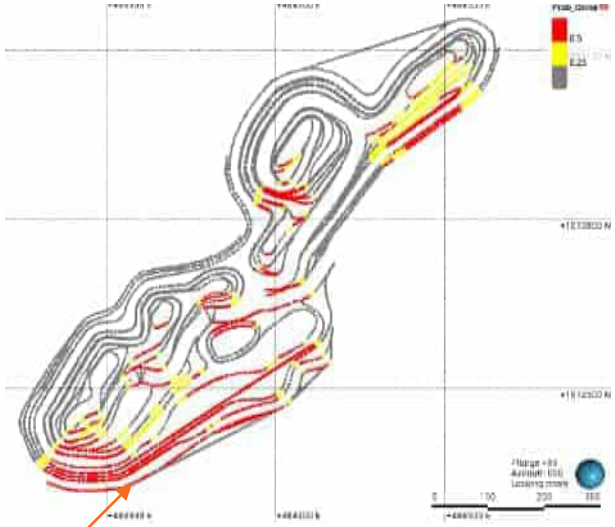
Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
South	Saprock (MW/SW)	020	300	10	6.5	75	47.4	120
South	Saprock (MW/SW)	300	020	10	8	75	43.1	120
South	Fresh	020	300	20	8.5	75	55.3	120
South	Fresh	300	020	20	11	75	50.7	120

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

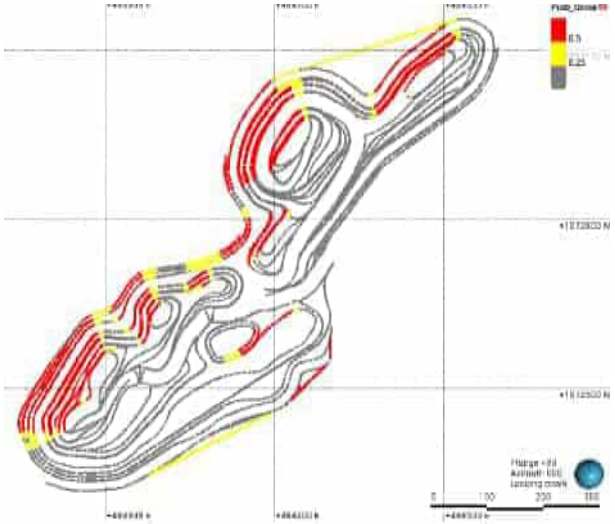
Planar



Wedge



Direct Topple

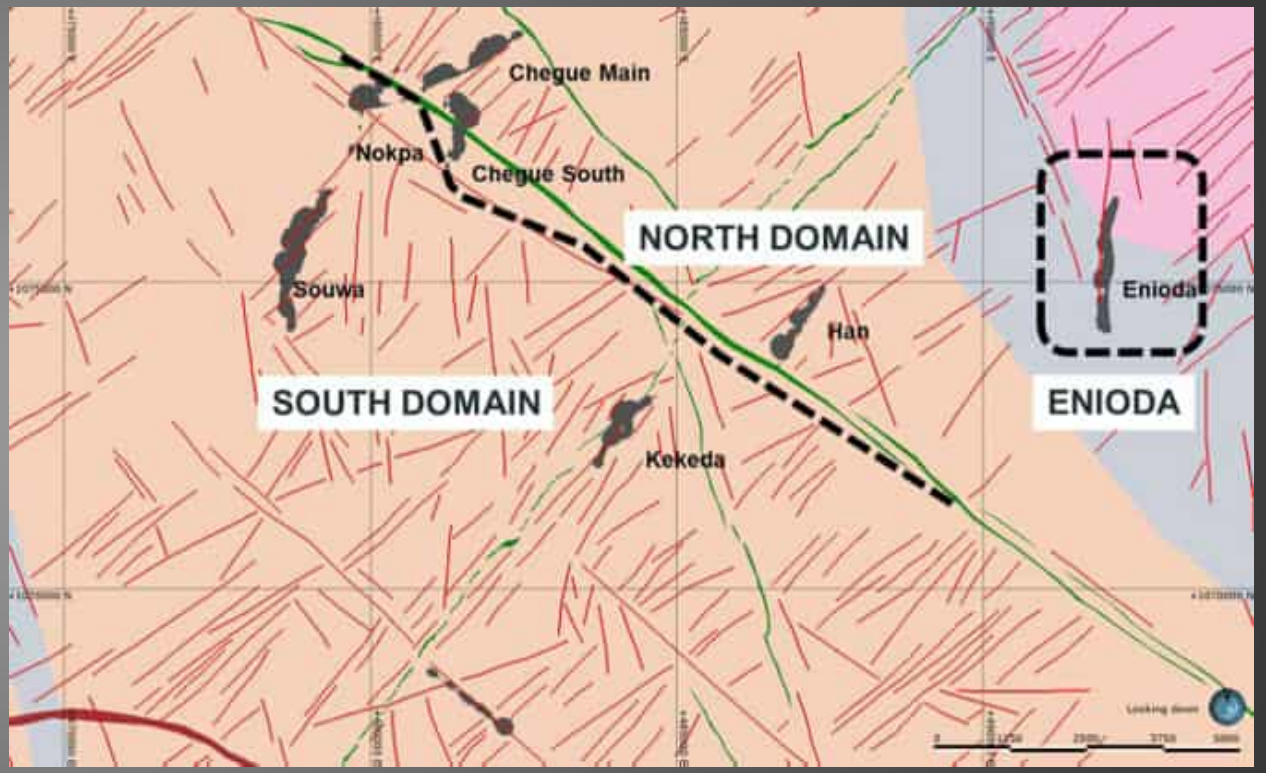


Footwall risks mitigated by shallow slope angles following orebody

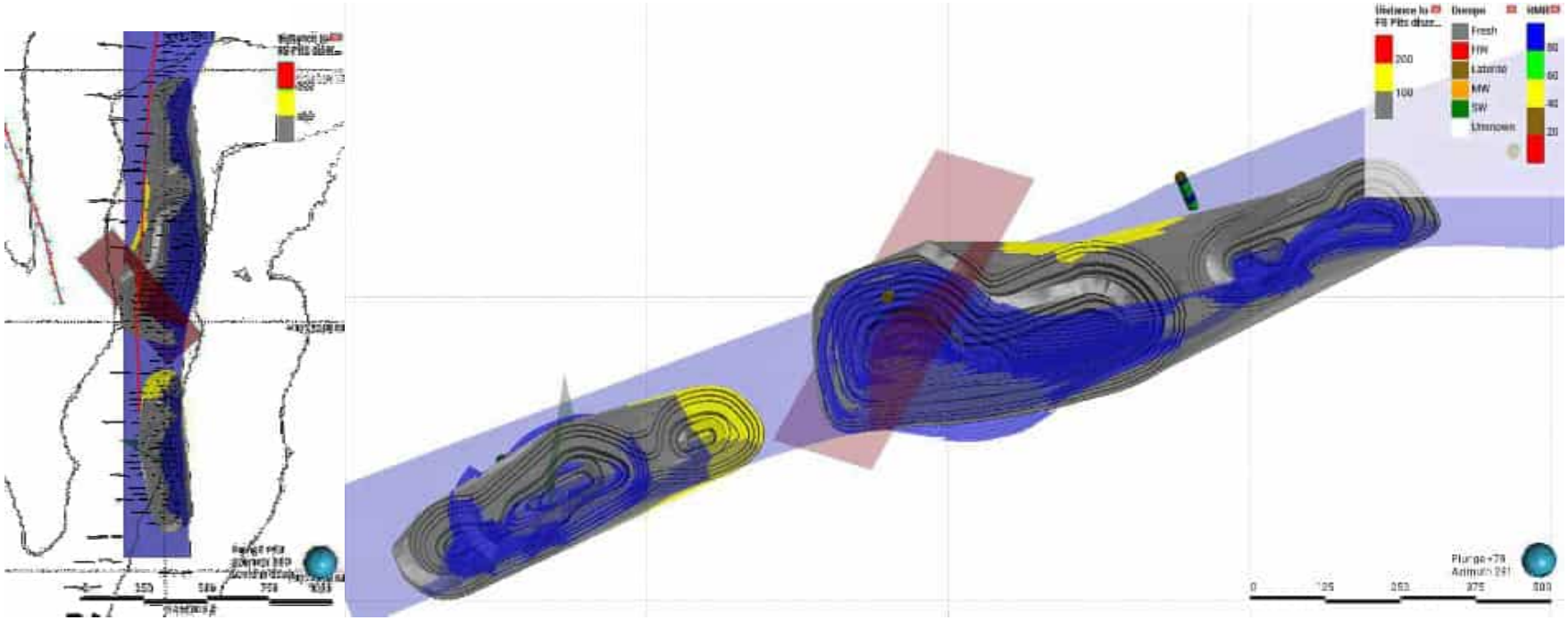
Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
South	Saprock (MW/SW)	020	300	10	6.5	75	47.4	120
South	Saprock (MW/SW)	300	020	10	8	75	43.1	120
South	Fresh	020	300	20	8.5	75	55.3	120
South	Fresh	300	020	20	11	75	50.7	120

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

ENIODA



© SRK Consulting (Canada) Inc. 2025. All rights reserved.

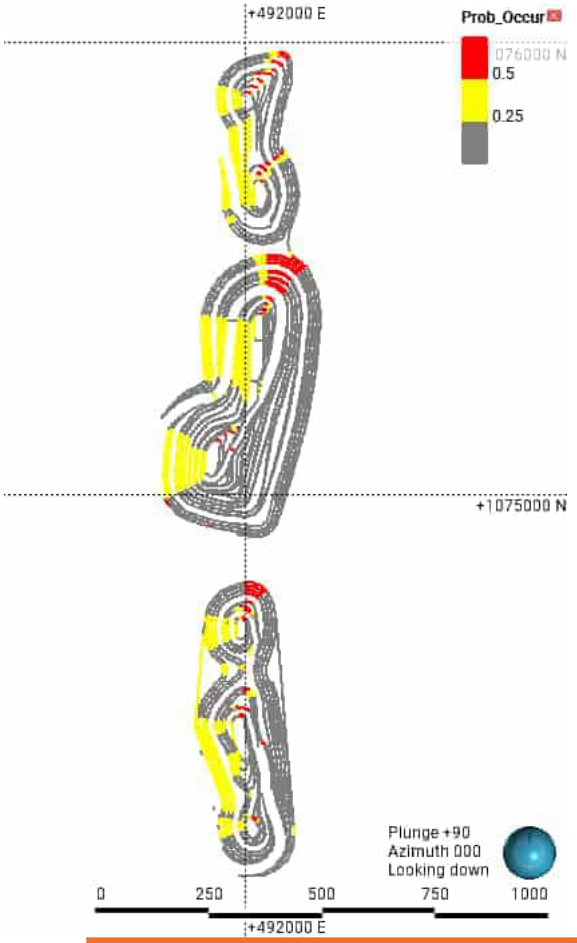


Minimal change from DFS

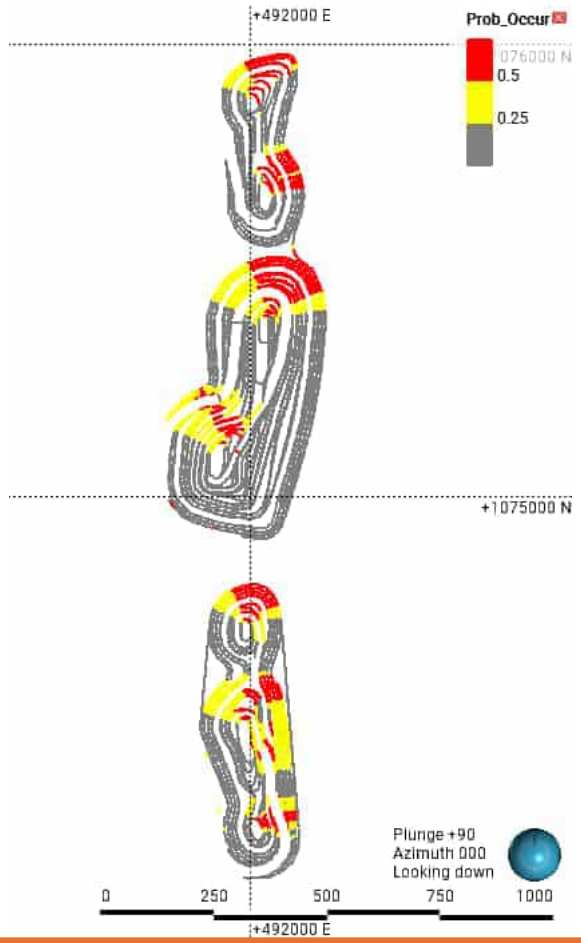
Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
Enioda	Saprock (MW/SW)	140	220	10	10	75	38.3	120
Enioda	Saprock (MW/SW)	220	140	10	6.5	75	47.4	120
Enioda	Fresh	100	140	20	10	75	52.5	120
Enioda	Fresh	140	220	20	12	75	49	120
Enioda	Fresh	220	100	20	8.5	75	55.3	120

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

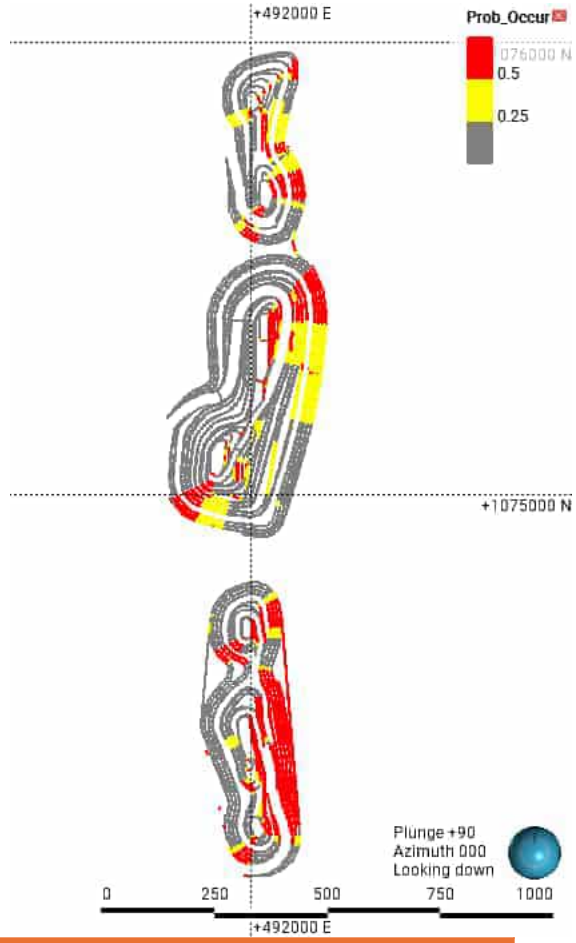
Planar



Wedge



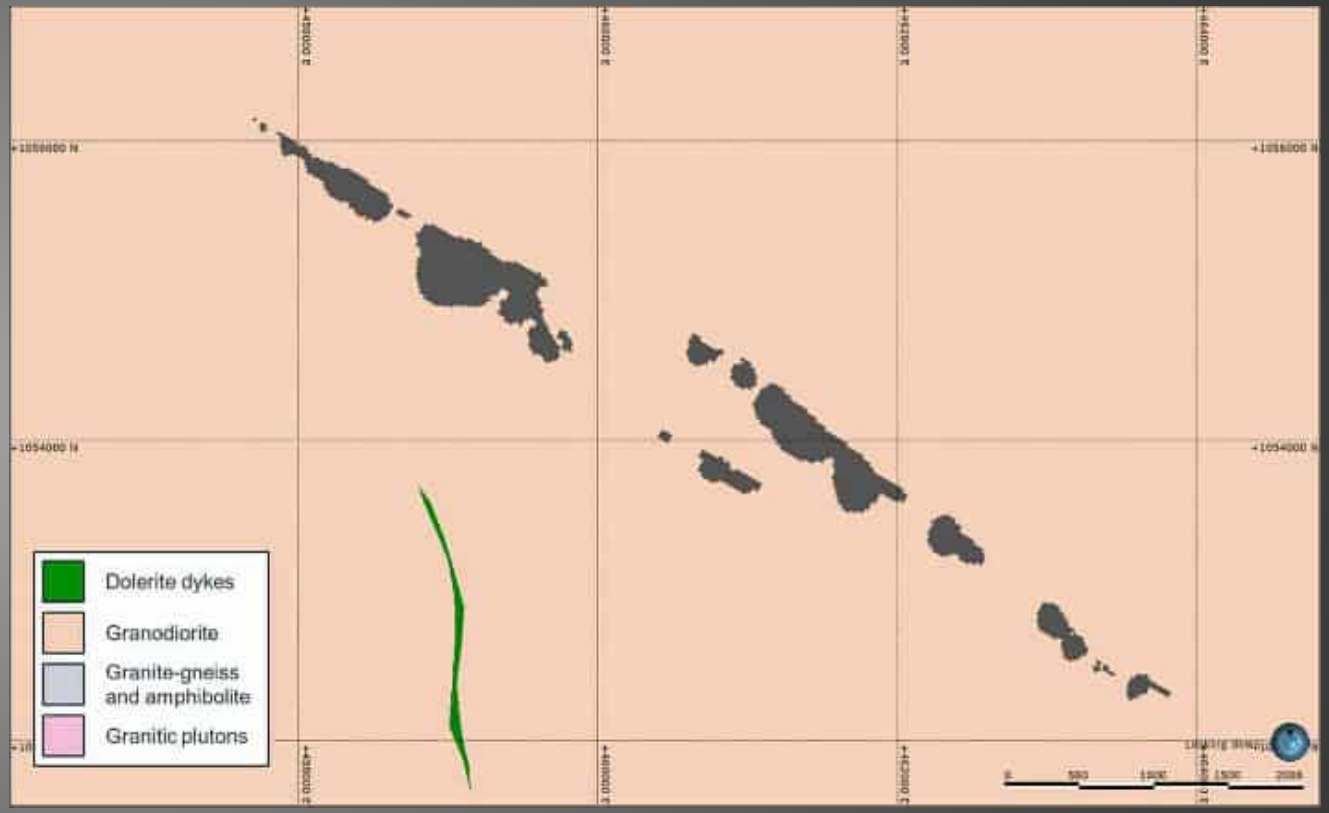
Direct Topple



Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
North	Saprock (MW/SW)	040	320	10	6.5	75	47.4	120
North	Saprock (MW/SW)	320	040	10	10	75	38.3	120
North	Fresh	060	320	20	8.5	75	55.3	120
North	Fresh	320	060	20	13	75	47.4	120

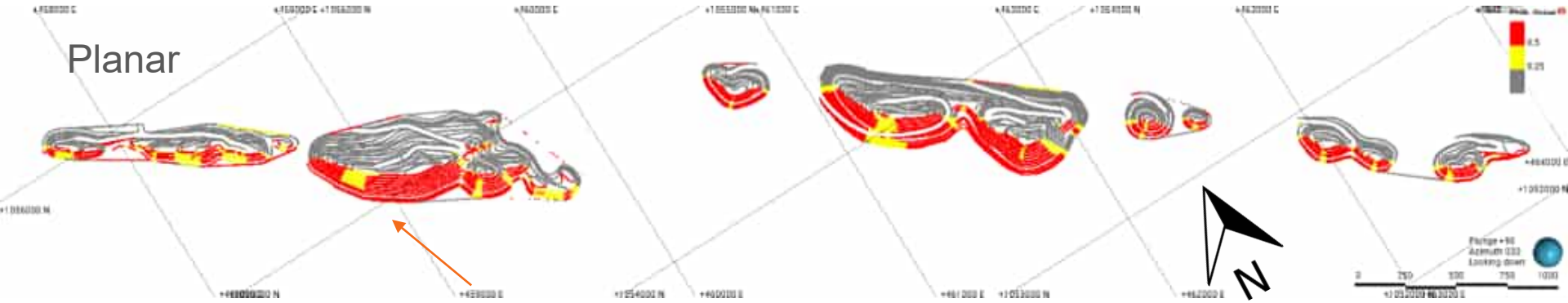
© SRK Consulting (Canada) Inc. 2025. All rights reserved.

KILOSEGUI



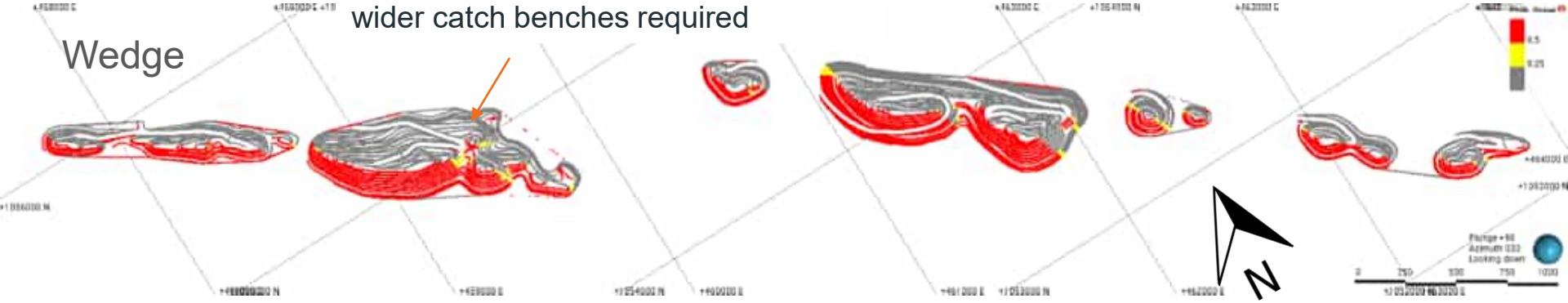
© SRK Consulting (Canada) Inc. 2025. All rights reserved.

Planar

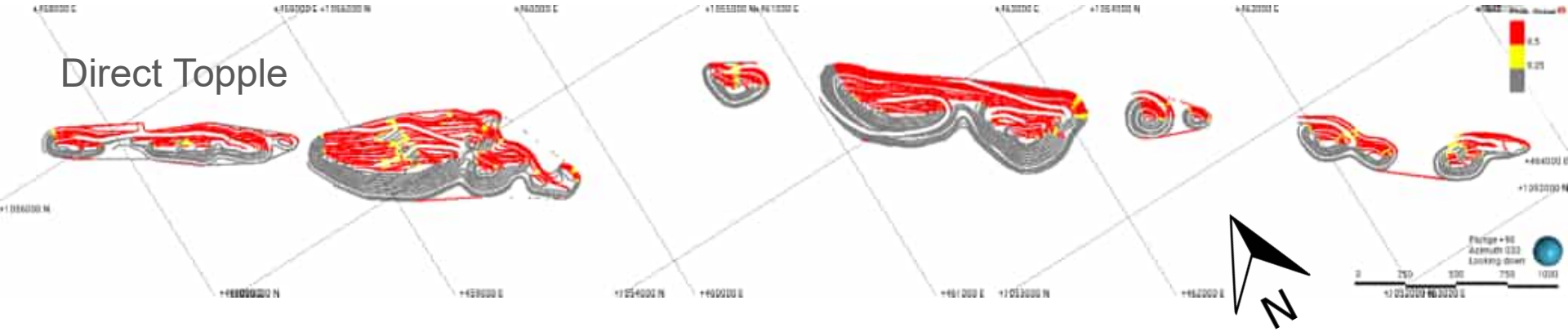


Footwall risks mitigated by design with wider catch benches required

Wedge

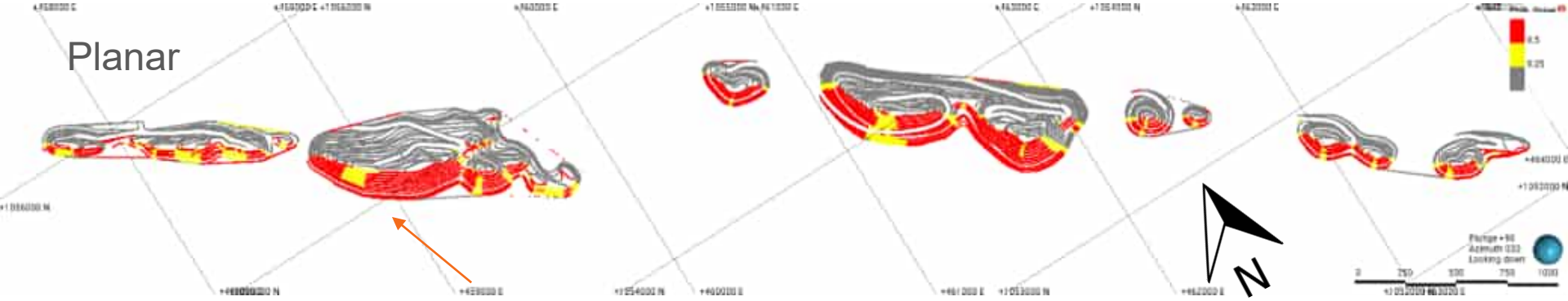


Direct Topple



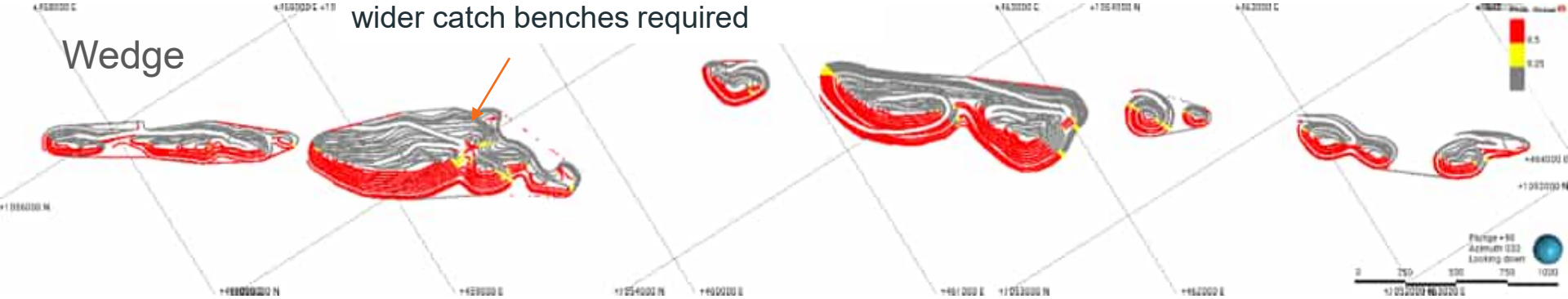
© SRK Consulting (Canada) Inc. 2025. All rights reserved.

Planar



Footwall risks mitigated by design with wider catch benches required

Wedge



Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)
Kilosegui	Saprock (MW/SW)	100	340	10	6.5	75	47.4	120
Kilosegui	Saprock (MW/SW)	340	100	10	8	75	43.1	120
Kilosegui	Fresh	000	060	20	12	75	49	120
Kilosegui	Fresh	060	120	20	10	75	52.5	120
Kilosegui	Fresh	120	360	20	8.5	75	55.3	120

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

Doropo Saprolite Domains

Saprolite domains defined based on lab results.

Doropo Area (Shallow & Deep Water Table):

- mix of clay, silt, and sands
- moderately permeable (relative)

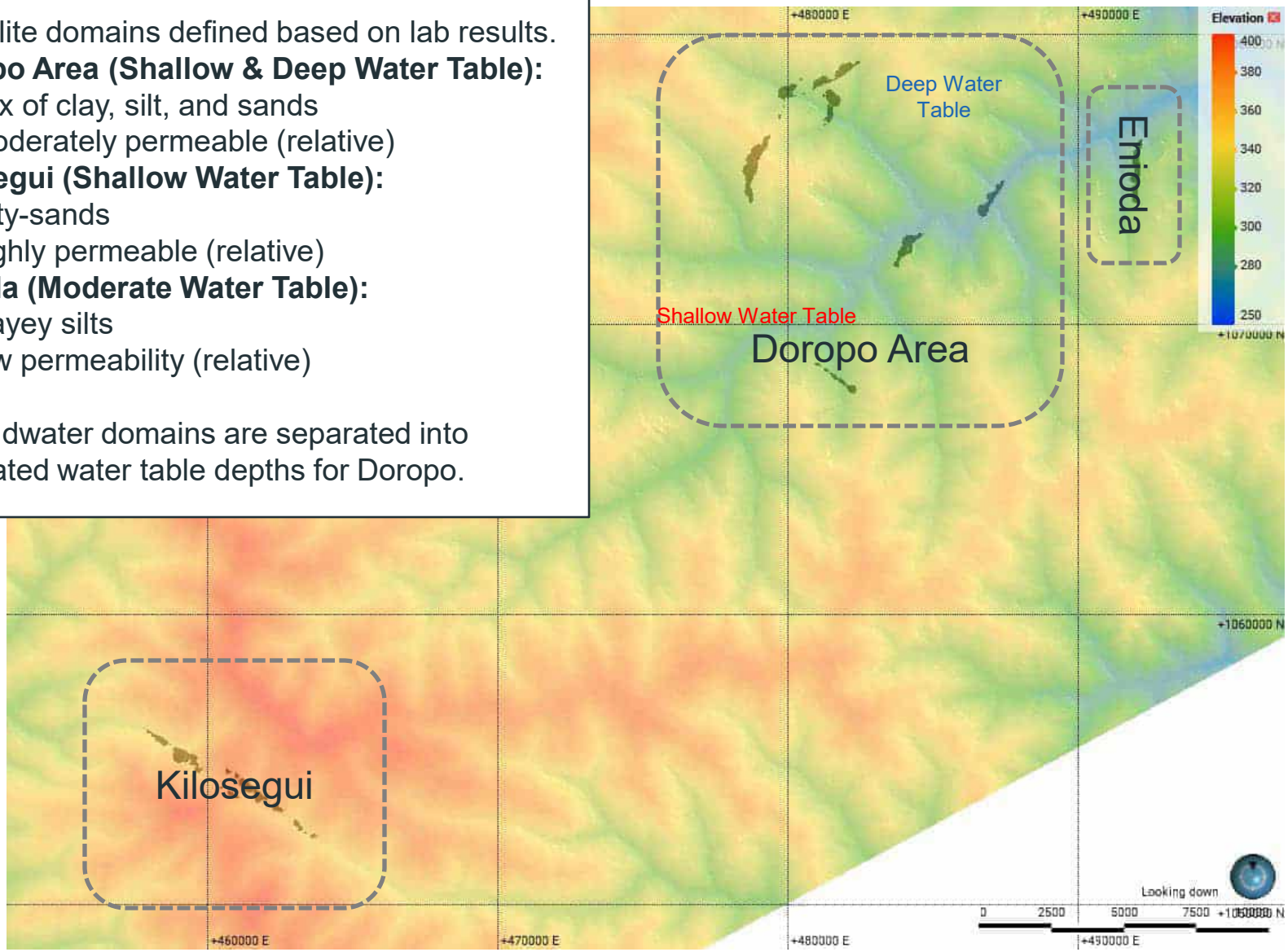
Kilosegui (Shallow Water Table):

- silty-sands
- highly permeable (relative)

Enioda (Moderate Water Table):

- clayey silts
- low permeability (relative)

Groundwater domains are separated into estimated water table depths for Doropo.



© SRK Consulting (Canada) Inc. 2025. All rights reserved.

Conceptual Saprolite Models

Pit	Length	Max Depth	Base of Sap/Lat (CW/HW) Depth (m)	Base of Saprock (MW) Depth (m)
Enioda	2200	90	20 - 35	45 - 60
Chegue Main	2000	90	30-40, thins to SW	30 - 60
Chegue South	1150	90	40 (North), 5 - 10 (South)	25 - 40
Han	1400	100	< 10	10 - 30
Kekeda	1500	90	10 - 20	20 - 45
Nokpa	750	120	5 - 15	20 - 30
Souwa	2500	140	25 - 40	45 - 55
Kilosegui A (NW)	2700	100	< 5	< 15
Kilosegui B (SE)	3700	125	10 - 20	20 - 35

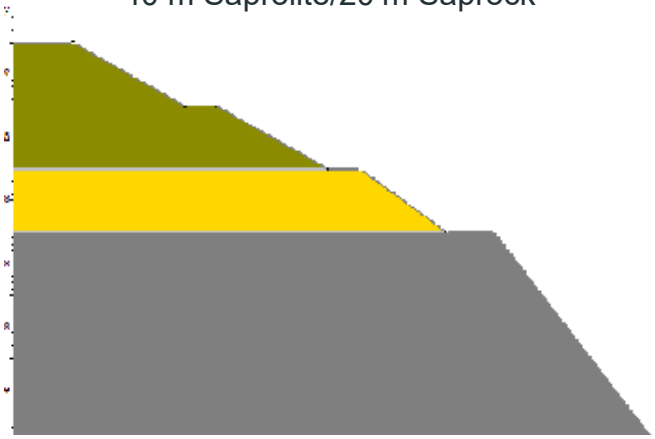
10 m Saprolite/10 m Saprock



20 m Saprolite/20 m Saprock



40 m Saprolite/20 m Saprock



*Inter-ramp angles displayed

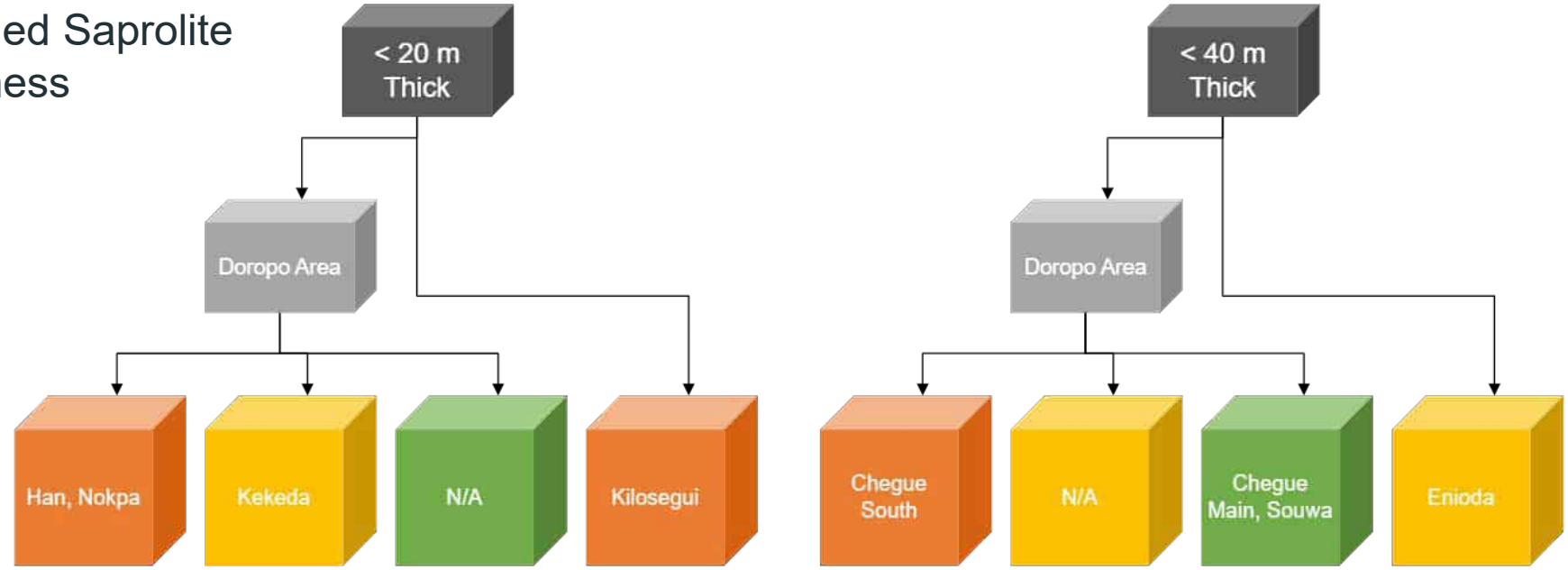
Modelled saprolite thickness across pits can be broadly grouped into 2 design scenarios:

- < 20 m thick
- < 40 m thick

Saprolite < 10 m thick will use the < 20 m design.

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

Modelled Saprolite Thickness



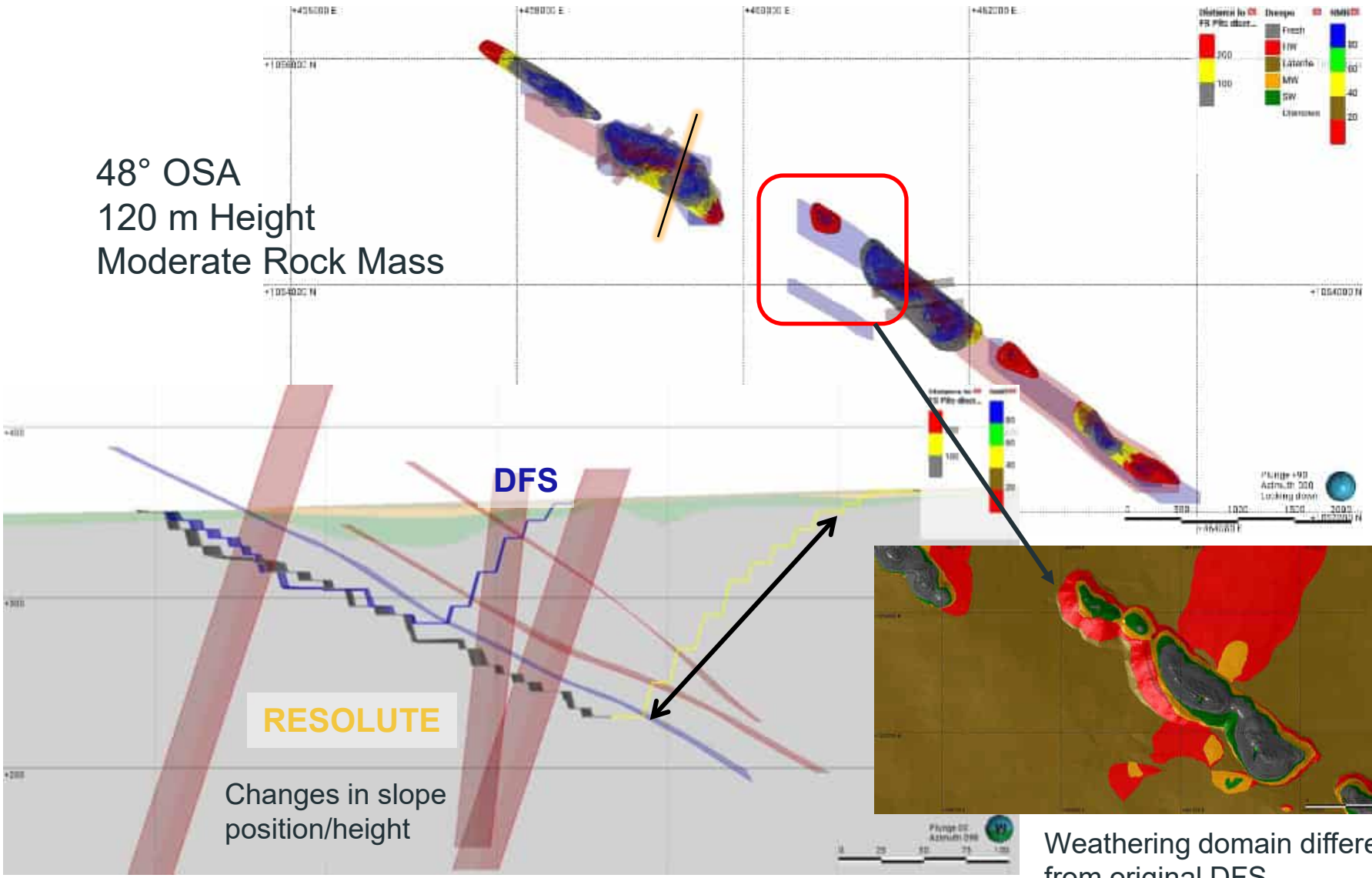
Legend



- The goal will be to capture the range of saprolite material properties and the range of groundwater scenarios
- Saprolite models will be divided into 20 m thick and 40 m thick models
- The Doropo area models will be sub-divided into shallow, intermediate, and deep water tables
- Kilosegui and Enioda will be considered for the representative saprolite thickness and use distinct material properties from Doropo models

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

48° OSA
120 m Height
Moderate Rock Mass

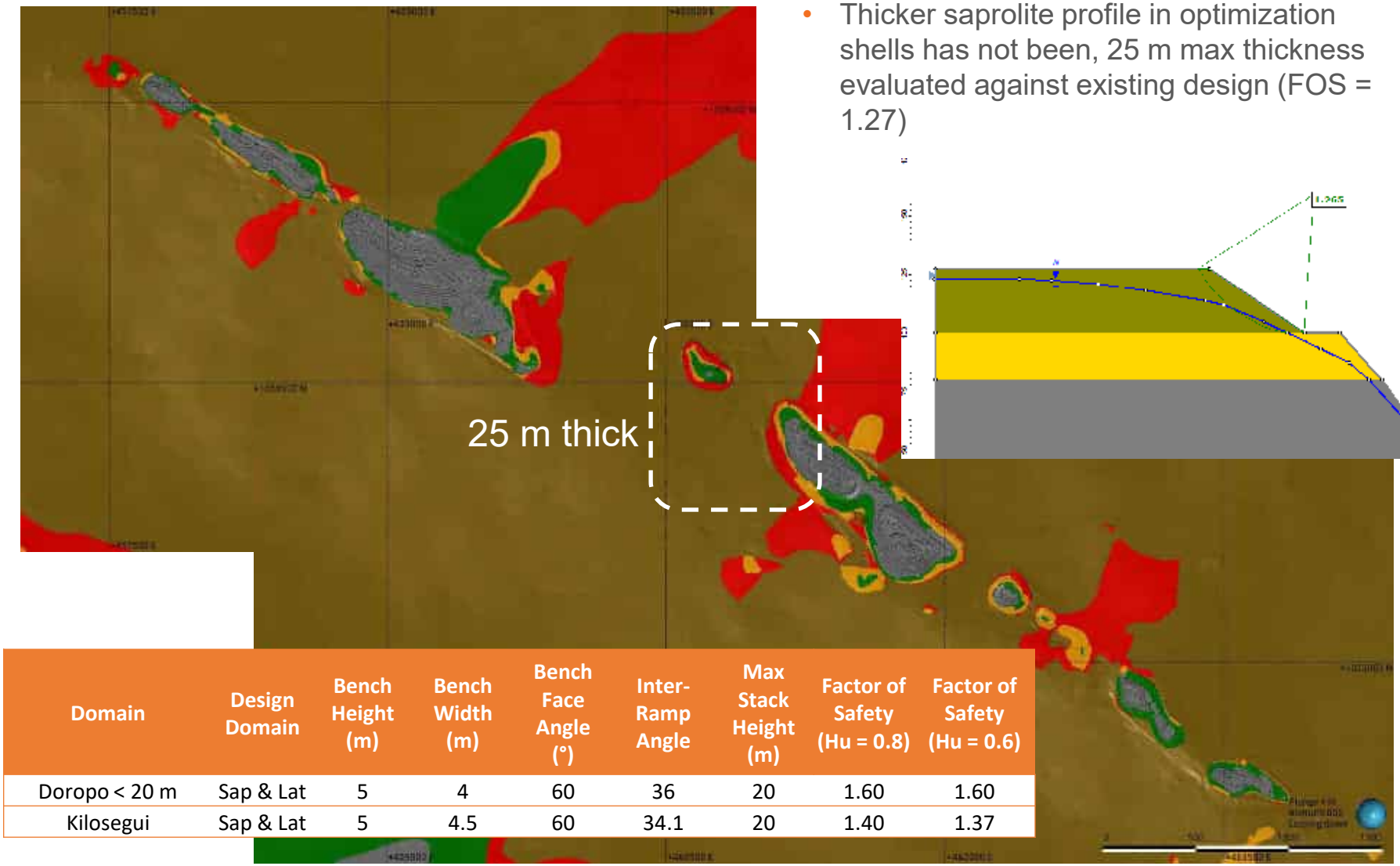


Changes in slope position/height

Weathering domain different from original DFS

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

- Thicker saprolite profile in optimization shells has not been, 25 m max thickness evaluated against existing design (FOS = 1.27)

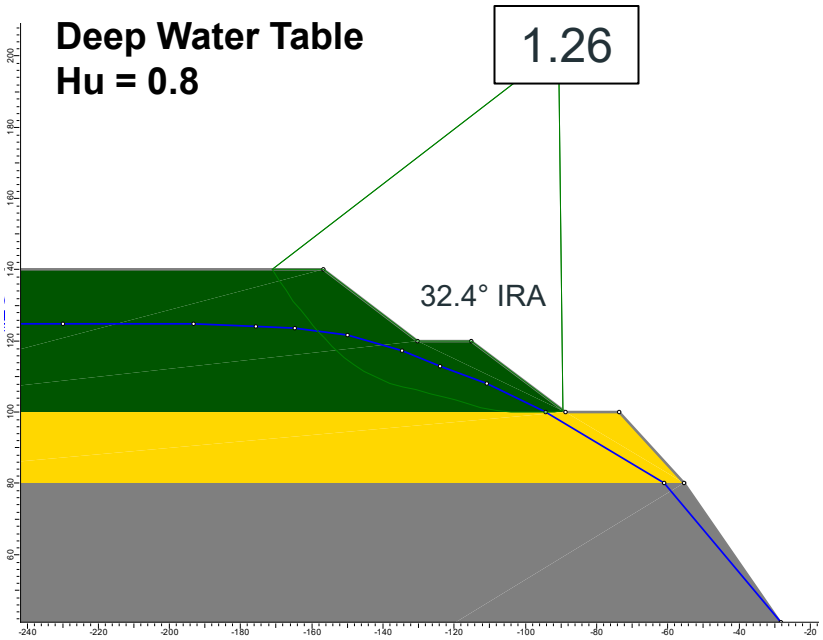


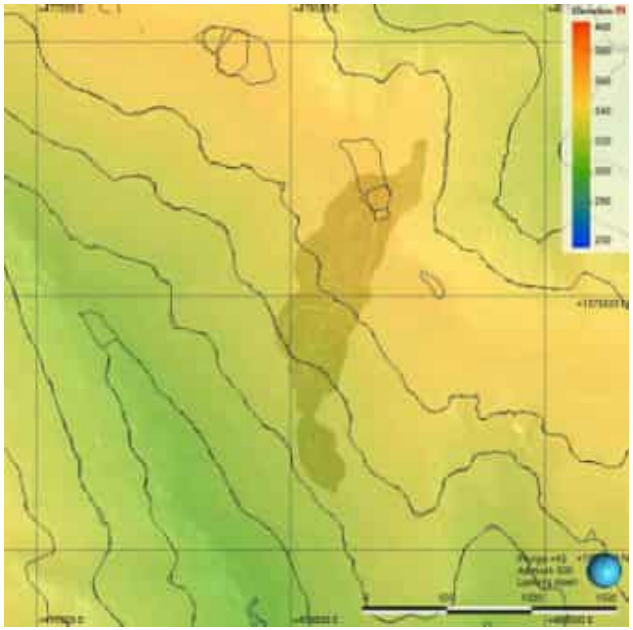
Domain	Design Domain	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)	Factor of Safety (Hu = 0.8)	Factor of Safety (Hu = 0.6)
Doropo < 20 m	Sap & Lat	5	4	60	36	20	1.60	1.60
Kilosegui	Sap & Lat	5	4.5	60	34.1	20	1.40	1.37

© SRK Consulting (Canada) Inc. 2025. All rights reserved.

- Situated on a topographic high, Souwa and Chegue Main are expected to have a deep water table.
- This is favourable for stability and can support slightly steeper slope angles

Domain	Design Domain	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)	Factor of Safety (Hu = 0.8)	Factor of Safety (Hu = 0.6)
Souwa and Chegue Main	Sap & Lat	5	5	60	32.4	20	1.26	1.30



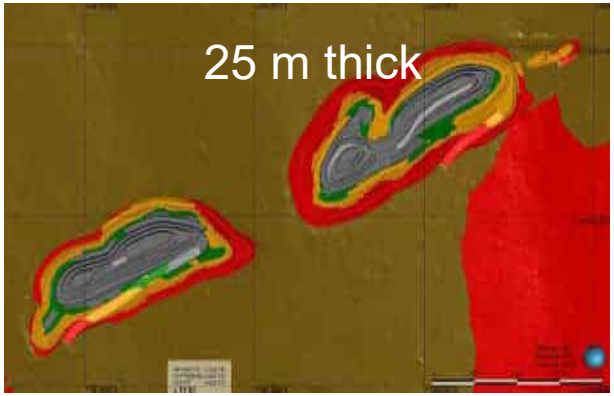


© SRK Consulting (Canada) Inc. 2025. All rights reserved.

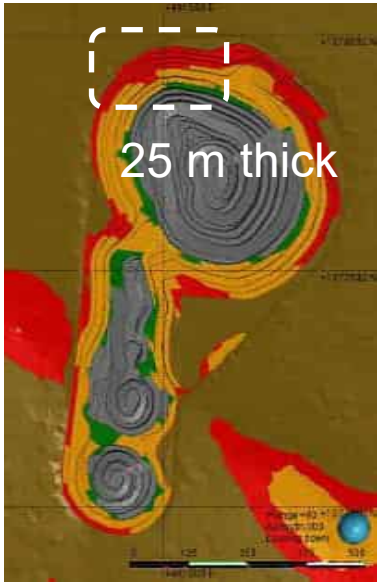
Doropo Area Thick Saprolite 20 – 40 m

- Thicker saprolite portions of Doropo show increased sensitivity to groundwater.
- Only the north wall of Chegue South is expected to have a shallow water table combined with thicker saprolite.
- Slope design is modified for Chegue South to reduce inter-ramp angles through these areas. Chegue Main is expected to have thick saprolite profiles

Chegue Main - Deep Water Table

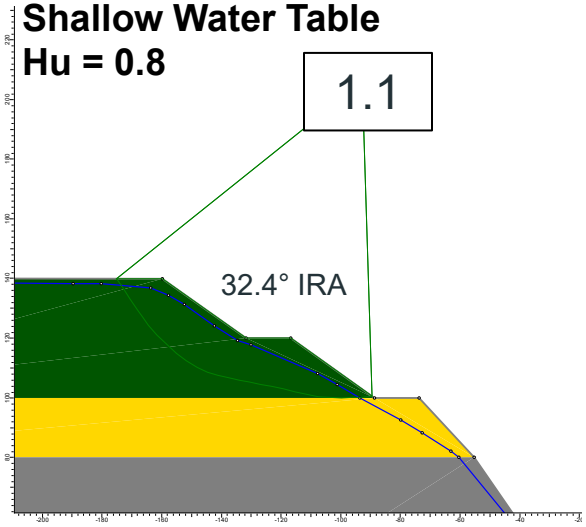


Chegue South Shallow Water Table

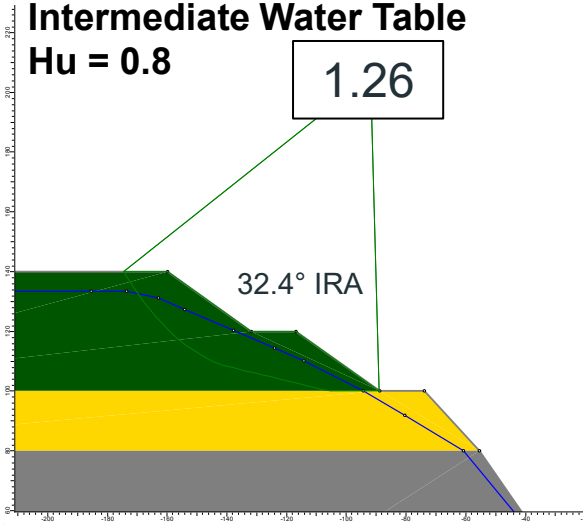


Domain	Design Domain	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Max Stack Height (m)	Factor of Safety (Hu = 0.8)	Factor of Safety (Hu = 0.6)
Souwa and Chegue Main	Sap & Lat	5	5	60	32.4	20	1.26	1.30
Chegue South	Sap & Lat	5	5.5	60	30.8	20	1.28	1.33

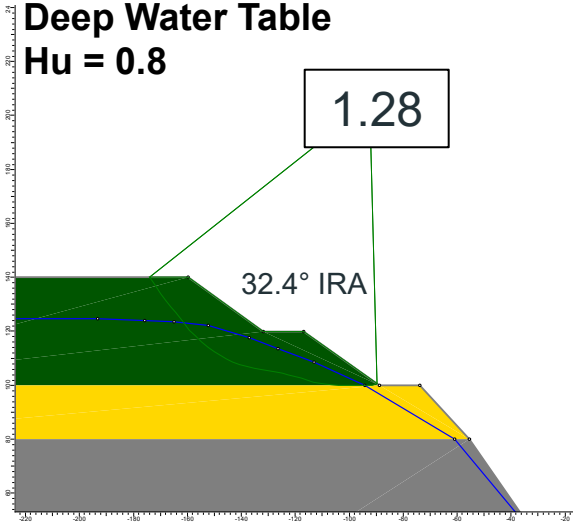
Shallow Water Table
Hu = 0.8



Intermediate Water Table
Hu = 0.8



Deep Water Table
Hu = 0.8



© SRK Consulting (Canada) Inc. 2025. All rights reserved.

A GEOTECHNICAL FEASIBILITY STUDY REPORT ON THE DOROPO PROJECT, CÔTE D'IVOIRE

Prepared For

Centamin

Date Issued: 6 June 2024

Report Prepared by

SRK Consulting (UK) Limited
UK32094

COPYRIGHT AND DISCLAIMER

Copyright (and any other applicable intellectual property rights) in this document and any accompanying data or models which are created by SRK Consulting (UK) Limited ("SRK") is reserved by SRK and is protected by international copyright and other laws. Copyright in any component parts of this document such as images is owned and reserved by the copyright owner so noted within this document.

The use of this document is strictly subject to terms licensed by SRK to the named recipient or recipients of this document or persons to whom SRK has agreed that it may be transferred to (the "Recipients"). Unless otherwise agreed by SRK, this does not grant rights to any third party. This document may not be utilised or relied upon for any purpose other than that for which it is stated within and SRK shall not be liable for any loss or damage caused by such use or reliance. In the event that the Recipient of this document wishes to use the content in support of any purpose beyond or outside that which it is expressly stated or for the raising of any finance from a third party where the document is not being utilised in its full form for this purpose, the Recipient shall, prior to such use, present a draft of any report or document produced by it that may incorporate any of the content of this document to SRK for review so that SRK may ensure that this is presented in a manner which accurately and reasonably reflects any results or conclusions produced by SRK.

This document shall only be distributed to any third party in full as provided by SRK and may not be reproduced or circulated in the public domain (in whole or in part) or in any edited, abridged or otherwise amended form unless expressly agreed by SRK. Any other copyright owner's work may not be separated from this document, used or reproduced for any other purpose other than with this document in full as licensed by SRK. In the event that this document is disclosed or distributed to any third party, no such third party shall be entitled to place reliance upon any information, warranties or representations which may be contained within this document and the Recipients of this document shall indemnify SRK against all and any claims, losses and costs which may be incurred by SRK relating to such third parties.

© SRK Consulting (UK) Limited 2024 **version: Jan 24**

SRK Legal Entity:		SRK Consulting (UK) Limited
SRK Address:		5th Floor Churchill House 17 Churchill Way Cardiff, CF10 2HH Wales, United Kingdom
Date:		June, 2024
Project Number:		UK32094
SRK Project Director:	Max Brown	Principal Consultant (Geotechnical Engineering)
SRK Project Manager:	Neil Marshall	Corporate Consultant (Geotechnical Engineering)
Client Legal Entity:		Centamin PLC
Client Address:		Mulcaster Street, Jersey, UK,

Table of Contents: Executive Summary

1 EXECUTIVE SUMMARY I

1.1 Geotechnical Model i

1.2 Weathering Model ii

1.3 Structural Model ii

1.4 Slope Stability Assessment iii

1.5 Saprolite Design iv

1.6 Saprock and Fresh Rock Design iv

2 CONCLUSIONS V

List of Tables: Executive Summary

Table ES 1: Weathering domains ii
Table ES 2: Saprolite (CW & HW) design recommendations iv
Table ES 3: Saprock and Fresh Rock design recommendations iv

List of Figures: Executive Summary

Figure ES 1: Geological model of weathering zones ii
Figure ES 2: Structural Domain Model for Doropo area iii

SRK Consulting (UK) Limited
5th Floor Churchill House
17 Churchill Way
Cardiff CF10 2HH
Wales, United Kingdom
E-mail: enquiries@srk.co.uk
URL: www.srk.com
Tel: + 44 (0) 2920 348 150

EXECUTIVE SUMMARY
A GEOTECHNICAL FEASIBILITY STUDY REPORT ON THE DOROPO PROJECT, CÔTE D'IVOIRE

1 EXECUTIVE SUMMARY

SRK Consulting (UK) Limited (SRK) is an associate company of the international group holding company, SRK Consulting (Global) Limited (the SRK Group). SRK has been requested by Centamin Plc (Centamin, hereinafter also referred to as the Company or the Client) to undertake a geotechnical Feasibility Study (FS) for Centamin's Doropo Project (Doropo) located in north-east Côte d'Ivoire about 480 km from the capital Abidjan. The project area contains several deposits, of which a total of eight pits are being considered. The pits for which the study was undertaken were Chegue Main and Chegue South (CHG), Enioda (ENI), Han (HAN), Kekeda (KEK), Kilosegui (KLG), Nokpa (NOK), and Souwa (SWA). Seven of the proposed pits are within the Doropo area: ATI, CHG, ENI, HAN, KEK, NOK, and SWA. The remaining pit, Kilosegui (KLG), is located approximately 30 km to the southwest of the Doropo area.

As part of the 2023 feasibility assessment, a total of 8 holes of approximately 820 m total length were completed. These drillholes were designed for two purposes: to infill geotechnical drilling and inform the geotechnical model; and to collect samples for laboratory testing. These are in addition to 33 drillholes completed for the 2023 PFS and 23 drillholes completed for the Scoping Study in 2018.

1.1 Geotechnical Model

The project lies within the West African craton, in the southern Leo-Man shield. The Doropo projects are found within the Paleoproterozoic Birrimian domain. This domain includes greenstone belts bounded by large areas of tonalitic granite-gneiss, trondheimite, and granodiorite. Later alkaline and calc-alkaline granitic intrusions occur throughout the package.

Open pit stability will be controlled by shear strength of the rock mass within the weathered horizons and structurally controlled within the Fresh Rock. The geotechnical domain model considers the weathering model from a rock mass failure perspective. Structurally controlled failure in the Fresh Rock will be considered through the structural model and structural domain model.

The objective of the geotechnical domain model is to provide a representation of the variability of the rock properties across the deposit area. A geotechnical domain is a volume of rock which has similar overall characteristics and properties. The rock mass is variable by nature, and as such, a simplification of the parameters with similar units is required for analysis and design purposes.

1.2 Weathering Model

The geotechnical model primarily comprises the weathering domains modelled for each pit. There are six modelled weathering horizons (Figure ES 1), which have been refined into three distinct weathering domains for design purposes (Table ES 1).

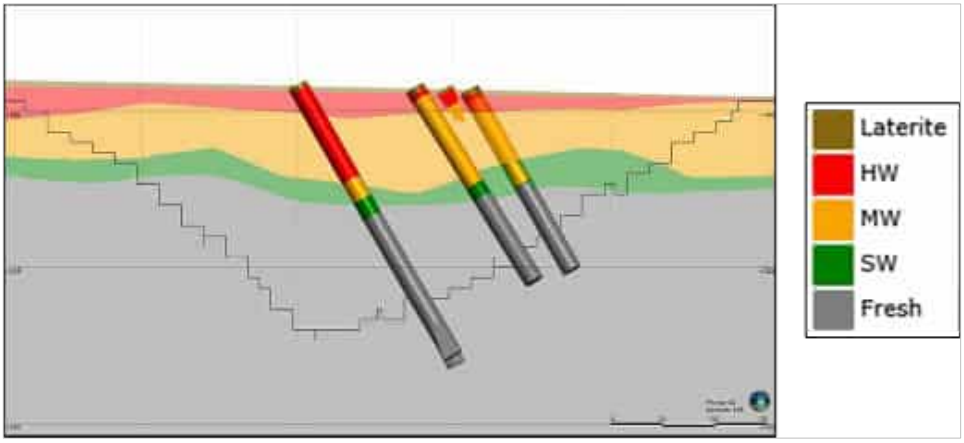


Figure ES 1: Geological model of weathering zones

Table ES 1: Weathering domains

Weathering Code	Weathering Domain	Description	Rock Strength	Fracture Frequency
Completely Weathered (CW)	**Saprolite/Laterite**	No constituent minerals are recognizable, except in part quartz grain (in the case of Doropo).	R0	40
Highly Weathered (HW)		Unconsolidated, some constituent minerals are visible including quartz which is abundant and some rare feldspars	R0 - R1	40
Moderately Weathered (MW)	**Saprock**	Consolidated although crumbly, only few minerals are recognizable, quartz and feldspars are little or no altered, but micas are almost completely altered (all rusty).	R0 - R2	20-40
Slightly Weathered (SW)		Consolidated, most of the minerals are recognizable, quartz and feldspars are not altered, but micas are partially altered (rusty).	R3 - R5	0 - 5
Fresh (FR)	**Fresh**	None of the constituents are altered.	R3 - R5	0 - 5

1.3 Structural Model

Deposit-scale structures typically emulate regional-scale structures. The dominant structural patterns in the deposits formed during regional deformation which resulted in brittle-ductile shear zones that are overprinted by later brittle faults. Structural data, such as the orientation of faults, fractures and joints in drill holes, geotechnical logging data (RQD/recoveries) and gold grade interpolants, allow for the modelling of mineralised structures and structural discontinuities in the deposit, that can be linked to shear zones, faults, and cross-cutting dykes.

The orientations of the deposit-scale mineralised structures, interpreted as brittle-ductile shear zones and veins in the Doropo deposits, show variable trends from NE-SW, NW-SE, E-W to N-S. The dominant trends in Cheque, Enioda, Han, Kekeda, Nokpa and Souwa is N-S and NE-SW, whereas Kilosequi and Attire show NW-SE and WNW-ESE trends.

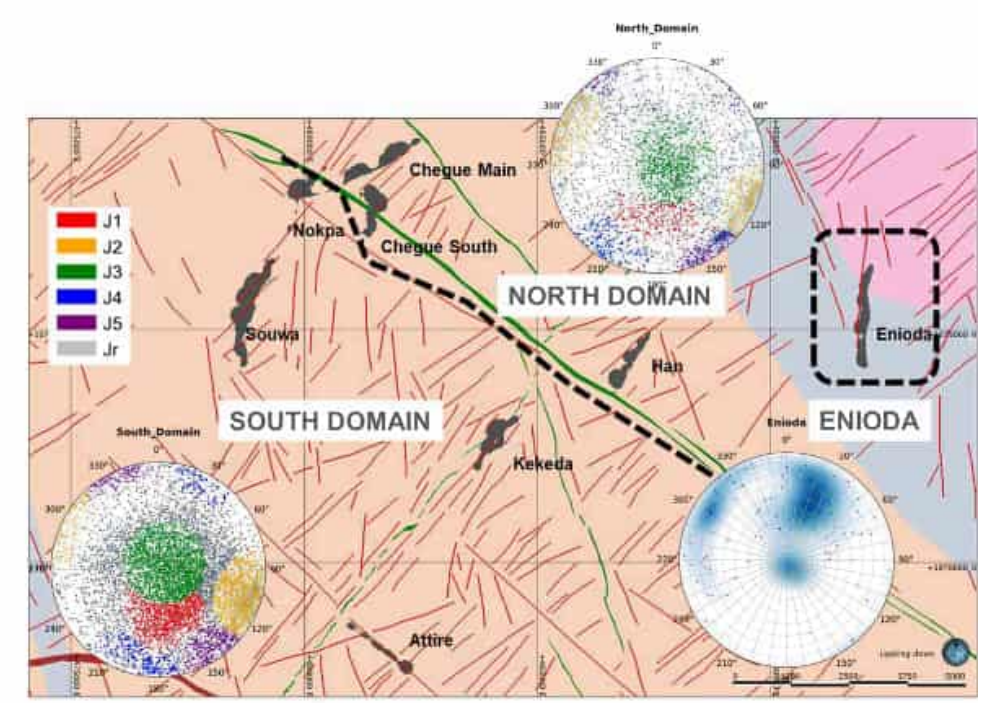


Figure ES 2: Structural Domain Model for Doropo area

1.4 Slope Stability Assessment

Potential rock slope failure mechanisms that can influence the stability of the pit slopes need to be understood to develop safe and practical design recommendations. Rock slopes can generally be classified according to two principal failure mechanisms:

- **Kinematically Controlled Failure Mechanisms:** Structurally controlled failure in rock occurs as the result of sliding along pre-existing structures or discontinuities (e.g., sliding along foliation).
- **Rock Mass Strength Failure:** Slopes excavated in weak or heavily fractured rock masses, or very high slopes, can be susceptible to overall rock mass failure, which involves the development of step-path or pseudo-circular type failure zones through intact rock.

The bench and inter-ramp design for the pits were based on the following considerations:

- Saprolite stability will be controlled by the slope angles and influence of groundwater; and
- slopes within the Saprock and Fresh Rock domains will be structurally controlled, and the achievable slope geometries will be driven by the bench scale kinematics.

Two-dimensional LE slope stability analyses were used to evaluate the expected rock and saprolite slope stability conditions. The LE analyses were conducted using Slide2D™. The stability analyses considered the potential for overall non-circular failures through the various units. Stability modelling was focused on evaluating the designs in the saprolite and Saprock domains, as these will be the most sensitive to groundwater.

1.5 Saprolite Design

Bench face design philosophy in saprolites represents a compromise between minimising erosion from surface water run-off (steeper bench faces more favourable) and maintaining stability (where shallower bench faces are more stable). Benches in Saprolite will be free dug using the excavator and cut back to the desired bench face angle (BFA).

Bench and inter-ramp design in the Saprolite will be dependent on the overall thickness of the saprolite horizons and will be managed by increasing bench widths to reduce the IRA as the thickness of the weathered domain increases (Table ES 2). Bench face angles for the Saprolite will be set at 60° to encourage drainage off the faces. Berms should be graded at 2-3% into the pit to encourage sheet flow and surface water run-off, thus reducing erosion.

Mining in the Saprolite will be unpredictable at times, with local changes in material properties, groundwater conditions, or relict structures that may cause instabilities. Saprolite mining must be dynamic, with the technical services team empowered to implement design or sequence changes and dewatering wells or drains as required. Inter-ramp stack heights should be limited to 20 m, with a 15 m geotechnical berm placed between stacks. The base of the saprolite should also have a 15 m geotechnical berm before entering the Saprock and Fresh Rock domains. These geotechnical berms serve two purposes: to decouple the slopes and promote local depressurisation of the stacks, and to enable access to the slopes for remediation and surface water management.

Table ES 2: Saprolite (CW & HW) design recommendations

Domain	Design Domain	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Maximum Stack Height (m)	Factor of Safety (Hu = 0.8)	Factor of Safety (Hu = 0.6)
Enioda	Sap & Lat	5	5.5	60	30.8	20	1.30	1.36
Doropo < 20 m	Sap & Lat	5	4	60	36	20	1.60	1.60
Doropo < 40 m	Sap & Lat	5	5	60	32.4	20	1.26	1.30
Kilosegui	Sap & Lat	5	4.5	60	34.1	20	1.40	1.37

1.6 Saprock and Fresh Rock Design

Bench design for the Saprock and Fresh Rock domains is driven by kinematic instabilities and increasing bench widths to maintain suitable catchment. The achievable inter-ramp angles are a function of the bench geometries. The contact between the Saprock and Fresh Rock is expected to be variable in terms of depths around the pits, and some flexibility will be required during implementation. The Saprock designs will be limited to a bench height of 10 m to mitigate potential kinematic failures exacerbated by weathered fractures. The Fresh Rock will optimize to a 20 m bench height based on improved geotechnical conditions (Table ES 3).

There will be no geotechnical berms required for the current design configurations in the Saprock and Fresh Rock domains. Pit depths within these units are less than a practical geotechnical berm spacing of 120 m. The requirement for a geotechnical berm at the top of the Saprock/base of saprolite of 15 m remains.

Table ES 3: Saprock and Fresh Rock design recommendations

Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Maximum Stack Height (m)

Enioda	Saprock (MW/SW)	140	220	10	10	75	38.3	120
Enioda	Saprock (MW/SW)	220	140	10	6.5	75	47.4	120
Enioda	Fresh	100	140	20	10	75	52.5	120
Enioda	Fresh	140	220	20	12	75	49	120
Enioda	Fresh	220	100	20	8.5	75	55.3	120

North	Saprock (MW/SW)	040	320	10	6.5	75	47.4	120
North	Saprock (MW/SW)	320	040	10	10	75	38.3	120
North	Fresh	060	320	20	8.5	75	55.3	120
North	Fresh	320	060	20	13	75	47.4	120

South	Saprock (MW/SW)	020	300	10	6.5	75	47.4	120
South	Saprock (MW/SW)	300	020	10	8	75	43.1	120
South	Fresh	020	300	20	8.5	75	55.3	120
South	Fresh	300	020	20	11	75	50.7	120

Kilosegui	Saprock (MW/SW)	100	340	10	6.5	75	47.4	120
Kilosegui	Saprock (MW/SW)	340	100	10	8	75	43.1	120
Kilosegui	Fresh	000	060	20	12	75	49	120
Kilosegui	Fresh	060	120	20	10	75	52.5	120
Kilosegui	Fresh	120	360	20	8.5	75	55.3	120

2 CONCLUSIONS

This feasibility open pit slope design report for the Doropo project is based on geotechnical drilling data collected over three campaigns in 2018, 2022, and 2023. A total of 8 pits were assessed in this study. The open pits at Doropo are largely shallow (less than 150 m), and a significant portion of the mining will take place within weathered rock, saprolites, and residual soils.

The following operational recommendations are provided:

- Saprolite cut slopes and partially blasted Saprock slopes should be excavated to maintain bench widths and BFA per design. Operators should be provided with batter boards and guidance from the survey team to ensure design compliance.
- Bullnoses (convex slopes) of one or more stack heights should be minimized in final designs. Significant bullnoses may require consideration for reduction of inter-ramp angles to minimize the effects of unconfinement.
- Pits designed with single-ramp access should trigger a review of geotechnical hazards, slope and bench performance, and evaluation of possible risks to access. There may be opportunities for later phases or deeper portions of the pits to reduce access to minimize effects to slope angles.
- Slope design guidelines are presented to global best-practice design standards. There remain opportunities during mining to optimise the bench heights and berm widths. Specifically, the requirements for additional catchment in certain aspects of the design domains may be reduced should design compliance be maintained during implementation.

Table of Contents

1 INTRODUCTION 1

1.1 Background 1

1.2 Terms of Reference 2

2 DATA SOURCES 2

2.1 Previous Studies and Reports 2

2.2 Field Investigations 2

2.2.1 Geotechnical Drilling Program 4

2.2.2 Oriented Drilling 5

2.2.3 Laboratory Testing 5

2.2.4 Site Visit 6

3 GEOLOGICAL SETTING 7

3.1 Geology and Mineralisation 8

3.2 Major Lithological Units 9

3.2.1 Granite and Granodiorite 9

3.2.2 Dykes 11

3.2.3 Mafics 12

3.2.4 Veins 13

3.3 Topography 14

3.4 Weathering 14

4 STRUCTURAL GEOLOGY 21

4.1 Regional Structures 21

4.2 Deposits-scale structures 21

4.3 Foliation 23

5 GEOTECHNICAL MODEL 24

5.1 Lithological Domains 24

5.2 Weathering Domains 25

5.3 Strength Results 28

5.3.1 Saprolite Strength Results 29

5.3.2 Saprock and Fresh Rock Strength Results 31

5.4 Structural Domain Model 32

5.4.1 Minor Structure Model 32

5.4.2 Major Structures 38

5.4.3 Shear Strength of Structural Defects 40

5.4.4 Joint Spacing 43

5.5 Rock Mass Model 44

6 HYDROLOGY AND HYDROGEOLOGY 47

6.1 Groundwater Regimes 48

7 SLOPE STABILITY AND DESIGN 48
7.1 Approach 49
7.2 Rock Slope Failure Mechanisms 50
7.3 Design Acceptance Criteria 50
7.3.1 Bench Design Acceptance 50
7.3.2 Inter-ramp and Overall Slope Design Acceptance 51
7.4 Kinematic Stability Review 52
7.4.1 Planar and Wedge Sliding Failures 52
7.4.2 Toppling Failures 53
7.4.3 Kinematic Stability Results 55
7.5 Probabilistic Kinematic Analysis 55
7.6 Slope Stability Assessment 57
7.6.1 Modelling Input Parameters 57
7.6.2 Conceptual Model Design 58
7.6.3 Groundwater Inputs 59
7.6.4 Stability Analysis Results and Discussion 59
8 OPEN PIT SLOPE DESIGN 62
8.1 Saprolite Design 62
8.2 Saprock and Fresh Rock Design 63
9 CONCLUSIONS 64
10 REFERENCES 68

List of Tables

Table 2-1: Previous studies and reports 2
Table 2-2: 2023 Feasibility geotechnical drilling 3
Table 2-3: Empirical rock mass descriptions for RMR_{89} values 4
Table 2-4: Summary of laboratory samples tested during feasibility program 6
Table 4-1: Summary Table of Main Structural Trends 22
Table 5-1: Weathering domains 25
Table 5-2: Interpreted shear strength parameters of joints 43
Table 5-3: Summary rock mass classification statistics 44
Table 5-4: Geotechnical characterization summary for each pit 45
Table 6-1: Groundwater levels (after GCS, 2020) 47
Table 7-1: Overview of stability assessment approach and software 49
Table 7-2: Minimum acceptable design criteria (Read and Stacey, 2009) 51
Table 7-3: Material properties considered for 2D LE modelling 58
Table 7-4: Results from stability modelling showing modified IRA in saprolite until design acceptance achieved 60
Table 8-1: Saprolite (CW & HW) design recommendations 63
Table 8-2: Saprock and Fresh Rock design recommendations 64

List of Figures

Figure 1-1: Doropo project area, Côte d'Ivoire 1
Figure 2-1: Distance to geotechnical drilling completed between 2018 and 2023 compared to the PFS pit shells 3
Figure 2-2: Bieniawski 1989 rock mass rating classification system 5
Figure 2-3: Kilosegui area topography and sandy /silty overburden 6
Figure 3-1: Map of West African Craton (source: Centamin, 2021) 7
Figure 3-2: Geology map of Doropo (source: Centamin, 2021) 8
Figure 3-3: Down-plunge view showing kinematic pattern shared between Doropo and Kilosegui (source: JunCowan, 2019) 9
Figure 3-4: Example of undeformed granodiorite from DPDD3558 (Chegue South) 10
Figure 3-5: Example of weakly foliated granodiorite from DPDD3575 (Kilosegui) 10
Figure 3-6: Modelled dykes at Chegue South and Nokpa 11
Figure 3-7: Dolerite dyke example from DPDD1427 (Nokpa) 11
Figure 3-8: Dyke intercept at Kekeda showing faulted contact at 45 m; mineralized zone located below dyke (dark unit) 12
Figure 3-9: Representative box photo from DPDD3562 (Enioda) showing inter-layered amphibolite and gneiss 13
Figure 3-10: Locations of Enioda where amphibolite has been identified 13
Figure 3-11: Doropo area topography with proposed pit locations (shaded areas) to give context to the significant spatial area encompassed by the project 14
Figure 3-12: Typical saprolitic weathering (from Fookes, 1997) 16
Figure 3-13: Depth to base of CW (base of laterite) weathering horizons for each pit 17
Figure 3-14: Depth to base of HW (base of Saprolite) weathering horizon for each pit 18
Figure 3-15: Depth to base of MW weathering horizon for each pit 19
Figure 3-16: Depth to base of SW (top of Fresh Rock) weathering horizon for each pit 20
Figure 4-1: Interpretation of salient faults within Doropo Project area, modified from Respot's interpretation (Bonson, 2017) 21
Figure 4-2: Example of moderately developed foliation in Enioda (DPDD3562) 23
Figure 5-1: Major lithological domains 24
Figure 5-2: Geological model of weathering zones 25
Figure 5-3: Representative box photos showing laterite (logged as CW) and saprolite (logged as HW) 26
Figure 5-4: Range of conditions seen in Saprock 27
Figure 5-5: Fresh Rock 28
Figure 5-6: Geotechnical domain model for Chegue Main 28
Figure 5-7: Particle size distribution results by prospect 29
Figure 5-8: Atterberg limits results by prospect 30
Figure 5-9: Consolidated undrained triaxial test results and interpretation by prospect 31

Figure 5-10: UCS results 32
Figure 5-11: Triaxial test results with approximated best-fit curves using m_i 35 32
Figure 5-12: Example from Han deposit showing evaluation of each stereonet for quality prior to including in a compiled dataset 33
Figure 5-13: Compiled stereonets per deposit 34
Figure 5-14: Compiled stereonets by deposit showing sampling biases; areas in red are under-sampled due to drillhole orientations 35
Figure 5-15: Structural domains identified for Doropo area 35
Figure 5-16: Summary of major joint set orientations per structural domain 36
Figure 5-17: Compiled stereonet for Kilosegui 36
Figure 5-18: Major joint sets identified at Kilosegui 37
Figure 5-19: Examples of modelled structural intercepts from Enioda, Kilosegui, and Chegue Main 38
Figure 5-20: Major structures (black poles) compared to structural domain stereonets 39
Figure 5-21: Example of structural model for SWA 39
Figure 5-22: Logged joint conditions for major lithologies and weathering domains 41
Figure 5-23: Direct shear test results showing average values and highlighted lower bound interpretation for kinematic analysis 42
Figure 5-24: Joint spacing and inputs to kinematic assessment. 43
Figure 5-25: Example of the rock mass model for SWA 44
Figure 5-26: Summary histograms from geotechnical logging of major lithological and weathering domains 46
Figure 6-1: Conceptual illustration showing relative water table depths 48
Figure 7-1: Schematic representation of pit slope design concepts and terminology 49
Figure 7-2: Bench-berm terminology used 51
Figure 7-3: Planar (left) and wedge (right) sliding failures (after Hudson & Harrison, 2000) 53
Figure 7-4: Flexural (left) and direct (right) toppling failures (after Hudson & Harrison, 2000) 54
Figure 7-5: Example output of kinematic assessment for SWA 55
Figure 7-6: Example results from SBlock for the North Domain (Chegue Main, Chegue North, and Han) considering 20 m bench heights for a range of bench face angles 57
Figure 7-7: Conceptual model summary: two saprolite thicknesses considered, with variable water levels 58
Figure 7-8: Conceptual deep saprolite (40 m thick) section for Doropo showing results from Hu = 0.8 for shallow, intermediate, and deep water tables for a 32.4° IRA 59
Figure 7-9: Conceptual water table levels for pits in main Doropo area; thickest saprolite portions are outlined in black for Chegue South and Chegue Main 61
Figure 7-10: Saprolite thicknesses at Chegue South and Chegue Main; thick portions of saprolite less than 40 m, and limited in extents to areas of relative topographic highs 62

List of Technical Appendices

A GEOTECHNICAL DATA A-1

B STRUCTURAL DOMAINS AND KINEMATIC ANALYSIS B-1

C GEOTECHNICAL DOMAIN MODEL C-1

SRK Consulting (UK) Limited
5th Floor Churchill House
17 Churchill Way
Cardiff CF10 2HH
Wales, United Kingdom
E-mail: enquiries@srk.co.uk
URL: www.srk.com
Tel: + 44 (0) 2920 348 150

A GEOTECHNICAL FEASIBILITY STUDY REPORT ON THE DOROPO PROJECT, CÔTE D'IVOIRE

1 INTRODUCTION

1.1 Background

SRK Consulting (UK) Limited (SRK) is an associate company of the international group holding company, SRK Consulting (Global) Limited (the SRK Group). SRK has been requested by Centamin Plc (Centamin, hereinafter also referred to as the Company or the Client) to undertake a geotechnical Feasibility Study (FS) for Centamin's Doropo Project (Doropo) located in north-east Côte d'Ivoire about 480 km from the capital Abidjan (Figure 1-1).

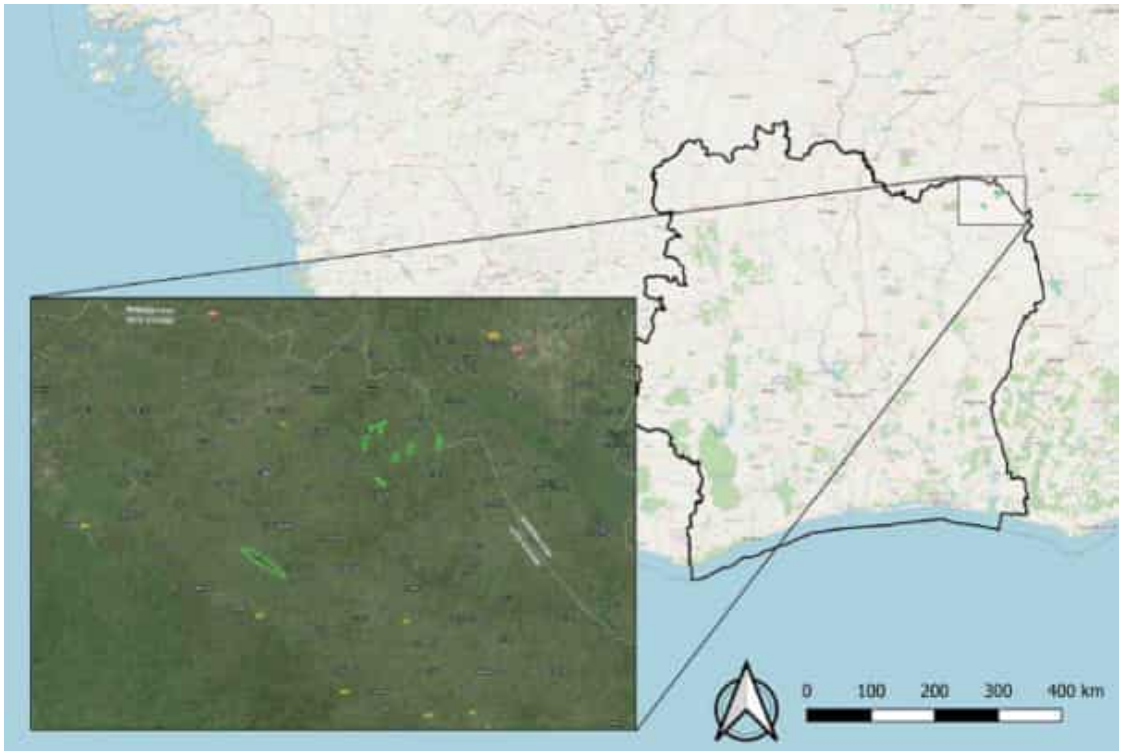


Figure 1-1: Doropo project area, Côte d'Ivoire

In August 2018, SRK completed a Preliminary Geotechnical Assessment (Scoping Study Level) of the six pits associated with Centamin's Doropo gold mining complex with the aim of developing geotechnical slope design criteria for pit optimisation studies associated with a Preliminary Economical Assessment (PEA). The pits for which the study was undertaken were Attire (ATI), Chegue Main and Chegue South (CHG), Enioda (ENI), Han (HAN), Kekeda (KEK), Kilosegui (KLG), Nokpa (NOK), and Souwa (SWA).

A total of 9 pits were analysed for the Pre-Feasibility (PFS) investigation completed by SRK in 2023 within two distinct areas: Doropo and Kilosegui. Eight of the proposed pits are within the Doropo area: ATI, CHG, ENI, HAN, KEK, NOK, and SWA. The remaining pit, Kilosegui (KLG), is located approximately 30 km to the southwest of the Doropo area.

For the feasibility investigation, a total of 8 pits were assessed with ATI being removed from the resource at the current level of study.

1.2 Terms of Reference

The scope of work for the feasibility study was developed as part of the PFS investigation. The project was initiated prior to the start of the summer 2023 drilling campaign to ensure that appropriate geotechnical drilling targets were established and incorporated into the 2023 drilling campaign.

2 DATA SOURCES

2.1 Previous Studies and Reports

Previous reports made available for the assessment are shown in Table 2-1.

Table 2-1: Previous studies and reports

Study Area	Source	Data	Year
Geology	H&S Consultants Pty. Ltd.	NI 43-101 Technical Report Mineral Resource Estimates of the Doropo Project	2019
	Cube Consulting	Internal Resource Estimate of Doropo Project	2021
	Centamin	Doropo Gold Project PEA Update	2021
Structural Geology	Tektonik Consulting Ltd.	Review of Structural Controls on Mineralisation	2017
	JunCowan	Doropo Gold Mineralisation Patterns	2019
Geotechnical	SRK	Preliminary Geotechnical Assessment for Doropo Open Pits	2018
	SRK	Pre-Feasibility Assessment for Doropo	2023

2.2 Field Investigations

As part of the 2023 feasibility assessment, a total of 8 holes of approximately 820 m total length were completed (Table 2-2). These drillholes were designed for two purposes: to infill geotechnical drilling and inform the geotechnical model; and to collect samples for laboratory testing. These are in addition to 33 drillholes completed for the 2023 PFS and 23 drillholes completed for the Scoping Study in 2018 (Figure 2-1).

Table 2-2: 2023 Feasibility geotechnical drilling

HoleID	Easting	Northing	Elevation	Prospect	Depth	Azimuth	Dip
DPDD3583	481066.578	1078318.691	314.2526	CHG	102.6	14.6	62.4
DPDD3584	481451.495	1077413.51	301.2878	CHG	60.15	94.2	61.2
DPDD3585	481425.171	1077061.794	297.0661	CHG	80.1	26.2	61.9
DPDD3586	491994.591	1075129.907	295.7706	ENI	105	339.1	59.9
DPDD3587	478672.283	1075716.495	340.7375	SWA	150.35	321.9	60.8
DPDD3588	459076.743	1055258.919	354.3593	KLG	120.1	121.7	60
DPDD3589	461476.827	1053890.2	369.226	KLG	120.05	300.5	60.5
DPDD3590	491953.619	1074489.844	299.2094	ENI	80	270.3	58.8

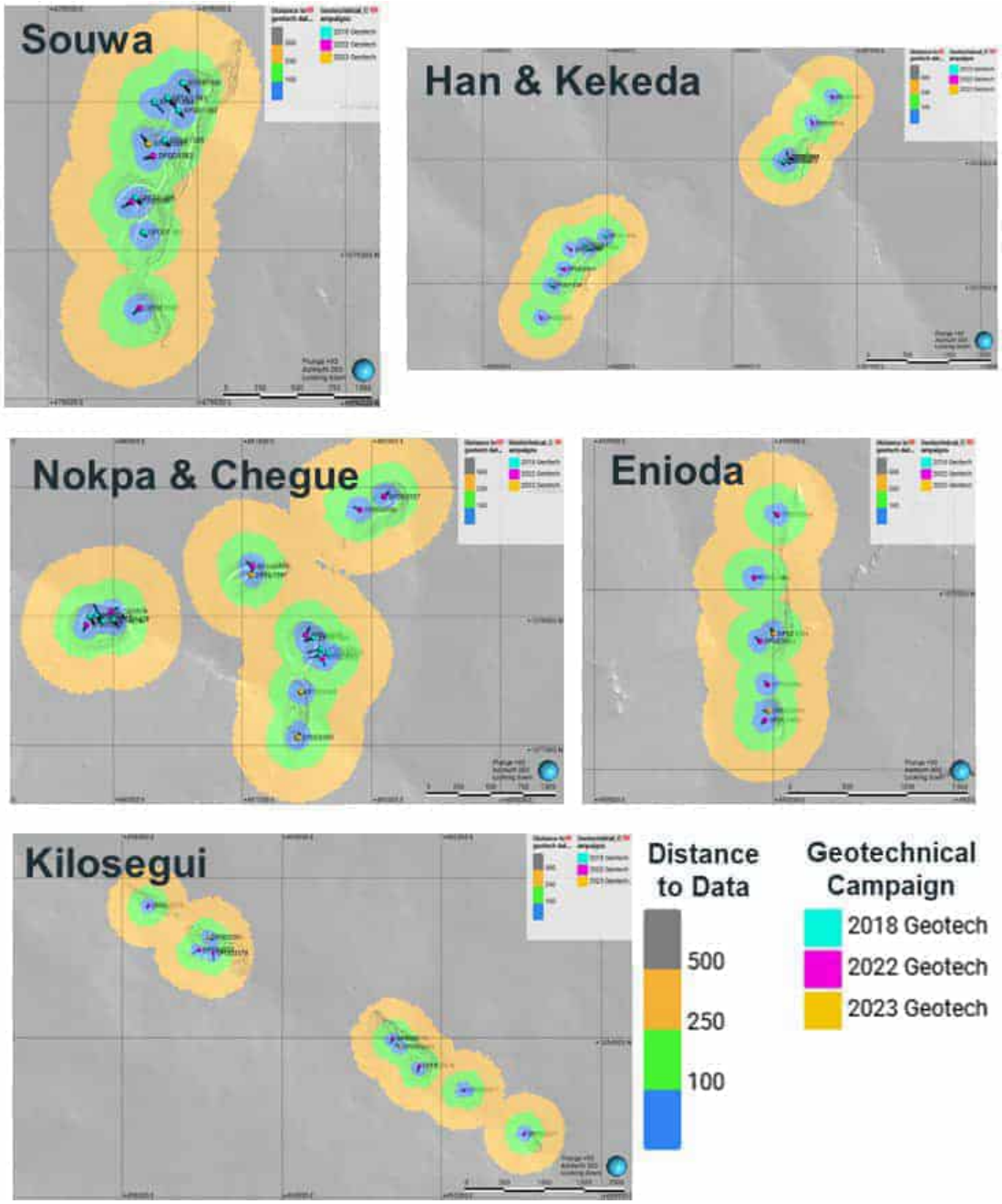


Figure 2-1: Distance to geotechnical drilling completed between 2018 and 2023 compared to the PFS pit shells

2.2.1 Geotechnical Drilling Program

The Bieniawski 1989 Rock Mass Resting (RMR_{89}) method was used to collect geotechnical logging data for this project. The intervals for the geotechnical logging were domained by similar rock mass characteristics or lithotype and not logged on a run-by-run basis. Also available were data from the scoping study level investigations (SRK, 2018), which were logged in the same format.

Geotechnical drilling was completed using single tube NQ tooling. Typically, geotechnical drilling is completed using triple tube tooling (HQ or NQ). As a result of this, the rock was frequently broken and spun in the tubes and orientation line continuity was poor. The RMR may be slightly underestimated by including discontinuities that may have remained intact but were opened during drilling or core handling.

RMR_{89} uses a classification system graded from 0 to 100 to indicate the rock mass quality, with higher values indicating a more competent rock mass. Table 2-3 outlines the empirical descriptions of the rock mass based on different ranges of RMR_{89} values and used to describe the various geotechnical domains identified.

Table 2-3: Empirical rock mass descriptions for RMR_{89} values

Rating	100 - 81	80 - 61	60 - 41	40 - 21	<20
Description	Very good rock	Good rock	Fair rock	Poor Rock	Very poor rock

The RMR_{89} system collects five parameters: Intact Rock Strength (IRS), Rock Quality Designation (RQD), Joint Spacing, Joint Conditions, and Groundwater Condition. Each parameter is assigned a value, which are summed to calculate the overall RMR_{89} value. As groundwater conditions cannot be determined during logging all RMR_{89} values presented in this report are assumed dry. Rating parameters are outlined in Figure 2-2.

Geotechnical logging was completed by the project site geologists. As part of the feasibility study, SRK completed QA/QC of the logged geotechnical parameters for each drillhole against the core photos. The aim of the QA/QC checks was to ensure any errors that may have been incorporated into the dataset due to incorrect logging or data entry were corrected. Each drillhole was plotted as a striplog using Strater 5, and the compiled striplogs and processed geotechnical data are presented in Appendix A.

PARAMETER			Range of values // ratings						
1	Strength of intact rock material	Point-load strength index	> 10 MPa	4 - 10 MPa	2 - 4 MPa	1 - 2 MPa	For this low range uniaxial compr. strength is preferred		
		Uniaxial compressive strength	> 250 MPa	100 - 250 MPa	50 - 100 MPa	25 - 50 MPa	5 - 25 MPa	1 - 5 MPa	< 1 MPa
		RATING	**15**	**12**	**7**	**4**	**2**	**1**	**0**
2	Drill core quality RQD		90 - 100%	75 - 90%	50 - 75%	25 - 50%	< 25%		
		RATING	**20**	**17**	**13**	**8**	**5**		
3	Spacing of discontinuities		> 2 m	0.6 - 2 m	200 - 600 mm	60 - 200 mm	< 60 mm		
		RATING	**20**	**15**	**10**	**8**	**5**		
4	Condition of discontinuities	Length, persistence	< 1 m	1 - 3 m	3 - 10 m	10 - 20 m	> 20 m		
		Rating	**6**	**4**	**2**	**1**	**0**		
		Separation	none	< 0.1 mm	0.1 - 1 mm	1 - 5 mm	> 5 mm		
		Rating	**6**	**5**	**4**	**1**	**0**		
		Roughness	very rough	rough	slightly rough	smooth	slickensided		
		Rating	**6**	**5**	**3**	**1**	**0**		
		Infilling (gouge)	none	Hard filling		Soft filling			
			-	< 5 mm	> 5 mm	< 5 mm	> 5 mm		
		Rating	**6**	**4**	**2**	**2**	**0**		
		Weathering	unweathered	slightly w.	moderately w.	highly w.	decomposed		
		Rating	**6**	**5**	**3**	**1**	**0**		
5	Ground water	Inflow per 10 m tunnel length	none	< 10 litres/min	10 - 25 litres/min	25 - 125 litres/min	> 125 litres /min		
		p_w / $\sigma 1$	0	0 - 0.1	0.1 - 0.2	0.2 - 0.5	> 0.5		
		General conditions	completely dry	damp	wet	dripping	flowing		
		RATING	**15**	**10**	**7**	**4**	**0**		

p_w = joint water pressure; $\sigma 1$ = major principal stress

Figure 2-2: Bieniawski 1989 rock mass rating classification system

2.2.2 Oriented Drilling

The Reflex ACT III tool was used for core orientation. The core orientation tool uses accelerometers to sense the 'low side' of the core tube, known as bottom hole orientation. The instrument uses the stored accelerometer information that is associated with the core breaking time and guides the user to position the tool so that the same low-side position is reproduced on the surface. Once the core has been retrieved from the core barrel, all individual core pieces are connected until firmly interlocked and the orientation line is drawn where the orientation mark on the bottom end core stub was made.

The orientation of discontinuities can then be determined through the measurement of the alpha angle (the inclination of a feature relative to the core axis) and the beta angles (the angular location of the bottom of the ellipse formed from the joint intersection with the core circumference relative to the orientation line). The alpha and beta angles are rotated to true dip and dip direction values for each discontinuity using the survey trace of the borehole. A total of 276 of 480 logged features were oriented with alpha and beta angles.

2.2.3 Laboratory Testing

Laboratory testing of the saprolite, Saprock, and Fresh Rock domains was completed at Geolabs Ltd. in the UK during the feasibility program in 2023. A range of test types were conducted on the samples, which were divided into soils testing, soils/rock testing, and Fresh Rock tests (Table 2-4).

Table 2-4: Summary of laboratory samples tested during feasibility program

	CHG MAIN	CHG SOUTH	ENI	KLG	SWA	Grand Total
Soil	**8**	**7**	**34**	**10**	**18**	**77**
Atterberg Limits, Moisture Content	3	4	14	4	6	31
Particle Size Distribution by Wet Sieve Analysis	3	1	12	3	6	25
Single Stage Undrained Triaxial testing	2	2	8	3	6	21
Trans Rock	**3**	**1**		**5**	**9**	**18**
Particle Size Distribution by Wet Sieve Analysis	1				3	4
Single stage Triaxial Testing				1		1
UCS with Young's & Poisson's	2	1		4	6	13
Fresh	**4**	**10**	**7**	**16**	**7**	**44**
Direct Shear of Natural Joint	2	5	3	7	2	19
Multi-stage Triaxial Testing	1			1	2	4
Single stage Triaxial Testing		2		2		4
UCS with Young's & Poisson's	1	3	4	6	3	17
Grand Total	**15**	**18**	**41**	**31**	**34**	**139**

2.2.4 Site Visit

As part of the feasibility study, a site visit to the project area was completed by SRK's Mr Sam Tims during October 2023. The purpose of this visit was to review core conditions and to understand the local context for the proposed pit areas. Due to security concerns, the visit did not include HAN and ENI. The proposed pit areas are visually similar, with generally flat topography. No outcrop is visible at site. Ground conditions are generally similar for the visited areas, with sandy weathered material forming much of the terrain (Figure 2-3).



Figure 2-3: Kilosegui area topography and sandy /silty overburden

3 GEOLOGICAL SETTING

After Centamin, 2021:

The project lies within the West African craton, in the southern Leo-Man shield (Figure 3-1). The Doropo projects are found within the Paleoproterozoic Birrimian domain. This domain includes greenstone belts bounded by large areas of tonalitic granite-gneiss, trondheimite, and granodiorite. Later alkaline and calc-alkaline granitic intrusions occur throughout the package.

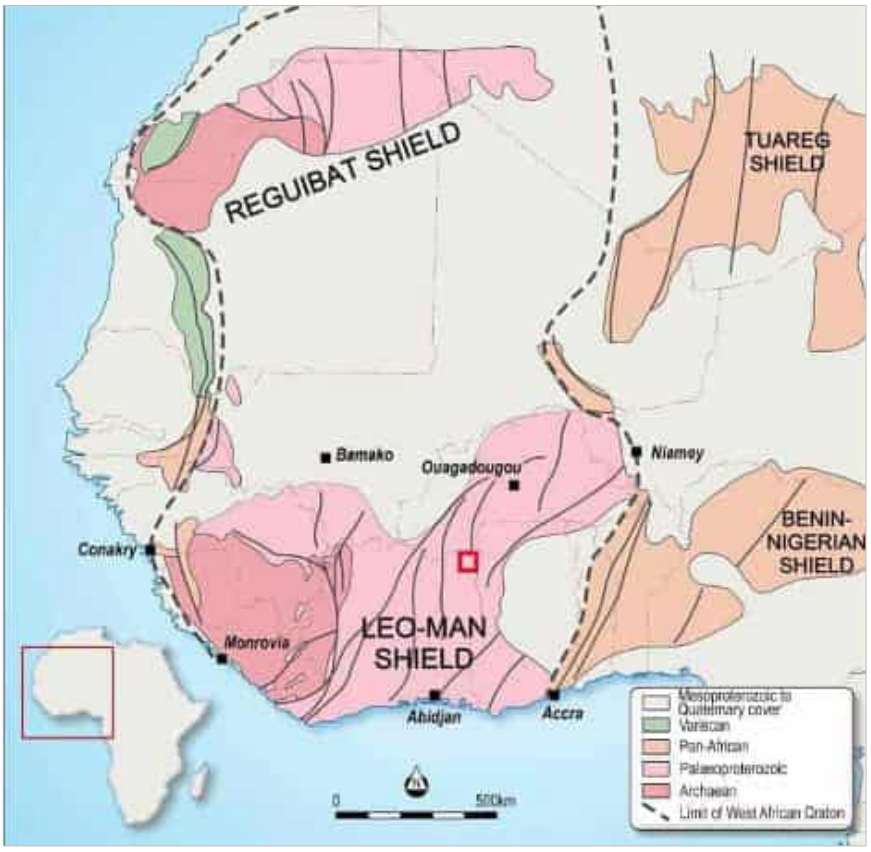


Figure 3-1: Map of West African Craton (source: Centamin, 2021)

Main tectonic activity occurred ~2.5 – 1.6 billion years ago during the Eburnean megacycle. Following this, large regional brittle deformation, characterized by NW-SE oriented dolerite dykes occurred. The Doropo resource area is located within Paleoproterozoic granitoids (Figure 3-2). This is a homogenous, medium to coarse grained granodiorite, which is locally intruded by dykes. The dykes are variably biotite-rich or aplitic and these are mainly associated with the Nokpa, Chegue South, Enioda, and Kekeda deposits. Away from the mineralized zones, alteration includes epidote-chlorite and hematite. Haematite alteration can be very strong adjacent to the dolerite dykes. There are localized haematite and silica alteration, and a silica-sericite alteration that often overprints these. The alteration is not expected to have an impact on rock strength and is not considered further for the geotechnical domain model.

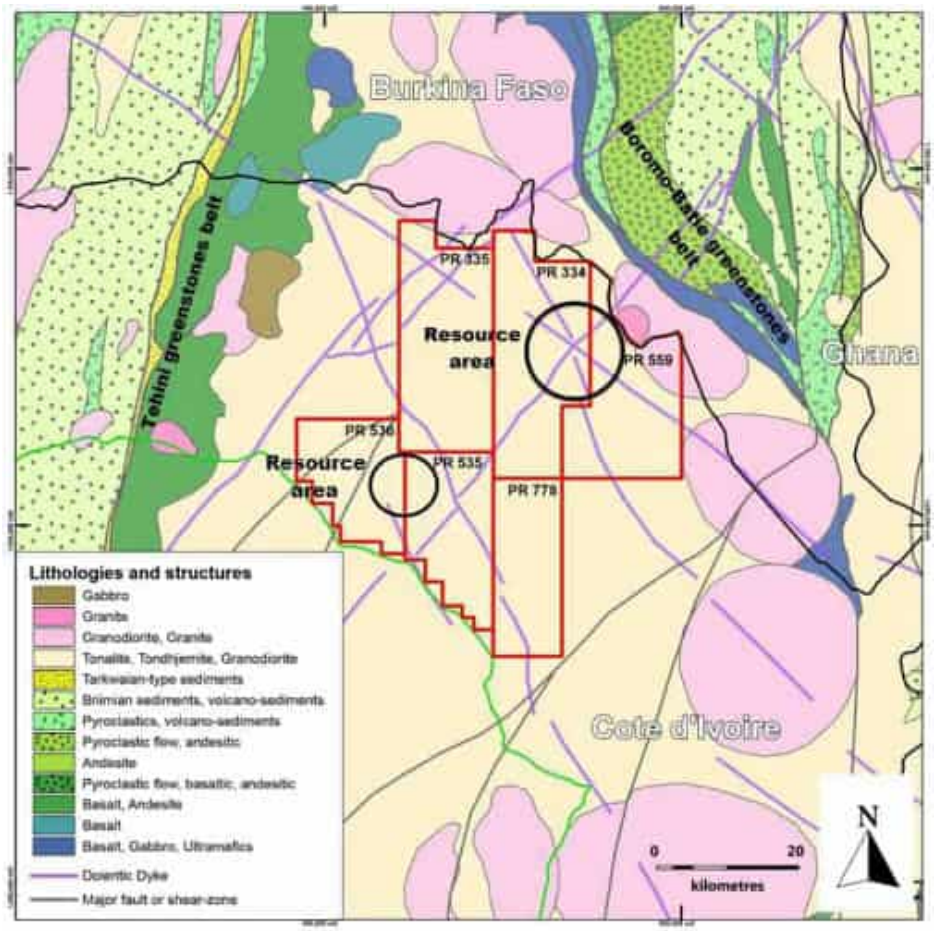


Figure 3-2: Geology map of Doropo (source: Centamin, 2021)

3.1 Geology and Mineralisation

After Centamin, 2021:

The mineralization is linked to specific regions of intense alteration of silica and sericite, which are concentrated within and along the edges of narrow shear zones measuring 5-10 m in width, with some areas reaching 20-25 m. The granodiorite in areas outside of these mineralized zones shows limited deformation.

The mineralization at Doropo is concentrated in planar zones and follows a great circle on the stereonet with a plunge towards 30/295°. This direction is consistent with the linear direction of mineralization within these planar zones and can be used to further explore the deposits (Figure 3-3). The Kilosegui deposit is shear-hosted but may be related to the Doropo deposit. Even though it is oriented in a different direction it could have been formed under similar stress conditions. Further drilling is needed to confirm this hypothesis and determine if the poles of the planar grade continuity at Kilosegui align with the great circle defined by the Doropo zones.

Mineralization is a result of a massive fluid flow system that deposited the gold during the transition from ductile to brittle-ductile deformation. Quartz-carbonate veining is similar at all prospects and generally shows an increase in shear textures and fabric in proximity to the veins.

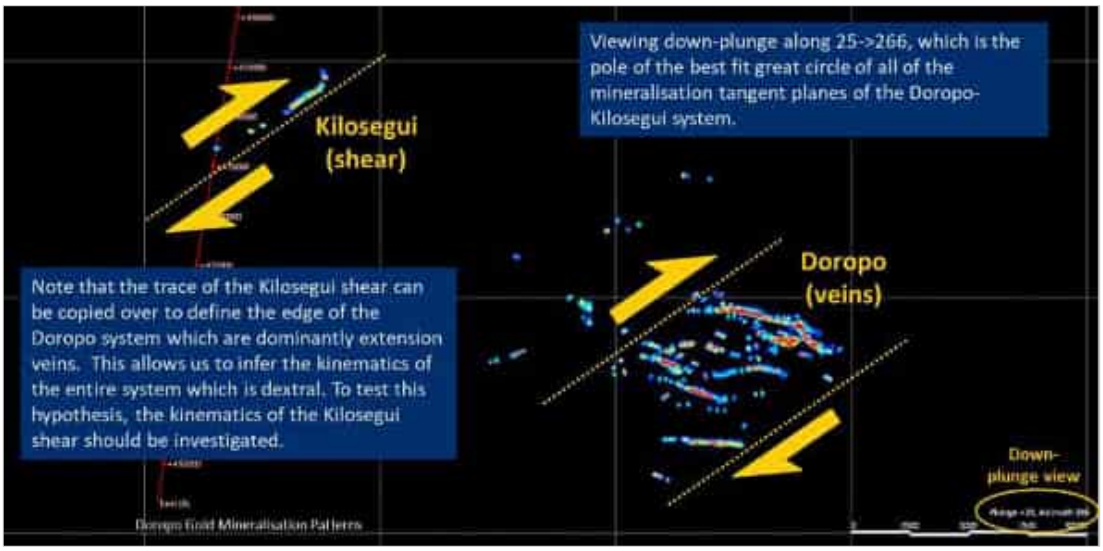


Figure 3-3: Down-plunge view showing kinematic pattern shared between Doropo and Kilosegui (source: JunCowan, 2019)

3.2 Major Lithological Units

The following descriptions are representative of the deposits across the Doropo and Kilosegui project areas after Centamin, 2021:

3.2.1 Granite and Granodiorite

The major lithological unit is the granite and granodiorite unit, part of the Leo-Man shield. This unit is variably described in the geological logs from granite to granodiorite but is assumed to be consistent for geotechnical design purposes. This unit is generally undeformed in the Doropo area (Figure 3-4). As mineralization occurred during brittle-ductile deformation, there is shearing proximal to mineralized zones. The granodiorite/granite has a developed fabric related to shearing that extends to at least the pit extents at ENI and KLG (Figure 3-5).



Figure 3-4: Example of undeformed granodiorite from DPDD3558 (Chegue South)



Figure 3-5: Example of weakly foliated granodiorite from DPDD3575 (Kilosegui)

3.2.2 Dykes

Major dykes are relevant to Chegue South and Nokpa (Figure 3-6 and Figure 3-7). These form barren zones in the deposits. The dykes are representative of late-stage brittle deformation, and often show an increased level of damage as compared to the granodiorite country rock. The dykes intruded along pre-existing faults and are related to structural trends seen in the pits where they are present. The dyke and margins are variably faulted and intact at Nokpa, and no diamond drilling (and core photos/geotechnical data) is available for Chegue South. The dyke at Chegue South will not be mined and is unlikely to impact stability with current pit geometries.

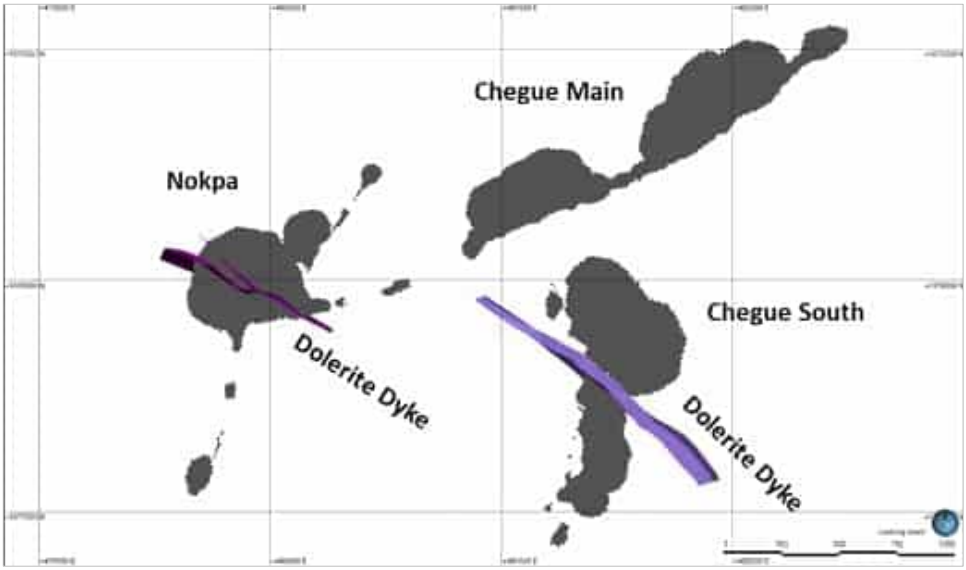


Figure 3-6: Modelled dykes at Chegue South and Nokpa



Figure 3-7: Dolerite dyke example from DPDD1427 (Nokpa)

The shear parallel dyke at Kekeda appears to have a faulted contact (Figure 3-8). As the dyke is adjacent to and parallel to mineralization, this structure will be mined out and is unlikely to be undercut and pose a risk to slope stability. Further information on structural patterns are described in Section 0.



Figure 3-8: Dyke intercept at Kekeda showing faulted contact at 45 m; mineralized zone located below dyke (dark unit)

3.2.3 Mafics

The loosely grouped mafics unit is significant only for the Enioda deposit. These mafics represent interlayered amphibolite units (Figure 3-9). Enioda occurs in a slightly different lithological environment, with granite-gneiss and amphibolite. The sheared amphibolite appears to be limited to only the central portion of the deposit.



Figure 3-9: Representative box photo from DPDD3562 (Enioda) showing inter-layered amphibolite and gneiss

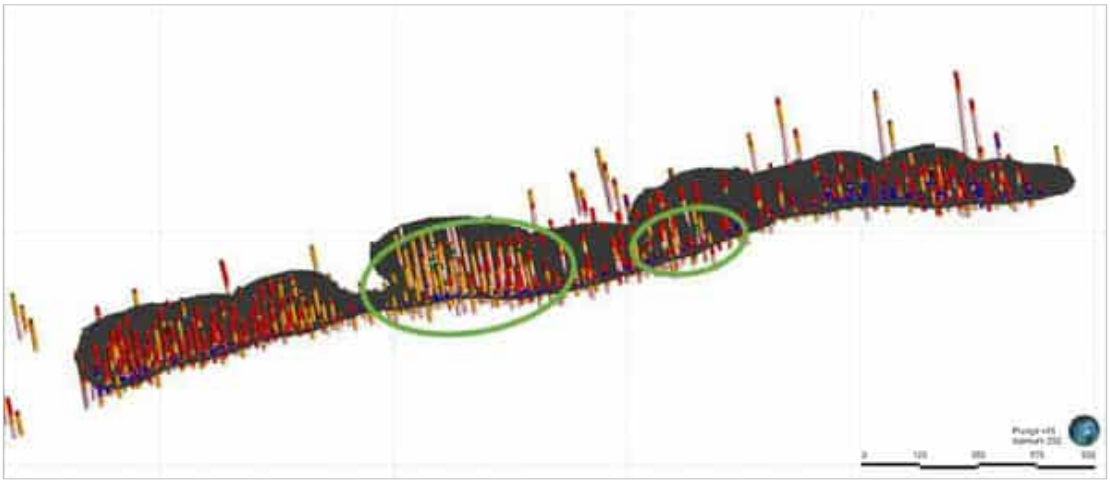


Figure 3-10: Locations of Enioda where amphibolite has been identified

3.2.4 Veins

Limited intersections of veins were logged across the geotechnical drilling. The majority of logged vein intersections correspond to the mineralized zone. These will not form a separate geological domain due to being removed by mining.

3.3 Topography

The project area lies in a gently undulating landscape with numerous drainage channels. At the Doropo area local topography ranges from ~270 – 350 m elevation. The pits can be found in various locations throughout the area, including near the tops of hills and the base of valleys.

Kilosegui is located approximately 30 km to the SW (Figure 3-11) at a topographic high relative to Doropo. The deposit is generally oriented along a gentle valley, with local elevations ranging from 340 – 390 m above sea level.

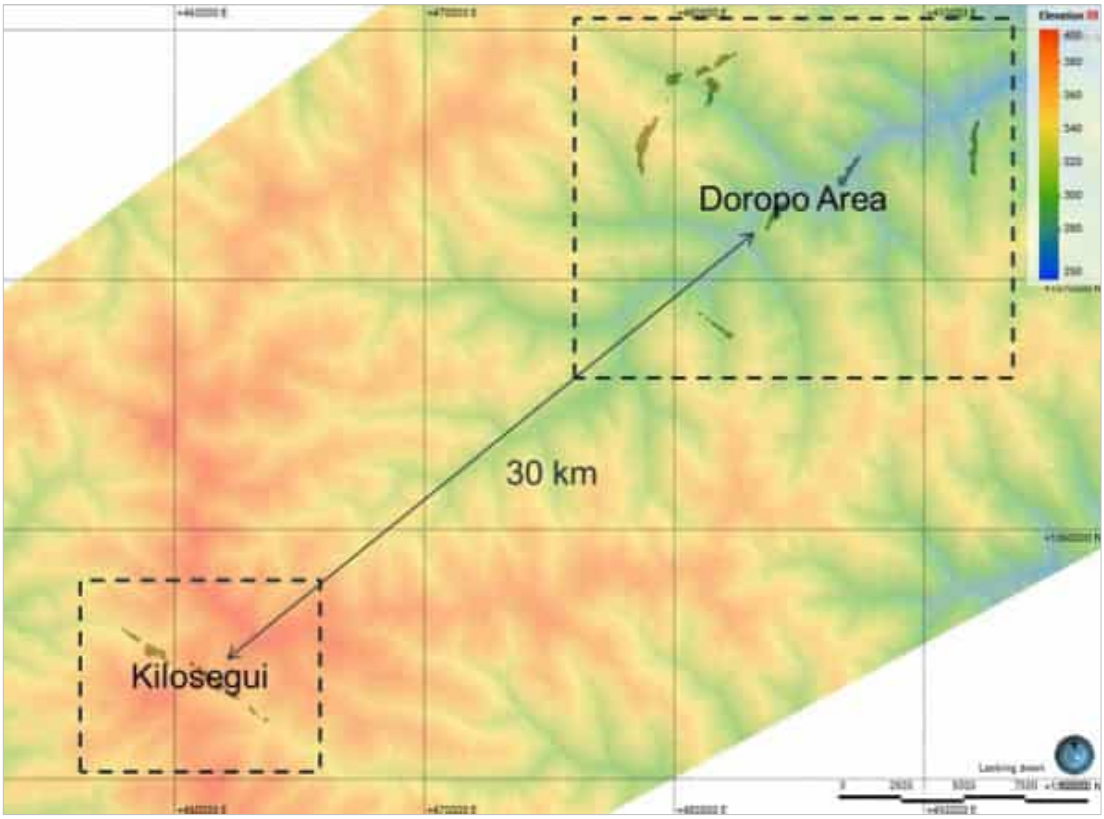


Figure 3-11: Doropo area topography with proposed pit locations (shaded areas) to give context to the significant spatial area encompassed by the project

3.4 Weathering

The hot, humid climate and intense rainfall within the region has resulted in a weathering profile of variable depth which has contributed to the generation of residual soils. In general, the degree of weathering decreases with depth resulting in different tropical soil horizons. While the “contacts” between each horizon are typically gradational, it is necessary to differentiate them for engineering purposes.

Nomenclature for different soil horizons can differ in the literature. The weathering profiles used in this report are derived from communications with Centamin and descriptions of the geological models.

There are two models of the weathering domain. The first is a resource domain weathering model, reflecting boundaries used for the resource estimation. These domains are separated into a base of oxide surface, and a top of Fresh Rock surface. These domains are not suitably refined to use in the geotechnical model and are not further discussed in this report.

The second model is separated into distinct weathering zones, and it is this model that is more suitable for geotechnical use. These have been delineated based on degree of weathering: completely weathered (CW), highly weathered (HW), moderately weathered (MW), slightly weathered (SW), and fresh (FR). These units generally fit within typical saprolitic profiles, such as the idealized section from Fookes, 1997 (Figure 3-12). The depth to the logged base of these units for each pit is provided in Figure 3-13. The names and classifications given to the weathering horizons are as follows (from shallowest to deepest):

- Completely Weathered (Laterite): The upper 0 – 5 m of the soil profile that includes transported soils, alluvium, colluvium, and the lateritic profile. Lithology codes include TSOL, TCLY, LAT, and the geological model surface is named “botcover” (Figure 3-13).
- Highly Weathered (Saprolite): Field strength of up to and including R0 (< 1.0 MPa). It is highly weathered and behaves as a “soil” in engineering terms, but also exhibits structural features of the parent rock mass. The textures of the protolith are generally lost in this unit. The geological model surface is named “botHW” (Figure 3-14).
- Moderately Weathered (Saprock): Classified by field strength of R0 to R2 (1.0 – 25.0 MPa). This represents the “Transition zone” where material changes from soil behaviour to rock behaviour. Relict rock discontinuities strongly impact stability in this zone. This domain contains a range of conditions from highly weathered rock with recognizable textures from the protolith, to intact rock with weathered discontinuities. The base of this unit in the geological model is named “botMW” (Figure 3-15).
- Slightly Weathered (Saprock): Classified by field strength of R3 to R4 (25 – 100 MPa) and exhibits oxidation through the rock or has oxidised joint surfaces. It typically has a higher fracture frequency than the underlying Fresh Rock where increased weathering has opened incipient foliations or closed joints. This unit is typically thin (<5 m) (Figure 3-16).
- Fresh: Classified by field strength of > R3 (>25 MPa) and above, and exhibits none, or only slight weathering. Fresh Rock generally has little discolouration but may show localised iron staining along discontinuities where water flow is observed. The contact with the Saprock is represented in the geological model by the “topfresh” surface (top of Fresh Rock).

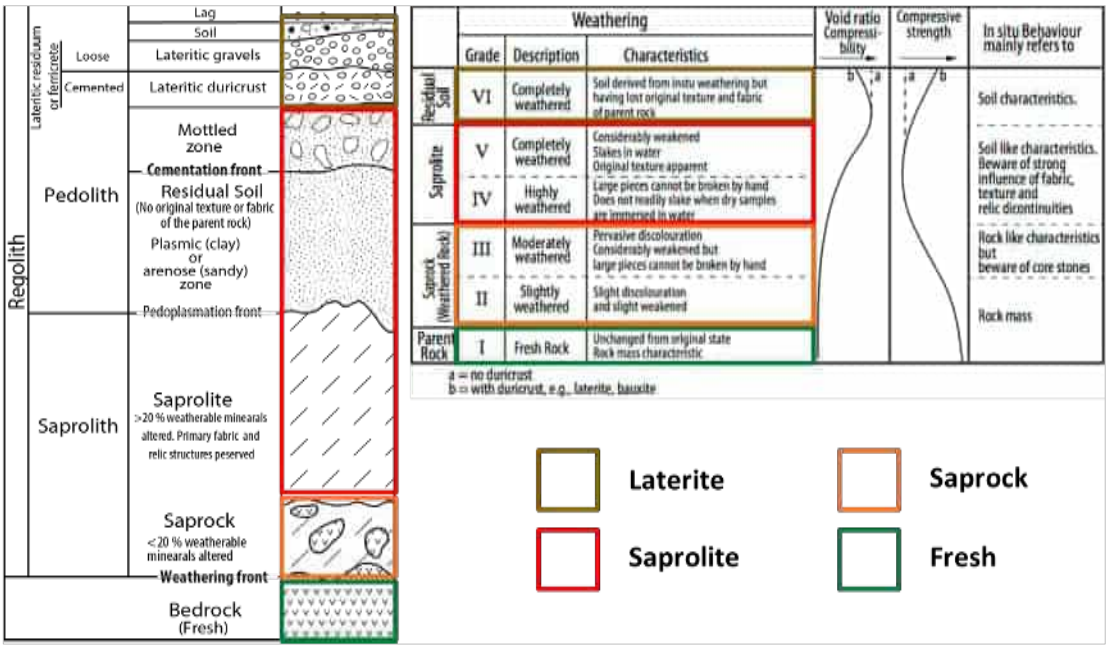


Figure 3-12: Typical saprolitic weathering (from Fookes, 1997)

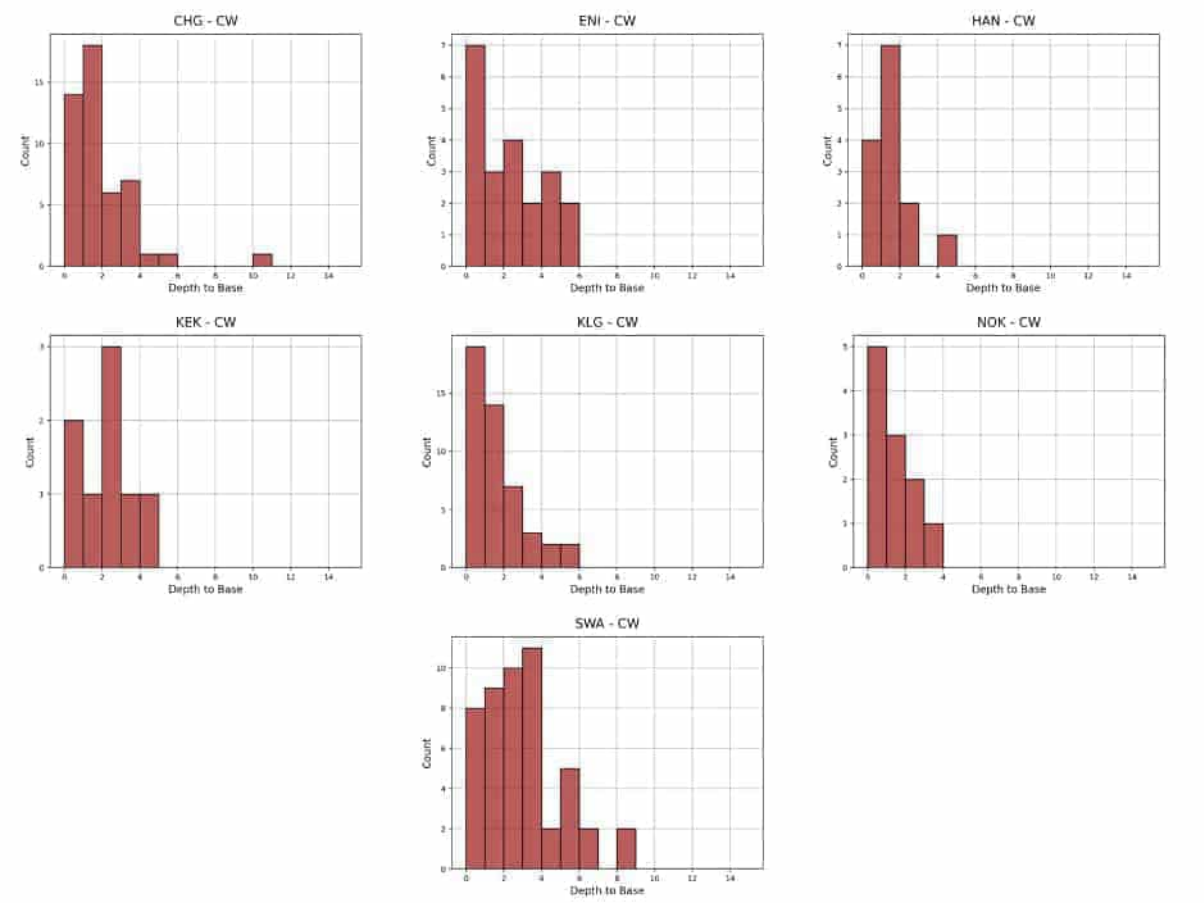


Figure 3-13: Depth to base of CW (base of laterite) weathering horizons for each pit

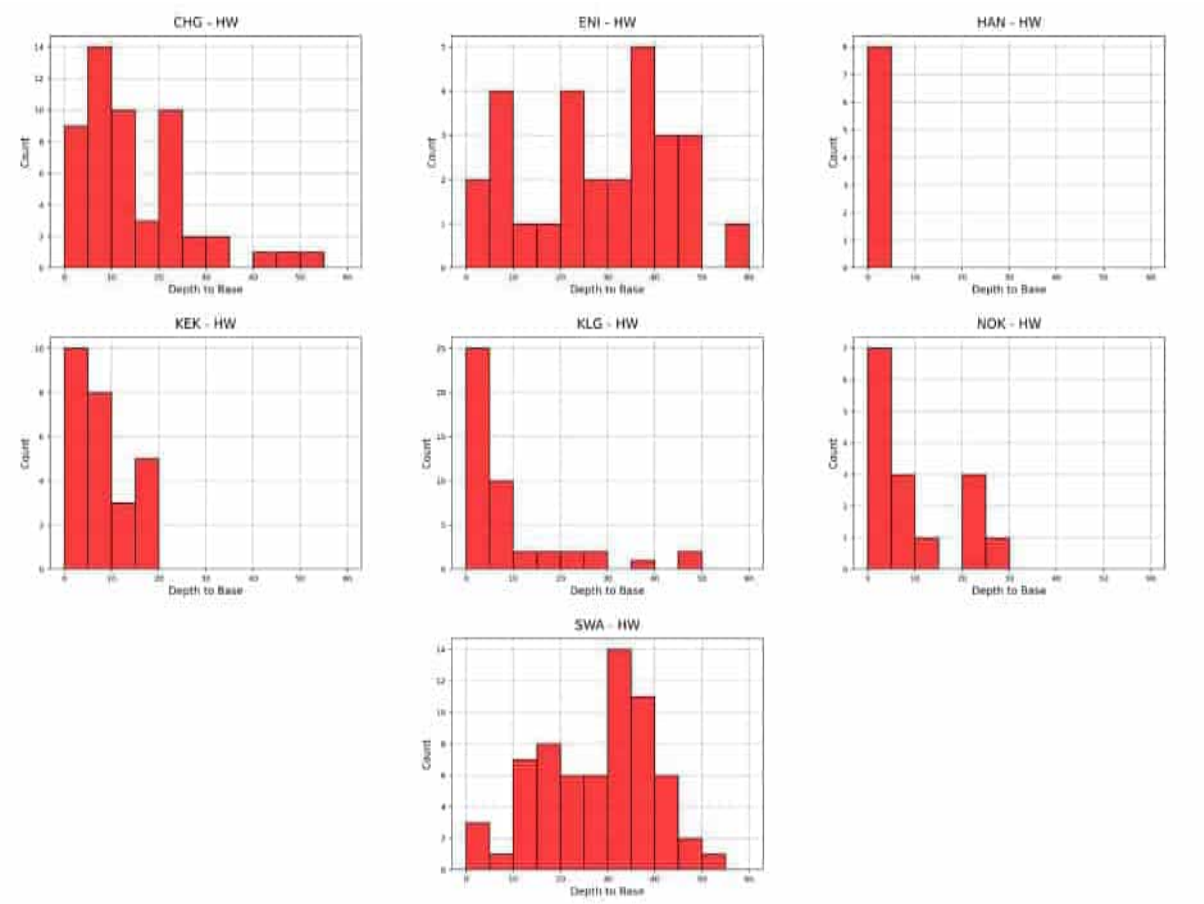


Figure 3-14: Depth to base of HW (base of Saprolite) weathering horizon for each pit

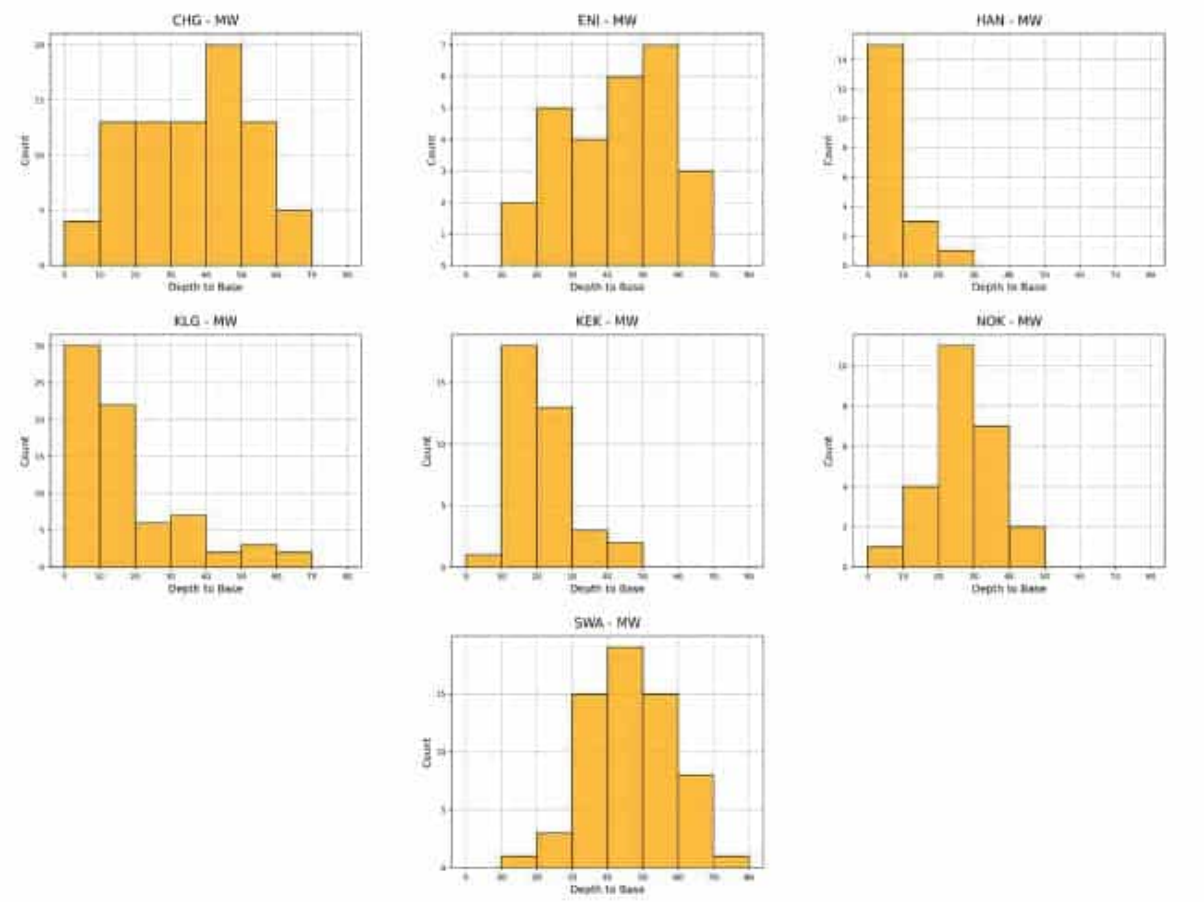


Figure 3-15: Depth to base of MW weathering horizon for each pit

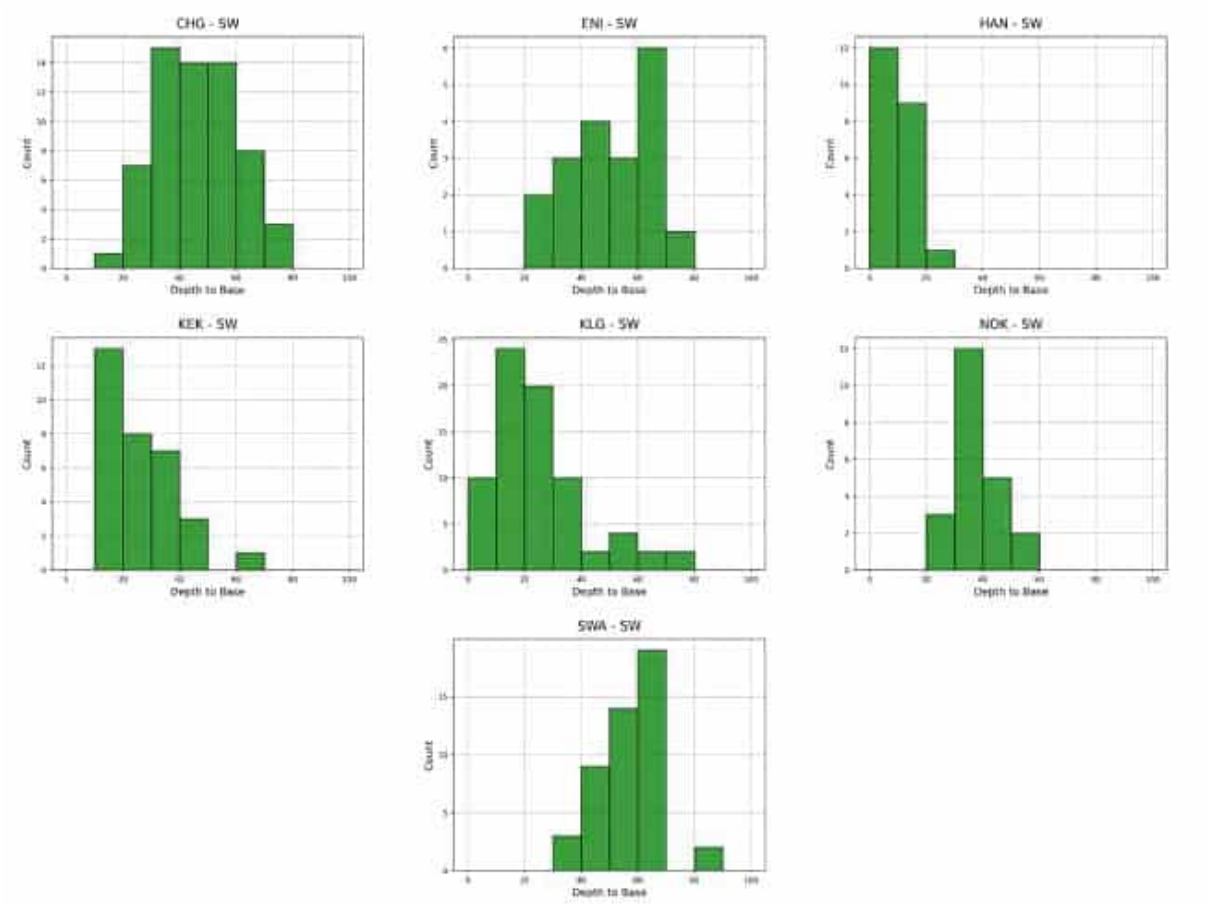


Figure 3-16: Depth to base of SW (top of Fresh Rock) weathering horizon for each pit

4 STRUCTURAL GEOLOGY

4.1 Regional Structures

Regional aeromagnetic imagery and Gradient Array Induced Polarisation (GAIP) survey data shows complex structural patterns that are interpreted to represent brittle and ductile fault networks and other fabric elements in the granite and gneissic host lithologies.

Interpreted fault patterns in the license areas consists of NW-SE (050°) and N-S to NNE-SSW (355°-010°) trending structures that link together, either abruptly at branch points, or as curved faults which change strike over several hundreds of metres. Generally, the N-S/NNE-SSW striking structures tend to terminate more often at NE-SW structures (Bonson, 2017).

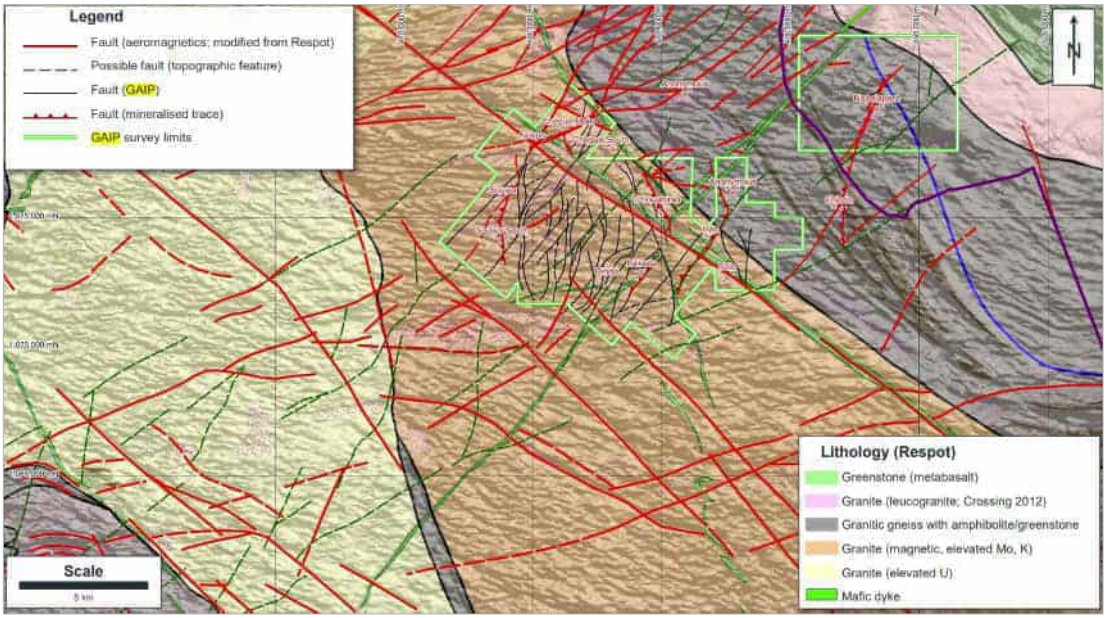


Figure 4-1: Interpretation of salient faults within Doropo Project area, modified from Respot's interpretation (Bonson, 2017)

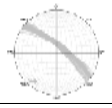
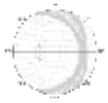
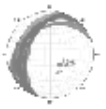
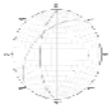
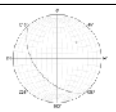
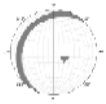
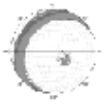
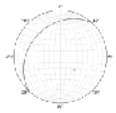
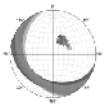
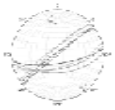
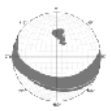
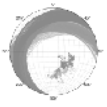
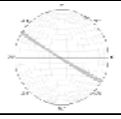
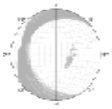
4.2 Deposits-scale structures

Deposit-scale structures typically emulate regional-scale structures. The dominant structural patterns in the deposits formed during regional deformation which resulted in brittle-ductile shear zones that are overprinted by later brittle faults. Structural data, such as the orientation of faults, fractures and joints in drill holes, geotechnical logging data (RQD/recoveries) and gold grade interpolants, allow for the modelling of mineralised structures and structural discontinuities in the deposit, that can be linked to shear zones, faults, and cross-cutting dykes.

The orientations of the deposit-scale mineralised structures, interpreted as brittle-ductile shear zones and veins in the Doropo deposits, show variable trends from NE-SW, NW-SE, E-W to N-S. The dominant trends in Cheque, Enioda, Han, Kekeda, Nokpa and Souwa is N-S and NE-SW, whereas Kilosequi and Attire show NW-SE and WNW-ESE trends.

Structural discontinuities such cross-cutting faults were interpreted from geotechnical logging data (RQD, recoveries), structural orientation measurements from orientated drill core, apparent discontinuities seen, Au grade interpolants, and structural trends interpreted from regional geophysics. The dominant trends are NE-SW (Cheque, Kilosegui and Souwa), N-S (Cheque), NW-SE (Enioda) and E-W (Kilosegui and Souwa). Structural trends are summarised in Table 4-1Exploration drillhole logging and interpretative maps from regional aeromagnetic data show NW-SE trending subvertical mafic dykes in Chegue South and Nokpa, and a shallow-dipping, NE-SW dyke at Kekeda. The 3D wireframes generated for the structural model can be found in Appendix C.

Table 4-1: Summary Table of Main Structural Trends

DEPOSIT-SCALE STRUCTURES						
Project	Mineralised Shear		Faults		Mafic Dykes	
	Stereonet	Trend	Stereonet	Trend	Stereonet	Trend
Attire		NW-SE				
Cheque South		N-S, NNE-SSW to NNW-SSE		NE-SW		NW-SE
Cheque Main		NE-SW		N-S, NE-SW		
Enioda		N-S, NNE-SSW		NW-SE		
Han		NE-SW				
Kekeda		NE-SW				NE-SW
Kilosegui		NW-SE		NE-SW, E-W		
				E-W		
Nokpa		NW-SE, E-W				NW-SE
Souwa		N-S, NW-SE, NE-SW		NE-SW, E-W		

Information interpreted from modelled surfaces of the trends of Au intercepts in exploration drill holes and the interpreted orientation of cross-cutting faults and dykes in the Doropo deposits.

4.3 Foliation

The emplacement of the Doropo area veins was during a transition from ductile to brittle deformation. Veins are hosted within brittle-ductile shear zones where strain was highest. The lithological units near the shear zones have a weak to moderately developed foliation (Figure 4-2). Persistent fabrics are important for design as they can impact bench performance by contributing to kinematic failures.

Of the observed core, only three deposits show foliation consistently in the core outside of mineralized zones: Enioda, Souwa, and Kilosegui. Foliation is generally shallowly dipping for all deposits and may increase in intensity closer to mineralization. Limited foliation measurements have been taken across all deposits; however, it appears that the foliation is generally parallel to mineralization at each location (Tektonik, 2017). The foliation generally appears strong, and of the deposits identified, the foliation would dip shallowly along mineralization (<30°), and, as such, is unlikely to have an impact on wall stability. The foliation may contribute to failures within the saprolite; however, it is challenging to identify whether the foliation has developed strongly enough to cause an anisotropy in the strength, or whether these relict structures will exist in the saprolite. An example of foliation is shown in Figure 4-2.



Figure 4-2: Example of moderately developed foliation in Enioda (DPDD3562)

5 GEOTECHNICAL MODEL

Open pit stability will be controlled by shear strength of the rock mass within the weathered horizons and structurally controlled within the Fresh Rock. The geotechnical domain model considers the weathering model from a rock mass failure perspective. Structurally controlled failure in the Fresh Rock will be considered through the structural model and structural domain model.

The objective of the geotechnical domain model is to provide a representation of the variability of the rock properties across the deposit area. A geotechnical domain is a volume of rock which has similar overall characteristics and properties. The rock mass is variable by nature, and as such, a simplification of the parameters with similar units is required for analysis and design purposes.

5.1 Lithological Domains

Based on the regional geology context, the deposits have been sub-domained into three major areas: Doropo, Kilosegui, and Enioda (Figure 5-1). For the Doropo area, laboratory testing was completed at Chegue and Souwa. The lithologies considered for the geotechnical domain model include granodiorite, the dolerite dykes in Chegue South and Nokpa, and the mafic units at Enioda. Each domain was individually assessed for rock mass quality and rock strength as part of the geotechnical characterization work.

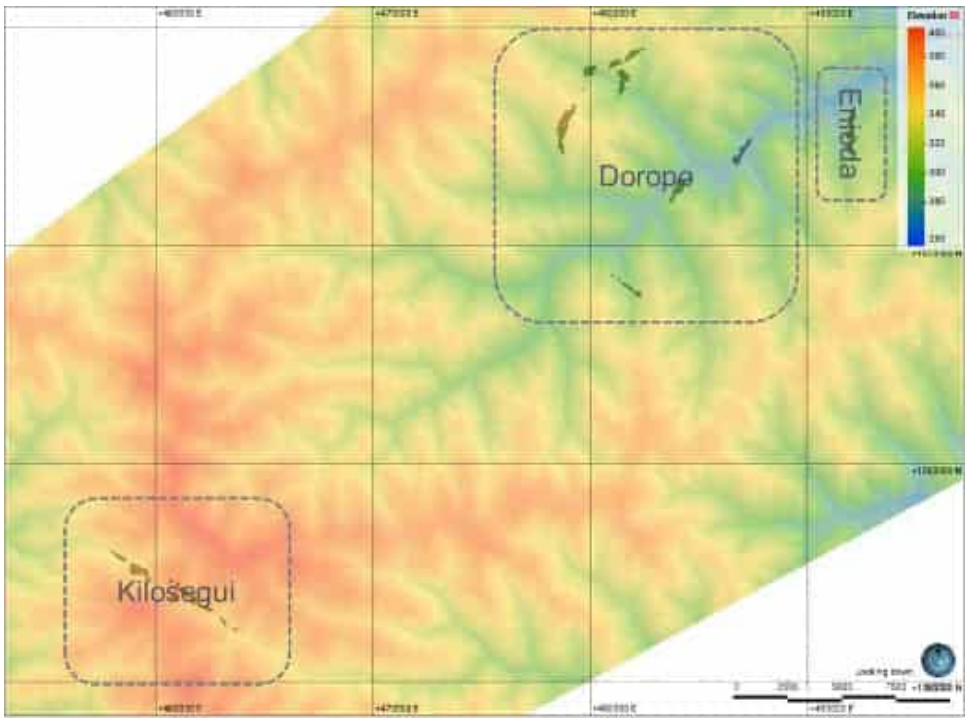


Figure 5-1: Major lithological domains

5.2 Weathering Domains

The geotechnical model primarily comprises the weathering domains modelled for each pit. There are six modelled weathering horizons (Figure 5-2), which have been refined into three distinct weathering domains for design purposes (Table 5-1).

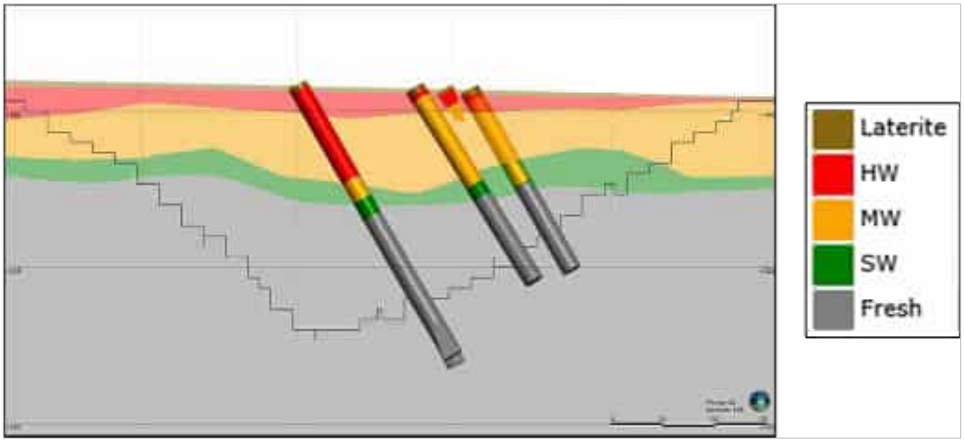


Figure 5-2: Geological model of weathering zones

Table 5-1: Weathering domains

Weathering Code	Weathering Domain	Description	Rock Strength	Fracture Frequency
Completely Weathered (CW)	**Saprolite/Laterite**	No constituent minerals are recognizable, except in part quartz grain (in the case of Doropo).	R0	40
Highly Weathered (HW)		Unconsolidated, some constituent minerals are visible including quartz which is abundant and some rare feldspars	R0 - R1	40
Moderately Weathered (MW)	**Saprock**	Consolidated although crumbly, only few minerals are recognizable, quartz and feldspars are little or no altered, but micas are almost completely altered (all rusty).	R0 - R2	20-40
Slightly Weathered (SW)		Consolidated, most of the minerals are recognizable, quartz and feldspars are not altered, but micas are partially altered (rusty).	R3 - R5	0 - 5
Fresh (FR)	**Fresh**	None of the constituents are altered.	R3 - R5	0 - 5

Saprolite and Laterite (CW and HW)

The saprolite and laterite units have been combined into one design domain because of the limited thickness of logged residual soils across the project site. In general, the laterite units have been modelled with thicknesses up to approximately 10 m, with 85% of laterite intercepts less than 5 m thick. The overall thickness of this unit measures one bench height and does not currently require separate designs (Figure 5-3).



Figure 5-3: Representative box photos showing laterite (logged as CW) and saprolite (logged as HW)

Saprock (MW and SW)

The Saprock unit represents the change in weathering from complete degradation of the rock to un-weathered fresh rock. This unit is generally highly variable, with rock mass conditions ranging from friable and soil-like to competent rock (Figure 5-4). The slightly weathered rock represents the transition from moderately weathered rock (MW), to slightly weathered (SW), to unweathered rock (FR). The weathering of this unit is limited to the joint surfaces, and an increased fracture frequency related to water flow along discontinuities and cemented features.

Key design aspects for managing the Saprock include:

- Drainage: Proper drainage is crucial in Saprock to prevent saturation and erosion. Designing the structure with proper drainage systems to prevent water from building up behind the walls and undermining stability.
- Rock Mass: Variability within the rock mass can be challenging to manage. It is likely that conditions will change from rock-like to soil-like, especially in the proximity of faults. This may require local design adjustments to compensate for the variability in strength.



Figure 5-4: Range of conditions seen in Saprock

Fresh Rock (FR)

The Fresh Rock domain encompasses all rock below the weathering horizons and classified by field strengths of >= R3 (>= 25 MPa). It exhibits no weathering, or limited weathering/staining on joint surfaces (Figure 5-5). Fresh Rock does not preclude weakness planes or damage due to faulting.



Figure 5-5: Fresh Rock

Using the provided wireframes, each pit area was constructed as a 3D geotechnical domain model in Leapfrog Geo (Figure 5-6). The geological models were clipped using the design pits from the PFS study. These models are used to visualize the variability of thickness of the weathering zones as well as spatial constraints on this variability.

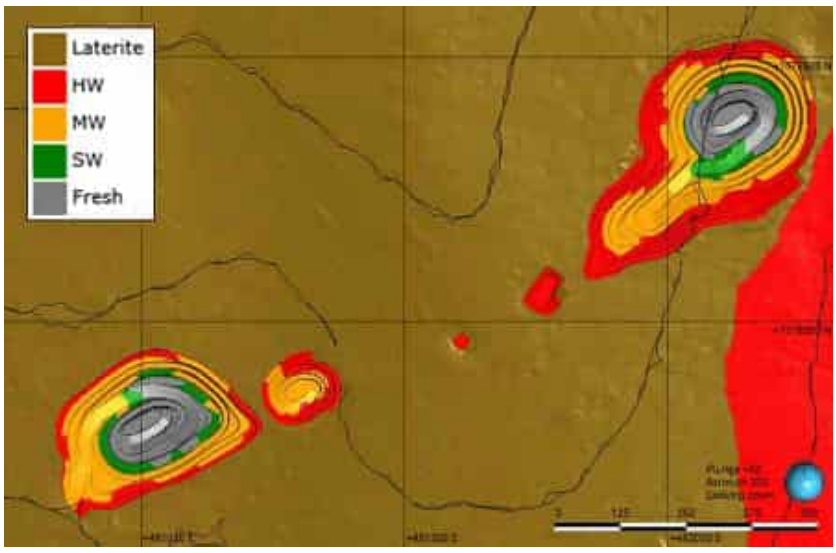


Figure 5-6: Geotechnical domain model for Chegue Main

5.3 Strength Results

The material testing completed for the feasibility study has been subdivided into the three main weathering domains: saprolite, Saprock, and Fresh Rock.

5.3.1 Saprolite Strength Results

Saprolite testing included characterisation testing using particle size distributions, moisture contents, and Atterberg limits.

Particle Size Distributions

A total of 25 samples were assessed for particle size distributions across the feasibility study drilling program (Figure 5-7). Sieving was completed to 0.1 mm passing. Results generally agree with observations from the drilling data:

- Doropo area (Chegue and Souwa) contain a mixture of fine and coarse materials.
- Enioda contains a significant fines fraction (clays and silts).
- Kilosegui shows a generally coarse size distribution (sands and gravels).

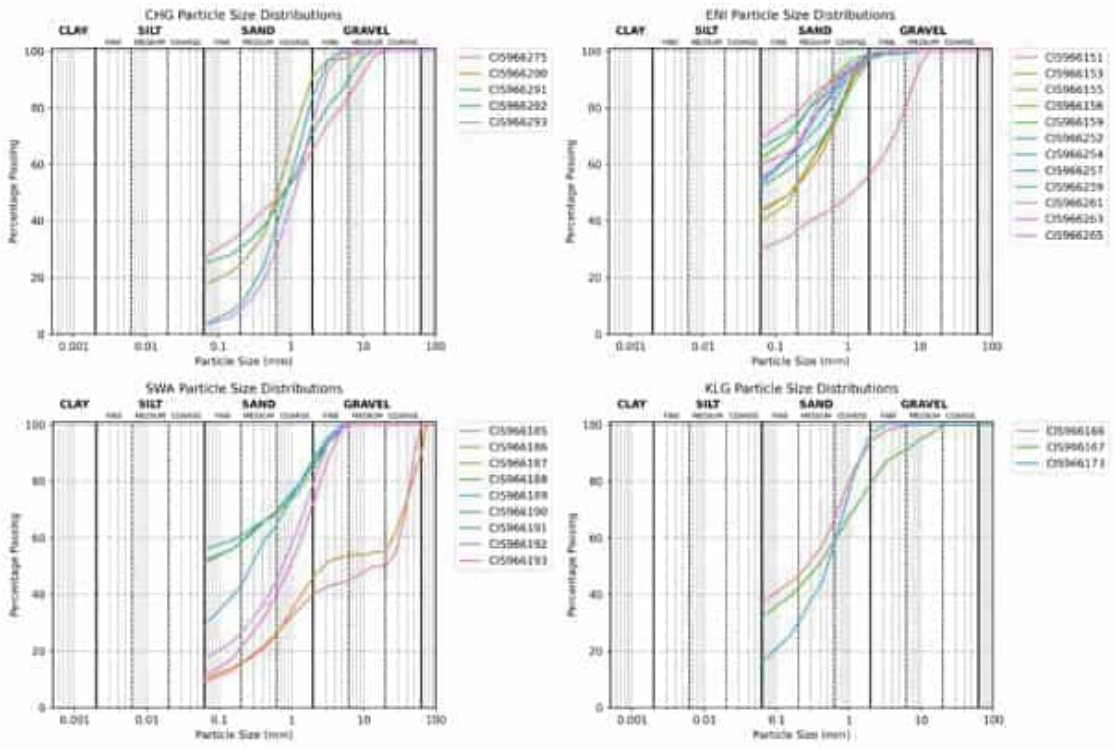


Figure 5-7: Particle size distribution results by prospect

Atterberg Limits

Atterberg Limits is a measure of the critical water content of fine-grained soils as they transition from solid to liquid behaviour. This index test is commonly used to predict the engineering properties of silt and clay soils. A total of 31 tests were completed on saprolitic material during the feasibility study. As expected for a residual soil, there is evidence of a range of particle sizes including clay fractions in all the tested deposits (Figure 5-8):

- Doropo area samples tested through a range of slightly-plastic silts and clays to highly-plastic clays,
- Enioda generally plotted as highly-plastic silty clays or clayey silts, and

- Kilosegui shows generally similar results to Doropo area, without the silty results seen in Doropo.

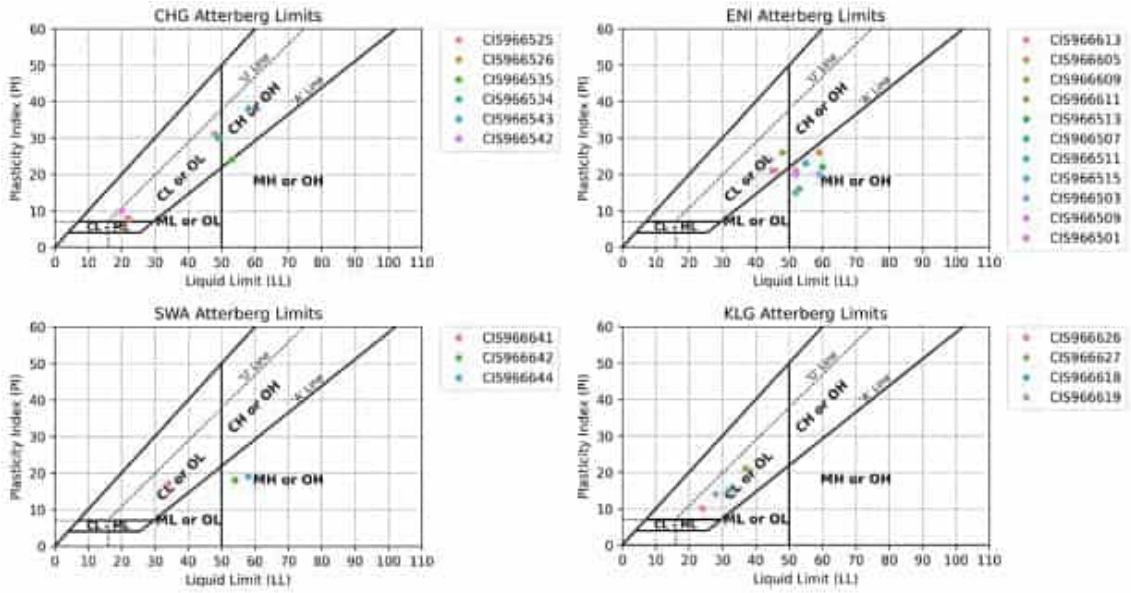
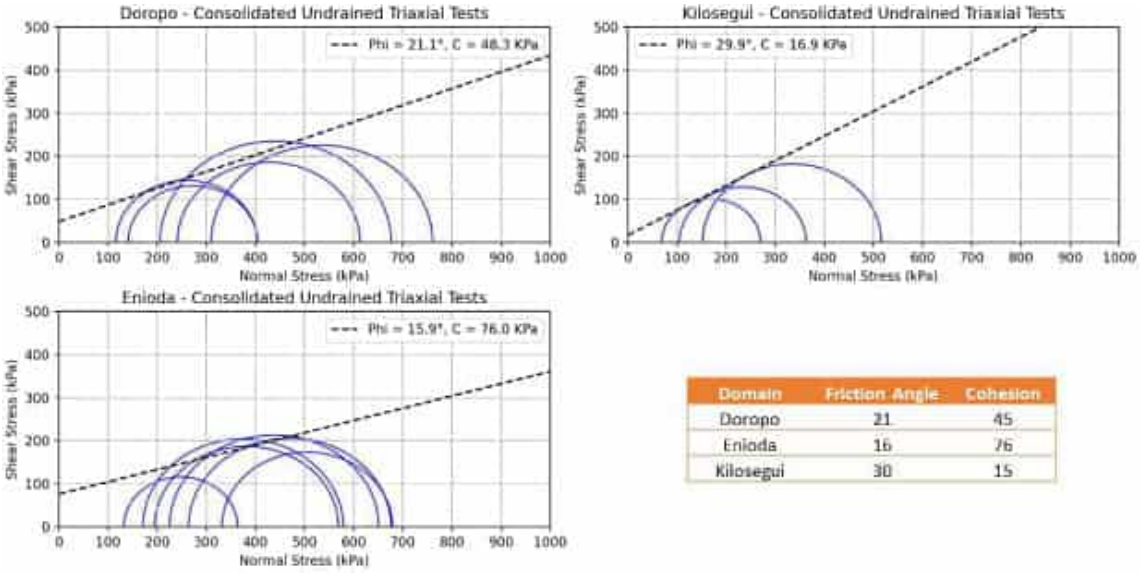


Figure 5-8: Atterberg limits results by prospect

Consolidated Undrained Triaxial Testing

The consolidated undrained triaxial test is commonly used to determine effective stresses of soil samples. Excess pore pressure changes are measured during testing. These samples were completed as single-stage tests, and results were combined by area. Each area was interpreted using a best-fit curve along the plotted Mohr-circles to derive Mohr-Coulomb friction angles and cohesions (Figure 5-9). Results generally confirm field observations:

- Doropo area results demonstrate a moderate friction angle with a nominal amount of cohesion. This correlates well with the observations from the particle size distributions and Atterberg limits results.
- Enioda area results show a low friction angle and relatively higher cohesion. This correlates well with the particle size distributions showing the high fines content and interpreted highly plastic clay contents from the Atterberg limits.
- Kilosegui results show a high friction angle and relatively low cohesion. This can be expected based on the low fines content from the particle size distributions and slightly plastic from Atterberg limits results.



Domain	Friction Angle	Cohesion
Doropo	21	45
Enioda	16	76
Kilosegui	30	15

Figure 5-9: Consolidated undrained triaxial test results and interpretation by prospect

5.3.2 Saprock and Fresh Rock Strength Results

Materials testing of the Saprock is inherently unreliable due to the significant variability of strength within the unit. Materials within the Saprock comprise strengths of R1 – R5, depending on the degree of weathering. High strength, relatively unweathered materials can be adjacent to completely weathered materials within fractures which compounds the challenges of assigning a representative strength value.

Uniaxial compressive strength (UCS) testing results show a range of values from the various pits and weathering horizons (Figure 5-10). These have been coarsely grouped into results based on weathering domain, with the highly weathered saprolite materials showing the lowest UCS, and a gradational improvement in strength through the moderately weathered Saprock. The Fresh unit shows the highest strengths, with a range between 100 – 200 MPa. The Fresh Rock tends to show a binomial distribution of strength results, with clustering around 150 MPa and 200 MPa. There are no observable differences in strength results across the project area.

A total of 8 samples were tested using single stage and multi-stage triaxial testing to further understand the performance of the rock under confinement. These results show a similar binomial trend to the UCS results. These results show high strength increases with confinement, with an approximated best-fit curve using a m_i value of 35. This is at the upper end of the expected values for these units.

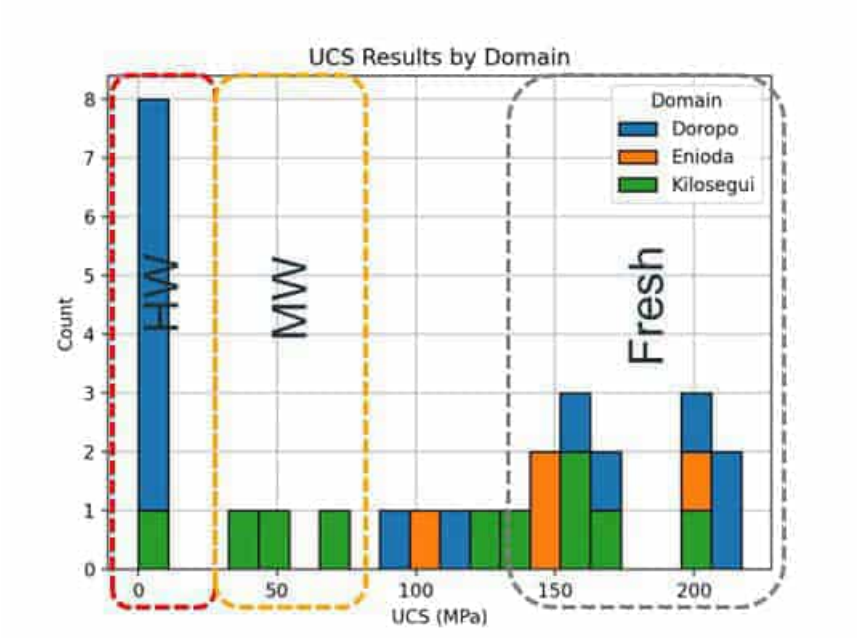


Figure 5-10: UCS results

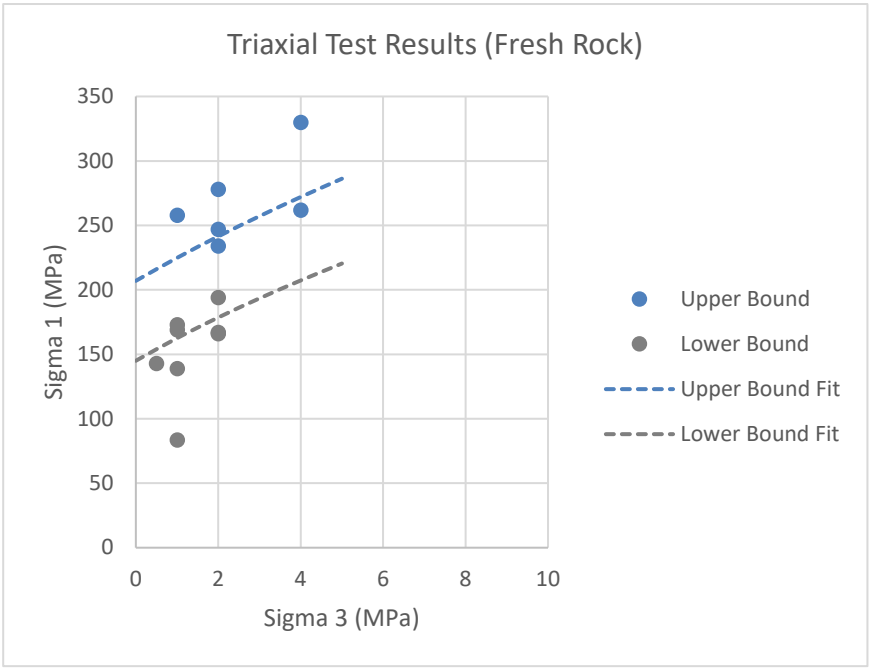


Figure 5-11: Triaxial test results with approximated best-fit curves using m_i 35

5.4 Structural Domain Model

5.4.1 Minor Structure Model

Minor structures are features with limited persistence, generally less than 30 m. These discontinuities include joints, fractures, and fabric. These are measured during geotechnical logging and oriented relative to the drillhole. The discontinuities are then plotted on stereonets and queried for location, lithologies, and within geological domains to identify groupings of similarly oriented features.

These groupings, or joint sets, are used for the kinematic assessment for structurally controlled failures. In general, the discontinuity orientations are similar between all deposits, and local changes in orientations are considered to improve the resolution of the probabilistic kinematic analyses.

The structural data, which has been collected over multiple campaigns, was evaluated for quality by plotting stereonets for each drillhole (Figure 5-12). Plots by drillhole are evaluated for quality prior to including in the combined stereonet. These plots are used to identify possible errors in the data collection or correction of the oriented features from alpha/beta to true dip and dip direction. All oriented drilling data were compiled and plotted on stereonets by drillhole and by deposit area (Figure 5-13). The summary of each pit and all oriented data is found in Appendix B.

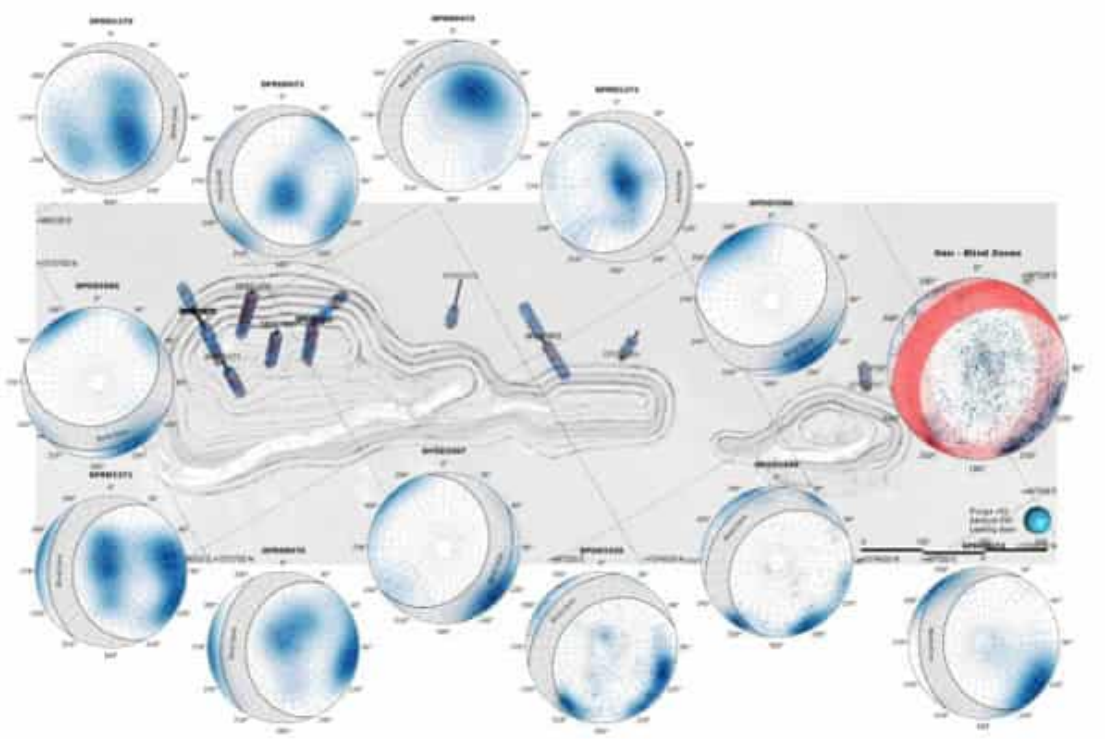


Figure 5-12: Example from Han deposit showing evaluation of each stereonet for quality prior to including in a compiled dataset

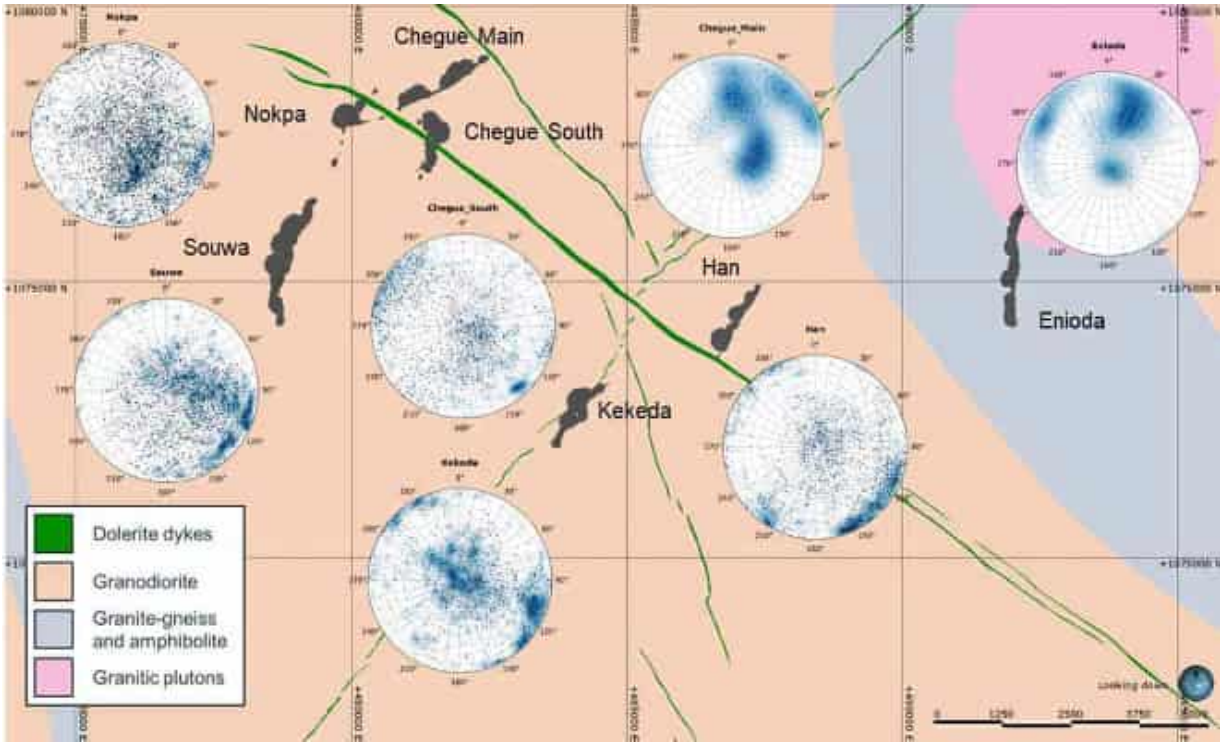


Figure 5-13: Compiled stereonets per deposit

The deposits were merged when similar orientations of main structural sets were identified to determine the structural domain model. In order to inform this, it is important to understand the impacts of sampling biases related to the drillhole orientation. Features that are approximately parallel to the drillhole trace are under-sampled and may not be easily identified as major joint sets. Blind zones are used to identify regions of the stereonets where joints may be under-sampled. These are considered when defining representative joint sets for each structural domain (Figure 5-14).

The structural data were grouped into structural domains based on similar identified joint sets (Figure 5-15). Three structural domains were identified for the Doropo area, with the large, NW-striking dolerite dyke forming the approximate boundary between the North and South domains. Enioda remains an independent domain, reflecting the different geological context of the deposit.

Major joint set orientations were identified for each domain, which were then used to compute joint spacing estimates for the regions. These estimates are used in the probabilistic kinematic analyses for determining the bench-berm configurations for the pits (Figure 5-16). Note that the naming scheme is consistent between the domains, even when structures were not identified, i.e., J1 is not present at Enioda, but is included in the data set nomenclature.

The same methodology was applied to Kilosegui (Figure 5-17). Due to the different structural context for the deposit, Kilosegui is treated as its own domain. Naming schemes for major joint sets are consistent with Doropo area structural domains (Figure 5-18).

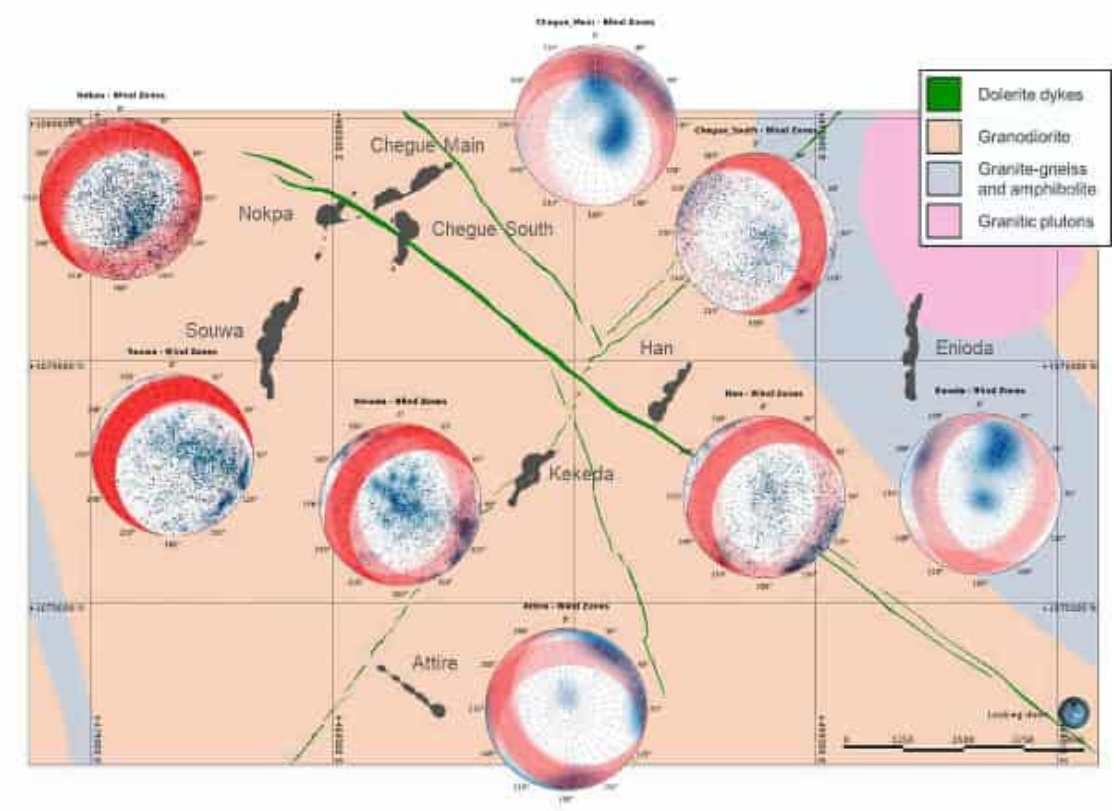


Figure 5-14: Compiled stereonets by deposit showing sampling biases; areas in red are under-sampled due to drillhole orientations

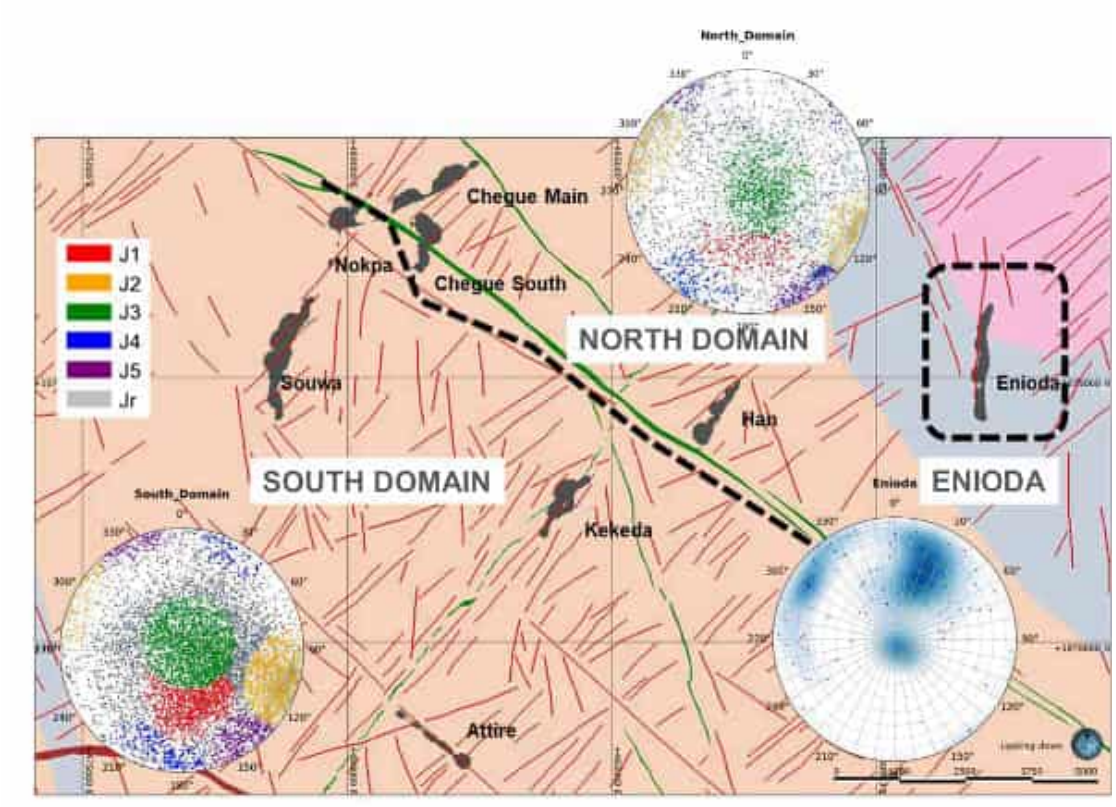
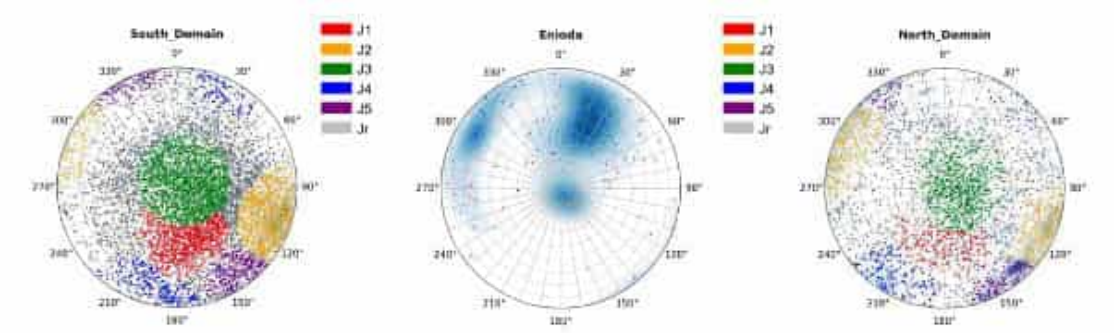


Figure 5-15: Structural domains identified for Doropo area



Count (All)	Joint Set	Dip	Dip Direction
1099	J1	39	349
1164	J2	72	288
2247	J3	8	248
448	J4	82	17
555	J5	81	329
1816	Jr		
7329			

Count (All)	Joint Set	Dip	Dip Direction
0	J1	-	-
17	J2	71	85
24	J3	6	326
39	J4	50	205
14	J5	80	138
32	Jr	35	209
126			

Count (All)	Joint Set	Dip	Dip Direction
300	J1	41	359
532	J2	89	293
824	J3	10	265
219	J4	77	32
264	J5	84	329
589	Jr		
2728			

Figure 5-16: Summary of major joint set orientations per structural domain

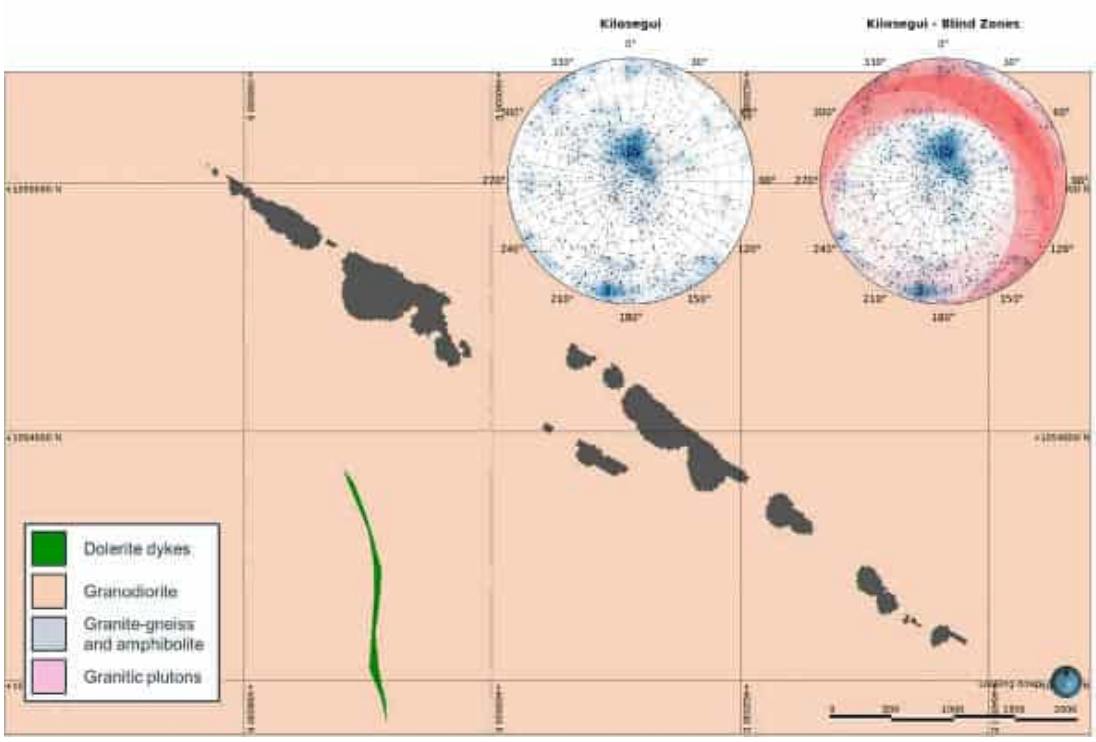
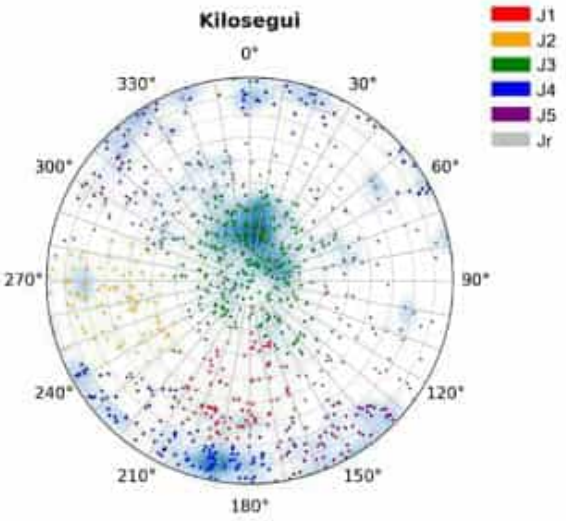


Figure 5-17: Compiled stereonet for Kilosegui



Count (All)	Joint Set	Dip	Dip Direction
102	J1	48	8
91	J2	58	82
333	J3	9	188
188	J4	82	25
120	J5	87	327
174	Jr		
1008			

Figure 5-18: Major joint sets identified at Kilosegui

5.4.2 Major Structures

Major structures were modelled for each pit. These are not inclusive of all expected structures, but rather model the patterns expected for each pit. Modelled structures are generally narrow with limited damage zone extents. Structures form narrow brittle damage zones with occasional presence of gouge. Damage zone extents rarely exceed 1 m in total thickness (Figure 5-19).



Figure 5-19: Examples of modelled structural intercepts from Enioda, Kilosegui, and Chegue Main

The orientation of the modelled structures shows good similarity to the small-scale structural model for each domain (Figure 5-20). This shows good agreement between the macro and micro-scale structures. In terms of predicting failures, the results of the kinematic assessment using the selected joint sets will give indications of where fault and joint combinations can form unstable blocks.

The modelled faults are favourably oriented for stability, with a combination of sub-vertical dips and strikes that are perpendicular to walls (Figure 5-21). Footwall parallel shear zones are mineralized and will be mined out and not undercut. If the footwall were to be undercut these structures could be adverse for slope stability. The 3D wireframes comprising the structural model are provided in Appendix C, and the summary of the modelled wireframes in comparison to the geotechnical domain model provided in Appendix B.

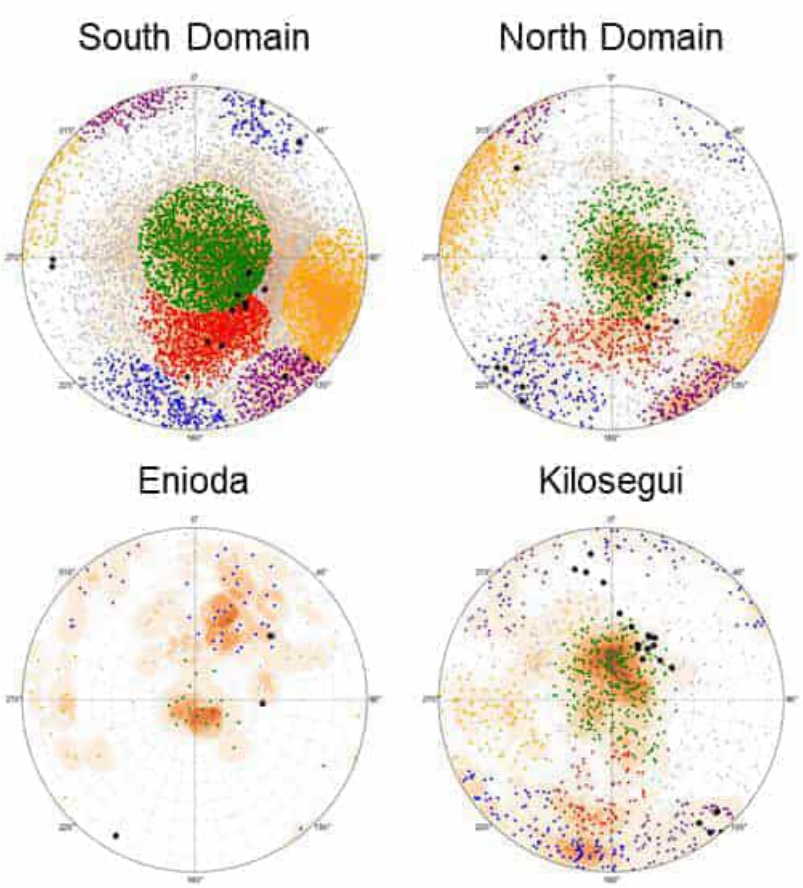


Figure 5-20: Major structures (black poles) compared to structural domain stereonets

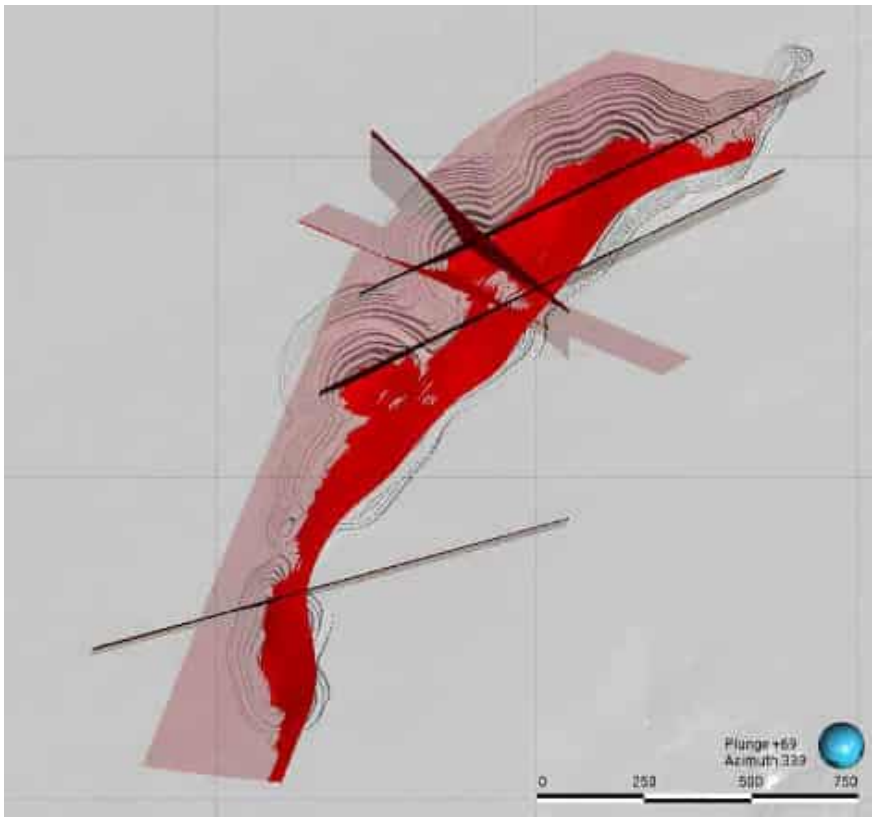


Figure 5-21: Example of structural model for SWA

5.4.3 Shear Strength of Structural Defects

During the geotechnical drilling campaigns, all fractures were logged with representative joint condition parameters using the Rock Mass Rating system (Figure 5-22). In general, the joint conditions were largely similar for all major units. Joints exhibited slightly rough surfaces, no or slight infill, limited weathering of joint walls, and tight apertures. These conditions demonstrate an expectation of moderate to high frictional strengths of the joint surfaces, which were validated using laboratory testing.

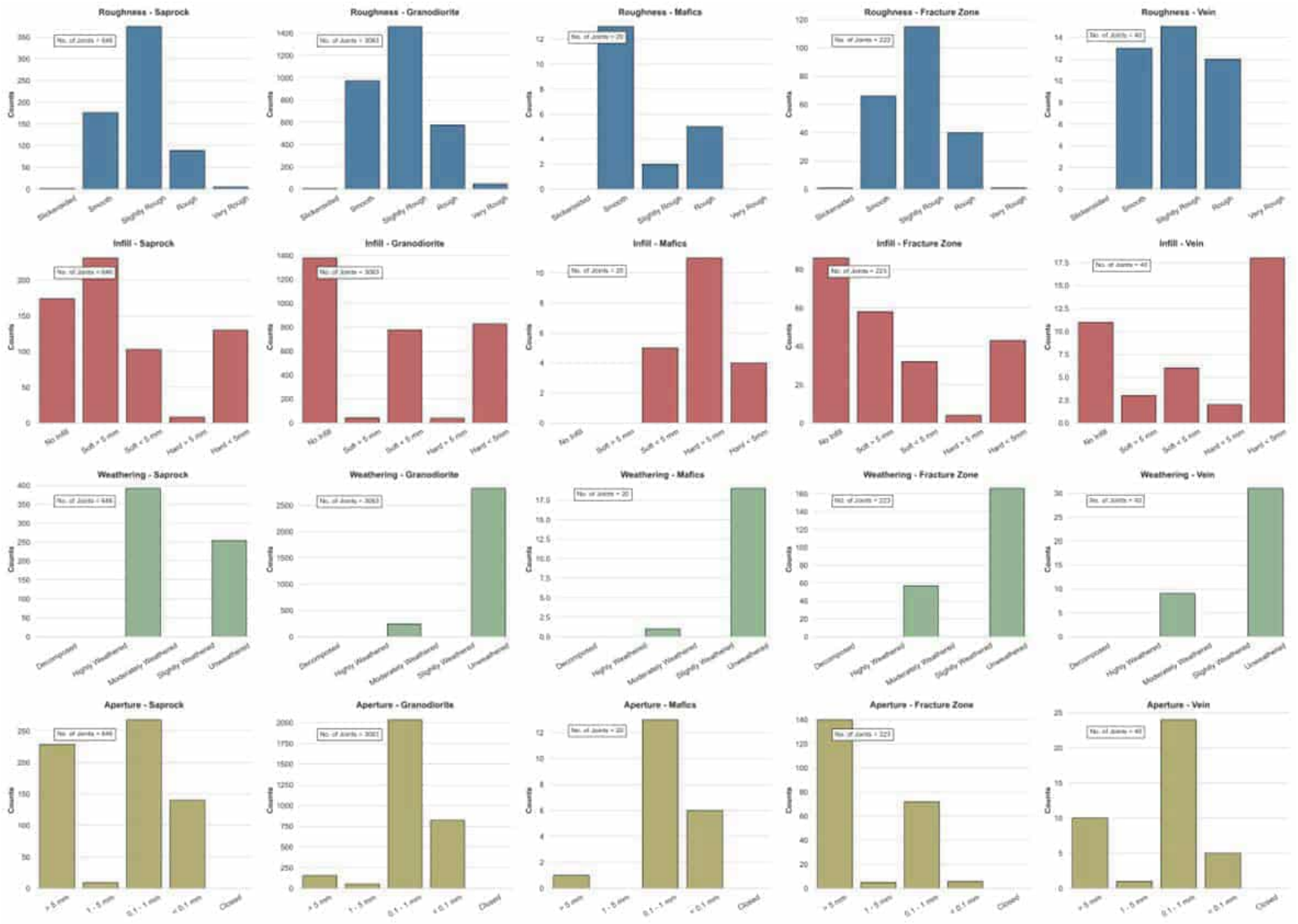


Figure 5-22: Logged joint conditions for major lithologies and weathering domains

Nineteen natural joint samples were tested using multi-stage direct shear testing across four pits: CHG, ENI, SWA, and KLG. The associated deposits coincide with the selected structural domains: Doropo South (Souwa), Doropo North (Chegue), Enioda, and Kilosegui. The results are broadly similar across all units, showing generally high friction and low cohesion (Figure 5-23).

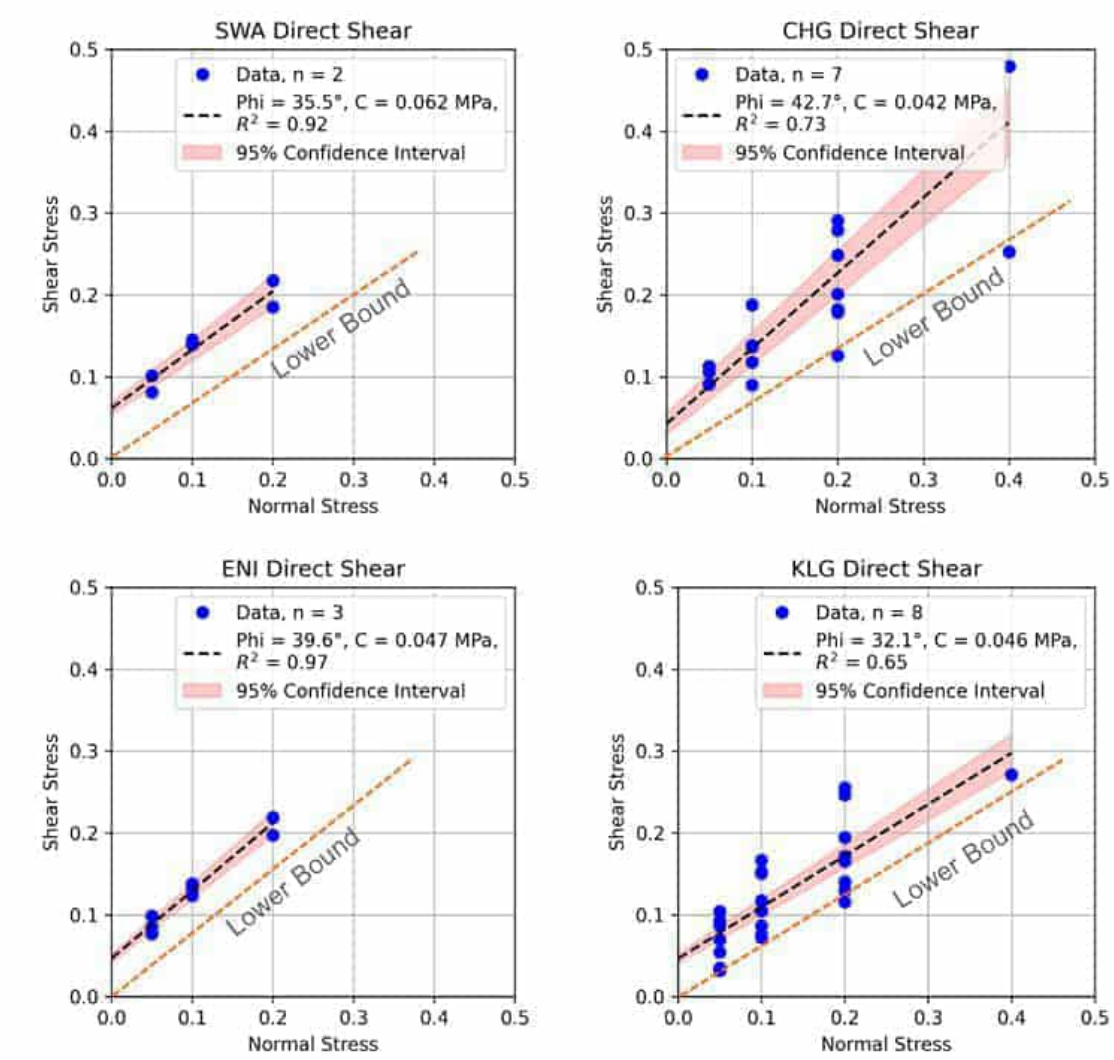


Figure 5-23: Direct shear test results showing average values and highlighted lower bound interpretation for kinematic analysis

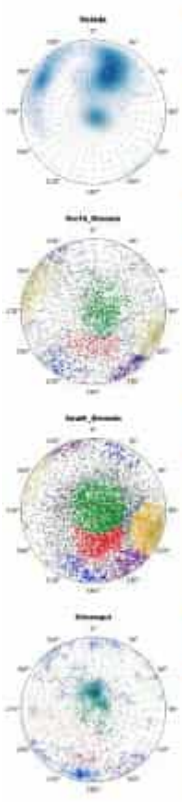
The testing results represent the in situ, small-scale frictional strength of the joints in the rock mass. This is generally higher than can be expected at the face during excavation. Blasting, excavation, and scaling can remove any beneficial effects from the marginal cohesion, and, as such, a lower-bound value has been defined for use in kinematic analyses. This lower bound value is either a result of removing cohesion (Souwa, Enioda, and Kilosegui), or removal of cohesion and taking the lower bound of test results (Chegue). The final, interpreted results used for modelling and kinematic analysis is provided in Table 5-2.

Table 5-2: Interpreted shear strength parameters of joints

Prospect	Domain	Friction Angle	Cohesion (kPa)	Kinematic Friction Angle (Lower Bound)	Kinematic Cohesion (kPa)
Chegue	North	43	40	34	0
Souwa	South	36	60	36	0
Enioda	Enioda	40	50	40	0
Kilosegui	Kilosegui	32	45	32	0

5.4.4 Joint Spacing

Following identification of the major joint sets identified from the drilling data, joint spacing was computed for each joint set from borehole intercepts. True spacing is computed by considering the angle of the structure relative to the core axis and applying a weighting factor to each joint. The spacing of the identified joint sets forms an important input into the probabilistic kinematic analyses. Mean spacing is computed directly from the drillhole data. The minimum and maximum spacing values are the calculated 5th and 95th percentile assuming a negative exponential distribution centred around the mean spacing. Persistence values are estimated lacking outcrop exposure for calibration.



Deposit	Count (All)	Joint Set	Dip	Dip Range	Dip Direction	DD Range	Spacing	Min Sp.	Max Sp.	Length	Min L.	Max L.	Cohesion	Friction
Enioda	17	J2	71	20	85	40	1.6	0.1	5	10	1	30	0	40
Enioda	24	J3	6	30	326	40	6.1	0.1	18	10	1	30	0	40
Enioda	35	J4	50	40	205	40	2.3	0.1	7	10	1	30	0	40
Enioda	14	J5	80	20	138	40	2.7	0.1	8	10	1	30	0	40
Enioda	32	Jr					4.0	0.1	12	10	1	30	0	40

Deposit	Count (All)	Joint Set	Dip	Dip Range	Dip Direction	DD Range	Spacing	Min Sp.	Max Sp.	Length	Min L.	Max L.	Cohesion	Friction
North_Domain	300	J1	41	20	359	40	3.1	0.1	9	10	1	30	0	34
North_Domain	532	J2	85	20	293	40	1.7	0.1	5	10	1	30	0	34
North_Domain	824	J3	10	30	265	60	3.0	0.1	6	10	1	30	0	34
North_Domain	219	J4	77	40	32	40	3.1	0.1	9	10	1	30	0	34
North_Domain	284	J5	84	20	329	40	2.1	0.1	6	10	1	30	0	34
North_Domain	589	Jr					2.1	0.1	6	10	1	30	0	34

Deposit	Count (All)	Joint Set	Dip	Dip Range	Dip Direction	DD Range	Spacing	Min Sp.	Max Sp.	Length	Min L.	Max L.	Cohesion	Friction
South_Domain	1099	J1	35	20	349	40	3.7	0.1	11	10	1	30	0	36
South_Domain	1164	J2	72	20	288	40	2.9	0.1	8	10	1	30	0	36
South_Domain	2347	J3	8	30	248	60	2.2	0.1	7	10	1	30	0	36
South_Domain	448	J4	82	40	17	40	4.0	0.1	12	10	1	30	0	36
South_Domain	555	J5	81	20	329	40	4.1	0.1	12	10	1	30	0	36
South_Domain	1816	Jr					2.3	0.1	7	10	1	30	0	36

Deposit	Count (All)	Joint Set	Dip	Dip Range	Dip Direction	DD Range	Spacing	Min Sp.	Max Sp.	Length	Min L.	Max L.	Cohesion	Friction
Kilosegui	102	J1	48	20	6	40	4.9	0.1	15	10	1	30	0	32
Kilosegui	91	J2	58	20	82	40	4.4	0.1	13	10	1	30	0	32
Kilosegui	333	J3	9	30	188	60	1.6	0.1	5	10	1	30	0	32
Kilosegui	188	J4	82	40	25	40	1.9	0.1	6	10	1	30	0	32
Kilosegui	120	J5	87	20	327	40	2.9	0.1	9	10	1	30	0	32
Kilosegui	174	Jr					2.2	0.1	7	10	1	30	0	32

Figure 5-24: Joint spacing and inputs to kinematic assessment.

5.5 Rock Mass Model

The geotechnical domain model considers each pit, the depth and extents of weathering, orebody geometry, geology, and structural orientations (Table 5-4). Each pit has been geotechnically characterised. Figure 5-25 presents the rock mass model for SWA. The rock mass models for the other pits are located in Appendix C.

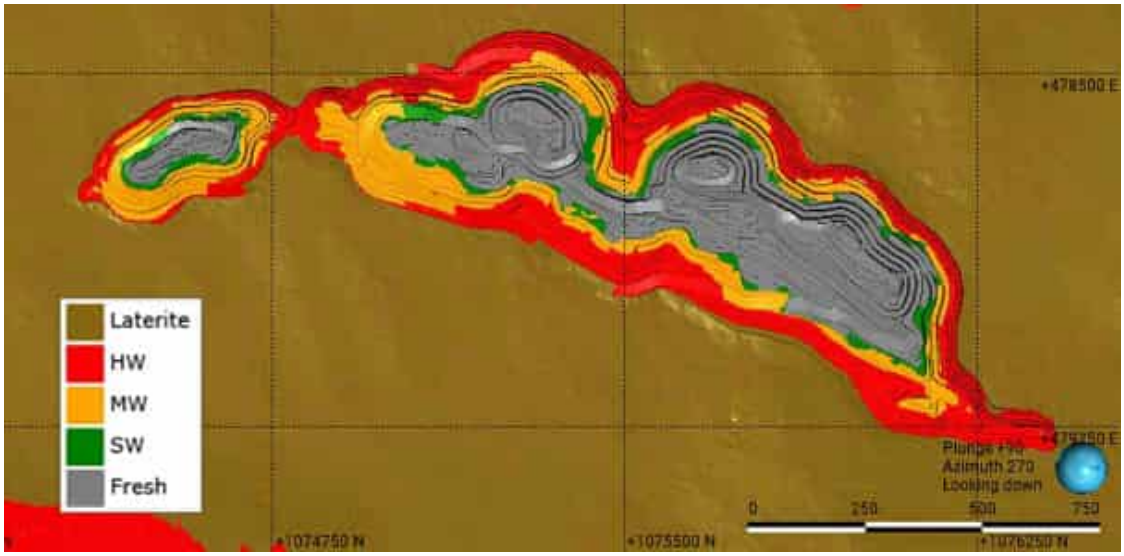


Figure 5-25: Example of the rock mass model for SWA

The geotechnical logging data was process by major lithology and fracture zone (Table 5-3). In general, the Fresh Rock shows a high rock mass rating due to low fracture frequency and relatively high strength joint conditions. The Saprock conditions are generally low reflecting the variability of weathering. Non-RMR materials such as soils and saprolite have not been included in the summary statistics. Histograms showing the distribution of logged conditions are shown in Figure 5-26; the geotechnical characterisation for each pit is summarised in Table 5-4. For the purposes of design, the Vein and Mafic lithologies have been merged with the Granodiorite. These units are not significantly different in material properties and rock mass characteristics.

Table 5-3: Summary rock mass classification statistics

Litho	Length	IRS Mode	Weighted Mean RMR89	Median RMR89	Weighted Mean RQD	Median RQD	Weighted Mean JCR89	Median JCR89
Saprolite	437.68	R0	N/A	N/A	0	0	N/A	N/A
Saprock	943.89	R0	35	33	16	0	8	6
Vein	51.34	R5	72	75	81	100	18	19
Fracture Zone	209.06	R4	37	38	13	4	11	12
Granodiorite	2894.05	R5	76	76	95	100	19	19
Mafics	32.55	R5	81	81	98	100	19	19

Table 5-4: Geotechnical characterization summary for each pit

Domain	Pit	Length	Max Depth	Base of Sap/Lat (CW/HW) Depth (m)	Base of Saprock (MW) Depth (m)	Saprolite Domain	Host Lithology	Orebody Orientation	Foliation	Fresh Rock Design Considerations
Enioda	**Enioda (ENI)**	2200	90	20 - 35	45 - 60	Enioda	Granite, Gneiss, Amphibolite	Shallow Dipping (33°/270°)	Weakly - moderately foliated	Weak zone along footwall contact. Excavation needs to avoid daylighting fault. Thicker saprolite horizon.
North	**Chegue Main (CHG)**	2000	90	30-40, thins to SW	30 - 60	Doropo	Granodiorite	Shallow Dipping (38°/325°)	Non-foliated	Possible weak zone along footwall contact. Excavation needs to avoid daylighting fault.
	Chegue South (CHG)	1150	90	40 (North), 5 - 10 (South)	25 - 40	Doropo	Granodiorite with Mafic Dyke	Shallow Dipping (30°/060°)	Non-foliated	Possible weak zone along footwall contact (main pit). Excavation needs to avoid daylighting fault.
	Han (HAN)	1400	100	< 10	10 - 30	Doropo	Granodiorite	Shallow Dipping (20°/300°)	Non-foliated	Possible weak zone along footwall contact. Excavation needs to avoid daylighting fault.
South	**Kekeda (KEK)**	1500	90	10 - 20	20 - 45	Doropo	Granodiorite	Shallow Dipping (30°/310°)	Non-foliated	Possible weak zone along footwall contact. Excavation needs to avoid daylighting fault.
	Nokpa (NOK)	750	120	5 - 15	20 - 30	Doropo	Granodiorite with Mafic Dyke	Moderately Dipping (40°/355°)	Non-foliated	Structurally complex with damage around dyke. Possible weak zone along footwall contact.
	Souwa (SWA)	2500	140	25 - 40	45 - 55	Doropo	Granodiorite	Shallow Dipping (30°/285°)	Weakly foliated	Possible weak zone along footwall contact. Excavation needs to avoid daylighting fault.
Kilosegui	**Kilosegui (KLG) A (NW)**	2700	100	< 5	< 15	Kilosegui	Granodiorite	Shallow Dipping (25°/220°)	Weakly - moderately foliated	Possible fault zones behind footwall highwall.
	Kilosegui (KLG) B (SE)	3700	125	10 - 20	20 - 35	Kilosegui	Granodiorite	Shallow Dipping (30°/210°)	Weakly - moderately foliated	Possible fault zones behind footwall highwall.

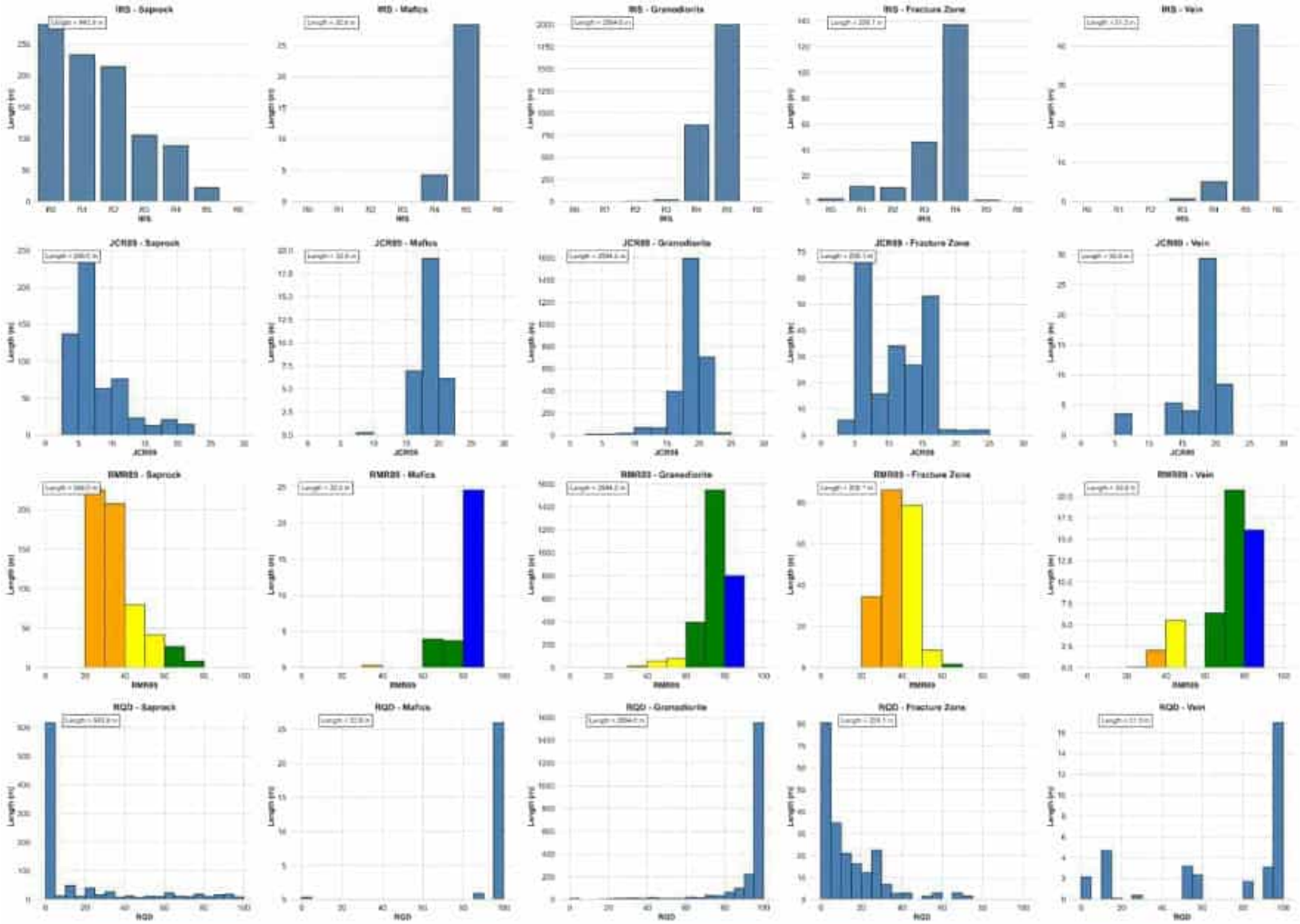


Figure 5-26: Summary histograms from geotechnical logging of major lithological and weathering domains

6 HYDROLOGY AND HYDROGEOLOGY

Characterisation of the hydrogeology for the Doropo project has been completed by Piteau Associates (Piteau). The report was not available at the time of issuing this report.

Saprolite performance is heavily influenced by surface and groundwater. Shear strength within saprolites can be significantly reduced by elevated pore water pressures or improved due to suction effects from depressurization and under-draining.

Water management around the pits will be crucial for safety and stability during operations. Surface water that is not appropriately diverted away from the pit crest is prone to infiltrate at the pit crest and increase pore water pressure. Specific actions such as constructing diversion ditches behind the pit crest, grading berms into the pit, and allowing for step-ins with drainage ditches at the transition/rock interface, will improve water management.

Surface water ponding on the operating pit floor in Saprolite can cause trafficability issues. This issue can be addressed by implementing good drainage control along the pit floor (i.e., properly sloped ditches and sump placement), or by mining down to Fresh Rock quickly with staggered benches (i.e. operating at two or three different levels). This allows water from the Saprolite floor to drain down into the Fresh Rock floor and may provide under-drainage of the saprolite through the Saprock/Fresh Rock and improve stability. Mining only within the Saprolite can result in trafficability issues and could impact the stability of the slopes if water is allowed to saturate the toes.

Scoping level hydrogeological investigation analysis were completed by GCS (Pty) Ltd (GCS) in 2020 for all pits in the current study except Attire, and the following comments have been taken from this report.

Groundwater levels were measured across the project site and range from near surface to 20 m below ground level (Table 6-1). Groundwater levels appear to be correlated to elevation of the pit, with higher situated pits showing a deeper water table. The groundwater model considers three main domains: the upper saprolite, Saprock, and deeper fractured and solid Fresh Rock. The project area drains into the Pouene river through a series of tributaries.

Table 6-1: Groundwater levels (after GCS, 2020)

Pit Area	Maximum Pit Depth (m)	Depth of Groundwater (m, range)	
Chegue Main	120	7	16
Chegue South	175	4	10
Enioda	110	12	17
Han	115	7	10
Kekeda	130	9	13
Nokpa	190	2	4
Souwa	140	10	22
Kilosegui	165	4	10

6.1 Groundwater Regimes

Piteau supported the inputs of the hydrogeology into the slope stability models. The project area was domained into three regions based on results from the saprolite characterisation:

- Doropo area: moderately permeable with a mix of clay, silt, and sands.
- Enioda area: low permeability clayey silt saprolite.
- Kilosegui: high expected permeability silty sands and gravels.

Groundwater domains are further sub-divided based on the expected depth to water table. Areas at relatively high elevations are expected to have deeper groundwater levels, whereas deposits located at topographic lows are expected to have shallower water tables (Figure 6-1).

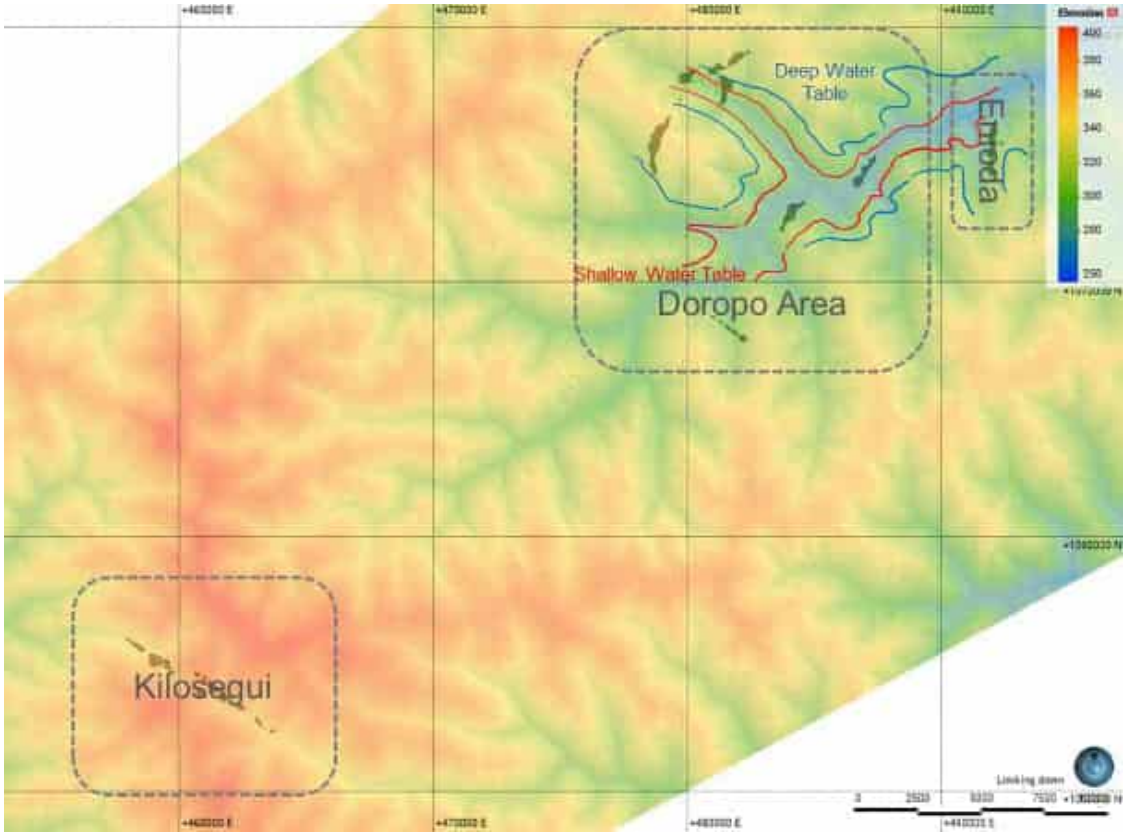


Figure 6-1: Conceptual illustration showing relative water table depths

7 SLOPE STABILITY AND DESIGN

A pit slope has three major components: bench slope, inter-ramp slope, and overall slope, as shown in Figure 7-1. The bench configuration is defined by the vertical bench separation (bench height), catch-berm width and bench face angle (BFA). The inter-ramp slope is formed by a series of uninterrupted benches or stack. Final overall slope angles are formed by a series of inter-ramp slopes separated by haul roads or wide geotechnical benches.

The inter-ramp angle (IRA) corresponds to the angle subtended by a line joining the toes of the benches on the wall and the horizontal. The overall slope angle (OSA) corresponds to the angle formed by the line joining the toe of the lowest bench with the pit crest and the horizontal. The incorporation of ramps onto a wall will result in a slope that has a shallower overall slope angle than the inter-ramp angle.

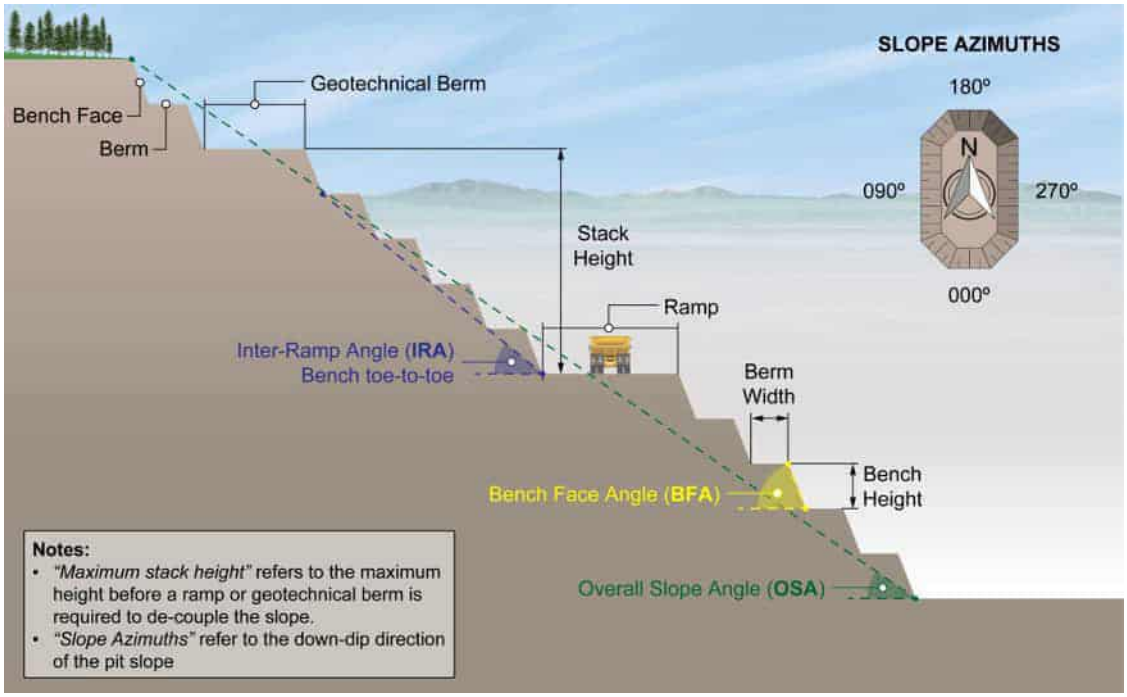


Figure 7-1: Schematic representation of pit slope design concepts and terminology

7.1 Approach

For this current study, the expected bench, inter-ramp and overall stability conditions were assessed with multiple approaches using a combination of software packages, as summarized in Table 7-1.

Table 7-1: Overview of stability assessment approach and software

Pit Slope Scale	Approach	Software Utilized
Bench	Kinematic stability analyses (deterministic and probabilistic) 3D interpolant (foliation) models Modified Richie criteria (bench widths)	Leapfrog In-house scripts SBlock
Inter-ramp	3D fault/joint geometric intersections Kinematic stability analyses (deterministic and probabilistic) LE stability analyses	Leapfrog In-house scripts SBlock Slide2D
Overall	LE stability analyses	Leapfrog Slide2D

7.2 Rock Slope Failure Mechanisms

Potential rock slope failure mechanisms that can influence the stability of the pit slopes need to be understood to develop safe and practical design recommendations. Rock slopes can generally be classified according to two principal failure mechanisms:

- **Kinematically Controlled Failure Mechanisms:** Structurally controlled failure in rock occurs as the result of sliding along pre-existing structures or discontinuities (e.g., sliding along foliation).
- **Rock Mass Strength Failure:** Slopes excavated in weak or heavily fractured rock masses, or very high slopes, can be susceptible to overall rock mass failure, which involves the development of step-path or pseudo-circular type failure zones through intact rock.

A combination of both kinematic and rock mass instability mechanisms can contribute to rock fall. The magnitude and frequency of structurally controlled failures are directly related to the continuity of the structures along which sliding can occur. Structures that exhibit limited continuity, such as the high-frequency intersecting joints may result in small bench-scale failures that are rarely of consequence to overall slope stability but may affect access ramps or fixed equipment adversely. Conversely, larger scale failures can occur along continuous, through-going structures, such as the foliation structures and potentially unidentified fault zones.

7.3 Design Acceptance Criteria

7.3.1 Bench Design Acceptance

The stability approaches detailed in the report consider bench design as a function of 5 m increments in mining heights. Bench design first considers the presence of persistent fabric that may drive bench face angles (such as foliation). If a persistent fabric that would control the bench face angle is not present, the bench widths are designed to manage rockfall. Rockfall retention can be impacted if there is a loss of crest (back-break) from kinematic failures.

The Modified Richie Criteria for rock fall containment on berms (Ryan and Pryor, 2000) has been used to define bench design acceptance. The Modified Richie Criteria is based on a bench height with a minimum design berm width calculated from:

$$Minimum\ Design\ Berm\ Width\ =\ 4.5\ m\ +\ (0.2 * Bench\ Height)$$

Design acceptance for benches within the Saprock and Fresh Rock domains require that the effective bench width calculated from probabilistic analysis (SBlock) is greater than or equal to 90% of the Modified Ritchie Criterion (Figure 7-2). For a 10 m bench height, the Modified Ritchie bench width is 6.5 m and effective bench widths must exceed 5.85 m. For a 20 m bench height, the Modified Ritchie bench width is 8.5 m and effective bench widths must exceed 7.65 m.

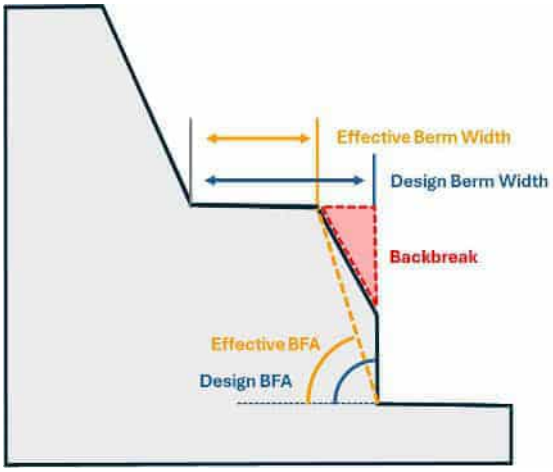


Figure 7-2: Bench-berm terminology used

7.3.2 Inter-ramp and Overall Slope Design Acceptance

Design criteria presented in the *Guidelines to Open Pit Slope Design* publication (Read and Stacey, 2009) have been adopted for this study and are summarized in Table 7-2. The recommended criteria are based on levels of confidence in the understanding of site conditions and material parameters, and the consequences of instability. A minimum design Factor of Safety (FoS) and/or Strength Reduction Factor (SRF) of 1.3 has been adopted for the overall pit slopes.

The design of the pit slopes will be controlled by the bench and inter-ramp kinematic stability controls. The actual design stability conditions can be controlled by the kinematic stability conditions rather than an acceptable FoS/SRF that may be higher than the acceptance criteria outlined in Table 7-2.

Table 7-2: Minimum acceptable design criteria (Read and Stacey, 2009)

Pit Slope Scale	Consequence of Failure[1]	Acceptance Criteria		
		Minimum Static SRF/FoS[2]	Maximum Static POF[3] P [FoS ≤ 1]	Minimum Dynamic FoS
Bench	Low to high	1.1	25 – 50%	n/a
Inter-ramp	Low	1.15 – 1.2	25%	1.0
	Medium	1.2	20%	1.0
	High	1.2 – 1.3	10%	1.1
Overall	Low	1.2 – 1.3	15 – 20%	1.0
	Medium	1.3	5 – 10%	1.05
	High	1.3 – 1.5	≤ 5%	1.1

*Notes: [1]- Consequence of failure semi-quantitatively evaluated, [2] – SRF = Strength Reduction Factor, FoS = Factor of Safety, [3] – PoF = probability of failure

7.4 Kinematic Stability Review

Kinematic bench and inter-ramp stability were assessed using the software programs SBlock, Dips, and Leapfrog and compared to reconciliation results from Point Studio. The analyses were carried out to identify the potential kinematic failure modes that could limit the design. An SRK developed script, based on the work of Venter (2022), was used to assess the probability of occurrence of the major failure types. Probability of occurrence helps identify domains that may need additional considerations or management based on the likelihood of kinematic failures. Joints (for single plane failures), and all combinations of joints (for double plane failures), are assigned a cumulative probability of occurrence based on the variability of the orientation, persistence, spacing, and friction angle.

A risk-based matrix was developed for each domain based on the potential kinematic failure mode for a given pit wall direction prior to design mitigation. The risks are based on the following semi-quantitative criteria:

- **Low:** the frequency and orientation of the analysed discontinuity sets indicate that a kinematic failure is not probable for a given bench/inter-ramp angle, and slope face direction. Total probability of occurrence is <25%.
- **Moderate:** the frequency and orientation of the analysed discontinuity sets indicates there is a potential kinematic failure for a given bench/inter-ramp angle, and slope face direction; however, the frequency or persistence of the discontinuity may be low or is oriented obliquely to the analysed slope face. Total probability of occurrence is 25 – 50%.
- **High:** the frequency and orientation of the analysed discontinuity sets indicates there is a potential kinematic failure for a given bench/inter-ramp angle, and slope face direction. The potential kinematic failure could limit the design recommendations and may require operational management strategies. Total probability of occurrence is >50%.

The potential kinematic failure mechanisms are discussed in the following subsections. Fundamentally, the pit slope design angles are controlled by rock mass and hydrogeological constraints driving the recommended slope designs for all units.

Four main types of kinematic failures are considered for analysis: planar sliding, wedge sliding, flexural toppling, and block toppling. The risk of these failure types is shown as a probability of occurrence. The calculated probability of occurrence for these features is considered relatively robust for planar and wedge sliding, as considerations for joint spacing and persistence can be accounted. Toppling failures are less constrained, relying on the aspect ratio of possible blocks as a function of the spacing and persistence.

7.4.1 Planar and Wedge Sliding Failures

Planar and wedge sliding failures are the result of sliding of blocks along one or more discontinuities (Figure 7-3). These failures can be predicted through stereonet analysis by either the relation between the dip of the feature and the orientation of the slope, or the orientation of the intersection line and the orientation of the slope.

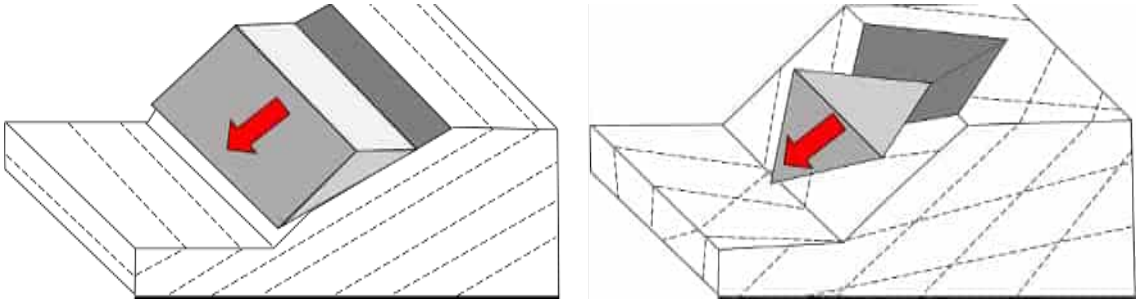


Figure 7-3: Planar (left) and wedge (right) sliding failures (after Hudson & Harrison, 2000)

Planar and wedge failures can be managed by modifying the bench face angle to reduce the likelihood of instability relative to the dip of the discontinuity or plunge of the intersection line, and by increasing berm widths to manage expected overbreak. Some amount of failure is both expected and non-preventable and, as such, the design should attempt to minimize the effects of failures to reduce operator risk. Kinematic analysis of planar and wedge sliding considers the probability of occurrence as a function of the following four aspects (Swan & Sepulveda, 2001):

1. Probability of intersection in design segment: The probability that the persistence of a joint or pair of joints exceeds a minimum length that will cause backbreak greater than 2 m. This considers exponential distributions on the spacing, and normal distributions for dip ranges to calculate the minimum persistence length.
2. Probability of occurring within ±30° of slope azimuth: The dip direction of the plane or trend of the intersection line must lie within 30° of the slope azimuth, a function of the normally distributed range of the discontinuities.
3. Probability that dip/plunge > friction angle: The normally distributed dip or plunge of the feature must be greater than the friction angle for sliding failures to occur.
4. Probability that dip/plunge < bench face angle: The normally distributed dip or plunge of the feature must be less than the bench face angle for the failure to occur.

7.4.2 Toppling Failures

Toppling failures can occur when a discontinuity or group of discontinuities dip or plunge into the face (Hudson & Harrison, 2000) (Figure 7-4). Direct toppling can occur if the centre of gravity of the feature is outside the lower apex of the block and requires a basal plane to serve as either the release plane or a sliding plane. Flexural toppling requires conditions for inter-layer slip to occur and is generally restricted to pervasive fabrics. Direct toppling failures are primarily managed through reduction of bench face angles to <75°, while flexural toppling may require management by reducing inter-ramp angles.

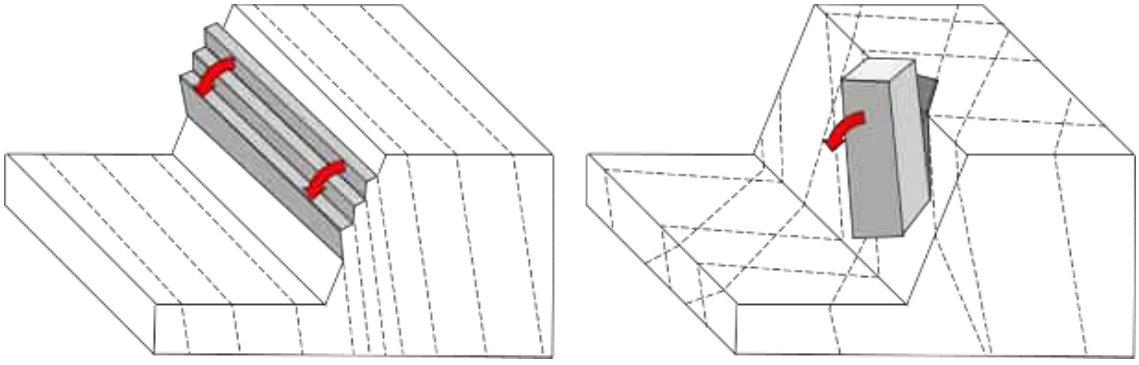


Figure 7-4: Flexural (left) and direct (right) toppling failures (after Hudson & Harrison, 2000)

Flexural Toppling

Flexural toppling considers single plane failures. The potential for flexural toppling is driven primarily by the concept of inter-layer slip. As stresses redistribute normal to the face, the joint dip must be within a critical range to permit flexural toppling to occur. Flexural toppling assessments are generally overly conservative and should instead focus on azimuths affected by persistent fabrics, such as foliation or bedding. The probability of occurrence for flexural toppling can occur as a function of the following aspects (modified from Venter & Hamman, 2022):

1. Probability of occurring within ±20° of slope azimuth: The plane must dip into the slope, within 20° of the slope azimuth. This a function of the normally distributed range of the discontinuity dip direction.
2. Probability that dip > 90° - bench face angle + friction angle: The normally distributed dip the feature must be greater than the 90° - bench face angle + friction angle for inter-layer slip to occur.
3. Probability that aspect ratio permits toppling: The aspect ratio of the block is a function of the joint spacing and joint persistence. In order for toppling to occur, the tan (dip or plunge) must be > base/height ratio. For steeper dipping or plunging features (>45°), the base measurement is the spacing and the height is the persistence. For shallow dipping or plunging features (<45°), the base measurement is the persistence, and the height is the spacing. The persistence and spacing are exponentially distributed and the dip/plunge are normally distributed.

Direct Toppling

Direct toppling is assessed considering blocks formed by two discontinuity sets. Basal planes are always assumed to be present and favourable for toppling to occur. The probability of occurrence for direct toppling can occur as a function of the following aspects (modified from Venter & Hamman, 2022):

1. Probability of occurring within ±20° of slope azimuth: The plane or intersection line must dip or plunge into the slope, within 20° of the slope azimuth. This a function of the normally distributed range of the discontinuities.
2. Probability that dip/plunge < bench face angle: The normally distributed dip or plunge of the feature must be less than the bench face angle for the failure to occur.

3. Probability that aspect ratio permits toppling: The aspect ratio of the block is a function of the joint spacing and joint persistence. In order for toppling to occur, the tan(plunge) must be > base/height ratio. For steeper plunging blocks (>45°), the base measurement is the spacing and the height is the persistence. For shallow plunging blocks (<45°), the base measurement is the persistence, and the height is the spacing. The persistence and spacing are exponentially distributed and the dip/plunge are normally distributed.

7.4.3 Kinematic Stability Results

The results of the kinematic analysis are used to identify domains that may require additional catchment or management of failures through reduction in the bench face angles. The pit shells have been coloured by the probability of occurrence for each type of kinematic failure using the azimuth of each face of the pit shells and using the domain specific joint orientations and spacing. Example kinematic assessment outputs for SWA are shown in Figure 7-5. The outputs for the other pits are in Appendix B.

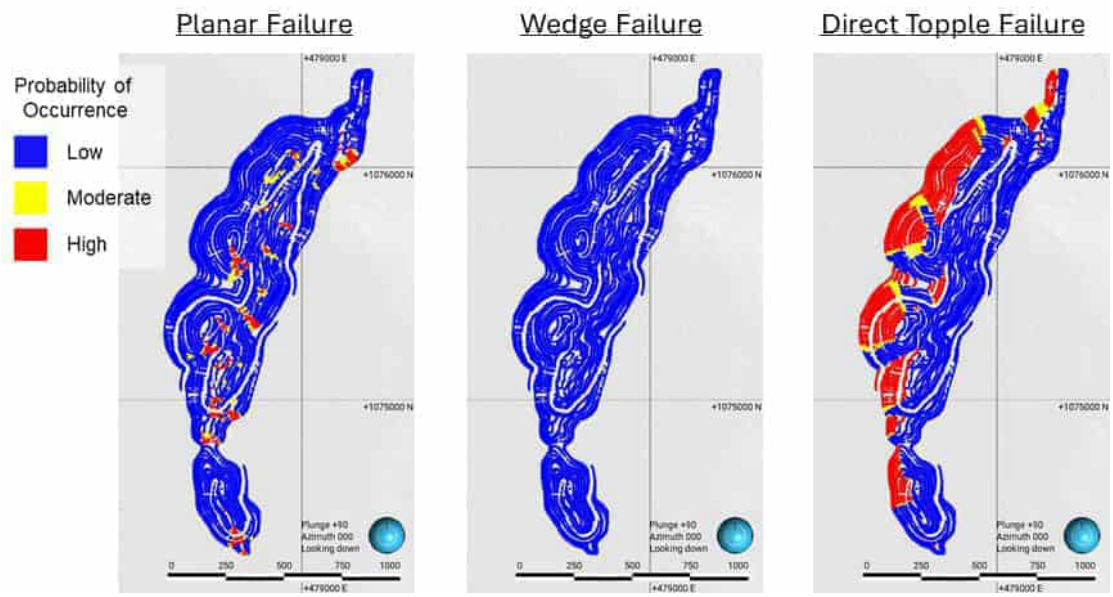


Figure 7-5: Example output of kinematic assessment for SWA

7.5 Probabilistic Kinematic Analysis

Bench design configurations were developed for Doropo following the results of the probabilistic analysis. Bench scale probabilistic stability analyses were carried out using the software program SBlock (Esterhuizen, 2004). The software analyses key-block formation of the discontinuity sets probabilistically using the Monte-Carlo method. SBlock generates a joint network for a given bench configuration using up to seven joint sets including a random set. The joint network is stochastically generated using probabilistic distributions on the joint set dip directions, dips, spacing, persistence, friction angle, and cohesion. The joints are evaluated for formation of blocks and a factor of safety calculated to assess stability for sliding failures. The program provides statistics of the number of unstable blocks, volume of failure, safety factors, and crest loss. A number of benches are simulated to generate statistical estimates of backbreak.

SBlock computes the expected bench backbreak from sliding failure mechanisms only. This methodology allows for assessing a range of bench face angles and required bench widths to minimize failure and maintain sufficient catchment.

The following approach was used:

- Main fabric and structural orientations were identified for each domain in the pit. Spacing was computed from drillhole data and used in the analysis. Lacking outcrop data persistence was estimated.
- Each domain was analysed for the full 360° of potential pit wall orientations in 10° increments. Each slope azimuth is assessed using bench face angles of 65° to 80° in 5° increments.
- Bench heights considered a 10 m single- and 20 m double-bench. Minimum bench widths were based on the modified Ritchie Criteria and increased as required to maintain acceptable catchment and effective bench widths.
- Bench designs are based on minimizing crest loss from kinematic failures while maximizing achievable inter-ramp angles. Significant crest loss can pose operational challenges and risks related to loss of catchment and the potential for hung-up or quasi-stable blocks.

The results from the probabilistic analysis provide information on expected backbreak, required bench widths, and resultant inter-ramp angles following design adjustments. The output data is processed to find the minimum bench width per azimuth and bench face angle that achieves design acceptance. A kinematic analysis output example is shown in Figure 7-6. Results of this analysis for all pits are found in Appendix B.

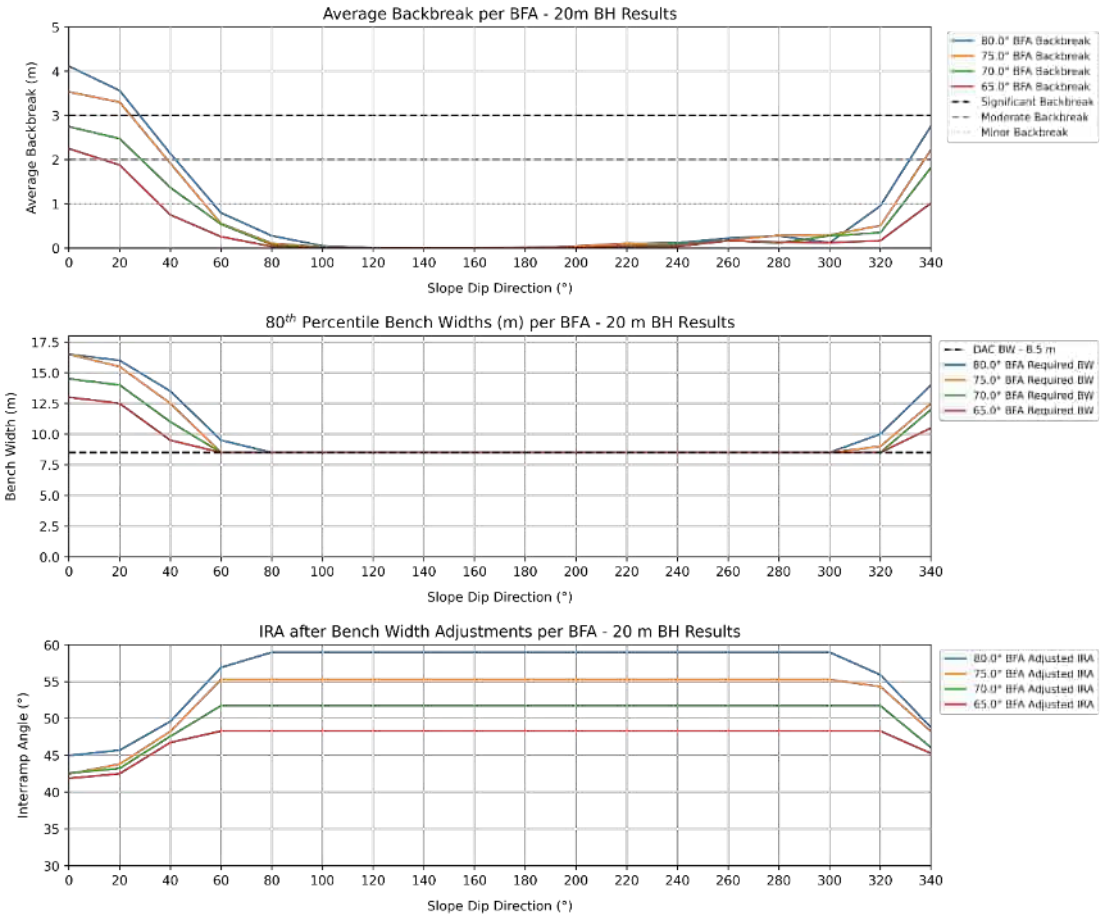


Figure 7-6: Example results from SBlock for the North Domain (Chegue Main, Chegue North, and Han) considering 20 m bench heights for a range of bench face angles

7.6 Slope Stability Assessment

The bench and inter-ramp design for the pits were based on the following considerations:

- Saprolite stability will be controlled by the slope angles and influence of groundwater; and
- slopes within the Saprock and Fresh Rock domains will be structurally controlled, and the achievable slope geometries will be driven by the bench scale kinematics.

Two-dimensional LE slope stability analyses were used to evaluate the expected rock and saprolite slope stability conditions. The LE analyses were conducted using Slide2D™. The stability analyses considered the potential for overall non-circular failures through the various units. Stability modelling was focused on evaluating the designs in the saprolite and Saprock domains, as these will be the most sensitive to groundwater.

7.6.1 Modelling Input Parameters

Design rock mass strength parameters selected to represent the major lithological units are presented in Table 7-3. The Hoek-Brown strength parameters are based on the analyses of field and laboratory testing data collected during the 2023 and historical programs.

The Hoek-Brown Disturbance factor (D) has been used in the 2D numerical models to simulate rock mass damage induced by blasting and/or by stress relaxation as the pit slope becomes unconfined with mining. Models were initialized with a D = 0.7 in the Saprock and Fresh Rock domains. Once it became apparent that stability was not going to be impacted in these domains using a conservative D-zone, this input was not modified further.

Table 7-3: Material properties considered for 2D LE modelling

Domain	Friction Angle	Cohesion	GSI	UCS (MPa)	Young's Modulus (GPa)	m_i	Poisson's
Saprolite Doropo	21	45	-	-	-	-	-
Saprolite Enioda	16	73	-	-	-	-	-
Saprolite Kilosegui	30	15	-	-	-	-	-
Saprock	-	-	25	30	25	10	0.3
Fresh Rock	-	-	70	150	75	35	0.3

7.6.2 Conceptual Model Design

The Doropo project slopes will traverse tens of kilometres of wall lengths. Modelling was simplified to capture representative conditions within the various domains across the project area (Figure 7-7). The following considerations were made to constructing representative sections:

- Saprolite strength domains are represented for Doropo area, Enioda, and Kilosegui.
- Variability of saprolite and Saprock thicknesses across the project area has been simplified to two representative domains: 20 m thick and 40 m thick saprolite. Saprock is assumed to be 20 m thick for both cases.
- Overall slope height considers maximum slope heights around the project area of approximately 120 m.
- Groundwater scenarios for shallow, moderate, and deep water table levels are considered.

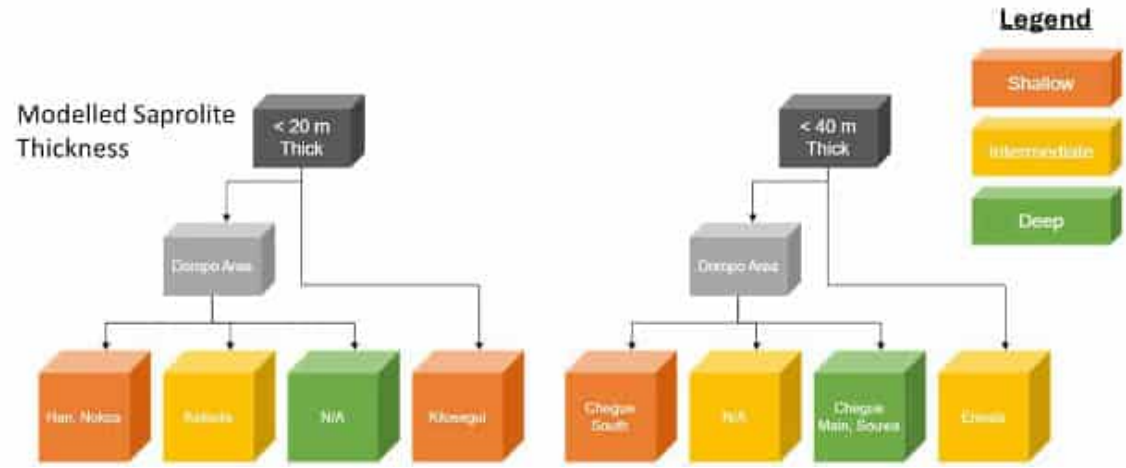


Figure 7-7: Conceptual model summary: two saprolite thicknesses considered, with variable water levels

7.6.3 Groundwater Inputs

Groundwater was input into the model following recommendations from Piteau. Once conceptual sections were generated, Piteau provided recommendations for static potentiometric surfaces. The pore water pressures were varied for each scenario considering different Hu values, where Hu is the ratio of pore water pressure to vertical head, with a Hu value of 1 equivalent to the pressure from the full water column above. Hu values were recommended to be tested between 0.6 and 0.8 for realistic pore water pressure scenarios (Figure 7-8). Models were also run with a Hu value of 1 for a sensitivity check.

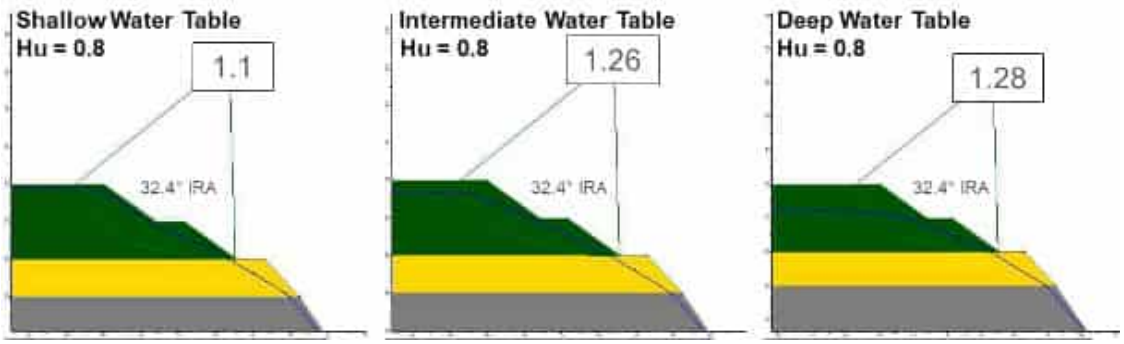


Figure 7-8: Conceptual deep saprolite (40 m thick) section for Doropo showing results from Hu = 0.8 for shallow, intermediate, and deep water tables for a 32.4° IRA

7.6.4 Stability Analysis Results and Discussion

The analysed IRA represents the maximum configuration defined by the bench scale kinematic stability assessments. The overall scale results were compared against a minimum acceptance criterion of FoS equal to, or greater than 1.3. Failure surfaces were only generated within the saprolite at lower FoS, and stability model results reflect this. Slope angles were modified dependent on the results (Table 7-4). The decimal precision reported is only to differentiate the various runs, rather than imply highly precise results.

Table 7-4: Results from stability modelling showing modified IRA in saprolite until design acceptance achieved

Area	Water Table	IRA (°)	Dry	FOS Hu = 1	FOS Hu = 0.8	FOS Hu = 0.6	Comments
Doropo 20 m	Shallow	36	1.606	1.61	1.61	1.61	No further optimisation until mining.
Doropo 20 m	Intermediate	36	1.606	1.61	1.61	1.61	No further optimisation until mining.
Doropo 20 m	Deep	36	1.606	1.61	1.61	1.61	No further optimisation until mining.
Doropo 40 m	Shallow	32.4	1.395	1.03	1.11	1.18	
Doropo 40 m	Intermediate	32.4	1.395	1.11	1.18	1.24	
Doropo 40 m	Deep	32.4	1.395	1.22	1.26	1.29	OK
Doropo 40 m	Shallow	30.8	1.435	1.05	1.14	1.22	
Doropo 40 m	Intermediate	30.8	1.435	1.14	1.21	1.27	
Doropo 40 m	Deep	30.8	1.435	1.24	1.28	1.33	OK
Doropo 40 m	Shallow	29.4	1.472	1.09	1.18	1.25	
Doropo 40 m	Intermediate	29.4	1.472	1.16	1.23	1.29	
Doropo 40 m	Deep	29.4	1.472	1.26	1.31	1.35	
Enioda	Intermediate	30.8	1.521	1.24	1.30	1.36	OK
Kilosegui	Shallow	32.4	1.462	1.46	1.46	1.46	Optimise to 34
Kilosegui	Shallow	34.1	1.396	1.40	1.40	1.37	OK

The following observations from the modelling results were identified:

- Shallow saprolite thicknesses in the Doropo area are generally stable. The water table sits behind the failure surfaces enabling a high FoS. The maximum design slope angles of 36° are around the steepest achieved saprolite slope angles in West Africa and were not steepened further.
- The relatively permeable and free-draining saprolite at Kilosegui is generally favourable for stability. Kilosegui sits in a regional depression and may see elevated water levels in the rainy season. There may be room to optimise these slope angles during implementation.
- Stability at Enioda is aided by an intermediate water table. Depressurization of these slopes by mining into the Saprock as early as possible will be critical for implementation.
- Thick saprolite and shallow water table levels at Doropo are marginally stable.

Further discussion of the marginal stability conditions at Doropo in areas of thick saprolite is warranted. Following the stability analyses, the proposed pits were reviewed for the locations of affected areas to determine if there were requirements for further reducing design slope angles. In general, across the project area, the thickness of saprolite increases with relative elevation. Areas that are situated in local topographic lows, drainage areas, generally have thin saprolite thicknesses. Areas situated in local topographic highs generally have thicker saprolite thicknesses (Figure 7-9).

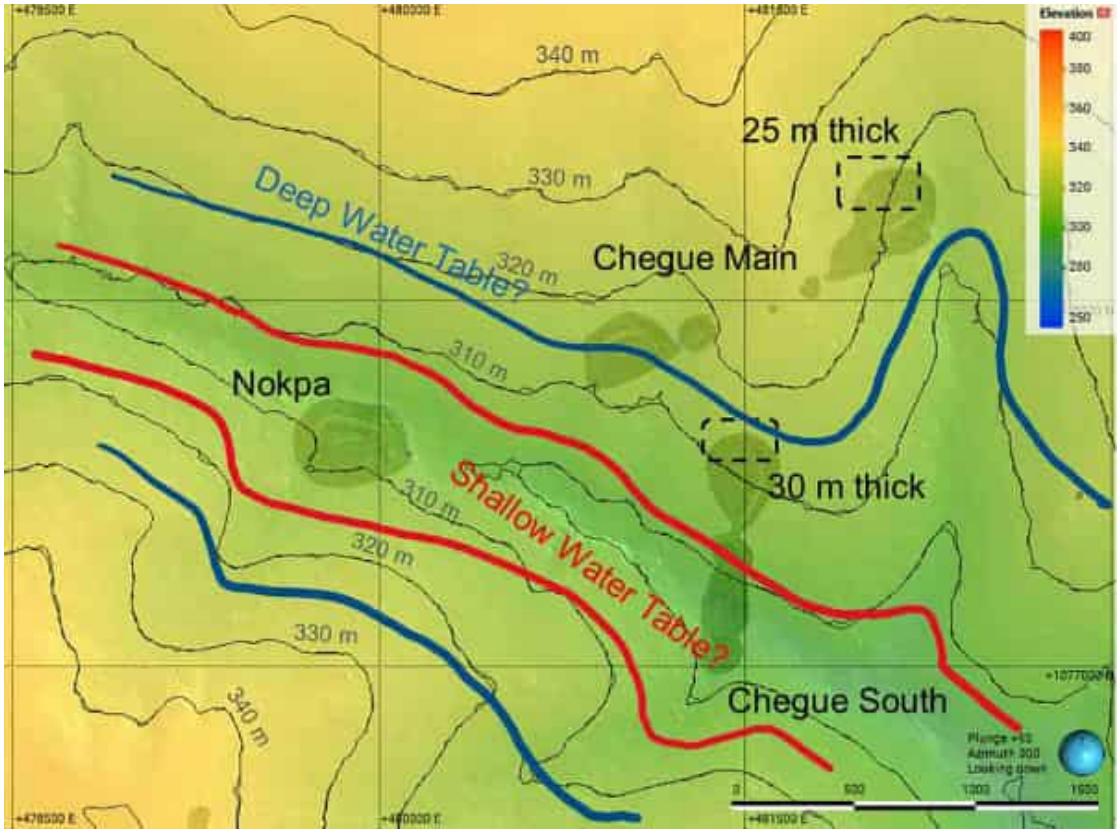


Figure 7-9: Conceptual water table levels for pits in main Doropo area; thickest saprolite portions are outlined in black for Chegue South and Chegue Main

Chegue South is the only pit that satisfies having both a thick saprolite cover and shallow water table. When reviewing the location of thick saprolite relative to the adjacent pits, two observations were noted: the thickest portion of the saprolite is limited to approximately 30 m in the north and this area overlaps with the 310 – 320 m isolines where the southern lobe of Chegue Main sits. Chegue Main was identified as having a deep water table due to being situated on a topographic high. The conclusions that were drawn were that the area of potentially thick saprolite and a shallow water table are limited to a small portion of the northern wall of Chegue South, and that saprolite thickness in this area is less than the modelled thickness. Both of these aspects are favourable for stability, and a marginal FoS, still greater than 1.2, was accepted.

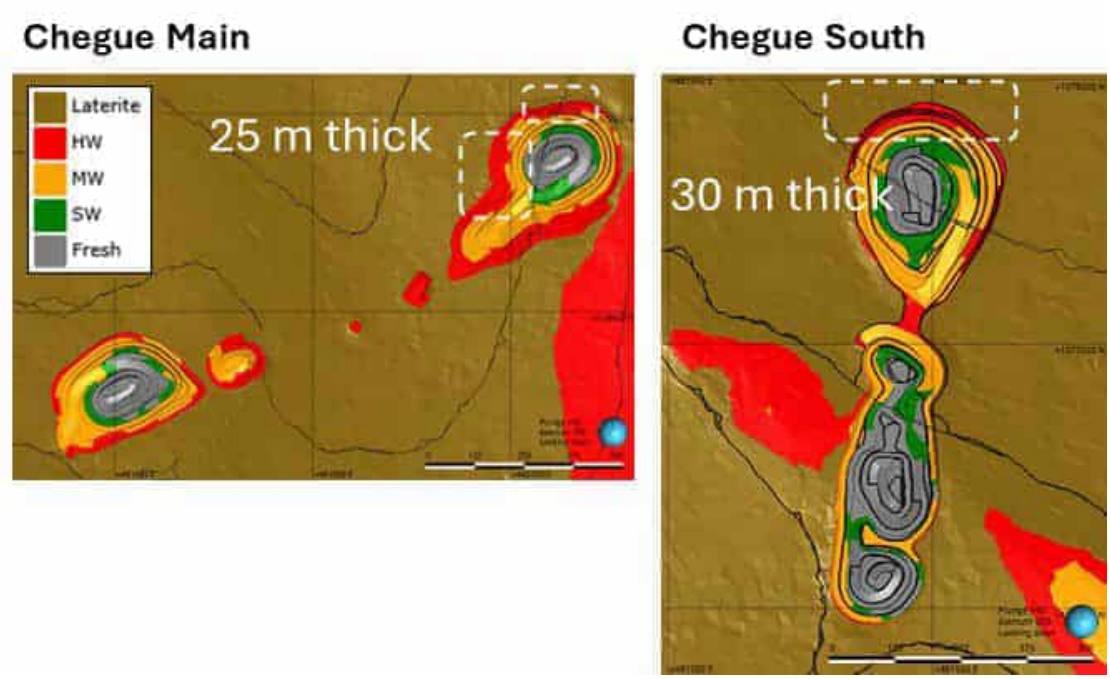


Figure 7-10: Saprolite thicknesses at Chegue South and Chegue Main; thick portions of saprolite less than 40 m, and limited in extents to areas of relative topographic highs

8 OPEN PIT SLOPE DESIGN

8.1 Saprolite Design

Bench face design philosophy in saprolites represents a compromise between minimising erosion from surface water run-off (steeper bench faces more favourable) and maintaining stability (where shallower bench faces are more stable). Benches in Saprolite will be free dug using the excavator and cut back to the desired bench face angle (BFA).

Bench and inter-ramp design in the Saprolite will be dependent on the overall thickness of the saprolite horizons and will be managed by increasing bench widths to reduce the IRA as the thickness of the weathered domain increases (Table 8-1). Bench face angles for the Saprolite will be set at 60° to encourage drainage off the faces. Berms should be graded at 2-3% into the pit to encourage sheet flow and surface water run-off, thus reducing erosion.

Mining in the Saprolite will be unpredictable at times, with local changes in material properties, groundwater conditions, or relict structures that may cause instabilities. Saprolite mining must be dynamic, with the technical services team empowered to implement design or sequence changes and dewatering wells or drains as required. Inter-ramp stack heights should be limited to 20 m, with a 15 m geotechnical berm placed between stacks. The base of the saprolite should also have a 15 m geotechnical berm before entering the Saprock and Fresh Rock domains. These geotechnical berms serve two purposes: to decouple the slopes and promote local depressurisation of the stacks, and to enable access to the slopes for remediation and surface water management.

Table 8-1: Saprolite (CW & HW) design recommendations

Domain	Design Domain	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Maximum Stack Height (m)	Factor of Safety (Hu = 0.8)	Factor of Safety (Hu = 0.6)
Enioda	Sap & Lat	5	5.5	60	30.8	20	1.30	1.36
Doropo < 20 m	Sap & Lat	5	4	60	36	20	1.60	1.60
Doropo < 40 m	Sap & Lat	5	5	60	32.4	20	1.26	1.30
Kilosegui	Sap & Lat	5	4.5	60	34.1	20	1.40	1.37

8.2 Saprock and Fresh Rock Design

Bench design for the Saprock and Fresh Rock domains is driven by kinematic instabilities and increasing bench widths to maintain suitable catchment. The achievable inter-ramp angles are a function of the bench geometries. The contact between the Saprock and Fresh Rock is expected to be variable in terms of depths around the pits, and some flexibility will be required during implementation. The Saprock designs will be limited to a bench height of 10 m to mitigate potential kinematic failures exacerbated by weathered fractures. The Fresh Rock will optimize to a 20 m bench height based on improved geotechnical conditions (Table 8-2).

There will be no geotechnical berms required for the current design configurations in the Saprock and Fresh Rock domains. Pit depths within these units are less than a practical geotechnical berm spacing of 120 m. The requirement for a geotechnical berm at the top of the Saprock/base of saprolite of 15 m remains.

Table 8-2: Saprock and Fresh Rock design recommendations

Domain	Weathering Domain	Azimuth From	Azimuth To	Bench Height (m)	Bench Width (m)	Bench Face Angle (°)	Inter-Ramp Angle	Maximum Stack Height (m)
Enioda	Saprock (MW/SW)	140	220	10	10	75	38.3	120
Enioda	Saprock (MW/SW)	220	140	10	6.5	75	47.4	120
Enioda	Fresh	100	140	20	10	75	52.5	120
Enioda	Fresh	140	220	20	12	75	49	120
Enioda	Fresh	220	100	20	8.5	75	55.3	120
North	Saprock (MW/SW)	040	320	10	6.5	75	47.4	120
North	Saprock (MW/SW)	320	040	10	10	75	38.3	120
North	Fresh	060	320	20	8.5	75	55.3	120
North	Fresh	320	060	20	13	75	47.4	120
South	Saprock (MW/SW)	020	300	10	6.5	75	47.4	120
South	Saprock (MW/SW)	300	020	10	8	75	43.1	120
South	Fresh	020	300	20	8.5	75	55.3	120
South	Fresh	300	020	20	11	75	50.7	120
Kilosegui	Saprock (MW/SW)	100	340	10	6.5	75	47.4	120
Kilosegui	Saprock (MW/SW)	340	100	10	8	75	43.1	120
Kilosegui	Fresh	000	060	20	12	75	49	120
Kilosegui	Fresh	060	120	20	10	75	52.5	120
Kilosegui	Fresh	120	360	20	8.5	75	55.3	120

9 CONCLUSIONS

This feasibility open pit slope design report for the Doropo project is based on geotechnical drilling data collected over three campaigns in 2018, 2022, and 2023. A total of 8 pits were assessed in this study. The open pits at Doropo are largely shallow (less than 150 m), and a significant portion of the mining will take place within weathered rock, saprolites, and residual soils.

The following operational recommendations are provided:

- Saprolite cut slopes and partially blasted Saprock slopes should be excavated to maintain bench widths and BFA per design. Operators should be provided with batter boards and guidance from the survey team to ensure design compliance.
- Bullnoses (convex slopes) of one or more stack heights should be minimized in final designs. Significant bullnoses may require consideration for reduction of inter-ramp angles to minimize the effects of unconfinement.

- Pits designed with single-ramp access should trigger a review of geotechnical hazards, slope and bench performance, and evaluation of possible risks to access. There may be opportunities for later phases or deeper portions of the pits to reduce access to minimize effects to slope angles.
- Slope design guidelines are presented to global best-practice design standards. There remain opportunities during mining to optimise the bench heights and berm widths. Specifically, the requirements for additional catchment in certain aspects of the design domains may be reduced should design compliance be maintained during implementation.

Blasting and Scaling

This design is presented with the assumption that good practice blasting will be conducted in the pits. Full-height pre-shear blasts will be required for final slope walls in the Fresh Rock and Saprock domains. Interim walls may be constructed using good quality trim blasts, but wall performance must be reviewed to ensure crest loss is kept below the Design Acceptance Criteria.

- Active faces and accessible berms should be scaled by operators after each blast. Berms should be kept free and clear of spillage and loose rock to ensure sufficient catchment. Periodic highwall scaling by dedicated contractors may be required to ensure safety of slopes above ramps and other infrastructure. Operators should be trained by the geotechnical team to understand the objectives of work, and to minimise over-excavation of the walls.
- Regular and systematic reconciliation of achieved bench widths and effective bench face angles should be completed. This is both to ensure design compliance and to evaluate potential for optimization.

Monitoring and Instrumentation

Monitoring will be critical to the safe execution of the proposed open pit mining. Stability analyses show the sensitivity of the saprolite slopes to pore water pressures, and these must be monitored and should be reduced, if possible, through dewatering and exposure of the Saprock units to promote under-draining.

A multi-layered monitoring approach should be considered to provide good coverage and have redundancy. In addition to the monitoring systems, suitable Trigger Action Response Plans (TARP) should be developed to ensure operator safety during operations. The TARP should have thresholds that escalate responses based on the hazard identified.

SRK recommends the following monitoring approach be considered for implementation requirements:

- Survey Monitoring: automated monitoring systems should be installed to detect slope movement during operations. At a minimum, prisms should be systematically installed on all slope walls to enable data collection on slope movement. Prisms should be installed from the start of mining of all pits.

- Radar: a mobile radar scanning unit should be purchased that can be mobilized to at-risk areas for operational risk management. This will be particularly valuable when mining thicker saprolite units before slopes can be under-drained through the Saprock/Fresh Rock. The first unit should be planned for purchase within the first two years of mining.
- LIDAR/Photogrammetry: high resolution lidar or photogrammetry surveys should be completed at regular intervals to monitor failures and displacement of the exposed rock. A multi-rotor Unmanned Aerial Vehicle (UAV) with the appropriate survey equipment is recommended to be purchased and implemented for the start of mining.
- Time Domain Reflectometer (TDR) cables: installing these, if possible, perpendicular to movement planes (such as faults) will provide information regarding rock mass deformation (separation and shear) along the length of the TDR cables. Blasting will damage the cables which limits the life of these instruments and emphasizes the need to install the cables throughout operations to maintain adequate monitoring. These can be purchased and utilized as required to monitor deformations.
- Piezometers: Owing to the sensitivity of the saprolite and Saprock design to pore water pressures, a robust groundwater monitoring system including grouted vibrating wire piezometers should be installed, maintained, and updated throughout the life of mine. Monitoring wells should be regularly installed across the project area.
- Hydrological: Any pits susceptible to inundation during rainy season or seasonal flooding should have robust monitoring and response plans to evacuate personnel and equipment. A detailed surface water plan is required for implementation. Surface water can cause significant issues with saprolite slopes including erosion and contribution to failures.

Geotechnical Support

- A geotechnical team should be established to maintain and install monitoring equipment, complete reconciliations, and provide support for operations.
- A database of saprolite, Saprock, and Fresh Rock performance should be developed. This should include details on stability, operational issues, failures (including volume and cause), effective bench widths and bench face angles, material properties or composition, and groundwater or seepage observations.
- Detailed structural, geological, and geotechnical mapping using regular line mapping or a remote mapping system will be required as benches are continually excavated. These data should be used to constantly update fault models, weathering models, and structural domain models.
- Further material strength testing of the saprolite units should also be undertaken as mining advances. This information will be used to calibrate the proposed slope designs based on 3D exposure and the structures and the rock mass, and to account for variability of the rock mass relative to assumptions made in the geotechnical model.
- Develop and maintain a dynamic mine hazard and evacuation plan. Regular face inspections should be developed to be conducted with the geotechnical and operations teams.

For and on behalf of SRK Consulting (UK) Limited

Samson Tims, Senior Consultant, Geotechnical Engineering **Technical Lead** SRK Consulting (UK) Limited	Neil Marshall, Corporate Consultant, Geotechnical Engineering **Project Manager** SRK Consulting (UK) Limited

Date Issued: 6 June 2024

10 REFERENCES

Barton, N. 1976. The shear strength of rock and rock joints. Int. J. Rock Mech. Min. Sci. & Geomech. Abstr. 13, 1-24.

Bieniawski ZT. 1989. *Engineering rock mass classification*. New York, Wiley

Fourie, A. B., & Haines, A. (2007, September). Obtaining appropriate design parameters for slopes in weathered saprolites. In *Slope Stability 2007: Proceedings of the 2007 International Symposium on Rock Slope Stability in Open Pit Mining and Civil Engineering* (pp. 105-116). Australian Centre for Geomechanics.

Goodman RE, and Shi G. 1985. *Block theory and its application to rock engineering*. Prentice Hall Inc. 338 p.

Hoek E, Carter TG, and Diederichs MS. 2013. *Quantification of the Geological Strength Index Chart*. In: Proceedings of the 47th US Rock Mechanics / Geomechanics Symposium, San Francisco, CA, USA. 8 p.

Hoek E, and Bray JW. 1981. Rock Slope Engineering: revised 3rd edition. The Institution of Mining and Metallurgy, London. 360 p.

Hoek E, P Marinos, and M Benissi. 1998. *Applicability of the geological strength index (GSI) classification for very weak and sheared rock masses. The case of the Athens schist formation*. Bulletin of Engineering Geology and the Environment. 57:151-160

Hoek E. 2012*. Blast Damage Factor D. Technical note for RocScience* – February 2, 2012.

Hoek E. and Brown ET. 1997. *Practical estimates of rock mass strength. International Journal of Rock Mechanics and Min Science*. 34:1165–86.

Hudson, J. A., & Harrison, J. P. 2000. *Engineering rock mechanics: an introduction to the principles*. Elsevier.

Hustrulid, W. A., McCarter, M. K., & Van Zyl, D. J. 2001. *Slope stability in surface mining*. SME.

ISRM. 1985. International Society of Rock Mechanics Commission on Testing Methods, *Suggested Method for Determining Point Load Strength*. International Journal of Rock Mechanics, Mining Science and Geomechanics. 22:51-60.

MacDonald, N. R., Packulak, T. R., & Day, J. J. 2023. *A Critical Review of Current States of Practice in Direct Shear Testing of Unfilled Rock Fractures Focused on Multi-Stage and Boundary Conditions*. *Geosciences*, *13*(6), 172.

Marinos P, and Hoek E. 2000. GSI: *A geologically friendly tool for rock mass strength estimation*. In: Proceedings for GeoEng2000. Conference, Melbourne. pp. 1422-1446.

Mulet, J. P., Vallejos, J. A., & Rimmelin, R. 2021. *Estimating the Rock Mass Disturbance Zone in Open Pit Slopes* Related to Stress Relaxation. In *55th US Rock Mechanics/Geomechanics Symposium*. OnePetro.

Ryan, T. M., & Pryor, P. R. 2000. *Designing catch benches and interramp slopes*. In Slope Stability in Surface Mining, 27-38.

Read, J. & Stacey, P. 2009. *Guidelines for Open Pit Slope Design*. Netherlands: CSIRO Publishing. 511 p.

SRK 2021. Guidelines for Structural and Geological Models, Large Open Pit Project, https://www.lopproject.com/guidelines-for-structural-and-geological-models-in-lops/

Swan, G. and Sepulveda, R. S., 2001. *Slope Stability at Collahuasi*. In Slope Stability in Surface Mining, 163 – 170.

Wyllie, D.C. & Mah, C.W. 2004. *Rock Slope Engineering: Civil and Mining 4th Edition*. Spon Press, New York, USA. 431 p.

Jakubec, J. & Laubscher, D.H. 2000. *The MRMR rock mass rating classification system in mining practice*. In: Proceedings of MassMin 2000, Brisbane, Australia. 9 p.

Venter, J. & Hamman, E. C. F. 2022. *Kinematic Analysis of Pit Shells*. In: Proceedings of Slope Stability 2022, Tucson, USA. 10 p.

Tektonik Consulting, Ltd., 2017, Review of Structural Controls on Mineralisation

SRK Consulting (UK) Ltd., 2018, Preliminary Geotechnical Assessment for Doropo Open Pits

JunCown, 2019, Doropo Gold Mineralisation Patterns

H&S Consultants Pty. Ltd., 2019, NI 43-101 Technical Report Mineral Resource Estimates of the Doropo Project

Cube Consulting, 2021, Internal Resource Estimate of Doropo Project

Centamin, 2021, Doropo Gold Project PEA Update

SRK Consulting (UK) Ltd., 2023, A Pre-Feasibility Geotechnical Study for the Doropo Open Pits, Ivory Coast, 31455

APPENDIX

A GEOTECHNICAL DATA

APPENDIX

B STRUCTURAL DOMAINS AND KINEMATIC ANALYSIS

APPENDIX

C GEOTECHNICAL DOMAIN MODEL

APPENDIX 5.1

KP GEOTECHNICAL INTERPRETATIVE REPORT

RESOLUTE MINING LIMITED
DOROPO GOLD PROJECT





DEFINITIVE FEASIBILITY STUDY UPDATE
GEOTECHNICAL INTERPRETATIVE REPORT

PREPARED FOR:

Resolute Mining Ltd
Level 17, 2 The Esplanade
Perth WA 6000
AUSTRALIA

PREPARED BY:

Knight Piésold Pty Limited
Level 1, 184 Adelaide Terrace
East Perth, WA 6004, AUSTRALIA
p. +61 8 9223 6300 • f. +61 8 9223 6399

PE301-00821/04
Rev B
December, 2025

Knight Piésold CONSULTING

DOCUMENT CONTROL PAGE

RESOLUTE MINING LIMITED

DOROPO GOLD PROJECT

DEFINITIVE FEASIBILITY STUDY UPDATE

GEOTECHNICAL INTERPRETATIVE REPORT

KP Job No. PE301-00821/07

KP Report No. PE301-00821/04

CONTRACT REF. PE301-00821/07

DOCUMENT INFORMATION

REV	DESCRIPTION	PREPARED	REVIEW	KNIGHT PIÉSOLD APPROVAL	DATE
A	Issued as Draft	KPE	JL	DJTM	12/06/2024
		KPE	JL	DJTM	
B	Issued as Draft	KPE	JL	DJTM	18/12/2025
		KPE	JL	DJTM	
0	Issued as Draft		ZS PP		19/12/2025
		KPE	JL	DJTM	

DOCUMENT DISTRIBUTION

REV	DESTINATION	HARD COPY	ELECTRONIC COPY
B	RESOLUTE MINING LTD	-	1
0	RESOLUTE MINING LTD	-	1

CONTENTS **PAGE**

1. INTRODUCTION 1

2. SITE CHARACTERISTICS 2

2.1 PROJECT SUMMARY 2

2.2 LOCATION 2

2.3 CLIMATE 2

2.4 TOPOGRAPHY AND DRAINAGE 3

2.4.1 Introduction 3

2.4.2 Tailings Storage Facility (TSF) 3

2.4.3 Process Plant (PP) 3

2.4.4 Water Storage Dam (WSD) 4

2.4.5 WSD Diversion Channel (WDC) 4

2.4.6 Han Diversion Channel (HDC) 4

2.4.7 Accommodation Village (AV) 5

2.4.8 Airstrip (AS) 5

2.4.9 Haul Access Road (HAR) and Site Access Road (SAR) 5

2.4.10 Access Road Overpass (ARO) 5

2.5 GEOLOGY 6

2.5.1 Regional Geology 6

2.5.2 Project Geology 6

2.6 SEISMICITY 6

2.6.1 Seismic Parameters for Design of Dams and Appurtenant Structures 7

2.6.2 Seismic Parameters for Structural Design 9

3. GEOTECHNICAL INVESTIGATION 11

3.1 INTRODUCTION 11

3.2 SCOPE OF WORK 11

3.3 WALKOVER SURVEY 12

3.4 BOREHOLES 12

3.4.1 Drilling 12

3.4.2 Falling Head Tests (FHT) 14

3.5 TEST PITS 15

3.6 GROUNDWATER 16

3.7 LABORATORY TESTING 19

CONTENTS **PAGE**

4. INVESTIGATION FINDINGS AND DESIGN PARAMETERS 21

4.1 TAILINGS STORAGE FACILITY 21
4.1.1 General 21
4.1.2 Sub-surface Conditions 21
4.1.3 Preliminary Design Parameters 23
4.1.4 Potential Geotechnical Risks and Construction Considerations 24

4.2 PROCESS PLANT SITE 25
4.2.1 General 25
4.2.2 Sub-surface Conditions 26
4.2.3 Preliminary Design Parameters 28
4.2.4 Plant Site Foundation Details 29
4.2.5 Settlement and Bearing Capacity 30
4.2.6 Potential Geotechnical Risks and Construction Considerations 41

4.3 WATER STORAGE DAM 42
4.3.1 General 42
4.3.2 Sub-surface Conditions 42
4.3.3 Preliminary Design Parameters 44
4.3.4 Potential Geotechnical Risks and Construction Considerations 45

4.4 WATER HARVEST DAM 45
4.4.1 General 45
4.4.2 Sub-surface Conditions 46
4.4.3 Preliminary Design Parameters 46
4.4.4 Potential Geotechnical Risks and Construction Considerations 47

4.5 WSD DIVERSION CHANNEL 47
4.5.1 General 47
4.5.2 Sub-surface Conditions 48
4.5.3 Preliminary Design Parameters 49
4.5.4 Potential Geotechnical Risks and Construction Considerations 50

4.6 HAN DIVERSION CHANNEL 50
4.6.1 General 50
4.6.2 Sub-surface Conditions 51
4.6.3 Preliminary Design Parameters 51
4.6.4 Potential Geotechnical Risks and Construction Considerations 52

4.7 AIRSTRIP 53
4.7.1 General 53
4.7.2 Sub-surface Conditions 53
4.7.3 Potential Geotechnical Risks and Construction Considerations 53

4.8 ACCOMMODATION VILLAGE 55
4.8.1 General 55
4.8.2 Sub-surface Conditions 55
4.8.3 Potential Geotechnical Risks and Construction Considerations 56

CONTENTS **PAGE**

4.9 ACCESS ROADS 56
4.9.1 General 56
4.9.2 Sub-surface Conditions 56
4.9.3 Potential Geotechnical Risks and Construction Considerations 57
4.10 ACCESS ROAD OVERPASS 58
4.10.1 General 58
4.10.2 Sub-surface Conditions 59
4.10.3 Preliminary Design Parameters 59
4.10.4 Potential Geotechnical Risks and Construction Considerations 60
4.11 CONSTRUCTION MATERIALS 61
4.11.1 General 61
4.11.2 Low Permeability Fill (Zone A) 63
4.11.3 Embankment Structural Fill (Zone C1) 63
4.11.4 Zone E, Zone G Rockfill and Concrete Coarse Aggregate 63
4.11.5 Drainage Medium (Zone F) 65
4.11.6 Wearing Course / Road Construction Materials 66
4.11.7 Structural fill for plant foundations 67

5. POTENTIAL GEOTECHNICAL RISKS AND CONSTRUCTION CONSIDERATIONS 69
5.1 TIMING OF CONSTRUCTION 69
5.2 WORKABILITY OF NEAR SURFACE MATERIALS 69
5.3 SOIL SHRINKAGE AND SWELLING 69
5.4 CONSTRUCTION WATER 70
5.5 CUT AND FILL SLOPES 70
5.6 RETAINING STRUCTURES 71
5.7 CONCRETE DURABILITY 72

6. CONCLUSIONS AND RECOMMENDATIONS 73

7. REFERENCES 80

8. LIMITATIONS OF THIS GEOTECHNICAL REPORT 81

CONTENTS **PAGE**

FIGURES

APPENDIX A
Borehole Logs and Core Photographs

APPENDIX B
Falling Head Permeability Test Results

APPENDIX C
Test Pits Logs and Photographs

1. INTRODUCTION

Resolute Mining Limited (Resolute) is currently undertaking a definitive feasibility study (DFS) update for the Doropo Gold Project. The project is located in north-eastern Côte d'Ivoire in the Bounkani region, 480 km north of the capital city Abidjan and 50 km north of the city of Bouna.

Knight Piésold Pty Ltd (KP) was commissioned as part of the early DFS study in 2023-2024 to undertake a geotechnical investigation of the following proposed infrastructure:

- Tailings Storage Facility (TSF).
- Water Storage Dam (WSD).
- Process Plant Site (PS).
- Water Harvest Dam (WHD).
- WSD Diversion Channel (WDC).
- Han Diversion Channel (HDC).
- Airstrip (AS).
- Accommodation Village (AV).
- Site Access Road (SAR) and Haul Access Road (HAR).
- Access Road Overpass (ARO).

This report details the scope of the geotechnical site investigation and presents an interpretation of existing ground conditions and material properties for the design and construction of foundations and earthworks.

Please note, the report has been updated to reflect the change in Project's ownership from Centamin PLC to Resolute Mining Limited.

During the investigation a number of test pits for the Tailings Storage Facility (TSF) were supervised and logged by the client's site representatives (Ampella Mining), with remote supervision provided by KP.

Interpretation of site conditions is based on the sub surface lithology revealed during the investigation programme, visual assessment of the in-situ materials and results of in-situ field tests and laboratory tests.

2. SITE CHARACTERISTICS

2.1 PROJECT SUMMARY

The project will comprise open pit mining operations, mine waste landforms, process plant, tailings storage facility, water storage dam, water harvest dam and other ancillary structures. A site layout plan is presented on Figure 2.1.

2.2 LOCATION

The project is located in north-eastern Côte d'Ivoire in the Bounkani region, 480 km north of the capital city Abidjan and 50 km north of the city of Bouna. The site is approximately 10 km west of the border between Côte d'Ivoire and Burkina Faso, with the Enioda pit located about 0.5 km from the Burkina Faso border.

2.3 CLIMATE

A site-specific climate assessment for Doropo, including daily precipitation records from the Batie meteorological station, was used to analyse short and long-term climatic patterns. The wet season lasts about four months, starting from July, with September being the wettest month. The average annual rainfall is 1,133 mm, with a maximum recorded rainfall of 1,838 mm (1968) and a minimum of 718 mm (1948) at Batie. The 10-year Annual Recurrence Interval (ARI) wet season duration is about 120 days, with a design rainfall of 1,065 mm. The average annual lake evaporation for the project area is 1,469 mm. Design annual rainfall sequences, determined by analysing the Batie rainfall data, are provided in Table 2.1. The 100-year ARI, wet annual rainfall total is 1,931 mm. The 100-year ARI, dry annual rainfall total is 704 mm. The design 100-year ARI, 72-hour duration storm event magnitude is 220 mm. The design Probable Maximum Precipitation (PMP), 24-hour duration storm event is 602 mm.

Table 2.1: Design rainfall and evaporation annual sequence

Month	Average Rainfall (mm)	100 ARI Wet Annual Rainfall (mm)	100 ARI Dry Annual Rainfall (mm)	Average Pan Evap. (mm)	Average Lake Evap. (mm)
January	0	0	0	199	143
February	7	56	0	210	148
March	0	93	48	234	164
April	85	149	133	204	146
May	121	189	69	189	136
June	64	258	100	152	111
July	229	366	79	128	94
August	267	303	111	111	82
September	223	394	77	121	89
October	84	83	88	146	107
November	2	26	0	162	118
December	50	14	0	181	131
TOTAL	1,133	1,931	704	2,037	1,469

2.4 TOPOGRAPHY AND DRAINAGE

2.4.1 Introduction

The overall site is typical of the forests of West Africa, predominantly woodland savannah with an open canopy of trees. A few agricultural areas were also observed, predominantly cashew plantations and paddy farms. The project area comprises gently undulating terrain which falls towards the north-east. Drainage channels and gullies draining towards the east and north east were observed.

2.4.2 Tailings Storage Facility (TSF)

The proposed TSF is across a valley that drains south east. The proposed TSF embankment footprint varies approximately between RL310 – 347 m, with an average gradient of approximately 1V:50H across the eastern and western embankments and approximately 1V:50H across the southern embankment. The basin footprint varies approximately between RL307 – 347 m, with an average gradient of 1V:50H in the north-south direction.

The toe of the TSF embankment is ~500 m away from the proposed Nokpa pit and ~1,250 m from the Souwa pit.

2.4.3 Process Plant (PP)

The proposed process plant is located south west of the TSF and north east of the Souwa pit.

The process plant site is proposed to occupy a plan area of approximately 210,000 m^2 with the major process plant structures occupying an area of approximately 200 m x 500 m, crusher and ROM pad occupying an area of approximately 300 m x 300 m and the miscellaneous structures including powerplants, water ponds etc. occupying the rest.

The proposed process plant site is situated on relatively flat ground at an average elevation of approximately RL352 m. The ground rises by approximately 1V:75H to 1V:150H across the plant site.

2.4.4 Water Storage Dam (WSD)

The WSD is the main collection and storage pond for raw process water for the project and is designed to store up to 2,000,000 m^3 of water at the maximum operating level. Water stored in the WSD will be used for plant raw water requirements and process make-up water requirements.

The WSD will collect rainfall runoff from upstream catchments, including abstraction from the water harvest dam. The maximum flood level is limited to RL331m as instructed by Resolute.

The WSD embankment is proposed to the west of the TSF embankment. The WSD basin has a cleared area of ~1,192,000 m^2 and an external catchment of 9,800,000 m^2. Gentle slopes are observed along the valley sides with an average slope of 1V:50H, with elevation ranging from RL317 to 332 m.

2.4.5 WSD Diversion Channel (WDC)

The proposed WDC is situated north of the TSF, running along the northern TSF embankment. At its deepest point, the channel is ~9 m deep. To minimise excavation, a gentle gradient of 0.1 % is adopted for most of the channel length. HDPE liners are adopted as the flow is estimated to be laminar for this section.

The gradient changes to more than 1 % beyond the waste dump near the Nokpa pit (after 2.5 km). To accommodate the increased gradient and turbulence, Zone E waste rock is proposed. The maximum excavation depth for this section is ~3.9 m.

Please note that, following the 2025 DFS update, the WDC has been removed and no longer forms part of the site infrastructure.

2.4.6 Han Diversion Channel (HDC)

Han diversion channels are proposed to divert clean water from the southwest and southeast catchments reporting to the proposed Han pit. Two diversion channels are proposed, DC10 and DC11, with DC11 being the main focus of the investigation.

DC11 will receive water from DC10 upon completion. Han pit is proposed along the basin of the river channel. Please note, the location of the Han Diversion Channel has been updated since the completion of the site investigation.

2.4.7 Accommodation Village (AV)

The accommodation village is proposed south west of the plant site atop a ridge overlooking the Souwa pit. Ground level at the proposed location varies between approximately RL342 – 348 m and is generally flat with a gradient of 1V:75H. Steep declines are observed away from the proposed location.

2.4.8 Airstrip (AS)

A number of potential airstrip locations were considered during the airstrip siting study as part of the early DFS study. The location selected is ~7 km from the process plant and ~5 km from the accommodation camp. This location was selected with the intention of reducing bulk earthworks quantities as well as limiting interactions with the existing cashew plantations.

The airstrip design was completed using a Cessna Model Caravanne aircraft. The prevailing wind direction adopted is southwest and south, sourced from the Gaoua station (~67 km away from the Doropo site).

2.4.9 Haul Access Road (HAR) and Site Access Road (SAR)

The Haul Access Road connects the Doropo project area, including the Process Plant and related structures with the Souwa, Chegue and Nokpa pits in the north, and the Kilosegui ore bodies to the south west. The total length of the HAR is ~30 km.

The Site Access Road runs from the existing highway to the Doropo project area. The total length of the Site Access Road is ~16km. The Site Access Road is expected to be constructed pre-commissioning to allow construction access to the project site.

The road vertical alignments were designed to balance cut to fill as much as practicable over the entire road length. The elevation for SAR/HAR varies from RL304 m to RL403 m across the project area.

2.4.10 Access Road Overpass (ARO)

The HAR intersects the existing sealed A1 national highway ~16 km south of the Process Plant. A haul road overpass structure is proposed at the intersection where the HAR intersects the A1 national highway. The proposed overpass tunnel is a multi-plate™ arch tunnel built of Super-Cor® corrugated plate of 8.1 mm thickness. The tunnel span is 14.0 m wide and 7.0 m high.

2.5 GEOLOGY

2.5.1 Regional Geology

The West African craton covers a vast area from Mauritania to Ghana and is divided into the Reguibat shield in the north and the Leo-Man shield in the south. The Leo-Man shield contains major gold-producing regions like Ghana, Burkina Faso, Mali, Guinea and Côte d'Ivoire. This region's geological history includes the formation of the Birimian domain, which covers ~85% of the Cote d'Ivoire ground, rich in gold deposits, about 2.5 to 1.6 billion years ago.

The Doropo project lies within the Tonalite-Trondhjemite-Granodiorite (TTG) domain, characterised by granite-gneiss terrain with sparse outcrop (Ref. 1).

2.5.2 Project Geology

The Doropo gold deposits (Ref. 1) are hosted in a uniform medium to coarse-grained granite-granodiorite complex. This complex has been intruded locally by late-stage gabbro-dolerite dykes, along with some pegmatite veins. Occasionally, there are biotite-rich or aplitic dykes, which also exhibit amphibolite layers. Outcrop of recognisable rock is rare, but is generally confined to erosional valley sides. Interfluvial ridge lines are often covered by hard laterite cuirasse, while drainage lines contain lateritic soils and transported sediments like alluvium and colluvium.

Age dating of the rocks using U-Pb dating of zircons suggests a prolonged history of evolving continental crust during the Palaeoproterozoic era, ranging from 2,450 million years ago (Ma) to 2,100 Ma. The timing of gold mineralisation remains undetermined, but if similar to Birimian orogenic gold deposits, the gold mineralising events likely occurred late in the magmatic-tectonic evolution of the Doropo terrane, around 2,100 Ma.

2.6 SEISMICITY

A seismic hazard assessment was undertaken for the project based on the available information including historical data, earthquake catalogues and technical publications. The details are presented in KP Memorandum Ref. PE25-01562 (Ref. 13).

The seismicity of much of West Africa is typical of an intra-plate region, characterised by low levels of seismic activity and earthquakes apparently randomly distributed in location and time. The correlation between recorded earthquakes and geological features is typically not well known or understood.

The foundation conditions at the site could be classified as Site Class C (very dense soil and soft rock to a depth of 30 m) according to ASCE/SEI 7-10 (Ref. 14).

Approximate amplification factors according to ASCE/SEI 7-10 should be applied to account for the potential seismic site response through the foundation materials.

2.6.1 Seismic Parameters for Design of Dams and Appurtenant Structures

In accordance with the Global Industry Standard on Tailings Management (GISTM, Ref. 18), two levels of design earthquakes are to be considered: Operations and Closure (Active Care) and Passive-Closure (Passive Care).

Appropriate return intervals for the design earthquakes need to be determined based on the consequence category for the TSF, which considers the consequences of failure. This assessment typically includes consideration of the potential loss of life and environmental and economic impacts due to failure. For the purposes of this assessment, all consequence categories based on GISTM have been assessed. Table 2.2 summarises the recommended Annual Exceedance Probability (AEP) corresponding to different earthquakes and failure consequence categories according to GISTM. The appropriate failure consequence category based on the dam break assessment is 'Very High'. The recommended seismic design parameters corresponding to all failure consequence categories according to GISTM are summarised in Table 2.3. The earthquake scenarios were selected based on a review of historical seismicity and the findings of the seismic hazard analyses including deaggregation of the seismic hazard.

Table 2.2: Recommended GISTM Design Earthquake Loading (AEP)

Consequence Classification	Seismic Criteria [1,2] – Annual Exceedance Probability	
	Operations and Closure (Active Care)	Passive Closure (Passive Care)
Low	1/200[1]	1/10000[1]
Significant	1/1000[1]	1/10000[1]
High	1/2475[1]	1/10000[1]
Very High	1/5000[1]	1/10000[1]
Extreme	1/10000[1]	1/10000[1]

The selection of the design ground motion should consider the seismic setting and the reliability and applicability of the probabilistic and deterministic methods for seismic hazard assessment. The Maximum Credible Earthquake (MCE) is part of a deterministic approach that can govern in some areas. The method that produces the most appropriate ground motion for the facility safety should be used for the design. For existing tailings facilities the EOR, with review by an ITRB or a senior independent technical reviewer, may determine that the upgrade to this design criteria is not feasible or cannot be retroactively applied. In this case, the Accountable Executive shall approve and document the implementation of measures to reduce both the probability and the consequences of a tailings facility failure in order to reduce the risk to a level as low as reasonably practicable (ALARP). The basis and timing for addressing the upgrade of existing tailings facilities shall be risk-informed and carried out as soon as reasonably practicable.

Table 2.3: Recommended Seismic Design Parameters (GISTM)

Consequence classification	Design Event	Average Return Period (years)	PGA - Rock Site (g)	PGA - Class C (g)	Magnitude*	Distance from site (km)*
Low	Active care	200	0.002	0.002	5.9 (6.0)	545 (591)
Significant	Active care	1,000	0.006	0.007	6.5 (6.3)	545 (576)
High	Active care	2,475	0.009	0.011	6.5 (6.5)	545 (566)
Very High	Active care	5,000	0.014	0.017	6.7 (6.5)	535 (559)
Extreme	Active care	10,000	0.021	0.026	6.7 (6.6)	535 (552)
All Consequence	Passive Care	10,000	0.021	0.026	6.7 (6.6)	535 (552)

* Mode (Mean) deaggregation magnitude and distance, based on deaggregation at an embankment natural period of 0.75 seconds.

According to the ANCOLD (Ref. 15) guidelines for earthquake design of Dams and Appurtenant Structures, three levels of design earthquake are typically considered: Operating Basis Earthquake (OBE); Safety Evaluation Earthquake (SEE); and Maximum Credible Earthquake (MCE). Table 2.4 summarises the recommended Annual Exceedance Probability (AEP) corresponding to different earthquakes and failure consequence categories.

Table 2.4: Recommended Seismic Design Parameters (ANCOLD)

Consequence classification	Design Event	Average Return Period (years)	PGA - Rock Site (g)	PGA - Class C (g)	Magnitude*	Distance from site (km)*
Low and Significant	OBE	475*	0.004	0.004	6.1 (6.2)	535 (584)
	SEE	1,000^	0.006	0.007	6.5 (6.3)	545 (576)
High C	OBE	1,000*	0.006	0.007	6.5 (6.3)	545 (576)
	SEE	2,000^	0.009	0.010	6.5 (6.4)	545 (568)
High B	OBE	1,000*	0.006	0.007	6.5 (6.3)	545 (576)
	SEE	5,000^	0.014	0.017	6.7 (6.5)	535 (559)
High A	OBE	1,000*	0.006	0.007	6.5 (6.3)	545 (576)
	SEE	10,000^	0.019	0.023	6.7 (6.6)	535 (552)
Extreme	OBE	1,000*	0.006	0.007	6.5 (6.3)	545 (576)
	SEE	10,000#	0.029	0.035	6.7 (6.6)	535 (552)
Low, Significant, High A, B, C	Post Closure	10,000^	0.019	0.023	6.7 (6.6)	535 (552)
Extreme	Post Closure	10,000#	0.029	0.035	6.7 (6.6)	535 (552)

* Mode (Mean) deaggregation magnitude and distance, based on deaggregation at an embankment natural period of 0.75 seconds.

^ 50% percentile, # 85% percentile. * Mode (Mean) deaggregation magnitude and distance, based on deaggregation at an embankment natural period of 0.75 seconds.

2.6.2 Seismic Parameters for Structural Design

Building structures for the project should be designed to an appropriate seismic design code, such as the International Building Code (Ref. 17). Seismic design to the International Building Code requires determination of seismic coefficients, SS and S1, defined as follows:

- Seismic coefficient, SS: maximum considered earthquake ground motion of 0.2 seconds spectral response acceleration (5 % of critical damping).
- Seismic coefficient, S1: maximum considered earthquake ground motion of 1.0 second spectral response acceleration (5 % of critical damping).

In accordance with the International Building Code, the maximum considered earthquake ground motion has been defined as the ground motion with a 2% probability of exceedance in 50 years (average return period of 2,475 years).

Seismic parameters for use with IBC are provided in Table 2.5 for the site based on the probabilistic seismic hazard analysis results.

Table 2.5: Recommended structural design parameters

Seismic coefficient	Return Period (years)	SS and S1 Rock Site (g)	SS and S1 Class C (g)
SS	2,475	0.023	0.028
S1	2,475	0.006	0.010

For geotechnical foundation design of mine site structures, an earthquake magnitude of M6.3 at a distance of 535 km (short period) or M6.7 at a distance of 535 km (long period) is recommended for seismic design analyses.

3. GEOTECHNICAL INVESTIGATION

3.1 INTRODUCTION

A geotechnical site investigation of the proposed Tailings Storage Facility, Process Plant, Water Storage Dam, WSD Diversion Channel, Water Harvest Dam, Han Diversion Channel, Airstrip, Accommodation Village, Haul Road and Site Access Road, Access Road Overpass and Construction Materials were carried out as part of the definitive feasibility study with the purpose of determining the following:

- Understand the ground conditions at each of the locations.
- Assess the stratigraphy of the ground including thickness and type of transported soil, change in weathering profile etc.
- Determine the ground water level.
- Assess permeability of the foundation materials.
- The strength and stiffness characteristics of the ground.
- Excavatability of near surface materials.
- Suitability of foundation material.
- Availability of construction materials.

Since the completion of the investigation, the TSF and WSD layouts have changed, and the WSD Diversion Channel has been removed from the site infrastructure. Additional site investigations within the TSF and WSD footprints are planned for 2026. This report will be updated and the figures will be revised to reflect the revised infrastructure layout following completion of the 2026 site investigations.

3.2 SCOPE OF WORK

Site investigation commenced on 5 December 2023 under the supervision of a geotechnical engineer from KP Perth. The site investigation and geotechnical logging were carried out in accordance with the Australian Standard for Geotechnical site investigations (Ref. 2), where practicable.

The scope of work consists of:

- Drilling of 36 No. boreholes using diamond coring technique with in-situ standard penetration tests.
- Test pitting of 166 No. pits across the footprints of the proposed infrastructure and potential borrow locations.
- Carry out in-situ permeability tests and installation of standpipes for groundwater monitoring.

- Walkover survey to assess potential borrow locations and understand the general site conditions.
- Laboratory testing of samples.

Of the 166 No. test pits, 140 No. pits were supervised by the KP site representative. Between 22 December 2023 to 8 January 2024, no KP representatives were present on site for 26 No. test pits within the TSF, which were supervised by the client's representatives.

3.3 WALKOVER SURVEY

A walkover survey was done to:

- Understand the general topography of the area.
- Identify the natural drainage channels including streams and rivers.
- Identify potential borrow locations for construction.
- Understand the extent of artisanal mining activity adjacent to critical structures.

3.4 BOREHOLES

3.4.1 Drilling

A total of 36 No. boreholes were drilled within the proposed infrastructure footprint using a rotary drilling rig DE810 supplied and operated by Ampella. Of these, 2 No. boreholes were drilled as part of identifying potential borrow sources. The boreholes were drilled to depths of 8.8 to 50 m with each borehole terminating in competent rock. Polymer (AMC CR650) drilling mud was used during drilling. The core was placed into core trays, logged and photographed by the site representatives.

Standard Penetration Tests (SPTs) were typically undertaken at 1.5 m intervals to 20 m depth and at 3 m intervals thereafter. KP representative verified the SPT equipment by means of photographs and equipment dimensions. Where soft to stiff cohesive soils were encountered, undisturbed Shelby tube samples were collected.

A summary of the drilling works is presented in Table 3.1. Logs and photographs of the boreholes are presented in Appendix A.

The borehole locations are shown on figures 3.1 to 3.10.

Table 3.1: Summary of boreholes

Infrastructure	Borehole	Location	Depth of borehole (m)
Tailings Storage Facility	BH-TSF-01	Crest of eastern embankment	24.00
	BH-TSF-02	Downstream of eastern embankment	15.00
	BH-TSF-03	Crest of eastern embankment	15.00
	BH-TSF-04	Crest of eastern embankment	33.00
	BH-TSF-05	Crest of northern embankment	33.00
	BH-TSF-06	Crest of northern embankment	22.50
	BH-TSF-07	Crest of northern embankment	39.00
	BH-TSF-08	Downstream of western embankment	31.50
Plant Site	BH-PS-01	Primary crusher and ROM	48.5
	BH-PS-02	Ore Stockpile	34.5
	BH-PS-03	Ball and SAG mill	32.0
	BH-PS-04	Ball and SAG mill	33.0
	BH-PS-05	Thickener	27.0
	BH-PS-06	Thickener	25.0
	BH-PS-06A	Thickener	25.5
	BH-PS-07	Leaching unit	35.0
	BH-PS-08	Leaching unit	20.0
	BH-PS-09	Ore stockpile tunnel	41.0
	BH-PS-10	Trestle	50.0
	BH-PS-11	Ancillary structures	27.0
	BH-PS-12	Ancillary structures	30.0
	BH-PS-13	Ancillary structures	28.0
	BH-PS-14	Primary crusher	46.5
Water Storage Dam	BH-WSD-01	Crest of embankment	15.0
	BH-WSD-02	Upstream of embankment	15.0
Water Harvest Dam	BH-WHD-01	Crest of embankment	8.8
WSD Diversion Channel	BH-WDC-01	Location of deeper excavation	25.0
	BH-WDC-02	Location of deeper excavation	31.5
Han Diversion Channel	BH-HDC-01	Location of deeper excavation	20.8
Access Road Overpass	BH-ARO-01	East of A1 highway	21.5
	BH-ARO-02	West of A1 highway	25.5
	BH-ARO-03	East of A1 highway	27.5
	BH-ARO-04	West of A1 highway	28.0
Construction Materials	BH-OC-01	-	20.0
	BH-OC-02	-	20.0

Since the completion of the site investigation, the layouts for TSF, WSD etc have changed.

After completion of drilling, each hole was flushed with clean water before carrying out a falling head test (FHT) and/or installation of standpipes. Standpipe piezometers were installed in the following boreholes:

- BH-TSF-01 (response zone between 20.0 m and 23.0 m).
- BH-TSF-05 (response zone between 29.0 m and 32.0 m).
- BH-TSF-08 (response zone between 28.0 m and 31.0 m).
- BH-PS-01 (response zone between 45.0 m and 48.0 m).
- BH-PS-04 (response zone between 29.0 m and 32.0 m).
- BH-PS-05 (response zone between 23.0 m and 26.0 m).

All the boreholes within TSF, WSD, WDC, WHD, HDC and five boreholes (BH-PS-02, 03, 04, 06 and 08) in the process plant were grouted after completion of investigation. The remaining boreholes were backfilled with soil.

3.4.2 Falling Head Tests (FHT)

Falling head tests were carried out in selected boreholes on completion of drilling. The tests were undertaken in open boreholes without any drill casing. The results are summarised in Table 3.2 and test data presented in Appendix B.

Table 3.2: Summary of falling head permeability tests

Location	Borehole	Borehole depth (m)	Depth to ground-water (m)	Permeability k (m/s)	Average Permeability k (m/s)
Tailings Storage Facility	BH-TSF-01	24.0	9.5	2.2×10^{-7}	2.4×10^{-7}
	BH-TSF-02	15.0	4.0	1.2×10^{-6}	
	BH-TSF-03	15.0	1.9	7.7×10^{-8}	
	BH-TSF-04	33.0	4.5	3.6×10^{-8}	
	BH-TSF-05	33.0	8.0	4.0×10^{-8}	
	BH-TSF-06	22.5	6.8	2.7×10^{-7}	
	BH-TSF-07	39.0	11.8	4.1×10^{-8}	
	BH-TSF-08	31.5	11.5	5.1×10^{-8}	
Water Storage Dam	BH-WSD-01	15.0	1.8	2.7×10^{-8}	1.4×10^{-7}
	BH-WSD-02	15.0	0.8	2.6×10^{-7}	

Table 3.2 (cont.): Summary of falling head permeability tests

Location	Borehole	Borehole depth (m)	Depth to ground-water (m)	Permeability k (m/s)	Average Permeability k (m/s)
Process Plant	BH-PS-01	48.5	22.5	6.0×10^{-8}	6.9×10^{-8}
	BH-PS-02	34.5	19.35	1.6×10^{-8}	
	BH-PS-03	32.0	18.7	3.0×10^{-8}	
	BH-PS-04*	20.8	14.2	3.2×10^{-8}	
	BH-PS-05	27.0	19.2	7.4×10^{-8}	
	BH-PS-06	25.0	20.2	1.5×10^{-7}	
	BH-PS-07	35.0	19.9	1.5×10^{-7}	
	BH-PS-08	20.0	13.7	1.8×10^{-7}	
	BH-PS-09	41.0	20.8	2.7×10^{-8}	
	BH-PS-10	50.0	19.1	5.3×10^{-8}	
	BH-PS-11	27.0	18.4	2.3×10^{-8}	
	BH-PS-14	46.5	21.9	3.3×10^{-8}	
Han Diversion Channel	BH-HDC-01	20.8	8.35	8.7×10^{-8}	8.7×10^{-8}
WSD Diversion Channel	BH-WDC-01	15.0	2.7	1.7×10^{-8}	1.7×10^{-8}
Site Access Road	BH-SAR-01	17.5	1.1	1.0×10^{-6}	1.0×10^{-6}
Access Road Overpass	BH-ARO-01	21.5	4.7	6.2×10^{-8}	2.0×10^{-7}
	BH-ARO-04	28.0	6.03	3.4×10^{-7}	

* Hole collapsed.

3.5 TEST PITS

As part of the investigation, a total of 180 test pits were scheduled. Out of these, 167 test pits were excavated across the site using the 30-tonne excavator CAT330DL provided and operated by Ampella. Sixteen of these test pits were designated for identifying construction materials. However, only a few of these test pits for construction materials were actually undertaken during the investigation. This was because the walkover survey had already identified and collected samples for testing, negating the need for additional test pits.

The test pits were logged and photographed by the KP site representative and samples were collected from selected test pits for laboratory testing. A total of 26 No. test pits within the proposed TSF basin were excavated under the supervision of the Ampella site representatives.

A summary of the test pitting is presented in Table 3.3. Logs and photographs of the test pits are presented in Appendix C. The test pit locations at the proposed sites of the Tailings Storage Facility, Process Plant, Water Storage Dam, Diversion Channels, Airstrip, Accommodation Village and Access Roads are shown on figures 3.1 to 3.10.

Table 3.3: Summary of test pits

Location	Test Pit	Number
Tailings storage facility	TP-TSF-01 to 40	40
Process plant	TP-PS-01 to 15	15
Water storage dam	TP-WSD-01 to 20	20
Water harvest dam	TP-WHD-01 to 12	12
WSD diversion channel	TP-WDC-01 to 06	6
Han diversion channel	TP-HDC-01 to 06	6
Accommodation village	TP-AV-01 to 06	6
Airstrip	TP-AS-01 to 15	15
Haul access road	TP-HA-01 to 03	3
Site access road	TP-SAR-02 to 15, 17 to 40	38
Access road overpass	TP-ARO-01A to 04A	4
Construction materials	TP-CMC-01	1

Test pit TP-SAR-01 was abandoned as a result of social challenges with the local community, while TP-SAR-16 was abandoned due to its proximity to the national road.

3.6 GROUNDWATER

Groundwater monitoring at these SI locations was conducted by KP site representatives. At the time of writing this report, no historical information on the groundwater table was available. Groundwater seepage was observed in 23 test pits, primarily those located within the basin of existing water channels.

Tables 3.4 to 3.12 provide a summary of groundwater level monitoring data during the 2023-2024 site investigation. As the investigation was undertaken during the dry season, the impact of wet season and its influence on the groundwater table are not understood.

During investigation it was observed that the bedrock layer was less weathered with depth, resulting in formation of a few fissures and cracks. As a result, these layers are expected to have low permeability.

Table 3.4: Ground water depth below existing ground level in TSF boreholes (m)

Date	BH-TSF-01	BH-TSF-02	BH-TSF-03	BH-TSF-04	BH-TSF-05	BH-TSF-06	BH-TSF-07	BH-TSF-08
08 Dec 2023	9.3	-	-	-	-	-	-	-
09 Dec 2023	9.3	-	-	-	-	-	-	-
10 Dec 2023	9.4	3.9	-	-	-	-	-	-
11 Dec 2023	9.4	4.0	-	-	-	-	-	-
12 Dec 2023	9.4	4.0	1.8	-	-	-	-	-
13 Dec 2023	9.4	4.0	1.9	4.4	-	-	-	-
14 Dec 2023	9.4	4.0	2.0	4.8	-	-	-	-
15 Dec 2023	9.4	-	2.2	5.9	8.0	-	-	-
16 Dec 2023	9.4	-	-	-	8.0	6.8	-	-
17 Dec 2023	9.4	-	-	-	8.0	-	-	-
19 Dec 2023	-	-	-	-	-	6.7	-	-
20 Dec 2023	-	-	-	-	-	6.7	-	-
22 Dec 2023	-	-	-	-	-	6.7	11.9	11.4
23 Jan 2024	9.46	-	-	-	7.8	-	-	-
24 Jan 2024	9.45	-	-	-	7.8	-	-	-
25 Jan 2024	9.46	-	-	-	7.8	-	-	12.12
26 Jan 2024	9.45	-	-	-	7.8	-	-	12.12
27 Jan 2024	9.45	-	-	-	7.8	-	-	12.12
28 Jan 2024	-	-	-	-	-	-	-	12.12
29 Jan 2024	-	-	-	-	-	-	-	12.13

Table 3.5: Ground water depth below existing ground level in WSD boreholes (m)

Date	BH-WSD-01	BH-WSD-02
22 Dec 2023	1.2	0.8

Table 3.6: Ground water depth below existing ground level in WDC boreholes (m)

Date	BH-WDC-01	BH-WDC-02
17 Dec 2023	-	8.8
19 Dec 2023	11.9	8.8
20 Dec 2023	12.2	8.8
22 Dec 2023	-	8.8

Table 3.7: Ground water depth below existing ground level in WHD boreholes (m)

Date	BH-WHD-01
20 Jan 2024	2.71
21 Jan 2024	0.78
22 Jan 2024	1.01
23 Jan 2024	1.2
24 Jan 2024	1.39

Table 3.8: Ground water depth below existing ground level in HDC boreholes (m)

Date	BH-HDC-01
19 Jan 2024	8.35
20 Jan 2024	7.51
21 Jan 2024	6.49
22 Jan 2024	6.84
23 Jan 2024	9.76
24 Jan 2024	9.75
25 Jan 2024	9.75

Table 3.9: Ground water depth below existing ground level in plant site boreholes (m)

Date	BH-PS-01	BH-PS-02	BH-PS-03	BH-PS-04	BH-PS-05	BH-PS-06	BH-PS-07
23 Jan 2024	22.53	-	-	-	-	-	-
24 Jan 2024	22.43	19.35	-	-	-	-	-
25 Jan 2024	22.46	18.68	18.69	-	-	-	-
26 Jan 2024	22.46	20.42	19.71	-	-	-	-
27 Jan 2024	22.46	20.91	19.74	-	-	-	-
28 Jan 2024	-	21.07	19.79	14.20	-	-	-
29 Jan 2024	-	21.05	19.79	15.23	19.23	-	-
30 Jan 2024	-	-	-	17.28	17.02	-	-
31 Jan 2024	-	-	-	18.21	17.87	18.64	-
01 Feb 2024	-	-	-	-	18.23	19.20	19.86
02 Feb 2024	-	-	-	20.15	-	19.79	19.60
03 Feb 2024	-	-	-	20.19	-	20.03	19.41
04 Feb 2024	23.04	-	-	23.20	-	20.16	19.20
05 Feb 2024	23.05	-	-	20.21	-	20.25	19.34
06 Feb 2024	23.03	-	-	20.18	-	-	19.15
07 Feb 2024	23.05	-	-	-	-	-	-
08 Feb 2024	23.02	-	-	-	-	-	-

Table 3.10: Ground water depth below existing ground level in plant site boreholes (m)

Date	BH-PS-08	BH-PS-09	BH-PS-10	BH-PS-11	BH-PS-14
02 Feb 2024	13.60	-	-	-	-
03 Feb 2024	13.93	-	-	-	-
04 Feb 2024	14.80	18.57	-	-	-
05 Feb 2024	14.85	20.77	-	-	-
06 Feb 2024	14.90	20.95	-	-	-
07 Feb 2024	14.92	20.99	-	-	-
08 Feb 2024	-	20.98	-	-	-
11 Feb 2024	-	-	19.13	-	-
12 Feb 2027	-	-	19.32	-	-

Table 3.10 (cont.): Ground water depth below existing ground level in plant site boreholes (m)

Date	BH-PS-08	BH-PS-09	BH-PS-10	BH-PS-11	BH-PS-14
13 Feb 2024	-	-	-	-	-
14 Feb 2024	-	-	-	11.75	-
15 Feb 2042	-	-	-	16.18	-
16 Feb 2024	-	-	-	17.62	-
17 Feb 2024	-	-	-	18.12	-
18 Feb 2024	-	-	-	18.30	21.9
19 Feb 2024	-	-	-	18.40	22.3

Table 3.11: Ground water depth below existing ground level in SAR borehole (m)

Date	BH-SAR-01
05 Feb 2024	1.15
06 Feb 2024	1.14
07 Feb 2024	1.15
08 Feb 2024	1.15
09 Feb 2024	1.15
10 Feb 2024	1.15

Table 3.12: Ground water depth below existing ground level in site access road overpass boreholes (m)

Date	BH-ARO-01	BH-ARO-04
08 Feb 2024	4.7	-
09 Feb 2024	4.72	6.01
10 Feb 2024	4.72	6.01
11 Feb 2024	4.73	6.01
12 Feb 2024	4.74	6.02
13 Feb 2024	-	6.02

3.7 LABORATORY TESTING

Representative samples of the in-situ soils were collected from the test pits and boreholes for laboratory testing. The purpose of the laboratory testing is to classify and characterise the in-situ materials to assess their behaviour under embankment and foundation loading, and suitability for use in earthworks.

The laboratory testing programme comprises:

- Moisture content, Atterberg limits, linear shrinkage, particle size distribution and hydrometer tests.
- Emerson dispersion.
- Standard and modified compaction.

- Remoulded 4 day soaked CBR.
- Oedometer consolidation.
- Strength and permeability tests.
- pH, chloride and sulphate.
- Assessment of suitability for use as coarse and fine aggregate in concrete.

4. INVESTIGATION FINDINGS AND DESIGN PARAMETERS

4.1 TAILINGS STORAGE FACILITY

4.1.1 General

Eight (8) boreholes (BH-TSF-01 to BH-TSF-08) were drilled and 40 test pits (TP-TSF-01 to TP-TSF-40) were excavated at the proposed TSF location. The borehole and test pit locations are shown on Figure 3.1. The supervision and logging were undertaken by KP representatives, except for 26 No. test pits which were logged and supervised by Ampella representatives.

4.1.2 Sub-surface Conditions

Beneath the topsoil, extremely weathered rock with soil characteristics were observed to depths of less than 3 – 4 m from the existing ground level. SPT N values typically ranged between 9 to 77 for the first 3 – 4 m, encountering refusal within the first 5 m depths for all the boreholes except BH-TSF-07 and 08. BH-TSF-07 encountered refusal at 12.0 m and BH-TSF-08 encountered refusal at 6.0 m. Less weathered rock was encountered below 5 m transitioning to fresh rock at depth. Similar findings were observed while test pitting within the embankment footprint.

The typical subsurface ground profile is summarised below, based on the logged ground conditions along the embankment footprint:

- Topsoil with roots and other organic matter observed to depths of 300 to 500 mm within the TSF embankment footprint. Topsoil was generally recovered as silty sand, very loose to loose, medium to coarse sand particles.
- Colluvium; Gravel, clayey, medium dense to dense, brown to red brown, slightly moist, medium plasticity fines, cemented laterite observed to depths of 1.35 to 3.0 m from the surface. BH-TSF-05 and 06 identified Sand, with gravel, trace clay, non-plastic fines, medium dense to dense for depths of 1.0 to 1.5 m from the surface.
- Residual soil; Clay, sandy, with gravel, medium plasticity, very stiff to hard observed to depths of 2.4 to 7.5 m.
- Granodiorite, medium to coarse grained, igneous with strength increasing with depth and weathering decreasing with depth until end of borehole.

The following is a summary of logged ground conditions within the TSF basin:

- Topsoil with roots and other organic matter observed to depths of 200 to 1,100 mm. Deeper topsoil depths were reported along the drainage lines with thicker deposits of organic clay.

- A few anomalies with respect to the topsoil depths were reported between boreholes and adjacent test pits. This is suspected to be from the site preparation works undertaken as part of the drilling. Based on the test pitting photos presented, it is expected that the majority of the topsoil with biologically active layer are observed for the first 300 to 500 mm across the site. Topsoil was generally recovered as sand, clayey and silty, pale to dark grey very loose to loose, medium to coarse sand particles.
- Alluvium/colluvium recovered as sand and gravel, clayey and sandy, medium dense, cemented observed to depths of 0.7 to 3.0 m from the surface.
- Residual soil recovered as clay, sandy, medium plasticity, red to orange brown, stiff to hard and sand, clayey, medium plasticity fines, medium dense to dense observed to depths of 1.4 to 4.3 m.

Granodiorite, granular, massive, very low strength, highly weathered was observed at TP-TSF-05 at 2.4 m depth. Underneath the topsoil, the majority of the basin comprises permeable sand and gravel medium. This horizon is likely to exhibit relatively high permeability. A soil liner will be required as a minimum to ensure seepage is limited. Seepage was observed for TP-TSF-02, 19, 23, 24 and 27.

Table 4.1 provides a summary of the interpreted borehole lithology at the proposed TSF embankment.

Table 4.1: Summary of interpreted ground conditions – TSF embankment

	Borehole				
	BH-TSF-01	BH-TSF-02	BH-TSF-03	BH-TSF-04	BH-TSF-05
Depth to groundwater (m)	9.5	4.0	2.2	5.9	7.8
Borehole Depth (m)	24.0	15.0	15.0	33.0	33.0
Depth to consistent SPT refusal	3.0	3.0	4.5	3.0	3.0
SPTs for the first 5 m	33, R, R	35, R, R	22, 9, R	28, R, R	77, R, R
Depth to MW rock (m)	15.0	4.7	12.0	21.0	21.1
RQD > 80%	16.5	4.5	9.0	27.0	28.5
Depths to FR rock (m)	18.2	-	13.5	30.0	32.2

MW: Moderately weathered; R: Refusal; RQD: Rock Quality Designation; FR: Fresh Rock.

Table 4.1 (cont.): Summary of interpreted ground conditions – TSF embankment

	Borehole		
	BH-TSF-06	BH-TSF-07	BH-TSF-08
Depth to groundwater (m)	6.7	11.9	12.1
Borehole Depth (m)	22.5	39.0	31.5
Depth to consistent SPT refusal	1.5	12.0	6.0
SPTs for the first 5 m	R, R, R	27, 39, 29	36, 23, 46
Depth to MW rock (m)	10.8	32.2	14.4
RQD > 80%	21.0	33.0	27.0
Depths to FR rock (m)	21.0	37.5	28.5

This indicates that SPT refusals were encountered at shallow depths in all boreholes except borehole BH-TSF-07.

4.1.3 Preliminary Design Parameters

Table 4.2 presents preliminary soil and rock parameters for design of the TSF. The parameters are based on the following:

- The unit weight, strength and Poisson's ratio values for soil are based on values that would typically be expected for similar materials.
- The values for permeability are based on in situ falling head permeability tests.
- The unit weight, strength, Poisson's ratio and stress-strain modulus values for rock are based on engineering judgement and values that would typically be expected.

Table 4.2: Preliminary typical soil and rock parameters for TSF design

Material	Unit weight	Drained Shear Strength Properties		Permeability K
		C	Φ	
	(kN/m^3)	(kPa)	(°)	(m/s)
Colluvium (gravel, clayey, cemented laterite)	18 – 19	1 – 3	30 – 36	1×10^{-6} - 1×10^{-7}
Residual (clay, sandy)	18 – 19	25 – 50	27 – 32	2×10^{-7} - 1×10^{-8}
Highly weathered, very low to low strength rock	22 – 24	50	32 – 35	1×10^{-8}
Moderately weathered, low and medium strength rock	24 – 26	200	33 – 35	1×10^{-8} - 1×10^{-9}
Slightly weathered and fresh rock, medium and high strength	24 – 26	300	35 – 40	1×10^{-8} - 1×10^{-9}

*Soft or loose colluvium close to the drainage lines and unsuitable material are to be removed prior to construction. Abbreviations: c' – effective cohesion; Φ' – effective friction angle

The geotechnical parameters need to be adjusted based on findings from the closest boreholes and test pits.

Undrained strength properties of soils will be provided after completion of laboratory testing. Estimated permeability is presented. This will be confirmed after completion of laboratory testing.

4.1.4 Potential Geotechnical Risks and Construction Considerations

The following are to be considered during construction:

- The TSF basin areas comprise extensive areas of sand and gravel directly underlying the topsoil horizon. It is likely that these materials have relatively high permeability and therefore a compacted soil liner will be required as a minimum to reduce the rate of seepage through the basin floor.
- Cut-off trenches for the TSF should typically terminate in a low permeability horizon. At the embankment, the cut-off trench will need to extend through the near surface sand/gravel horizon and is likely to vary with location with an average of 2 m depth into low permeability clay layers along the embankment alignment.
- Numerous artisanal pits were observed within the TSF embankment and basin, with some pits obscured by backfilling, making them difficult to identify during investigations. A survey containing the known artisanal pits have been provided by Ampella. The same overlayed across the project site is shown in Figure 4.1. Artisanal pits are observed to the south of the east embankment and basin. It is anticipated that more pits will be excavated in the future. A comprehensive survey is required to locate all potential artisanal pits, which must be properly backfilled before construction commences. The uncontrolled and unplanned nature of artisanal mining activities within the proposed tailings storage facility could significantly compromise their structural integrity, water management, and overall environmental safety if proper measures are not implemented. Proper management, monitoring, and coordination between Ampella and the artisanal mining community are essential to mitigate these risks. The possibility of cordoning off the footprints of critical structures could reduce future artisanal mining activities.
- Topsoil is present to varying depths with an average topsoil depth of 300 to 500 mm across the footprint of the TSF, with some roots penetrating deeper. Topsoil is the biologically active layer, containing seeds, organic matter, trace minerals and nutrient content to support growth, and is unsuitable for the purposes of earthworks construction, but needs to be properly stockpiled for mine closure and rehabilitation.

- In-situ falling head tests indicated the presence of relatively high permeable soil layers. This is likely due to the voids commonly observed within the cemented laterite soil layer at shallow depths from the surface. To limit seepage, it is recommended to use a soil liner along with HDPE liner.
- Dispersion tests are scheduled for the collected samples. Earth dams constructed from dispersive soils are at greater risk of internal erosion and piping and the design of tailings storage facility will need to take account of the dispersive nature of some of the materials if such materials are identified during lab testing.
- It is suspected that the natural moisture content of the soil based on samples collected during the dry season is lower than the optimum moisture content, to be confirmed after laboratory testing. The maximum field compaction occurs when soil is at or near the optimum moisture content. Moisture conditioning will be required during construction.
- Cashew plantations comprising trees of 3 to 6 m high were observed within the vicinity. It is anticipated that similar cashew plantations will need to be relocated or resettled before construction commences.
- A pedestrian footpath for the community is proposed between the plant site and the TSF. The footpath shall be fenced and adequate security measures are to be implemented to ensure personnel and livestock are kept away from the TSF and related structures at all times.
- The construction sequencing for the TSF comprises construction of the WSD and Stage 1 TSF embankment adjacent to each other. The space between these two embankments will be backfilled during the Stage 2 TSF raise, with the WSD downstream of the TSF western embankment. It is expected that the space between these two embankments will collect water during the wet season during Stage 1. Adequate dewatering measures must be put in place to keep the toes of the embankments reasonably dry, ensuring embankment stability and to facilitate the construction of Stage 2.

4.2 PROCESS PLANT SITE

4.2.1 General

Fifteen test pits (TP-PS-01 to TP-PS-15) were excavated and fifteen bore holes (BH-PS-01 to BH-PS-014) were drilled as part of the investigation of the process plant. The borehole drilling and test pit logging at the site were supervised by the KP representatives. The borehole and test pit locations are shown on Figure 3.2.

4.2.2 Sub-surface Conditions

The typical subsurface ground profile is summarised below based on the logged ground conditions revealed during the site investigation:

- Topsoil with roots and other organic matter to varying depths from the existing ground level, generally recovered as gravel and sand, silty, pale to dark grey and brown, non-plastic, dry, loose to medium dense, observed to depths ranging from 0.1 to 0.5 m, with an average topsoil depth of 0.25 m.
- Laterite soil, comprising predominantly Clay, gravelly, with sand, medium to high plasticity, very stiff to hard and Gravel, clayey, with sand, low to medium plastic fines, very dense, cemented and Gravel, clayey, medium plasticity fines, dense to very dense observed to depths from 0.6 to 4.1 m from the ground surface to 3.0 to 20.0 m, with an average laterite depth of ~7 m.
- Saprolite, comprising predominantly Clay, sandy, trace gravel, stiff to very hard, medium plasticity observed between depths from 3.0 to 28.7 m.
- Extremely weathered granodiorite, recovered generally as sand, clayey, trace gravel, non-plastic, medium dense to very dense, generally observed from depths varying between 14 to 42.5 m.
- Highly to moderately weathered granodiorite, medium to coarse grained, porphyritic, massive, pale grey, low strength to very high strength observed between depths of 18.4 to 46.9 m.
- Fresh granodiorite, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength observed from 25.0 to 48.5 m.

Table 4.3 provides a summary of the interpreted borehole lithology at the proposed Process Plant

Table 4.3: Summary of interpreted ground conditions – Process Plant

	Borehole					
	BH-PS-01	BH-PS-02	BH-PS-03	BH-PS-04	BH-PS-05	BH-PS-06
Structure	Primary Crusher	Ore Stockpile	Ball and SAG Mill	Ball and SAG Mill	Thickener	Thickener
Elevation	350.46	350.79	350.33	350.10	350.15	349.59
Depth to groundwater (m)	23.0	21.0	19.8	20.2	18.2	20.2
Borehole depth (m)	48.5	34.5	32.0	33.0	27.0	25.0
Depth to consistent SPT refusal	27.0	27.0	25.5	24.0	19.5	16.5
SPTs for the first 5 m	R, 55, R	R, R, R	R, R, R	56, R, R	64, R, R	R, R, 48
Depth to MW rock (m)	-	31.5	-	-	21.0	20.2
RQD >80%	43.5	30.0	25.5	27.0	21.0	21.0
Depths to FR rock (m)	43.5	33.0	27.6	25.0	-	21.0
	BH-PS-07	BH-PS-08	BH-PS-09	BH-PS-10	BH-PS-11	BH-PS-12
Structure	Leaching Unit	Leaching Unit	Ore Stockpile	Lime Silo	Ancillary Structures	Ancillary Structures
Elevation	349.90	349.78	350.61	350.58	349.97	350.13
Depth to groundwater (m)	19.2	14.9	21.0	19.3	18.4	22.3
Borehole depth (m)	35.0	20.0	41.0	50.0	27.0	30.0
Depth to consistent SPT refusal	18.0	15.0	30.0	28.5	18.0	19.5
SPTs for the first 5 m	38, R, R	R, R, R	R, 50, R	32, 27, 41	54, 56, 26	R, 68, R
Depth to MW rock (m)	-	15.0	-	45.0	18.35	27.4
RQD >80%	30.0	15.0	34.5	48.0	21.0	25.5
Depths to FR rock (m)	30.2	-	34.5	46.85	25.15	27.6
	BH-PS-13	BH-PS-14				
Structure	Ancillary Structures	Ancillary Structures				
Elevation	350.19	350.14				
Depth to groundwater (m)	16.4	22.3				
Borehole depth (m)	28.0	46.5				
Depth to consistent SPT refusal	21.0	28.5				
SPTs for the first 5 m	R, R, R	R, 49, R				
Depth to MW rock (m)	23.85	31.5				
RQD >80%	25.5	43.5				
Depths to FR rock (m)	25.5	42.5				

Of the test pits excavated, except TP-PS-05, 07, 09 and 14, all test pits terminated at shallow depth within the cemented laterite layer when a 30T excavator was used. The cemented laterite layer was generally recovered as gravel, clayey, very dense and clay, gravel and hard. It is expected that low powered excavators (30T and below) may encounter refusal at shallow depth during construction. Previous experience suggests that lower strength and more fractured materials should be excavatable using a D10 dozer or equivalent equipped with a single-tyne ripper attachment. No seepage was observed during test pitting.

4.2.3 Preliminary Design Parameters

4.2.3.1 Material Properties

Table 4.4 presents preliminary typical soil and rock parameters for design of the process plant foundations. The parameters are based on the following:

- The stress-strain modulus (E) for soil is based on SPT N values. E is derived from N value by means of the following correlation (Ref. 8):

  E = f N (MPa) where N = 1.0 to 1.6. A value of f = 1 to 1.3 has been used.

- The unit weight, strength, Poisson's ratio and rock stress-strain modulus values are based on engineering judgement and values that would typically be expected.

Table 4.4: Preliminary typical soil and rock parameters for process plant design

Material	Unit weight	Drained Shear Strength Properties		Stress -strain modulus, E	Poisson's ratio
	(kN/m^3)	c (kPa)	Φ (°)	(MPa)	
Gravelly clay and clayey gravel (laterite)	18 – 19	5 – 50	30 – 34	1.0 to 1.3 x SPT N to a maximum of E = 150	0.25 – 0.3
Sandy clay (saprolite)	18 – 19	20 – 50	28 – 32	1.0 to 1.3 x SPT N to a maximum of E = 150	0.25 – 0.3
Extremely weathered (recovered as sand, clayey)	19 – 20	2 – 5	30 – 32	1.0 to 1.3 x SPT N to a maximum of E = 150	0.25 - 0.3
Highly weathered, very low to low strength rock	20 – 22	50	32 – 35	150 - 500	0.25
Moderately weathered, low and medium strength rock	21 – 3	100	33 – 35	500 – 1,000	0.2
Slightly weathered and fresh rock, medium and high strength	22 – 24	200	33 – 35	1,000 – 2,500	0.2

The material properties at particular locations need to be adjusted based on the nearest borehole and in-situ conditions encountered.

4.2.3.2 Dynamic and Soil Characteristics

For this study, values of dynamic shear modulus and Poisson's ratio are estimated from the static stress-strain modulus. Small strain moduli are estimated from large strain moduli by applying a factor of between 1 and 20, depending on the type of material and static stress-strain modulus. The factor decreases with increasing small-strain modulus.

The estimated dynamic shear moduli, G, are presented in Table 4.5.

Table 4.5: Preliminary dynamic shear moduli and Poisson's ratio for Ball and SAG mill strata

Material	Typical static stress-strain modulus, Es (MPa)	Dynamic shear modulus, G (MPa)	Dynamic Poisson's ratio	Material Damping ratio (%)
Gravelly clay and clayey gravel (laterite)	40 – 150	120 – 230	0.2	5
Sandy clay (saprolite)	30 – 150	100 – 230	0.2	5
Extremely weathered (recovered as sandy clayey)	100 – 150	190 – 230	0.2	5
Highly weathered, very low to low strength rock.	150 – 500	200 – 400	0.15 – 0.2	4
Moderately weathered, low and medium strength rock.	500 – 1,000	400 – 750	0.15 – 0.35	3
Slightly weathered and fresh rock, medium and high strength.	1,000 – 2,500	750 – 1,750	0.25 – 0.35	2

1. Material properties at particular locations need to be adjusted according to the in-situ conditions encountered.
2. The material damping ratios are not the total damping ratio for a foundation. The total damping comprises radiation damping and material damping. The radiation damping depends on the mass ratio, total mass, foundation size, vibration mode etc. and needs to be estimated based on structural design.

The damping ratios provided in Table 4.5 relate to material damping only. The material damping ratio shall not be used as radiation damping ratio or total damping ratio for foundation structural design and analysis.

4.2.4 Plant Site Foundation Details

Limited foundation dimensions and loading conditions are available. This report will be updated to incorporate the foundation dimensions and loading conditions during the next stage of design.

4.2.5 Settlement and Bearing Capacity

4.2.5.1 Settlement

Settlement analyses have been undertaken in order to calculate settlements of the major process plant foundations for different geometries and loading conditions. Settlement analysis is based on standard elastic settlement theory and the following equation:

$$S = \sum \frac{q.t.I_\sigma.(1-\nu^2)}{E_s} \quad \ldots\ldots\ldots\

4.2.5.2 Bearing Capacity

Foundations need to be designed to provide sufficient bearing capacity against shear failure whilst limiting settlements to an acceptable value. The safe bearing capacity is the maximum bearing pressure to which the soil can be subjected without risk of shear failure (assuming a factor of safety of 3). Larger foundations will have higher safe bearing capacities due to the shear failure surface extending to greater depth and therefore the bearing capacity of large footings and rafts is typically governed by settlement tolerance. In contrast, small foundations are usually governed by shear resistance capacity.

The near surface soils within the process plant footprint predominantly comprise cemented laterite/ferricrete to an average depth of ~7 m across the plant site. For smaller foundations, the safe bearing capacity will be governed by the shear strength of these cemented laterite layers.

To estimate the allowable bearing capacity (i.e. the bearing capacity which provides a factor of safety against shear failure of 3 whilst limiting settlement to less than 35 mm), soil profile based on the nearest critical borehole was adopted. The calculated bearing capacities are dependent on the site being dry and well drained so that the foundation material does not become saturated. The foundation specific bearing capacities should be reviewed as part of detailed design once the foundation geometries, loading conditions and bulk earthworks levels are confirmed.

4.2.5.3 Preliminary Analysis

Cemented laterite layers with consistency hard /very dense were observed to an average depth of ~7 m from the surface, combined with deep groundwater tables, is expected to result in limited foundation settlements for small footings. For large footings, the foundation settlement is dependent on the cohesive soil layer observed underneath the cemented laterite layer.

As geometries and loading conditions for the process plant structures are yet to be finalised, a preliminary settlement analysis was undertaken based on assumptions and available information. Footings are assumed to be founded at a depth of 0.5 m below the final formation level and the foundation base is compacted to 98% MMDD after removal of all soft and unsuitable materials.

The soil profile based on the nearest critical borehole was adopted for settlement estimation.

BH-PS-01 was adopted for primary crusher and ROM pad, BH-PS-02 and 09 were adopted for ore stockpile vault, BH-PS-03 and 04 were selected for Ball and SAG mill, BH-PS-07 and 08 were selected for leach farm, BH-PS-05 and 06 were selected for thickeners.

4.2.5.4 Results

The estimated settlements and allowable bearing capacities for different structures are presented in the sections below. The following assumptions were made for the analysis:

- Foundation is placed 0.5 m below the existing ground level. The groundwater table has been assumed to be more than 15 m deep, based on the monitoring results.
- Topsoil has been stripped and the ground scarified and compacted.
- Effect of fill above the existing ground level on the foundation settlement is not considered.
- The total estimated settlements for different foundation sizes are presented. The estimation can be refined once the loading for different stages (construction and operation) are made available.
- The allowable bearing pressure is based on a total settlement of 35 mm and ensuring a safe bearing capacity against shear failure (with a factor of safety of 3). It is assumed that approximately 15 mm of settlement (assuming 40% of total load is dead load) will occur predominantly during construction, while the remaining 20 mm settlement will occur during operation, depending on the structure. This assumption will need to be reassessed once detailed foundation sizes, loading for different stages, and settlement criteria are provided during the next stage of the design. It is to be noted that 35 mm total settlement is for allowable bearing pressure estimation alone.
- Relaxing the allowable settlement can help increase the allowable bearing pressure. The allowable bearing capacity of large footings and rafts are typically governed by the allowable settlements whereas small foundations are generally governed by shear resistance.

Primary Crusher

The primary crusher settlement will be mainly influenced by the ROM pad construction. The analysis was based on the assumption that the ROM backfill has been completed before installation of the equipment. The load distribution is complex and detailed 3D numerical modelling may be required to understand the impact of the ROM backfill on the foundation. It is however expected that the majority of the settlement from the ROM backfill will happen during construction.

The estimated settlements and allowable bearing pressures are presented in tables 4.6 to 4.8 based on BH-PS-01.

Table 4.6: Estimated centre settlements in mm (L/B=1) for typical foundation widths for primary crusher

Pressure (kPa)	Foundation Width(m):				
	1	2	3	10	15
50	20 mm	20 mm	20 mm	20 mm	20 mm
100	20 mm	20 mm	20 mm	20 mm	20 mm
200	20 mm	20 mm	20 mm	30 mm	40 mm
250	20 mm	20 mm	20 mm	35 mm	50 mm
300	20 mm	20 mm	20 mm	40 mm	60 mm

Table 4.7: Estimated differential settlements in mm (centre and corner, L/B=1) for typical foundation widths for primary crusher

Pressure (kPa)	Foundation Width(m):				
	1	2	3	10	15
50	20 mm	20 mm	20 mm	20 mm	20 mm
100	20 mm	20 mm	20 mm	20 mm	20 mm
200	20 mm	20 mm	20 mm	25 mm	35 mm
250	20 mm	20 mm	20 mm	30 mm	40 mm
300	20 mm	20 mm	20 mm	35 mm	50 mm

Table 4.8: Allowable bearing pressure in kPa for primary crusher

L/B	Foundation Width(m):				
	1	2	3	10	15
1	400 kPa	400 kPa	400 kPa	250 kPa	175 kPa
2	400 kPa	400 kPa	400 kPa	200 kPa	125 kPa
3	400 kPa	400 kPa	400 kPa	175 kPa	125 kPa
5	400 kPa	400 kPa	400 kPa	150 kPa	100 kPa
10	400 kPa	400 kPa	400 kPa	150 kPa	100 kPa

Based on a total settlement of 35 mm for allowable bearing pressure estimation.

Please note that the settlement of the retaining wall and the primary crusher during the ROM pad backfill is not accounted for in the estimates provided above. The amount of settlement is dependent on the height of the backfill. It is expected that the majority of the settlement from the ROM backfill will occur during construction, subject to detailed analysis. The estimates are to be reassessed once the foundation dimensions, backfill height and foundation pressures are available.

Ore Stockpile and Reclaim Vault

The estimated settlements and allowable bearing pressures are presented in tables 4.9 to 4.11 based on BH-PS-02 and 09.

Table 4.9: Estimated centre settlements in mm (L/B=1) for typical foundation widths for ore stockpile

Pressure (kPa)	Foundation Width(m):				
	1	2	3	10	15
50	20 mm	20 mm	20 mm	20 mm	20 mm
100	20 mm	20 mm	20 mm	20 mm	20 mm
200	20 mm	20 mm	20 mm	25 mm	40 mm
250	20 mm	20 mm	20 mm	35 mm	50 mm
300	20 mm	20 mm	20 mm	40 mm	60 mm

Table 4.10: Estimated differential settlements in mm (centre and corner, L/B=1) for typical foundation widths for ore stockpile

Pressure (kPa)	Foundation Width(m):				
	1	2	3	10	15
50	20 mm	20 mm	20 mm	20 mm	20 mm
100	20 mm	20 mm	20 mm	20 mm	20 mm
200	20 mm	20 mm	20 mm	20 mm	30 mm
250	20 mm	20 mm	20 mm	25 mm	40 mm
300	20 mm	20 mm	20 mm	30 mm	45 mm

Table 4.11: Maximum allowable bearing pressure in kPa for ore stockpile

L/B	Foundation Width(m):				
	1	2	3	10	15
1	400 kPa	400 kPa	400 kPa	275 kPa	175 kPa
2	400 kPa	400 kPa	400 kPa	200 kPa	125 kPa
3	400 kPa	400 kPa	400 kPa	175 kPa	125 kPa
5	375 kPa	400 kPa	400 kPa	150 kPa	125 kPa
10	375 kPa	400 kPa	400 kPa	150 kPa	100 kPa

Based on a total settlement of 35 mm for allowable bearing pressure estimation.

Lime Silo

The estimated settlements and allowable bearing pressures are presented in tables 4.12 to 4.14 based on BH-PS-10.

Table 4.12: Estimated centre settlements in mm (L/B=1) for typical foundation widths for lime silo

Pressure (kPa)	Foundation Width(m):				
	1	2	3	10	15
50	20 mm	20 mm	20 mm	20 mm	20 mm
100	20 mm	20 mm	20 mm	25 mm	30 mm
200	20 mm	20 mm	20 mm	45 mm	60 mm
250	20 mm	20 mm	20 mm	55 mm	75 mm
300	20 mm	20 mm	20 mm	65 mm	90 mm

Table 4.13: Estimated differential settlements in mm (centre and corner, L/B=1) for typical foundation widths for lime silo

Pressure (kPa)	Foundation Width(m):				
	1	2	3	10	15
50	20 mm	20 mm	20 mm	20 mm	20 mm
100	20 mm	20 mm	20 mm	20 mm	25 mm
200	20 mm	20 mm	20 mm	35 mm	50 mm
250	20 mm	20 mm	20 mm	40 mm	60 mm
300	20 mm	20 mm	20 mm	50 mm	70 mm

Table 4.14: Maximum allowable bearing pressure in kPa for lime silo

L/B	Foundation Width(m):				
	1	2	3	10	15
1	400 kPa	400 kPa	400 kPa	150 kPa	100 kPa
2	400 kPa	400 kPa	400 kPa	125 kPa	75 kPa
3	400 kPa	400 kPa	350 kPa	100 kPa	75 kPa
5	400 kPa	400 kPa	300 kPa	100 kPa	75 kPa
10	400 kPa	375 kPa	250 kPa	100 kPa	75 kPa

Based on a total settlement of 35 mm for allowable bearing pressure estimation.

Relaxing the allowable settlement can help increase the allowable bearing pressure. The allowable bearing capacity of large footings and rafts are typically governed by the allowable settlements whereas small foundations are generally governed by shear resistance.

Ball and SAG Mill

The estimated settlements and allowable bearing pressures are presented in tables 4.15 to 4.17 based on BH-PS-03 and 04.

Table 4.15: Estimated centre settlements in mm (L/B=1) for typical foundation widths for Ball and SAG mill

Pressure (kPa)	Foundation Width(m):				
	1	2	3	10	15
50	20 mm	20 mm	20 mm	20 mm	20 mm
100	20 mm	20 mm	20 mm	20 mm	20 mm
200	20 mm	20 mm	20 mm	30 mm	40 mm
250	20 mm	20 mm	20 mm	35 mm	50 mm
300	20 mm	20 mm	20 mm	40 mm	60 mm

Table 4.16: Estimated differential settlements in mm (centre and corner, L/B=1) for typical foundation widths for Ball and SAG mill

Pressure (kPa)	Foundation Width(m):				
	1	2	3	10	15
50	20 mm	20 mm	20 mm	20 mm	20 mm
100	20 mm	20 mm	20 mm	20 mm	20 mm
200	20 mm	20 mm	20 mm	20 mm	30 mm
250	20 mm	20 mm	20 mm	25 mm	40 mm
300	20 mm	20 mm	20 mm	30 mm	45 mm

Table 4.17: Maximum allowable bearing pressure in kPa for Ball and SAG mill

L/B	Foundation Width(m):				
	1	2	3	10	15
1	400 kPa	400 kPa	400 kPa	275 kPa	175 kPa
2	400 kPa	400 kPa	400 kPa	200 kPa	125 kPa
3	400 kPa	400 kPa	400 kPa	175 kPa	125 kPa
5	400 kPa	400 kPa	400 kPa	150 kPa	125 kPa
10	400 kPa	400 kPa	400 kPa	150 kPa	100 kPa

Based on a total settlement of 35 mm for allowable bearing pressure estimation.

Pre-Leach Thickener

The estimated settlements and allowable bearing pressures are presented in tables 4.18 to 4.20 based on BH-PS-05 and 06.

Table 4.18: Estimated centre settlements in mm (L/B=1) for typical foundation widths for pre-leach thickener

Pressure (kPa)	Foundation Width(m):					
	1	2	3	10	15	20
50	20 mm	20 mm	20 mm	20 mm	20 mm	20 mm
100	20 mm	20 mm	20 mm	20 mm	20 mm	20 mm
200	20 mm	20 mm	20 mm	25 mm	35 mm	40 mm
250	20 mm	20 mm	20 mm	30 mm	40 mm	50 mm
300	20 mm	20 mm	20 mm	35 mm	50 mm	60 mm

Table 4.19: Estimated differential settlements in mm (centre and corner, L/B=1) for typical foundation widths for pre-leach thickener

Pressure (kPa)	Foundation Width(m):					
	1	2	3	10	15	
50	20 mm	20 mm	20 mm	20 mm	20 mm	20 mm
100	20 mm	20 mm	20 mm	20 mm	20 mm	20 mm
200	20 mm	20 mm	20 mm	20 mm	25 mm	30 mm
250	20 mm	20 mm	20 mm	25 mm	30 mm	40 mm
300	20 mm	20 mm	20 mm	30 mm	40 mm	45 mm

Table 4.20: Maximum allowable bearing pressure in kPa for pre-leach thickener

L/B	Foundation Width(m):					
	1	2	3	10	15	20
1	400 kPa	400 kPa	400 kPa	300 kPa	225 kPa	175 kPa
2	400 kPa	400 kPa	400 kPa	250 kPa	175 kPa	150 kPa
3	400 kPa	400 kPa	400 kPa	225 kPa	175 kPa	150 kPa
5	400 kPa	400 kPa	400 kPa	200 kPa	150 kPa	150 kPa
10	400 kPa	400 kPa	400 kPa	200 kPa	150 kPa	150 kPa

Based on a total settlement of 35 mm for allowable bearing pressure estimation.

Ancillary Structures

Settlement and allowable bearing pressure for ancillary structures were analysed based on BH-PS-11, BH-PS-12 and BH-PS-13. The estimated settlements and allowable bearing pressures are presented in tables 4.21 to 4.23. The analyses need to be reassessed once location, foundation sizes, loading for different stages and settlement requirements are confirmed during the next stage of design.

Table 4.21: Estimated centre settlements in mm (L/B=1) for typical foundation widths

Pressure (kPa)	Foundation Width(m):				
	1	2	3	10	15
50	20 mm	20 mm	20 mm	20 mm	20 mm
100	20 mm	20 mm	20 mm	20 mm	30 mm
200	20 mm	20 mm	20 mm	40 mm	55 mm
250	20 mm	20 mm	20 mm	50 mm	70 mm
300	20 mm	20 mm	20 mm	55 mm	80 mm

Table 4.22: Estimated differential settlements in mm (centre and corner, L/B=1) for typical foundation widths

Pressure (kPa)	Foundation Width(m):				
	1	2	3	10	15
50	20 mm	20 mm	20 mm	20 mm	20 mm
100	20 mm	20 mm	20 mm	20 mm	25 mm
200	20 mm	20 mm	20 mm	30 mm	45 mm
250	20 mm	20 mm	20 mm	40 mm	55 mm
300	20 mm	20 mm	20 mm	45 mm	65 mm

Table 4.23: Maximum allowable bearing pressure

L/B	Foundation Width(m):				
	1	2	3	10	15
1	400 kPa	400 kPa	400 kPa	175 kPa	125 kPa
2	350 kPa	400 kPa	400 kPa	125 kPa	100 kPa
3	325 kPa	400 kPa	400 kPa	125 kPa	75 kPa
5	325 kPa	400 kPa	350 kPa	125 kPa	75 kPa
10	300 kPa	400 kPa	300 kPa	100 kPa	75 kPa

Based on a total settlement of 35 mm for allowable bearing pressure estimation.

Leaching Tanks

8 No. tanks with 16.3 m diameter were used for the analysis based on boreholes BH-PS-07 and BH-PS-08. The settlement analyses are based on simplified elastic methods. Hydraulic testing/preloading with water is recommended prior to installation of tank launders to reduce settlement during operation. The effect of preloading is not included in the current analyses.

The estimated settlements and differential settlements are presented in tables 4.24 to 4.26.

Table 4.24: Estimated settlement at the centres of the tanks

Pressure (kPa)	Foundation Width(m):
	16.3m diameter, 8 Nos
100	45 mm
150	55 mm
200	75 mm
250	90 mm
300	110 mm

Table 4.25: Estimated settlement along the edge of the tanks

Pressure (kPa)	Foundation Width(m):
	16.3m diameter, 8 Nos
100	35 mm
150	50 mm
200	65 mm
250	85 mm
300	100 mm

Table 4.26: Estimated differential settlement

Pressure (kPa)	Foundation Width(m):
	16.3m diameter, 8 Nos
100	20 mm
150	20 mm
200	20 mm
250	20 mm
300	20 mm

The following conclusions and recommendations are made:

- The above settlement analysis was based on assumptions, available information and nearest critical boreholes for the key structures. The settlement values are indicative and should be reviewed once the individual structure location, geometry, foundation level and loading conditions have been finalised. An iterative design approach encompassing adjustments to the foundation dimensions, foundation level, loading conditions, settlement requirements etc. between Resolute, Lycopodium and KP will be required during the next stage of design.
- The estimated settlements will be adjusted based on the actual dead load, and the analyses will be reviewed during the next stage of design.
- The safe bearing capacity is the maximum bearing pressure to which the soil can be subjected without risk of shear failure (assuming a factor of safety of 3). The allowable bearing pressure is the minimum of safe bearing pressure (ultimate/FOS = 3) and bearing pressure for the allowable settlement. For large foundations, the allowable bearing pressure is dependent on the total allowable settlement. The allowable bearing pressures shown in the above tables are based on a total settlement of 35 mm.
- The performance of the crusher foundation depends on the ground conditions, loading conditions from the primary crusher and influence from the ROM pad. As founding levels are not available at this stage, the settlement estimates for the primary crusher don’t take into account the impact of the ROM pad, with the assumption that the primary crusher vault and equipment will be installed after completion of ROM pad construction. The load distribution is complex and detailed 3D numerical finite element modelling (FEM) may be required during the next stage of design.

- The construction sequences of the ROM pad, retaining wall and crusher vault would have significant impact on the settlement of the crusher. If the surge bin and related steel works can be installed after completion of the ROM pad, the post construction settlement of the bin will be smaller than those estimated as the settlements due to the concrete dead load and pressure from the ROM pad will take place before the installation. Provision should be made to adjust the connection pins of the surge bin during installation to cater for assumptions and uncertainties during design.
- Relatively large settlements are expected for structures (Rock Breaker etc.) founded on top of the ROM pad unless the fill used to construct the ROM pad is structural fill compacted to 95 % MMDD.
- As the ore stockpile, tunnel and trestle foundation are not in plane strain condition, the deformation and load distribution on the foundations will be very complex. A detailed 3D FEM analysis needs to be undertaken to analyse the stability of the trestle foundation and deformation of the tunnels. To ensure the tunnels are stable, hoop stress condition should be maintained at all times, including during construction and operation. In addition to the settlement and bearing capacity, the trestle foundation should also be analysed to ensure they have sufficient passive resistance against tilt from the ore stockpile, to be undertaken during the detailed design stage.
- Loading conditions at different stages once available could be used to refine settlement estimates. The estimated settlements presented in the report are based on the total loads comprising both dead loads and operational loads. Settlement from dead loads during construction will have limited impact on equipment installed after earthworks/concrete construction and could be removed from the estimated settlements provided. Loading conditions at different stages should be provided for detailed settlement analysis during the next design stage.
- The settlement analyses for CIL tanks are based on the simplified elastic methods of analysis. Once the loading details and construction sequences are finalised, detailed finite element analysis could be performed to estimate the likely total and differential settlements of the tanks if deemed critical. The estimation could consider the preloading effect during hydraulic testing of the CIL tanks (preloading can be used to reduce the tank settlements).

- Pre-leach thickener is assumed to be founded on pedestal footings to be confirmed by Resolute. Settlement will increase if the foundation width increases. Given the presence of cemented ferricrete to shallow depths across the plant site, it is recommended to limit the foundation size to less than 3 m to reduce the foundation zone of influence extending beyond the ferricrete layer.
- The durability design recommendations for concrete structures provided in AS3600 (Ref. 12) define the exposure classification in terms of magnitude of sulphate in the soil or groundwater, the pH level and the soil permeability. The exposure classification increases for soil with a pH of less than 5.5 or with sulphates >5,000 ppm (0.5%). Laboratory testing is currently in progress to understand the exposure classification of the soil. The section will be updated once the testing is complete. The concrete cover for reinforcing steel and tendons is to be designed based on the exposure classification of the soil.

4.2.6 Potential Geotechnical Risks and Construction Considerations

The following should be considered during construction:

- The terrain is generally flat with cemented laterite observed at shallow depths from the surface. Excavation difficulties may be encountered if low strength machinery (30T and below) are used during construction. Previous experience suggests that lower strength ferricrete should be excavatable using a D10 dozer or equivalent equipped with a single-tyne ripper attachment.
- To reduce foundation settlements, it is advisable to maintain the foundation at or below the natural ground level and restrict the use of fill material above the natural ground, unless compacted select fill material is employed. In addition, cemented ferricrete is observed to shallow depths from the surface, with compressible soil observed to deeper depths. Foundation settlement will increase if large foundations are adopted with the zone of influence extending beyond the ferricrete layer.
- Given the predominantly flat terrain, a significant volume of backfill material will be necessary to reach the final level of the ROM pad. Materials approved by a Geotechnical Engineer from pre-stripping operations shall be utilised for the construction of the ROM pad.

- Due to the elevated profile, the surface runoff from the surrounding area generally drains water away from the process plant during the wet season. However, proper drains are to be installed to direct water away from the foundation. Some shrinkage and swelling of the finer grained near surface soils is possible with seasonal changes in moisture content. To limit seasonal shrinkage and swelling, settlement-sensitive foundations should be founded at least 0.5 to 1 m below the final formation level. A layer of low permeability clay/silt should be placed around footings to prevent moisture change. Comprehensive surface water management/ drainage should also be provided to direct water away from the foundations.
- The area has to be cleared of vegetation, which will include grubbing of trees and stripping the topsoil layer prior to start of construction.

4.3 WATER STORAGE DAM

4.3.1 General

The WSD is located west of the TSF, across a channel valley with a catchment of ~980 Ha. The topography consists of gradual slopes and ridges. The modelled WSD storage capacity is 2.0 Mm^3 with a target minimum pond volume of 10,000 m^3 for abstraction. A few communities were observed to the north and south of the WSD basin. Twenty test pits (TP-WSD-01 to TP-WSD-20) were excavated and two boreholes (BH-WSD-01 and BH-WSD-02) were drilled as part of the investigation of the water storage dam site. The borehole drilling and test pit logging at the site were supervised by a KP site representative. The locations of the test pits and boreholes are shown on Figure 3.3.

4.3.2 Sub-surface Conditions

Of the 20 No. test pits excavated, TP-TSF-12,15, and 18 were excavated within the channel basin. The general soil stratigraphy within the basin is as follows:

- Topsoil; Sand, silty, trace gravel, non-plastic, dark brown, very loose observed across the WSD embankment and basin footprint for depths ranging from 0.2 to 0.4 m. Organic clay, with sand, low plasticity, pale brown, soft observed in TP-WSD-12 and 15, within the channel basin.

- Alluvium; Sand, with gravel, trace clay, low plasticity fines, medium dense to dense observed to depths between 0.2 to 2.9 m across TP-WSD-01, 06, 07, 08, 09, 10, 12, 15, 16, 17 and 20. TP-WSD-02, 03, 04, 05, 11, 13, 14, 18 and 19 identified cemented laterite, recovered as Gravel, sandy, trace clay, low plasticity fines, dense and Clay, sandy, with gravel, medium plasticity, very stiff to hard between 0.2 – 2.9 m depths.
- Sand, clayey, medium to high plasticity, dense to very dense observed between 0.8 to 4m across the WSD basin. Clay, with sand, trace gravel, medium to high plasticity, very stiff to hard observed for TP-WSD-08, 11, 14 and 19. TP-WSD-01, 04 and 06 to the west of WSD basin identified weathered granodiorite at a depth of 0.8 to 2.1 m.
- Granodiorite, medium to coarse grained, porphyritic, massive, pale grey with strength increasing with depth and weathering decreasing with depth.

It is noted that the sand and gravel layer underlies the topsoil across much of the WSD basin area. It is likely that the permeability of near surface basin soil will be relatively high.

The general stratigraphy within the WSD embankment is as follows:

- Topsoil; Sand, dark brown, dry, with sand particles medium grained and sub angular to a depth of 0.3 m.
- Alluvium; Clay, sandy, medium plasticity, very stiff to depths of 3.5 m followed by sand, with clay, low plasticity fines, very dense to depths of 6.0 m.
- Granodiorite, medium to coarse grained, porphyritic, massive, pale grey with strength increasing with depth and weathering decreasing with depth.

Table 4.27 provides a summary of the interpreted borehole lithology at the WSD embankment.

Table 4.27: Summary of interpreted ground conditions – Water Storage Dam

	Boreholes	
	BH-WSD-01	BH-WSD-02
Elevation (RL m)	315.4	315.0
Borehole Depth(m)	15	15
Depth to groundwater (m)	1.2	0.8
SPTs in the first 5 m	23, 70, 50	27, 24, R
Depth to consistent SPT refusal (m)	6	4.5
Depth to XW rock (m)	-	-
Depth to HW-MW rock (m)	-	4.9
Depth to SW-FR rock (m)	6	10.5

XW: Extremely Weathered; MW: Moderately weathered; HW: Highly Weathered; SW: Slightly Weathered; R: Refusal; RQD: Rock Quality Designation; FR: Fresh Rock.

Of the 20 test pits, 3 test pits recorded seepage at shallow depths. Similar findings were recorded during borehole drilling, indicating the possibility of shallow groundwater table especially along the river basin. Long term monitoring will be undertaken to understand the actual water table level.

4.3.3 Preliminary Design Parameters

Table 4.28 presents preliminary soil and rock parameters for design of the WSD. The parameters are based on the following:

- The unit weight, strength and Poisson's ratio values for soil are based on values that would be expected for similar materials.
- The values for permeability are based on values that would be expected for these materials and results from in-situ falling head permeability tests.
- The unit weight, and strength values for rock are based on engineering judgement and values that would typically be expected.

Table 4.28: Preliminary typical soil and rock parameters for WSD design

Material	Unit weight (kN/m^3)	Drained Shear Strength Properties		Permeability K (m/s)
		c' (kPa)	Φ (°)	
Alluvium (sandy clay, very stiff and sand, with clay, very dense).	17 – 19	1 – 2	28 – 34	1.4×10^{-7}
Highly weathered, very low to low strength rock.	22 – 24	50	32 – 35	1×10^{-8}
Moderately weathered, low and medium strength rock.	24 – 26	200	33 – 35	1×10^{-8} - 1×10^{-9}
Slightly weathered and fresh rock, medium to extremely high strength.	24 – 26	300	35 – 40	1×10^{-8} - 1×10^{-9}

Abbreviations: c' – effective cohesion; Φ' – effective friction angle

Note: The geotechnical parameters need to be adjusted based on findings from the closest boreholes and test pits.

Undrained strength properties for soil will be provided after completion of laboratory testing. Estimated permeability based on in-situ testing and engineering judgement is presented. This will be confirmed after completion of laboratory testing.

4.3.4 Potential Geotechnical Risks and Construction Considerations

The following are to be considered during construction.

- The WSD basin areas comprise extensive areas of clayey sand and gravel directly underlying the topsoil horizon. It is likely that these soils have relatively high permeability.
- Cut-off trenches for the WSD should typically terminate in a low permeability horizon. At the embankment, the cut-off trench will need to extend through the near surface sand clayey/clay sandy horizon and is likely to vary with locations with an average depth of more than 2 m at places along the embankment alignment.
- Topsoil is present to depths between 200 - 400 mm across the footprints of the WSD embankment, with some roots penetrating deeper. Topsoil is biologically active, containing seeds, organic matter, trace minerals and nutrient content to support growth, and is unsuitable for the purposes of earthworks construction.
- No artisanal mining shafts were observed within the embankment footprint and the WSD basin. Prior to start of construction, a reconnaissance will need to be conducted to locate shafts within the footprint and immediate vicinity.
- Dewatering and water diversion measures may be required prior to start of construction of the WSD embankment depending on the timing of construction. The preferred time for construction to commence within the WSD area will be after the end of the wet season.

4.4 WATER HARVEST DAM

4.4.1 General

The proposed water harvest dam is at the upstream of Kekeda pit and south east of the process plant. The water balance model includes the WHD as a source of raw water for processing operations and a source of process make up water. Water is abstracted from the WHD into the WSD for use as raw water and process water make up. The estimated catchment area for the WHD is ~43,000 Ha. The modelled WHD capacity is 500,000 m^3.

One borehole (BH-WHD-01) was drilled and twelve test pits (TP-WHD-01 to TP-WHD-12) were excavated as part of the investigation. The locations of the test pits and boreholes are shown on Figure 3.5.

4.4.2 Sub-surface Conditions

The typical subsurface ground profile is summarised below based on the logged ground conditions:

- Thick topsoil with roots and other organic matter observed to an average depth of ~0.5 m, with thickness ranging from 0.2 to 0.7 m. A greater thickness of topsoil is possible due to the increased alluvium deposition and organic growth directly under the river channel basin.
- The soil horizon underlying the topsoil comprises Clay, with sand, medium to high plasticity, yellow and brown, very stiff to hard for depths between 0.2 to 3.7 m and Sand, with silt and gravel, non-plastic to low plasticity fines, dense for depths between 0.4 to 3.4 m. TP-WHD-04 identified cemented laterite/ferricrete recovered as Gravel, clayey, with sand, dense beneath the topsoil.
- Granodiorite, recovered as Sand and Gravel, dense to very dense, weathering decreasing with depth, strength increasing with depth were observed.

Groundwater was encountered for the majority of the test pits TP-WHD-05, 07, 08, 09, 10, 11 and 12. Interpreted ground conditions are shown in Table 4.29.

Table 4.29: Summary of interpreted ground conditions – WHD

	Borehole
	BH-WHD-01
Elevation (RL m)	280.95
Borehole Depth(m)	8.77
Depth to groundwater (m)	-
SPTs in the first 5 m	34, R
Depth to consistent SPT refusal (m)	3
Depth to XW rock (m)	-
Depth to HW-MW rock (m)	-
Depth to SW-FR rock (m)	3.5

XW: Extremely Weathered; MW: Moderately weathered; HW: Highly Weathered; SW: Slightly Weathered; R: Refusal; RQD: Rock Quality Designation; FR: Fresh Rock.

4.4.3 Preliminary Design Parameters

Table 4.30 presents preliminary soil and rock parameters for design of the WHD. The parameters are based on the following:

- The unit weight, strength and Poisson's ratio values for soil are based on values that would be expected for similar materials.
- The values for permeability are based on values that would be typically expected for these materials and results from in situ falling head permeability tests.

- The unit weight and drained strength are based on engineering judgement and values that would typically be expected. These will be updated upon completion of lab testing.

Table 4.30: Preliminary typical soil and rock parameters for WHD design

Material	Unit weight (kN/m^3)	Drained Shear Strength Properties		Permeability K (m/s)
		c (kPa)	Φ (°)	
Clay, with sand, very stiff to hard	17 – 19	20 – 50	28 – 32	1 x 10^{-7} - 1 x 10^{-8}
Sand, with silt and gravel, dense	18 – 19	2 – 3	30 – 33	1 x 10^{-6} - 1 x 10^{-7}
Highly weathered, very low to low strength rock	22 – 24	50	32 – 35	1 x 10^{-8}
Moderately weathered, low and medium strength rock	24 – 26	200	33 – 35	1 x 10^{-8} - 1 x 10^{-9}
Slightly weathered and fresh rock, medium and high strength	24 – 26	300	35 – 40	1 x 10^{-8} - 1 x 10^{-9}

Abbreviations: c' – effective cohesion; Φ' – effective friction angle

Note: The geotechnical parameters need to be adjusted based on findings from the closest boreholes and test pits.

Soil undrained strength properties and permeability will be provided after completion of laboratory testing.

4.4.4 Potential Geotechnical Risks and Construction Considerations

The following should be considered:

- A catchment of 4,700 Ha reports to the proposed WHD. The embankment is designed to serve as an overflow spillway. Due to the large catchment area and rainfall, overflow is likely to occur annually. Maintenance will be required every year after the wet season.
- The abstraction tower crest elevation is based on a 100-year ARI flood event. Water levels are to be monitored and pumps and other related abstraction equipment are to be relocated to higher ground in the event the water levels exceed the 100-year ARI event.
- Rock crushing may be required during construction to produce Zone G rockfill for the WHD embankment. The quarries identified adjacent to the project site shall be used if feasible.

4.5 WSD DIVERSION CHANNEL

4.5.1 General

The WSD Diversion Channel was proposed adjacent to the northern TSF embankment.

Please note, following the 2025 DFS update study, the WSD diversion channel has been removed and no longer forms part of the site infrastructure. Six test pits (TP-WDC-01 to TP-WDC-06) were excavated and two boreholes (BH-WDC-01 and BH-WDC-02) were drilled as part of the investigation. The SI locations are shown on Figure 3.5.

4.5.2 Sub-surface Conditions

The typical subsurface ground profile is summarised below based on the logged ground conditions:

- Topsoil; Sand, silty, non-plastic fines, pale grey, very loose observed for depths ranging from 0.1 to 0.6 m, with an average depth of 0.3 m. The area was partially cleared prior to site investigation.
- Cemented laterite; Gravel, clayey, with sand, high plasticity fines, brown to orange brown, dense to very dense, cemented observed to depths of 1.2 to 2.9 m from the surface.
- Saprolite; Clay, sandy, trace gravel, high plasticity, very stiff to hard observed to depths of 2.8 to 4.5 m. Test pit TP-WDC-04 identified granodiorite, highly weathered, very low strength at shallow depth of 1.4 m.
- Residual soil; Clay, sandy, medium plasticity, cream and orange brown, stiff to hard observed to 13.5 to 15.0 m depths.
- Extremely weathered granodiorite, recovered as Clay, sandy, medium plasticity, slightly moist, very stiff to hard observed to 16.5 to18.0 m depths.
- Granodiorite, massive, igneous, yellow- brown with strength increasing with depth and weathering decreasing with depth observed till end of the borehole.

Except TP-WDC-05, no groundwater was encountered in any of the test pits. TP-WDC-05 excavated adjacent to BH-WDC-02 identified seepage at 3.2 m depth.

Interpreted ground conditions are presented in Table 4.31.

Table 4.31: Summary of interpreted ground conditions – WSD Diversion Channel

	Boreholes	
	BH-WDC-01	BH-WDC-02
Surface elevation (RL m)	333.07	331.63
Borehole depth (m)	25.0	31.5
Depth to consistent SPT refusal	19.5	16.5
SPTs in the first 5 m	49, 76, 19	10, 52, 43
Depth to MW rock (m)	-	-
Depth to RQD > 80% (m)	-	-
Depth to FR rock (m)	-	-

MW: Moderately weathered; R: Refusal; RQD: Rock Quality Designation; FR: Fresh Rock.

4.5.3 Preliminary Design Parameters

Table 4.32 presents preliminary soil and rock parameters for design of WDC. The parameters are based on the following:

- The unit weight, strength and Poisson's ratio values of soil are based on values that would be expected for similar materials.
- The values for permeability are based on values that would be expected for these materials and results of the in situ falling head permeability tests.
- The unit weight and strength values for rock are based on engineering judgement and values that would typically be expected.

Table 4.32: Preliminary typical soil and rock parameters for WDC design

Material	Unit weight	Drained Shear Strength Properties		Permeability K
		c'	Φ	
	(kN/m^3)	(kPa)	(°)	(m/s)
Gravel, clayey, with sand, dense to very dense, cemented laterite	18 – 19	2 – 5	28 – 33	1 x 10^{-6} - 1 x 10^{-7}
Clay, sandy, trace gravel, very stiff to hard, saprolite	17 – 19	30 – 50	28 – 32	1 x 10^{-7} - 1 x 10^{-8}
Clay, sandy, stiff to hard, residual soil	17 – 18	15 – 50	26 – 32	1 x 10^{-7} - 1 x 10^{-8}
Extremely weathered (recovered as clay, sandy, very stiff to hard)	19 – 20	30 – 50	28 – 32	1 x 10^{-7} - 1 x 10^{-8}
Highly weathered, very low to low strength rock	22 – 24	50	32 – 35	1 x 10^{-8}
Moderately weathered, low and medium strength rock	24 – 26	200	33 – 35	1 x 10^{-8} - 1 x 10^{-9}
Slightly weathered and fresh rock, medium and high strength	24 – 26	300	35 – 40	1 x 10^{-8} - 1 x 10^{-9}

Abbreviations: c' – effective cohesion; Φ' – effective friction angle.
The geotechnical parameters need to be adjusted based on findings from the closest boreholes and test pits.

Soil undrained strength properties will be provided after completion of laboratory testing. Estimated permeability is presented. This will be confirmed after completion of laboratory testing.

4.5.4 Potential Geotechnical Risks and Construction Considerations

The following are to be considered during construction.

- No artisanal shafts were identified within the footprint of the WDC during the investigation. The artisanal map provided by Ampella also didn't indicate presence of any artisanal shafts in the area. However, prior to construction, a reconnaissance needs to be undertaken to ensure the integrity of the channel and the adjacent TSF embankment.
- Investigation identified cemented laterite to a depth of ~3 m from the surface and comprises small voids which are typical for cemented laterite. The material is recovered as gravel, clayey with sand, with the possibility of relatively high permeability.
- Firm to stiff clay was identified from 4.5 to 14 m for BH-WDC-01. A detailed slope stability assessment should be undertaken to ensure the excavation has the required factor of safety against failure.
- Depending on abstraction from the WHD and the water level within the WSD, the WDC is expected to flow during the peak wet season. To limit excavation, a gentle gradient has been adopted for a significant portion of the channel length. An HDPE liner is proposed to reduce erosion, as well as maintain the laminar flow predominantly.
- Maintenance of the diversion channel needs to be undertaken prior to start of wet season every year.

4.6 HAN DIVERSION CHANNEL

4.6.1 General

The Han pit is along the basin of the river channel. The Han diversion channels are proposed to divert water from the southwest and southeast catchments to the proposed Han pit. Two diversion channels are proposed, DC10 and DC11, with DC11 being the main focus of the investigation. DC10 will discharge water into DC11 when operational. Six test pits (TP-HDC-01 to TP-HDC-06) were excavated and one borehole (BH-HDC-01) was drilled as part of the investigation. The SI locations are shown on Figure 3.6. Please note, since the completion of the investigation, the location of Han diversion channel has been amended.

4.6.2 Sub-surface Conditions

The interpreted lithological profile at the preferred location is as follows:

- Topsoil; Sand, silty, non-plastic fines, pale grey, very loose observed from 0.1 to 0.4 m, with an average depth of 0.3 m. The area was partially cleared prior to site investigation.
- Cemented laterite; Gravel, clayey, with sand, high plasticity fines, brown to orange brown, dense to very dense, cemented and Sand, trace silt, non-plastic, red brown, slightly moist, dense observed to depths of 1.2 to 2.9 m from the surface.
- Saprolite; Clay, sandy, trace gravel, high plasticity, very stiff to hard observed to depths 0.8 to 3.7 m in some of the test pits. Test pit TP-HDC-01 and 04 identified Alluvium; Silt, sandy, low plasticity, moist, very stiff to 3.7 to 4.7 m.
- Granodiorite, massive, igneous, yellow- brown with strength increasing with depth and weathering decreasing with depth observed until end of the borehole.

TP-HDC-01 and 05 encountered water during test pitting.

Interpreted typical ground conditions are presented in Table 4.33.

Table 4.33: Summary of interpreted ground conditions – Han Diversion Channel

	Borehole
	BH-HDC-01
Surface elevation (RL m)	287.662
Borehole depth (m)	20.8
Depth to SPT refusal	3.0
SPTs in the first 5 m	37, R, R
Depth to MW rock (m)	15.3
Depth to RQD > 80% (m)	16.5
Depth to SW/FR rock (m)	16.5

MW: Moderately weathered; R: Refusal; RQD: Rock Quality Designation; FR: Fresh Rock.

4.6.3 Preliminary Design Parameters

Table 4.34 presents preliminary soil and rock parameters for design of the HDC. The parameters are based on the following:

- The unit weight, strength and Poisson's ratio values of soil are based on values that would be expected for similar materials.
- The values for permeability are based on values that would be expected for these materials and results of the in situ falling head permeability tests.

- The unit weight and strength values for rock are based on engineering judgement and values that would typically be expected.

Table 4.34: Preliminary typical soil and rock parameters for HDC design

Material	Unit weight (kN/m^3)	Drained Shear Strength Properties		Permeability K (m/s)
		c' (kPa)	Φ (°)	
Gravel, clayey, dense to very dense and sand, trace silt, dense, cemented laterite	17 – 19	2 – 3	30 – 33	1 x 10^{-6} - 1 x 10^{-7}
Clay, sandy, very stiff to hard (saprolite)	18 – 19	25 – 50	27 – 32	1 x 10^{-7} - 1 x 10^{-8}
Highly weathered, very low to low strength rock	22 – 24	50	32 – 35	1 x 10^{-8}
Moderately weathered, low and medium strength rock	24 – 26	200	33 – 35	1 x 10^{-8} - 1 x 10^{-9}
Slightly weathered and fresh rock, medium and high strength	24 – 26	300	35 – 40	1 x 10^{-8} - 1 x 10^{-9}

Abbreviations: c' – effective cohesion; Φ' – effective friction angle

Note: The geotechnical parameters need to be adjusted based on findings from the closest boreholes and test pits.

4.6.4 Potential Geotechnical Risks and Construction Considerations

The following are to be considered during construction:

- Han pit is proposed along the basin of the river channel. Due to the large catchment area and the proposed pit along the existing channel, the design of DC11 is challenging. It is envisaged that DC11 will be integrated into the pit excavation surface, necessitating close collaboration with pit designers during the detailed design phase. Moreover, the presence of existing Han Bridge crossing and the nearby community impose significant constraints on the development of the diversion channel. A thorough and detailed approach to the design of the diversion channel during the detailed design stage will be required.
- Depending on the feasibility, it will be worth looking into the option of mining Han pit during the dry season alone. This will help reduce the earthworks volume required for the construction of the diversion channel.
- Management plans should be in place to ensure that personnel are evacuated from the pits during significant storms. This will require continuous monitoring of the forecasted rainfall in order to reduce the risk of personnel working in the pit from any flooding events.

4.7 AIRSTRIP

4.7.1 General

The proposed airstrip located atop a flat ridge is ~7 km from the process plant and ~5 km south of the proposed accommodation camp. The topography and mine infrastructure have limited interaction with the Obstacle Limitation Surface (OLS). The area is generally flat with an elevation of RL338 – 355 m, with an average gradient of 0.8 to -1.7 % along the strip axis. Maximum slopes were estimated to be 2.3 % to -4.8 %. Fifteen test pits (TP-AS-01 to TP-AS-15) were excavated as part of the site investigation.

4.7.2 Sub-surface Conditions

The typical subsurface ground profile is summarised below based on the logged ground conditions:

- Thick topsoil with roots and other organic matter to depths of ~150 to 400 mm with an average depth of 200 mm. Topsoil; Gravel, sandy, with silt, non-plastic fines, dry medium dense and Silt, sandy, trace gravel, non-plastic, soft to firm.
- Beneath the topsoil, a soil horizon comprising Gravel, sandy, with clay, high plasticity fines, red brown, dense to very dense, cemented laterite was observed to 0.4 to 4.2 m from the existing ground surface.

No groundwater was encountered in any of the test pits.

4.7.3 Potential Geotechnical Risks and Construction Considerations

The following construction considerations are noted:

- The longitudinal profile is generally flat with gradient less than 2%, except towards the central section of the airstrip. A gradient of 2 to 4.7% was observed along the central section of the airstrip. This is more than the typical maximum longitudinal runway slope adopted of 2.0% and longitudinal slope change of 0.4% per 30 m recommended by CASA/ICAO (Ref. 3, 6).

  To meet the design requirements of the runway based on CASA/ANAC/ICAO guidelines, cut and fill operations will be required. Permanent soil slopes must be adequately drained and rainfall run-off controlled to mitigate erosion and degradation of the slopes. The sides of excavations shall be benched and battered as necessary to ensure safety against sliding, cave-ins or danger to persons or structures.

- All the natural ground within the designated area shall be cleared of vegetation, trees and shrubs, subsurface roots shall be grubbed and topsoil shall be stripped to a nominal depth of 200 to 300 mm. The depth of topsoil to be stripped will increase at places if roots/vegetation are observed at depths more than 300 mm. The vegetation is mostly trees and shrubs, dozers, loaders and excavators may be used for the clearing works.
- V-drains or culverts shall be constructed on the side of the runway strip and clearway to divert and discharge the surface runoff. The runoff collected using v-drains shall be diverted properly away from the airstrip using an outlet drain.
- The material suitability was assessed based on guidelines presented in Technical Manual, Design of Aggregate Surfaced Roads and Airfields (Ref. 4) and Pavement Design for Airfields (Ref. 13).

  The pavement zones for the airstrip construction are as follows:

  - Subgrade: Subgrade for the airstrip can be naturally occurring, improved or imported materials. The material shall be scarified and moisture conditioned to 200 mm depth, compacted to achieve a California Bearing Ratio (CBR) of at least 10%.
  - Sub-base: The material used for sub-base shall have a LL[1] ≤ 25% and PI[2] ≤5% (Ref. 4 and Ref. 5). Depending on the pavement design, the subgrade can be designed to meet the subbase course requirements or treat the subgrade to produce a subbase. Lab testing of soil samples is currently ongoing, and the report will be updated on completion of these test results.

    If lab results indicate the LL and PI of the samples of the in-situ soils are outside the recommended limits, selectively borrowing materials could be used to improve overall sub-base performance.
  - Base course: This layer is 150 to 200 mm thick ideally comprising well-graded sandy gravel with CBR of at least 30%. They are for load distribution, drainage and provide uniform bearing surface. The layer shall be compacted to a minimum 95% MMDD with a moisture content of OMC – 3% ≤ MC ≤ OMC + 3%.

[1] LL - Liquid Limit
[2] PI – Plasticity Index

- Wearing course: This layer is 200 to 250 mm thick ideally comprising well-graded gravel with CBR of at least 80%. The material used shall have a LL ≤35% and 4% ≤PI ≤9% (Ref. 4). The layer shall be compacted to a minimum 95% MMDD with a moisture content of OMC – 2% ≤ MC ≤ OMC + 2%.

- Majority of the test pits were excavated to more than 4m depth during the site investigation. Conventional earthmoving equipment, such as large dozers and excavators should be capable of excavating the near-surface materials across the site. However, there is a potential for excavation difficulties once the depth increases. High powered machinery, excavators with rock breaker attachments may be required to achieve efficient excavation near the weathered rock layer.
- Care should be taken to reduce the washing of fines from the airstrip running surface via rain or water flow post construction. Regular maintenance will be required. The maintenance frequency should be adjusted according to in-situ conditions and performance of the runway and airstrip. The maintenance frequency is expected to be higher during the first few years of use and will decrease over time. Routine maintenance will mostly comprise grading and watering. Occasional re-sheeting of the surface layers will be required during the pavement life.

4.8 ACCOMMODATION VILLAGE

4.8.1 General

Site investigation of the accommodation village location comprised the excavation of six test pits (TP-AV-01 to TP-AV-06). The proposed accommodation village rests on top of a ridge with an elevation of RL342 m to RL348 m, overlooking the TSF and processing plant to the west. Figure 3.7 indicates the locations of the test pits.

4.8.2 Sub-surface Conditions

The typical subsurface ground profile is summarised below based on the logged ground conditions:

- Thick topsoil with roots and other organic matter were observed to ~0.2 – 0.5 m from the existing ground surface, with an average depth of 0.3 m across the footprint.
- Beneath the topsoil, a soil horizon comprising Gravel, sandy, with clay, low plasticity fines, medium dense to very dense was observed to 0.6 to 4.4 m. Of the 6 No. test pits, 5 No. test pits refused at shallow depth due to the presence of cemented laterite. No groundwater was encountered in any of the test pits.

4.8.3 Potential Geotechnical Risks and Construction Considerations

As the terrain is generally flat with elevation ranging from RL342 to 348 m, cut and fill operations are expected to be comparatively small. Conventional earthmoving equipment, such as large dozers and excavators should be capable of excavating the near-surface materials across the site. However, there is potential for excavation difficulties once the excavation depth increases. High powered machinery (D10 dozer or similar) or excavators with rock breaker attachments may be required to achieve efficient excavation through the cemented laterite layer.

4.9 ACCESS ROADS

4.9.1 General

The Haul Access Road (HAR) connects the Doropo project area, including the Process Plant and related structures with the Souwa, Chegue and Nokpa pits in the north, and the Kilosegui ore bodies to the south west. The total length of the HAR is ~30 km.

The Site Access Road (SAR) runs from the existing highway to the Doropo project area. The total length of the Site Access Road is ~16km. The Site Access Road is expected to be constructed pre-commissioning to allow construction access to the project site.

Site investigation of the SAR location comprised the excavation of 41 test pits (TP-SAR-02 to TP-SAR-15, TP-SAR-17 to TP-SAR-40, TP-HA-01 to TP-HA-03) and drilling of one borehole (BH-SAR-01). The road vertical alignments were designed to balance cut to fill as much as practicable over the entire road length.

The SAR will consist of two 3.5 m wide running lanes, for a total carriage way width of 10 m. The HAR consists of a double lane width of 12 m, with total road width of 16 m. The haul road width was nominated to accommodate haul trucks (Volvo FMX 460 8X4) travelling to and from the pits and fuel tankers travelling to the mining pits and service areas. The road crossfall will vary along the road alignment to suit drainage requirements.

4.9.2 Sub-surface Conditions

The SAR extends over an estimated length of 16 km and HAR extends over an estimated length of ~30 km. The typical subsurface ground profile is summarised below based on the logged ground conditions.

- Topsoil with roots and other organic matter observed to an average depth of 300 mm from the surface. Depending on the location, the soil was Silt, sandy, non-plastic, firm; Gravel, sandy, with silt, non-plastic fines, loose to medium dense and Sand, silty, trace gravel, non-plastic fines, very loose to loose.

- Beneath the topsoil, the soil horizon comprise residual soil recovered as Clay, sandy and gravelly, medium to high plasticity, slightly moist to dry, stiff to hard; cemented laterite recovered as Gravel, clayey, with sand, medium plasticity fines, medium dense to very dense and Sand, gravelly, trace silt and clay, low to medium plasticity, medium dense to very dense.
- Beneath the layer, granodiorite recovered as Gravel, sandy, trace silt, low plasticity fines, yellow brown, very dense, extremely weathered rock observed. With depth, weathering decreases and strength increases.

The thickness and depth of soil layers vary from location to location. Idealised soil profile based on individual chainage length will be required during the detailed design stage. Groundwater was encountered at shallow depth for TP-SAR-09, 20 and 33. The interpreted ground conditions are shown in Table 4.35.

Table 4.35: Summary of interpreted ground conditions based on BH-SAR-01

	Borehole
	BH-SAR-01
Surface elevation (RL m)	298.26
Borehole depth (m)	17.5
Depth to SPT refusal	6.0
SPTs for first 5 m	21, 12, 12
Depth to MW rock (m)	15.3
Depth to RQD >80% (m)	-
Depth to SW/FR rock (m)	16.5

MW: Moderately weathered; R: Refusal; RQD: Rock Quality Designation; FR: Fresh Rock.

Please note, Table 4.35 may not be representative of the ~30 km length of the access road.

4.9.3 Potential Geotechnical Risks and Construction Considerations

The following construction issues are noted:

- The SAR runs across difficult terrain consisting of valleys, ridges and river crossings. As the terrain is rugged, cut and fill is expected during construction. Conventional earthmoving equipment, such as large dozers and excavators should be capable of excavating the near-surface materials across the site. However, there is a potential for excavation difficulties within the cemented ferricrete layer as well as once the excavation depth increases. High powered machinery or excavators with rock breaker attachments may be required to achieve efficient excavation near and into the weathered rock layer. Blasting may be required if large excavations are expected.

- Roadside drainage is required to divert surface run-off away from the road and road embankment. The side drains comprise of V-ditch configuration with 1V:2H side slopes.
- Where the subgrade is recovered as clay, sandy and gravelly, proper base course comprising predominantly gravel with CBR > 40% is recommended. Cemented ferricrete recovered as gravel could serve as basecourse subject to laboratory testing. Testing of the potential borrow sources are to be undertaken during the next stage of design to understand whether the material erodes, corrugates or unravels.
- Laterite gravel wearing course could be placed over the subgrade/general fill during the initial stage. Once the site quarry or mining operations have commenced, the wearing course should be reinforced from the quarry or mining operations. Routine maintenance and resurfacing of the access road will need to be carried out during operation.
- Culverts crossings will be required at significant stream crossing locations to convey runoff resulting from a 10-year annual recurrence interval (ARI). Culverts typically comprise either corrugated metal pipe structures or precast concrete box culverts, depending on the availability and cost. During site walkover survey, KP observed large box culverts of varying dimensions used near the Han bridge and the national highway. It is recommended to compare the availability and cost for these large concrete culverts prior to finalising the preferred culvert option for the access roads.

  In the event of flood exceeding the 10-year ARI, the culverts would be unable to convey the flow, leading to overflow which could potentially cause significant damage to the roads. Damage to the roads could result in access to certain areas of the project being lost until repairs can be undertaken.
- It is expected that the existing local roads may intersect the proposed haul access roads at certain locations. Increased security and safety measures may be needed to protect personnel and livestock.

4.10 ACCESS ROAD OVERPASS

4.10.1 General

The HAR intersects the existing sealed A1 national highway ~16 km south of the Process Plant. A haul road overpass structure is proposed where the HAR intersects the A1 national highway. The proposed overpass tunnel is a multi-plate™ arch tunnel built of Super-Cor® corrugated plates of 8.1 mm thickness.

The tunnel span is 14.0 m wide and 7.0 m high. The tunnel will be constructed through a cut-and-cover method with structural fill compacted to required density to maintain a hoop stress condition.

Site investigation comprised excavation of 4 No. test pits (TP-ARO-01 to 04) and drilling of 4 No. borehole (BH-ARO-01 to 04). The loading conditions were based on the haul truck Volvo FMX460 8X4 tipper nominated by the client.

4.10.2 Sub-surface Conditions

The typical subsurface ground profile is summarised below based on the logged ground conditions:

- Topsoil with roots and other organic matter observed to 300 to 400 mm from the existing ground surface. Topsoil; Sand, silty, trace clay, non-plastic, medium dense.
- Residual soil; Sand, clayey, with gravel, low plasticity, loose to medium dense observed to 6 m depths.
- Granodiorite, medium to coarse grained, granular, massive, grey brown, very low to low strength, highly weathered to moderately weathered rock till end of the borehole.

The interpreted ground conditions are shown in Table 4.36.

Table 4.36: Summary of interpreted ground conditions – Access Road Overpass

	Boreholes			
	BH-ARO-01	BH-ARO-02	BH-ARO-03	BH-ARO-04
Surface elevation (RL m)	348.7	348.93	348.55	349.24
Borehole depth (m)	21.5	25.5	27.5	28.0
Depth to consistent SPT refusal	4.0	6.0	3.0	2.7
SPTs for first 5 m	37, 5	29, 12	35, R	36
Depth to MW rock (m)	7.5	12.0	21.0	21.5
Depth to RQD > 80% (m)	-	-	-	27.0
Depth to FR rock (m)	-	-	-	-

MW: Moderately weathered; R: Refusal; RQD: Rock Quality Designation; FR: Fresh Rock.

4.10.3 Preliminary Design Parameters

4.10.3.1 Material Properties

Table 4.37 presents preliminary soil and rock parameters for design of the process plant foundations.

The parameters are based on the following:

- The stress-strain modulus (E) for soil is based on SPT N values. E is derived from N values by means of the following correlation (Ref. 8):

  E = f N (MPa) where N = 1.0 to 1.6. A value of f = 1 to 1.3 has been used.

- The unit weight, strength, Poisson's ratio and rock stress-strain modulus values are based on, engineering judgement and values that would typically be expected.

Table 4.37: Preliminary soil and rock parameters for ARO design

Material	Unit weight	Shear Strength Properties		Stress -strain modulus, E	Poisson's ratio
	(kN/m^3)	c (kPa)	Φ (°)	(MPa)	
Sand, clayey, with gravel, loose to medium dense, residual.	18 – 19	0 – 10	27 – 32	1.0 to 1.3 x SPT N to a maximum of E = 50	0.3
Highly weathered, very low to low strength rock.	22 – 24	50	32 – 35	1×10^{-8}	22 – 24
Moderately weathered, low and medium strength rock.	24 – 26	200	33 – 35	1×10^{-8} - 1×10^{-9}	24 – 26
Slightly weathered and fresh rock, medium and high strength.	24 – 26	300	35 – 40	1×10^{-8} - 1×10^{-9}	24 – 26

4.10.4 Potential Geotechnical Risks and Construction Considerations

The following construction issues are noted:

- To limit settlements and increase foundation bearing capacity, ground improvement comprising excavation of loose sand and replace with compacted structural fill is expected. The structural fill shall be crushed mine waste with fines content less than 20 % and maximum particle size less than 75 mm. The structural fill shall be compacted in layers less than 300 mm thick and achieve a 95% modified maximum dry density. Depending on the particle size of the mine waste, or borrows if any nearby, crushing and screening may be required to limit the particle size within the required range.
- During construction, a temporary diversion road will need to be constructed alongside the main A1 highway to redirect traffic. This will require careful traffic management plans to ensure compliance with regulatory requirements, given that the A1 is a national highway. Existing underground utilities such as water, gas, and sewer lines can be in conflict with the tunnel alignment, requiring careful relocation or protection.

- The integrity of the tunnel relies on the principle of maintaining a compressive hoop stress condition around the circumference of the tunnel lining at all times. This should be maintained throughout construction. If the hoop stress condition is not maintained, the tunnel lining may experience excessive deformation and overstressing, or even collapse. Proper sequencing of excavation, backfilling, support installation, and lining placement is crucial to avoid excessive deformation that could disrupt the hoop stress condition.
- Design of the overpass is based on haul truck Volvo FMX460 8X4 tipper nominated by the client. If the nominated truck changes or other higher loaded vehicles are anticipated, the analysis should be reviewed.

4.11 CONSTRUCTION MATERIALS

4.11.1 General

Potential borrow sources should be prioritised as follows:

i. Maximise use of cut materials from bulk earthworks.

ii. Maximise use of cut materials from pre-strip mining operations.

iii. New borrow areas.

Construction of the TSF, water storage dam, process plant, water harvest dam, diversion channel, airstrip, accommodation village and site access road earthworks will require the following construction materials:

- Low Permeability Fill (Zone A) – for the construction of low permeability zones in the TSFs and water storage facility embankments.
- Transition Zone (Zone B) – gravels and sand for use as a transition zone between Zone A and Zone C.
- Embankment Structural Fill (Zone C1) – for the construction of the structural (downstream) zone in the TSFs.
- General Fill (Zone D) – for general use across the site such as the construction of access road embankments.
- Erosion Protection (Zone E) – durable rockfill for use as erosion protection on the outer faces of earthworks slopes and along drain alignments.
- Drainage Medium (Zone F) – free draining gravel and sand for use as filter and drainage media.
- Decant Surround (Zone G) – coarse durable rockfill for use in the decant surrounds.

- Wearing Course – selected gravel to provide a running surface on unsealed roads and embankment crests.
- Bulk Fill – non-specific fill material, to be used in areas where properties or engineering behaviour are not important. Bulk fill is non-load bearing.
- General Fill – material excavated as part of the site earthworks or sourced from pre-strip which may be used to form fill platforms and embankments. General fill is generally non-load bearing, but may be used to support lightly loaded or non-settlement sensitive structures.
- Structural fill – granular fill material of defined specification to be placed under major structure foundations or in fill areas where settlement control is critical.

The site investigation suggests that in potential areas of cut the excavated material will comprise colluvial and alluvial soils, cemented laterite and weathered rock recovered as gravels. Depending on the depth of excavation these horizons are likely to excavate as a combination of gravel, silt, clay, and clayey silt, and will provide a suitable common fill with which to construct the lower levels of bulk earthworks fill platforms and embankments. Of the soils likely to be encountered during bulk excavation, most of the coarse-grained materials should be suitable for embankment Zone C1 construction, whilst finer grained soils with selective excavation will be suitable for embankment Zone A.

If excavations extend into the moderately weathered rock horizon the resulting materials are likely to be coarse, but the end product will depend upon the design and implementation of the blasting programme (if any), as well as the pre-existing rock strength, weathering and joint spacing.

It is expected that substantial quantities of borrow can be sourced from the open pit pre-strip, subject to laboratory testing. The zones sourced from pre-stripping depend on the material type (oxide, transition, fresh). Oxide material closer to the surface could be designated as Zone A subject to lab testing. Zones C1 and D are typically sourced during pre-stripping. If the size of the material from pre-stripping for Zone C1 is too large, increasing the powder factor during blasting often helps without much additional cost. Depending on the properties, oxide material may also be used as Zone C1. Zones E and G will consist of selected materials from waste rock. Zone F (drainage medium) shall be sourced from basins of WSD, WHD, Han and select locations of the SAR.

4.11.2 Low Permeability Fill (Zone A)

Zone A is designated as low permeability material typically ≤1 x 10^{-8} m/s, subject to design requirements. Suitable material typically possesses a minimum fines content of approximately 30% and plasticity index greater than 8%, subject to site specific laboratory testing.

It is noted that this specification does not require the material to be clay or silt; silty/clayey sand material can be suitable if it possesses sufficient fines content and plasticity properties. Many artisanal pits around the TSF and Han pit indicated fine grained surface material predominantly clay. Testing has been scheduled to understand the properties.

Though test pitting across the proposed sites of the TSF, WSD, WDC, HDC, PS indicates majority of the near surface materials are predominantly coarse grained, a few pockets were observed which were predominantly fine grained. Lab testing is scheduled to confirm this. Selected in situ soils and borrow sources can be used as a low permeability zone and a basin soil liner given that HDPE geomembrane liner is incorporated into the design. The identified locations of borrow areas and the coordinates are shown in Table 4.38.

Table 4.38: Potential borrow sources for Zone A materials

Location	Easting	Northing	General Description
Near proposed Han Pit	0486786	1073885	Saprolite predominantly clay, spanning over an area of ~400 x 500 m
East of proposed Souwa Pit	480907	1074412	Arisings from artisanal pits indicated clay, estimated to be ~300 x 100 m
Near proposed Souwa Pit	478880	1075430	Arisings from artisanal pits indicated clay

Quantities estimated based on visual assessment.

4.11.3 Embankment Structural Fill (Zone C1)

Zone C1 is structural fill used to construct the structural zone of earthworks embankments. The material specification is broad enough to suit most excavated materials and it is expected that Zone C1 will be sourced from bulk earthworks cut and/or open pit pre-stripping.

4.11.4 Zone E, Zone G Rockfill and Concrete Coarse Aggregate

Zone E and Zone G are used for decant surround, erosion protection etc. and consist of riprap, armour rock etc. Several sources were identified as presented in Table 4.39. Blasting and crushing of outcrops, materials sourced from pre-stripping activities etc. could potentially be used. Rock outcrops identified as potential borrow source were identified in the vicinity of the airstrip, Han pit and WSD.

Table 4.39: Potential borrow sources for Zone E, Zone G and concrete aggregates

Location	Easting	Northing	General Description
Near proposed Han Pit	0486860	1074137	Rock outcrops spanning over an area of ~50 x 50m Blasting may be required
Near proposed WSD	477437	1079347	Rock outcrops spanning over an area of ~70 x 60m Blasting may be required
Near Han bridge	486256	1073813	Recovered as gravel, sandy, with clay, very dense and moderate cementing Potential borrow source for road basecourse
Near proposed Souwa pit	479444	1075193	Cemented ferricrete was observed for an area spanning ~1,000 x 1,000 m Aerial image indicated similar ferricrete sources with sparse vegetation cover the area The ferricrete is also a potential source for access road basecourse May not be ideal for concrete aggregates
Near proposed airstrip	476072	1070549	Laterite recovered as gravel, sandy, with silt, dense, spanning over an area of ~200,000 m^2

Quantities estimated based on visual assessment.

Most of the above materials (parent rock granodiorite), if crushed and graded, can be considered as a good source of coarse aggregate for concrete construction subject to aggregate test results.

A granite quarry was identified south of the plant site, adjacent to the A1 highway. The quarry was previously used for the construction of the Doropo – Bouna road. The road construction was completed in 2022, and the quarry was closed afterwards. A few potential borrow sources were also identified by Ampella representatives, presented in Table 4.40.

Table 4.40: Potential borrow sources for Zone E, Zone G and concrete aggregates

Location	Easting	Northing	General Description
Granite quarry	486860	1074137	Used for Doropo – Bouna road construction, and has not been in operation since 2022
Additional Source 1	470464	1071703	~2.5 kms east of A1 highway and ~5 km west of proposed airstrip
Additional Source 2	469453	1068482	Less than 1 km from A1 highway, close to Varale community
Additional Source 3	485679	1072861	Between proposed Kekeda and Han pits

Quantities estimated based on visual assessment.

4.11.5 Drainage Medium (Zone F)

Suitable materials for use as drainage medium are typically gravels and sands with less than 5% fines content (materials passing the 75 µm sieve). River sand was observed along the basins of WSD, WHD, Han and select locations of the SAR.

Laboratory testing is in progress to evaluate material suitability. Local residents are known to use river sand for construction, but it's unclear if any licensed businesses currently source sand from the river. A few potential borrow areas have been identified to be used for construction. Due to limited accessibility to some areas, temporary access roads may be required.

For borrow sources from the river basin, it is advisable to collect river sand once the dry season begins. Collection during the early weeks of the wet season is not recommended as the river carries silt, clay, and other debris/organic material washed down from the ridges. This leads to increased fines content and unsuitable materials in the sand.

Potential borrow sources identified are shown in Table 4.41.

Table 4.41: Potential borrow sources for drainage medium (Zone F)

Location	Easting	Northing	General Description
Han river basin	0486457	1073755	Alluvial deposits along the river bed, spanning an area of ~70 x 40 m
	486457	1073643	Test pitting indicated clayey sand, silty sand and sandy gravel.
	486256	1073813	
	486455	1073864	
North of proposed Kekeda Pit	484864	1073899	Alluvial soil recovered as predominantly sand
Proposed WHD basin	482887	1072255	Alluvial soil recovered as sand, clayey and sand, silty
	482940	1072253	
	482808	1072097	
	482397	1071755	
	481969	1071435	
	482261	1071064	
Channel basin adjacent to SAR	477111	1075543	Alluvial soil recovered as predominantly sand
	478040	1074282	
Near proposed Nokpa pit	480603	1077880	Alluvial soil recovered as predominantly sand
Proposed WSD basin	476892	1079791	Alluvial soil recovered as predominantly sand
	477869	1079065	

Potential borrow sources identified by Ampella representatives are presented in Table 4.42.

Table 4.42: Potential borrow sources for drainage medium (Zone F)

Location	Easting	Northing	General Description
Additional Source 1	481194	1049436	~1.5 km from A1 highway and ~22 km south east from proposed overpass
Additional Source 2	470248	1071632	~2.5 km from A1 highway and ~8 km north west from proposed overpass
Additional Source 3	468431	1070488	~150m from A1 highway and ~5 km north west from proposed overpass
Additional Source 4	481339	1053376	~5 km from A1 highway and ~20 km south east from proposed overpass

Selective excavation and further tests will be required to ensure that the materials obtained meet the specifications.

4.11.6 Wearing Course/Road Construction Materials

The materials used for access road construction shall generally comprise:

- A coarse-grained material, ideally gravel with low fines and low plasticity.
- A durable material which will not breakdown during compaction.
- A good volume stability with low shrink/swell characteristics.
- Limited oversize materials (>75 mm).

The specification for road materials for unsealed roads are summarised in Table 4.43.

Table 4.43: Specification for road materials for unsealed roads

Parameter		Road material for unsealed roads
Particle size distribution (mm)	75	100 – 100
	37.5	80 – 100
	19	50 – 100
	9.5	36 – 100
	4.75	25 – 81
	2.36	18 – 66
	0.425	8 – 39
	0.075	3 – 23
Liquid limit (%)		≤35
Plasticity index (%)		4 – 17
Linear shrinkage (%)		≤5
4 days soaked CBR (%)		• 30% sub-base • Ideally 80% for basecourse but typically 40% is suitable, depending on traffic
Compaction		• 95% MMDD sub-base • 98% MMDD basecourse
Other		Material to be durable and not notably break down during compaction

It is understood that the local roads are constructed from a lateritic clayey gravel and sand. It is expected that the clayey gravel shall be supplemented with coarse aggregates to increase CBR, reduce plasticity and improve gradation. Most of the pre-strip materials (comprising gravel) could be used for construction, subject to proper screening, grading and blending. Once mining starts, the roads can be sheeted with more granular mine waste after proper screening and grading. The cemented laterite once stripped and compacted could potentially serve as good base course subject to site trials and laboratory testing.

4.11.7 Structural fill for plant foundations

The requirements for structural fill are broadly similar to those for road construction material. The specification for structural fill is summarised in Table 4.44. With crushing, screening and grading, the borrow and quarry sources identified during the investigation shall be used as structural fill.

Table 4.44: Specification for structural fill

Parameter	Passing (%)	
Sieve (mm)	From	To
75	100	100
37.5	80	100
19	59	100
4.75	31	81
2.36	22	66
1.18	17	54
0.425	11	40
0.075	5	25
Liquid limit (%)	<35	
Plasticity Index (%)	4 – 17	
Linear Shrinkage (%)	≤10	

5. POTENTIAL GEOTECHNICAL RISKS AND CONSTRUCTION CONSIDERATIONS

5.1 TIMING OF CONSTRUCTION

It is suggested that earthworks construction is undertaken during the dry season. Construction during the wet season is likely to require:

- More comprehensive temporary water management.
- Potentially, removal of a greater amount of unsuitable (softened and wet near surface) material.
- Fill material that is less susceptible to the adverse effects of moisture (lower fines content and higher gravel content fill).

Construction sequencing will have impacts on structure and equipment settlements. Construction scheduling will need to be developed for selected process plant structures to manage potential differential settlement between interacting structures.

The sourcing of borrow materials is recommended during the dry season.

5.2 WORKABILITY OF NEAR SURFACE MATERIALS

Near surface materials at the locations investigated comprise alluvial/colluvial silt/clay, silty gravel and cemented laterite. Conventional earthmoving equipment, such as dozers, excavators and graders will be capable in general of excavating these near surface materials. Cemented laterite and variably weathered rock is present at shallow depth and excavation difficulties may be encountered if excavations extend into the less weathered rock. Previous experience suggests that lower strength and more fractured materials should be excavatable using a D10 dozer or equivalent equipped with a single-tyne ripper attachment and that higher strength rock will require blasting.

5.3 SOIL SHRINKAGE AND SWELLING

Some shrinkage and swelling of the finer grained near surface soils is possible with seasonal changes in moisture content, to be confirmed after laboratory testing.

To limit seasonal shrinkage and swelling, settlement-sensitive foundations should be founded 0.5 to 1 m below final ground level. Comprehensive surface water management/drainage should be provided to direct water away from the foundations.

5.4 CONSTRUCTION WATER

The water channels observed within the project site are expected to be dry from the onset of the dry season. Abstraction of ground water from the site for construction may require significant works / high capital cost. Site walkover survey identified a few ponds (476892E, 1079791N and 477142E, 1075592N) and river streams in the area. These ponds are linked to small streams and water channels. Sedimentation over the years has resulted in lowering the current storage capacity. After dredging and maintenance, these ponds may be potential sources of construction water for a brief period after the wet season. It may be also worth looking into expanding the capacity of these ponds to accommodate ~250,000 to 300,000 m^3 of water to suit construction water requirements.

5.5 CUT AND FILL SLOPES

Due to the generally gentle terrain, limited cut and fill slopes are expected.

Fill slopes of less than 10 m height should be constructed in layers of less than 500 mm thickness compacted to 95% SMDD, as follows:

- Slopes constructed using coarse-grained fill material may be constructed to a maximum slope of 1V:2.5H with a 3 m wide bench every 5 m in vertical height, subject to the underlying subgrade conditions and water level.
- Slopes constructed using fine-grained fill material may be constructed to a maximum slope of 1V:3H with a 3 m wide bench every 5 m in vertical height, subject to the underlying subgrade conditions.

Cut slopes of less than 10 m height should be constructed, as follows:

- In soils cut slopes may be constructed to a maximum slope of 1V:3H with a 3 m wide bench every 5 m vertical height.
- In weak rock (excluding extremely weathered rock) cut slopes may be constructed to a maximum slope of 1V:1.5H with a 3 m wide bench every 5 m in vertical height.
- In slightly weathered to fresh rock, cut slopes may be constructed to a maximum batter slope of between 1V:1H and 1V: 1.5H with 3 m wide benches every 10 m in vertical height. It is noted that the stability of cuts in rock is influenced by the orientation of joints. The orientation of joints and other weak planes will need to be assessed on site by an experienced geotechnical engineer.

The suggested slope angles are subject to the specific application and ground conditions and need to be designed on a case-by-case basis prior to construction so as to ensure an adequate factor of safety against failure.

Steeper slopes may need to be stabilised with retaining walls/structures or reinforced with soil nails/rock bolts/anchors with structural facing, depending on the locations and in situ ground conditions.

Permanent soil slopes must be re-vegetated, all slopes adequately drained and rainfall run-off controlled (by means of drains at the crest, on slope benches and at the slope toe) in order to mitigate erosion and degradation of the slopes.

5.6 RETAINING STRUCTURES

Soil loads on retaining structures should be based on Rankine theory and may be calculated in accordance with the procedure outlined by Duncan and Seed (Ref. 11). Where backfill comprises a select well-graded gravel-sand mixture (the recommended backfill) the following parameters are considered applicable:

- Effective angle of friction (ø') = 30°.
- Cohesion (c') = 0 kPa.
- Angle of repose (β max.) = 30°.
- Bulk Density (γ) = 18 kN/m^3.
- Rankine earth pressure coefficients of Ka (active) = 0.33 and Kp (passive) = 3.33 are recommended assuming that the retaining wall is vertical and sufficiently flexible, the ground behind the wall is horizontal, and zero wall friction develops. Ko (at rest) is dependent on the degree of compaction near the retaining structure. Assuming controlled backfill conditions in which heavy compaction equipment does not traffic adjacent to the retaining wall and hand compaction is undertaken in these areas, a value of 0.5 may be assumed. A higher degree of compaction could result in values of Ko of between 2.0 and a maximum value of Kp, and may be calculated by methods such as described in Ref. 11.

These parameters will vary depending upon the type of backfill material and should be reviewed on a case-by-case basis.

In order to provide adequate drainage and reduce lateral earth pressures it is recommended that a granular backfill material of the following specification should be placed within 3 m of retaining structures:

- Fines content (% passing 75 μm) less than 15%.
- Maximum particle size 50 mm.

As an alternative, a drainage layer (e.g. aggregate and geosynthetics or similar) may be installed down the back face of retaining structures, draining to a toe drain at the base of the wall. In either case, and regardless of the backfill material, reduced and careful compaction adjacent to the retaining structures, together with adequate drainage, are required to control excessive earth and hydrostatic pressures.

5.7 CONCRETE DURABILITY

The durability design recommendations for concrete structures provided in AS3600 (Ref. 12) define the exposure classification in terms of magnitude of sulphate in the soil or groundwater, the pH level and the soil permeability. Aggressive soils are defined as permeable soils with a pH of less than 4 or a soil sulphate content of 1% or greater.

Laboratory testing comprising pH, chloride and sulphate content is in progress to assess the potential aggressivity of the in-situ soils. This section will be updated once the laboratory testing is complete.

6. CONCLUSIONS AND RECOMMENDATIONS

This report details the scope of the geotechnical investigation, presents an interpretation and provides preliminary geotechnical design parameters for use in the design and construction of the foundation and earthworks.

Based on the interpretation of the investigations to date, the following conclusions and recommendations are made:

General:

- The project is located in north-eastern Côte d'Ivoire in the Bounkani region, 480 km north of the capital city Abidjan and 50 km north of the city of Bouna. The site is approximately 10 km west of the border between Côte d'Ivoire and Burkina Faso, with the Enioda pit located about 0.5 km from the Burkina Faso border.
- The estimated average annual rainfall for the project area is 1,133 mm. The wet season lasts about four months, starting in July, with September being the wettest season. The average annual lake evaporation for the project area is 1,469 mm.
- The overall site is typical for the forests of West Africa, predominantly woodland savannah with an open canopy of trees. A few agricultural areas were also observed, predominantly cashew plantations and paddy farms.
- The Doropo gold deposits are hosted in a uniform medium to coarse-grained granite-granodiorite complex. This complex has been intruded locally by late-stage gabbro-dolerite dykes, along with some pegmatite veins. Occasionally, there are biotite-rich or aplitic dykes, which also exhibit amphibolite layers. Outcrop of recognisable rock is rare, but is generally confined to erosional valley sides. Interfluvial ridge lines are often covered by hard laterite cuirasse, while drainage lines contain lateritic soils and transported sediments like alluvium and colluvium.

Seismicity:

- The foundation conditions at the site can be classified as Site Class C (very dense soil and soft rock to a depth of 30 m) according to ASCE/SEI 7-10.
- Seismic parameters for plant structural design have been developed based on the probabilistic seismic hazard analysis results and recommended amplification factors according to ASCE/SEI 7-10.

- Seismic design parameters for design of dams and appurtenant structures have been developed based on ANCOLD and GISTM guidelines.

Tailings Storage Facility (TSF):

- The TSF basin areas comprise extensive areas of sand and gravel directly underlying the topsoil horizon. It is likely that these materials have relatively high permeability and therefore a compacted soil liner will be required as a minimum to reduce the rate of seepage through the basin floor. HDPE liner will likely be required to control the seepage to acceptable levels subject to detailed seepage analysis.
- At the embankment, the cut-off trench will need to extend through the near surface sand/gravel horizon and is likely to vary with location with an average of 2 m depth into low permeability clay layers along the embankment alignment.
- Numerous artisanal pits were observed within the TSF embankment and basin, with some pits obscured by backfilling, making them difficult to identify during investigations. Artisanal pits were observed south of the eastern embankment and basin. A comprehensive survey is required to locate all potential artisanal pits, which must be backfilled before construction commences. The uncontrolled and unplanned nature of artisanal mining activities within the proposed TSF could significantly compromise their structural integrity, water management, and overall environmental safety if proper measures and precautions are not implemented.
- In-situ falling head tests indicated the presence of relatively highly permeable soil layers. This is likely due to the voids commonly observed within the cemented laterite soil layer at shallow depths. To limit seepage, it is recommended to use a soil liner with HDPE geomembrane.

Process Plant:

- Based on the foundation dimensions and loading conditions provided, a preliminary assessment of soil and rock geotechnical parameters, settlement and bearing capacity for foundations have been provided in the main body of this report. The settlement and bearing capacity values are indicative and need to be updated once the individual foundation location, geometry, level and loading conditions are finalised.

- To reduce foundation settlements, the foundations should be constructed at or below ground level and limit the use of fill material unless it is compacted structural fill. Cemented ferricrete is found near the surface, while compressible soil is observed at deeper depths. Using large foundations with a zone of influence that extend beyond the ferricrete layer can result in increased settlement.
- As founding levels have not been confirmed at this stage, the settlement estimates for the primary crusher don't take into account the impact of the ROM pad. It was assumed that the crusher vault and steel structures will be installed after construction of the ROM pad. The load distribution is complex and detailed 3D numerical finite element modelling (FEM) may be required to estimate the settlements during the next stage of design.
- Settlements from dead loads during construction will have limited impact on the structures and equipment installed after earthworks and concrete construction. The settlements during operation will be smaller than those estimated based on the total loads. The total loads should be broken down into loads at different stages for settlement assessment during the detailed design stage.
- The settlement analyses for CIL tanks were based on the simplified elastic methods of analysis. Once the loading details and construction sequences are finalised, detailed finite element modelling should be performed to estimate the likely total and differential settlement of the tanks if deemed critical. The estimation could consider the preloading effect during the hydraulic test of CIL tanks (preloading can be used to reduce the tank settlements).
- As the ore stockpile, tunnel and trestle tower are not in plane strain condition, the deformation and load distribution on the foundation will be very complex. A detailed 3D FEM analysis needs to be undertaken to analyse the stability of the trestle tower and deformation of the tunnels. To ensure that the tunnels are stable, hoop stress conditions need to be maintained at all times, including during construction and operation. In addition to the settlement and bearing capacity, the trestle foundation should also be analysed to ensure they have sufficient passive resistance against tilt from the ore stockpile, these analyses shall be undertaken during the detailed design stage.
- The terrain is generally flat with cemented laterite observed at shallow depths from the surface. Excavation difficulties may be encountered if low strength machinery is used during construction.

Water Storage Dam:

- The WSD basin areas comprise extensive areas of sand and gravel directly underlying the topsoil horizon. It is likely that these soils have relatively high permeability.
- At the embankment, the cut-off trench will need to extend through the near surface sand clayey/clay sandy horizon and is likely to vary with locations with an average depth of more than 2 m at places along the embankment alignment.
- No artisanal mining shafts were observed within the embankment footprint and the WSD basin. Prior to start of construction, a reconnaissance needs to be conducted to locate any shaft that has been excavated within the footprint and immediate vicinity.

Water Harvest Dam:

- The water harvest dam is at the upstream of the Kekeda pit and south east of the process plant. Water will be abstracted from the WHD into the WSD for use as raw water and process water make up.
- A catchment of 4,700 Ha reports to the proposed WHD. The embankment is designed to serve as an overflow spillway. Due to the large catchment area, it is likely to overflow annually. Maintenance will be required every year after the wet season.

WSD Diversion Channel:

- No artisanal shafts were identified during the investigation. A reconnaissance survey should be undertaken prior to construction to ensure no new shafts were excavated.
- Firm to stiff clay was identified from 4.5 to 14 m for BH-WDC-01. A detailed slope stability assessment should be undertaken to ensure that the excavation has adequate factors of safety against failure.
- Maintenance of the diversion channel should be undertaken prior to start of the wet season every year. Depending on the abstraction from the WHD and water level within the WSD, the WDC is expected to flow during the wet season.

Han Diversion Channel:

- It is envisaged that this diversion channel will be integrated into the pit excavation surface, necessitating close collaboration with the pit designer during detailed design phase. Additionally, existing structures like the Han Bridge and the nearby community could be significant constraints on the diversion channel construction.

- Management plans should be in place to ensure that personnel are evacuated from the pits during significant storms. This will require continuous monitoring of the forecasted rainfall in order to reduce the risk of personnel working in the pit from flooding.

Airstrip:

- To meet the design requirements of the runway based on CASA/ICAO guidelines, cut and fill operations will be required.
- Conventional earthmoving equipment, such as large dozers and excavators should be capable of excavating the near-surface materials across the site. However, there is potential for excavation difficulties once the depth increases and blasting may be required.
- Post construction, care should be taken to prevent washing of fines from the airstrip running surface via rain or water flow. Ongoing maintenance will be required.

Accommodation Village:

- Considering the terrain is generally flat, comparatively minimal cut and fill is expected. Conventional earthmoving equipment, such as large dozers and excavators should be capable of excavating the near-surface materials across the site. However, there is potential for excavation difficulties once the excavation depth increases. High powered machinery (D10) or excavators with rock breaker attachments may be required to achieve excavation near the weathered rock layer.

Site Access Road:

- The Site Access Road runs from the existing highway to the Doropo project area. The total length of the Site Access Road is ~16km. The Site Access Road is expected to be constructed pre-commissioning to allow construction access to the project site. The Site Access Road will consist of two 3.5 m wide running lanes, for a total carriage way width of 10 m. Resolute will need to ensure that the width complies with the largest machinery/equipment to be brought to site.
- The Haul Access Road connects the Doropo project area, including the Process Plant and related structures with the Souwa, Chegue and Nokpa pits in the north, and the Kilosegui ore bodies to the south west. The total length of the HAR is ~30 km. The Haul Access Road consists of a double lane width of 12 m, with total road width of 16 m.

- The site access road runs across difficult terrain consisting of valleys, ridges and river crossings. As the terrain is rugged, cut and fill is expected during construction. Conventional earthmoving equipment, such as large dozers and excavators should be capable of excavating the near-surface materials across the site.
- Where the subgrade is recovered as clay, sandy and gravelly, proper base course comprising predominantly gravel with CBR > 40% is recommended. It is expected that cemented ferricrete recovered as gravel may serve as basecourse subject to laboratory testing.
- Culvert crossings will be required at significant stream crossing locations to convey runoff resulting from a 10-year annual recurrence interval (ARI). In the event of flood exceeding the 10-year ARI, the culverts would be unable to convey the flows, leading to overflow which could potentially cause significant damage to the roads. Damage to the roads could result in access to certain areas of the project being lost until repairs can be undertaken.
- It is expected that the existing local roads may intersect the proposed haul access roads at certain locations. Increased security and safety measures may be needed to protect personnel and livestock.

Access Road Overpass:

- The haul access road (HAR) intersects the existing sealed A1 national highway ~16 km south of the Process Plant. A haul road overpass structure is proposed where the HAR intersects the A1 national highway.
- The proposed overpass tunnel is a multi-plate™ arch tunnel built of Super-Cor® corrugated plate of 8.1 mm thickness. The tunnel span is 14.0 m wide and 7.0 m high.
- To limit settlements and increase foundation bearing capacity, ground improvement comprising excavation of loose sand and replacing with compacted structural fill is expected.
- A temporary diversion road will need to be constructed alongside the main A1 highway to redirect traffic during construction. This will require careful traffic management plans to ensure compliance with regulatory requirements.

- The integrity of the tunnel relies on the principle of maintaining a compressive hoop stress condition around the circumference of the tunnel lining at all times. This should be maintained throughout construction. If the hoop stress condition is not maintained, the tunnel lining may experience excessive deformation and overstressing, or even collapse.

Construction materials:

- A site walkover was completed as part of the investigation to identify potential borrow sources across the project lease area. A detailed explanation on identified sources, material types and coordinates are provided in Section 4.11.

7. REFERENCES

1. Centamin Plc, 2234-GREP-001, "*National Instrument 43-101 Technical Report for the Doropo Gold Project, Northeastern Côte d'Ivoire*", August 2023.
2. Standards Australia, "*Australian Standard – Geotechnical site investigations*", AS1726–2017.
3. Civil Aviation Safety Authority (Australian Government), (2013) "*Manual of Standard Parts 139 – Aerodromes*", Version 1.11.
4. United States of America Department of Army, (1990), "*Technical Manual, Design of Aggregate Surfaced Roads and Airfields*", Ref. TM 5-822-12.
5. United States of America Department of Defence, (2001), "*Unified Facilities Criteria, Pavement Design for Airfields*", Ref. UFC 3-260-02.
6. International Civil Aviation Organisation (ICAO), (2018), Annex 14, Volume 1.
7. International Code Council Inc., (2018), "*International Building Code*".
8. Blight G.E., (1997), "*Mechanics of Residual Soils, A Guide to the Formation, Classification and Geotechnical Properties of Residual Soils, with Advice for Geotechnical Design*".
9. Bowles J.E., "*Foundation Design and Analysis*", 5th Edition, McGraw-Hill.
10. Barnes G.E., (2000), "*Soil Mechanics Principles and Practice*", 2nd Edition.
11. Duncan, James M., and Seed, Raymond B., (1986), "*Compaction-Induced Earth Pressures under Ko Conditions*", Journal of Geotechnical Engineering, Volume 112, No. 1, pp.1-22.
12. Standards Australia, "*Concrete Structures*", AS3600-2009.
13. Knight Piésold Pty Ltd, "*Doropo Gold Project – Seismic Hazard Assessment Rev 1*", Memorandum Ref: PE25-01562, December 2025.
14. American Society of Civil Engineers (ASCE)/Structural Engineering Institute (SEI), (2013), "*Minimum Design Loads for Buildings and Other Structures*", ASCE/SEI 7-10.
15. Australian National Committee on Large Dams (ANCOLD), (2019), "*Guidelines for Design of Dams and Appurtenant Structures for Earthquake*".
16. ANCOLD, (2019), "*Guidelines on Tailings Dams – Planning, Design, Construction, Operation and Closure*".
17. International Code Council, (2015), "*International Building Code*".
18. GISTM, (2020), "Global Industry Standard on Tailings Management".

8. LIMITATIONS OF THIS GEOTECHNICAL REPORT

This report was prepared by Knight Piésold Pty Ltd (hereafter referred to as KP) for Resolute Mining Limited (the Client) to provide geotechnical input to the design of the project named in this report. This report is confidential, may only be used and relied on by the Client and must not be used for any other purpose. It must not be copied to, used by, or relied on by any person other than the Client. KP and its employees have no responsibility to any person other than the Client arising from or in connection with this report.

This report as a whole presents the findings of the geotechnical investigation works, it should not be altered, amended or abbreviated, issued in part or issued incomplete in any manner whatsoever without prior consent from KP. The logs, figures, tables and drawings should not be redrawn and included in any other documents and drawings etc. KP expressly disclaims responsibility for any liability which may arise from circumstances of issuance and quotation of this report in part, or incomplete, or its modification in any way whatsoever.

Sub-surface conditions are variable and may change with time. The interpretations presented in this report are based on factual information, obtained at a specific period of time and specific points of the site, and engineering judgement. As such, the interpretations in this report will have a level of uncertainty due to the limited works and services undertaken. The works and services undertaken by KP in connection with preparing this report were limited to those detailed in the scope of works.

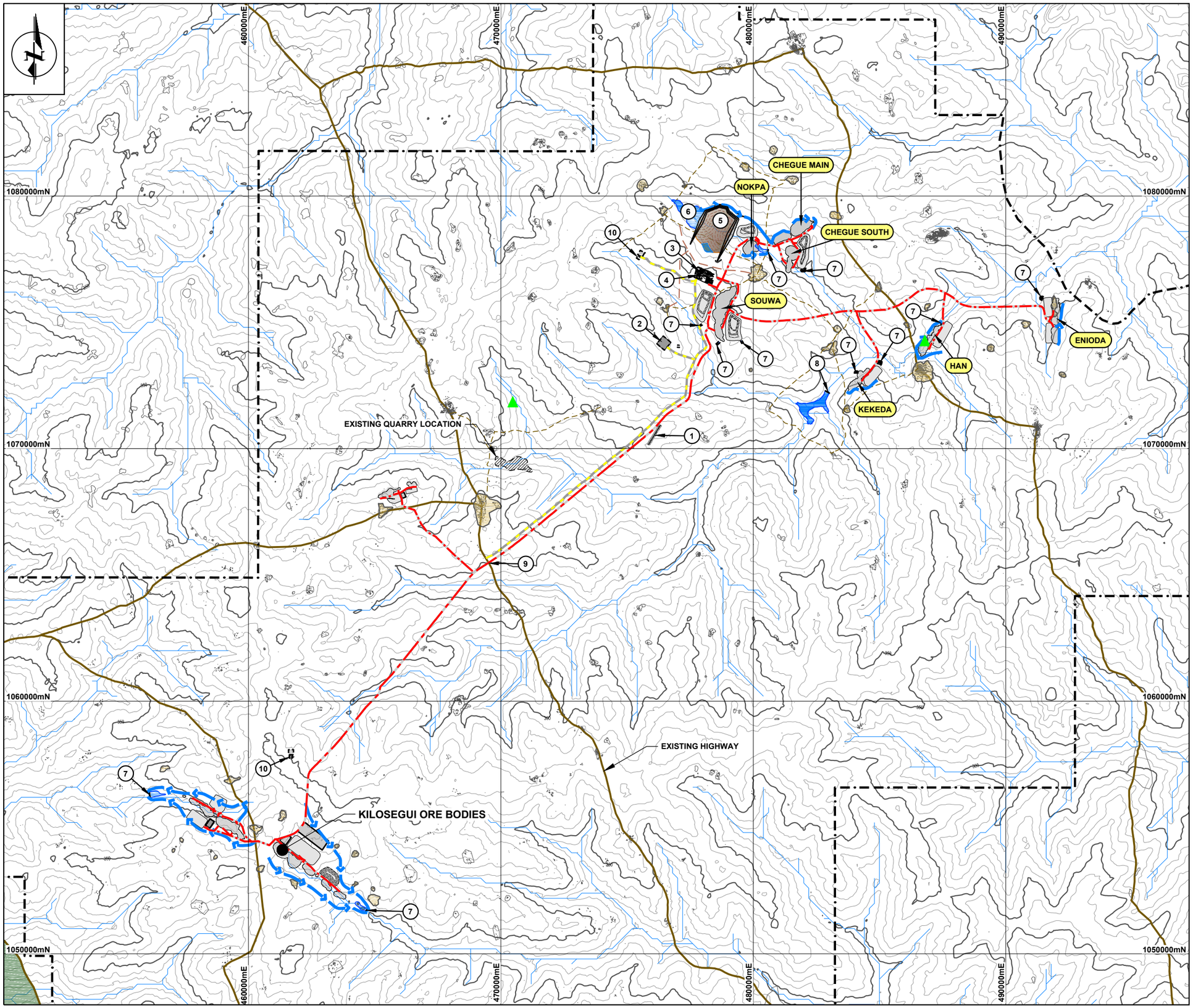
KP has prepared this report on the basis of information provided by the Client and others as noted, which KP has not independently verified or checked (unverified information). KP expressly disclaims responsibility in connection with the unverified information, including (but not limited to) errors in, or omissions from, this report that were caused or contributed to by errors in, or omissions from, the unverified information.

The opinions, conclusions and recommendations contained in this report are based on, but not limited to, assumptions described in this report when undertaking works, services and preparing this report. The assumptions cannot be substantiated until the project implementation has commenced and necessary verification works, including, but not limited to, construction supervision, instrumentation monitoring works, have been carried out according to KP's recommendations. KP expressly disclaims responsibility for any error in, or omission from, this report arising from or in connection with any of the unverified assumptions being incorrect.

If another party undertakes the implementation of, or construction according to, the opinion, conclusion and recommendations contained in this report, there is a risk that the same may be misinterpreted and KP cannot be held responsible for such misinterpretation.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and investigation undertaken at or in connection with, specific investigation points at site. Site conditions at other parts of the site may be different from the site conditions found at the specific investigation points. Actual site conditions may differ from those inferred to exist due to hidden conditions unrevealed and/or changes after the date of acquisition of information on which this report is based. The Client should retain the service of a suitably qualified and experienced Geotechnical Engineer through all development phases to carry out further investigations, if required, to identify any variance during construction/implementation and to determine solutions to problems due to the same.

FIGURES



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MAJOR)
- EXISTING UNSEALED ROAD (MINOR)
- TENEMENT BOUNDARY
- OUTCROP LOCATION
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL
- ORE BODY NAME

NOTES:

1. 10m CONTOUR INTERVALS SHOWN.
2. PIT SHELL EXTENTS PROVIDED BY CENTAMIN, FEBRUARY 2023.
3. FINAL STAGE TAILINGS STORAGE FACILITY SHOWN.

ITEM KEY:

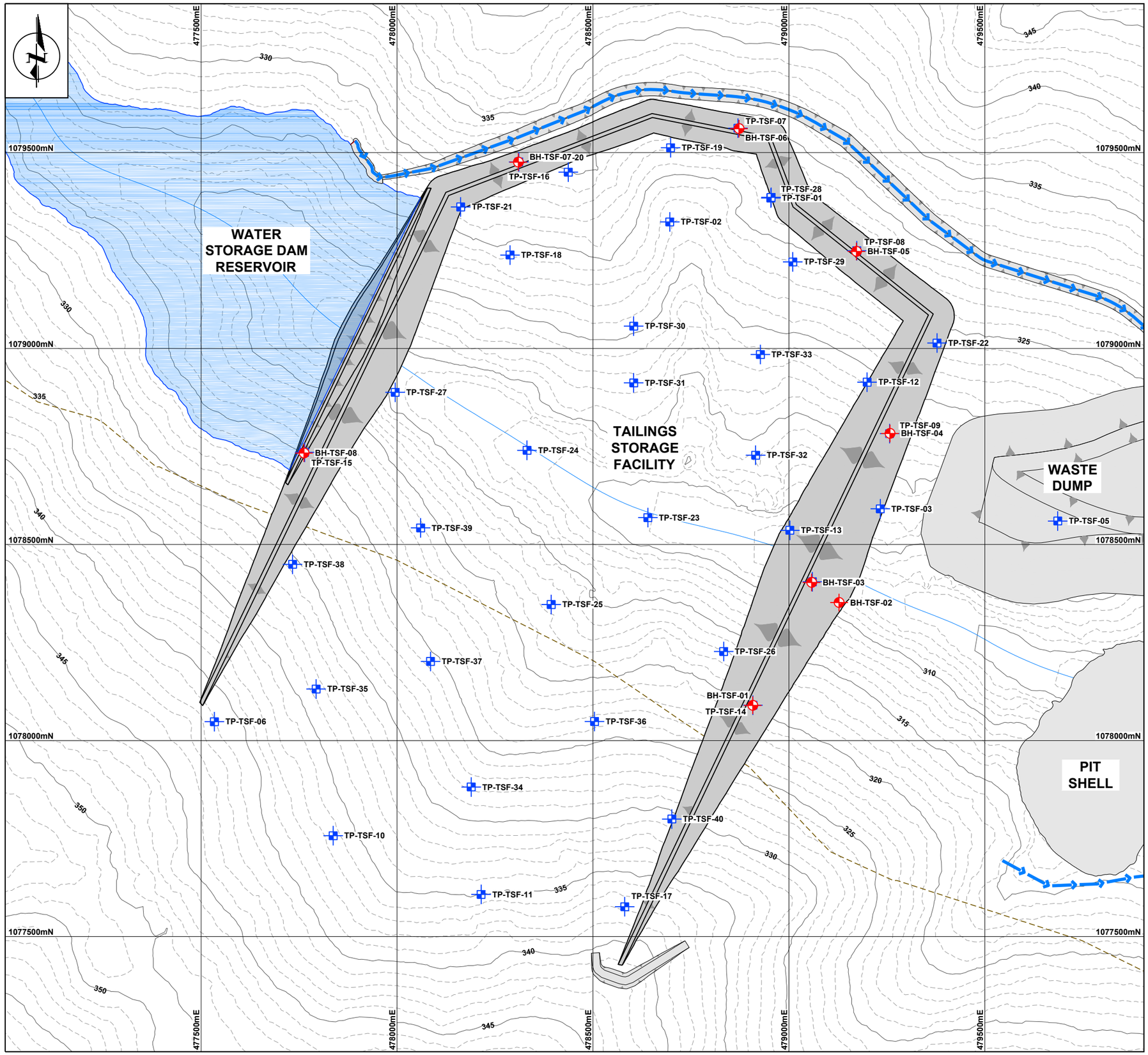
1. PROPOSED SITE AIRSTRIP
2. PROPOSED SITE ACCOMMODATION
3. PROPOSED SITE PLANT
4. PROPOSED ADMIN AREA
5. PROPOSED TAILINGS STORAGE FACILITY
6. PROPOSED WATER STORAGE DAM
7. PROPOSED SEDIMENT CONTROL STRUCTURE
8. PROPOSED WATER HARVEST DAM
9. PROPOSED OVERPASS
10. PROPOSED EXPLOSIVE MAGAZINE LOCATION

2000 1000 0 2500 5000 7500
SCALE (METRES) 1:150,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD MINE
FEASIBILITY STUDY GEOTECHNICAL SITE INVESTIGATION PLAN
GREATER SITE GENERAL ARRANGEMENT

PE301-00821/04
Figure 2.1



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MINOR)
- PROPOSED DIVERSION CHANNEL
- AS-BUILT BOREHOLE LOCATION
- AS-BUILT TEST PIT LOCATION

NOTES:

1. 10m CONTOUR INTERVALS SHOWN.
2. INHABITED ZONES AND EXISTING BUILDINGS PROVIDED, SEPTEMBER 2023.

AS-BUILT TEST PIT CO-ORDINATES

TP I.D.	EASTING (m)	NORTHING (m)
TP-TSF-01	478954.0	1079384.0
TP-TSF-02	478696.0	1079323.0
TP-TSF-03	479233.3	1078591.0
TP-TSF-04	479059.9	1078404.9
TP-TSF-05	479686.0	1078560.0
TP-TSF-06	477534.1	1078048.0
TP-TSF-07	478870.1	1079562.1
TP-TSF-08	479173.3	1079249.4
TP-TSF-09	479257.0	1078782.9
TP-TSF-10	477837.2	1077757.2
TP-TSF-11	478214.6	1077607.3
TP-TSF-12	479199.6	1078914.2
TP-TSF-13	479002.5	1078536.3
TP-TSF-14	478908.4	1078090.1
TP-TSF-15	477764.3	1078735.1
TP-TSF-16	478310.7	1079476.1
TP-TSF-17	478581.1	1077576.0
TP-TSF-18	478288.5	1079238.6
TP-TSF-19	478698.2	1079512.2
TP-TSF-20	478437.0	1079450.0
TP-TSF-21	478162.5	1079361.2
TP-TSF-22	479378.0	1079014.0
TP-TSF-23	478640.2	1078568.7
TP-TSF-24	478331.7	1078740.4
TP-TSF-25	478393.4	1078347.0
TP-TSF-26	478833.6	1078227.1
TP-TSF-27	477995.3	1078888.3
TP-TSF-28	478954.6	1079385.6
TP-TSF-29	479010.0	1079221.0
TP-TSF-30	478604.0	1079057.1
TP-TSF-31	478604.0	1078912.4
TP-TSF-32	478915.2	1078727.8
TP-TSF-33	478927.3	1078984.7
TP-TSF-34	478189.4	1077881.4
TP-TSF-35	477793.7	1078131.3
TP-TSF-36	478504.1	1078048.5
TP-TSF-37	478085.6	1078201.8
TP-TSF-38	477733.6	1078449.5
TP-TSF-39	478060.3	1078542.4
TP-TSF-40	478701.3	1077799.7

AS-BUILT BOREHOLE CO-ORDINATES

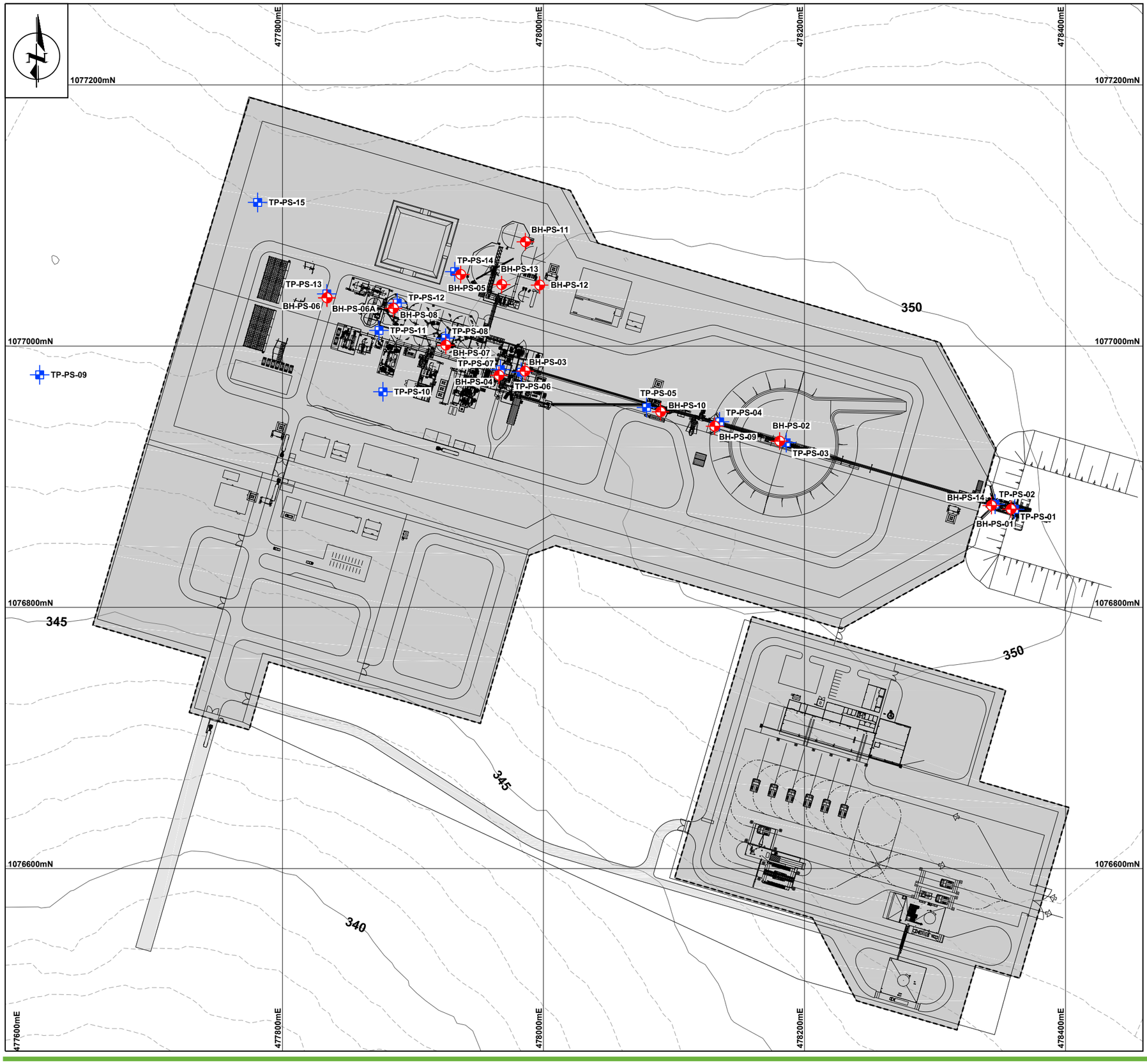
BH I.D.	EASTING (m)	NORTHING (m)
BH-TSF-01	478907.8	1078089.8
BH-TSF-02	479128.1	1078351.8
BH-TSF-03	479057.9	1078403.3
BH-TSF-04	479258.0	1078783.4
BH-TSF-05	479172.3	1079247.8
BH-TSF-06	478872.8	1079561.0
BH-TSF-07	478309.5	1079475.5
BH-TSF-08	477762.7	1078733.6

200 150 100 50 0 100 200 300 400
SCALE (METRES)
1:10,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD MINE
FEASIBILITY STUDY GEOTECHNICAL SITE INVESTIGATION PLAN
TAILINGS STORAGE FACILITY

PE301-00821/04
Figure 3.1



LEGEND:

- AS-BUILT BOREHOLE LOCATION
- AS-BUILT TEST PIT LOCATION

NOTES:

1. 10m CONTOUR INTERVALS SHOWN.
2. INHABITED ZONES AND EXISTING BUILDINGS PROVIDED, SEPTEMBER 2023.

AS-BUILT BOREHOLE CO-ORDINATES

BH I.D.	EASTING (m)	NORTHING (m)
BH-PS-01	478358.3	1076875.2
BH-PS-02	478180.9	1076927.3
BH-PS-03	477985.9	1076980.7
BH-PS-04	477965.9	1076977.6
BH-PS-05	477936.6	1077054.8
BH-PS-06	477834.3	1077036.7
BH-PS-06A	477834.0	1077037.0
BH-PS-07	477925.2	1077000.7
BH-PS-08	477885.0	1077029.0
BH-PS-09	478131.2	1076938.6
BH-PS-10	478089.7	1076949.7
BH-PS-11	477986.2	1077079.9
BH-PS-12	477997.1	1077046.8
BH-PS-13	477968.0	1077047.0
BH-PS-14	478343.2	1076878.0

AS-BUILT TEST PIT CO-ORDINATES

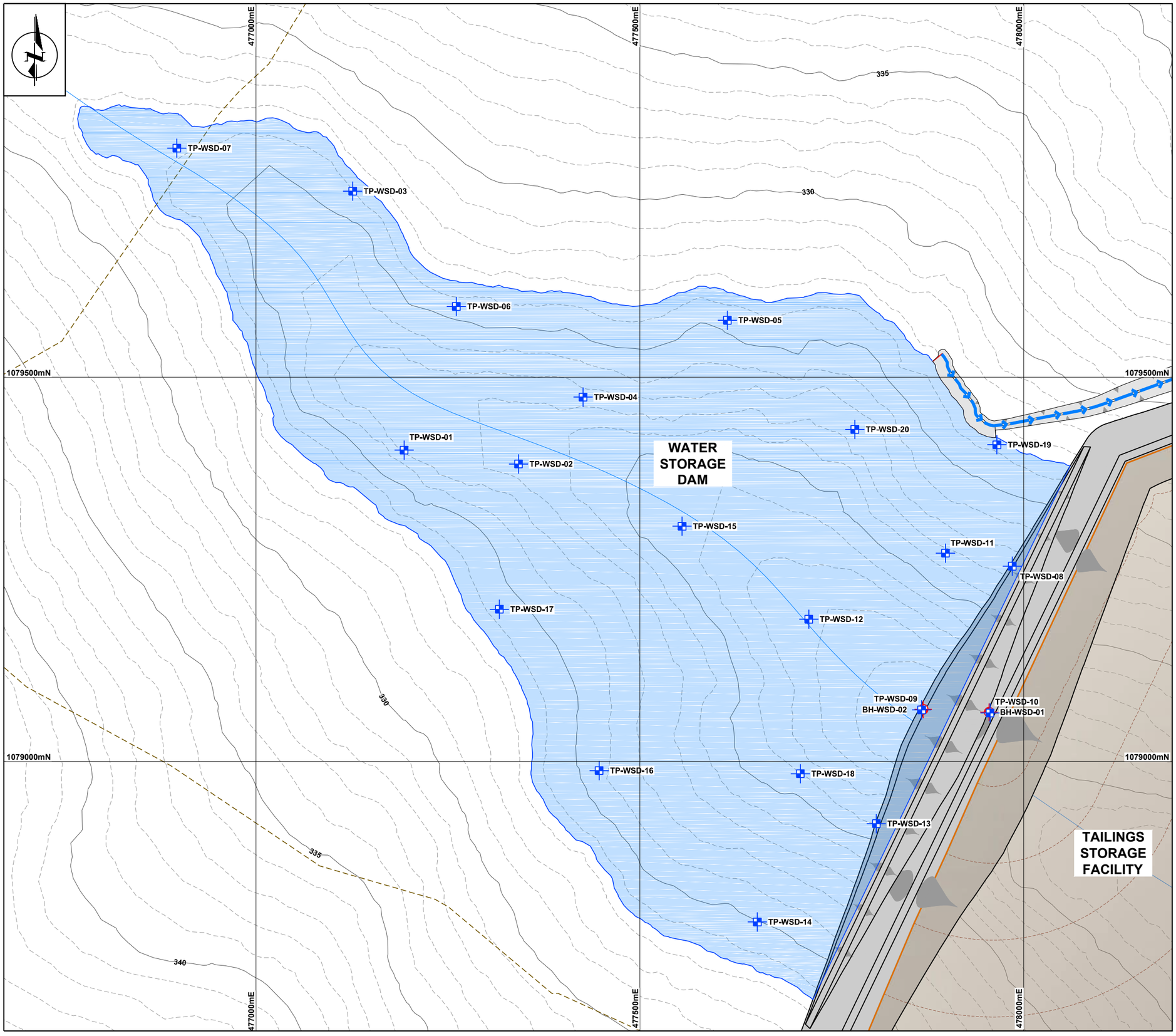
TP I.D.	EASTING (m)	NORTHING (m)
TP-PS-01	478361.0	1076875.0
TP-PS-02	478346.0	1076879.0
TP-PS-03	478186.0	1076926.0
TP-PS-04	478135.0	1076942.0
TP-PS-05	478079.0	1076953.0
TP-PS-06	477983.0	1076980.0
TP-PS-07	477967.0	1076982.0
TP-PS-08	477925.0	1077006.0
TP-PS-09	477614.0	1076978.0
TP-PS-10	477877.0	1076965.0
TP-PS-11	477874.0	1077012.0
TP-PS-12	477888.0	1077033.0
TP-PS-13	477834.0	1077040.0
TP-PS-14	477932.0	1077057.0
TP-PS-15	477781.0	1077110.0

160 45 30 15 0 30 60 90 120
SCALE (METRES) 1:3,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD MINE
FEASIBILITY STUDY GEOTECHNICAL SITE INVESTIGATION PLAN
PROCESS PLANT

PE301-00821/04
Figure 3.2



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MINOR)
- WATER STORAGE RESERVOIR
- TAILINGS STORAGE FACILITY
- PROPOSED DIVERSION CHANNEL
- AS-BUILT BOREHOLE LOCATION
- AS-BUILT TEST PIT LOCATION

NOTES:

1. 10m CONTOUR INTERVALS SHOWN.
2. INHABITED ZONES AND EXISTING BUILDINGS PROVIDED, SEPTEMBER 2023.

AS-BUILT BOREHOLE CO-ORDINATES

BH I.D.	EASTING (m)	NORTHING (m)
BH-WSD-01	477954.7	1079064.0
BH-WSD-02	477869.0	1079067.7

AS-BUILT TEST PIT CO-ORDINATES

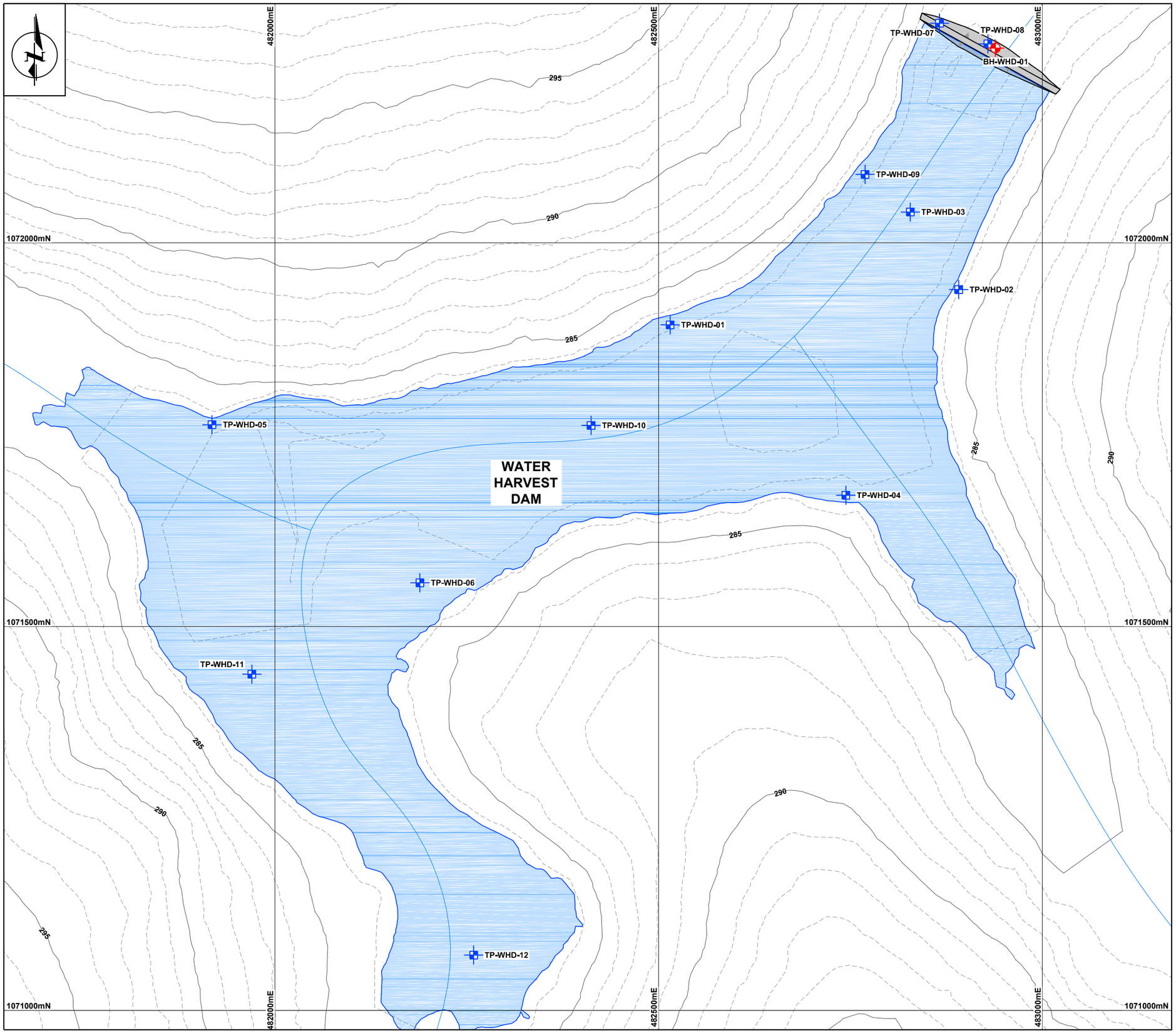
TP I.D.	EASTING (m)	NORTHING (m)
TP-WSD-01	477193.0	1079405.0
TP-WSD-02	477342.0	1079387.0
TP-WSD-03	477126.0	1079742.0
TP-WSD-04	477426.0	1079474.0
TP-WSD-05	477614.0	1079574.0
TP-WSD-06	477261.0	1079592.0
TP-WSD-07	476897.0	1079798.0
TP-WSD-08	477985.0	1079254.0
TP-WSD-09	477867.0	1079067.0
TP-WSD-10	477956.0	1079063.0
TP-WSD-11	477898.0	1079271.0
TP-WSD-12	477720.0	1079185.0
TP-WSD-13	477808.0	1078919.0
TP-WSD-14	477653.0	1078791.0
TP-WSD-15	477555.0	1079306.0
TP-WSD-16	477447.0	1078988.0
TP-WSD-17	477317.0	1079198.0
TP-WSD-18	477709.0	1078984.0
TP-WSD-19	477965.0	1079412.0
TP-WSD-20	477780.0	1079432.0

100 75 50 25 0 50 100 150 200
SCALE (METRES) 1:5,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD MINE
FEASIBILITY STUDY GEOTECHNICAL SITE INVESTIGATION PLAN
WATER STORAGE DAM

PE301-00821/04
Figure 3.3



LEGEND:

- WATER COURSE
- WATER HARVEST DAM
- AS-BUIL BOREHOLE LOCATION
- AS-BUILT TEST PIT LOCATION

NOTES:

1. 10m CONTOUR INTERVALS SHOWN.
2. INHABITED ZONES AND EXISTING BUILDINGS PROVIDED, SEPTEMBER 2023.

AS-BUILT BOREHOLE CO-ORDINATES

BH I.D.	EASTING (m)	NORTHING (m)
BH-WHD-01	482938.9	1072253.6

AS-BUILT TEST PIT CO-ORDINATES

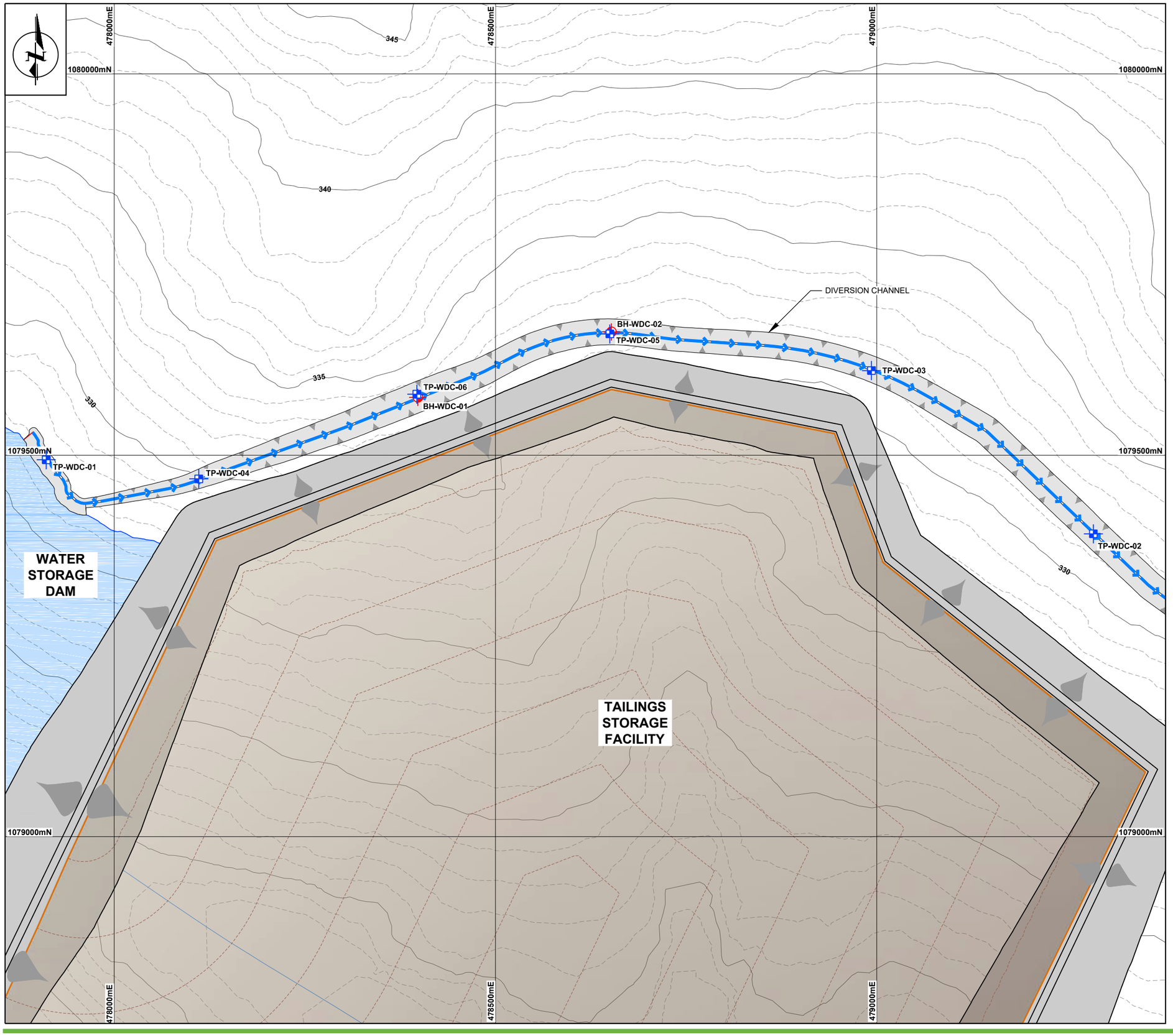
TP I.D.	EASTING (m)	NORTHING (m)
TP-WHD-01	482515.0	1071893.0
TP-WHD-02	482891.0	1071939.0
TP-WHD-03	482828.0	1072040.0
TP-WHD-04	482744.0	1071671.0
TP-WHD-05	481918.0	1071763.0
TP-WHD-06	482189.0	1071557.0
TP-WHD-07	482866.0	1072286.0
TP-WHD-08	482929.0	1072259.0
TP-WHD-09	482769.0	1072089.0
TP-WHD-10	482412.0	1071762.0
TP-WHD-11	481970.0	1071438.0
TP-WHD-12	482259.0	1071072.0

100 75 50 25 0 50 100 150 200
SCALE (METRES) 1:5,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD MINE
FEASIBILITY STUDY GEOTECHNICAL SITE INVESTIGATION PLAN
WATER HARVEST DAM

PE301-00821/04
Figure 3.4



LEGEND:

- WATER COURSE
- WATER STORAGE DAM RESERVOIR
- TAILINGS STORAGE FACILITY
- PROPOSED DIVERSION CHANNEL
- AS-BUIL BOREHOLE LOCATION
- AS-BUILT TEST PIT LOCATION

NOTES:

1. 10m CONTOUR INTERVALS SHOWN.
2. INHABITED ZONES AND EXISTING BUILDINGS PROVIDED, SEPTEMBER 2023.

AS-BUILT BOREHOLE CO-ORDINATES

BH I.D.	EASTING (m)	NORTHING (m)
BH-WDC-01	478398.2	1079575.7
BH-WDC-02	478652.1	1079661.6

AS-BUILT TEST PIT CO-ORDINATES

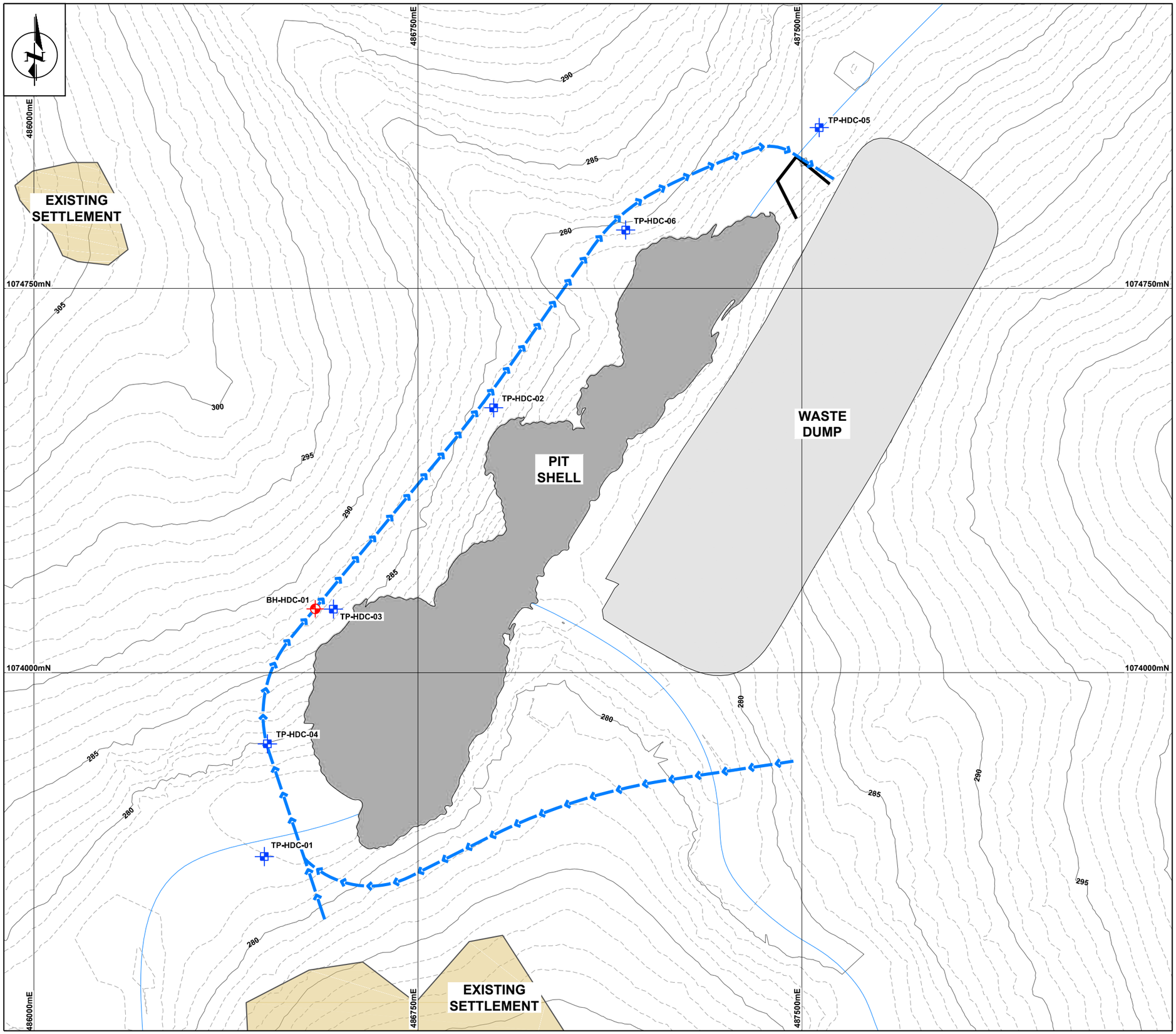
TP I.D.	EASTING (m)	NORTHING (m)
TP-WDC-01	477911.0	1079494.0
TP-WDC-02	479284.0	1079397.0
TP-WDC-03	478993.0	1079611.0
TP-WDC-04	478111.0	1079469.0
TP-WDC-05	478650.0	1079659.0
TP-WDC-06	478397.0	1079580.0

100 75 50 25 0 50 100 150 200
SCALE (METRES) 1:5,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD MINE
FEASIBILITY STUDY GEOTECHNICAL SITE INVESTIGATION PLAN
WDC DIVERSION CHANNEL

PE301-00821/04
Figure 3.5



LEGEND:

- WATER COURSE
- EXISTING SETTLEMENT
- PROPOSED DIVERSION CHANNEL
- AS-BUIL BOREHOLE LOCATION
- AS-BUILT TEST PIT LOCATION

NOTES:

1. 10m CONTOUR INTERVALS SHOWN.
2. INHABITED ZONES AND EXISTING BUILDINGS PROVIDED, SEPTEMBER 2023.

AS-BUILT BOREHOLE CO-ORDINATES

BH I.D.	EASTING (m)	NORTHING (m)
BH-HDC-01	486549.3	1074124.5

AS-BUILT TEST PIT CO-ORDINATES

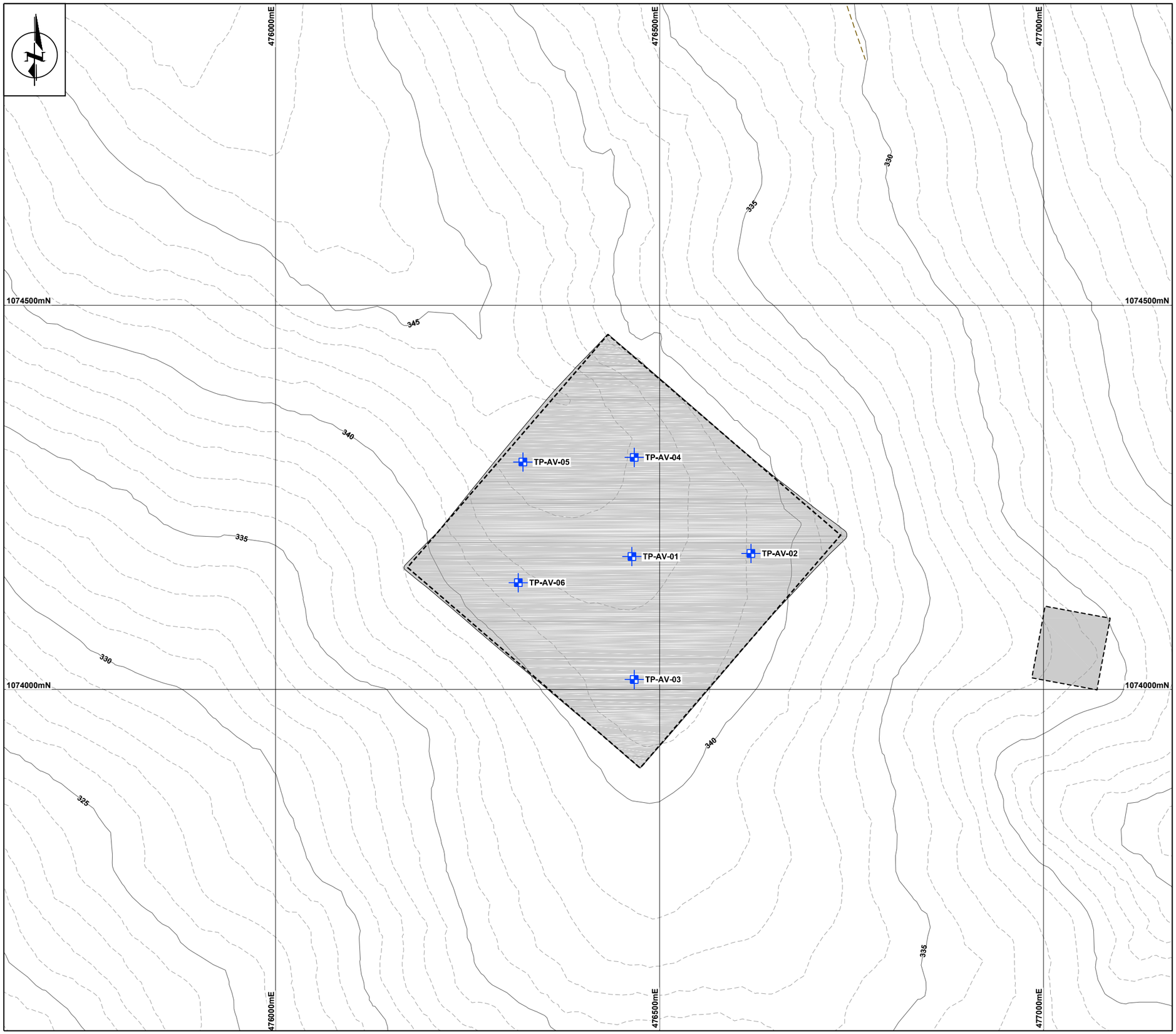
TP I.D.	EASTING (m)	NORTHING (m)
TP-HDC-01	486450.0	1073641.0
TP-HDC-02	486898.0	1074517.0
TP-HDC-03	486585.0	1074124.0
TP-HDC-04	486456.0	1073861.0
TP-HDC-05	487534.0	1075064.0
TP-HDC-06	487156.0	1074864.0

100 50 0 100 200 300
SCALE (METRES) 1:7,500 (A3)

Knight Piésold CONSULTING

DOROPO GOLD MINE
FEASIBILITY STUDY GEOTECHNICAL SITE INVESTIGATION PLAN
HAND PIT DIVERSION CHANNEL

PE301-00821/04
Figure 3.6



LEGEND:

AS-BUILT TEST PIT LOCATION

NOTES:

1. 10m CONTOUR INTERVALS SHOWN.
2. INHABITED ZONES AND EXISTING BUILDINGS PROVIDED, SEPTEMBER 2023.

AS-BUILT TEST PIT CO-ORDINATES

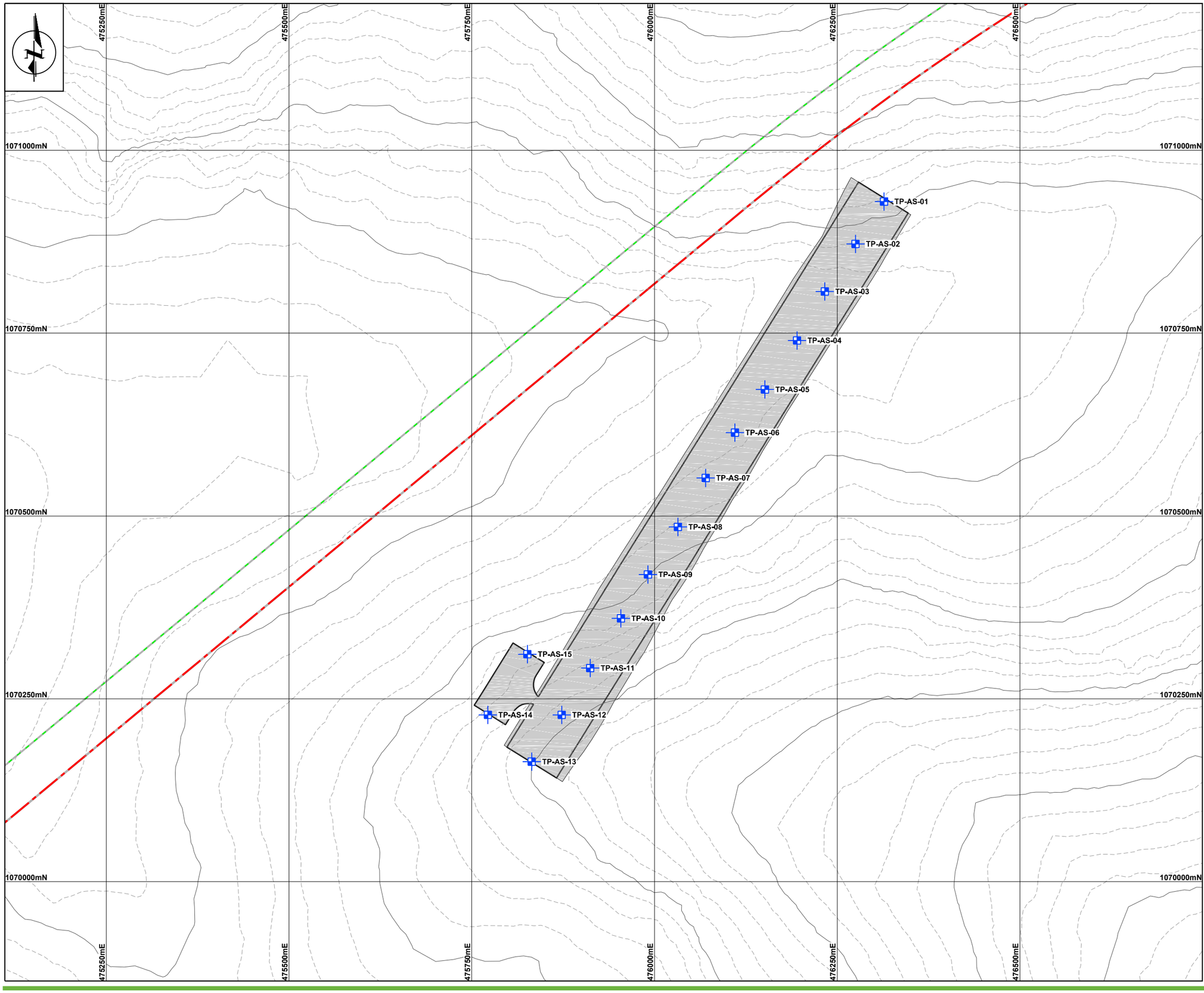
TP I.D.	EASTING (m)	NORTHING (m)
TP-AV-01	476464.0	1074173.0
TP-AV-02	476619.0	1074177.0
TP-AV-03	476467.0	1074013.0
TP-AV-04	476467.0	1074302.0
TP-AV-05	476322.0	1074296.0
TP-AV-06	476316.0	1074139.0

100 75 50 25 0 50 100 150 200
SCALE (METRES) 1:5,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD MINE
FEASIBILITY STUDY GEOTECHNICAL SITE INVESTIGATION PLAN
ACCOMMODATION VILLAGE

PE301-00821/04
Figure 3.7



LEGEND:

- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- AS-BUILT TEST PIT LOCATION

NOTES:

1. 10m CONTOUR INTERVALS SHOWN.
2. INHABITED ZONES AND EXISTING BUILDINGS PROVIDED, SEPTEMBER 2023.

AS-BUILT TEST PIT CO-ORDINATES

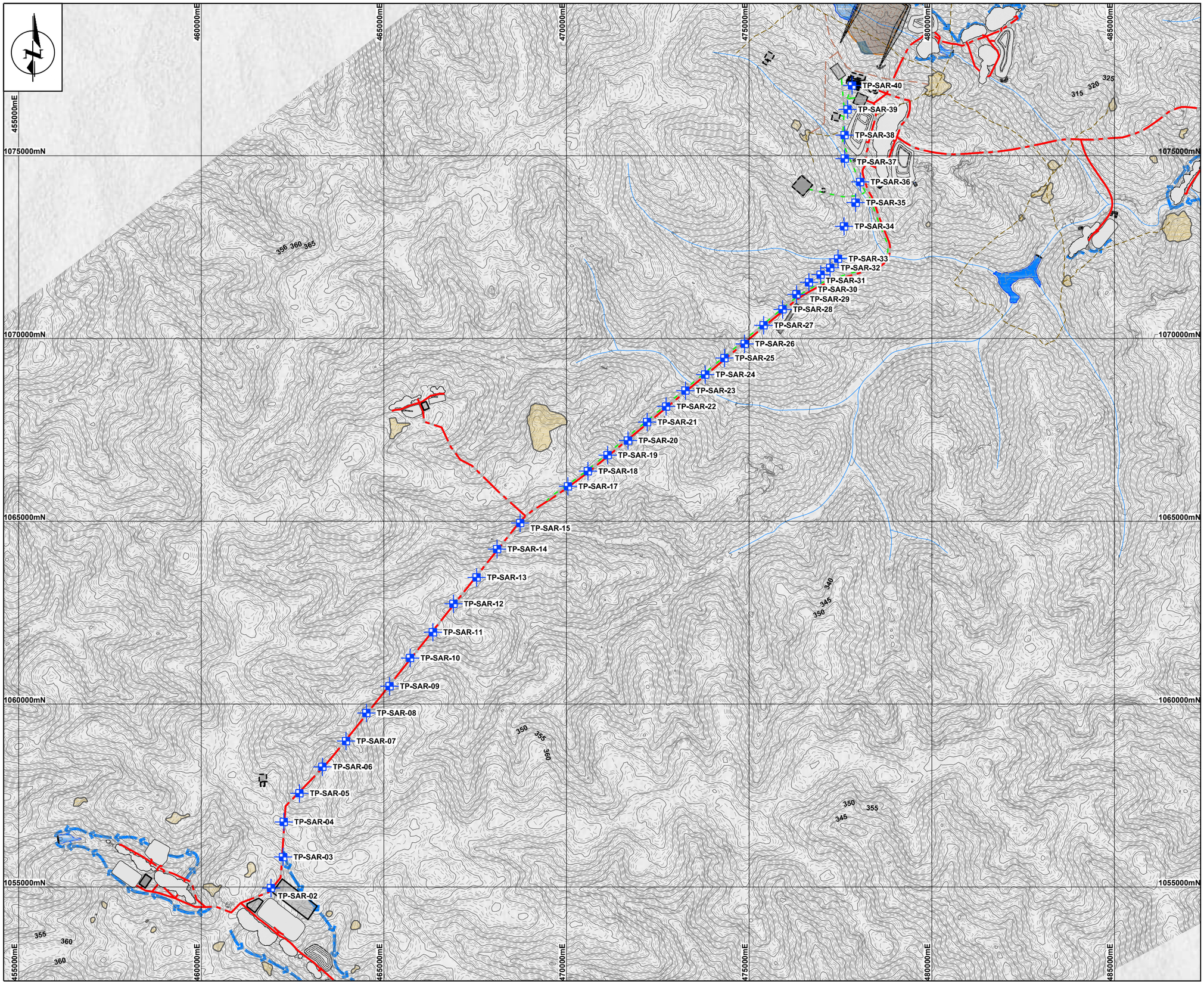
TP I.D.	EASTING (m)	NORTHING (m)
TP-AS-01	476314.0	1070930.0
TP-AS-02	476275.0	1070872.0
TP-AS-03	476233.0	1070807.0
TP-AS-04	476195.0	1070740.0
TP-AS-05	476151.0	1070673.0
TP-AS-06	476110.0	1070614.0
TP-AS-07	476070.0	1070552.0
TP-AS-08	476032.0	1070485.0
TP-AS-09	475991.0	1070420.0
TP-AS-10	475954.0	1070360.0
TP-AS-11	475912.0	1070292.0
TP-AS-12	475873.0	1070228.0
TP-AS-13	475832.0	1070164.0
TP-AS-14	475772.0	1070228.0
TP-AS-15	475826.0	1070311.0

100 75 50 25 0 50 100 150 200
SCALE (METRES) 1:5,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD MINE
FEASIBILITY STUDY GEOTECHNICAL SITE INVESTIGATION PLAN
AIRSTRIP

PE301-00821/04
Figure 3.8



LEGEND:

- WATER COURSE
- EXISTING SETTLEMENT
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- AS-BUILT TEST PIT LOCATION

NOTES:

1. 10m CONTOUR INTERVALS SHOWN.
2. INHABITED ZONES AND EXISTING BUILDINGS PROVIDED, SEPTEMBER 2023.

AS-BUILT TEST PIT CO-ORDINATES

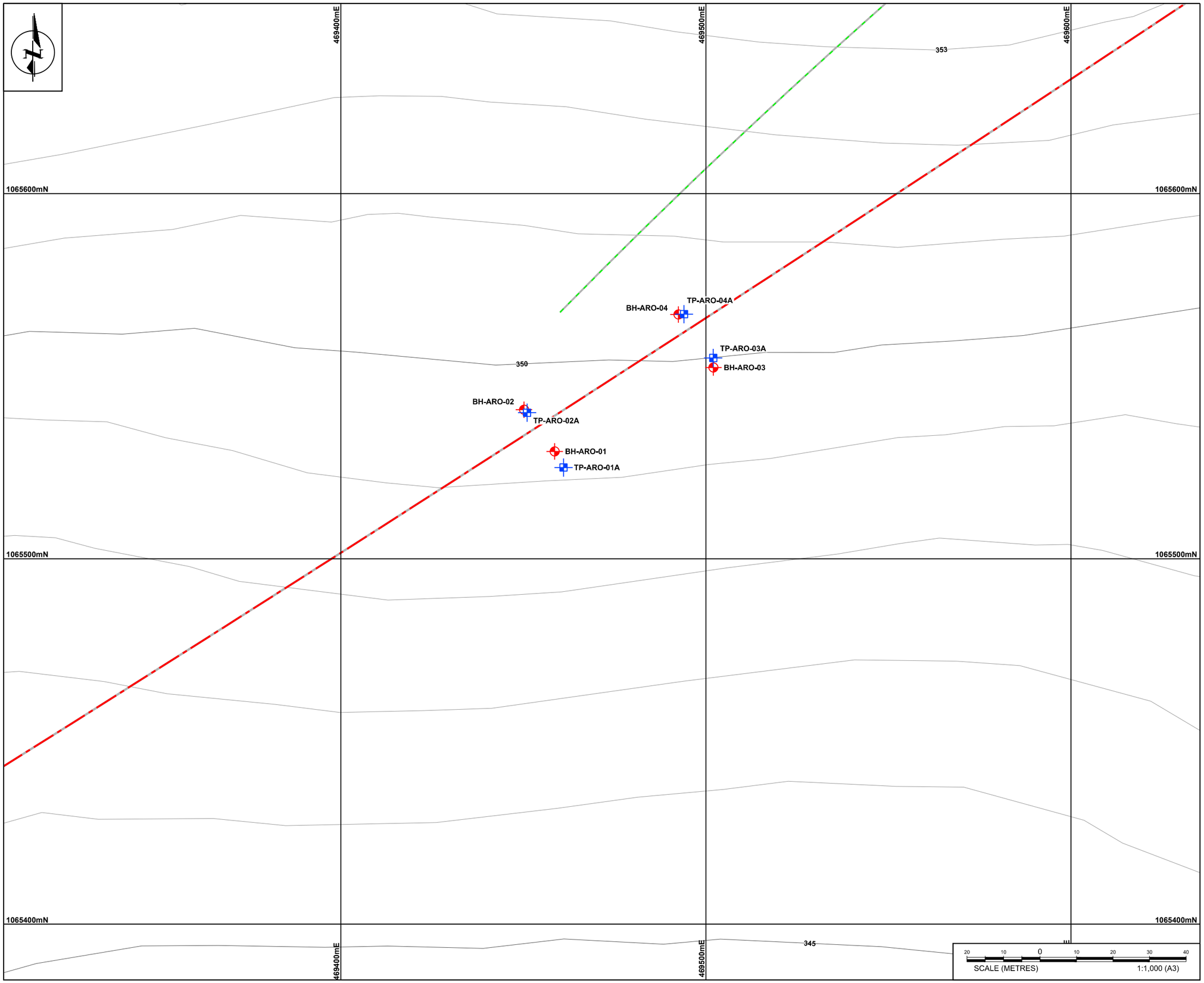
TP I.D.	EASTING (m)	NORTHING (m)
TP-SAR-02	461907.0	1054970.0
TP-SAR-03	462238.0	1055818.0
TP-SAR-04	462258.0	1056778.0
TP-SAR-05	462686.0	1057560.0
TP-SAR-06	463316.0	1058285.0
TP-SAR-07	463962.0	1058990.0
TP-SAR-08	464519.0	1059757.0
TP-SAR-09	465153.0	1060490.0
TP-SAR-10	465717.0	1061261.0
TP-SAR-11	466340.0	1061966.0
TP-SAR-12	466904.0	1062744.0
TP-SAR-13	467538.0	1063466.0
TP-SAR-14	468099.0	1064241.0
TP-SAR-15	468730.0	1064953.0
TP-SAR-17	470038.0	1065956.0
TP-SAR-18	470585.0	1066372.0
TP-SAR-19	471124.0	1066809.0
TP-SAR-20	471683.0	1067209.0
TP-SAR-21	472207.0	1067714.0
TP-SAR-22	472726.0	1068140.0
TP-SAR-23	473256.0	1068575.0
TP-SAR-24	473796.0	1069014.0
TP-SAR-25	474324.0	1069466.0
TP-SAR-26	474877.0	1069854.0
TP-SAR-27	475394.0	1070362.0
TP-SAR-28	475915.0	1070797.0
TP-SAR-29	476297.0	1071208.0
TP-SAR-30	476637.0	1071536.0
TP-SAR-31	476956.0	1071745.0
TP-SAR-32	477217.0	1071934.0
TP-SAR-33	477434.0	1072181.0
TP-SAR-34	477599.0	1073068.0
TP-SAR-35	477915.0	1073716.0
TP-SAR-36	478040.0	1074282.0
TP-SAR-37	477616.0	1074922.0
TP-SAR-38	477613.0	1075564.0
TP-SAR-39	477693.0	1076265.0
TP-SAR-40	477817.0	1076920.0

2000 1000 0 2000 4000
SCALE (METRES) 1:100,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD MINE
FEASIBILITY STUDY GEOTECHNICAL SITE INVESTIGATION PLAN
SITE ACCESS ROAD

PE301-00821/04
Figure 3.9



LEGEND:

- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- AS-BUILT BOREHOLE LOCATION
- AS-BUILT TEST PIT LOCATION

NOTES:

1. 10m CONTOUR INTERVALS SHOWN.
2. INHABITED ZONES AND EXISTING BUILDINGS PROVIDED, SEPTEMBER 2023.

AS-BUILT BOREHOLE CO-ORDINATES

BH I.D.	EASTING (m)	NORTHING (m)
BH-ARO-01	469458.6	1065529.4
BH-ARO-02	469450.2	1065540.8
BH-ARO-03	469502.1	1065552.4
BH-ARO-04	469492.5	1065566.9

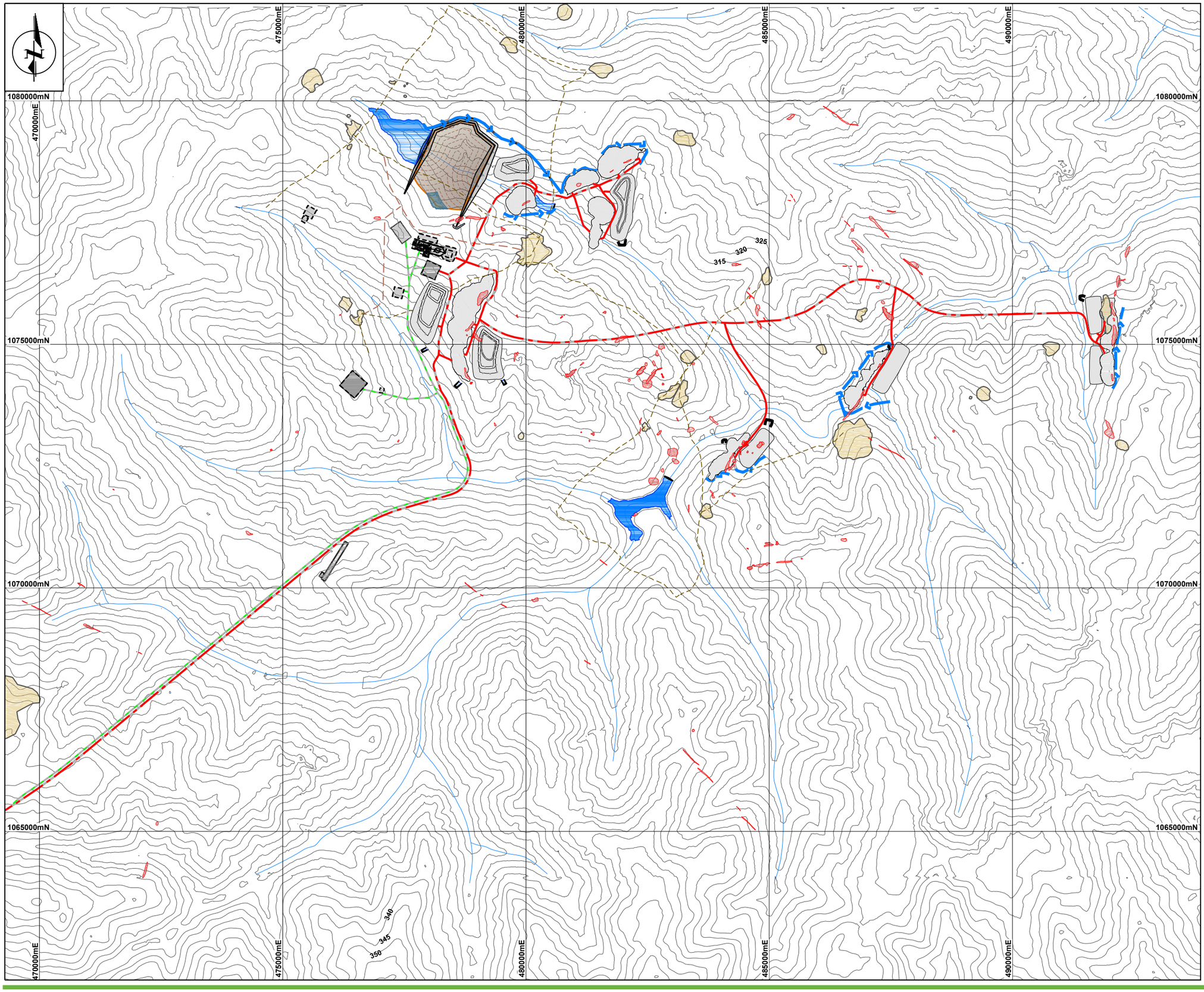
AS-BUILT TEST PIT CO-ORDINATES

TP I.D.	EASTING (m)	NORTHING (m)
TP-ARO-01A	469461.0	1065525.0
TP-ARO-02A	469451.0	1065540.0
TP-ARO-03A	469502.0	1065555.0
TP-ARO-04A	469494.0	1065567.0

Knight Piésold CONSULTING

DOROPO GOLD MINE
FEASIBILITY STUDY GEOTECHNICAL SITE INVESTIGATION PLAN
ACCESS ROAD OVERPASS

PE301-00821/04
Figure 3.10



LEGEND:

- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- AS-BUILT TEST PIT LOCATION
- ARTISANAL PITS

NOTES:

1. 10m CONTOUR INTERVALS SHOWN.
2. INHABITED ZONES AND EXISTING BUILDINGS PROVIDED, SEPTEMBER 2023.
3. ARTISANAL PITS PROVIDED BY CENTAMIN, MARCH 2024.

1000 500 0 1000 2000 3000
SCALE (METRES) 1:75,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD MINE
FEASIBILITY STUDY GEOTECHNICAL SITE INVESTIGATION PLAN
ARTISANAL MINING PITS

PE301-00821/04
Figure 4.1

APPENDIX A

Borehole Logs and Core Photographs

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-01**
Sheet 1 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	**GRAVEL**, clayey, with sand, red brown, dry.	-	-			
					0.3m	TOPSOIL	D	-			
60	27	-	-			Sand particles are medium to coarse grained and sub-rounded.					
					1	**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, slightly moist, dense. COLLUVIUM					
						Sand particles are medium to coarse grained.				8, 17, 16 N =33	
					2	2m **CLAY**, sandy, with gravel, low plasticity, off white, moist (<plastic limit), hard. RESIDUAL	Hd	RS			
80	47	-	-			Sand particles are medium to coarse grained and sub-rounded.					
					3					16, 30, 30/93mm N =Refusal	
						3.5m Recovered as: **SAND**, silty, with gravel, non-plastic fines, yellow brown, very dense. EXTREMELY WEATHERED MATERIAL	D	XW			
97	60	-	-		4	Parent rock structure evident.					
										50/120mm, -, - N =Refusal	
					5						
100	53	-	-			5.5m **GRANODIORITE**, medium to coarse grained, off white, very low to low strength, highly to moderately weathered rock.	VLS-LS	HW-MW			
					6					30/25mm, -, - N =Refusal	
						6.2m Becoming; porphyritic, massive and low strength.	LS	MW			
100	61	53	>10		7						
						7.3m **GRANODIORITE**, medium to coarse grained, off	LS	HW			
						7.5m white, low strength, highly weathered rock.	LS	MW			
						Becoming; porphyritic, massive and moderately weathered rock.					
97	87	80	>10		8						
					9	9m **GRANODIORITE**, medium to coarse grained, off white, low strength, highly weathered rock.	LS	HW	Core has washed out and core recovery was 33%.		
33	0	0	>10								

NOTES:

Water Level Indicator
Core Sample
Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1
LOGGED BY : MSI
CHECKED BY :

DATE STARTED : 5/12/2023
DATE PROFILED : 7/12/2023
HOLE SIZE : HQ

NORTHING : 1078089.752
EASTING : 478907.83
ELEVATION : 320.2831
INCLINATION: -90

KP_BH_2013_REV_0_DOROPO TSF BH 2024 05 09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-01**	
Sheet 2 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
						10.5m Becoming; off white and yellow brown.	LS	HW			
100	80	80	>10		11	10.8m **GRANODIORITE**, medium to coarse grained, off white, low strength, highly weathered rock.	LS	MW			
97	67	56	>10		12	12m Becoming; off white and yellow brown.	LS	HW			
						12.3m **GRANODIORITE**, medium to coarse grained, porphyritic, massive, off white, low strength, moderately weathered rock.	LS	MW			
13	0	0	>10		13	13.3m Becoming; porphyritic, massive and highly weathered rock.	LS	HW			
87	80	73	10		14	15m Becoming; moderately weathered rock.	LS	MW			
						15.75m Becoming; pale grey, high to very high strength and slightly weathered rock.	HS-VHS	SW			
100	98	92	6		15	17m Becoming; off white, medium strength and moderately weathered rock.	MS	MW			
						17.2m Becoming; pale grey, very high strength and slightly weathered rock.	VHS	SW			
96	96	96	0		16	18.2m Becoming; fresh rock.	VHS	FR			18.9 – 19.3
100	100	100	0		17						
97	95	95	2		18						
					19						
					20						
					21						

KP_BH_2013_REV_0_DOROPO TSF BH 2024 05 09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-01**	
Sheet 3 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22						22.5 ↑
100	100	100	0		23						↓ 22.9
					24	Borehole BH-TSF-01 terminated at 24 m depth.					
					25						
					26						
					27						
					28						
					29						
					30						
					31						
					32						
					33						

KP_BH_2013_REV_0_DOROPO TSF BH 2024 05 09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-02**
Sheet 1 of 2 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	**GRAVEL**, clayey, with sand, medium plasticity fines, dark brown, dry.	-	-			
					0.35m	TOPSOIL	D	-			
100	90	-	-		1	Sand particles are medium to coarse grained and sub-rounded. **GRAVEL**, clayey, with sand, medium plasticity fines, orange brown, dry to slightly moist, dense. COLLUVIUM				13, 15, 20 N =35	
					1.8m	Sand particles are medium to coarse grained and sub-angular. Gravel particles are fine to medium grained, sub-angular and low strength.	Hd	RS			
94	53	-	-		2						
					2.4m	**CLAY**, sandy, medium plasticity, yellow brown, moist (<plastic limit), hard. RESIDUAL	VD	XW			
					3	Sand particles are medium to coarse grained and sub-angular.				47, 30/20mm, - N =Refusal	
100	69	-	-		4	Recovered as: **SAND**, silty, with gravel, non-plastic fines, yellow brown, very dense. EXTREMELY WEATHERED MATERIAL Parent rock structure evident.				30/20mm, -, - N =Refusal	
					4.7m	**GRANODIORITE**, medium to coarse grained, granular, massive, pale brown and yellow brown and off white, low strength, moderately weathered rock.	LS	MW			5.45
100	92	85	>10		5						5.75
					6m	Becoming; porphyritic, pale grey, very high strength and slightly weathered rock.	VHS	SW		30/10mm, -, - N =Refusal	
99	97	97	0		7						7.22
					7.5m	Becoming; massive, pale brown and off white, medium strength and moderately weathered rock.	MS	MW	Crushed seams were identified.		7.5
					8.1m	Becoming; pale grey, very high strength and slightly weathered rock.	VHS	SW-FR	Horizontal joint face was identified. Crushed seams were identified.		7.94
97	95	85	>10		8						
					9m	Becoming; fresh rock.	VHS	FR			
98	98	98	0		9						

NOTES:

Water Level Indicator
Core Sample
Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1
LOGGED BY : MSI
CHECKED BY :

DATE STARTED : 8/12/2023
DATE PROFILED : 9/12/2023
HOLE SIZE : HQ

NORTHING : 1078351.824
EASTING : 479128.128
ELEVATION : 308.3933
INCLINATION: -90

KP_BH_2013_REV_0_DOROPO TSF BH 2024 05 09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-02**	
Sheet 2 of 2	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					10						
						10.5m Becoming; slightly weathered rock.	VHS	SW			
100	97	93	1		11						
					12	12m Becoming; fresh rock.	VHS	FR			12 ↑ 12.39 ↓
97	97	97	0		13						
						13.5m Becoming; slightly weathered rock.	VHS	SW			
98	73	73	>10		14	14.36m **GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale brown and off white, medium strength, moderately weathered rock.	MS	MW			
						14.6m Crushed seams present.	VHS	SW			
					15	Becoming; pale grey, very high strength and slightly weathered rock. Borehole BH-TSF-02 terminated at 15 m depth.					
					16						
					17						
					18						
					19						
					20						
					21						

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-03**	
Sheet 1 of 2	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	**CLAY**, with sand, medium plasticity, dark brown, moist (<plastic limit).	-	-			
					0.4m	TOPSOIL	Vst	-			
77	67	-	-		1	Sand particles are medium to coarse grained and sub-rounded.					
					1.35m	**CLAY**, with sand, medium plasticity, brown, moist (<plastic limit), very stiff. ALLUVIUM	Vst	-		11, 10, 12 N =22	
60	40	-	-		2	Sand particles are medium grained and sub-angular. **CLAY**, sandy, medium plasticity, brown to grey, moist (~plastic limit), very stiff. ALLUVIUM					
					3	Sand particles are medium grained and sub-angular.					
					3m	**CLAY**, with sand, medium plasticity, grey, moist (~plastic limit), firm. ALLUVIUM	Fm	-	Core loss occurred.	3, 4, 5 N =9	
0	0	-	-								3.5
100	100	-	-		3.8m	Sand particles are fine to medium grained and sub-angular.	-	-			3.8
					4m		VLS	HW			
100	29	-	-		4	**CLAY**, sandy, medium plasticity, grey, moist. ALLUVIUM				50/140mm, -, - N =Refusal	
					5	Sand particles are medium grained and sub-angular. **GRANODIORITE**, medium to coarse grained, granular, yellow-brown, very low strength, highly weathered rock. Crushed seams present.			Crushed seams were identified.		
77	53	39	>10						Crushed seams were identified.		
					6m	Becoming; massive and moderately weathered rock.	LS	MW		30/53mm, -, - N =Refusal	
100	97	92	1		7				Natural fracture was identified.		
					7.5m	**GRANODIORITE**, medium to coarse grained, granular, yellow-brown, very low strength, highly weathered rock. Crushed seams present.	VLS	HW		30/37mm, -, - N =Refusal	
93	72	37	0		8						
					8.5m	Becoming; porphyritic, massive, pale grey, high strength to very high strength and slightly weathered rock.	HS-VHS	SW			
					9m	Becoming; very high strength and fresh rock.	VHS	FR			9
100	100	100	0		9						9.44

NOTES:

Water Level Indicator

Undisturbed Sample

Standard Penetration Test

Core Sample

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : MSI
CHECKED BY :

DATE STARTED : 9/12/2023
DATE PROFILED : 11/12/2023
HOLE SIZE : HQ

NORTHING : 1078403.343
EASTING : 479057.936
ELEVATION : 306.953

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO TSF BH 2024 05 09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-03**	
Sheet 2 of 2	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	95	95	1		10.5m 11 12	Becoming; slightly weathered to fresh rock.	VHS	FR-SW			
100	77	77	>10		12m 12.5m 13	**GRANODIORITE**, medium to coarse grained, granular, massive, yellow-brown, medium strength, moderately weathered rock. Crushed seams present. Becoming; porphyritic, pale grey, high to very high strength and slightly weathered rock.	MS HS-VHS	MW SW	Natural fracture was identified. Crushed seams were identified.		
100	100	100	0		13.5m 14	Becoming; very high strength and fresh rock.	VHS	FR			13.5 13.8
					15 16 17 18 19 20 21	Borehole BH-TSF-03 terminated at 15 m depth.					

KP_BH_2013_REV_0_DOROPO TSF BH 2024.05.09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-04**	
Sheet 1 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
						0m **GRAVEL**, clayey, dark brown, dry. TOPSOIL	-	-			
						0.3m **GRAVEL**, clayey, with sand, medium plasticity fines, orange brown, moist, medium dense. COLLUVIUM	MD	-			
96	60	-	-		1	Sand particles are medium to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded and low strength. Quartz particles present.				7, 12, 16 N =28	
						1.9m **CLAY**, sandy, medium plasticity, yellow brown, moist (<plastic limit). RESIDUAL	-	RS			
47	17	-	-		2	Sand particles are medium grained and sub-angular.					
						3m Quartz particles present.	VLS	HW		35, 30/40mm, - N =Refusal	
100	79	-	-		3	**GRANODIORITE**, medium to coarse grained, granular, massive, yellow-brown, very low strength, highly weathered rock.					
					4					18, 30/40mm, - N =Refusal	
97	89	-	-		5	▼					
					6					30/90mm, -, - N =Refusal	
73	4	-	-		7						
93	91	-	-		8						
					9						
85	85	-	-								

NOTES:

▼ Water Level Indicator

Core Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : MSI
CHECKED BY :

DATE STARTED : 11/12/2023
DATE PROFILED : 12/12/2023
HOLE SIZE : HQ

NORTHING : 1078783.406
EASTING : 479257.952
ELEVATION : 316.9729

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO TSF BH 2024 05 09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-04**	
Sheet 2 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					11						
70	59	-	-		12				Core loss occurred.		
2	2	-	-		13						
67	40	-	-		14						
93	67	-	-		15						
					16				Crushed seams were identified.		
40	26	-	-		17						
33	23	-	-		18				Joint face was identified.		
					19						
						19.5m Becoming; pale brown and off white, low strength and highly to moderately weathered rock.	LS	HW-MW	Natural fracture zone was identified.		
53	47	23	6		20						
						21m Becoming; yellow brown and moderately weathered rock.	LS	MW	Natural fracture zone was identified.		
47	37	18	3		21						

KP_BH_2013_REV_0_DOROPO_TSF_BH 2024.05.09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-04**
Sheet 3 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22						
100	81	67	4		23				Natural fracture zone was identified.		22.77 – 22.94
90	86	53	>10		24						
					25						
						25.5m Becoming; porphyritic, pale grey, high strength.	HS	MW	Vertical joint was identified.		
100	73	70	>10		26	26m **GRANODIORITE**, medium to coarse grained, granular, massive, yellow-brown, medium strength, moderately weathered rock.	MS	MW	Crushed seams were identified.		
						26.35m Crushed seam presents.	HS	MW			26.5 – 26.72
					27	27m **GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high strength, moderately weathered rock.	MS	MW			
						Becoming; granular, yellow brown and medium strength.			Crushed seams were identified.		
100	93	83	>10			27.67m **GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high strength, slightly weathered rock.	HS	SW			
100	100	100	1		29				Vertical joint was identified.		29.03 – 29.3
					30	30m Becoming; very high strength and fresh rock.	VHS	FR			
100	100	100	0		31						31.5 – 31.82
100	100	100	0		32						
					33	Borehole BH-TSF-04 terminated at 33 m depth.					

KP_BH_2013_REV_0_DOROPO_TSF_BH 2024.05.09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-05**
Sheet 1 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	**SAND**, trace clay, dark brown, dry.	-	-			
					0.3m	TOPSOIL	-	-			
100	19	-	-			Sand particles are medium to coarse grained and sub-rounded.					
					1m	**SAND**, trace clay, brown, moist. ALLUVIUM	VD	-			
						Sand particles are medium to coarse grained and sub-rounded.				22, 36, 41 N =77	
27	1	-	-			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, very dense. COLLUVIUM					
						Sand particles are medium to coarse grained and sub-rounded.					
					3m	Gravel particles are fine to medium grained, sub-rounded and low strength.	VLS	HW			
100	1	-	-			**GRANODIORITE**, medium to coarse grained, granular, massive, yellow-brown, very low strength, highly weathered rock.				50/25mm, -, - N =Refusal	
27	9	-	-								
100	100	-	-								
100	0	-	-							30/60mm, -, - N =Refusal	
80	55	-	-								
										50, 30/30mm, - N =Refusal	
93	76	-	-								
										30/60mm, -, - N =Refusal	

NOTES:

Water Level Indicator
Core Sample
Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1
LOGGED BY : MSI
CHECKED BY :

DATE STARTED : 12/12/2023
DATE PROFILED : 13/12/2023
HOLE SIZE : HQ

NORTHING : 1079247.77
EASTING : 479172.298
ELEVATION : 326.3519

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO TSF BH 2024 05 09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-05**	
Sheet 2 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
85	85	-	-		10						
100	61	-	-		11						
97	93	-	-		12						
93	73	-	-		13						
89	73	-	-		14						
100	87	-	-		15						
93	73	-	-		16						
93	77	-	-		17						
97	83	83	0		18						
					19						
					20						
					21	21.05m Becoming; low strength and moderately weathered rock.	LS	MW			

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-05**	
Sheet 3 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22						
100	97	97	0		23	23.2m Becoming; yellow brown to pale grey and medium strength.	MS	MW			
93	83	66	4		24	24m Becoming; yellow brown and low strength.	LS	MW	Natural fracture was identified. Natural fracture was identified.		
100	97	97	>10		25	25.5m **GRANODIORITE**, medium to coarse grained, porphyritic, massive, yellow brown to pale grey, medium to high strength, moderately weathered rock.	MS-HS	MW	Crushed seams were identified.		25.69 25.96
77	77	77	0		26	27m Becoming; pale grey and high strength.	HS	MW	35cm length of core loss identified.		27 27.43
100	87	81	>10		27				Crushed seam of moderately weathered rock was identified. Natural fracture was identified.		
100	100	100	0		28	30.5m Becoming; high to very high strength and moderately weathered rock.	HS-VHS	SW			31.02
97	80	80	1		29	31.5m **GRANODIORITE**, medium to coarse grained, massive, yellow brown to pale grey, low to high strength, moderately weathered rock.	LS-HS	MW			31.5
					30	32.2m **GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, very high strength and fresh rock.	VHS	FR			32.6
					31	Borehole BH-TSF-05 terminated at 33 m depth.					33
					32						
					33						

KP_BH_2013_REV_0_DOROPO TSF BH 2024.05.09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-06**
Sheet 1 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	**SAND**, with gravel, dark brown, dry.	-	-			
					0.3m	TOPSOIL	-	-			
57	43	-	-		1	Sand particles are medium to coarse grained and sub-angular. **SAND**, with gravel, trace clay, low plasticity fines, yellow brown, moist. ALLUVIUM					
					1.5m	Sand particles are medium grained and sub-angular. Gravel particles are fine to medium grained, sub-angular and low strength.	VD	RS		44, 30/78mm, - N =Refusal	
37	27	-	-		2	**SAND**, clayey, with gravel, low plasticity fines, red brown, dry to slightly moist, very dense. RESIDUAL					
					3	Sand particles are medium to coarse grained and sub-angular.				36, 30/65mm, - N =Refusal	
					3.2m	Gravel particles are fine to medium grained, sub-angular and medium strength.	VLS	HW			
90	43	-	-		4	**GRANODIORITE**, medium to coarse grained, granular, massive, yellow-brown, very low strength, highly weathered rock.					
					5					50/120mm, -, - N =Refusal	
97	90	-	-		6						
					6m	Becoming; low strength.	LS	HW		30/60mm, -, - N =Refusal	
90	63	-	-		7						
83	80	-	-		8						
100	100	-	-		9						

NOTES:

Water Level Indicator
Core Sample
Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1
LOGGED BY : MSI
CHECKED BY :

DATE STARTED : 14/12/2023
DATE PROFILED : 15/12/2023
HOLE SIZE : HQ

NORTHING : 1079560.988
EASTING : 478872.816
ELEVATION : 328.9206
INCLINATION: -90

KP_BH_2013_REV_0_DOROPO TSF BH 2024 05 09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-06**
Sheet 2 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					10						
53	47	47	>10		11	10.8m Becoming; medium strength and moderately weathered rock.	MS	MW			
10	0	0	>10		12	12m Becoming; low strength.	LS	MW	90% of core loss was identified.		
60	57	41	>10		13	13.5m **GRANODIORITE**, medium to coarse grained, porphyritic, massive, yellow brown to pale grey, medium strength, moderately weathered rock.	MS	MW	Natural fracture zone was identified.		13.72 ↑ ↓ 14
100	100	100	0		14						
100	100	93	1		15	15m Becoming; pale grey, high strength and slightly weathered rock.	HS	SW/MW	Natural fracture was identified.		16.5 ↑ ↓ 16.79
77	77	75	2		16				Natural fracture was identified.		
77	77	75	>10		17				Crushed seams were identified.		
97	97	97	0		18	19.8m Becoming; high to very high strength.	HS-VHS	SW			
					19	21m Becoming; fresh rock.	VHS	FR			
					20						
					21						

KP_BH_2013_REV_0_DOROPO_TSF_BH 2024.05.09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-06**	
Sheet 3 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22						22
						Borehole BH-TSF-06 terminated at 22.5 m depth.					22.4
					23						
					24						
					25						
					26						
					27						
					28						
					29						
					30						
					31						
					32						
					33						

KP_BH_2013_REV_0_DOROPO TSF BH 2024 05 09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-07**	
Sheet 1 of 4	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	**GRAVEL**, clayey, with sand, dark brown, dry.	-	-			
					0.3m	TOPSOIL	MD	-			
						Sand particles are medium grained and sub-angular.					
83	28	-	-		1	**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, medium dense. COLLUVIUM					
						Sand particles are medium to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded and low strength.				11, 13, 14 N =27	
22	5	-	-		2 2.2m	**CLAY**, with sand, medium plasticity, cream, moist (<plastic limit), stiff to very stiff. RESIDUAL	St-Vst	RS			
					3	Sand particles are fine to medium grained and sub-angular.				7, 14, 25 N =39	
70	57	-	-		4						
										7, 12, 17 N =29	
21	17	-	-		5						
					6					6, 9, 11 N =20	
20	17	-	-		7						
					7.5m	**CLAY**, sandy, medium plasticity, cream, moist (<plastic limit), stiff. EXTREMELY WEATHERED MATERIAL	St	XW		5, 7, 10 N =17	
8	5	-	-		8	Sand particles are fine to medium grained and sub-angular.					
					9					4, 6, 9 N =15	
30	12	-	-								

NOTES:

Water Level Indicator

Core Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : MSI
CHECKED BY :

DATE STARTED : 17/12/2023
DATE PROFILED : 18/12/2023
HOLE SIZE : HQ

NORTHING : 1079475.538
EASTING : 478309.507
ELEVATION : 330.8693

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO TSF BH 2024 05 09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-07**	
Sheet 2 of 4	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					10						
27	15	-	-		10.5m 11	**CLAY**, sandy, medium plasticity, cream, moist (~plastic limit), very stiff. EXTREMELY WEATHERED MATERIAL Sand particles are fine to medium grained and sub-angular.	Vst	XW		6, 10, 16 N =26	
78	73	-	-		12 12m 13	**GRANODIORITE**, medium to coarse grained, granular, massive, yellow brown, very low strength, highly weathered rock.	VLS	HW		15, 34, 30/70mm N =Refusal	
93	90	-	-		14					16, 30, 30/85mm N =Refusal	
73	73	-	-		15					30/98mm, -, - N =Refusal	
87	67	-	-		16 17						
100	93	-	-		18 19						
100	100	-	-		20						
90	83	-	-		21						

KP_BH_2013_REV_0_DOROPO TSF BH 2024 05 09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-07**
Sheet 3 of 4 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22						
70	67	-	-		22.5m 23	Becoming; very low to low strength.	VLS-LS	HW			
83	70	-	-		24 24m 25	Becoming; low strength.	LS	HW			
87	87	-	-		26						
100	90	-	-		27				Natural fracture was identified.		
100	97	93	1		28 28.5m 29	Becoming; moderately weathered rock.	LS	MW	Natural fracture was identified.		
97	79	70	1		30				Natural fracture was identified.		
87	77	65	>10		31 31.5m 32 32.2m	Becoming; highly weathered rock. **GRANODIORITE**, medium to coarse grained, porphyritic, massive, yellow brown to pale grey, high strength, moderately weathered rock.	LS HS	HW MW	Crushed seams were identified. Natural fracture zone was identified.		32.2 32.4
					32.8m 33	Becoming; pale grey, high to very high strength and slightly weathered rock.	HS-VHS	SW			33.6

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-07**	
Sheet 4 of 4	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
91	91	80	1		34				Natural fracture was identified.		33.9
93	87	87	>10		35				Crushed seams were identified.		
100	86	83	>10		36				Crushed seams were identified.		
					37				Crushed seams were identified.		
100	100	100	0		38	37.5m Becoming; very high strength and fresh rock.	VHS	FR			38.5
					39	Borehole BH-TSF-07 terminated at 39 m depth.					38.85
					40						
					41						
					42						
					43						
					44						
					45						

KP_BH_2013_REV_0_DOROPO TSF BH 2024 05 09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-08**
Sheet 1 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
						0m **GRAVEL**, clayey, with sand, dark brown, dry.	-	-			
						0.3m TOPSOIL	D	-			
17	17	-	-		1	Sand particles are fine to medium grained and sub-angular. **GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, dense. COLLUVIUM					
51	35	-	-		2	Sand particles are medium to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded and low strength.				7, 14, 22 N =36	
73	71	-	-		3	3m **CLAY**, sandy, medium plasticity, cream, moist (<plastic limit), very stiff to hard. RESIDUAL Sand particles are fine to medium grained and sub-angular.	Vst-H	RS		11, 10, 13 N =23	
95	83	-	-		4	4.7m **SAND**, clayey, with gravel, low plasticity fines, yellow brown, moist, dense.	D	XW		10, 13, 33 N =46	
					5	5m EXTREMELY WEATHERED MATERIAL Sand particles are medium to coarse grained. Gravel particles are fine grained, sub-angular and medium strength.	VLS	HW			
89	87	-	-		6	**GRANODIORITE**, medium to coarse grained, granular, massive, yellow brown, very low strength, highly weathered rock.				30/90mm, -, - N =Refusal	
90	75	-	-		7						
37	0	-	-		8					30/60mm, -, - N =Refusal	
					9						

NOTES:

Water Level Indicator

Core Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : MSI
CHECKED BY :

DATE STARTED : 20/12/2023
DATE PROFILED : 21/12/2023
HOLE SIZE : HQ

NORTHING : 1078733.631
EASTING : 477762.657
ELEVATION : 325.1391

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO TSF BH 2024 05 09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-08**	
Sheet 2 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					10						
7	0	-	-		11 ▼				Core loss was identified.		
20	13	-	-		12						
					13						
97	67	-	-		14						
						14.36m Becoming; low strength and moderately weathered rock.	LS	MW			
					15	15m **GRANODIORITE**, medium to coarse grained, porphyritic, massive, yellow brown to pale grey, medium strength and moderately weathered rock.	MS	MW			
98	90	90	0		16						
11	9	9	>10		17						
					18	18m Becoming; pale grey patchy with yellow brown and high strength.	HS	MW			18 ↑ ↓ 18.32
93	93	93	1		19						
									Natural fracture was identified.		
100	100	100	0		20						
					21						
98	98	98	0								

KP_BH_2013_REV_0_DOROPO TSF BH 2024 05 09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
TSF
Côte d'Ivoire

HOLE: **BH-TSF-08**	
Sheet 3 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22						22.2
											22.5
85	75	70	>10		23				Joints zone was identified.		
79	72	72	0		24						
62	53	49	>10		25				Joints zone was identified.		
91	73	73	>10		26				Joints zone was identified.		
					27	27.75m Becoming; pale grey, high to very high strength and slightly weathered rock.	HS-VHS	SW			
					28	28.5m Becoming; very high strength and fresh rock.	VHS	FR			
100	100	100	0		29						
					30						30
93	93	93	0		31						30.35
						Borehole BH-TSF-08 terminated at 31.5 m depth.					
					32						
					33						

KP_BH_2013_REV_0_DOROPO TSF BH 2024 05 09.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Accessroad Overpass
Côte D'Ivoire

HOLE: **BH-ARO-01**
Sheet 1 of 2 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad. **SAND**, silty, trace clay, non plasticity, black brown.	-	-	0.10m core loss was identified.		
					0.4m	TOPSOIL Sand particles are fine to medium grained.	D	RS			
93	-	-	-		1	**SAND**, trace clay, non plastic, yellow brown, dry, dense. RESIDUAL Sand particles are fine to coarse grained and rounded to sub rounded.					
SPT	-	-	-							9, 18, 19 N =37	
					2						
					2m	**SAND**, clayey, with gravel, low plasticity, yellow brown, dry, loose. RESIDUAL Sand particles are fine to coarse grained and rounded to sub rounded.	L	RS			
100	-	-	-		3						
SPT	-	-	-						0.05m core loss was identified.	3, 3, 2 N =5	3.5
95	-	-	-		4						4
					4m	**GRANODIORITE**, medium to coarse grained, granular, massive, grey brown, very low strength. HIGHLY WEATHERED ROCK	VLS	HW			
100	-	-	>10		5						
100	-	-	8		6						
					7						
					7.5m	Becoming; grey and yellow brown, very low to low strength and moderately weathered rock.	VLS-LS	MW			
100	-	-	5		8						
					9						
100	-	-	>10								

NOTES:

▼ Water Level Indicator

Undisturbed Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 5/02/2024
DATE PROFILED : 6/02/2024
HOLE SIZE : HQ

NORTHING : 1065529.41
EASTING : 469458.57
ELEVATION : 348.65

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Accessroad Overpass
Côte D'Ivoire

HOLE: **BH-ARO-01**	
Sheet 2 of 2	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	-	-	>10		11						
100	-	-	>10		12						
100	-	-	>10		13						
100	-	-	4		14						
100	-	-	0		15						
100	-	-	0		16	15.5m **GRANODIORITE**, medium to coarse grained, porphyritic, massive, yellow brown, high to very high strength. MODERATELY TO SLIGHTLY WEATHERED ROCK	HS-VHS	MW-SW			
100	-	-	9		17						
100	-	-	8		18						
					19						
					20	19.5m Becoming; pale grey.	HS-VHS	MW-SW			
					21						
						Borehole BH-ARO-01 terminated at 21.5 m depth.					

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Accessroad Overpass
Côte D'Ivoire

HOLE: **BH-ARO-02**

Sheet 1 of 3 | *Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad. **SAND**, silty, trace clay, non plasticity, black brown.	-	-	0.50m core loss was identified.		
					0.3m	TOPSOIL Sand particles are fine to medium grained.	-	RS			
67	-	-	-		1	**SAND**, trace clay, non plastic, yellow brown, dry, medium dense.	-	-			
					1m	RESIDUAL Sand particles are fine to coarse grained and rounded to sub rounded.	MD	RS	0.51m core loss was identified.		
SPT	-	-	-		1.5m	Core loss.				8, 13, 16 N =29	
					1.95m	**SAND**, trace clay, non plastic, yellow brown, dry, medium dense.	-	-			
51	-	-	-		2	RESIDUAL Sand particles are fine to coarse grained and rounded to sub rounded.	MD	RS			
					2.46m	Core loss.					
SPT	-	-	-		3	**SAND**, clayey, with gravel, low plasticity, yellow brown, dry, medium dense. RESIDUAL Sand particles are fine to coarse grained and rounded to sub rounded.				4, 6, 6 N =12	
100	-	-	-		4						
100	-	-	-		5						
					6m	<<ListBuildSepTrim(	VLS	XW-HW			
100	97	93	-		6	**GRANODIORITE**, medium to coarse grained, granular, massive, grey brown, very low strength.					
100	87	73	-		7						
100	78	70	-		8						
					9						

NOTES:

▼ Water Level Indicator

⊠ Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 6/02/2024
DATE PROFILED : 6/02/2024
HOLE SIZE : HQ

NORTHING : 1065540.83
EASTING : 469450.15
ELEVATION : 348.93

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Accessroad Overpass
Côte D'Ivoire

HOLE: **BH-ARO-02**	
Sheet 2 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					11						
100	77	68	-		12	12m — Becoming; grey and yellow brown, very low to low strength and moderately weathered rock.	VLS-LS	MW			
100	82	80	9		13						
100	91	85	5		14						
100	83	36	>10		15						
93	88	67	8		16				0.10m core loss was identified.		
100	91	40	>10		17						
100	71	57	8		18						
100	65	56	>10		19						
					20						
					21						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Accessroad Overpass
Côte D'Ivoire

HOLE: **BH-ARO-02**	
Sheet 3 of 3	*Rev A*
JOB NUMBER: PE301-00821/05	

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22						
100	85	32			23						
					24						
100	57	33	>10		25						
						Borehole BH-ARO-02 terminated at 25.5 m depth.					
					26						
					27						
					28						
					29						
					30						
					31						
					32						
					33						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Accessroad Overpass
Côte D'Ivoire

HOLE: **BH-ARO-03**	
Sheet 1 of 3	*Rev A*
JOB NUMBER: PE301-00821/05	

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad. **SAND**, silty, trace clay, non plasticity, black brown.	-	-	0.68m core loss was identified.		
					0.4m	TOPSOIL Sand particles are fine to medium grained.	-	RS			
55	-	-	-		0.82m	**SAND**, silty, non plastic, yellow brown, dry. RESIDUAL Sand particles are fine to coarse grained and rounded to sub rounded.	-	-			
SPT	-	-	-		1.5m	Core loss.	D	RS		7, 15, 20 N =35	
100	-	-	-			**SAND**, with gravel, trace clay, low plasticity, brown to grey, dry, dense. RESIDUAL Sand particles are fine to coarse grained and rounded to sub rounded.					
SPT	-	-	-		3m	**GRANODIORITE**, medium to coarse grained, granular, massive, grey brown, very low strength. HIGHLY WEATHERED ROCK	VLS	HW		23, 38, 30/20mm N =Refusal	
100	-	-	-								
100	93	93	-								
100	97	93	-								
100	100	100	-								
100	67	60	6								

NOTES:

▼ Water Level Indicator

⊠ Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 6/02/2024
DATE PROFILED : 7/02/2024
HOLE SIZE : HQ

NORTHING : 1065552.37
EASTING : 469502.05
ELEVATION : 348.55

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Accessroad Overpass
Côte D'Ivoire

HOLE: **BH-ARO-03**	
Sheet 2 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					11				Joint Face was observed.		
100	87	87	4		12						
100	87	70	>10		13						
100	93	90	-		14						
100	83	71	-		15						
100	60	50	>10		16						
100	52	28	0		17						
95	56	33	0		18				0.08m core loss was identified.		
100	97	87	0		19						
					20						
					21	21m Becoming; low strength and moderately weathered rock.	LS	MW			

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Accessroad Overpass
Côte D'Ivoire

HOLE: **BH-ARO-03**	
Sheet 3 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22						
100	93	77	>10		23				Extremely weathered material seam was observed.		
					24				Natural joint was observed.		
100	97	83	4		25						
					26				Vertical joint was observed.		
100	65	57	>10		27						
100	70	70	0			Borehole BH-ARO-03 terminated at 27.5 m depth.					
					28						
					29						
					30						
					31						
					32						
					33						

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Accessroad Overpass
Côte D'Ivoire

HOLE: **BH-ARO-04**
Sheet 1 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad. **SAND**, silty, trace clay, non plasticity, black brown.	-	-	0.66m core loss was identified.		
					0.4m	TOPSOIL Sand particles are fine to medium grained.	-	RS			
56	-	-	-		0.84m	**SAND**, silty, non plastic, yellow brown, dry. RESIDUAL Sand particles are fine to coarse grained and rounded to sub rounded.	-	-			
SPT	-	-	-		1.5m	Core loss.	D	RS		8, 15, 21 N =36	
100	-	-	-		2.7m	**SAND**, with gravel, trace clay, low plasticity, brown to grey, dry, dense. RESIDUAL Sand particles are fine to coarse grained and rounded to sub rounded.	VLS	HW			
100	-	-	-			**GRANODIORITE**, medium to coarse grained, granular, massive, grey brown, very low strength . HIGHLY WEATHERED ROCK					
100	-	-	-								
100	-	-	-								
100	-	-	-								

NOTES:

▼ Water Level Indicator

⊠ Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 7/02/2024
DATE PROFILED : 7/02/2024
HOLE SIZE : HQ

NORTHING : 1065566.91
EASTING : 469492.46
ELEVATION : 349.24

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Accessroad Overpass
Côte D'Ivoire

HOLE: **BH-ARO-04**	
Sheet 2 of 3	*Rev A*
JOB NUMBER: PE301-00821/05	

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					11						
100	-	-	-		12						
100	-	-	-		13						
100	-	-	-		14						
100	-	-	-		15						
100	-	-	-		16						
100	-	-	-		17						
100	-	-	-		18						
100	-	-	-		19						
80	-	-	-		20				0.10m core loss was identified.		
100	-	-	-		21						
					21.5m	Becoming; low strength and moderately weathered rock.	LS-MS	MW			

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Accessroad Overpass
Côte D'Ivoire

HOLE: **BH-ARO-04**
Sheet 3 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	81	63	0		22				Natural joint was observed.		
100	50	33	0		23				Extremely weathered material seam was observed.		
100	44	39	>10		24				Crushed seam was observed.		
100	85	77	>10		25				Bedding planes were observed.		
100	100	100	5		26				Natural joint was observed.		
					27				Natural joint was observed.		
					28	Borehole BH-ARO-04 terminated at 28 m depth.					
					29						
					30						
					31						
					32						
					33						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Han Pit
Côte D'Ivoire

HOLE: **BH-HDC-01**
Sheet 1 of 2 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	**SAND**, dark brown, dry. TOPSOIL	-	-			
78	-	-	-		0.3m 0.5m 0.7m	Sand particles are fine to medium grained and sub-angular.	- - -	- -			
-			-		0.9m 1.15m	**SAND**, trace silt, non-plastic fines, red brown, dry to slightly moist. COLLUVIUM	- -	- -			
SPT	-	-	-		1.5m	Sand particles are fine to coarse grained and sub-rounded.	D	-		9, 17, 20 N =37	
						Core loss.					
33	-	-	-		2.2m	**SAND**, trace silt, non-plastic fines, red brown, dry to slightly moist. COLLUVIUM	-	-			
SPT	-	-	-		2.9m 3m	Sand particles are fine to coarse grained and sub-rounded.	- VLS	- HW		25, 30/70mm, - N =Refusal	
						Core loss.					
100	-	-	-			**SAND**, trace silt, non-plastic fines, red brown, dry to slightly moist. COLLUVIUM Sand particles are fine to coarse grained and sub-rounded.					
SPT	-	-	-			**SAND**, with clay, trace gravel, medium plasticity fines, dry to slightly moist, dense. COLLUVIUM Gravel particles are sub-rounded.				30/50mm, -, - N =Refusal	
100	-	-	-			Core loss.					
SPT	-	-	-			**SAND**, with clay, trace gravel, medium plasticity fines, orange brown, dry to slightly moist. COLLUVIUM Gravel particles are sub-rounded.				30/80mm, -, - N =Refusal	
100	-	-	-			**GRANODIORITE**, medium to coarse grained, granular, massive, yellow-brown, very low strength. HIGHLY WEATHERED ROCK					
					7.5m	Core loss.	-	-	1.35 m core loss was identified.		
17	-	-	-								
					8.85m	**GRANODIORITE**, medium to coarse grained, granular, massive, yellow-brown, very low strength. HIGHLY WEATHERED ROCK	VLS	HW			
100	77	70	-								

NOTES:

Water Level Indicator

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 18/01/2024
DATE PROFILED : 18/01/2024
HOLE SIZE : HQ

NORTHING : 1074124.54
EASTING : 486549.35
ELEVATION : 287.66

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Han Pit
Côte D'Ivoire

HOLE: **BH-HDC-01**	
Sheet 2 of 2	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					11						
100	96	93	-		12				0.10 m core loss was identified.		
93	67	60	-		13				0.80 m core loss was identified.		
47	27	20	-		14	14.2m Core loss.	-	-			
81	68	53	>10		15	15.28m **GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high strength. MODERATELY TO SLIGHTLY WEATHERED ROCK	HS	MW-SW	0.28 m core loss was identified.		
100	100	100	2		16	16.5m Becoming; slightly weathered rock.	HS	SW			
100	100	81	6		17	18.7m **MAFIC**, medium to coarse grained, porphyritic, massive, grey, high strength. SLIGHTLY WEATHRED ROACK	HS	SW			
100	100	69	>10		18	19.5m **GRANODIORITE**, medium to coarse grained, porphyritic, massive, pink grey, high strength. SLIGHTLY WEATHERED ROCK	HS	SW	Crushed seam was observed.		
					19						
					20						
					21	Borehole BH-HDC-01 terminated at 20.8 m depth.					

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Borrow Material (Rock)
Côte D'Ivoire

HOLE: **BH-OC-01**
Sheet 1 of 2 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	Approximately 150 mm of TOPSOIL removed during clearing of drill pad. **SAND**, gravelly, trace silt, non plasticity, black brown.	-	-			
100	-	-	-		0.5m	TOPSOIL Sand particles are fine to medium grained. Gravel particles are fine grained.	MD	XW			
SPT	-	-	-		1	**SAND**, trace gravel and silt, non plasticity, grey to brown, dry, medium dense. EXTREAMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and sub angular Gravel particles are fine grained and sub angular.				6, 9, 13 N =22	
100	-	-	-		2						
					3						3
100	53	53	-		3.4m	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength. SLIGHTLY WEATHERED ROCK	HS-VHS	SW	Boulder was identified.		
					4						
87	30	30	HF		4.2m	**SAND**, trace gravel and silt, non plasticity, brown, dry. EXTREAMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and sub angular Gravel particles are fine grained and sub angular.	-	XW	0.2m core loss was identified.		
					5						
					5.6m	Core loss.	-	-			
					5.8m	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high strength. MODERATELY WEATHERED ROCK	HS	MW	Vertical joint was observed.		
					6						
100	100	87	4		6.5m	Becoming; high to very high strength and slightly to highly weathered rock.	HS-VHS	SW-HW	Extremely weathered material seam was observed.		
					7						
					8						
100	100	100	2								
					9						
100	100	100	0								

NOTES:

Core Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 4/02/2024
DATE PROFILED : 5/02/2024
HOLE SIZE : HQ

NORTHING : 1071625
EASTING : 470183
ELEVATION : 370.92

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Borrow Material (Rock)
Côte D'Ivoire

HOLE: **BH-OC-01**	
Sheet 2 of 2	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					11						
100	100	100	0		12						
100	100	100	1		13						
100	100	100	1		14						
100	100	100	3		15						
100	100	100	0		16						
100	100	100	3		17						
100	100	100	0		18						
					19						
					20	Borehole BH-OC-01 terminated at 20 m depth.					20
					21						

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Borrow Material (Rock)
Côte D'Ivoire

HOLE: **BH-OC-02**	
Sheet 1 of 2	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m		-	-	0.43m core loss was identified.		
					0.1m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad. **SAND**, gravelly, trace silt, non plasticity, black brown.	-	-			
71	-	-	-			TOPSOIL Sand particles are fine to medium grained. Gravel particles are fine grained.					
					1m		-	-			
					1.43m	**GRAVEL**, with sand and clay, low plasticity, red brown, dry. LATERITE Sand particles are fine to coarse grained and sub angular Gravel particles are fine grained and sub angular.	VD	XW		30/10mm, -, - N =Refusal	
SPT	-	-	-								
100	27	27	-			Core loss.					
						SAND, trace gravel and silt, non plasticity, grey and brown, dry, very dense. EXTREAMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and sub angular. Gravel particles are fine grained and sub angular.					3
100	100	53	2		3.7m	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength. SLIGHTLY TO HIGHLY WEATHERED ROCK	HS-VHS	SW-HW			
100	100	100	0								
100	100	100	2								
100	100	100	2								
100	100	100	0								

NOTES:

Core Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 5/02/2024
DATE PROFILED : 5/02/2024
HOLE SIZE : HQ

NORTHING : 1071598
EASTING : 470344
ELEVATION : 365.67

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Borrow Material (Rock)
Côte D'Ivoire

HOLE: **BH-OC-02**	
Sheet 2 of 2	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					11						
100	100	100	0		12						
100	100	100	0		13						
100	100	100	0		14						
100	100	100	4		15						
100	100	100	1		16						
100	100	90	0		17						
100	100	100	0		18						
					19						
					20	Borehole BH-OC-02 terminated at 20 m depth.					20
					21						

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Primary Crusher
Côte D'Ivoire

HOLE: **BH-PS-01**
Sheet 1 of 5 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	**CLAY**, with sand, medium plasticity, dark brown, moist (dry of plastic limit).	-	-	0.25m core loss was identified.		
					0.25m	TOPSOIL	Hd	-			
100	-	-	-			Sand particles are fine grained and rounded.					
					1	**CLAY**, with gravel, medium plasticity, red brown, moist (dry of plastic limit), hard. LATERITE					
SPT	-	-	-			Gravel particles are fine to medium grained and sub-rounded.			0.60m core loss was identified.	28, 30/80mm, - N =Refusal	
					2	1.95m Core loss.	-	-			
53	-	-	-			2.35m **CLAY**, with gravel, medium plasticity, red brown, moist (dry of plastic limit). LATERITE	-	-			
					3	3m Gravel particles are fine to medium grained and sub-rounded.	-	-	0.70m core loss was identified.	11, 18, 37 N =55	
SPT	-	-	-			3.45m **CLAY**, trace sand, medium plasticity, orange brown, moist (dry of plastic limit), hard. LATERITE TO SAPROLITE TRANSITION	-	-			3.7
33	-	-	-		4	4.15m Sand particles are fine to medium grained and rounded to sub-rounded.	Hd	-			4.2
SPT	-	-	-			Core loss.			0.40m core loss was identified.	18, 40, 30/90mm N =Refusal	
					5	4.9m **CLAY**, trace sand, medium plasticity, orange brown, moist (dry of plastic limit), hard. LATERITE TO SAPROLITE TRANSITION	-	-			
100	-	-	-			5.3m Sand particles are fine to medium grained and rounded to sub-rounded.	-	-			
					6	6m Core loss.	VSt-Hd	-		17, 44, 30/70mm N =Refusal	
SPT	-	-	-			**CLAY**, trace sand, medium plasticity, orange brown, moist (dry of plastic limit). LATERITE TO SAPROLITE TRANSITION					
100	-	-	-		7	Sand particles are fine to medium grained and rounded to sub-rounded.					
						CLAY, with sand, trace gravel, medium plasticity, orange brown, moist (dry of plastic limit), very stiff to hard.				11, 22, 25 N =47	
SPT	-	-	-			SAPROLITE					
					8	Sand particles are fine to medium grained and rounded to sub-rounded.					
100	-	-	-								
					9					9, 22, 30 N =52	
SPT	-	-	-								

NOTES:

Water Level Indicator
Standard Penetration Test
Undisturbed Sample
Core Sample

CONTRACTOR : Geodrill
MACHINE : 650-1
LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 19/01/2024
DATE PROFILED : 21/01/2024
HOLE SIZE : HQ

NORTHING : 1076875.16
EASTING : 478358.29
ELEVATION : 350.46

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Primary Crusher
Côte D'Ivoire

HOLE: **BH-PS-01**
Sheet 2 of 5 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	-	-	-		11						
SPT	-	-	-							8, 15, 21 N =36	
100	-	-	-								
					12	12m **CLAY**, sandy, trace gravel, medium plasticity, pink brown, moist (dry of plastic limit), very stiff to hard. SAPROLITE	VSt-Hd	-		8, 15, 30 N =45	
SPT	-	-	-			Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
100	-	-	-		13						
SPT	-	-	-						1.05m core loss was identified (drill bit penetrated without much pressure/torque).	8, 15, 22 N =37	
					14	13.95m Core loss.	-	-			
0	-	-	-								
					15	15m **CLAY**, sandy, trace gravel, medium plasticity, pale brown, moist (dry of plastic limit), very soft. SAPROLITE	VSt	-		8, 16, 21 N =37	
SPT	-	-	-			Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
100	-	-	-		16						
SPT	-	-	-						0.88m core loss was identified (drill bit penetrated without much pressure/torque).	7, 12, 21 N =33	
					17	16.95m Core loss.	-	-			
16	-	-	-								
					18	17.83m **CLAY**, sandy, trace gravel, medium plasticity, pale brown, moist (near plastic limit), very stiff. SAPROLITE	VSt	-		7, 11, 17 N =28	
SPT	-	-	-			18.45m Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-	0.82m core loss was identified (drill bit penetrated without much pressure/torque).		
22	-	-	-		19	19.27m Core loss.	VSt	-			
						CLAY, trace sand, high plasticity, pale brown, moist (near plastic limit), very stiff. SAPROLITE				9, 13, 19 N =32	
SPT	-	-	-		20						
100	-	-	-			Sand particles are fine to medium grained and rounded to sub-rounded.					20.3 ↑ ↓ 20.6
					21						
SPT	-	-	-						0.71m core loss was identified (drill bit penetrated without much pressure/torque).	6, 12, 17 N =29	
						21.7m Core loss.	-	-			

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Primary Crusher
Côte D'Ivoire

HOLE: **BH-PS-01**	
Sheet 3 of 5	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
34	-	-	-		22						
					22.41m	**CLAY**, trace sand, high plasticity, pale brown, moist (near plastic limit).	-	-			
SPT	-	-	-		22.5m	SAPROLITE	MD	XW	0.82m core loss was identified (drill bit penetrated without much pressure/torque).	3, 9, 15 N =24	
					22.95m	Sand particles are fine to medium grained and rounded to sub-rounded.	-	-			
22	-	-	-		23	**SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist, medium dense.					
					23.77m	EXTREMELY WEATHERED MATERIAL	MD	XW			
SPT	-	-	-		24	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to coarse grained and rounded to sub-rounded.			0.64m core loss was identified.	7, 9, 14 N =23	
					24.86m	Core loss.	-	-			
39	-	-	-		25	**SAND**, clayey, trace gravel, low plasticity fines, cream, medium dense.					
						EXTREMELY WEATHERED MATERIAL			1.00m core loss was identified.		
	-	-	-		26	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to coarse grained and rounded to sub-rounded.					
					26.5m	Core loss.	VD	XW			
SPT	-	-	-		27	**SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist, very dense.				24, 30/30mm, - N =Refusal	
						EXTREMELY WEATHERED MATERIAL					
100	-	-	-		28	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to coarse grained and rounded to sub-rounded.					
									1.00m core loss was identified.		
					28.95m	Core loss.	-	-			
33	-	-	-		29						
					29.95m	**SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist, very dense.	VD	XW		30/80mm, -, -	
SPT	-	-	-		30				1.20m core loss was identified.	N =Refusal	
					30.2m	EXTREMELY WEATHERED MATERIAL	-	-			
15	-	-	-		31	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to coarse grained and rounded to sub-rounded.					
					31.4m	Core loss.	-	XW			
						SAND, clayey, trace gravel, low plasticity fines, cream, slightly moist.			0.50m core loss was identified.		
60	-	-	-		32	EXTREMELY WEATHERED MATERIAL					
					32.4m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to coarse grained and rounded to sub-rounded.	-	-			
					32.9m		-	XW			
					33m	Core loss.	-	-	1.40m core loss was identified.		
					33	**SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist.					
						EXTREMELY WEATHERED MATERIAL					

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Primary Crusher
Côte D'Ivoire

HOLE: **BH-PS-01**

Sheet 4 of 5 | *Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
7	-	-	-		34	Sand particles are fine to coarse grained and rounded to sub-rounded.					
					34.4m	Gravel particles are fine to coarse grained and rounded to sub-rounded.	-	XW			
100	-	-	-		35	Core loss. **SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL					
100	-	-	-		36	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to coarse grained and rounded to sub-rounded.					
					37						
					37.5m	Core loss.	-	-	1.45m core loss was identified.		
3	-	-	-		38						
					38.95m	**SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL	-	XW			
100	-	-	-		39	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to coarse grained and rounded to sub-rounded.					
					40						
					40.5m	Core loss.	-	-	1.40m core loss was identified.		
7	-	-	-		41						
					41.9m	**SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist.	-	XW			
					42				1.20m core loss was identified.		
					42.12m	EXTREMELY WEATHERED MATERIAL	-	-			
20	-	-	-		43	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to coarse grained and rounded to sub-rounded.					
					43.32m	Core loss.	-	XW			
					43.5m	**SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist.	HS-VHS	FR			
100	100	100	0		44	EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to coarse grained and rounded to sub-rounded.					
					45	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength. FRESH ROCK					

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Primary Crusher
Côte D'Ivoire

HOLE: **BH-PS-01**
Sheet 5 of 5 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	100	100	3		46						
100	100	100	0		47						
100	100	100	0		48						
						Borehole BH-PS-01 terminated at 48.5 m depth.					
					49						
					50						
					51						
					52						
					53						
					54						
					55						
					56						
					57						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Coarse Ore Stockpile
Côte D'Ivoire

HOLE: **BH-PS-02**
Sheet 1 of 4 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	**CLAY**, sandy, medium plasticity, dark brown, moist (dry of plastic limit).	-	-	0.57m core loss was identified.		
					0.2m	TOPSOIL Sand particles are fine grained.	-	-			
62	-	-	-		0.93m	**GRAVEL**, with clay and sand, low plasticity fines, red brown, dry to slightly moist. LATERITE	-	-			
SPT	-	-	-		1.5m 1.71m	Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded.	VD -	- -	0.80m core loss was identified.	10, 30/60mm, - N =Refusal	
31	-	-	-			Core loss.					
					2.6m	**GRAVEL**, with clay and sand, low plasticity fines, yellow brown, dry to slightly moist, very dense. LATERITE Sand particles are fine to medium grained and sub-rounded.	VD	-			
SPT	-	-	-		3.57m	Core loss.	-	-	0.48m core loss was identified.	50/120mm, -, - N =Refusal	
69	-	-	-		4m	**GRAVEL**, with clay and sand, low plasticity fines, yellow brown, dry to slightly moist, very dense. LATERITE Sand particles are fine to medium grained and sub-rounded.	Hd	-			
SPT	-	-	-			Core loss.				23, 50/130mm, - N =Refusal	
100	-	-	-			**CLAY**, with gravel, medium plasticity, yellow brown, moist (dry of plastic limit), hard. LATERITE					
					6m	Gravel particles are fine to medium grained and rounded to sub-rounded.	-	-			
100	-	-	-			**CLAY**, with sand, medium plasticity, yellow to pink brown, moist (dry of plastic limit). LATERITE TO SAPROLITE TRANSITION Sand particles are fine to medium grained and rounded to sub-rounded.					
17	-	-	-		7.75m	Core loss.	-	-	1.25m core loss was identified.		
SPT	-	-	-		9m	**CLAY**, with sand, medium plasticity, pink brown, moist (dry of plastic limit), hard. SAPROLITE	Hd	-	0.77m core loss was identified.	16, 34, 38 N =72	
					9.63m	Sand particles are fine to medium grained and rounded	-	-			

NOTES:

Water Level Indicator
Standard Penetration Test
Undisturbed Sample
Core Sample

CONTRACTOR : Geodrill
MACHINE : 650-1
LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 21/01/2024
DATE PROFILED : 23/01/2024
HOLE SIZE : HQ

NORTHING : 1076927.25
EASTING : 478180.88
ELEVATION : 350.79

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Coarse Ore Stockpile
Côte D'Ivoire

HOLE: **BH-PS-02**

Sheet 2 of 4 | *Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
27	-	-	-			to sub-rounded. Core loss.					
SPT	-	-	-		10.4m	**CLAY**, with sand, medium plasticity, pink brown, moist (dry of plastic limit), hard. SAPROLITE	Hd	-	0.25m core loss was identified.	12, 18, 23 N =41	
76	-	-	-		11 11m 11.25m	Sand particles are fine to medium grained and rounded to sub-rounded. Core loss.	- -	- -			
SPT	-	-	-		12 12m	**CLAY**, with sand, medium plasticity, pink and brown, moist (dry of plastic limit). SAPROLITE	VSt	-	0.90m core loss was identified.	8, 13, 24 N =37	
14	-	-	-		12.5m 13	Sand particles are fine to medium grained and rounded to sub-rounded. Becoming; very stiff. Core loss.	-	-			
SPT	-	-	-		13.4m	**CLAY**, with sand, medium plasticity, pink brown, moist (dry of plastic limit), very stiff. SAPROLITE	VSt	-	1.05m core loss was identified (Drill bit penetrated without much pressure/torque).	8, 12, 19 N =31	
0	-	-	-		14 13.95m	Sand particles are fine to medium grained and rounded to sub-rounded. Core loss.	-	-			
SPT	-	-	-		15 15m	**CLAY**, with sand, trace gravel, medium plasticity, pink to red brown, moist (dry of plastic limit), very stiff. SAPROLITE	VSt	-		8, 14, 22 N =36	15.5
100	-	-	-		16	Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and sub-rounded.					16
SPT	-	-	-						0.89m core loss was identified (Drill bit penetrated without much pressure/torque).	6, 10, 17 N =27	
18	-	-	-		17 16.95m	Core loss.	-	-			
SPT	-	-	-		17.81m 18	**CLAY**, sandy, medium plasticity, pink to red brown, moist (dry of plastic limit), very stiff. SAPROLITE	VSt	-	1.05m core loss was identified (Drill bit penetrated without much pressure/torque).	7, 13, 22 N =35	
0	-	-	-		18.45m 19	Sand particles are fine to coarse grained and rounded to sub-rounded. Core loss.	-	-			
SPT	-	-	-		19.5m	**CLAY**, sandy, medium plasticity, pink to red brown, moist (dry of plastic limit), very stiff. SAPROLITE	VSt	-		6, 12, 18 N =30	20
68	-	-	-		20 21	Sand particles are fine to coarse grained and rounded to sub-rounded.					20.5
SPT	-	-	-						0.86m core loss was identified (Drill bit penetrated without much pressure/torque).	7, 14, 23 N =37	
					21.45m	Core loss.	-	-			

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Coarse Ore Stockpile
Côte D'Ivoire

HOLE: **BH-PS-02**

Sheet 3 of 4 | *Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
18	-	-	-		22						
					22.31m	**CLAY**, sandy, medium plasticity, pink to red brown, moist (dry of plastic limit), very stiff.	VSt	-			
					22.5m	SAPROLITE	D	XW	0.58 m core loss was identified.	6, 12, 19 N =31	
SPT	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded.					
					23						
					23.2m	**SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist, dense.	-	-			
45	-	-	-		23.78m	EXTREMELY WEATHERED MATERIAL	-	XW			
					24	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to coarse grained and rounded to sub-rounded.			0.65 m core loss was identified.		
57	-	-	-		24.8m	Core loss.	-	-			
					25	**SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist.					
					25.45m	EXTREMELY WEATHERED MATERIAL	-	XW			
					25.5m		VSt	XW	0.0.38 m core loss was identified.	5, 8, 12 N =20	
SPT	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded.					
					25.95m	Gravel particles are fine to coarse grained and rounded to sub-rounded.	-	-			
					26						
					26.33m	Core loss.	-	XW			
64	-	-	-			**SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist.					
					27						
					27m	EXTREMELY WEATHERED MATERIAL	-	XW	1.18 m core loss was identified.		
					27.2m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to coarse grained and rounded to sub-rounded.	-	-			
21	-	-	-		28						
					28.38m	**CLAY**, sandy, trace gravel, medium plasticity, pink to red brown, moist (near plastic limit), very stiff. EXTREMELY WEATHERED MATERIAL	-	XW			
					29	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
100	60	23	-			Core loss.					
					30						30
					30m	**CLAY**, sandy, trace gravel, medium plasticity, pink to red brown, moist (near plastic limit). EXTREMELY WEATHERED MATERIAL	HS-VHS	FR			30.15
						Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
100	100	100	3		31						
					31.5m	**SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL	LS-VHS	MW-SW			
						Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to coarse grained and rounded to sub-rounded.					
100	100	100	3		32						
						Core loss.					
					33						
					33m	**SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL	VLS-VHS	HW-SW			

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Coarse Ore Stockpile
Côte D'Ivoire

HOLE: **BH-PS-02**	
Sheet 4 of 4	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	100	100	5		34	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to coarse grained and rounded to sub-rounded.					
					35	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength. FRESH ROCK Becoming; low to very high strength and moderately to slightly weathered rock. Becoming; very low to very high strength and highly to slightly weathered rock.					
					36	Borehole BH-PS-02 terminated at 34.5 m depth.					
					37						
					38						
					39						
					40						
					41						
					42						
					43						
					44						
					45						

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Ball Mill
Côte D'Ivoire

HOLE: **BH-PS-03**
Sheet 1 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad.**SAND**, gravelly, trace silt, non-plastic fines, dark brown.	-	-			
					0.15m	TOPSOIL	Hd	-			
100	-	-	-		1	Sand particles are fine to medium grained. Gravel particles are fine grained.					
						CLAY, sandy, with gravel, medium plasticity, red brown, moist (dry of plastic limit), hard. LATERITE			1.05m core loss was identified.	45, 5/0mm, - N =Refusal	
SPT	-	-	-		2						
					1.85m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
22	-	-	-								
					2.9m	Core loss.				30/10mm, -, - N =Refusal	
SPT	-	-	-		3	**CLAY**, sandy, with gravel, medium plasticity, red brown, moist (dry of plastic limit), hard. LATERITE	Hd	-			
100	-	-	-		4	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					4.5m	**CLAY**, sandy, with gravel, medium plasticity, yellow brown to pink, moist (dry of plastic limit), hard. LATERITE TO SAPROLITE TRANSITION	Hd	-	0.82m core loss was identified.	24, 50, 30/50mm N =Refusal	
SPT	-	-	-		5						
					5m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to medium grained and sub-angular.	-	-			
29	-	-	-								
					5.82m	Core loss.	Hd	-		14, 29, 50 N =79	
SPT	-	-	-		6	**CLAY**, with sand, trace gravel, medium plasticity, yellow brown to pink, moist (dry of plastic limit), hard. LATERITE TO SAPROLITE TRANSITION					
76	-	-	-		7	Sand particles are fine to coarse grained and rounded to sub-rounded.					
					7.2m	Gravel particles are fine grained and sub-rounded.	-	-			
					7.45m	Core loss.	Hd	-		18, 50/120mm, - N =Refusal	
SPT	-	-	-		8	**CLAY**, with sand, trace gravel, medium plasticity, red to yellow brown, moist (dry of plastic limit), hard.					
					7.95m	LATERITE TO SAPROLITE TANSITION	-	-			
20	-	-	-			Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and sub-angular.					
					8.93m	Core loss.	Hd	-	0.77m core loss was identified.	12, 24, 47 N =71	
SPT	-	-	-		9	**CLAY**, with sand, trace gravel, medium plasticity, red to yellow brown, moist (dry of plastic limit), hard.					
					9.6m	LATERITE TO SAPROLITE TRANSITION	-	-			

NOTES:

Water Level Indicator

Undisturbed Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 23/01/2024
DATE PROFILED : 24/01/2024
HOLE SIZE : HQ

NORTHING : 1076980.73
EASTING : 477985.87
ELEVATION : 350.33

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Ball Mill
Côte D'Ivoire

HOLE: **BH-PS-03**
Sheet 2 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
27	-	-	-			Sand particles are fine to medium grained and rounded to sub-rounded.					
					10.37m	Gravel particles are fine grained and sub-angular.	Hd	-	0.69m core loss was identified.	9, 17, 25 N =42	
SPT	-	-	-			Core loss.					
					11	**CLAY**, with sand, trace gravel, medium plasticity, red to yellow brown, moist (dry of plastic limit), hard.					
					11.06m	LATERITE TO SAPROLITE TRANSITION	-	-			
34	-	-	-			Sand particles are fine to medium grained and rounded to sub-rounded.					
					11.75m	Gravel particles are fine grained and sub-angular.	VSt	-			
					12				0.72m core loss was identified.	7, 11, 17 N =28	
SPT	-	-	-			Core loss.					
						CLAY, with sand, trace gravel, medium plasticity, red to yellow brown, moist (dry of plastic limit), very stiff.					
					12.78m	SAPROLITE	-	-			
31	-	-	-		13	Sand particles are fine to medium grained and rounded to sub-rounded.					
						Gravel particles are fine grained and sub-angular.					13.5
					13.5m	Core loss.	VSt	-	0.38m core loss was identified.	7, 13, 18 N =31	
SPT	-	-	-			**CLAY**, sandy, trace gravel, medium plasticity, pink to red brown, moist (dry of plastic limit), very stiff.					14
					14	SAPROLITE					
					14.45m		-	-			
86	-	-	-		14.6m	Sand particles are fine to medium grained and rounded to sub-rounded.	VSt	-			
						Gravel particles are fine grained and sub-angular.					
					15				0.55m core loss was identified.	7, 11, 17 N =28	
SPT	-	-	-			Core loss.					
						CLAY, sandy, trace gravel, medium plasticity, pink to red brown, moist (dry of plastic limit), very stiff.					
					15.85m	SAPROLITE	-	-			
48	-	-	-		16	Sand particles are fine to medium grained and rounded to sub-rounded.					
					16.4m	Gravel particles are fine grained and sub-angular.	VSt	-	0.61m core loss was identified.	7, 13, 20 N =33	
SPT	-	-	-			Core loss.					
					17	**CLAY**, sandy, trace gravel, medium plasticity, pink red brown, moist (dry of plastic limit), very stiff.					
					17.39m	SAPROLITE	-	-			
42	-	-	-			Sand particles are fine to medium grained and rounded to sub-rounded.					
					18m	Gravel particles are fine grained and sub-angular.	VSt	-		6, 9, 16 N =25	
SPT	-	-	-		18	Core loss.					
						CLAY, sandy, trace gravel, medium plasticity, pink red brown, moist (near plastic limit), very stiff.					
						SAPROLITE					
100	-	-	-		19	Sand particles are fine to medium grained and rounded to sub-rounded.					
					19.5m	Gravel particles are fine grained and sub-angular.	MD	XW	0.27m core loss was identified.	6, 9, 18 N =27	
SPT	-	-	-			**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist, medium dense.					20
					20	EXTREMELY WEATHERED MATERIAL					
82	-	-	-		20.5m	Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-			20.5
					20.77m	Gravel particles are fine grained and rounded to sub-rounded.	-	XW			
					21				0.33m core loss was identified.		
					21.17m		-	-			
34	-	-	-			Core loss.					
						SAND, clayey, with gravel, low plasticity fines, cream, slightly moist.			0.31m core loss was identified.		
38	-	-	-		21.81m						

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Ball Mill
Côte D'Ivoire

HOLE: **BH-PS-03**	
Sheet 3 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22	22m EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	- -	XW -	0.50m core loss was identified.		
0	-	-	-			22.5m Core loss.	MD	XW		4, 6, 11 N =17	
SPT	-	-	-		23	**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist.					
100	-	-	-			23.55m EXTREMELY WEATHERED MATERIAL	-	-	0.19m core loss was identified.		
62	-	-	-			23.74m Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	XW			
					24	24m Core loss.	-	-	1.00m core loss was identified.		
33	-	-	-			**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist, medium dense.					
					25	25m EXTREMELY WEATHERED MATERIAL	-	XW		30/25mm, -, -	
						25.5m Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	HS-VHS	SW	Boulder was identified.	N =Refusal	
100	100	100	5		26	Core loss.			Extremely weathered material seam was observed.		
						SAND, clayey, with gravel, low plasticity fines, cream, slightly moist.					
					27	27m EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded.	-	XW	Extremely weathered zone was identified.		
95	93	93	1			27.6m Gravel particles are fine grained and rounded to sub-rounded.	-	FR	Extremely weathered material seam was observed.		
					28	Core loss.					
						SAND, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
100	100	100	1		29						
					30	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength. SLIGHLTY WEATHERED ROCK					
						SAND, with gravel, cream, slightly moist. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded.					
100	100	100	2		31						
100	100	100	0		32	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength. FRESH ROCK Borehole BH-PS-03 terminated at 32 m depth.					
					33						

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Ball Mill
Côte D'Ivoire

HOLE: **BH-PS-04**
Sheet 1 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	**SAND**, gravelly, trace silt, non-plastic fines, dark brown.	-	-			
					0.2m	TOPSOIL	Hd	-			
100	-	-	-		1	Sand particles are fine to medium grained. Gravel particles are fine grained.					
						CLAY, sandy, with gravel, medium plasticity, red brown, moist (dry of plastic limit), hard. LATERITE			0.50m core loss was identified.	10, 21, 35 N =56	
SPT	-	-	-								
					1.95m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
52	-	-	-		2						
					2.45m	Core loss.	Hd	-			
						CLAY, sandy, with gravel, medium plasticity, red brown, moist (dry of plastic limit), hard. LATERITE			0.45m core loss was identified.	16, 38, 30/90mm N =Refusal	
SPT	-	-	-		3						
						Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
59	-	-	-		4						
					4m	Core loss.	-	-			
					4.45m	**CLAY**, gravelly, with sand, medium plasticity, yellow brown, moist (dry of plastic limit), hard. LATERITE	Hd	-	0.92m core loss was identified.	23, 30/70mm, - N =Refusal	
SPT	-	-	-		5						
					5.08m	Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
28	-	-	-		6						
					6m	Core loss.	Hd	-	0.05m core loss was identified.	16, 50, 30/50mm N =Refusal	
SPT	-	-	-			**CLAY**, gravelly, with sand, medium plasticity, yellow and pink brown, moist (dry of plastic limit), hard. LATERITE TO SAPROLITE TRANSITION					
96	-	-	-		7		-	-			
					7m	Sand particles are fine to medium grained and rounded to sub-rounded.	-	-			
					7.05m	Gravel particles are fine grained and rounded to sub-rounded.					
					7.5m	Core loss.	-	-	0.82m core loss was identified.		
					8	**CLAY**, gravelly, with sand, medium plasticity, yellow and pink brown, moist (dry of plastic limit).					
45	-	-	-		8.32m	SAPROLITE	Hd	-			
						Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained, rounded to sub-rounded and low strength.				12, 23, 38 N =61	
SPT	-	-	-		9						
						Core loss.					
						CLAY, gravelly, with sand, medium plasticity, yellow and pink brown, moist (dry of plastic limit), hard.					

NOTES:

Water Level Indicator

Undisturbed Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 24/01/2024
DATE PROFILED : 26/01/2024
HOLE SIZE : HQ

NORTHING : 1076977.55
EASTING : 477965.87
ELEVATION : 350.1

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Ball Mill
Côte D'Ivoire

HOLE: **BH-PS-04**
Sheet 2 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	-	-	-		11	SAPROLITE Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.			0.34m core loss was identified.		
SPT	-	-	-							10, 17, 26 N =43	
68	-	-	-								
					11.66m	Core loss.	-	-			
SPT	-	-	-		12	12m **CLAY**, gravelly, with sand, medium plasticity, yellow and pink brown, moist (near plastic limit), hard. SAPROLITE	Hd	-	0.63m core loss was identified.	9, 16, 25 N =41	
40	-	-	-		12.87m	Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
					13.5m	Core loss.	VSt	-	0.05m core loss was identified.		
SPT	-	-	-		13	**CLAY**, gravelly, with sand, medium plasticity, yellow and pink brown, moist (near plastic limit), very stiff. SAPROLITE				6, 14, 19 N =33	
95	-	-	-		14	14.4m Sand particles are fine to medium grained and rounded to sub-rounded. 14.45m Gravel particles are fine grained and rounded to sub-rounded.	- VSt	- -			
SPT	-	-	-		15	Core loss. **CLAY**, gravelly, with sand, medium plasticity, yellow cream and pink brown, moist (near plastic limit), very stiff.			0.13m core loss was identified.	7, 11, 16 N =27	15.8
88	-	-	-		15.8m 15.93m 16	SAPROLITE Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	- VSt	- -			16.3
SPT	-	-	-						0.69m core loss was identified.	7, 13, 21 N =34	
34	-	-	-		17 17m	Core loss. **CLAY**, gravelly, with sand, medium plasticity, yellow cream and pink brown, moist (near plastic limit), very stiff.	-	-			
SPT	-	-	-		17.69m 18	SAPROLITE Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	VSt	-	0.25m core loss was identified.	5, 10, 10 N =20	
76	-	-	-		19	Core loss.					
SPT	-	-	-		19.15m 19.4m	**CLAY**, gravelly, with sand, medium plasticity, yellow cream and pink brown, moist (near plastic limit), very stiff. SAPROLITE	- VSt	- -	0.75m core loss was identified.	5, 11, 16 N =27	
29	-	-	-		19.95m 20	Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
					20.7m	Core loss.	-	-			
15	-	-	-		21 21m	**CLAY**, gravelly, with sand, medium plasticity, cream, moist (near plastic limit), very stiff. SAPROLITE Sand particles are fine to medium grained and rounded to sub-rounded.	-	-	1.28m core loss was identified.		

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Ball Mill
Côte D'Ivoire

HOLE: **BH-PS-04**
Sheet 3 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22	Gravel particles are fine grained and rounded to sub-rounded.					
					22.28m	Core loss.	-	-			
					22.45m	**CLAY**, gravelly, with sand, medium plasticity, cream, moist (near plastic limit).	-	-	0.40m core loss was identified.	4, 5, 9	
SPT	-	-	-		22.85m	SAPROLITE	-	-		N =14	23
62	-	-	-		23	Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					23.5
					24	24m Core loss.	-	-	0.36m core loss was identified.		
						24.36m **CLAY**, gravelly, with sand, medium plasticity, cream, moist (near plastic limit).	-	XW			
76	40	40	0			SAPROLITE					
					25	25m Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	HS-VHS	FR			
						Core loss.					
					26	**CLAY**, gravelly, with sand, medium plasticity, cream, moist (near plastic limit).					
100	53	53	1			SAPROLITE					
						Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					27				0.13m core loss was identified.		
					27.15m		-	-			
					27.28m	Core loss.	HS-VHS	FR			
91	80	80	0			**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL					
					28	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					29	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength. FRESH ROCK					
100	100	100	0			Core loss.					
					30	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength. FRESH ROCK					
100	100	100	0		31						
					32						
100	100	100	0								
					33	Borehole BH-PS-04 terminated at 33 m depth.					

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Thickener
Côte D'Ivoire

HOLE: **BH-PS-05**
Sheet 1 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad.**SAND**, gravelly, trace silt, non-plastic fines, dark brown.	-	-	0.40m core loss was identified.		
					0.1m	TOPSOIL	-	-			
73	-	-	-			Sand particles are fine to medium grained.					
					1m	Gravel particles are fine grained.	-	-			
					1.4m	**CLAY**, sandy, with gravel, medium plasticity, red brown, moist (dry of plastic limit).	VD	-	Drilling fluid loss was observed.	14, 24, 40	
SPT	-	-	-			LATERITE				N =64	
						Sand particles are fine to coarse grained and rounded to sub-rounded.					
100	-	-	-			Gravel particles are fine grained and rounded to sub-rounded.					
						Core loss.					
SPT	-	-	-			**GRAVEL**, clayey, with sand, low plasticity fines, yellow brown, dry to slightly moist, very dense.			0.20m core loss was identified.	23, 30/70mm, -	
						LATERITE				N =Refusal	
84	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded.					
						Gravel particles are fine grained and rounded to sub-rounded.					
					4.3m		-	-			
					4.5m	Core loss.	VD	-		19, 50/135mm, -	
SPT	-	-	-			**GRAVEL**, clayey, with sand, low plasticity fines, yellow brown, dry to slightly moist, very dense.				N =Refusal	
						LATERITE					
86	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded.					
						Gravel particles are fine grained and rounded to sub-rounded.					
									0.83m core loss was identified.	19, 46, 30/70mm	
SPT	-	-	-							N =Refusal	
					6.37m	Core loss.	-	-			
27	-	-	-								
					7.2m	**GRAVEL**, clayey, with sand, low plasticity fines, red to yellow brown, dry to slightly moist.	-	-			
						LATERITE			0.25m core loss was identified.		
						Sand particles are fine to coarse grained and rounded to sub-rounded.					
83	-	-	-			Gravel particles are fine grained and rounded to sub-rounded.					
					8.75m	Core loss.	-	-			
									1.24m core loss was identified.		
17	-	-	-								

NOTES:

Water Level Indicator

Undisturbed Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 26/01/2024
DATE PROFILED : 27/01/2024
HOLE SIZE : HQ

NORTHING : 1077054.81
EASTING : 477936.63
ELEVATION : 350.15

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Thickener
Côte D'Ivoire

HOLE: **BH-PS-05**
Sheet 2 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
						10.24m **CLAY**, sandy, trace gravel, medium plasticity, red brown, moist (dry of plastic limit), hard. LATERITE	Hd	-			
SPT	-	-	-						0.85m core loss was identified.	10, 20, 25 N =45	
19	-	-	-		11	10.95m Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
						11.8m Core loss.					
SPT	-	-	-		12	**CLAY**, sandy, trace gravel, medium plasticity, red brown, moist (dry of plastic limit), hard. LATERITE	Hd	-	0.68m core loss was identified.	8, 20, 26 N =46	
25	-	-	-		13	12.45m Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
						13.13m Core loss.	VSt	-			
SPT	-	-	-			**CLAY**, trace sand, medium plasticity, red brown to cream, moist (dry of plastic limit), very stiff. LATERITE			0.60m core loss was identified.	7, 13, 18 N =31	14
43	-	-	-		14	14.4m Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-			14.5
						Core loss.					
SPT	-	-	-		15	15m **CLAY**, trace sand, medium plasticity, cream, moist (dry of plastic limit), very stiff. RESIDUAL	VSt	RS	0.85m core loss was identified.	8, 15, 21 N =36	
19	-	-	-		16	15.45m Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-			
						Core loss.					
						16.3m **CLAY**, trace sand, medium plasticity, cream, moist (dry of plastic limit), very stiff. RESIDUAL	VSt	RS			
SPT	-	-	-						0.88m core loss was identified.	10, 9, 17 N =26	
16	-	-	-		17	16.95m Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-			
						Core loss.					
						17.83m **CLAY**, trace sand, medium plasticity, cream, moist (dry of plastic limit), hard. RESIDUAL	Hd	RS	0.79m core loss was identified.	11, 22, 25 N =47	
SPT	-	-	-								
25	-	-	-		19	18.62m Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-			
						Core loss.					
						19.41m **CLAY**, trace sand, medium plasticity, cream, moist (dry of plastic limit), hard.	Hd	RS	0.56m core loss was identified.	28, 30/90mm, - N =Refusal	
SPT	-	-	-			19.74m RESIDUAL	-	-			
16	-	-	-		20	20.3m Sand particles are fine to coarse grained and rounded to sub-rounded.	-	XW			
						Core loss.					
					21	**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist.					
100	100	100	1			21m EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded.	HS-VHS	MW-SW	Extremely weathered material seam was observed.		

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Thickener
Côte D'Ivoire

HOLE: **BH-PS-05**
Sheet 3 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22	Gravel particles are fine grained and rounded to sub-rounded.					
100	100	100	0		23	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength. MODERATELY WEATHERED TO SLIGHTLY WEATHERED ROCK					
100	100	97	1		24						
100	100	87	6		25				Crushed seam was observed.		
					26						
					27	Borehole BH-PS-05 terminated at 27 m depth.					
					28						
					29						
					30						
					31						
					32						
					33						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Thickener
Côte D'Ivoire

HOLE: **BH-PS-06**	
Sheet 1 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad.**SAND**, gravelly, trace silt, non-plastic fines, dark brown.	-	-			
					0.2m	TOPSOIL	-	-			
100	-	-	-		1	Sand particles are fine to medium grained. Gravel particles are fine grained.					
					1.5m	**GRAVEL**, with sand, trace clay, low plasticity fines, red brown, dry to slightly moist.	VD	-	0.31m core loss was identified.	5, 16, 30/30mm N =Refusal	
SPT	-	-	-			LATERITE					
					2	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
74	-	-	-		2.55m		-	-			
					2.86m	**GRAVEL**, clayey, low plasticity fines, yellow brown, dry to slightly moist, very dense.	D-VD	-		17, 30/30mm, - N =Refusal	
SPT	-	-	-		3	LATERITE					
						Gravel particles are fine grained and rounded to sub-rounded.					
100	-	-	-		4	Core loss.					
						GRAVEL, clayey, with sand, low plasticity fines, yellow brown, dry to slightly moist, dense to very dense. LATERITE			0.20m core loss was identified.	12, 23, 25 N =48	
SPT	-	-	-								
					4.95m	Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-			
					5	Gravel particles are fine grained and rounded to sub-rounded.					
81	-	-	-		5.15m	Core loss.	-	-			
					6	6m **GRAVEL**, clayey, with sand, low plasticity fines, yellow brown, dry to slightly moist. LATERITE	Hd	-		16, 33, 28 N =61	
SPT	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
100	-	-	-		7						
					7.5m	**CLAY**, gravelly, with sand, medium plasticity, yellow brown, moist (dry of plastic limit), hard. LATERITE	VSt	-		8, 13, 19 N =32	
SPT	-	-	-		8	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
100	-	-	-								
					9	**CLAY**, gravelly, with sand, medium plasticity, red to pink, moist (dry of plastic limit), very stiff. LATERITE TO SAPROLITE TRANSITION			0.75m core loss was identified.	8, 15, 18 N =33	
SPT	-	-	-								
					9.45m	Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-			

NOTES:

Water Level Indicator

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 27/01/2024
DATE PROFILED : 28/01/2024
HOLE SIZE : HQ

NORTHING : 1077036.73
EASTING : 477834.25
ELEVATION : 349.59

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Thickener
Côte D'Ivoire

HOLE: **BH-PS-06**
Sheet 2 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
29	-	-	-			10.2m Gravel particles are fine grained and rounded to sub-rounded. Core loss.	VSt	-			
SPT	-	-	-		11	**CLAY**, gravelly, with sand, medium plasticity, red to pink, moist (dry of plastic limit), very stiff. SAPROLITE				6, 13, 19 N =32	
100	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
SPT	-	-	-		12					6, 14, 19 N =33	
100	-	-	-		13						
SPT	-	-	-						0.8m core loss was identified.	5, 13, 17 N =30	
24	-	-	-		14	13.95m Core loss.	-	-			
SPT	-	-	-		15	14.75m **CLAY**, sandy, trace gravel, medium plasticity, cream, moist (dry of plastic limit), very stiff to hard. SAPROLITE	Vst-Hd	-		7, 12, 16 N =28	
100	-	-	-		16	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
SPT	-	-	-						0.50m core loss was identified.	5, 43, 30/10mm N =Refusal	
58	-	-	-		17	16.81m Core loss.	-	-			
53	43	43	0		18	17.31m **SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	XW	0.70m core loss was identified (core barrel has free fallen).		
53	53	0	13		19	18.8m Core loss.	-	-			
					20				0.70m core loss was identified (core barrel has free fallen)		
						20.2m **GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, medium strength. MODERATELY WEATHERED ROCK	MS	MW			
100	100	100	1		21	21m Becoming; high to very high strength and slightly weathered rock.	HS-VHS	SW			

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Thickener
Côte D'Ivoire

HOLE: **BH-PS-06**	
Sheet 3 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22						
100	100	100	1		23						
100	100	100	0		24						
					25	Borehole BH-PS-06 terminated at 25 m depth.					
					26						
					27						
					28						
					29						
					30						
					31						
					32						
					33						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Thickener
Côte D'Ivoire

HOLE: **BH-PS-06A**	
Sheet 1 of 3	*Rev A*
JOB NUMBER: PE301-00821/05	

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad.**SAND**, gravelly, trace silt, low plasticity fines, dark brown.	-	-			
					0.2m	TOPSOIL	-	-			
100	-	-	-		1	Sand particles are fine to medium grained. Gravel particles are fine grained.					
						GRAVEL, with sand, trace clay, low plasticity fines, red brown, dry to slightly moist.			Water loss was observed.		
						LATERITE					
100	-	-	-		2	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					3				0.33m core loss was identified.		
					3.37m	Core loss.	-	-			
78	-	-	-		3.7m	**GRAVEL**, clayey, low plasticity fines, yellow brown, dry to slightly moist.	-	-			
						LATERITE					
					4	Gravel particles are fine grained and rounded to sub-rounded.					
100	-	-	-		5						
					6						
					6m	Core loss.	-	-	0.72m core loss was identified.		
52	-	-	-		6.72m	**CLAY**, gravelly, with sand, medium plasticity, red to pink, moist (dry of plastic limit).	-	-			
					7	LATERITE TO SAPROLITE TRANSITION					
						Sand particles are fine to coarse grained and rounded to sub-rounded.			0.07m core loss was identified.		
95	-	-	-		8	Gravel particles are fine grained and rounded to sub-rounded.					
					9				0.15m core loss was identified.		
70	-	-	-		9.35m	Core loss.	-	-			
					9.5m	**CLAY**, gravelly, with sand, medium plasticity, red to pink, moist (dry of plastic limit), hard.	Hd	-		6, 11, 12 N =23	
SPT	-	-	-								

NOTES:

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 8/02/2024
DATE PROFILED : 8/02/2024
HOLE SIZE : HQ

NORTHING : 1077037
EASTING : 477834
ELEVATION : 350

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Thickener
Côte D'Ivoire

HOLE: **BH-PS-06A**
Sheet 2 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	-	-	-		11	SAPROLITE Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
100	-	-	-								
100	-	-	-		12						
100	-	-	-		13						
100	-	-	-		13.5m 14	**CLAY**, sandy, trace gravel, medium plasticity, cream, moist (dry of plastic limit). SAPROLITE Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
65	-	-	-		15				0.14m core loss was identified.		
100	-	-	-		15.36m 15.5m 16	Core loss. **CLAY**, sandy, trace gravel, medium plasticity, cream, moist (dry of plastic limit). SAPROLITE Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	- -	- -			
100	-	-	-								
90	-	-	-		17				0.10m core loss was identified.		
90	-	-			17.5m 17.6m 18	Core loss. **SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	- -	- XW	0.10m core loss was identified.		
100	-	-	-		19						
100	-	-	-		19.2m 20	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high strength. SLIGHTLY WEATHERED ROCK	HS	SW			
100	-	-	-		20.5m 21	Becoming; medium strength and moderately to highly weathered rock.	MS	MW-HW			
100	-	-	-		21m	Becoming; high to very high strength and slightly weathered rock.	HS-VHS	SW			

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Thickener
Côte D'Ivoire

HOLE: **BH-PS-06A**	
Sheet 3 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22						
100	-	-	-		23						
					24						
100	-	-	-		25						
						Borehole BH-PS-06A terminated at 25.5 m depth.					
					26						
					27						
					28						
					29						
					30						
					31						
					32						
					33						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
CIL Tank
Côte D'Ivoire

HOLE: **BH-PS-07**	
Sheet 1 of 4	*Rev A*
JOB NUMBER: PE301-00821/05	

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m		-	-			
					0.1m	Approximately 150 mm of TOPSOIL removed during clearing of drill pad.**SAND**, gravelly, trace silt, non-plastic fines, dark brown.	-	-	0.10m core loss was identified.		
93	-	-	-			TOPSOIL Sand particles are fine to medium grained. Gravel particles are fine grained.					
					1.4m	**GRAVEL**, with sand, trace clay, low plasticity fines, yellow and red brown, dry to slightly moist.	VSt	-	0.11m core loss was identified.	18, 21, 17	
SPT	-	-	-			LATERITE Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.				N =38	
90	-	-	-		2.4m		-	-			
					2.51m		-	-			
					3m	**CLAY**, with gravel and sand, medium plasticity, yellow and red brown, moist (dry of plastic limit), very stiff.	Hd	-	0.59m core loss was identified.	16, 30/80mm, -	
SPT	-	-	-			LATERITE Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.				N =Refusal	
54	-	-	-		3.8m		-	-			
					4.39m	Core loss.	Hd	-		21, 30/65mm, -	
SPT	-	-	-			**CLAY**, gravelly, with sand, medium plasticity, yellow and red brown, moist (dry of plastic limit). LATERITE Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.				N =Refusal	
83	-	-	-		5.45m		-	-			
					5.67m		-	-			
					6m	**CLAY**, sandy, with gravel, medium plasticity, yellow and red brown, moist (dry of plastic limit), hard.	Hd	-		21, 50/120mm, -	
SPT	-	-	-			LATERITE Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.				N =Refusal	
100	-	-	-			Core loss.					
						CLAY, sandy, with gravel, medium plasticity, yellow and red brown, moist (dry of plastic limit), hard. LATERITE Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
100	-	-	-		9m		VSt-Hd	-		10, 21, 31	
SPT	-	-	-			Core loss.				N =52	
						CLAY, sandy, with gravel, medium plasticity, yellow and red brown, moist (dry of plastic limit). LATERITE					

NOTES:

Water Level Indicator

Undisturbed Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 28/01/2024
DATE PROFILED : 31/01/2024
HOLE SIZE : HQ

NORTHING : 1077000.69
EASTING : 477925.17
ELEVATION : 349.9

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
CIL Tank
Côte D'Ivoire

HOLE: **BH-PS-07**
Sheet 2 of 4 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
SPT	-	-	-		11					7, 13, 18 N =31	
100	-	-	-			**CLAY**, sandy, with gravel, medium plasticity, red and pink, moist (dry of plastic limit), hard. LATERITE TO SAPROLITE TRANSITION Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
SPT	-	-	-		12					8, 13, 18 N =31	
62	-	-	-		13	**CLAY**, with sand, trace gravel, medium plasticity, pink, moist (dry of plastic limit), very stiff to hard. SAPROLITE					
SPT	-	-	-		13m 13.4m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	- VSt	- -		6.13, 13, 14 N =27	
24	-	-	-		14 13.95m	Core loss. **CLAY**, with sand, trace gravel, medium plasticity, red, moist (dry of plastic limit), very stiff. SAPROLITE	-	-			
SPT	-	-	-		14.75m 15	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	St	-		5, 7, 11 N =18	
52	-	-	-		16 16m	Core loss. **CLAY**, sandy, medium plasticity, cream, moist (dry of plastic limit), stiff. SAPROLITE	-	-			16
SPT	-	-	-		16.5m	Sand particles are fine to medium grained and rounded to sub-rounded.	St	-		5, 8, 9 N =17	16.5
33	-	-	-		17 16.95m	Core loss. **CLAY**, sandy, medium plasticity, cream, moist (dry of plastic limit), stiff. SAPROLITE	-	-			
SPT	-	-	-		17.65m 18 18m	Sand particles are fine to medium grained and rounded to sub-rounded.	- -	- XW			
100	-	-	-		19	Core loss. **CLAY**, sandy, medium plasticity, cream, moist (dry of plastic limit). SAPROLITE Sand particles are fine to medium grained and rounded to sub-rounded.					
SPT	-	-	-			**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL					
100	-	-	-		20	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
SPT	-	-	-		21						

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
CIL Tank
Côte D'Ivoire

HOLE: **BH-PS-07**	
Sheet 3 of 4	*Rev A*
JOB NUMBER: PE301-00821/05	

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	-	-	-		22						
100	-	-	-		23						
93	-	-	-		24						
36	-	-	-		25						
92	-	-	-		26	25.4m Core loss.	-	-			
49	-	-	-		27	26.46m **SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	XW			
100	90	90	2		28	27.88m Core loss. 28m **SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	- -	- XW			
100	100	100	0		29	29m Core loss.	-	-			
					30	29.77m **SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL 30.2m Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	- HS-VHS	XW FR			
					31	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength. FRESH ROCK					
					32						
					33						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
CIL Tank
Côte D'Ivoire

HOLE: **BH-PS-07**	
Sheet 4 of 4	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	100	100	0		34						
100	100	100	0		35	Borehole BH-PS-07 terminated at 35 m depth.					
					36						
					37						
					38						
					39						
					40						
					41						
					42						
					43						
					44						
					45						

KP_BH_2013_REV_0_DOROPO.BH.2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
CIL Tank
Côte D'Ivoire

HOLE: **BH-PS-08**
Sheet 1 of 2 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m		-	-			
					0.1m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad.**SAND**, gravelly, trace silt, non-plastic fines, dark brown. TOPSOIL	-	-	0.15m core loss was identified.		
90	-	-	-		1	Sand particles are fine to medium grained. Gravel particles are fine grained.	-	-			
					1m 1.15m		VD	-			
SPT	-	-	-			**GRAVEL**, sandy, with clay, low plasticity fines, yellow brown. LATERITE			0.15m core loss was identified.	20, 30/10mm, - N =Refusal	
89	-	-	-		2	Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					2.85m	Core loss.	-	-			
					3m		VD	-			
SPT	-	-	-			**GRAVEL**, sandy, with clay, low plasticity fines, yellow brown, dry to slightly moist, very dense. LATERITE				22, 30/20mm, - N =Refusal	
100	-	-	-		4	Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
						Core loss.			1.02m core loss was identified.		
SPT	-	-	-							15, 30/90mm, - N =Refusal	
					4.95m	**GRAVEL**, clayey, with sand, low plasticity fines, yellow brown, dry to slightly moist, very dense. LATERITE	-	-			
19	-	-	-		5	Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					5.97m		VSt	-			
						Core loss.					
						CLAY, trace sand and gravel, medium plasticity, pink red, moist (dry of plastic limit), very stiff. LATERITE TO SAPROLITE TRANSITION					
100	-	-	-		6	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
SPT	-	-	-		7				0.55m core loss was identified.	7, 16, 21 N =37	
					7.95m	Core loss.	-	-			
48	-	-	-		8						
					8.5m	**CLAY**, trace sand and gravel, medium plasticity, pink red, moist (dry of plastic limit). SAPROLITE	-	-			
SPT	-	-	-		9	Sand particles are fine to coarse grained and rounded to sub-rounded.			0.77m core loss was identified.		
					9.45m	Gravel particles are fine grained and rounded to sub-rounded.	-	-		6, 11, 15 N =26	

NOTES:

Water Level Indicator
Undisturbed Sample
Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1
LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 31/01/2024
DATE PROFILED : 1/02/2024
HOLE SIZE : HQ

NORTHING : 1077028.97
EASTING : 477885.01
ELEVATION : 349.78

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
CIL Tank
Côte D'Ivoire

HOLE: **BH-PS-08**
Sheet 2 of 2 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
-21	-	-	-			Core loss.					
					10.22m	**CLAY**, trace sand and gravel, medium plasticity, pink red, moist (dry of plastic limit), very stiff. SAPROLITE	VSt	-	0.37m core loss was identified.	7, 12, 15 N =27	
SPT	-	-	-								11
					10.95m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
65	-	-	-		11.32m		-	-			11.5
						Core loss.					
					12m	**CLAY**, trace sand and gravel, medium plasticity, pink red, moist (dry of plastic limit). SAPROLITE	VSt	-		5, 9, 14 N =23	
SPT	-	-	-								
100	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
						CLAY, trace sand and gravel, medium plasticity, yellow brown, moist (dry of plastic limit), very stiff. SAPROLITE				7, 11, 14 N =25	
SPT	-	-	-								
					13.95m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	XW			
100	-	-	-								
					15m	**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL	HS-VHS	SW			
100	100	93	2			Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
						GRANODIORITE, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength. SLIGHTLY WEATHERED ROCK			Extremely weathered material seam was observed.		
100	100	100	2						Extremely weathered material seam was observed.		
100	100	100	2								
100	100	100	0						Extremely weathered material seam was observed.		
						Borehole BH-PS-08 terminated at 20 m depth.					

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Coarse Ore Stockpile Tunnel Exit
Côte D'Ivoire

HOLE: **BH-PS-09**	
Sheet 1 of 4	*Rev A*
JOB NUMBER: PE301-00821/05	

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m		-	-	0.20m core loss was identified.		
					0.1m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad.**SAND**, gravelly, trace silt, non-plastic fines, dark brown. TOPSOIL	-	-			
87	-	-	-		1	Sand particles are fine to medium grained. Gravel particles are fine grained.					
					1.3m		-	-			
SPT	-	-	-		1.5m	**GRAVEL**, clayey, with sand, low plasticity fines, red brown, dry to slightly moist. LATERITE	Hd	-	0.10m core loss was identified.	21, 30/60mm, - N =Refusal	
92	-	-	-		2	Sand particles are fine to coarse grained and rounded to sub-angular. Gravel particles are fine grained and rounded to sub-angular.					
					2.9m	Core loss.	-	-			
SPT	-	-	-		3m	**CLAY**, gravelly, with sand, medium plasticity, yellow and red brown, moist (dry of plastic limit), hard. LATERITE	Hd	-		14, 17, 33 N =50	
100	-	-	-		3.95m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
						Core loss.			0.15m core loss was identified.		
SPT	-	-	-		4	**CLAY**, with gravel and sand, medium plasticity, yellow and red brown, moist (dry of plastic limit), hard. LATERITE				8, 26, 30/80mm N =Refusal	
87	-	-	-		5	Sand particles are fine to coarse grained and rounded to sub-rounded.					
					5.85m	Gravel particles are fine grained and rounded to sub-rounded.	-	-			
SPT	-	-	-		6m	Core loss.	Hd	-	0.10m core loss was identified.	13, 25, 43 N =68	
						Core loss.					
90	-	-	-		7	**CLAY**, with gravel and sand, medium plasticity, yellow and red brown, moist (dry of plastic limit), hard. LATERITE					
					7.4m	Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-			
SPT	-	-	-		7.5m	Gravel particles are fine grained and rounded to sub-rounded.	Hd	-	0.10m core loss was identified.	17, 30/90mm, - N =Refusal	
						Core loss.					
92	-	-	-		8	**CLAY**, with gravel and sand, medium plasticity, yellow and pink brown, moist (dry of plastic limit), hard. LATERITE TO SAPROLITE TRANSITION					
					9m		Hd	-		14, 36, 30/60mm N =Refusal	
SPT	-	-	-		9	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					

NOTES:

Water Level Indicator

Undisturbed Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 1/02/2024
DATE PROFILED : 2/02/2024
HOLE SIZE : HQ

NORTHING : 1076938.65
EASTING : 478131.2
ELEVATION : 350.61

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Coarse Ore Stockpile Tunnel Exit
Côte D'Ivoire

HOLE: **BH-PS-09**
Sheet 2 of 4 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	-	-	-			**CLAY**, with sand, trace gravel, medium plasticity, yellow and pink, moist (dry of plastic limit), hard. SAPROLITE					
SPT	-	-	-		11	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.				11, 29, 42 N =71	
100	-	-	-								
SPT	-	-	-		12					10, 25, 38 N =63	
100	-	-	-		13						
SPT	-	-	-						0.84m core loss was identified.	10, 20, 27 N =47	
20	-	-	-		14						
SPT	-	-	-		15	14.79m **CLAY**, with sand, trace gravel, medium plasticity, yellow and pink, moist (dry of plastic limit), hard. SAPROLITE Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	Hd	-	0.50m core loss was identified.	9, 17, 28 N =45	
52	-	-	-		16	16m Core loss.	-	-			
SPT	-	-	-			16.5m **CLAY**, with sand, trace gravel, medium plasticity, yellow and pink, moist (dry of plastic limit), hard. SAPROLITE	Hd	-	0.70m core loss was identified.	10, 19, 26 N =45	
33	-	-	-		17	16.95m Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
SPT	-	-	-		18	17.65m Core loss.	Hd	-	0.65m core loss was identified.	6, 16, 25 N =41	
38	-	-	-			18.45m **CLAY**, with sand, trace gravel, medium plasticity, yellow and pink, moist (dry of plastic limit), hard. SAPROLITE	-	-			
SPT	-	-	-		19	19.1m Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	VSt	-	0.75m core loss was identified.	7, 13, 18 N =31	
29	-	-	-		20	Core loss. 19.95m **CLAY**, with sand, trace gravel, medium plasticity, yellow and pink, moist (dry of plastic limit), very stiff. LATERITE	-	-			
43	-	-	-		21	20.7m Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded. 21m Core loss. **CLAY**, with sand, trace gravel, medium plasticity, yellow and pink, moist (dry of plastic limit).	-	-	0.85m core loss was identified.		

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Coarse Ore Stockpile Tunnel Exit
Côte D'Ivoire

HOLE: **BH-PS-09**
Sheet 3 of 4 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22	21.85m SAPROLITE Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
SPT	-	-	-			22.5m Core loss.	MD	RS		6, 12, 16 N =28	
100	-	-	-		23	**CLAY**, with sand, trace gravel, medium plasticity, yellow and pink, moist (dry of plastic limit). SAPROLITE					
0	-	-	-		24	24m Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-	1.50m core loss was identified.		
					25	**SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist, medium dense. RESIDUAL					
SPT	-	-	-			25.5m Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	MD	RS	0.55m core loss was identified.	6, 12, 17 N =29	
0	-	-	-		26	25.95m Core loss.	-	-			
50	-	-	-		27	26.5m **SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist, medium dense. RESIDUAL	-	RS	0.50m core loss was identified.		
						27m Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
58	-	-	-		28	27.5m 27.75m Core loss.	-	RS -	0.42m core loss was identified.		
SPT	-	-	-			28.17m **SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist. RESIDUAL Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	VD	XW		16, 27, 24 N =51	
100	-	-	-		29	Core loss.					
100	-	-	-		30	**SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist. RESIDUAL Sand particles are fine to medium grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					31	Core loss.					
100	-	-	-		32	**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist, very dense. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					33	33m **GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength. SLIGHTLY TO HIGHLY WEATHERED ROCK	HS-VHS	SW-HW			

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Coarse Ore Stockpile Tunnel Exit
Côte D'Ivoire

HOLE: **BH-PS-09**

Sheet 4 of 4 | *Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	77	77	0		34						
						34.12m **SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist.	-	XW	1.12m rock boulder was identified.		
						34.5m EXTREMELY WEATHERED MATERIAL	HS-VHS	SW			
					35	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
100	100	93	0								
					36	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength. SLIGHTLY WEATHERED ROCK					
100	100	100	0								
					37						
						37.5m Becoming; very low to high strength and highly to slightly weathered rock.	VLS-HS	SW-HW			
					38				Extremely weathered material seam was observed.		
100	80	80	3						Extremely weathered material seam was observed.		
									Extremely weathered material seam was observed.		
					39				Extremely weathered material seam was observed.		
100	93	77	7						Sheared Zone was observed.		
					40						
100	70	50	4								
					41	Borehole BH-PS-09 terminated at 41 m depth.					
					42						
					43						
					44						
					45						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-10**	
Sheet 1 of 5	*Rev A*
JOB NUMBER: PE301-00821/05	

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad.**SAND**, gravelly, trace silt, non-plastic fines, dark grey.	-	-			
					0.1m	TOPSOIL	VSt	-			
100	-	-	-		1	Sand particles are fine to medium grained. Gravel particles are fine grained.					
						CLAY, gravelly, with sand, medium plasticity, red to yellow brown, moist (dry of plastic limit), very stiff. FERRICRETE				8, 14, 18 N =32	
100	-	-	-		2	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
100	-	-	-		3	3m **CLAY**, sandy, with gravel, medium plasticity, yellow and pink, moist (dry of plastic limit), very stiff to hard. LATERITE	VSt-Hd	-		9, 14, 13 N =27	
100	-	-	-		4	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
SPT	-	-	-							8, 15, 26 N =41	
100	-	-	-		5						
SPT	-	-	-		6					9, 17, 26 N =43	
100	-	-	-		7						
SPT	-	-	-						0.85m core loss was identified.	10, 22, 30 N =52	
19	-	-	-		8	7.95m Core loss.	-	-			
SPT	-	-	-		9	8.8m **CLAY**, with sand and gravel, medium plasticity, pink, moist (dry of plastic limit), very stiff to hard. LATERITE TO SAPROLITE TRANSITION	VSt-Hd	-		7, 18, 24 N =42	
						Sand particles are fine to coarse grained and rounded to sub-rounded.					

NOTES:

Water Level Indicator

Undisturbed Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 8/02/2024
DATE PROFILED : 10/02/2024
HOLE SIZE : HQ

NORTHING : 1076949.73
EASTING : 478089.72
ELEVATION : 350.58

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-10**
Sheet 2 of 5 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	-	-	-		11	Gravel particles are fine grained and rounded to sub-rounded.					
SPT	-	-	-						0.45m core loss was identified.	4, 10, 19 N =29	
										8, 13, 18 N =31	
57	-	-	-		11.45m	Core loss.	-	-			
					12				0.33m core loss was identified.		
34	-	-	-		12.33m	**CLAY**, with sand and gravel, medium plasticity, pink, moist (dry of plastic limit), very stiff. SAPROLITE	VSt	-			
SPT	-	-	-						0.05m core loss was identified.	7, 13, 18 N =31	
91	-	-	-		13	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					13.5m		-	-	0.57m core loss was identified.		
						Core loss.					
					14						
62	-	-	-		14.17m	**CLAY**, with sand and gravel, medium plasticity, pink, moist (dry of plastic limit), very stiff. SAPROLITE	VSt	-			
					15	Sand particles are fine to coarse grained and rounded to sub-rounded.					
SPT	-	-	-			Gravel particles are fine grained and rounded to sub-rounded.			0.26m core loss was identified.	7, 11, 16 N =27	
					15.45m		-	-			
53	-	-	-		15.71m	Core loss.	-	-			
					16	**CLAY**, with sand and gravel, medium plasticity, pink, moist (dry of plastic limit).	-	-	0.19m core loss was identified.		
62	-	-	-		16m 16.18m	SAPROLITE	St-VSt	-			
SPT	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.				6, 11, 15 N =26	
					17						
100	-	-	-			Core loss. **CLAY**, with sand and gravel, medium plasticity, pink, moist (dry of plastic limit), stiff to very stiff. SAPROLITE					
					18						
SPT	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded.				5, 8, 11 N =19	
100	-	-	-		19	Gravel particles are fine grained and rounded to sub-rounded.					
					20					6, 10, 13 N =23	20
100	-	-	-								20.5
					21						
					21m	Core loss.	-	-	0.55m core loss was identified.		
63	-	-	-		21.55m	**CLAY**, sandy, trace gravel, medium plasticity, cream, moist (near plastic limit), very stiff.	VSt	-			

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-10**	
Sheet 3 of 5	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22	SAPROLITE Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
SPT	-	-	-		23				0.13m core loss was identified.	5, 8, 12 N =20	
88	-	-	-		23.5m	Core loss.	-	-			
					23.65m	**CLAY**, sandy, trace gravel, medium plasticity, cream, moist (near plastic limit). SAPROLITE Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-	0.65m core loss was identified.		
57	-	-	-		24 24.55m 25		-	-			
					25.2m	Core loss.	VSt	-			
SPT	-	-	-			**CLAY**, sandy, trace gravel, medium plasticity, cream, moist (near plastic limit), very stiff. SAPROLITE			0.50m core loss was identified.	3, 13, 26 N =39	
52	-	-	-		26 26.25m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
					26.75m	Core loss.	-	-			
65	-	-	-		27 27.4m	**CLAY**, sandy, trace gravel, medium plasticity, cream, moist (near plastic limit). SAPROLITE	-	-	0.52m core loss was identified.		
					27.92m 28	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	Hd	-			
SPT	-	-	-			Core loss.			1.16m core loss was identified.	14, 30/60mm, - N =Refusal	
					28.71m	**CLAY**, sandy, trace gravel, medium plasticity, cream, moist (near plastic limit), hard. SAPROLITE	-	-			
10	-	-	-		29	Sand particles are fine to coarse grained and rounded to sub-rounded.					
					29.87m 30	Gravel particles are fine grained and rounded to sub-rounded.	-	XW			
100	-	-	-			Core loss. **SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL					
					31	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
100	-	-	-		32						
					33 33m	Core loss.	-	-	0.14m core loss was identified.		
					33.14m	**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL	-	XW			

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-10**	
Sheet 4 of 5	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
91	-	-	-		34	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					34.5m	Core loss.	-	-	0.50m core loss was identified.		
67	-	-	-		35	35m **SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded.	-	XW			
					36	36m Gravel particles are fine grained and rounded to sub-rounded. Core loss.	-	-	1.22m core loss was identified.		
19	-	-	-		37	37.22m **SAND**, with gravel, trace clay, low plasticity fines, cream, slightly moist.	-	XW			
						37.5m EXTREMELY WEATHERED MATERIAL 37.65m	-	-	0.15m core loss was identified.		
							-	XW			
90	-	-	-		38	38m Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded. Core loss.	-	XW			
100	-	-	-		39	**SAND**, with gravel, trace clay, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					40						
					40.5m	**SAND**, gravelly, trace clay, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL	-	-	1.08m core loss was identified.		
28	-	-	-		41	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					41.58m	Core loss.	-	XW			
69	-	-	-		42	42m **SAND**, gravelly, trace clay, low plasticity fines, cream, slightly moist.	-	-	0.46m core loss was identified.		
					42.46m	EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded.	-	XW			
					43	Gravel particles are fine grained and rounded to sub-rounded.					
					43.5m	Core loss.	VLS	HW			
100	67	67	>10		44	**SAND**, gravelly, trace clay, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					45	45m **GRANODIORITE**, medium to coarse grained, granular, massive, yellow-brown, very low strength. HIGHLY WEATHERED ROCK	VLS-LS	MW			

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-10**	
Sheet 5 of 5	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	40	33	>10		46	Becoming; very low to low strength and moderately weathered rock.					
100	67	67	>10		46.85m 47	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high to very low strength. SLIGHTLY TO HIGHLY WEATHERED ROCK	VLS-HS	SW			
100	100	100	1		48						
100	100	100	1		49				Natural joint was observed.		
					50	Borehole BH-PS-10 terminated at 50 m depth.					
					51						
					52						
					53						
					54						
					55						
					56						
					57						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-11**
Sheet 1 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad.**SAND**, gravelly, trace silt, low plasticity fines, dark brown.	-	-			
					0.1m	TOPSOIL	-	-			
100	-	-	-		1	Sand particles are fine to medium grained. Gravel particles are fine grained.					
					1.5m	**GRAVEL**, sandy, trace clay, low plasticity fines, red brown, dry.	Hd	-		18, 29, 25	
SPT	-	-	-			LATERITE				N =54	
100	-	-	-		2	Sand particles are fine to coarse grained and rounded to sub-angular. Gravel particles are fine grained and rounded to sub-angular.					
						CLAY, with sand and gravel, medium plasticity, red brown and dark grey, moist (dry of plastic limit), hard.					
SPT	-	-	-		3	LATERITE			0.25m core loss was identified.	9, 22, 34 N =56	
76	-	-	-		4	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					4.5m	**CLAY**, with sand and gravel, medium plasticity, pink red white and yellow, moist (dry of plastic limit), very stiff.	VSt	-		7, 12, 14	
SPT	-	-	-			LATERITE TO SAPROLITE TRANSITION				N =26	
100	-	-	-		5	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
SPT	-	-	-		6				0.25m core loss was identified.	6, 13, 19 N =32	
					6.45m	Core loss.	-	-			
					6.7m	**CLAY**, with sand and gravel, medium plasticity, pink red white and yellow, moist (dry of plastic limit).	-	-			
76	-	-	-		7	LATERITE TO SAPROLITE TRANSITION					
SPT	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	VSt	-	0.65m core loss was identified.	6, 8, 15 N =23	
					8.15m	**CLAY**, with sand, trace gravel, medium plasticity, pink red, moist (dry of plastic limit), very stiff.	-	-			
38	-	-	-		8	SAPROLITE					
					8.8m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	VSt	-			
SPT	-	-	-		9				0.25m core loss was identified.	7, 11, 14 N =25	9.5
						Core loss.					
						CLAY, with sand, trace gravel, medium plasticity,					

NOTES:

Water Level Indicator

Standard Penetration Test

Undisturbed Sample

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 13/02/2024
DATE PROFILED : 13/02/2024
HOLE SIZE : HQ

NORTHING : 1077079.88
EASTING : 477986.16
ELEVATION : 349.97

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-11**
Sheet 2 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
76	-	-	-		10m	pink red, moist (dry of plastic limit), very stiff.	-	-			10
					10.25m	SAPROLITE	VSt	-			
100	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.			0.39m core loss was identified.	5, 8, 14 N =22	
SPT	-	-	-		11	Core loss.					
					11.45m	**CLAY**, with sand, trace gravel, medium plasticity, pink red, moist (dry of plastic limit), very stiff.	-	-			
29	-	-	-		11.84m	SAPROLITE	VSt	-			
SPT	-	-	-		12	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.			0.86m core loss was identified.	5, 9, 12 N =21	
					12.45m	Core loss.	-	-			
18	-	-	-		13	**CLAY**, with sand, trace gravel, medium plasticity, pink red, moist (dry of plastic limit), very stiff.					
					13.31m	SAPROLITE	VSt	-			
SPT	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.			0.80m core loss was identified.	5, 9, 15 N =24	
24	-	-	-		14	Core loss.	-	-			
					14.75m	**CLAY**, with sand, trace gravel, medium plasticity, pink red, moist (dry of plastic limit), very stiff.	VSt	-			
SPT	-	-	-		15	SAPROLITE			0.49m core loss was identified.	5, 8, 22 N =30	
					15.45m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
53	-	-	-		15.94m	Core loss.	MD	XW			
					16	**CLAY**, with sand, trace gravel, medium plasticity, red, moist (dry of plastic limit), very stiff.			0.86m core loss was identified.	4, 6, 11 N =17	
SPT	-	-	-			SAPROLITE	-	-			
					16.95m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
18	-	-	-		17	Core loss.	-	-			
					17.81m		VD	XW		50/120mm, -, - N =Refusal	
SPT	-	-	-		18	18m	HS-VHS	MW			
						SAND, clayey, with gravel, low plasticity fines, cream, slightly moist, medium dense. EXTREMELY WEATHERED MATERIAL					
100	80	60	5		18.35m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					19	Core loss.			Bedding plane was identified.		
100	84	78	6		20	20m **CLAY**, sandy, trace gravel, medium plasticity, cream, moist (dry of plastic limit).	HS	SW			
						SAPROLITE					
						Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					21						
100	100	100	0			**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist, very dense.					

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-11**	
Sheet 3 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22	EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
100	100	100	0		23	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength. MODERATELY WEATHERED ROCK Igneous, less fractured.					
					24	Becoming; high strength and slightly weathered rock.					
100	97	77	4		24.82m 25	Becoming; low to medium strength and moderately weathered rock.	LS-MS	MW	Extremely weathered material seam was observed.		
					25.15m	Becoming; high to very high strength and slightly weathered rock.	HS-VHS	SW			
100	100	100	0		26						
					27	Borehole BH-PS-11 terminated at 27 m depth.					
					28						
					29						
					30						
					31						
					32						
					33						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-12**
Sheet 1 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad.**SAND**, gravelly, trace silt, non-plastic fines, dark grey.	-	-			
100	-	-	-		0.1m	TOPSOIL Sand particles are fine to medium grained. Gravel particles are fine grained.	-	-			
SPT	-	-	-		1.5m	**GRAVEL**, sandy, trace clay, low plasticity fines, red brown, dry. LATERITE Sand particles are fine to coarse grained and rounded to sub-angular. Gravel particles are fine grained and rounded to sub-angular.	VD	-	0.10m core loss was identified.	27, 46, 30/20mm N =Refusal	
92	-	-	-								
SPT	-	-	-		3m	**GRAVEL**, clayey, trace sand, low plasticity fines, red brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and rounded to sub-angular. Gravel particles are fine grained and rounded to sub-angular.	Hd	-		14, 29, 39 N =68	
100	-	-	-								
SPT	-	-	-			**CLAY**, with sand and gravel, medium plasticity, pink red white and yellow, moist (dry of plastic limit), hard. LATERITE TO SAPROLITE TRANSITION			0.26m core loss was identified.	13, 25, 30/60mm N =Refusal	
					5.1m	Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-			
77	-	-	-		5.36m	Gravel particles are fine grained and rounded to sub-rounded. Core loss.	-	-			
SPT	-	-	-		6m	**CLAY**, with sand and gravel, medium plasticity, pink red white and yellow, moist (dry of plastic limit). LATERITE TO SAPROLITE TRANSTION Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	VSt	-		8, 13, 17 N =30	
100	-	-	-								
SPT	-	-	-			**CLAY**, with sand, trace gravel, medium plasticity, pink red, moist (dry of plastic limit), very stiff. SAPROLITE			0.30m core loss was identified.	7, 14, 14 N =28	
					8.2m	Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-			
71	-	-	-		8.5m	Gravel particles are fine grained and rounded to sub-rounded. Core loss.	VSt	-			
SPT	-	-	-			**CLAY**, with sand, trace gravel, medium plasticity, pink red, moist (dry of plastic limit), very stiff. SAPROLITE			0.18m core loss was identified.	7, 13, 16 N =29	
					9.45m		-	-			
					9.63m	Sand particles are fine to coarse grained and rounded to	VSt	-			

NOTES:

Water Level Indicator

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1
LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 14/02/2024
DATE PROFILED : 15/02/2024
HOLE SIZE : HQ

NORTHING : 1077046.76
EASTING : 477997.07
ELEVATION : 350.13

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-12**
Sheet 2 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
83	-	-	-			sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
SPT	-	-	-			Core loss.			0.56m core loss was identified.	7, 14, 17 N =31	
					11	10.95m **CLAY**, with sand, trace gravel, medium plasticity, pink red, moist (dry of plastic limit), very stiff. SAPROLITE	-	-			
47	-	-	-			11.51m Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	VSt	-			
SPT	-	-	-		12	Core loss.			0.79m core loss was identified.	7, 12, 19 N =31	
						12.45m **CLAY**, with sand, trace gravel, medium plasticity, pink red, moist (dry of plastic limit), very stiff. SAPROLITE	-	-			
25	-	-	-		13	13.24m Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	VSt	-			
SPT	-	-	-		14	13.95m Core loss.	-	-	0.12m core loss was identified.	5, 10, 15 N =25	
						14.07m **CLAY**, with sand, trace gravel, medium plasticity, pink red, moist (dry of plastic limit), very stiff. SAPROLITE	-	-			
89	-	-	-			14.5m Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	St	-			
SPT	-	-	-		15	15.45m Core loss.	-	-	0.55m core loss was identified.	4, 7, 12 N =19	
						16m **CLAY**, with sand, trace gravel, medium plasticity, pink red, moist (dry of plastic limit). SAPROLITE	St	-			
100	-	-	-		16	Sand particles are fine to coarse grained and rounded to sub-rounded.			0.41m core loss was identified.	4, 6, 9 N =15	
SPT	-	-	-			16.95m Gravel particles are fine grained and rounded to sub-rounded.	-	-			
					17	17.36m **CLAY**, trace sand, high plasticity, cream, moist (dry of plastic limit), stiff. SAPROLITE	-	-			
61	-	-	-			18m Sand particles are fine to coarse grained and rounded to sub-rounded.	MD	XW		5, 10, 17 N =27	
SPT	-	-	-		18	Core loss.					
						CLAY, trace sand, high plasticity, cream, moist (dry of plastic limit), stiff. SAPROLITE					
100	-	-	-		19	19.5m Sand particles are fine to coarse grained and rounded to sub-rounded.	VD	XW		11, 25, 50/140mm N =Refusal	
SPT	-	-	-			Core loss.					
					20	**CLAY**, trace sand, high plasticity, cream, moist (dry of plastic limit). SAPROLITE					
100	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded.					
SPT	-	-	-		21	21.27m **SAND**, with clay, trace gravel, low plasticity fines, cream, slightly moist, medium dense. EXTREMELY WEATHERED MATERIAL	-	-	0.96m core loss was identified.	17, 50/125mm, - N =Refusal	

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-12**
Sheet 3 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
22	-	-	-		22	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					22.22m		VD	XW	0.22m core loss was identified.	15, 50/135mm, - N =Refusal	
SPT	-	-	-			**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist, very dense. EXTREMELY WEATHERED MATERIAL					
79	-	-	-		23	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					24	Core loss.					
100	47	33	3			**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist, very dense. EXTREMELY WEATHERED MATERIAL					
					24.8m		HS	SW			
					25	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
100	100	100	0		26	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high strength. SLIGHTLY WEATHERED ROCK					
					27						
					27.4m		LS-MS	MW	Weathered seam was identified.		
					27.6m	Becoming; low to medium strength and moderately weathered rock.		SW			
100	95	85	0		28	Becoming; high to very high strength and slightly weathered rock.	HS-VHS		Weathered seam was identified.		
100	100	100	3		29						
					30	Borehole BH-PS-12 terminated at 30 m depth.					
					31						
					32						
					33						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-13**
Sheet 1 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m		-	-	0.60m core loss was identified.		
					0.1m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad.**SAND**, gravelly, trace silt, non-plastic fines, dark grey. TOPSOIL	-	-			
60	-	-	-		0.7m	Sand particles are fine to medium grained. Gravel particles are fine grained.	-	-			
					1.3m		-	-			
SPT	-	-	-		1.5m	**GRAVEL**, clayey, with sand, low plasticity fines, red brown, dry. LATERITE	Hd	-	0.15m core loss was identified.	12, 16, 10/50mm N =Refusal	
						Sand particles are fine to coarse grained and rounded to sub-angular. Gravel particles are fine grained and rounded to sub-angular.					
87	-	-	-		2.25m 2.4m		-	-			
						Core loss.	Hd	-			
SPT	-	-	-			**GRAVEL**, clayey, with sand, low plasticity fines, red brown, dry. LATERITE				20, 30/90mm, - N =Refusal	
100	-	-	-			Sand particles are fine to coarse grained and rounded to sub-angular. Gravel particles are fine grained and rounded to sub-angular.					
SPT	-	-	-		4.69m	**CLAY**, gravelly, with sand, medium plasticity, red brown and dark grey, moist (dry of plastic limit), hard. LATERITE	-	-	0.43m core loss was identified.	20, 30/40mm, - N =Refusal	
					5.12m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
67	-	-	-		6m	Core loss.					
SPT	-	-	-			**CLAY**, gravelly, with sand, medium plasticity, red brown and dark grey, moist (dry of plastic limit), hard. LATERITE	VSt-Hd	-		11, 20, 25 N =45	
100	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
SPT	-	-	-			Core loss.			0.13m core loss was identified.	8, 11, 17 N =28	
					7.95m 8.08m	**CLAY**, gravelly, with sand, medium plasticity, red brown and dark grey, moist (dry of plastic limit). LATERITE	-	-			
88	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	VSt	-			
SPT	-	-	-							9, 14, 19 N =33	
						CLAY, with sand and gravel, medium plasticity, pink red white and yellow, moist (dry of plastic limit), very stiff to hard. LATERITE TO SAPROLITE TRANSITION					

NOTES:

Water Level Indicator

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 15/02/2024
DATE PROFILED : 16/02/2024
HOLE SIZE : HQ

NORTHING : 1077047.03
EASTING : 477968.01
ELEVATION : 350.19

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-13**
Sheet 2 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
SPT	-	-	-		11					7, 12, 15 N =27	
						Core loss.					
100	-	-	-			**CLAY**, with sand, trace gravel, high plasticity, pink red, moist (dry of plastic limit), very stiff. SAPROLITE					
					12						
SPT	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.			0.72m core loss was identified.	6, 9, 12 N =21	
					12.78m	Core loss.	-	-			
31	-	-	-		13						
					13.5m	**CLAY**, sandy, high plasticity, pink red, moist (dry of plastic limit), very stiff. SAPROLITE	VSt	-	0.22m core loss was identified.	6, 9, 11 N =20	
SPT	-	-	-		13.95m		-	-			
					14 14.17m	Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-			
79	-	-	-			Core loss.					
						CLAY, sandy, high plasticity, pink red, moist (dry of plastic limit). SAPROLITE					
SPT	-	-	-		15 15m		St	-	0.94m core loss was identified.	4, 8, 9 N =17	
					15.45m	Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-			
10	-	-	-		16	**CLAY**, with sand, high plasticity, cream, moist (dry of plastic limit), stiff. SAPROLITE					
					16.39m		St	-	0.32m core loss was identified.	4, 6, 7 N =13	
SPT	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded.					
					17 16.95m	Core loss.	-	-			
70	-	-	-		17.27m	**CLAY**, with sand, high plasticity, cream, moist (dry of plastic limit), stiff. SAPROLITE	St	-			
					18	Sand particles are fine to coarse grained and rounded to sub-rounded.			0.50m core loss was identified.	3, 5, 7 N =12	
SPT	-	-	-			Core loss.					
						CLAY, with sand, high plasticity, cream, moist (dry of plastic limit), stiff.					
52	-	-	-		19 19m	SAPROLITE	-	-			
					19.5m	Sand particles are fine to coarse grained and rounded to sub-rounded.	VSt	-	0.36m core loss was identified.	9, 15, 22 N =37	
SPT	-	-	-			Core loss.					
					20	**CLAY**, with sand, high plasticity, cream, moist (dry of plastic limit), very stiff. SAPROLITE					
66	-	-	-		20.64m	Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-			
					21 21m	Core loss.	VD	XW		22, 50/125mm, - N =Refusal	
SPT	-	-	-			**SAND**, with clay, trace gravel, low plasticity fines, cream, slightly moist, very dense. EXTREMELY WEATHERED MATERIAL					

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-13**	
Sheet 3 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	-	-	-		22	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
					22.5m	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high strength. SLIGHTLY WEATHERED ROCK	HS	SW			
100	100	90	3		23						
					23.85m	Becoming; medium to high strength and moderately weathered rock.	MS-HS	MW			
100	85	64	8		24						
					25						
					25.5m	Becoming; very high strength and slightly weathered rock.	VHS	SW			
100	100	100	0		26						
					27						
					27m	Becoming; moderate to high strength and moderately to slightly weathered rock.	MS-HS	MW-SW			
100	95	85	2		28						
						Borehole BH-PS-13 terminated at 28 m depth.					
					29						
					30						
					31						
					32						
					33						

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-14**
Sheet 1 of 5 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m		-	-			
					0.1m	Approximately 100 mm of TOPSOIL removed during clearing of drill pad.**SAND**, gravelly, trace silt, non-plastic fines, dark grey. TOPSOIL	VD	-			
100	-	-	-		1	Sand particles are fine to medium grained. Gravel particles are fine grained.					
SPT	-	-	-			**GRAVEL**, clayey, with sand, low plasticity fines, red brown, dry, very dense. LATERITE				15, 50/130mm, - N =Refusal	
100	-	-	-		2	Sand particles are fine to coarse grained and rounded to sub-angular. Gravel particles are fine grained and rounded to sub-angular.					
SPT	-	-	-		3	3m **CLAY**, sandy, trace gravel, medium plasticity, red brown and yellow, moist (dry of plastic limit), hard. LATERITE	Hd	-		14, 27, 22 N =49	
100	-	-	-		4	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
SPT	-	-	-							18, 32, 30/50mm N =Refusal	
100	-	-	-		5						
SPT	-	-	-		6	6m **CLAY**, sandy, with gravel, medium plasticity, pink brown and yellow, moist (dry of plastic limit), hard. LATERITE TO SAPROLITE TRANSITION	Hd	-		14, 29, 32 N =61	
100	-	-	-		7	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.					
SPT	-	-	-							11, 36, 30/90mm N =Refusal	
100	-	-	-		8						
SPT	-	-	-		9				0.47m core loss was identified.	9, 19, 30 N =49	
					9.45m	Core loss.	-	-			

NOTES:

Water Level Indicator

Undisturbed Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 16/02/2024
DATE PROFILED : 17/02/2024
HOLE SIZE : HQ

NORTHING : 1076877.98
EASTING : 478343.19
ELEVATION : 350.14

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-14**
Sheet 2 of 5 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
55	-	-	-			9.92m **CLAY**, sandy, trace gravel, medium plasticity, pink brown and yellow, moist (dry of plastic limit), very stiff.	VSt	-			
						SAPROLITE				11, 17, 21	
SPT	-	-	-							N =38	
					11	10.95m Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			11
52	-	-	-			11.45m Core loss.	-	-			11.5
					12	12m **CLAY**, sandy, trace gravel, medium plasticity, pink brown and yellow, moist (dry of plastic limit).	-	-	1.50m core loss was identified.		
						SAPROLITE					
0	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded.					
					13	Gravel particles are fine grained and rounded to sub-rounded.					
						Core loss.					
						13.5m **CLAY**, sandy, trace gravel, medium plasticity, pink brown, moist (dry of plastic limit), very stiff.	VSt	-	0.52m core loss was identified.		
SPT	-	-	-							11, 16, 23 N =39	
					14	13.95m SAPROLITE	-	-			
50	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded.					
						14.47m Gravel particles are fine grained and rounded to sub-rounded.	-	-			
					15	Core loss.			0.20m core loss was identified.		
						CLAY, sandy, trace gravel, medium plasticity, pink brown, moist (dry of plastic limit).					
						SAPROLITE					
87	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded.					
					16	16.3m Gravel particles are fine grained and rounded to sub-rounded.	-	-			
						16.5m Core loss.	VSt	-	025m core loss was identified.	7, 10, 13	
SPT	-	-	-							N =23	
					17	16.95m **CLAY**, sandy, trace gravel, medium plasticity, brown, moist (dry of plastic limit), very stiff.	-	-			
						17.2m SAPROLITE	-	-			
76	-	-	-			Sand particles are fine to coarse grained and rounded to sub-rounded.					
					18	18m Gravel particles are fine grained and rounded to sub-rounded.	-	-	0.92m core loss was identified.		
						Core loss.					
						CLAY, sandy, trace gravel, medium plasticity, pink brown, moist (dry of plastic limit).					
39	-	-	-			18.92m SAPROLITE	VSt	-			
					19	Sand particles are fine to coarse grained and rounded to sub-rounded.					
						Gravel particles are fine grained and rounded to sub-rounded.				7, 12, 15	
SPT	-	-	-							N =27	
					20	19.95m Core loss.	-	-			
						CLAY, sandy, trace gravel, medium plasticity, pink brown, moist (near plastic limit), very stiff.					
100	-	-	-			SAPROLITE					
					21	21m Sand particles are fine to coarse grained and rounded to sub-rounded.	St	-			
						Gravel particles are fine grained and rounded to sub-rounded.					
100	-	-	-			**CLAY**, with sand, trace gravel, medium plasticity,					

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-14**
Sheet 3 of 5 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22	pink brown to cream, moist (near plastic limit). SAPROLITE Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.			0.30m core loss was identified.	5, 7, 12 N =19	
SPT	-	-	-		23						
71	-	-	-		23.35m	**CLAY**, sandy, trace gravel, medium plasticity, cream, moist (near plastic limit), stiff.	-	-			
					23.65m	SAPROLITE Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	-			
63	-	-	-		24 24m 24.55m	Core loss.	- Hd	- -	0.55m core loss was identified.		
					25	**CLAY**, sandy, trace gravel, medium plasticity, cream, moist (near plastic limit). SAPROLITE Sand particles are fine to coarse grained and rounded to sub-rounded.				7, 17, 27 N =44	
SPT	-	-	-		25.95m	Gravel particles are fine grained and rounded to sub-rounded.	-	XW			
100	-	-	-		26	Core loss. **CLAY**, sandy, trace gravel, medium plasticity, cream, moist (near plastic limit), hard. SAPROLITE					
					27				0.24m core loss was identified.		
84	-	-	-		27.25m 27.49m	Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	- VD	- XW			
					28	**SAND**, with clay, trace gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.				43, 30/10mm, - N =Refusal	
100	-	-	-		29	Core loss.					
					30 30m	**SAND**, with clay, trace gravel, low plasticity fines, cream, slightly moist, very dense. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-	0.85m core loss was identified.		
43	-	-	-		30.85m	Gravel particles are fine grained and rounded to sub-rounded.	-	XW			
					31	Core loss.					
					31.5m	**SAND**, with clay, trace gravel, low plasticity fines, cream, slightly moist, very dense. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	VLS	MW			
100	-	-	-		32						
					33 33m	**GRANODIORITE**, medium to coarse grained, granular, massive, yellow-brown, very low strength. MODERATELY WEATHERED ROCK	-	-	0.50m core loss was identified.		
					33.5m	Core loss.	VLS	HW			

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-14**	
Sheet 4 of 5	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
67	-	-	-		34	**GRANODIORITE**, medium to coarse grained, granular, massive, yellow-brown, very low strength. HIGHLY WEATHERED ROCK.					
100	-	-	-		35	35m Becoming; moderately weathered rock.	VLS	MW			
100	-	-	-		36						
100	-	-	-		37						
100	-	-	-		38						
-	-	-	-		39	39m **SAND**, with clay, trace gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	-	XW			
100	-	-	-		40						
100	60	60	0		41	42.5m **GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, very high strength. SLIGHTLY WEATHERED ROCK	VHS	SW			
100	100	100	0		42						
					43						
					44						
					45						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Plant Site
Côte D'Ivoire

HOLE: **BH-PS-14**	
Sheet 5 of 5	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
100	100	100	0		46						
						Borehole BH-PS-14 terminated at 46.5 m depth.					
					47						
					48						
					49						
					50						
					51						
					52						
					53						
					54						
					55						
					56						
					57						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Site Access Road
Côte D'Ivoire

HOLE: **BH-SAR-01**
Sheet 1 of 2 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
87	-	-	-		0m 1	**SAND**, with silt, low plasticity fines, brown to grey. RESIDUAL Sand particles are fine to coarse grained.	-	RS	0.20m core loss was identified.		
					1.3m	Core loss.	-	-			
SPT	-	-	-		1.5m 2	**SILT**, trace sand, low plasticity, dark grey, moist (dry of plastic limit), very stiff. ALLUVIUM Sand particles are fine grained and rounded to sub-rounded.	VSt	-	0.10m core loss was identified.	5, 10, 11 N =21	
90	-	-	-								
					2.9m	Core loss.	-	-			
SPT	-	-	-		3m 3	**SAND**, trace silt, low plasticity fines, brown to grey, slightly moist, medium dense. RESIDUAL Sand particles are fine to coarse grained.	MD	RS	0.15m core loss was identified.	5, 5, 7 N =12	3.5
86	-	-	-		4						4
					4.4m	Core loss.	-	-			
SPT	-	-	-		4.5m 5	**SAND**, trace silt, low plasticity fines, brown to grey, slightly moist, medium dense. RESIDUAL	MD	RS	0.73m core loss was identified.	1, 1, 11 N =12	
30	-	-	-		5.27m	Sand particles are fine to coarse grained. Core loss.	-	-			
					6m 6	**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded.	-	XW	0.62m core loss was identified.		
59	-	-	-		6.88m 7	Gravel particles are fine grained and rounded to sub-rounded.	-	-			
					7.5m	Core loss.	-	XW	0.55m core loss was identified.		
63	-	-	-		8	**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded.					
					8.45m 9	Gravel particles are fine grained and rounded to sub-rounded.	-	-			
					9m	Core loss.	-	XW	0.2m core loss was identified.		
87	-	-	-			**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL					

NOTES:

Water Level Indicator
Undisturbed Sample
Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1
LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 3/02/2024
DATE PROFILED : 4/02/2024
HOLE SIZE : HQ

NORTHING : 1072200
EASTING : 477403
ELEVATION : 298.26

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Site Access Road
Côte D'Ivoire

HOLE: **BH-SAR-01**	
Sheet 2 of 2	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
						Sand particles are fine to coarse grained and rounded to sub-rounded.					
					10.3m	Gravel particles are fine grained and rounded to sub-rounded.	-	-			
					10.5m	Core loss.	-	XW	0.45m core loss was identified.		
70	-	-	-		11	**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist. EXTREMELY WEATHERED MATERIAL					
					11.55m	Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-			
					12m	Gravel particles are fine grained and rounded to sub-rounded.	-	XW	0.3m core loss was identified.		
					12.5m	Core loss.	-	XW			
80	-	-	-		13	**SAND**, clayey, with gravel, low plasticity fines, cream, slightly moist, very dense. EXTREMELY WEATHERED MATERIAL					
					13.2m	Sand particles are fine to coarse grained and rounded to sub-rounded.	-	-			
						Gravel particles are fine grained and rounded to sub-rounded.			1m core loss was identified.		
33	-	-	-		14	**SAND**, trace gravel, grey brown, slightly moist. EXTREMELY WEATHERED MATERIAL					
					14.5m	Sand particles are fine to coarse grained and rounded to sub-rounded.	VLS	HW			
						Gravel particles are fine grained and rounded to sub-rounded.			1m core loss was identified.		
100	-	-	-		15	Core loss.					
					15.7m	**GRANODIORITE**, medium to coarse grained, granular, massive, yellow-brown, very low strength. HIGHLY WEATHERED ROCK	-	-			
-25	-	-	-		16	Core loss.					
76	-	-	-						0.12m core loss was identified.		
					16.82m	**GRANODIORITE**, medium to coarse grained, granular, massive, yellow-brown, very low strength. HIGHLY WEATHERED ROCK	VLS	HW			
100	-	-	-		17	Borehole BH-SAR-01 terminated at 17.5 m depth.					
					18						
					19						
					20						
					21						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
WDC
Côte D'Ivoire

HOLE: **BH-WDC-01**
Sheet 1 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
						0m **SAND**, dark brown, dry. TOPSOIL	-	-			
						Sand particles are medium grained and sub-angular.					
100	51	-	-		1	0.7m **GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, dense. COLLUVIUM	D	-			
						Sand particles are medium to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded and low strength.				9, 21, 28 N =49	
40	7	-	-		2	2.3m **CLAY**, with sand and gravel, medium plasticity, orange brown to cream, moist (dry of plastic limit). RESIDUAL	-	RS			
						3m Sand particles are fine to medium grained and sub-angular. Gravel particles are fine grained, sub-rounded and low strength.	Hd	RS		17, 33, 43 N =76	
33	0	-	-		4	**CLAY**, sandy, medium plasticity, cream, moist (dry of plastic limit), hard. RESIDUAL					
						4.5m Sand particles are fine to medium grained and sub-angular.	St	RS		5, 7, 12 N =19	
21	0	-	-		5	Becoming; stiff.					
					6					5, 8, 10 N =18	
17	0	-	-		7						7
										5, 7, 9 N =16	7.5
42	33	-	-		8						
					9				Core loss was identified.	4, 6, 9 N =15	
27	27	-	-								

NOTES:

Water Level Indicator

Undisturbed Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : MSI
CHECKED BY :

DATE STARTED : 16/12/2023
DATE PROFILED : 17/12/2023
HOLE SIZE : HQ

NORTHING : 1079575.74
EASTING : 478398.16
ELEVATION : 333.07

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
WDC
Côte D'Ivoire

HOLE: **BH-WDC-01**
Sheet 2 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					11						
40	40	-	-		12					5, 7, 10 N =17	
47	33	-	-		13					5, 8, 12 N =20	
47	47	-	-		14	13.5m **CLAY**, sandy, medium plasticity, cream, moist (dry of plastic limit), very stiff to hard. EXTREMELY WEATHERED MATERIAL Sand particles are fine to medium grained and sub-angular.	VSt-Hd	XW		6, 9, 17 N =26	
57	53	-	-		15					8, 15, 22 N =37	
67	53	-	-		16					14, 23, 47 N =70	
57	53	-	-		17						
53	53	-	-		18	18m **GRANODIORITE**, medium to coarse grained, granular, massive, yellow-brown, very low strength. HIGHLY WEATHERED ROCK	VLS	HW		17, 27, 45 N =72	
93	90	-	-		19					19, 42, 30/50mm N =Refusal	
					20						
					21					17, 30/60mm, - N =Refusal	

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
WDC
Côte D'Ivoire

HOLE: **BH-WDC-01**	
Sheet 3 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22						
										30/90mm, -, -	
					23					N =Refusal	
98	93	-	-								
					24						
90	85	-	-								
					25	Borehole BH-WDC-01 terminated at 25 m depth.					
					26						
					27						
					28						
					29						
					30						
					31						
					32						
					33						

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
WDC
Côte D'Ivoire

HOLE: **BH-WDC-02**
Sheet 1 of 3 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	**SAND**, dark brown, dry. TOPSOIL	-	-			
					0.5m	Sand particles are medium grained and sub-angular.	Fm	-			
93	40	-	-		1	**CLAY**, sandy, with gravel, medium plasticity, orange brown, moist (dry of plastic limit), firm. COLLUVIUM					
						Sand particles are medium to coarse grained and sub-angular.				4, 5, 5 N =10	
					1.9m	Gravel particles are fine to medium grained, sub-rounded and low strength.	Hd	RS			2
93	34	-	-		2	**CLAY**, sandy, medium plasticity, cream and orange brown, moist (dry of plastic limit), hard. RESIDUAL					2.5
						Sand particles are medium grained and sub-angular.				8, 17, 35 N =52	
41	29	-	-		3						
					4						
					4.5m	**CLAY**, sandy, with gravel, medium plasticity, cream and orange brown, moist (dry of plastic limit), hard. RESIDUAL	Hd	RS		10, 17, 26 N =43	
100	97	-	-		5	Sand particles are medium grained and sub-angular. Gravel particles are fine to medium grained, sub-angular and medium strength.					
					6m	**CLAY**, sandy, medium plasticity, cream and orange brown, moist (dry of plastic limit), stiff to hard. RESIDUAL	St-Hd	RS		13, 23, 40 N =63	
44	37	-	-		7	Sand particles are medium grained and sub-angular.					
										25, 30, 41 N =71	
56	13	-	-		8						
					9					8, 12, 14 N =26	
33	0	-	-								

NOTES:

Water Level Indicator

Undisturbed Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : MSI
CHECKED BY :

DATE STARTED : 15/12/2023
DATE PROFILED : 16/12/2023
HOLE SIZE : HQ

NORTHING : 1079661.59
EASTING : 478652.13
ELEVATION : 331.63

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
WDC
Côte D'Ivoire

HOLE: **BH-WDC-02**	
Sheet 2 of 3	*Rev A*
JOB NUMBER: PE301-00821/05	

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					11						
50	3	-	-							9, 9, 13 N =22	
					12						
100	40	-	-							3, 5, 8 N =13	
					13						
60	10	-	-							8, 10, 10 N =20	
					14						
60	33	-	-		15	15m **CLAY**, sandy, medium plasticity, cream, moist (dry of plastic limit), firm. EXTREMELY WEATHERED MATERIAL Sand particles are medium grained and sub-angular.	Fm	XW		3, 3, 5 N =8	
					16						
27	7	-	-		17	16.5m **GRANODIORITE**, medium to coarse grained, granular, massive, yellow-brown, very low strength. HIGHLY WEATHERED ROCK , Igneous	VLS	HW		33, 30/80mm, - N =Refusal	
					18						
93	67	-	-							10, 29, 30/80mm N =Refusal	
					19						
100	93	-	-		20					43, 30/55mm, - N =Refusal	
					21						
97	97	-	-								

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
WDC
Côte D'Ivoire

HOLE: **BH-WDC-02**	
Sheet 3 of 3	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					22						
97	97	-	-		23						
100	100	-	-		24						
93	93	-	-		25						
10	0	-	-		26						
13	0	-	-		27						
53	13	-	-		28						
					29						
					30						
					31	Borehole BH-WDC-02 terminated at 31.5 m depth.					
					32						
					33						

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
Water Harvest Dam
Côte D'Ivoire

HOLE: **BH-WHD-01**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
						0m **CLAY**, sandy, medium plasticity, dark brown. TOPSOIL	-	-	0.40m core loss was identified.		
						Sand particles are fine grained and rounded.					
73	-	-	-		1	0.7m **CLAY**, with sand, medium plasticity, yellow brown, moist (dry of plastic limit), very stiff to hard. SAPROLITE	VSt-Hd	-			
SPT	-	-	-		2	Sand particles are fine to medium grained and rounded.				16, 17, 17 N =34	
100	-	-	-		3						
SPT	-	-	-							8, 11, 30/95mm N =Refusal	
100	95	86	4		4	3.5m **GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength. SLIGHTLY WEATHERED ROCK	-	SW			
100	93	87	6		5	4.7m Becoming; fresh rock.	HS-VHS	FR	Weathered zone was identified.		
100	97	93	2		6				Crushed seam was observed.		
100	100	94	6		7						
					8						
					9	Borehole BH-WHD-01 terminated at 8.77 m depth.					

NOTES:

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : VKHV
CHECKED BY :

DATE STARTED : 18/01/2024
DATE PROFILED : 18/01/2024
HOLE SIZE : HQ

NORTHING : 1072253.58
EASTING : 482938.92
ELEVATION : 280.95

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
WSD
Côte D'Ivoire

HOLE: **BH-WSD-01**
Sheet 1 of 2 | *Rev A*
JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	**SAND**, dark brown, dry. TOPSOIL	-	-			
					0.3m	Sand particles are medium grained and sub-angular.	VSt	-			
38	17	-	-		1	**CLAY**, sandy, medium plasticity, brown to grey, moist (dry of plastic limit), very stiff. ALLUVIUM					
						Sand particles are medium grained and sub-angular.				12, 14, 9 N =23	
44	33	-	-		2						
					3						3
100	100	-	-		3m	**CLAY**, sandy, medium plasticity, grey, moist (near plastic limit). ALLUVIUM	-	-			3.3
100	100	-	-		3.5m	Sand particles are medium grained and sub-angular.	VD	-		16, 33, 37 N =70	
95	60	-	-		4	**SAND**, with clay, low plasticity fines, yellow brown, slightly moist, very dense. ALLUVIUM					
						Sand particles are medium grained and sub-angular.				16, 26, 29 N =55	
51	21	-	-		5						
										30/10mm, -, -	6
					6m	**GRANODIORITE**, medium to coarse grained, porphyritic, massive, pale grey, high strength. SLIGHTLY WEATHERED ROCK	HS	SW		N =Refusal	6.26
90	90	90	0		7						
100	100	100	0		8						
					9m	Becoming; very high strength and fresh rock.	VHS	FR			
98	98	98	0								

NOTES:

Water Level Indicator
Standard Penetration Test
Undisturbed Sample
Core Sample

CONTRACTOR : Geodrill
MACHINE : 650-1
LOGGED BY : MSI
CHECKED BY :

DATE STARTED : 20/12/2023
DATE PROFILED : 20/12/2023
HOLE SIZE : HQ

NORTHING : 1079064.02
EASTING : 477954.74
ELEVATION : 315.43

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
WSD
Côte D'Ivoire

HOLE: **BH-WSD-01**	
Sheet 2 of 2	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					11						
99	99	99	0		12						11.5 – 11.85
100	100	100	0		13						
93	85	85	>10		14				Crushed zone was identified.		
					15	Borehole BH-WSD-01 terminated at 15 m depth.					
					16						
					17						
					18						
					19						
					20						
					21						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
WSD
Côte D'Ivoire

HOLE: **BH-WSD-02**	
Sheet 1 of 2	*Rev A*

JOB NUMBER: PE301-00821/05

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					0m	**SAND**, dark brown, dry.	-	-			
					0.3m	TOPSOIL	VSt	-			
						Sand particles are medium grained and sub-angular.					
63	52	-	-		1	**CLAY**, sandy, medium plasticity, brown, moist (near plastic limit), very stiff. ALLUVIUM					
						Sand particles are medium grained and sub-angular.				9, 12, 15 N =27	
67	45	-	-		2						
42	32	-	-		3						
					3.5m	Becoming; grey.	VSt	-		7, 10, 14 N =24	
40	25	-	-		4						
					4.5m	**SAND**, with clay, low plasticity fines, yellow brown, slightly moist, very dense.	VD	-		4, 16, 30/77mm N =Refusal	
					4.9m	ALLUVIUM	MS	MW			
97	70	73	>10		5	Sand particles are medium grained and sub-angular. **GRANODIORITE**, medium to coarse grained, porphyritic, massive, yellow-brown to pale grey, medium strength. MODERATELY WEATHERED ROCK			Crushed seam was observed.		
93	90	87	>10		6				Natural fracture was identified. Natural fracture was identified. Natural fracture was identified.		
					7						7.6
100	95	92	>10		8				Natural fracture was identified.		7.85
					9				Fractured zone was identified.		
53	47	47	>10								

NOTES:

Water Level Indicator

Core Sample

Standard Penetration Test

CONTRACTOR : Geodrill
MACHINE : 650-1

LOGGED BY : MSI
CHECKED BY :

DATE STARTED : 19/12/2023
DATE PROFILED : 19/12/2023
HOLE SIZE : HQ

NORTHING : 1079067.65
EASTING : 477868.96
ELEVATION : 314.99

INCLINATION: -90

KP_BH_2013_REV_0_DOROPO BH 2024 05 15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004
Australia

Doropo Gold Project
Ampella Mining
WSD
Côte D'Ivoire

HOLE: **BH-WSD-02**	
Sheet 2 of 2	*Rev A*
JOB NUMBER: PE301-00821/05	

TCR (%)	SCR (%)	RQD (%)	FRACTURE FREQUENCY	GRAPHIC LOG	DEPTH (m)	MATERIAL DESCRIPTION	STRENGTH/ CONSISTENCY	WEATHERING	DEFECTS/ADDITIONAL COMMENTS	IN SITU TESTING	SAMPLING (DEPTH IN m)
					10				Crushed zone was identified.		
						10.5m Becoming; high strength and slightly weathered rock.	HS	SW			
89	89	89	0		11						11.28 ↑ 11.7 ↓
78	67	67	>10		12				Fractured zone was identified.		
					13	13.5m Becoming; moderately to slightly weathered rock.	HS	MW-SW			
85	80	80	>10		14	14m Becoming; very high strength and fresh rock.	VHS	FR			
					15	Borehole BH-WSD-02 terminated at 15 m depth.					
					16						
					17						
					18						
					19						
					20						
					21						

KP_BH_2013_REV_0_DOROPO BH 2024.05.15.GPJ KP_DATATEMPLATE_BH_2013.GDT 19/12/25

BOREHOLE PHOTO PLATES



Plate A1: Borehole BH-TSF-01 - Depth from 0.00m to 5.25m – Box 01



Plate A2: Borehole BH-TSF-01 - Depth from 5.25m to 10.5m – Box 02



Plate A3: Borehole BH-TSF-01 - Depth from 10.5m to 16.5m – Box 03.



Plate A4: Borehole BH-TSF-01 - Depth from 16.5m to 21.0m – Box 04.



Plate A5: Borehole BH-TSF-01 - Depth from 21.0m to 24.0m – Box 05.



Plate A6: Borehole BH-TSF-01 – SPT @ 1.5m.

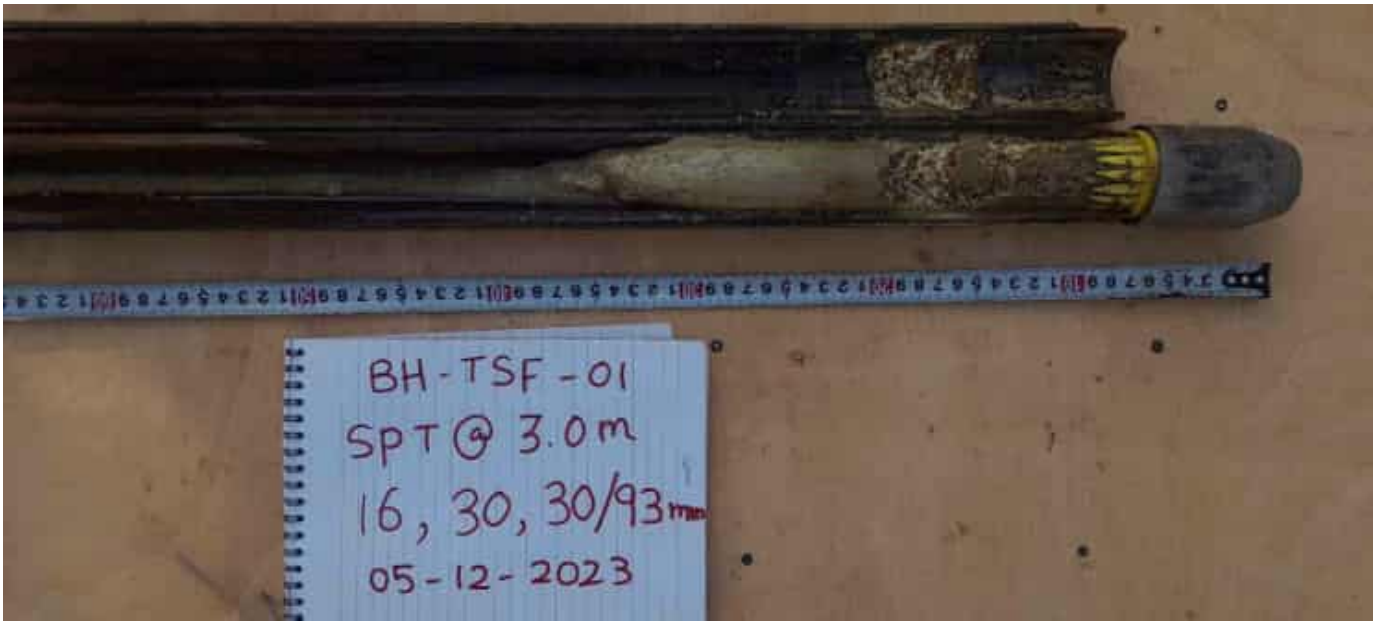


Plate A7: Borehole BH-TSF-01 – SPT @ 3.0m



Plate A8: Borehole BH-TSF-01 – SPT @ 4.5m.



Plate A9: Borehole BH-TSF-01 – SPT @ 6.0m.



Plate B1: Borehole BH-TSF-02 - Depth from 00.0m to 4.4m – Box 01



Plate B2: Borehole BH-TSF-02 - Depth from 4.4m to 8.63m – Box 02



Plate B3: Borehole BH-TSF-02 - Depth from 8.63m to 13.40m – Box 03



Plate B4: Borehole BH-TSF-02 - Depth from 13.4m to 15.0m – Box 04.



Plate B5: Borehole BH-TSF-02 – SPT @ 1.5m.



Plate B6: Borehole BH-TSF-02 – SPT @ 3.0m.



Plate B7: Borehole BH-TSF-02 – SPT @ 4.5m



Plate B8: Borehole BH-TSF-02 – SPT @ 6.0m



Plate C1: Borehole BH-TSF-03 - Depth from 0.0m to 5.38m – Box 01.



Plate C2: Borehole BH-TSF-03 - Depth from 5.38m to 9.44m – Box 02.



Plate C3: Borehole BH-TSF-03 - Depth from 9.44m to 14.0m – Box 03.



Plate C4: Borehole BH-TSF-03 - Depth from 14.0m to 15.0m – Box 04.



Plate C5: Borehole BH-TSF-03 – SPT @ 1.5m



Plate C6: Borehole BH-TSF-03 – SPT @ 3.0m



Plate C7: Borehole BH-TSF-03 – SPT @ 4.5m



Plate C8: Borehole BH-TSF-03 – SPT @ 6.0m

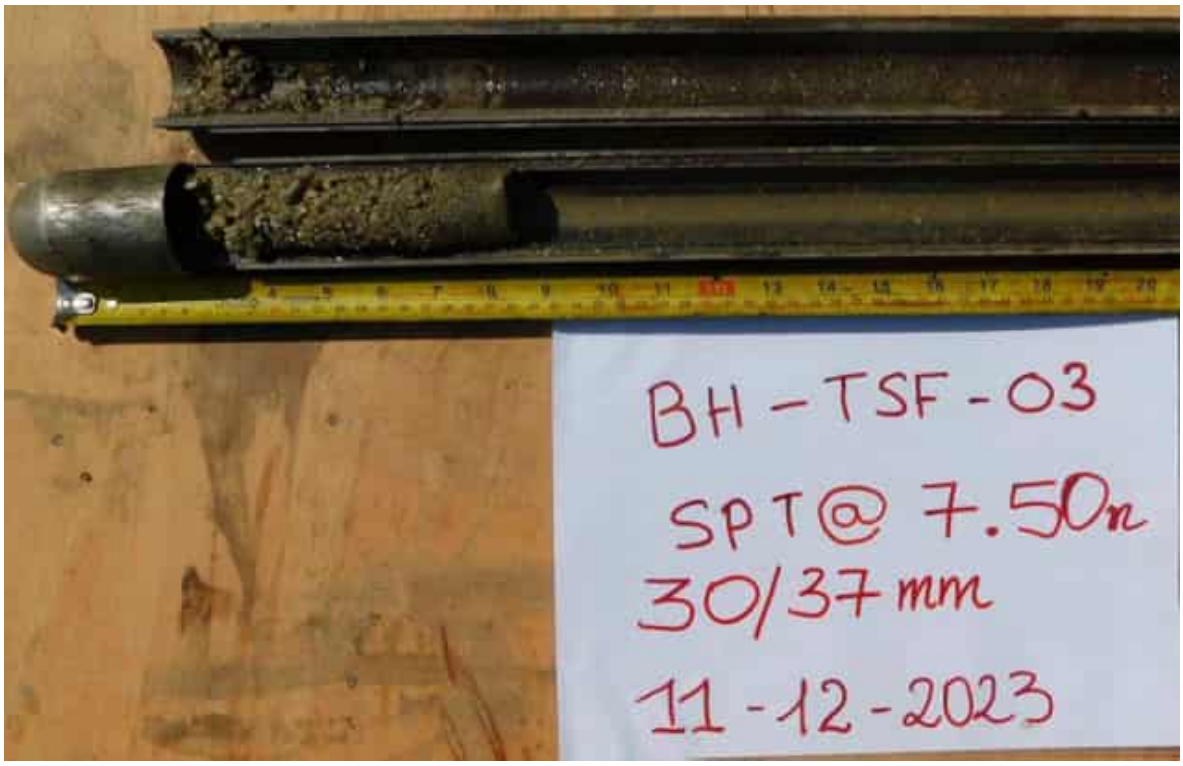


Plate C9: Borehole BH-TSF-03 – SPT @ 7.5m



Plate D1: Borehole BH-TSF-04 - Depth from 0.0m to 4.84m – Box 01.



Plate D2: Borehole BH-TSF-04 - Depth from 4.84m to 9.75m – Box 02



Plate D3: Borehole BH-TSF-04 - Depth from 9.75m to 16.43m – Box 03.



Plate D4: Borehole BH-TSF-04 - Depth from 16.43m to 24.0m – Box 04.



Plate D5: Borehole BH-TSF-04 - Depth from 24.0m to 28.6m – Box 05.



Plate D6: Borehole BH-TSF-04 - Depth from 28.6m to 33.0m – Box 06.



Plate D7: Borehole BH-TSF-04 – SPT @ 1.5m



Plate D8: Borehole BH-TSF-04 – SPT @ 3.0m



Plate D9: Borehole BH-TSF-04 – SPT @ 4.5m



Plate D10: Borehole BH-TSF-04 – SPT @ 6.0m



Plate E1: Borehole BH-TSF-05 - Depth from 0.0m to 4.5m – Box 01.



Plate E2: Borehole BH-TSF-05 - Depth from 4.5m to 9.5m – Box 02.



Plate E3: Borehole BH-TSF-05 - Depth from 9.5m to 14.10m – Box 03.



Plate E4: Borehole BH-TSF-05 - Depth from 14.1m to 18.7m – Box 02.



Plate E5: Borehole BH-TSF-05 - Depth from 18.70m to 23.22m – Box 05.



Plate E6: Borehole BH-TSF-05 - Depth from 23.22m to 27.64m – Box 06.



Plate E7: Borehole BH-TSF-05 - Depth from 27.64m to 32.43m – Box 07.



Plate E8: Borehole BH-TSF-05 - Depth from 32.43m to 33.0m – Box 08.



Plate E9: Borehole BH-TSF-05 – SPT @ 1.5m



Plate E10: Borehole BH-TSF-05 – SPT @ 4.5m.



Plate E11: Borehole BH-TSF-05 – SPT @ 7.0m.



Plate E12: Borehole BH-TSF-05 – SPT @ 8.0m.



Plate E13: Borehole BH-TSF-05 – SPT @ 9.5m



Plate F1: Borehole BH-TSF-06 - Depth from 0.00m to 5.30m – Box 01.



Plate F2: Borehole BH-TSF-06 - Depth from 5.3m to 9.98m – Box 02.



Plate F3: Borehole BH-TSF-06 - Depth from 9.98m to 16.78m – Box 03.



Plate F4: Borehole BH-TSF-06 - Depth from 16.78m to 22.03m – Box 04.



Plate F5: Borehole BH-TSF-06 - Depth from 22.03m to 22.50m – Box 05.



Plate F6: Borehole BH-TSF-06 – SPT @ 1.5m.



Plate F7: Borehole BH-TSF-06 – SPT @ 3.0m.

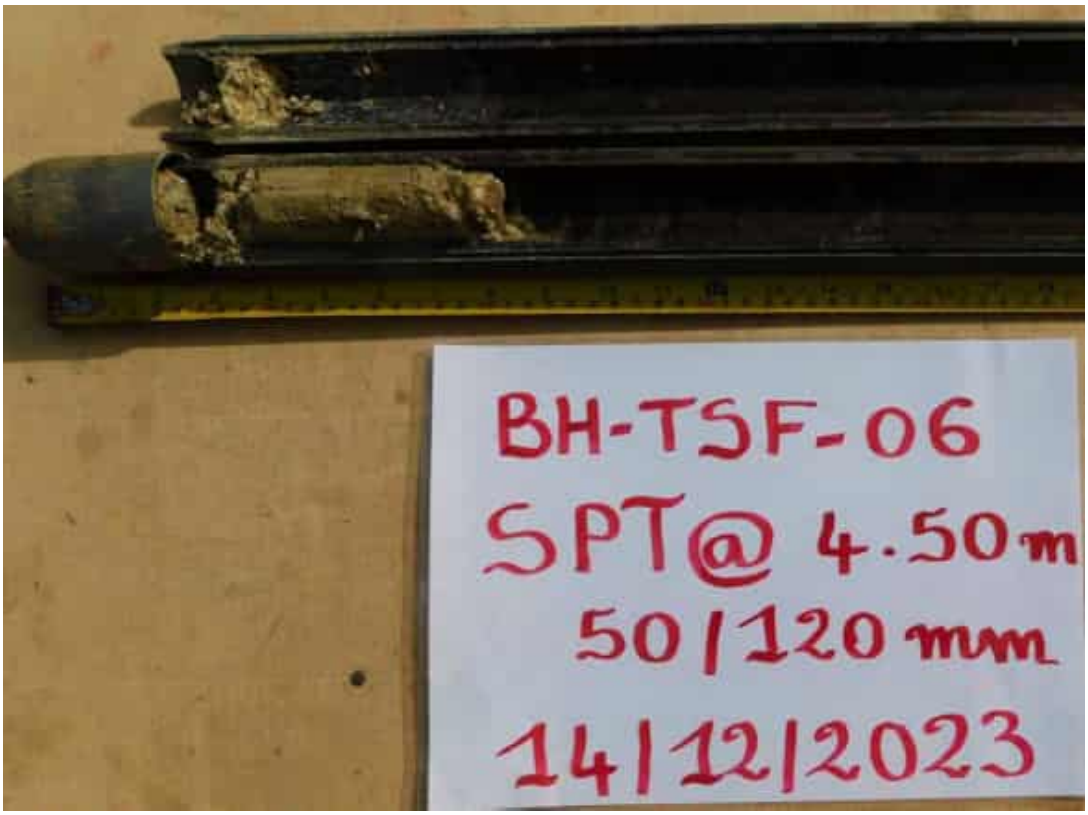


Plate F8: Borehole BH-TSF-06 – SPT @ 4.5m.



Plate F9: Borehole BH-TSF-06 – SPT @ 6.0m.



Plate G1: Borehole BH-TSF-07 - Depth from 0.00m to 7.5m – Box 01.



Plate G2: Borehole BH-TSF-07 - Depth from 7.5m to 14.85m – Box 02.



Plate G3: Borehole BH-TSF-07 - Depth from 14.85m to 19.66m – Box 03.



Plate G4: Borehole BH-TSF-07 - Depth from 19.66m to 25.02m – Box 04.



Plate G5: Borehole BH-TSF-07 - Depth from 25.02m to 29.75m – Box 05.



Plate G6: Borehole BH-TSF-07 - Depth from 29.75m to 34.50m – Box 06.



Plate G7: Borehole BH-TSF-07 - Depth from 34.5m to 39.0m – Box 07.



Plate G8: Borehole BH-TSF-07 – SPT @ 1.5m.



Plate G9: Borehole BH-TSF-07 – SPT @ 3.0m.



Plate G10: Borehole BH-TSF-07 – SPT @ 4.5m.



Plate G11: Borehole BH-TSF-07 – SPT @ 6.0m.



Plate G12: Borehole BH-TSF-07 – SPT @ 7.5m.



Plate G13: Borehole BH-TSF-07 – SPT @ 9.0m.



Plate G14: Borehole BH-TSF-07 – SPT @ 10.5m.



Plate G15: Borehole BH-TSF-07 – SPT @ 12.0m.



Plate G16: Borehole BH-TSF-07 – SPT @ 13.5m.

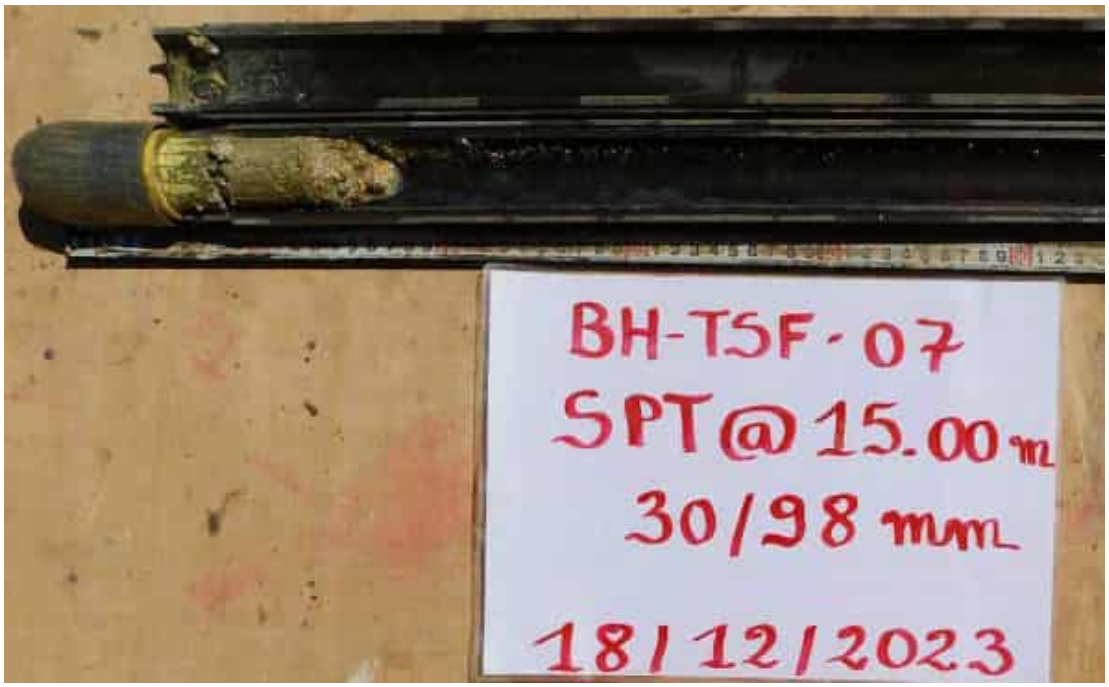


Plate G17: Borehole BH-TSF-07 – SPT @ 15.0m.



Plate H1: Borehole BH-TSF-08 - Depth from 0.0m to 6.0m – Box 01.



Plate H2: Borehole BH-TSF-08 - Depth from 6.0m to 13.5m – Box 02.



Plate H3: Borehole BH-TSF-08 - Depth from 13.5m to 19.4m – Box 03.



Plate H4: Borehole BH-TSF-08 - Depth from 19.4m to 24.0m – Box 04.



Plate H5: Borehole BH-TSF-08 - Depth from 24.0m to 29.47m – Box 05.



Plate H6: Borehole BH-TSF-08 - Depth from 29.47m to 31.50m – Box 06.



Plate H7: Borehole BH-TSF-08 – SPT @ 1.5m

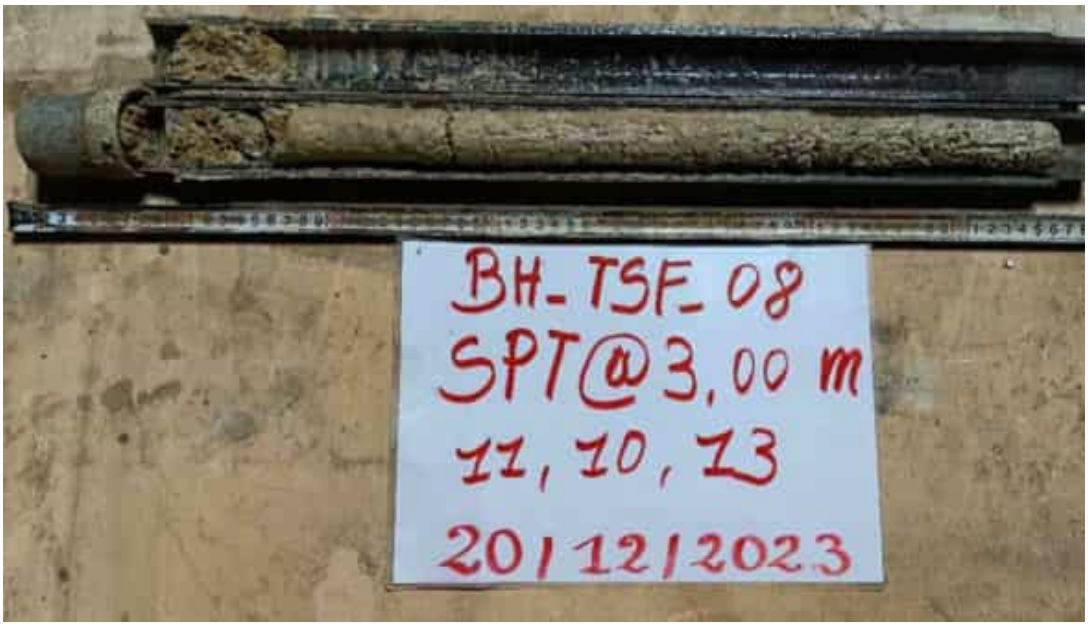


Plate H8: Borehole BH-TSF-08 – SPT @ 3.0m



Plate H9: Borehole BH-TSF-08 – SPT @ 4.5m.

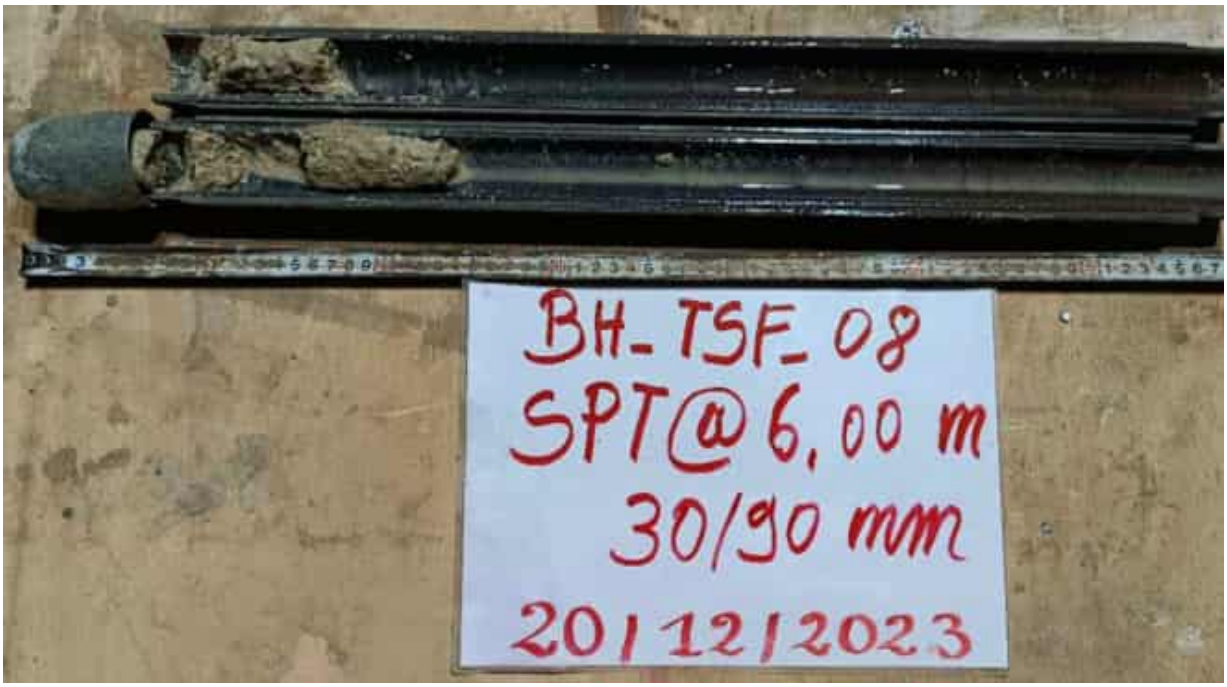


Plate H10: Borehole BH-TSF-08 – SPT @ 6.0m.



Plate H11: Borehole BH-TSF-08 – SPT @ 9.0m.



Plate I1: Borehole BH-WDC-01 - Depth from 0.00m to 7.50m – Box 01.



Plate I2: Borehole BH-WDC-01 - Depth from 7.5m to 17.56m – Box 02.



Plate I3: Borehole BH-WDC-01 - Depth from 17.56m to 23.48m – Box 03.



Plate I4: Borehole BH-WDC-01 - Depth from 23.48m to 25.0m – Box 04.



Plate I5: Borehole BH-WDC-01 – SPT @ 1.5m



Plate I6: Borehole BH-WDC-01 – SPT @ 3.0m



Plate I7: Borehole BH-WDC-01 – SPT @ 4.5m.

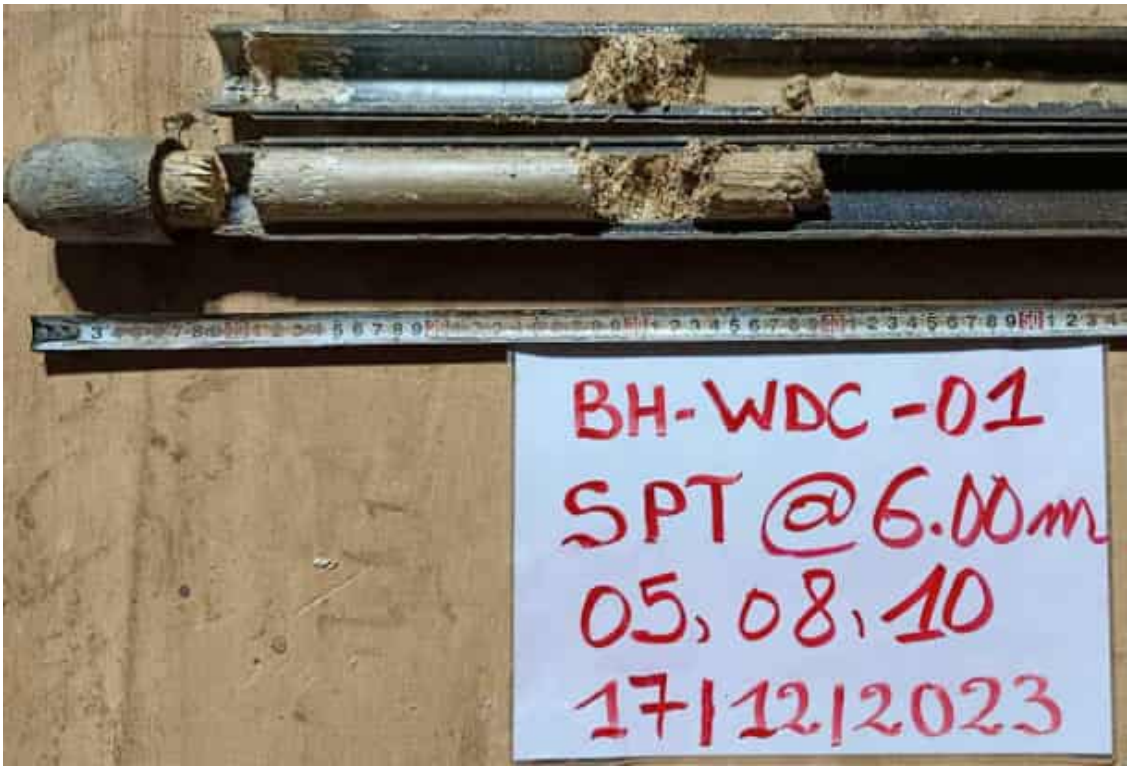


Plate I8: Borehole BH-WDC-01 – SPT @ 6.0m.



Plate I9: Borehole BH-WDC-01 – SPT @ 7.5m



Plate I10: Borehole BH-WDC-01 – SPT @ 9.0m



Plate I11: Borehole BH-WDC-01 – SPT @ 10.5m



Plate I12: Borehole BH-WDC-01 – SPT @ 12.0m



Plate I13: Borehole BH-WDC-01 – SPT @ 13.5m



Plate I14: Borehole BH-WDC-01 – SPT @ 15.0m



Plate I15: Borehole BH-WDC-01 – SPT @ 16.5m.



Plate I16: Borehole BH-WDC-01 – SPT @ 18.0m.



Plate I17: Borehole BH-WDC-01 – SPT @ 19.5m.



Plate I18: Borehole BH-WDC-01 – SPT @ 21.0m.



Plate I19: Borehole BH-WDC-01 – SPT @ 22.5m.



Plate J1: Borehole BH-WDC-02 Depth from 0.0m to 5.19m – Box 01.



Plate J2: Borehole BH-WDC-02 Depth from 5.19m to 12.56m – Box 02.



Plate J3: Borehole BH-WDC-02 - Depth from 12.56m to 19.67m – Box 03.



Plate J4: Borehole BH-WDC-02 - Depth from 19.67m to 24.30m – Box 04.



Plate J5: Borehole BH-WDC-02 - Depth from 24.30m to 31.5m – Box 05.



Plate J6: Borehole BH-WDC-02 – SPT @ 1.5m.



Plate J7: Borehole BH-WDC-02 – SPT @ 3.0m.



Plate J8: Borehole BH-WDC-02 – SPT @ 4.5m.



Plate J9: Borehole BH-WDC-02 – SPT @ 6.0m



Plate J10: Borehole BH-WDC-02 – SPT @ 7.5m.



Plate J11: Borehole BH-WDC-02 – SPT @ 9.0m.



Plate J12: Borehole BH-WDC-02 – SPT @ 10.5m.

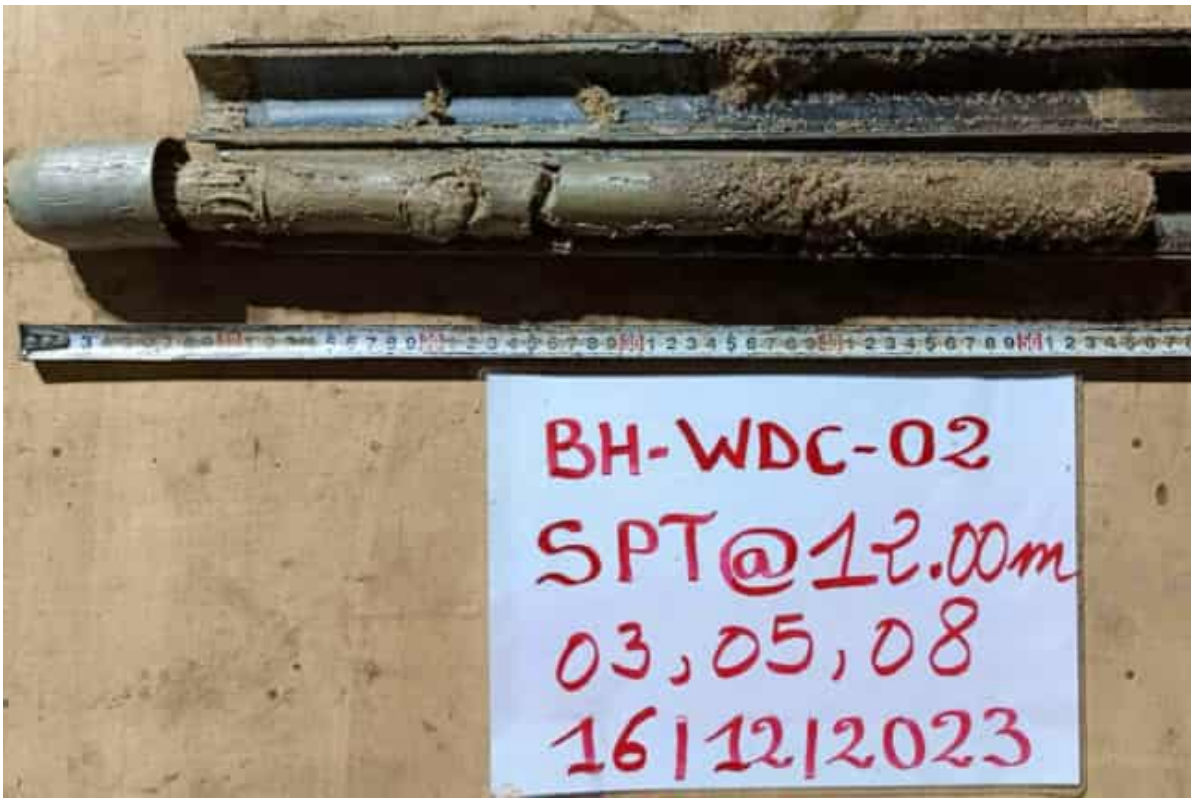


Plate J13: Borehole BH-WDC-02 – SPT @ 12.0m



Plate J14: Borehole BH-WDC-02 – SPT @ 13.5m.



Plate J15: Borehole BH-WDC-02 – SPT @ 15.0m.



Plate J16: Borehole BH-WDC-02 – SPT @ 16.5m.



Plate J17: Borehole BH-WDC-02 – SPT @ 18.0m



Plate J18: Borehole BH-WDC-02 – SPT @ 19.5m



Plate K1: Borehole BH-WSD-01 - Depth from 0.00m to 6.97m – Box 01.



Plate K2: Borehole BH-WSD-01 - Depth from 6.97m to 11.5m – Box 02.



Plate K3: Borehole BH-WSD-01 - Depth from 11.50m to 15.00m – Box 03.

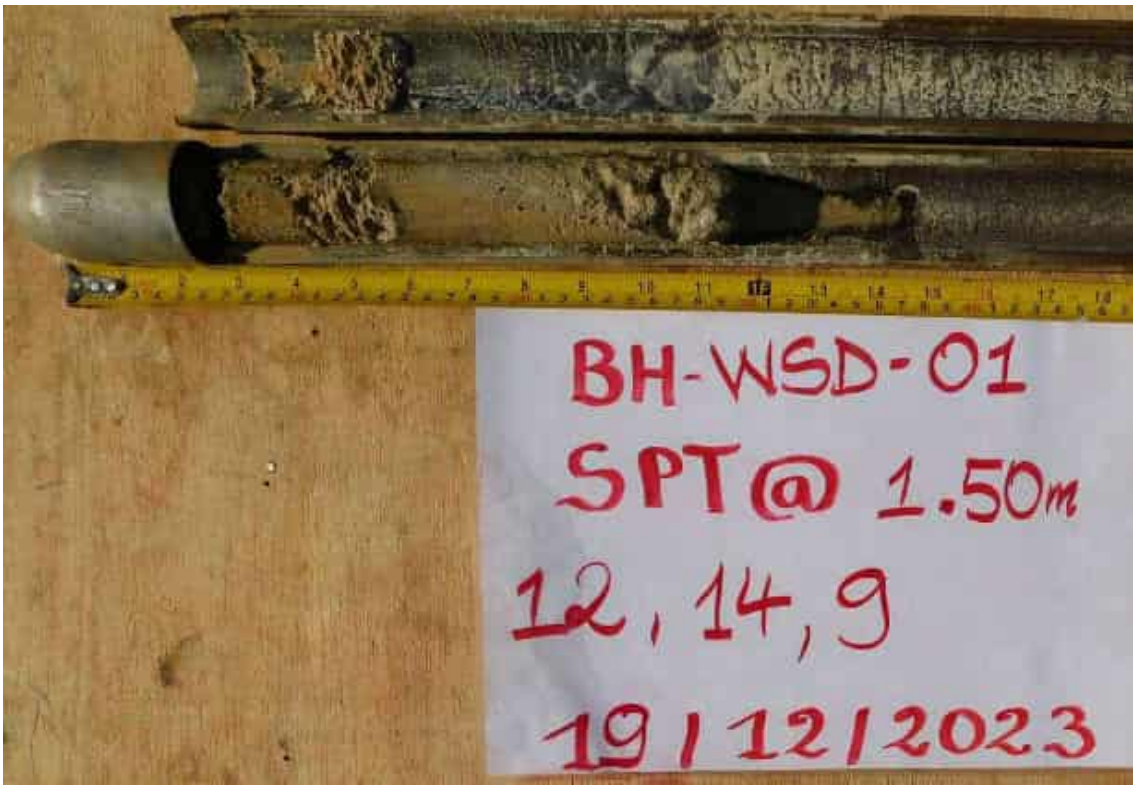


Plate K4: Borehole BH-WSD-01 – SPT @ 1.5m



Plate K5: Borehole BH-WSD-01 – SPT @ 3.5m.



Plate K6: Borehole BH-WSD-01 – SPT @ 4.5m.



Plate K7: Borehole BH-WSD-01 – SPT @ 6.0m.



Figure L1: Borehole BH-WSD-02 - Depth from 0.00m to 5.75m – Box 01.



Figure L2: Borehole BH-WSD-02 - Depth from 5.75m to 10.9m – Box 02.



Figure L3: Borehole BH-WSD-02 - Depth from 10.9m to 15.0m – Box 03.



Figure L4: Borehole BH-WSD-02 – SPT @ 1.5m



Figure L5: Borehole BH-WSD-02 – SPT @ 3.5m



Figure L6: Borehole BH-WSD-02 – SPT @ 4.5m



Figure M1: Borehole BH-HDC-01 - Depth from 0.00m to 5.00 m – Box 01



Figure M2: Borehole BH-HDC-01 - Depth from 5.00m to 10.00 m – Box 02



Figure M3: Borehole BH-HDC-01 - Depth from 10.00m to 15.00 m – Box 03



Figure M4: Borehole BH-HDC-01 - Depth from 15.00m to 20.00 m – Box 04



Figure M5: Borehole BH-HDC-01 - Depth from 20.00m to 20.80 m – Box 05



Figure M6: Borehole BH-HDC-01 – SPT @ 1.50m

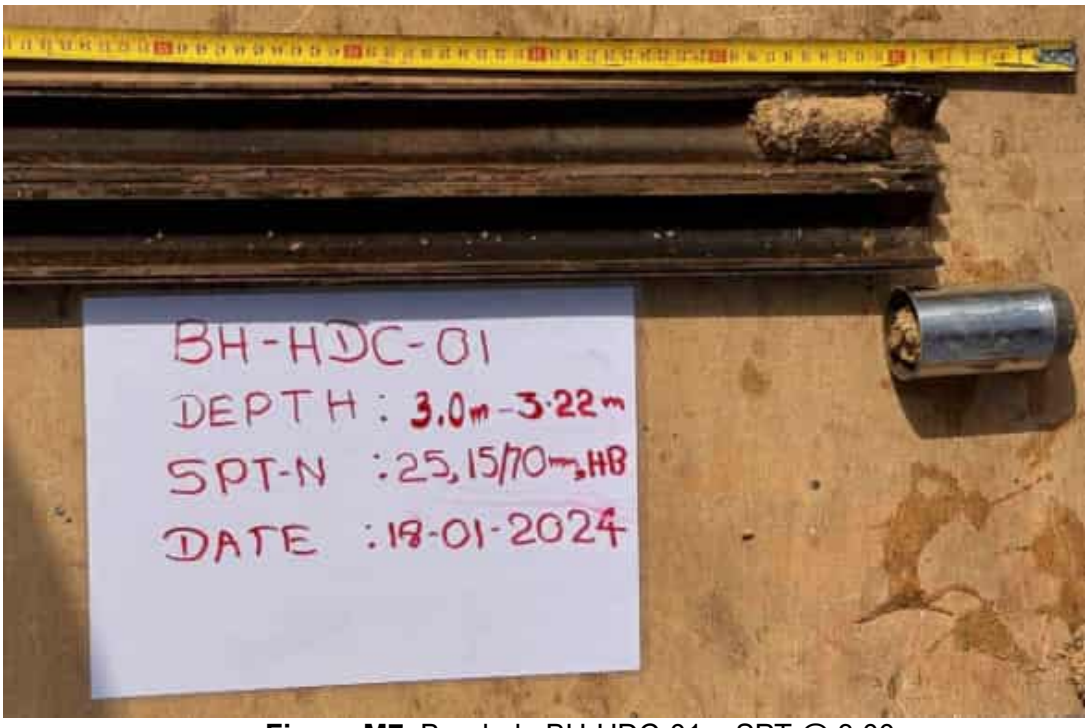


Figure M7: Borehole BH-HDC-01 – SPT @ 3.00m



Figure M8: Borehole BH-HDC-01 – SPT @ 4.70m

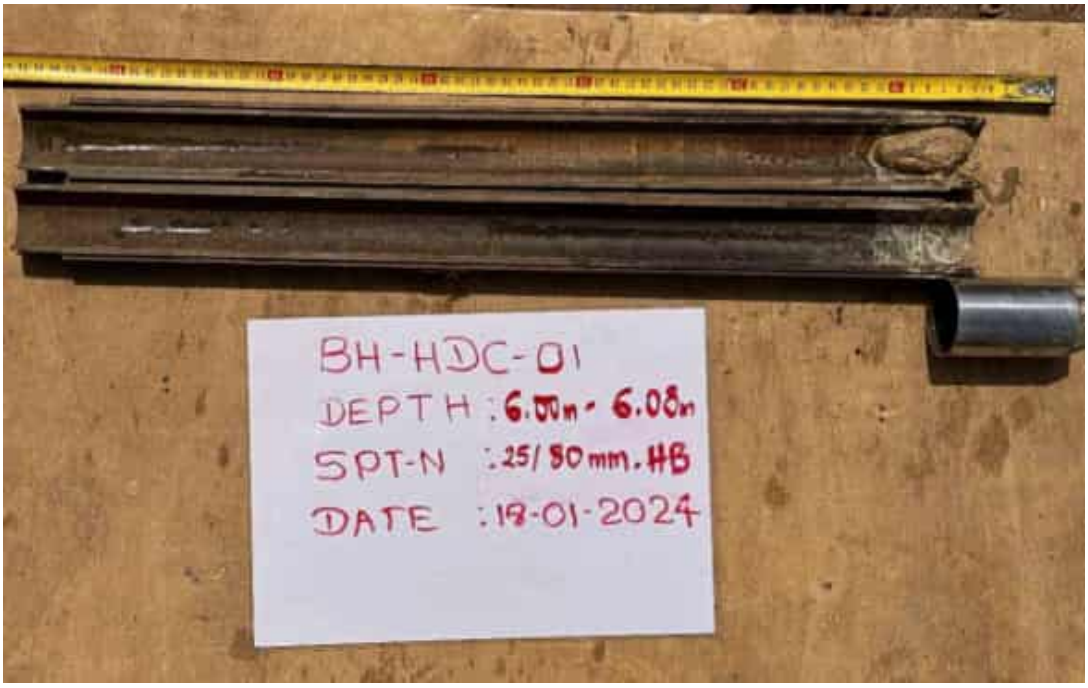


Figure M9: Borehole BH-HDC-01 – SPT @ 6.00m



Figure N1: Borehole BH-WHD-01 - Depth from 0.00m to 5.00 m – Box 01



Figure N2: Borehole BH-WHD-01 - Depth from 5.00m to 10.00 m – Box 02

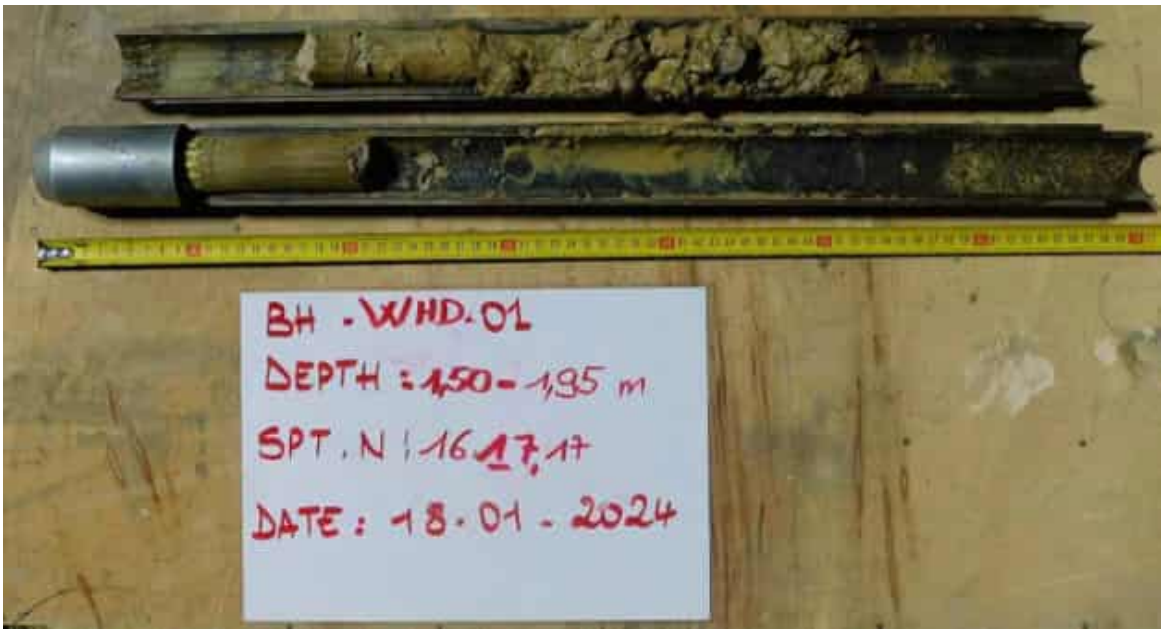


Figure N3: Borehole BH-WHD-01 – SPT @ 1.50m



Figure N4: Borehole BH-WHD-01 – SPT @ 3.00m



Figure O1: Borehole BH-PS-01 - Depth from 0.00m to 5.00 m – Box 01



Figure O2: Borehole BH-PS-01 - Depth from 5.00m to 10.00 m – Box 02



Figure O3: Borehole BH-PS-01 - Depth from 10.00m to 15.00 m – Box 03



Figure O4: Borehole BH-PS-01 - Depth from 15.00m to 20.00 m – Box 04



Figure O5: Borehole BH-PS-01 - Depth from 20.00m to 25.00 m – Box 05



Figure O6: Borehole BH-PS-01 - Depth from 25.00m to 30.00 m – Box 06



Figure O7: Borehole BH-PS-01 - Depth from 30.00m to 35.00 m – Box 07



Figure O8: Borehole BH-PS-01 - Depth from 35.00m to 40.00 m – Box 08



Figure O9: Borehole BH-PS-01 - Depth from 40.00m to 45.00 m – Box 09



Figure OM10: Borehole BH-PS-01 - Depth from 45.00m to 48.50 m – Box 10



Figure O11: Borehole BH-PS-01 – CS @ 1.5.00m

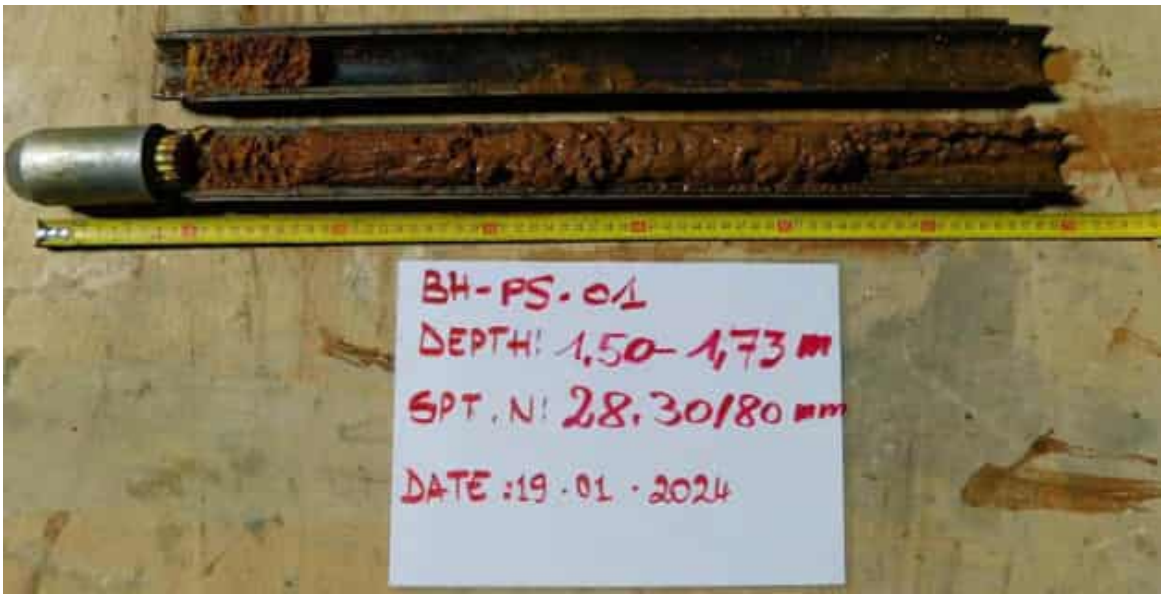


Figure O12: Borehole BH-PS-01 – SPT @ 1.50m



Figure O13: Borehole BH-PS-01 – SPT @ 4.50m



Figure O14: Borehole BH-PS-01 – SPT @ 6.00m



Figure O15: Borehole BH-PS-01 – CS @ 7.50m

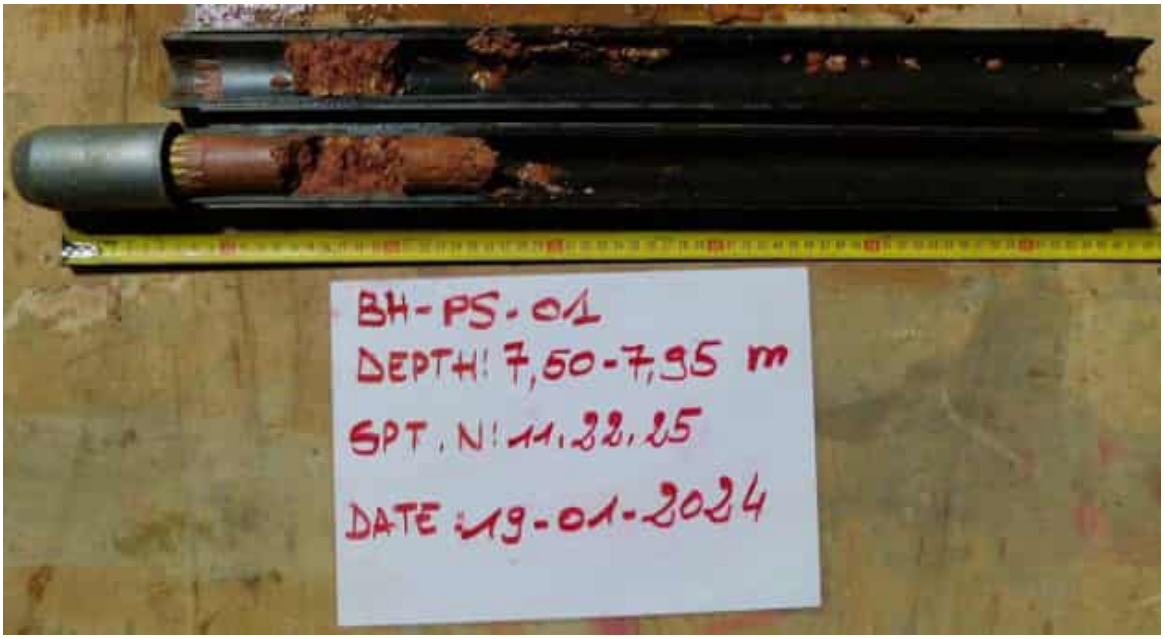


Figure O16: Borehole BH-PS-01 – SPT @ 7.50m



Figure O17: Borehole BH-PS-01 – CS @ 9.00m



Figure O18: Borehole BH-PS-01 – SPT @ 9.00m



Figure O19: Borehole BH-PS-01 – CS @ 10.50m



Figure O20: Borehole BH-PS-01 – SPT @ 10.50m



Figure O21: Borehole BH-PS-01 – CS @ 12.00m



Figure O22: Borehole BH-PS-01 – SPT @ 12.00m



Figure O23: Borehole BH-PS-01 – CS @ 13.50m



Figure O24 Borehole BH-PS-01 – SPT @ 13.50m



Figure O25 Borehole BH-PS-01 – SPT @ 15.00m

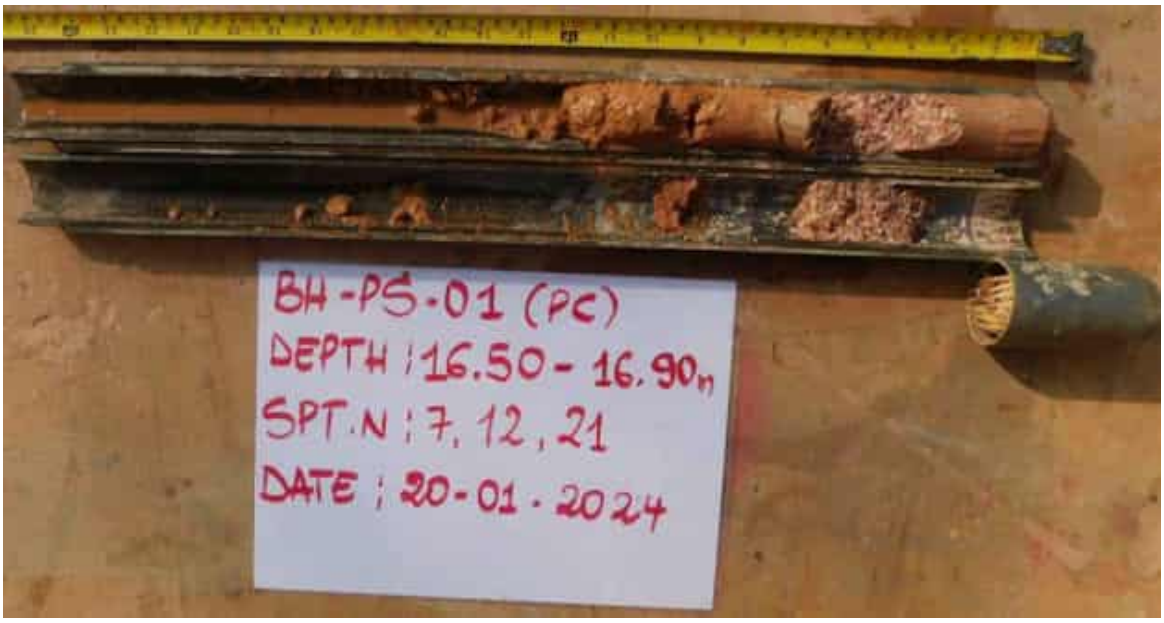


Figure O26 Borehole BH-PS-01 – SPT @ 16.50m



Figure O27: Borehole BH-PS-01 – CS @ 18.00m



Figure O28 Borehole BH-PS-01 – SPT @ 18.00m



Figure O29: Borehole BH-PS-01 – CS @ 19.50m



Figure O30 Borehole BH-PS-01 – SPT @ 19.50m



Figure O31: Borehole BH-PS-01 – CS @ 21.00m

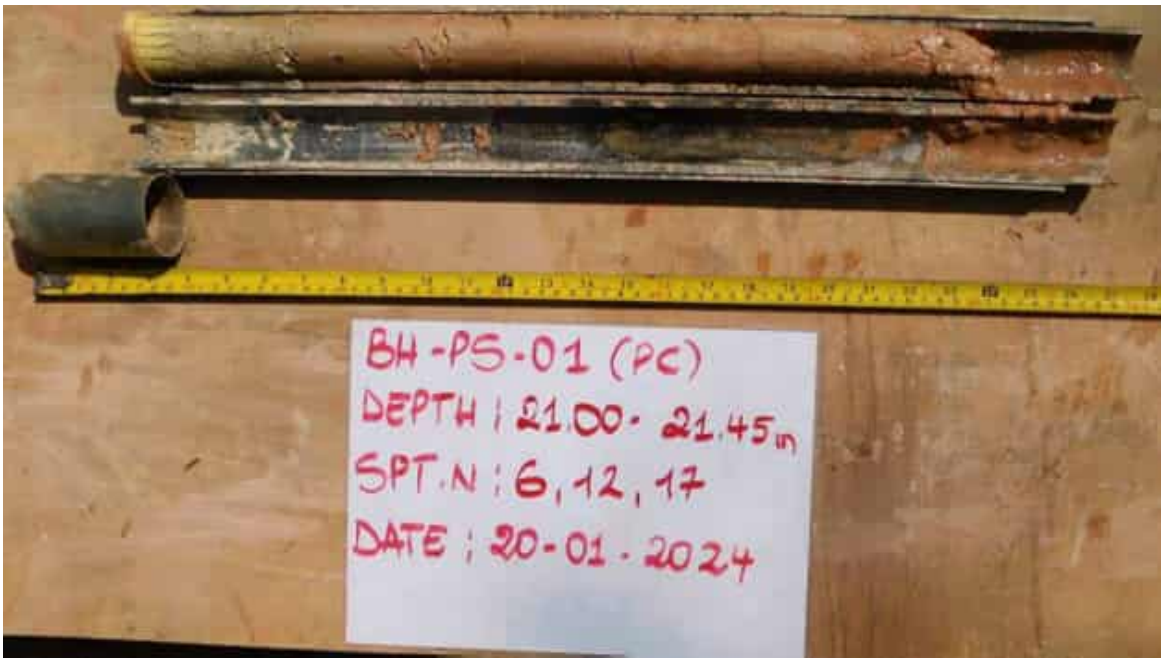


Figure O31 Borehole BH-PS-01 – SPT @ 21.00m

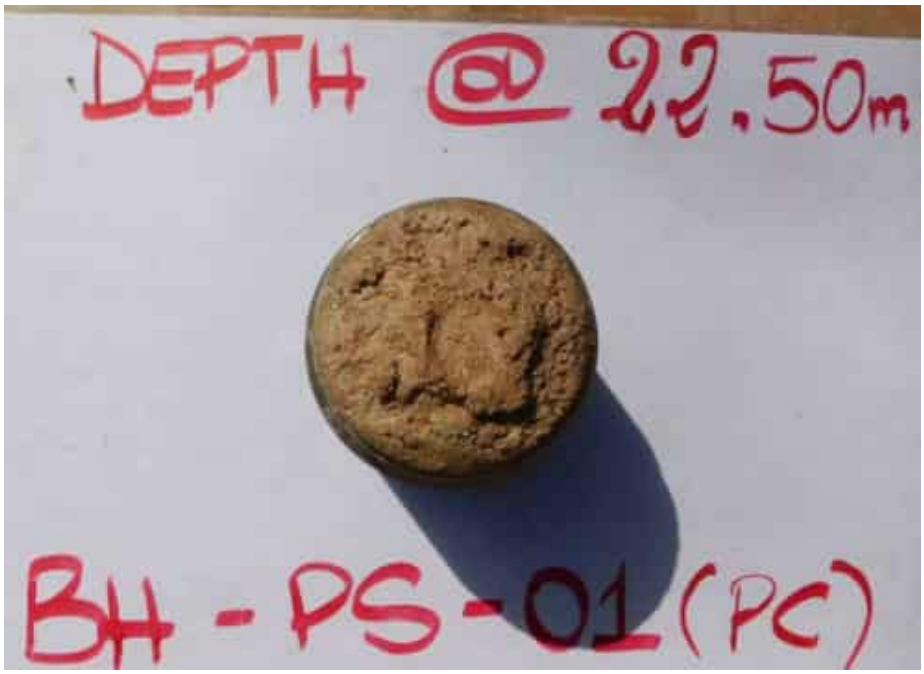


Figure O32: Borehole BH-PS-01 – CS @ 22.50m



Figure O33 Borehole BH-PS-01 – SPT @ 22.50m



Figure O34: Borehole BH-PS-01 – CS @ 24.00m



Figure O35 Borehole BH-PS-01 – SPT @ 24.00m



Figure O36: Borehole BH-PS-01 – CS @ 25.50m



Figure O37: Borehole BH-PS-01 – CS @ 27.00m



Figure O38: Borehole BH-PS-01 – SPT @ 27.00m

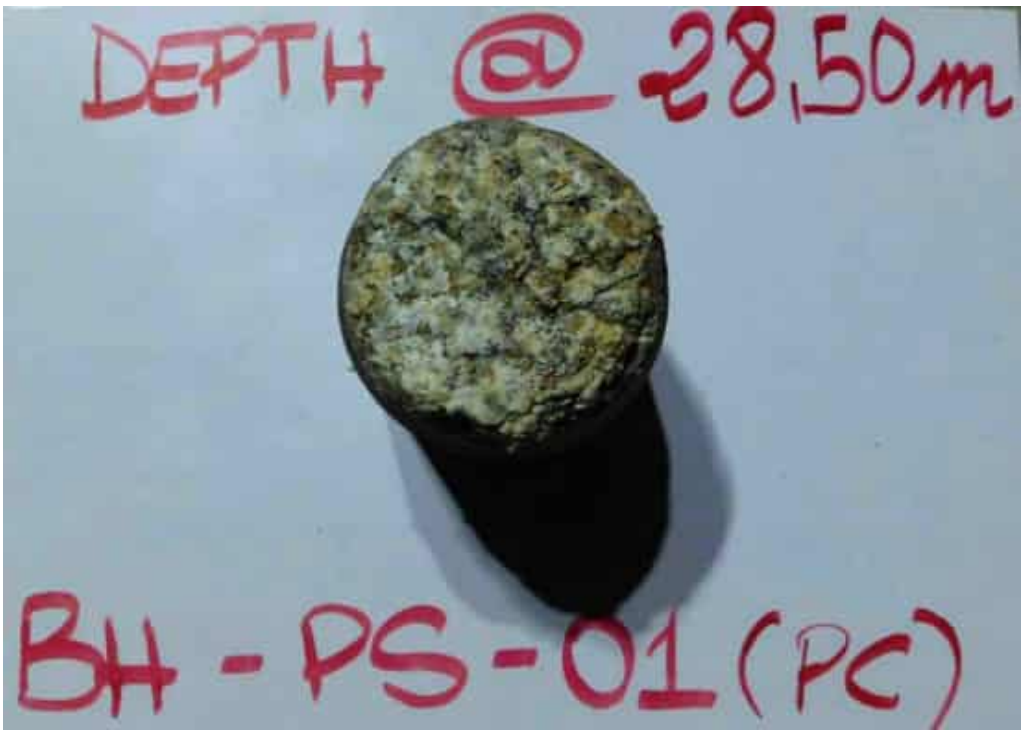


Figure O39: Borehole BH-PS-01 – CS @ 28.50m



Figure O40: Borehole BH-PS-01 – CS @ 30.00m

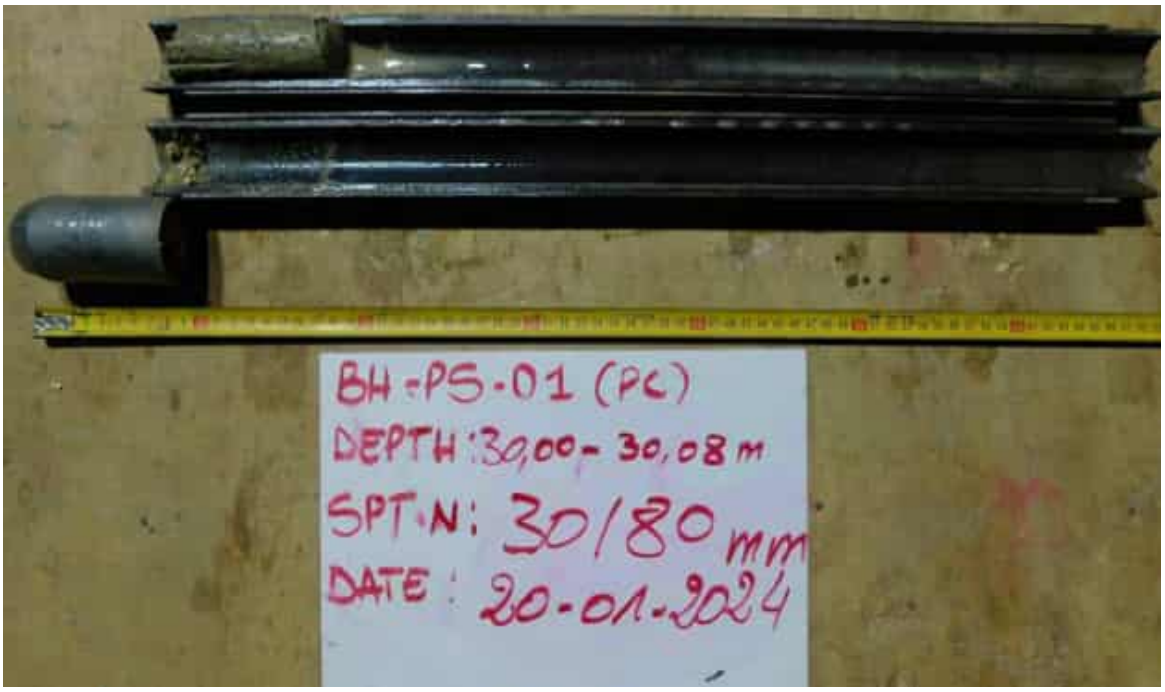


Figure O41: Borehole BH-PS-01 – SPT @ 30.00m

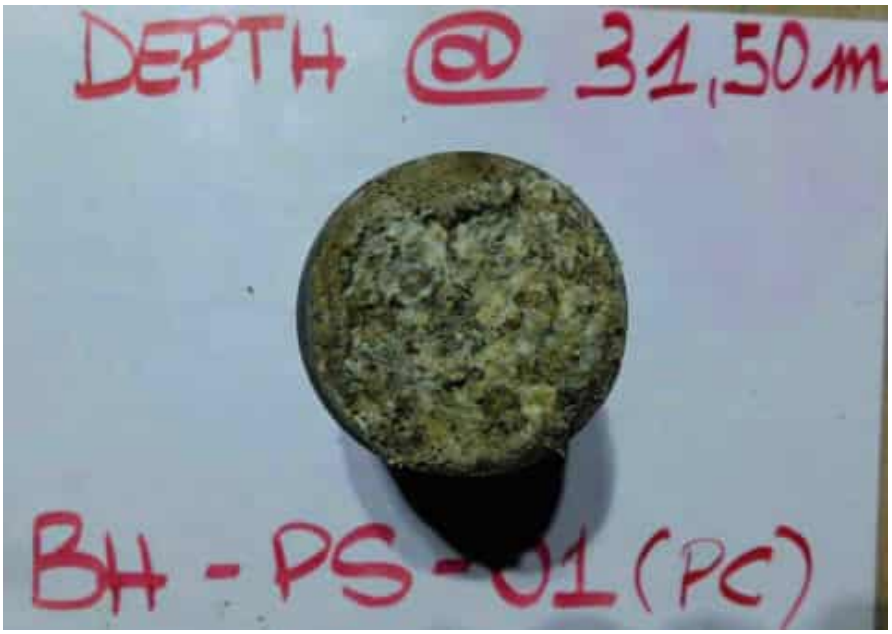


Figure O42: Borehole BH-PS-01 – CS @ 31.50m



Figure P01: Borehole BH-PS-02 - Depth from 0.00m to 5.00 m – Box 01



Figure P02: Borehole BH-PS-02 - Depth from 5.00m to 10.00 m – Box 02



Figure P03: Borehole BH-PS-02 - Depth from 10.00m to 15.00 m – Box 03



Figure P04: Borehole BH-PS-02 - Depth from 15.00m to 20.00 m – Box 04



Figure P05: Borehole BH-PS-02 - Depth from 20.00m to 25.00 m – Box 05



Figure P06: Borehole BH-PS-02 - Depth from 25.00m to 30.00 m – Box 06



Figure P07: Borehole BH-PS-02 - Depth from 30.00m to 35.00 m – Box 07



Figure P08: Borehole BH-PS-02 – CS @ 1.5.00m



Figure P09: Borehole BH-PS-02 – SPT @ 1.50m



Figure P10: Borehole BH-PS-02 – CS@ 3.00m



Figure P11: Borehole BH-PS-02 – SPT @ 3.00m



Figure P12: Borehole BH-PS-02 – CS @ 4.50m



Figure P13: Borehole BH-PS-02 – SPT @ 4.50m



Figure P14: Borehole BH-PS-02 – CS @ 6.00m



Figure P15: Borehole BH-PS-02 – CS @ 7.50m

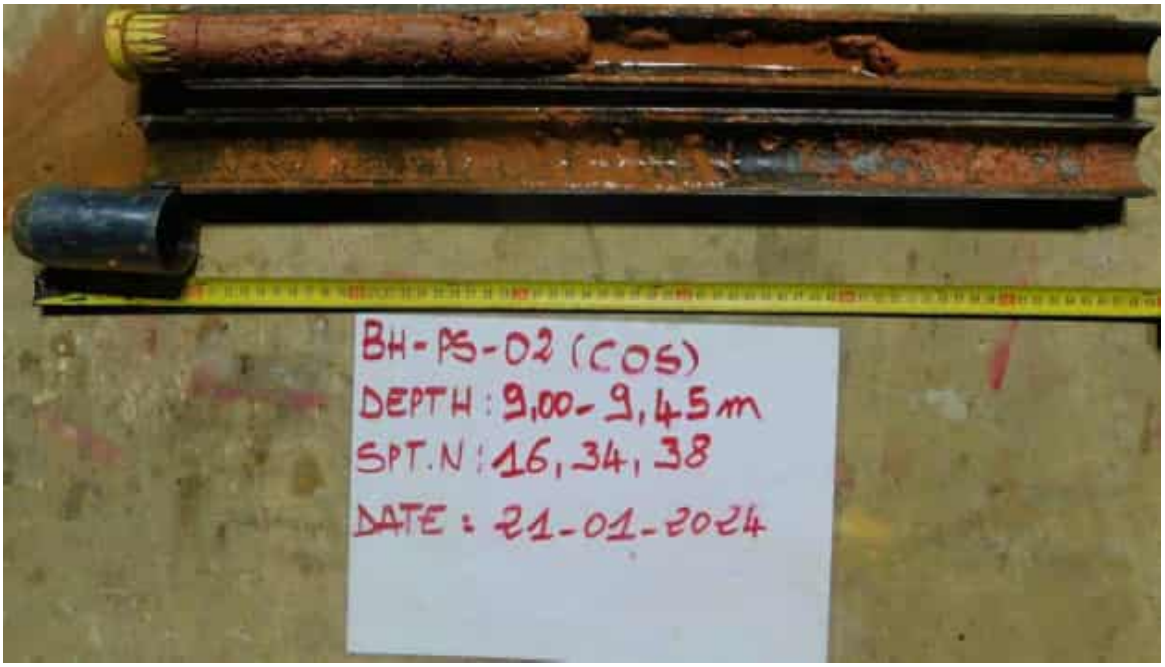


Figure P16: Borehole BH-PS-02 – SPT @ 9.00m



Figure P17: Borehole BH-PS-01 – CS @ 10.50m



Figure P18: Borehole BH-PS-02 –SPT @ 10.50m



Figure P19: Borehole BH-PS-02 – CS @ 12.00m



Figure P20: Borehole BH-PS-02 – SPT @ 12.00m



Figure P21 Borehole BH-PS-02 – CS @ 13.50m

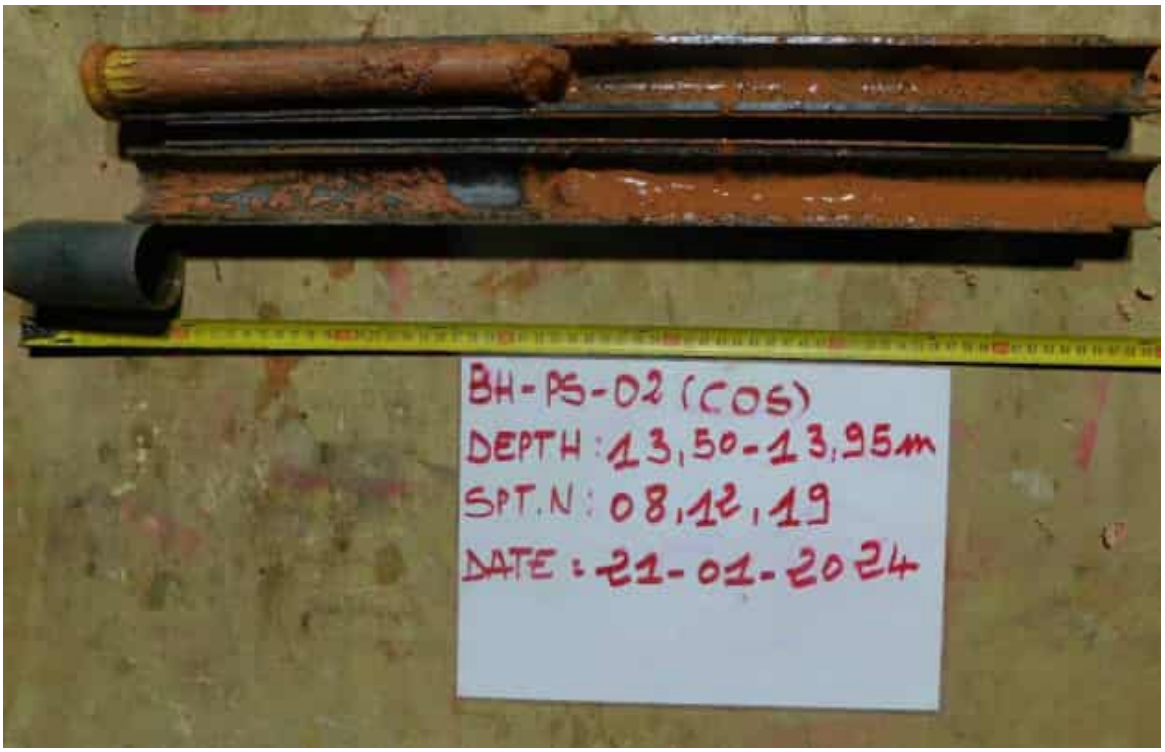


Figure P22 Borehole BH-PS-02 – SPT @ 13.50m

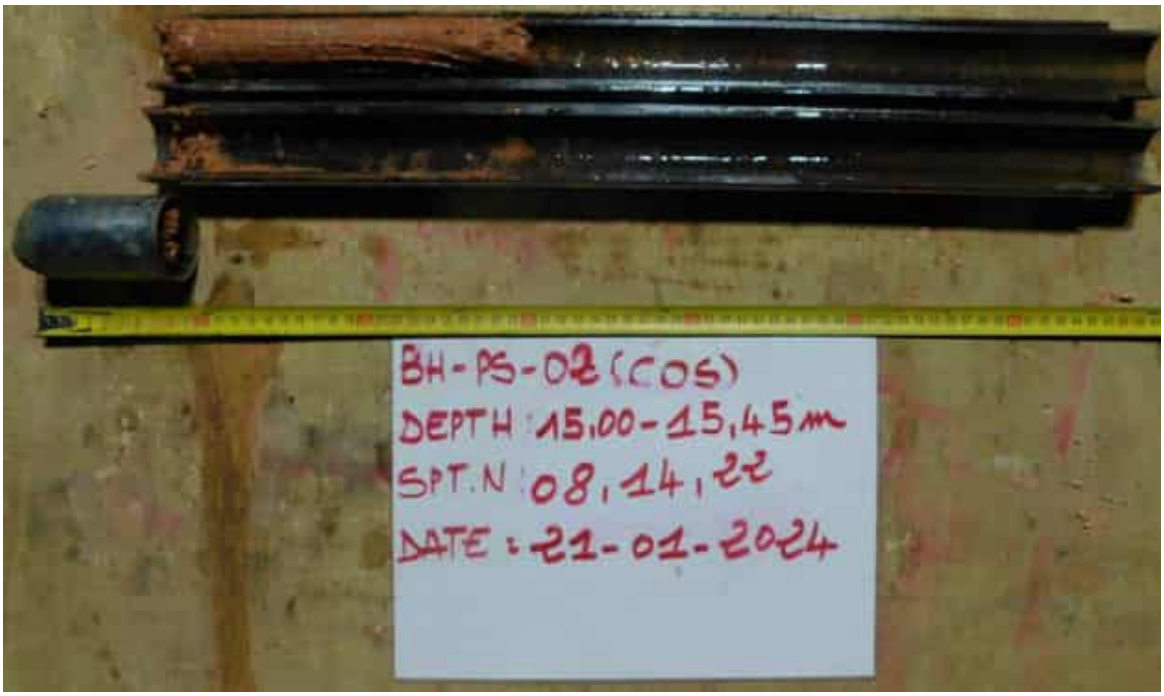


Figure P23 Borehole BH-PS-02 – SPT @ 15.00m



Figure P24: Borehole BH-PS-02 – CS @ 16.50m

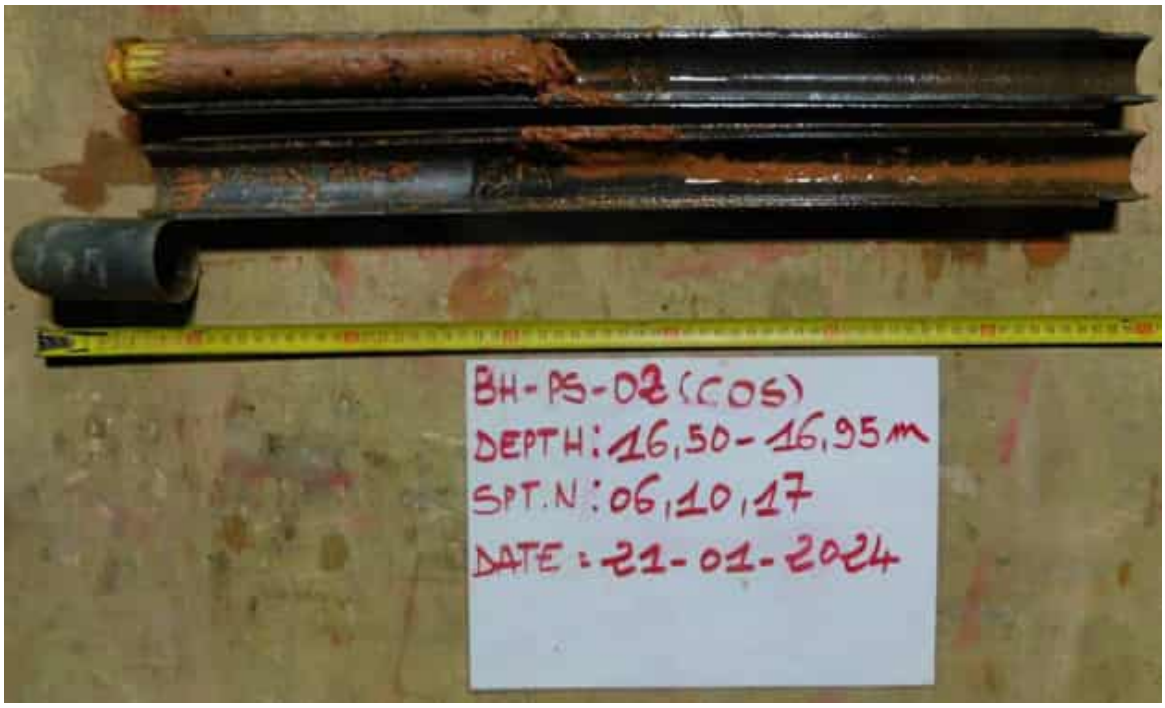


Figure P25 Borehole BH-PS-01 – SPT @ 18.00m



Figure P26: Borehole BH-PS-2 – CS @ 18.00m



Figure P27 Borehole BH-PS-02 – SPT @ 18.00m



Figure P28: Borehole BH-PS-02 – SPT @ 19.50m

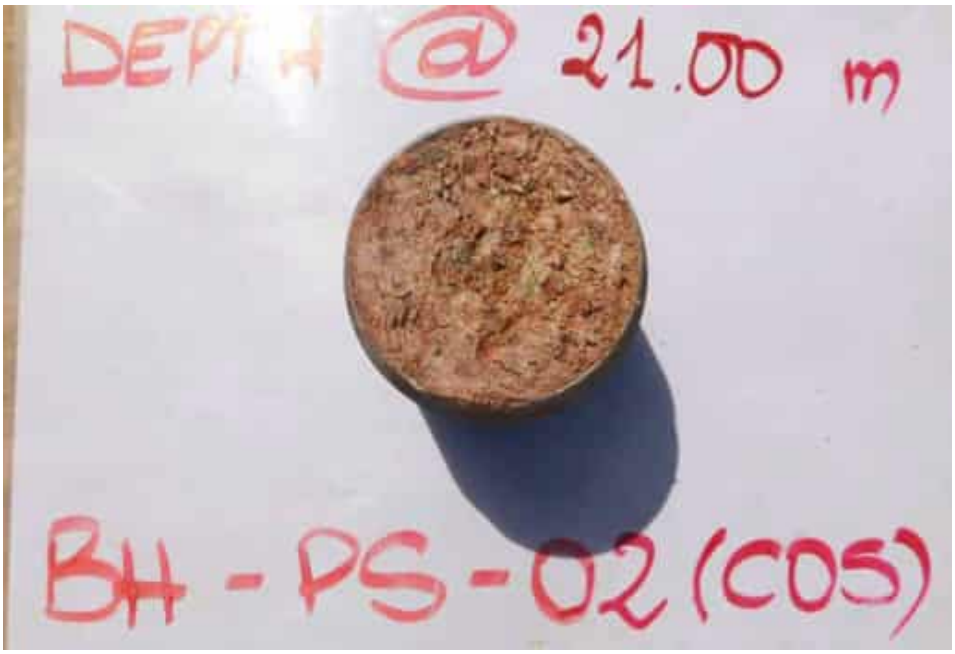


Figure P29 Borehole BH-PS-02 – CS @ 21.00m



Figure P30: Borehole BH-PS-02 – SPT @ 21.00m



Figure P 31 Borehole BH-PS-02 – CS @ 22.50m



Figure P32: Borehole BH-PS-02 – SPT @ 22.50m



Figure P33 Borehole BH-PS-02 – CS @ 24.00m



Figure P34: Borehole BH-PS-02 – CS @ 25.50m

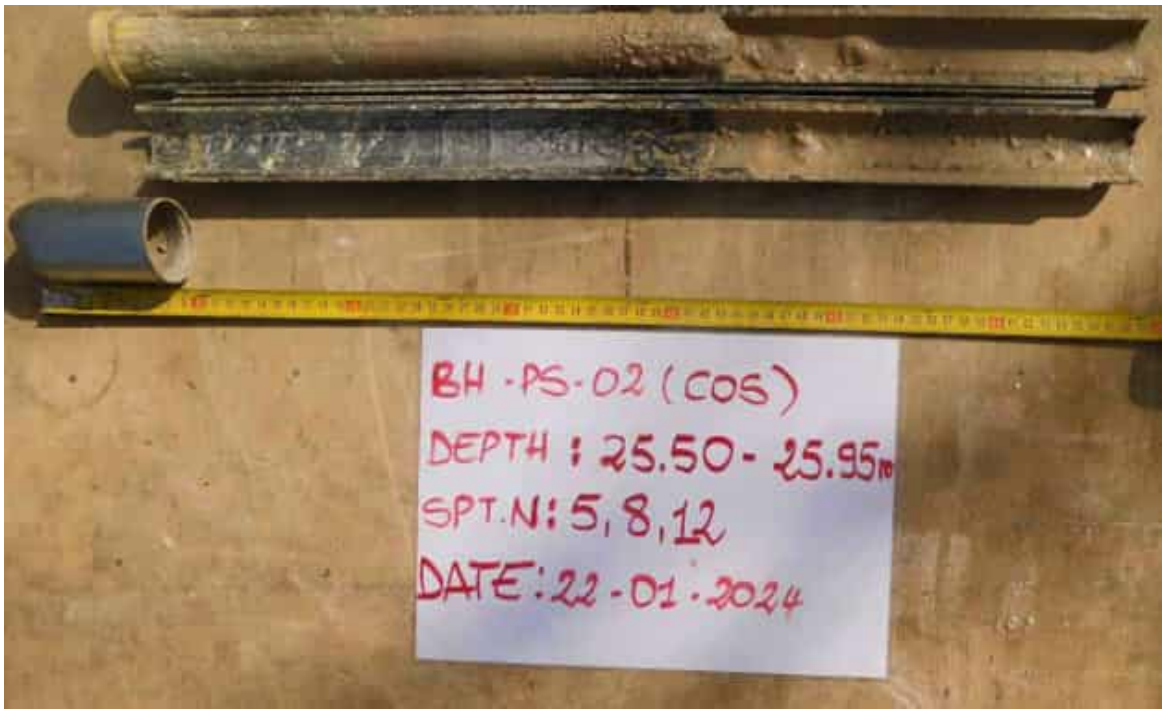


Figure P35: Borehole BH-PS-02 – SPT @ 25.50m



Figure Q1: Borehole BH-PS-03 - Depth from 0.00m to 5.00 m – Box 01



Figure Q2: Borehole BH-PS-03 - Depth from 5.00m to 10.00 m – Box 02



Figure Q3: Borehole BH-PS-03 - Depth from 10.00m to 15.00 m – Box 03



Figure Q4: Borehole BH-PS-03 - Depth from 15.00m to 20.00 m – Box 04



Figure Q5: Borehole BH-PS-03 - Depth from 20.00m to 25.00 m – Box 05



Figure Q6: Borehole BH-PS-03 - Depth from 25.00m to 30.00 m – Box 06



Figure Q7: Borehole BH-PS-03 - Depth from 30.00m to 32.00 m – Box 07



Figure Q8: Borehole BH-PS-03 – CS @ 1.50m



Figure Q9: Borehole BH-PS-03 - SPT @ 1.50m



Figure Q10: Borehole BH-PS-03 – CS @ 3.00m



Figure Q11: Borehole BH-PS-03 – CS @ 4.50m



Figure Q12: Borehole BH-PS-03 - SPT @ 4.50m



Figure Q13: Borehole BH-PS-03 – CS @ 6.00m



Figure Q14: Borehole BH-PS-03 - SPT @ 6.00m



Figure Q15: Borehole BH-PS-03 – CS @ 7.50m



Figure Q16: Borehole BH-PS-03 - SPT @ 7.50m



Figure Q17: Borehole BH-PS-03 – CS @ 9.00m



Figure Q18: Borehole BH-PS-03 - SPT @ 9.00m



Figure Q19: Borehole BH-PS-03 – CS @ 10.50m



Figure Q20: Borehole BH-PS-03 – SPT @ 10.50m



Figure Q21: Borehole BH-PS-03 – CS @ 12.00m

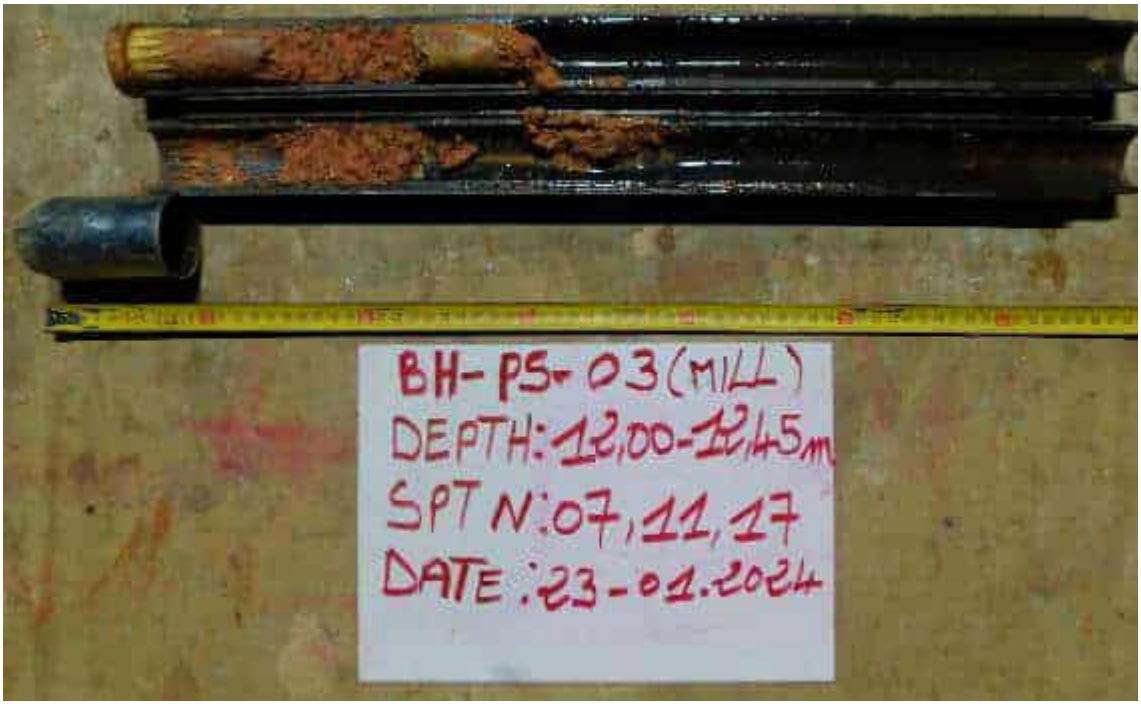


Figure Q22: Borehole BH-PS-03 - SPT @ 12.00m



Figure Q23: Borehole BH-PS-03 – CS @ 13.50m



Figure Q24: Borehole BH-PS-03 - SPT @ 13.50m



Figure Q25: Borehole BH-PS-03 – CS @ 15.00m



Figure Q26: Borehole BH-PS-03 - SPT @ 15.00m



Figure Q27: Borehole BH-PS-03 – CS @ 16.50m



Figure Q28: Borehole BH-PS-03 – SPT @ 16.50m



Figure Q29: Borehole BH-PS-03 – SPT @ 18.00m



Figure Q30: Borehole BH-PS-03 – CS @ 19.50m



Figure Q31: Borehole BH-PS-03 – SPT @ 19.50m



Figure Q32: Borehole BH-PS-03 – SPT @ 22.50m



Figure Q33: Borehole BH-PS-03 – SPT @ 25.50m


DOROPO GOLD PROJECT
BH-PS -04
0.00 -5.00 m
Box-01
Date : 24.01.2024 (NS)

Figure R01: Borehole BH-PS-04 - Depth from 0.00m to 5.00 m – Box 01



Figure R02: Borehole BH-PS-04 - Depth from 5.00m to 10.00 m – Box 02



Figure R03: Borehole BH-PS-04 - Depth from 10.00m to 15.00 m – Box 03



Figure R04: Borehole BH-PS-04 - Depth from 15.00m to 20.00 m – Box 04



Figure R05: Borehole BH-PS-04 - Depth from 20.00m to 25.00 m – Box 05



Figure R06: Borehole BH-PS-04 - Depth from 25.00m to 30.00 m – Box 06



Figure 07: Borehole BH-PS-04 - Depth from 30.00m to 33.00 m – Box 07

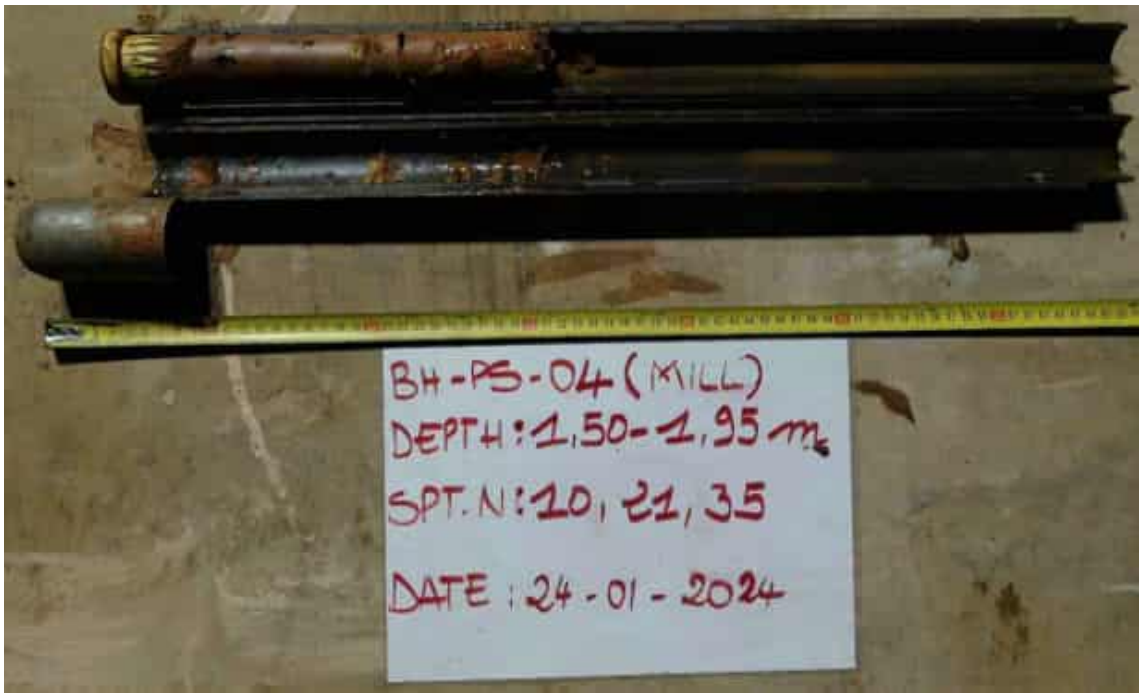


Figure R08: Borehole BH-PS-04 – SPT @ 1.50m



Figure R09: Borehole BH-PS-04 – CS @ 3.00 m



Figure R10: Borehole BH-PS-04 – CS @ 3.00 m



Figure R11: Borehole BH-PS-04 – SPT @ 3.00m



Figure R12: Borehole BH-PS-04 – CS @ 4.50m



Figure R13: Borehole BH-PS-04 – SPT @ 4.50m



Figure R14: Borehole BH-PS-04 – CS @ 6.00m



Figure R15: Borehole BH-PS-04 – SPT @ 6.00m



Figure R16: Borehole BH-PS-04 – CS @ 7.50m



Figure R17: Borehole BH-PS-04 – CS @ 9.00m



Figure R18: Borehole BH-PS-04 – SPT @ 9.00m



Figure R19: Borehole BH-PS-04 – CS @ 10.50m



Figure R20: Borehole BH-PS-04 – SPT @ 10.50m



Figure R21: Borehole BH-PS-04 – CS @ 12.00m



Figure R22: Borehole BH-PS-04 – SPT @ 12.00m



Figure R23: Borehole BH-PS-04 – SPT @ 13.50m

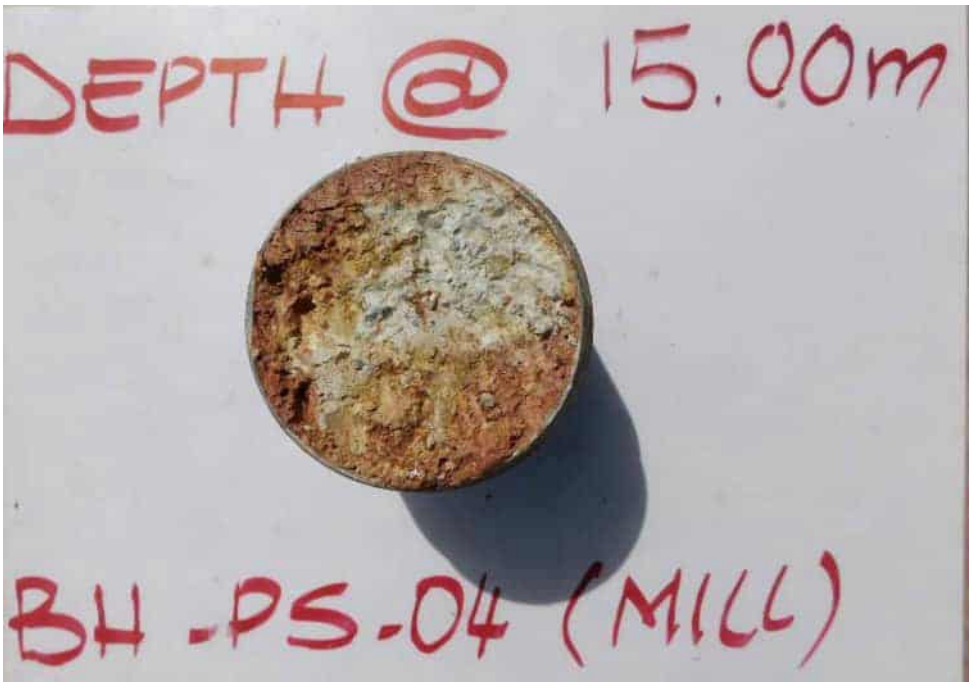


Figure R24: Borehole BH-PS-04 – CS @ 15.00m

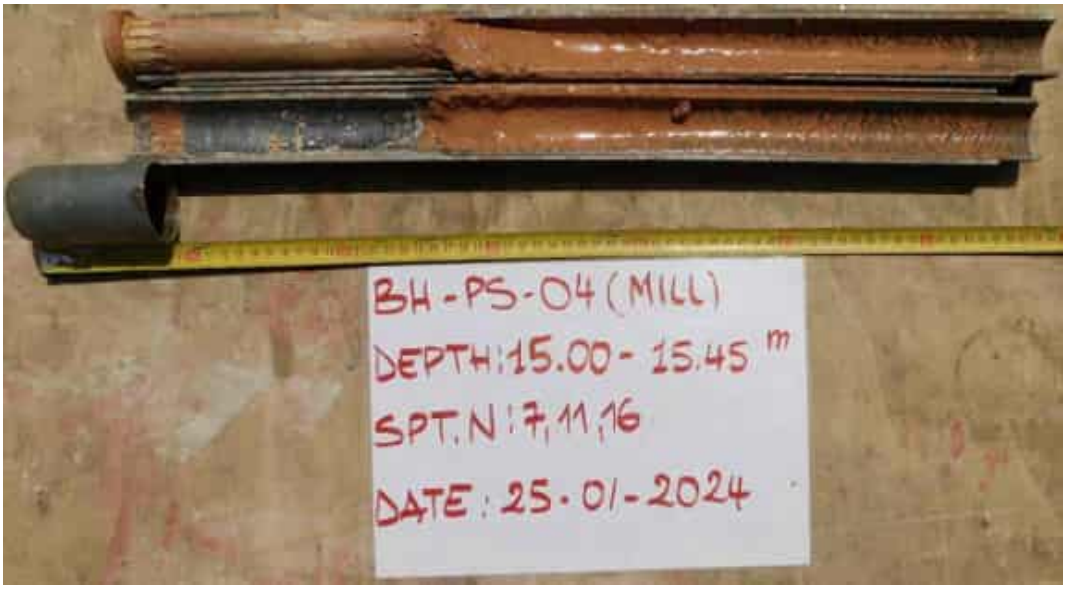


Figure R25: Borehole BH-PS-04 – SPT @ 15.00m



Figure R26: Borehole BH-PS-04 – SPT @ 16.50m

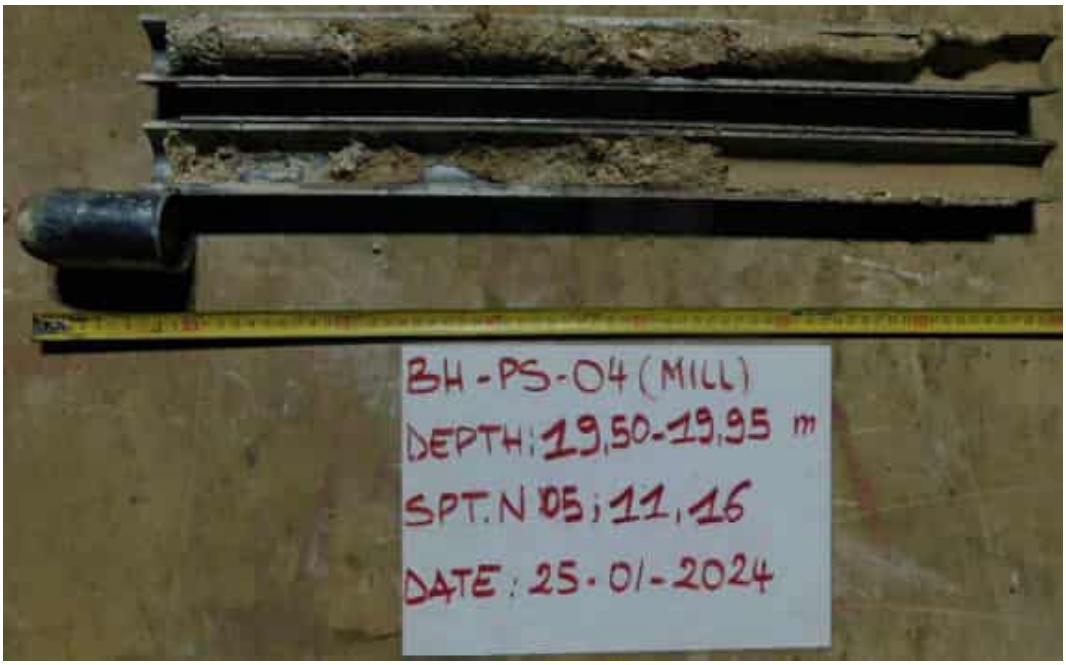


Figure R27: Borehole BH-PS-04 – SPT @ 19.50m



Figure R28: Borehole BH-PS-04 – CS @ 21.00m



Figure R29: Borehole BH-PS-04 – CS @ 22.50m

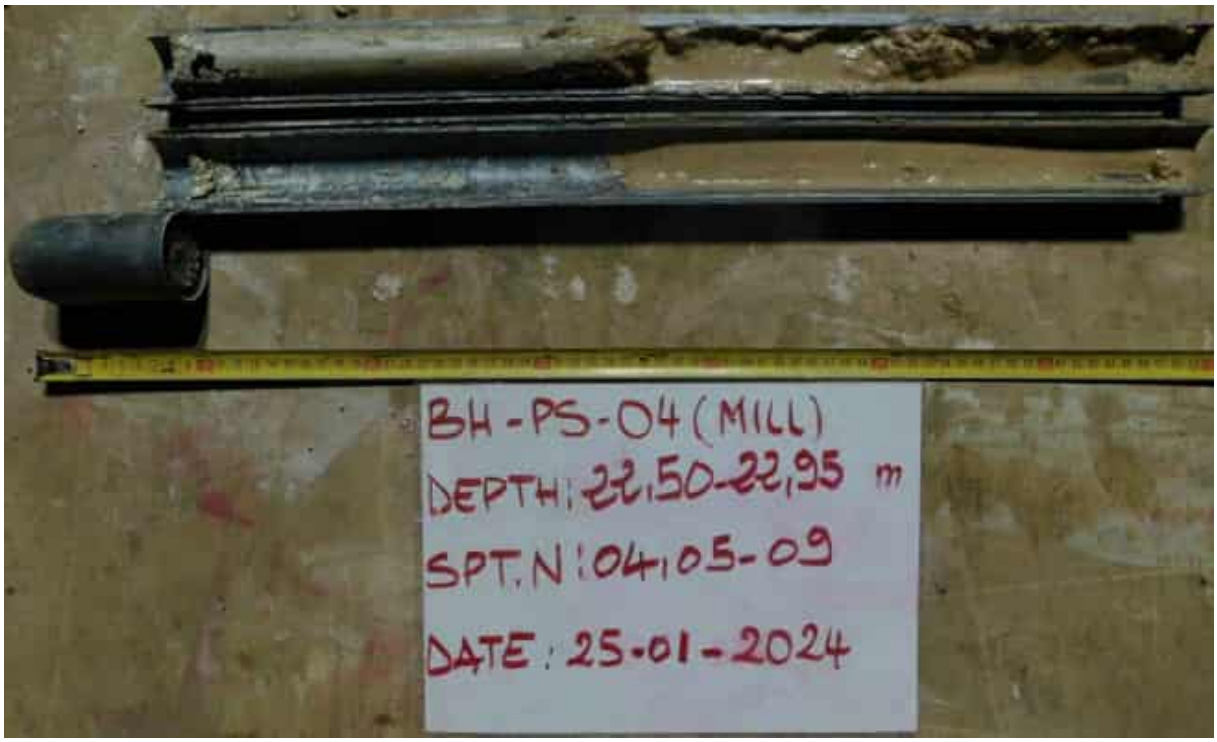


Figure R30: Borehole BH-PS-04 – SPT @ 22.50m



Figure S1: Borehole BH-PS-05 - CS @ 1.50m



Figure S2: Borehole BH-PS-05 - SPT @ 1.50m



Figure S3: Borehole BH-PS-05 - CS @ 3.00m



Figure S4: Borehole BH-PS-05 - SPT @ 3.00m



Figure S5: Borehole BH-PS-05 - CS @ 4.50m

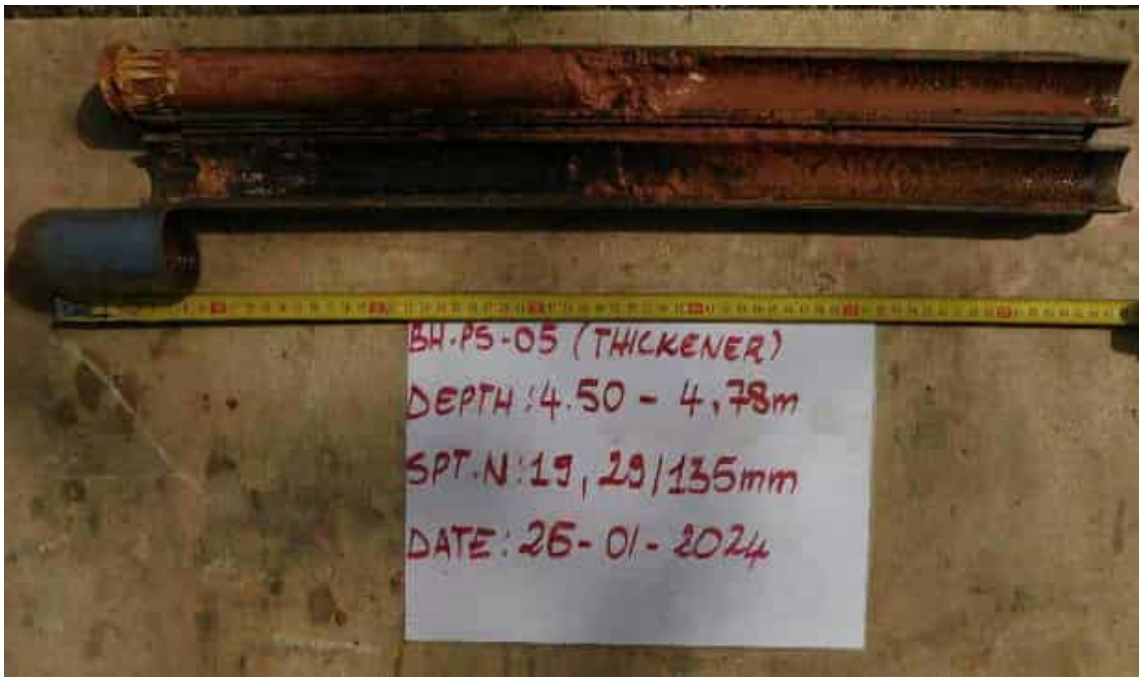


Figure S6: Borehole BH-PS-05 - SPT @ 4.50m



Figure S7: Borehole BH-PS-05 - SPT @ 6.00m



Figure S8: Borehole BH-PS-05 - SPT @ 6.00m



Figure S9: Borehole BH-PS-05 - CS @ 7.50m



Figure S10: Borehole BH-PS-05 - CS @ 9.00m



Figure S11: Borehole BH-PS-05 - CS @ 10.50m



Figure S12: Borehole BH-PS-05 - SPT @ 10.50m



Figure S13: Borehole BH-PS-05 - CS @ 12.00m



Figure S14: Borehole BH-PS-05 - SPT @ 12.00m



Figure S15: Borehole BH-PS-05 - CS @ 13.50m



Figure S16: Borehole BH-PS-05 - SPT @ 13.50m



Figure S17: Borehole BH-PS-05 - CS @ 16.50m

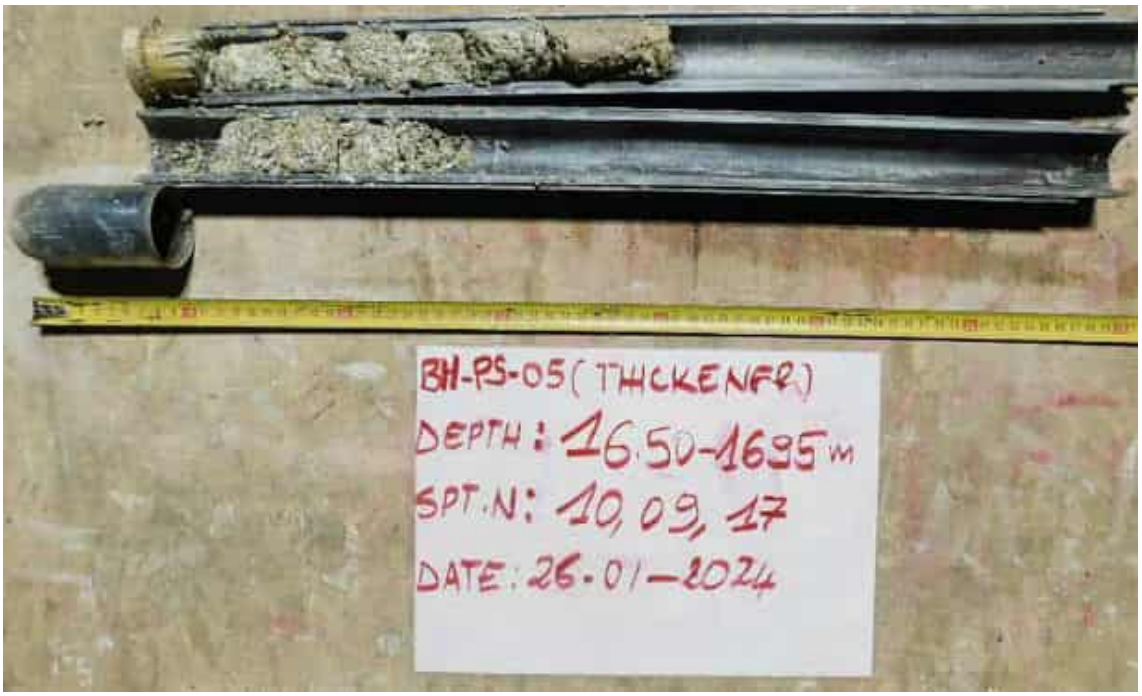


Figure S18: Borehole BH-PS-05 - SPT @ 16.50m



Figure S19: Borehole BH-PS-05 - CS @ 18.00m

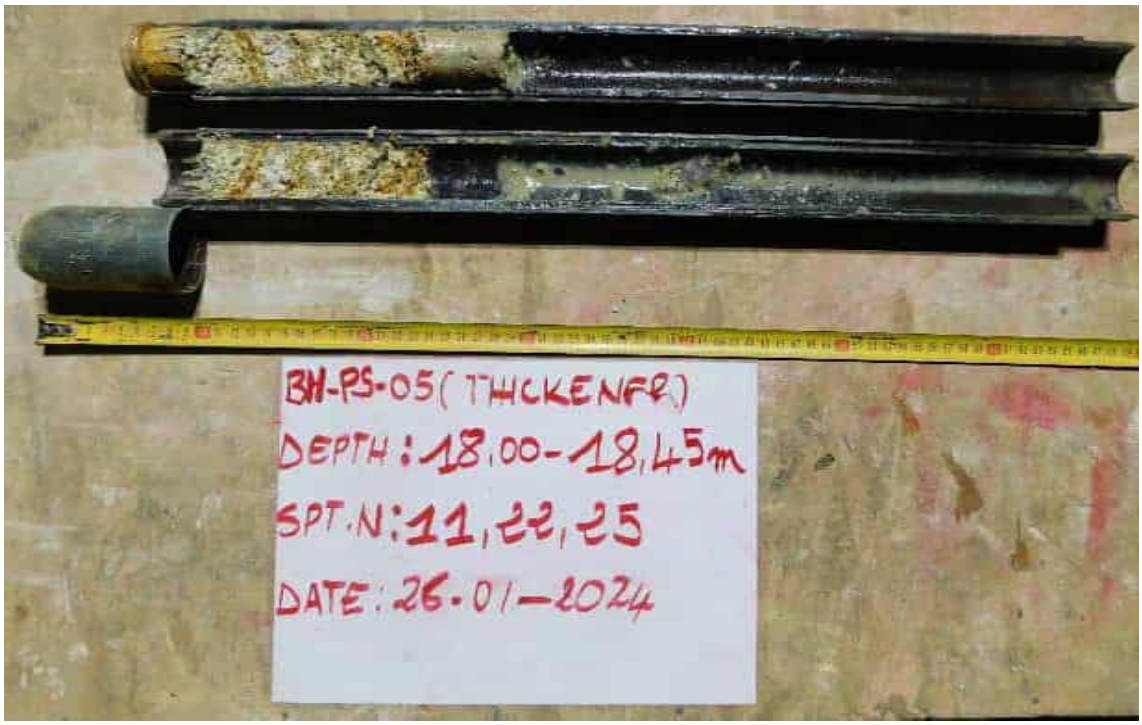


Figure S20: Borehole BH-PS-05 - SPT @ 18.00m



Figure S21: Borehole BH-PS-05 - CS @ 19.50m

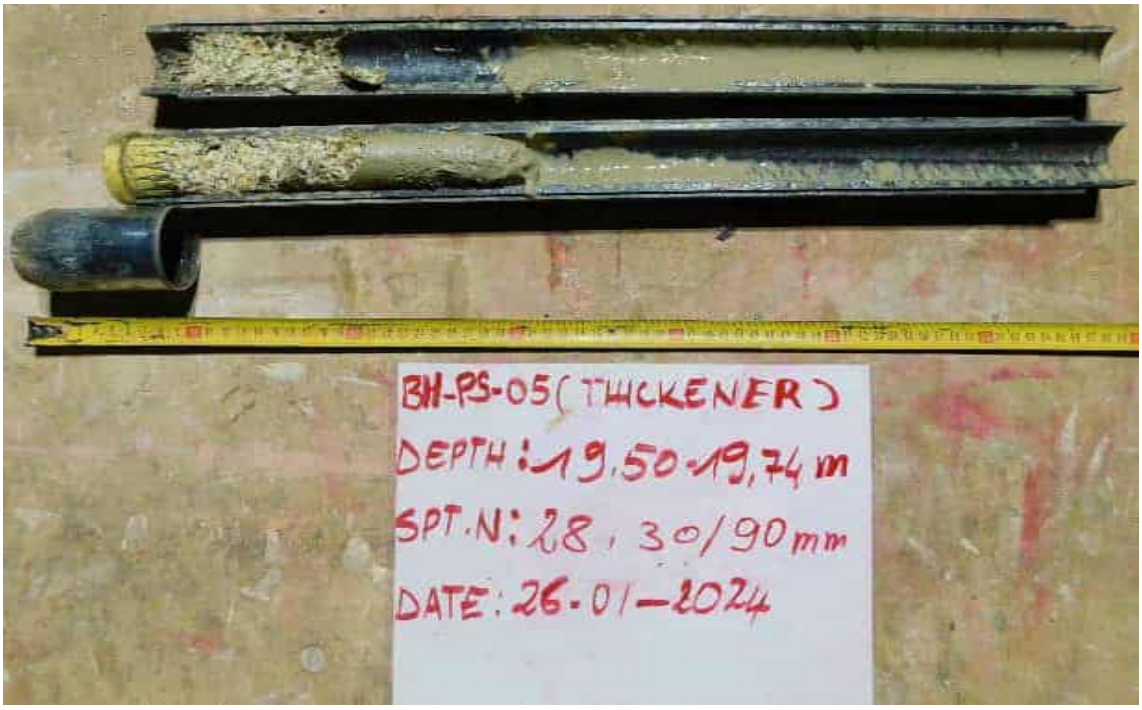


Figure S22: Borehole BH-PS-05 - SPT @ 19.50m



Figure S23: Borehole BH-PS-05 - CS @ 21.00m



Figure S24: Borehole BH-PS-05 - Depth from 0.00m to 5.00 m – Box 01



Figure S25: Borehole BH-PS-05 - Depth from 5.00m to 10.00 m – Box 02



Figure S26: Borehole BH-PS-05 - Depth from 10.00m to 15.00 m – Box 03



Figure S27: Borehole BH-PS-05 - Depth from 15.00m to 20.00 m – Box 04



Figure S28: Borehole BH-PS-05 - Depth from 20.00m to 25.00 m – Box 05



Figure S29: Borehole BH-PS-05 - Depth from 25.00m to 27.00 m – Box 06



Figure T01: Borehole BH-PS-06 - Depth from 0.00m to 5.00 m – Box 01



Figure T02: Borehole BH-PS-06 - Depth from 5.00m to 10.00 m – Box 02



Figure T03: Borehole BH-PS-06 - Depth from 10.00m to 15.00 m – Box 03



Figure T04: Borehole BH-PS-06 - Depth from 15.00m to 20.00 m – Box 04



Figure T05: Borehole BH-PS-06 - Depth from 20.00m to 25.00 m – Box 05



Figure T06: Borehole BH-PS-06 - CS @ 1.50m



Figure T07: Borehole BH-PS-06 - SPT @ 1.50m



Figure T08: Borehole BH-PS-06 - CS @ 3.00m



Figure T09: Borehole BH-PS-06 - SPT @ 3.00m



Figure T10: Borehole BH-PS-06 - CS @ 4.50m



Figure T11: Borehole BH-PS-06 - SPT @ 4.50m



Figure T12: Borehole BH-PS-06 - SPT @ 6.00m



Figure T13: Borehole BH-PS-06 - SPT @ 6.00m



Figure T14: Borehole BH-PS-06 - CS @ 7.50m



Figure T15: Borehole BH-PS-06 - SPT @ 7.50m



Figure T16: Borehole BH-PS-06 - CS @ 9.00m



Figure T17: Borehole BH-PS-06 - SPT @ 9.00m



Figure T18: Borehole BH-PS-06 - CS @ 10.50m

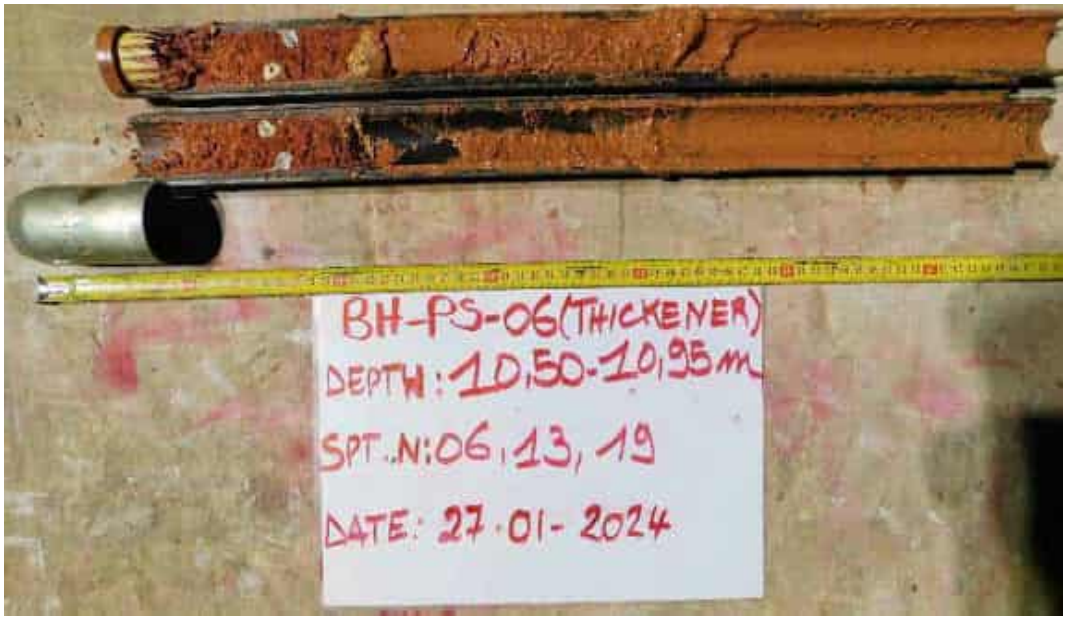


Figure T19: Borehole BH-PS-06 - SPT @ 10.50m



Figure T20: Borehole BH-PS-06 - CS @ 12.00m

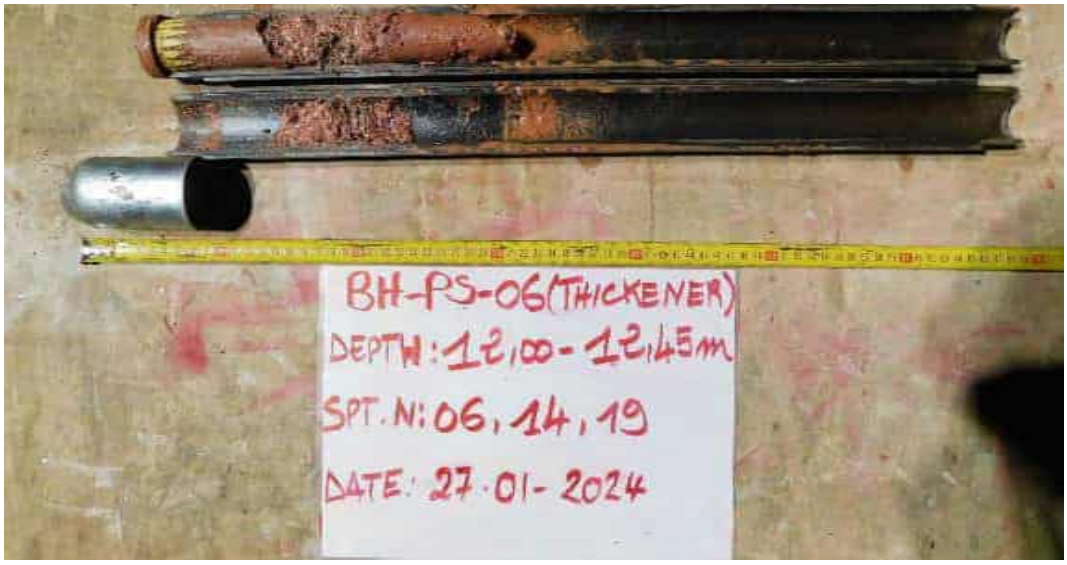


Figure T21: Borehole BH-PS-06 - SPT @ 12.00m



Figure T22: Borehole BH-PS-06 - CS @ 13.50m



Figure T23: Borehole BH-PS-06 - SPT @ 13.50m

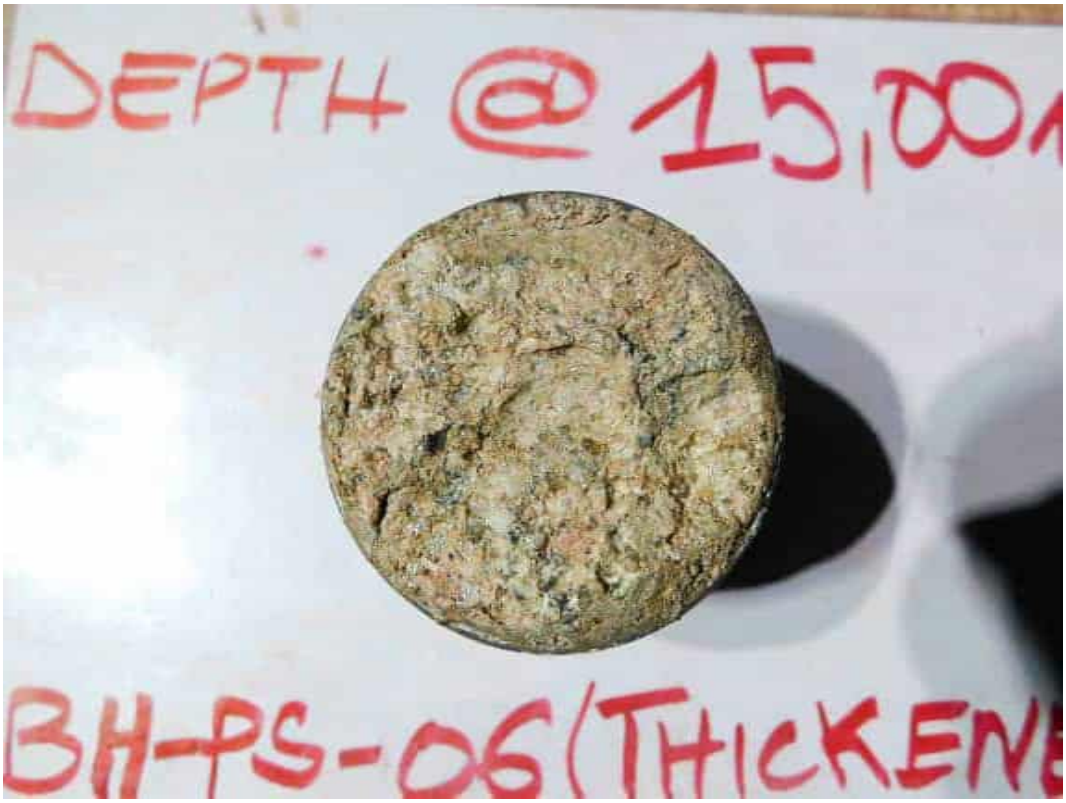


Figure T24: Borehole BH-PS-06 - CS @ 15.00m



Figure T25: Borehole BH-PS-06 - SPT @ 15.00m



Figure T26: Borehole BH-PS-06 - CS @ 16.50m



Figure T27: Borehole BH-PS-06 - SPT @ 16.50m



Figure T28: Borehole BH-PS-06 - CS @ 18.00m



Figure U01: Borehole BH-PS-07 - Depth from 0.00m to 5.00 m – Box 01



Figure U02: Borehole BH-PS-07 - Depth from 5.00m to 10.00 m – Box 02



Figure U03: Borehole BH-PS-07 - Depth from 10.00m to 15.00 m – Box 03



Figure U04: Borehole BH-PS-07 - Depth from 15.00m to 20.00 m – Box 04



Figure U05: Borehole BH-PS-07 - Depth from 20.00m to 25.00 m – Box 05



Figure U06: Borehole BH-PS-07 - Depth from 25.00m to 30.00 m – Box 06



Figure U07: Borehole BH-PS-07 - Depth from 30.00m to 35.00 m – Box 07



Figure U08: Borehole BH-PS-07 - CS @ 1.40m



Figure U09: Borehole BH-PS-07 - SPT @ 1.40m



Figure U10: Borehole BH-PS-07 - CS @ 3.00m



Figure U11: Borehole BH-PS-07 - SPT @ 3.00m



Figure U12: Borehole BH-PS-07 - CS @ 4.50m



Figure U13: Borehole BH-PS-07 - SPT @ 4.50m

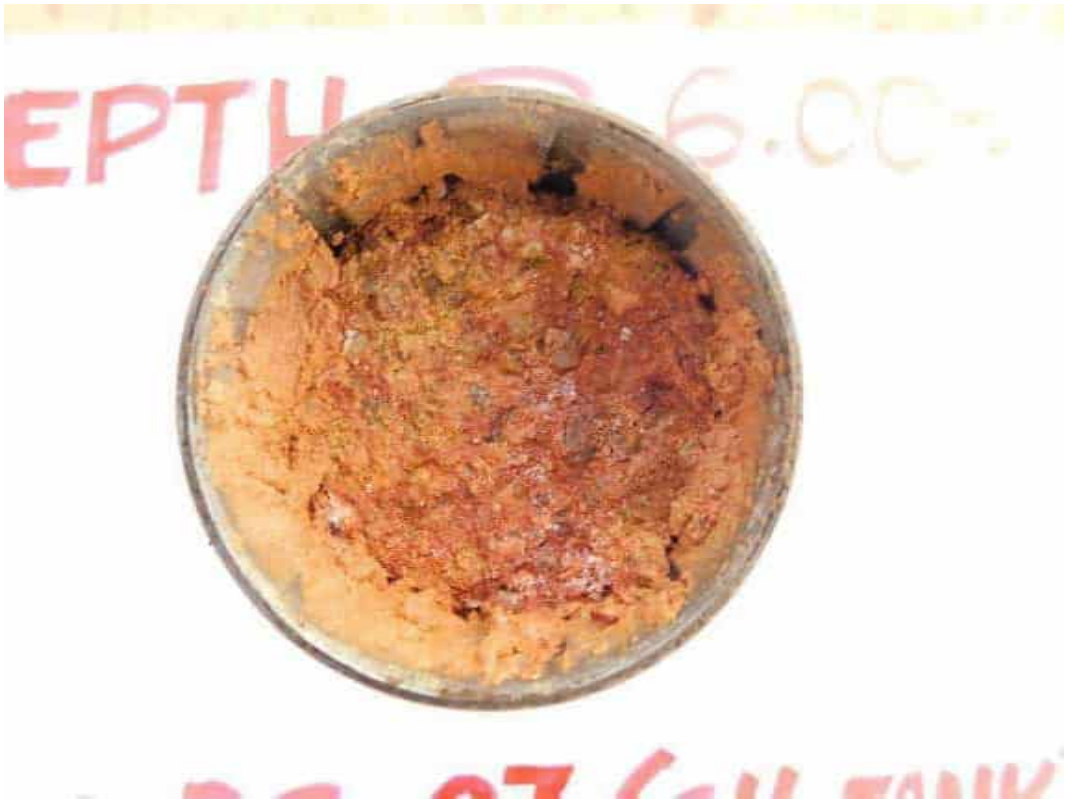


Figure U14: Borehole BH-PS-07 - SPT @ 6.00m



Figure U15: Borehole BH-PS-07 - SPT @ 6.00m



Figure U16: Borehole BH-PS-07 - CS @ 7.50m

Figure U17: Borehole BH-PS-07 - SPT @ 7.50m

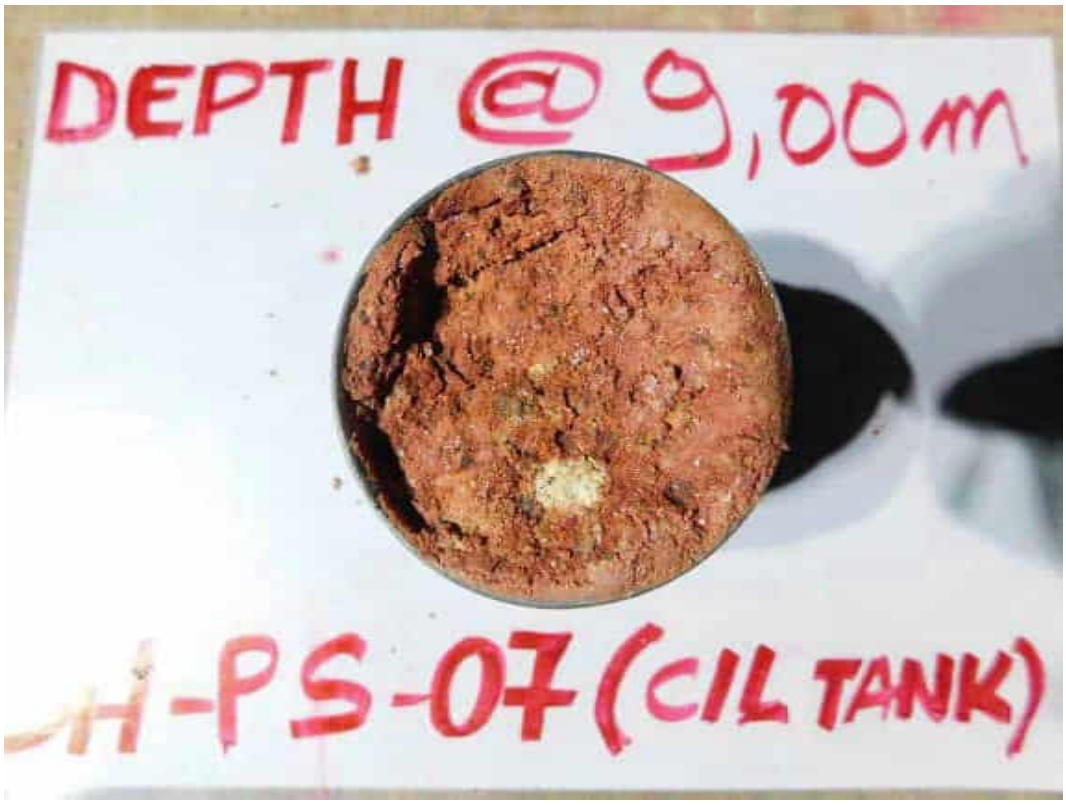


Figure U18: Borehole BH-PS-07 - CS @ 9.00m



Figure U19: Borehole BH-PS-07 - SPT @ 9.00m



Figure U20: Borehole BH-PS-07 - CS @ 10.50m



Figure U21: Borehole BH-PS-07 - SPT @ 10.50m



Figure U22: Borehole BH-PS-07 - CS @ 12.00m



Figure U23 Borehole BH-PS-07 - SPT @ 12.00m



Figure U24: Borehole BH-PS-07 - CS @ 13.50m



Figure U25: Borehole BH-PS-07 - SPT @ 13.50m



Figure U26: Borehole BH-PS-07 - CS @ 15.00m



Figure U27: Borehole BH-PS-07 - SPT @ 15.00m

Figure U28: Borehole BH-PS-07 - CS @ 16.50m



Figure U29: Borehole BH-PS-07 - SPT @ 16.50m



Figure U30: Borehole BH-PS-07 - CS @ 18.00m



Figure U31: Borehole BH-PS-07 - SPT @ 18.00m

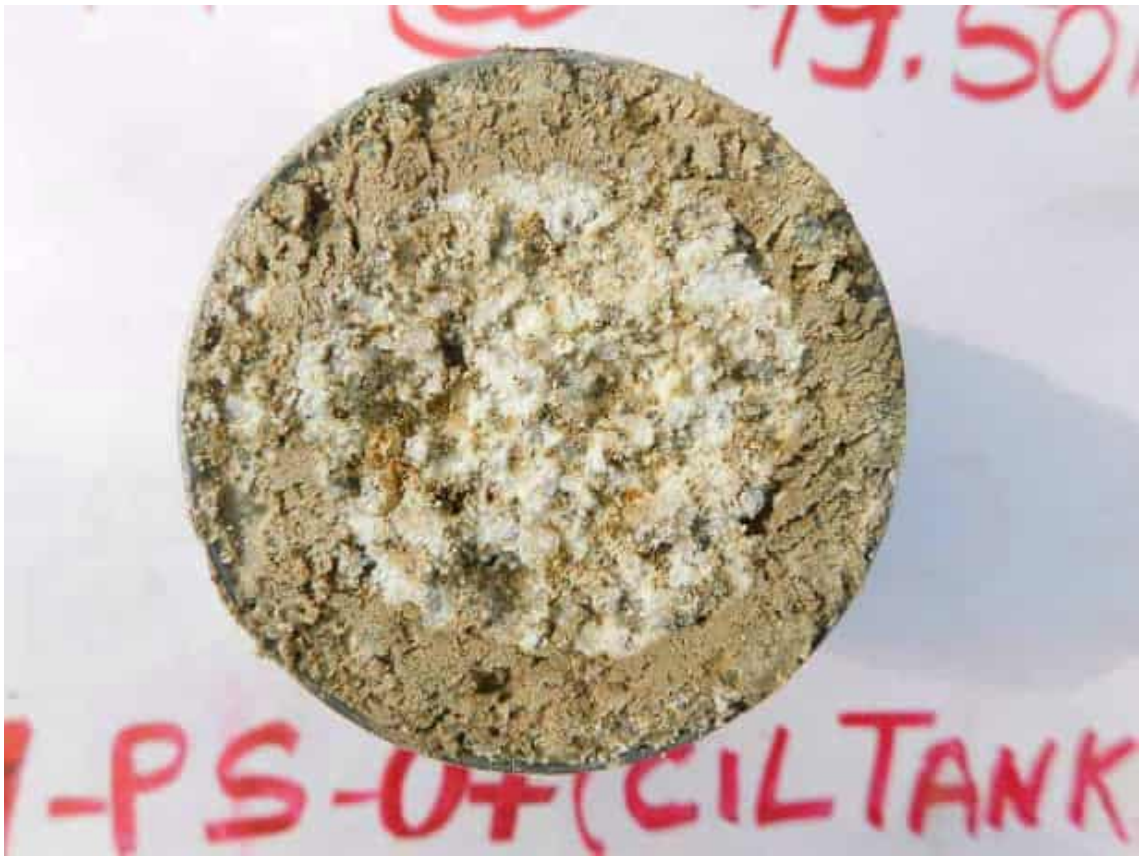


Figure U32: Borehole BH-PS-07 - CS @ 19.50m



Figure U33: Borehole BH-PS-07 - SPT @ 19.50m

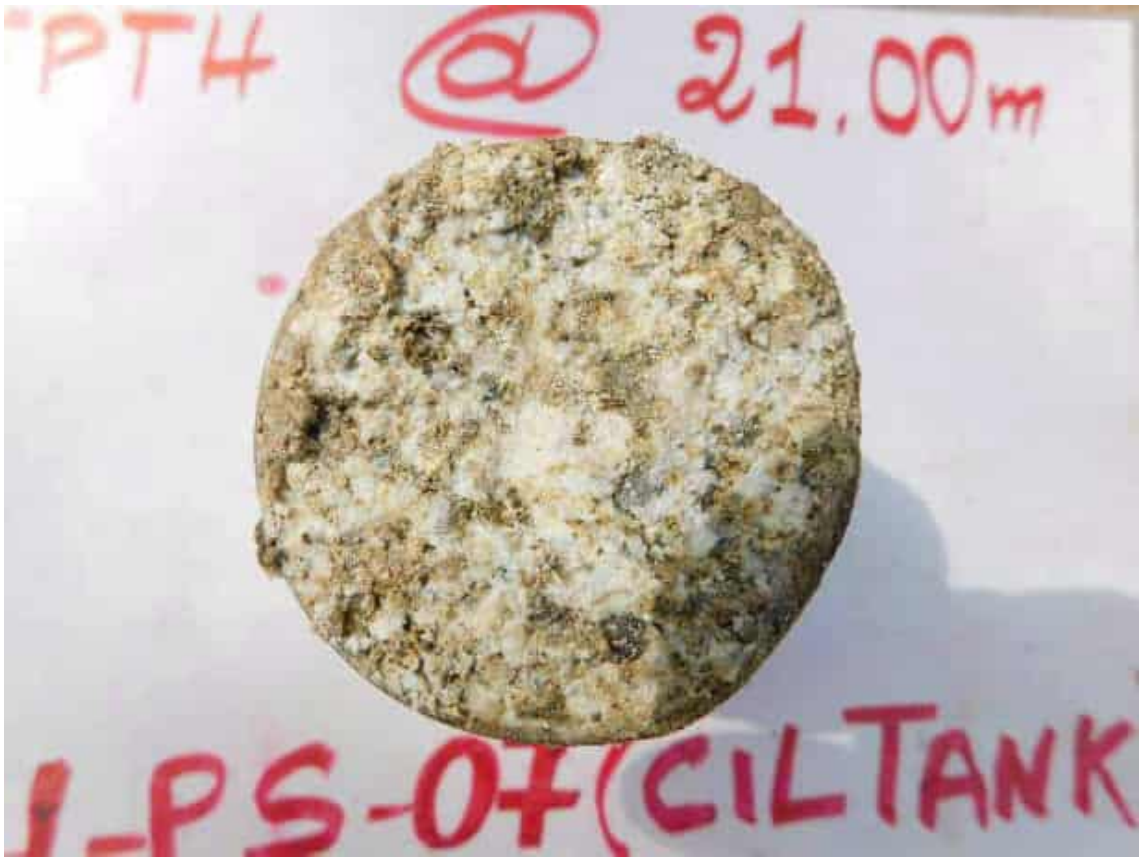


Figure U34: Borehole BH-PS-07 - CS @ 21.00m



Figure U35: Borehole BH-PS-07 - SPT @ 21.00m



Figure U36: Borehole BH-PS-07 - CS @ 22.50m



Figure U37: Borehole BH-PS-07 - CS @ 24.00m



Figure U38: Borehole BH-PS-07 - CS @ 25.50m



Figure U39: Borehole BH-PS-07 - CS @ 27.00m



Figure U40: Borehole BH-PS-07 - CS @ 28.50m

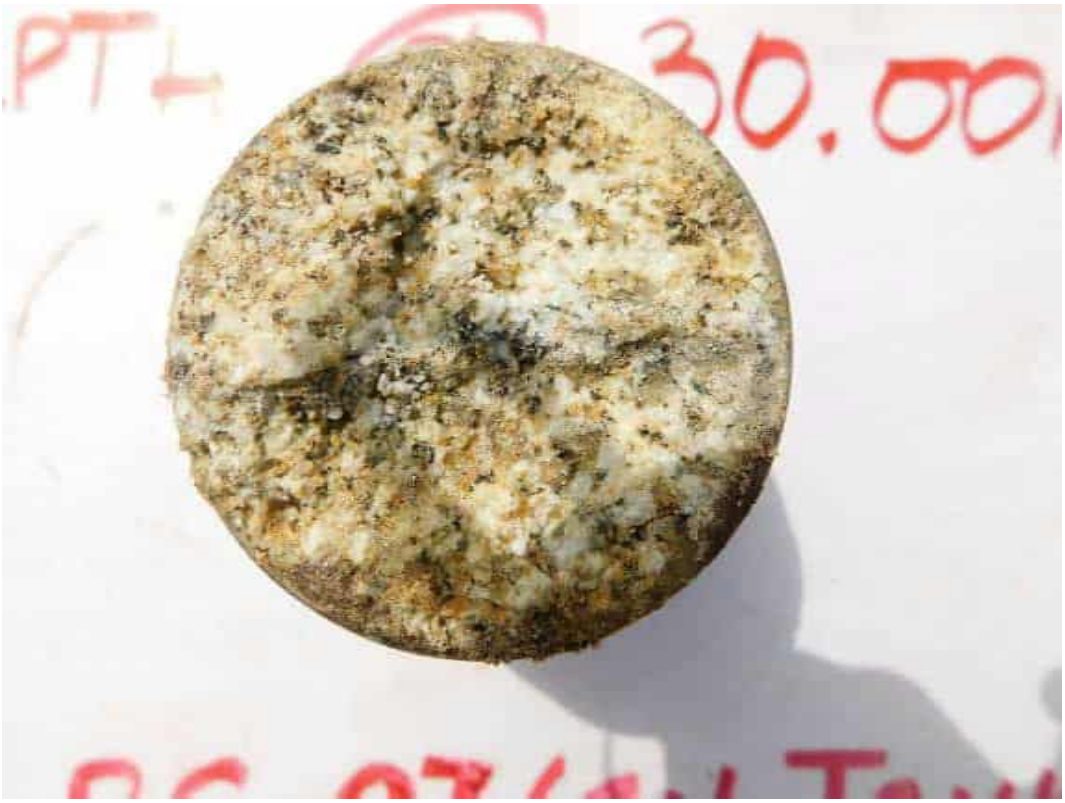


Figure U40: Borehole BH-PS-07 - CS @ 30.00m



Figure V01: Borehole BH-PS-08 - Depth from 0.00m to 5.00 m – Box 01



Figure V02: Borehole BH-PS-08 - Depth from 5.00m to 10.00 m – Box 02



Figure V03: Borehole BH-PS-08 - Depth from 10.00m to 15.00 m – Box 03



Figure V04: Borehole BH-PS-08 - Depth from 15.00m to 20.00 m – Box 04



Figure V05: Borehole BH-PS-08 - CS @ 1.50m



Figure V06: Borehole BH-PS-08 - SPT @ 1.50m



Figure V07: Borehole BH-PS-08 - CS @ 3.00m



Figure V08: Borehole BH-PS-08 - SPT @ 3.00m



Figure V09: Borehole BH-PS-08 - CS @ 4.50m



Figure V10: Borehole BH-PS-08 - SPT @ 4.50m



Figure V11: Borehole BH-PS-08 - SPT @ 6.00m



Figure V12: Borehole BH-PS-08 - CS @ 7.50m



Figure V13: Borehole BH-PS-08 - SPT @ 7.50m



Figure V14: Borehole BH-PS-08 - CS @ 9.00m



Figure V15: Borehole BH-PS-08- SPT @ 9.00m



Figure V16: Borehole BH-PS-08 - CS @ 10.50m



Figure V17: Borehole BH-PS-08 - SPT @ 10.50m



Figure V18: Borehole BH-PS-08 - CS @ 12.00m



Figure V19: Borehole BH-PS-08 - SPT @ 12.00m



Figure V20: Borehole BH-PS-08 - CS @ 13.50m



Figure V21: Borehole BH-PS-08 - SPT @ 13.50m



Figure W1: Borehole BH-PS-09 - Depth from 0.00m to 5.00 m – Box 01



Figure W2: Borehole BH-PS-09 - Depth from 5.00m to 10.00 m – Box 02



Figure W3: Borehole BH-PS-08 - Depth from 10.00m to 15.00 m – Box 03



Figure W4: Borehole BH-PS-08 - Depth from 15.00m to 20.00 m – Box 04



Figure W5: Borehole BH-PS-09 - Depth from 20.00m to 25.00 m – Box 05



Figure W6: Borehole BH-PS-09 - Depth from 25.00m to 30.00 m – Box 06



Figure W7: Borehole BH-PS-09 - Depth from 30.00m to 35.00 m – Box 07



Figure W8: Borehole BH-PS-09 - Depth from 35.00m to 40.00 m – Box 08



Figure W9: Borehole BH-PS-09 - Depth from 40.00m to 41.00 m – Box 09



Figure W10: Borehole BH-PS-09 - CS @ 1.50m



Figure W11: Borehole BH-PS-09 - SPT @ 1.50m



Figure W12: Borehole BH-PS-09 - CS @ 3.00m



Figure W13: Borehole BH-PS-09 - SPT @ 3.00m



Figure W14: Borehole BH-PS-09 - CS @ 4.50m



Figure W15: Borehole BH-PS-09 - SPT @ 4.50m



Figure W16: Borehole BH-PS-09 - CS @ 6.00m



Figure W17: Borehole BH-PS-09 - SPT @ 6.00m



Figure W18: Borehole BH-PS-09 - CS @ 7.50m



Figure W19: Borehole BH-PS-09 - SPT @ 7.50m



Figure W20: Borehole BH-PS-09 - CS @ 9.00m



Figure W21: Borehole BH-PS-09- SPT @ 9.00m



Figure W22: Borehole BH-PS-09 - CS @ 10.50m



Figure W23: Borehole BH-PS-09- SPT @ 10.50m



Figure W24: Borehole BH-PS-09 - CS @ 12.00m



Figure W25: Borehole BH-PS-09 - SPT @ 12.00m



Figure W26: Borehole BH-PS-09 - CS @ 13.50m



Figure W27: Borehole BH-PS-09 - SPT @ 13.50m



Figure W28: Borehole BH-PS-09 - CS @ 15.00m



Figure W29: Borehole BH-PS-09 - SPT @ 15.00m



Figure W30: Borehole BH-PS-09 - SPT @ 16.50m



Figure W31: Borehole BH-PS-09 - CS @ 18.00 m



Figure W32: Borehole BH-PS-09 - SPT @ 18.00m



Figure W33: Borehole BH-PS-09 - CS @ 19.50 m



Figure W34: Borehole BH-PS-09 - SPT @ 19.50m



Figure W35: Borehole BH-PS-09 - CS @ 21.00 m



Figure W36: Borehole BH-PS-09 - CS @ 22.50 m



Figure W37: Borehole BH-PS-09 - SPT @ 22.50m



Figure W38: Borehole BH-PS-09 - CS @ 24.00 m



FigureW39: Borehole BH-PS-09 - SPT @ 25.50m



Figure W40: Borehole BH-PS-09 - CS @ 27.00 m



Figure W41: Borehole BH-PS-09 - SPT @ 28.50m



Figure W42: Borehole BH-PS-09 - CS @ 30.00 m



Figure W43: Borehole BH-PS-09 - CS @ 31.50 m



Figure W44: Borehole BH-PS-09 - CS @ 32.50 m



Figure X1: Borehole BH-OC-01 - Depth from 0.00m to 4.00 m – Box 01



Figure X2: Borehole BH- OC-01 - Depth from 4.00m to 8.00 m – Box 02



Figure X3: Borehole BH- OC-01 - Depth from 8.00m to 12.00 m – Box 03



Figure X4: Borehole BH- OC-01 - Depth from 12.00m to 16.00 m – Box 04



Figure X5: Borehole BH- OC-01 - Depth from 16.00m to 20.00 m – Box 05



Figure Y1: Borehole BH- OC-02 - Depth from 0.00m to 4.00 m – Box 01



Figure Y2: Borehole BH- OC-02 - Depth from 4.00m to 8.00 m – Box 02



Figure Y3: Borehole BH- OC-02 - Depth from 8.00m to 12.00 m – Box 03



Figure Y4: Borehole BH- OC-02 - Depth from 12.00m to 16.00 m – Box 04



Figure Y5: Borehole BH- OC-02 - Depth from 16.00m to 20.00 m – Box 05



Figure Z1: Borehole BH-SAR-01 - Depth from 0.00m to 4.00 m – Box 01



Figure Z2: Borehole BH- SAR-01- Depth from 4.00m to 8.00 m – Box 02



Figure Z3: Borehole BH- SAR-01 - Depth from 8.00m to 12.00 m – Box 03



Figure Z4: Borehole BH- SAR-01 - Depth from 12.00m to 16.00 m – Box 04



Figure Z5: Borehole BH- SAR-01 - Depth from 16.00m to 17.50 m – Box 05



Figure Z6: Borehole BH-SAR-01 - CS @ 1.50m



Figure Z7: Borehole BH-SAR-01 - SPT @ 1.50m



Figure Z8: Borehole BH-SAR-01 - CS @ 3.00m



Figure Z9: Borehole BH-SAR-01 - SPT @ 3.00m



Figure Z10: Borehole BH-SAR-01 - SPT @ 4.50m



Figure Z11: Borehole BH-SAR-01 - CS @ 6.00m



Figure Z12: Borehole BH- SAR-01- CS @ 7.50m



Figure Z13: Borehole BH- SAR-01- CS @ 9.00m



Figure Z14: Borehole BH- SAR-01- CS @ 10.50m



Figure Z15: Borehole BH- SAR-01- CS @ 16.50m



Figure AA1: Borehole BH- ARO -01 - Depth from 0.00m to 4.00 m – Box 01



Figure AA2: Borehole BH- ARO -01 - Depth from 4.00m to 8.00 m – Box 02



Figure AA3: Borehole BH- ARO-01 - Depth from 8.00m to 12.00 m – Box 03



Figure AA4: Borehole BH-ARO-01 - Depth from 12.00m to 16.00 m – Box 04



Figure AA5: Borehole BH- ARO-01 - Depth from 16.00m to 20.00 m – Box 05

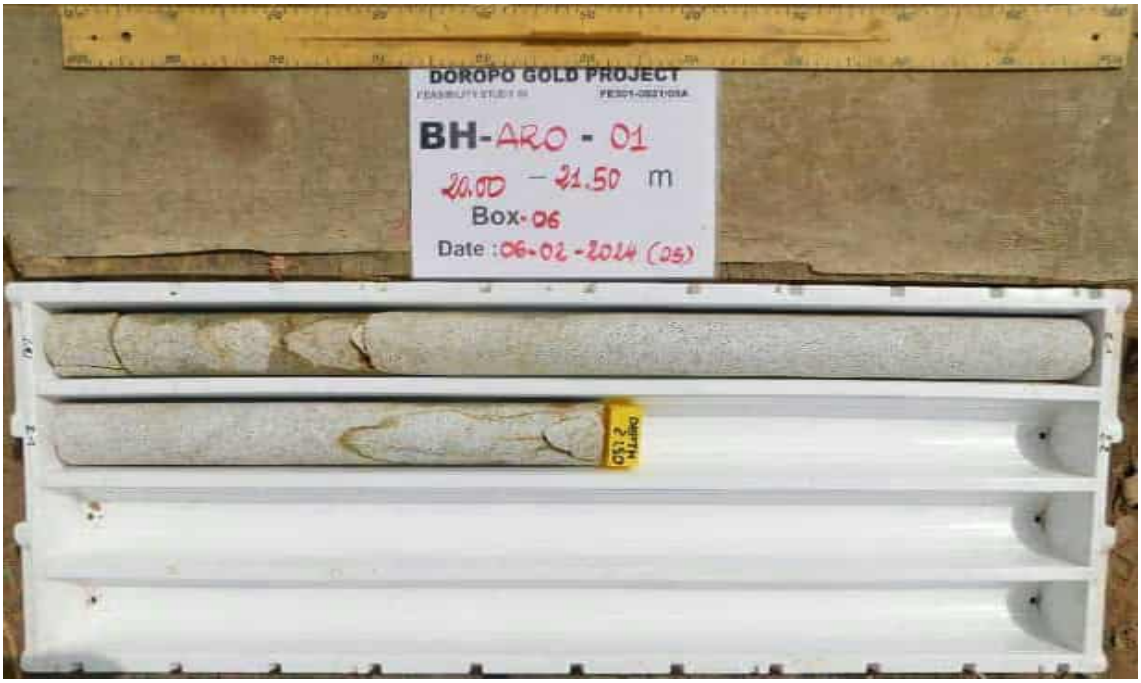


Figure AA6: Borehole BH-ARO-01 - Depth from 20.00m to 21.50 m – Box 06



Figure AA7: Borehole BH-ARO-01 - CS @ 1.50m



Figure AA8: Borehole BH-ARO-01 - SPT @ 1.50m



Figure AA9: Borehole BH-ARO-01 - CS @ 3.00m



Figure AA10: Borehole BH-ARO-01 - SPT @ 3.00m



Figure AA11: Borehole BH-ARO-01 - CS @ 4.50m



Figure AB1: Borehole BH- ARO -02 - Depth from 0.00m to 4.00 m – Box 01



Figure AB2: Borehole BH- ARO -02 - Depth from 4.00m to 8.00 m – Box 02



Figure AB3: Borehole BH- ARO-02 - Depth from 8.00m to 12.00 m – Box 03



Figure AB4: Borehole BH-ARO-02 - Depth from 12.00m to 16.00 m – Box 04



Figure AB5: Borehole BH- ARO-02 - Depth from 16.00m to 20.00 m – Box 05



Figure AB6: Borehole BH-ARO-02 - Depth from 20.00m to 24.00 m – Box 06



Figure AB7: Borehole BH-ARO-02 - Depth from 24.00m to 25.50 m – Box 07



Figure AB8: Borehole BH-ARO-02 - CS @ 1.50m



Figure AB9: Borehole BH-ARO-02 - SPT @ 1.50m



Figure AB10: Borehole BH-ARO-02 - CS @ 3.00m



Figure AB11: Borehole BH-ARO-02 - SPT @ 3.00m



Figure AB12: Borehole BH-ARO-02 - CS @ 4.50m



Figure AB13: Borehole BH-ARO-02 - CS @ 6.00m



Figure AB14: Borehole BH-ARO-02 - CS @ 7.50m



Figure AC01: Borehole BH-ARO-03 - Depth from 0.00m to 4.00 m – Box 01



Figure AC02: Borehole BH-ARO-03 - Depth from 4.00m to 8.00 m – Box 02



Figure AC03: Borehole BH-ARO-03 - Depth from 8.00m to 12.00 m – Box 03



Figure AC04: Borehole BH-ARO-03 - Depth from 12.00m to 16.00 m – Box 04



Figure AC05: Borehole BH-ARO-03 - Depth from 16.00m to 20.00 m – Box 05



Figure AC06: Borehole BH-ARO-03 - Depth from 20.00m to 24.00 m – Box 06



Figure AC07: Borehole BH-ARO-03 - Depth from 24.00m to 27.5.00 m – Box 07



Figure AC08: Borehole BH-ARO-03 - CS @ 1.50 m

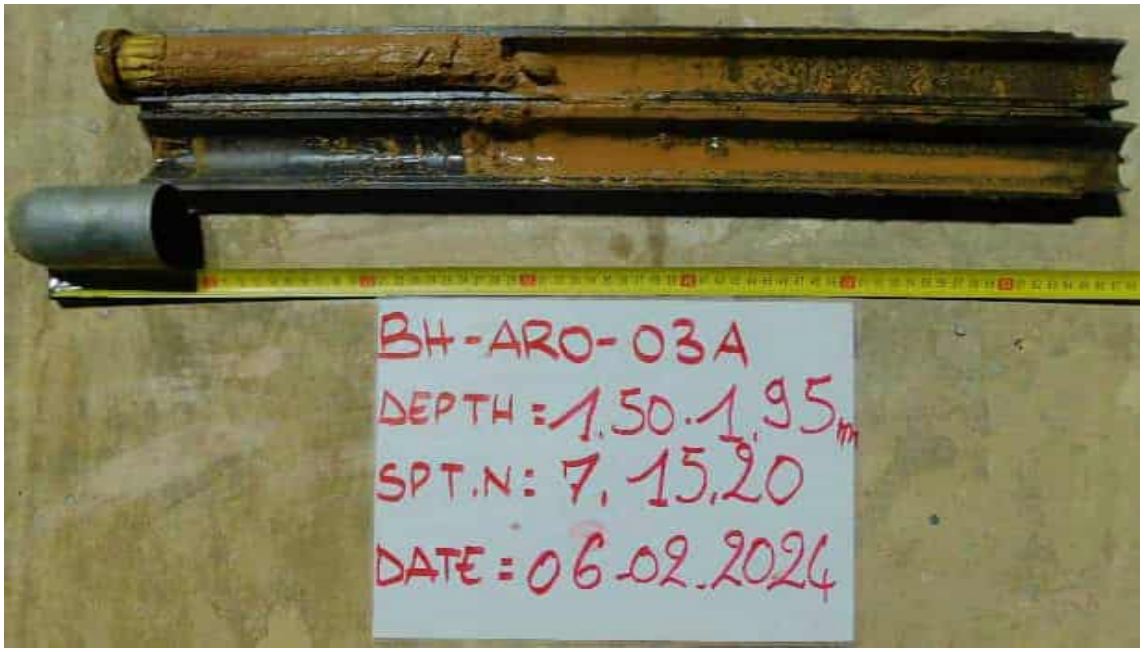


Figure AC09: Borehole BH-ARO-03 - SPT @ 1.50 m



Figure AC10: Borehole BH-ARO-03 - CS @ 3.00 m



Figure AC11: Borehole BH-ARO-03 - SPT @ 1.50 m



Figure AC12: Borehole BH-ARO-03 - CS @ 4.50 m



Figure AD01: Borehole BH-ARO-04 - Depth from 0.00m to 4.00 m – Box 01



Figure AD02: Borehole BH-ARO-04 - Depth from 4.00m to 8.00 m – Box 02



Figure AD03: Borehole BH-ARO-04 - Depth from 8.00m to 12.00 m – Box 03



Figure AD04: Borehole BH-ARO-04 - Depth from 12.00m to 16.00 m – Box 04



Figure AD05: Borehole BH-ARO-04 - Depth from 16.00m to 20.00 m – Box 05



Figure AD06: Borehole BH-ARO-04 - Depth from 20.00m to 24.00 m – Box 06



Figure AD07: Borehole BH-ARO-04 - Depth from 24.00m to 28.00 m – Box 07



Figure AD08: Borehole BH-ARO-04 - CS @ 1.50 m

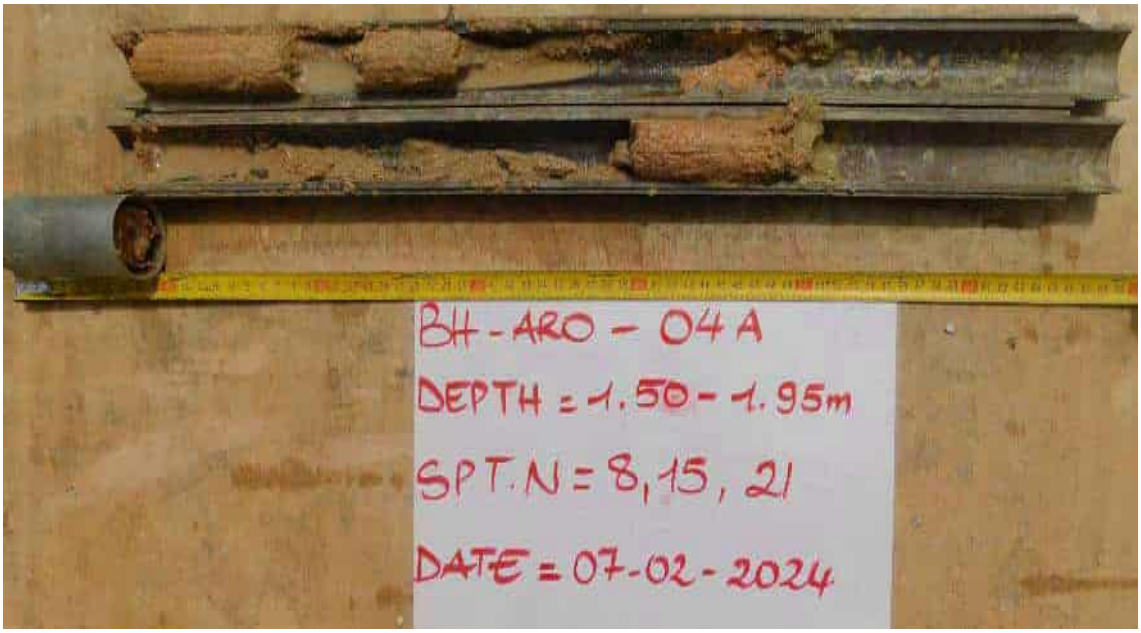


Figure AD09: Borehole BH-ARO-04 - SPT @ 1.50 m



Figure AD10: Borehole BH-ARO-04 - CS @ 3.00 m



Figure AD11: Borehole BH-ARO-04 - CS @ 4.50 m



Figure AD12: Borehole BH-ARO-04 - CS @ 6.00 m



Figure AD13: Borehole BH-ARO-04 - CS @ 9.00 m



Figure AD14: Borehole BH-ARO-04 - CS @ 12.00 m



Figure AD15: Borehole BH-ARO-04 - CS @ 13.50 m



Figure AD16: Borehole BH-ARO-04 - CS @ 16.50 m



Figure AE01: Borehole BH- PS -10 - Depth from 0.00m to 4.00 m – Box 01



Figure AE02: Borehole BH- PS-10 - Depth from 4.00m to 8.00 m – Box 02



Figure AE03: Borehole BH- PS -10 - Depth from 8.00m to 12.00 m – Box 03



Figure AE04: Borehole BH-PS -10 - Depth from 12.00m to 16.00 m – Box 04



Figure AE05: Borehole BH-PS -10 - Depth from 16.00m to 20.00 m – Box 05



Figure AE06: Borehole BH-PS -10 - Depth from 20.00m to 24.00 m – Box 06



Figure AE07: Borehole BH-PS -10 - Depth from 24.00m to 28.00 m – Box 07



Figure AE08: Borehole BH-PS -10 - Depth from 28.00m to 32.00 m – Box 08



Figure AE09: Borehole BH-PS -10 - Depth from 32.00m to 36.00 m – Box 09



Figure AE10: Borehole BH-PS -10 - Depth from 36.00m to 40.00 m – Box 10



Figure AE11: Borehole BH-PS -10 - Depth from 40.00m to 44.00 m – Box 11



Figure AE12: Borehole BH-PS -10 - Depth from 44.00m to 48.00 m – Box 12



Figure AE13: Borehole BH-PS -10 - Depth from 48.00m to 50.00 m – Box 13



Figure AE14: Borehole BH-PS-10 - SPT @ 1.50 m



Figure AE15: Borehole BH-PS-10 - SPT @ 3.00 m



Figure AE16: Borehole BH-PS-10 - CS @ 4.50 m



Figure AE17: Borehole BH-PS-10 - SPT @ 4.50 m



Figure AE18: Borehole BH-PS-10 - CS @ 6.00 m



Figure AE19: Borehole BH-PS-10 - SPT @ 6.00 m



Figure AE20: Borehole BH-PS-10 - CS @ 7.50 m



Figure AE21: Borehole BH-PS-10 - SPT @ 7.50 m



Figure AE22: Borehole BH-PS-10 - CS @ 9.00 m



Figure AE23: Borehole BH-PS-10 - SPT @ 9.00 m



Figure AE24: Borehole BH-PS-10 - CS @ 10.50 m



Figure AE25: Borehole BH-PS-10 - SPT @ 10.50 m



Figure AE26: Borehole BH-PS-10 - SPT @ 11.00 m



Figure AE27: Borehole BH-PS-10 - CS @ 12.00 m



Figure AE28: Borehole BH-PS-10 - CS @ 12.50 m

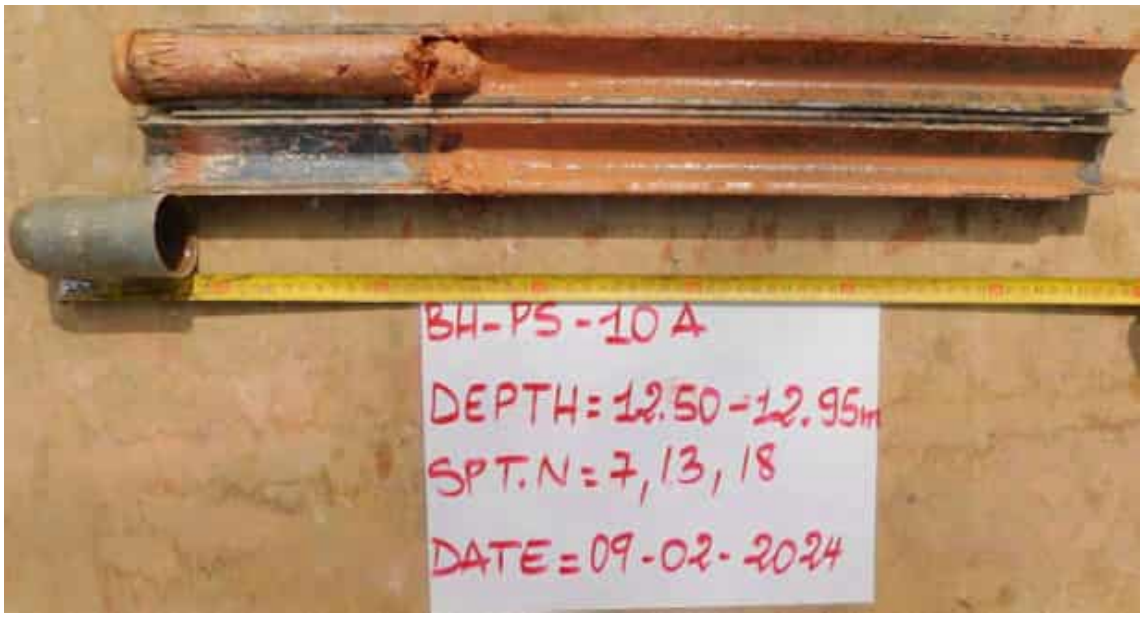


Figure AE29: Borehole BH-PS-10 - SPT @ 12.50 m



Figure AE30: Borehole BH-PS-10 - CS @ 13.50 m



Figure AE31: Borehole BH-PS-10 - CS @ 15.00 m



Figure AE32: Borehole BH-PS-10 - SPT @ 15.00 m



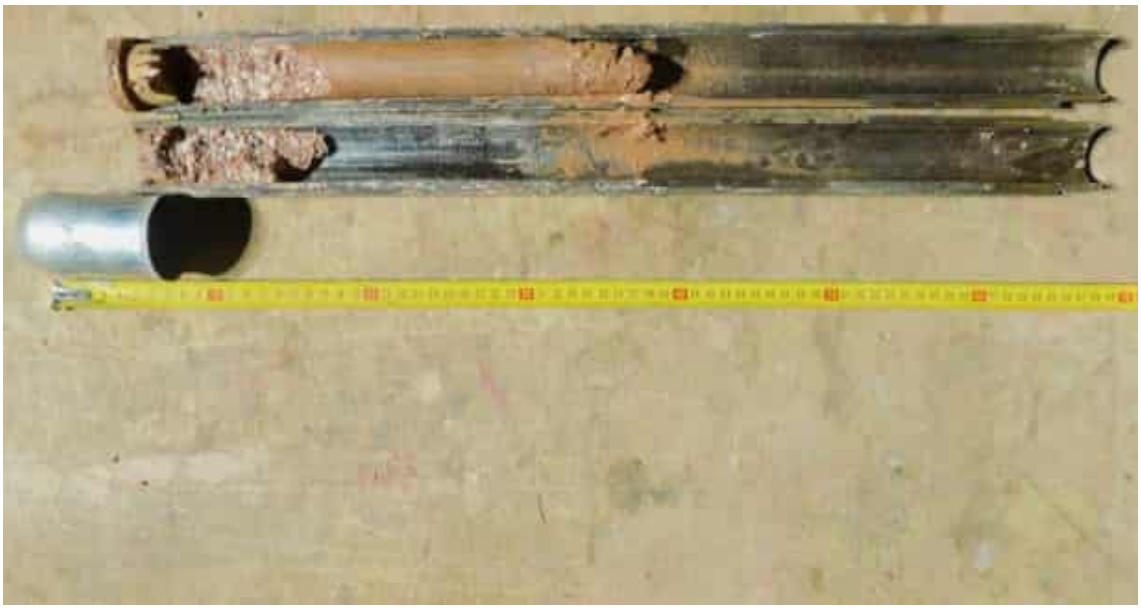
Figure AE33: Borehole BH-PS-10 - CS @ 16.50 m



Figure AE34: Borehole BH-PS-10 - SPT @ 16.50 m



Figure AE35: Borehole BH-PS-10 - CS @ 18.00 m



.

Figure AE35: Borehole BH-PS-10 - SPT @ 18.00 m



Figure AE36: Borehole BH-PS-10 - CS @ 19.50 m



Figure AE37: Borehole BH-PS-10 - SPT @ 19.50 m



Figure AE 38: Borehole BH-PS-10 - CS @ 21.00 m



Figure AE39: Borehole BH-PS-10 - SPT @ 22.50 m



Figure AE40: Borehole BH-PS-10 - CS @ 25.50 m



Figure AE40: Borehole BH-PS-10 - SPT @ 25.50 m



Figure AE41: Borehole BH-PS-10 - CS @ 28.50 m



Figure AE42: Borehole BH-PS-10 - SPT @ 28.50 m



Figure AE43: Borehole BH-PS-10 - CS @ 30.00 m



Figure AE44: Borehole BH-PS-10 - CS @ 31.50 m



Figure AE45: Borehole BH-PS-10 - CS @ 34.50 m



Figure AE46: Borehole BH-PS-10 - CS @ 36.00 m



Figure AE47: Borehole BH-PS-10 - CS @ 39.00 m



Figure AE48: Borehole BH-PS-10 - CS @ 40.50 m



Figure AE49: Borehole BH-PS-10 - CS @ 42.00 m



Figure AE50: Borehole BH-PS-10 - CS @ 43.50 m



Figure AF01: Borehole BH-PS-11 - Depth from 0.00m to 4.00 m – Box 01



Figure AF02: Borehole BH-PS-11 - Depth from 4.00m to 8.00 m – Box 02



Figure AF03: Borehole BH-PS-11 - Depth from 8.00m to 12.00 m – Box 03



Figure AF04: Borehole BH-PS-11 - Depth from 12.00m to 16.00 m – Box 04



Figure AF05: Borehole BH-PS-11 - Depth from 16.00m to 20.00 m – Box 05



Figure AF06: Borehole BH-PS-11 - Depth from 20.00m to 24.00 m – Box 06



Figure AF07: Borehole BH-PS-11 - Depth from 24.00m to 27.00 m – Box 07



Figure AF08: Borehole BH-PS-11 - CS @ 1.50 m



Figure AF09: Borehole BH-PS-11 - SPT @ 1.50 m



Figure AF10: Borehole BH-PS-11 - CS @ 3.00 m



Figure AF11: Borehole BH-PS-11 - SPT @ 3.00 m



Figure AF12: Borehole BH-PS-11 - CS @ 4.50 m



Figure AF13: Borehole BH-PS-11 - SPT @ 4.50 m



Figure AF14: Borehole BH-PS-11 - CS @ 6.00 m



Figure AF15: Borehole BH-PS-11 - SPT @ 6.00 m



Figure AF16: Borehole BH-PS-11 - SPT @ 7.50 m



Figure AF17: Borehole BH-PS-11 - CS @ 9.00 m



Figure AF18: Borehole BH-PS-11 - SPT @ 9.00 m



Figure AF19: Borehole BH-PS-11 - CS @ 11.00 m



Figure AF20: Borehole BH-PS-11 - SPT @ 11.00 m



Figure AF21: Borehole BH-PS-11 - CS @ 12.00 m



Figure AF22: Borehole BH-PS-11 - SPT @ 12.00 m



Figure AF23: Borehole BH-PS-11 - SPT @ 13.50 m



Figure AF24: Borehole BH-PS-11 - CS @ 15.00 m



Figure AF25: Borehole BH-PS-11 - SPT @ 15.00 m



Figure AF26: Borehole BH-PS-11 - CS @ 16.50 m



Figure AF27: Borehole BH-PS-11 - SPT @ 16.50 m



Figure AF28: Borehole BH-PS-11 - CS @ 18.00 m



Figure AF29: Borehole BH-PS-11 - SPT @ 18.00 m



Figure AF30: Borehole BH-PS-11 - CS @ 19.50 m



Figure AG01: Borehole BH-PS-12 - Depth from 0.00m to 4.00 m – Box 01



Figure AG02: Borehole BH-PS-12 - Depth from 4.00m to 8.00 m – Box 02



Figure AG03: Borehole BH-PS-12 - Depth from 8.00m to 12.00 m – Box 03



Figure AG04: Borehole BH-PS-12 - Depth from 12.00m to 16.00 m – Box 04



Figure AG05: Borehole BH-PS-12 - Depth from 16.00m to 20.00 m – Box 05



Figure AG06: Borehole BH-PS-12 - Depth from 20.00m to 24.00 m – Box 06



Figure AG07: Borehole BH-PS-12 - Depth from 24.00m to 28.00 m – Box 07



Figure AG08: Borehole BH-PS-12 - Depth from 28.00m to 30.00 m – Box 08



Figure AG09: Borehole BH-PS-12 - CS @ 1.50 m



Figure AG10: Borehole BH-PS-12 - SPT @ 1.50 m



Figure AG11: Borehole BH-PS-12 - CS @ 3.00 m



Figure AG12: Borehole BH-PS-12 - SPT @ 3.00 m



Figure AG13: Borehole BH-PS-12 - CS @ 4.50 m



Figure AG14: Borehole BH-PS-12 - SPT @ 4.50 m



Figure AG15: Borehole BH-PS-12 - CS @ 6.00 m



Figure AG16: Borehole BH-PS-12 - SPT @ 6.00 m



Figure AG17: Borehole BH-PS-12 - CS @ 7.50 m



Figure AG18: Borehole BH-PS-12 - SPT @ 7.50 m



Figure AG19: Borehole BH-PS-12 - CS @ 9.00 m



Figure AG20: Borehole BH-PS-12 - SPT @ 9.00 m



Figure AG21: Borehole BH-PS-12 - CS @ 10.50 m



Figure AG23: Borehole BH-PS-12 - SPT @ 10.50 m



Figure AG22: Borehole BH-PS-12 - CS @ 12.00 m



Figure AG24: Borehole BH-PS-12 - SPT @ 12.00 m



Figure AG25: Borehole BH-PS-12 - CS @ 13.50 m

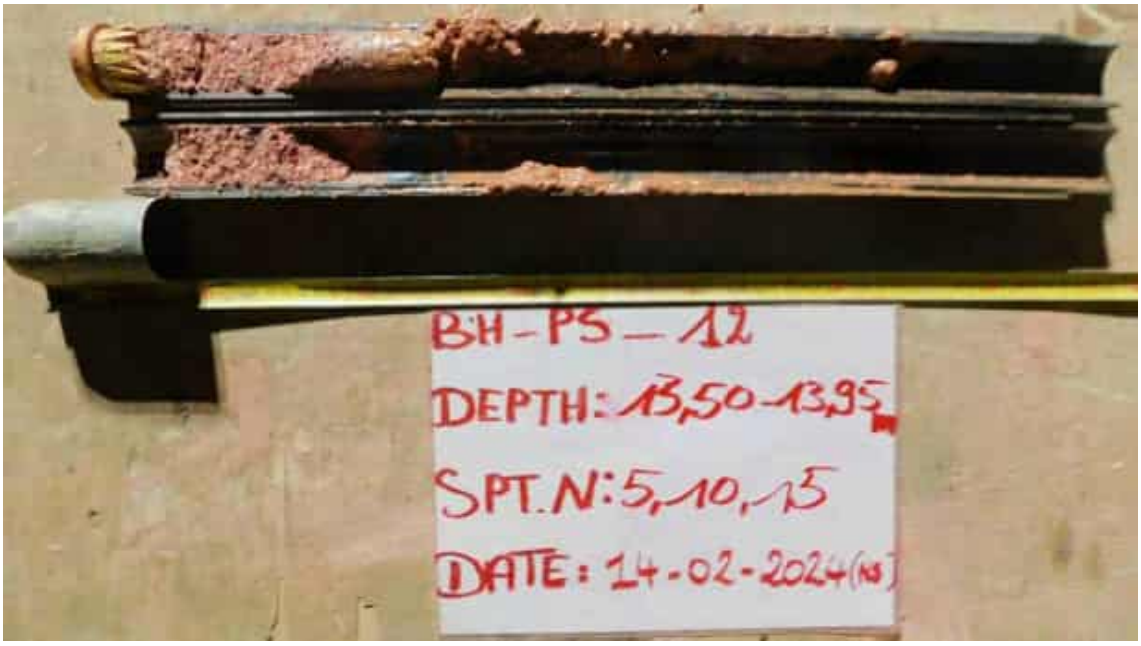


Figure AG26: Borehole BH-PS-12 - SPT @ 13.50 m



Figure AG27: Borehole BH-PS-12 - CS @ 15.00 m



Figure AG28: Borehole BH-PS-12 - SPT @ 15.00 m



Figure AG29: Borehole BH-PS-12 - CS @ 16.50 m



Figure AG30: Borehole BH-PS-12 - SPT @ 16.50 m

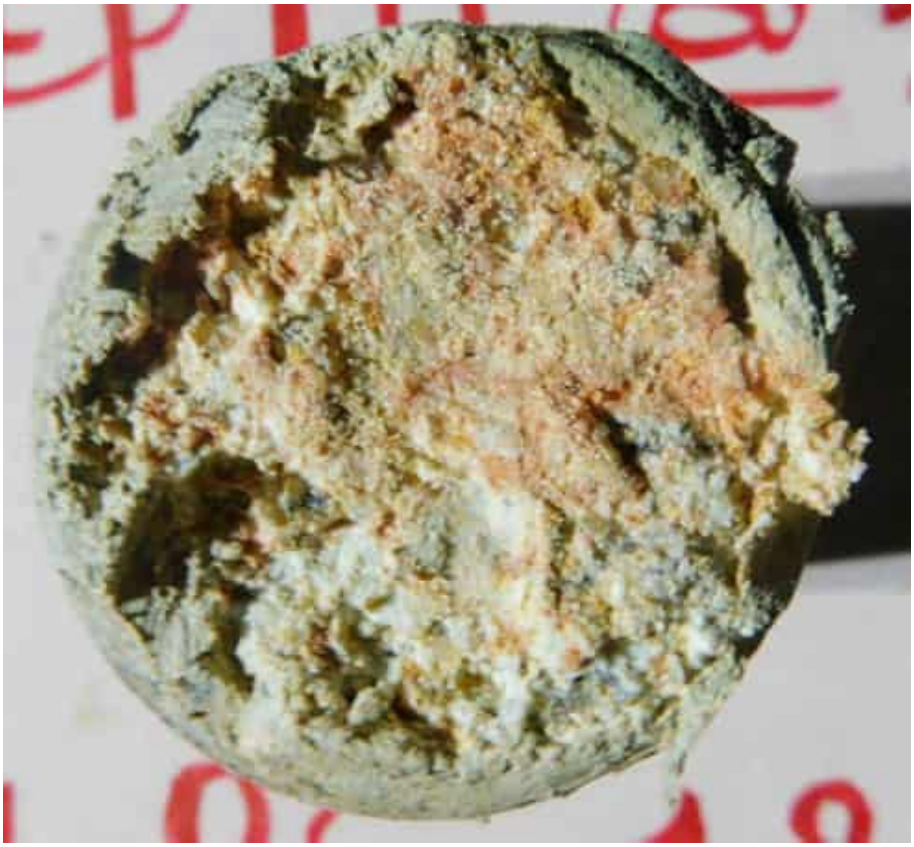


Figure AG31: Borehole BH-PS-12 - CS @ 18.00 m



Figure AG32: Borehole BH-PS-12 - SPT @ 18.00 m



Figure AG33: Borehole BH-PS-12 - SPT @ 19.50 m



Figure AG34: Borehole BH-PS-12 - SPT @ 22.50 m



Figure AH01: Borehole BH-PS-13 - Depth from 0.00m to 4.00 m – Box 01



Figure AH02: Borehole BH-PS-13 - Depth from 4.00m to 8.00 m – Box 02



Figure AH03: Borehole BH-PS-13 - Depth from 8.00m to 12.00 m – Box 03



Figure AH04: Borehole BH-PS-13 - Depth from 12.00m to 16.00 m – Box 04



Figure AH05: Borehole BH-PS-13 - Depth from 16.00m to 20.00 m – Box 05



Figure AH06: Borehole BH-PS-13 - Depth from 20.00m to 24.00 m – Box 06



Figure AH07: Borehole BH-PS-13 - Depth from 24.00m to 28.00 m – Box 07



Figure AH08: Borehole BH-PS-13 - CS @ 1.50 m



Figure AH09: Borehole BH-PS-13 - SPT @ 1.50 m



Figure AH10: Borehole BH-PS-13 - CS @ 3.00 m



Figure AH11: Borehole BH-PS-13 - SPT @ 3.00 m



Figure AH12: Borehole BH-PS-13 - CS @ 4.50 m



Figure AH13: Borehole BH-PS-13 - SPT @ 4.50 m



Figure AH14: Borehole BH-PS-13 - SPT @ 6.00 m



Figure AH15: Borehole BH-PS-13 - CS @ 7.50 m



Figure AH16: Borehole BH-PS-13 - SPT @ 7.50 m



Figure AH17: Borehole BH-PS-12 - CS @ 9.00 m



Figure AH18: Borehole BH-PS-13 - SPT @ 9.00 m



Figure AH19: Borehole BH-PS-13 - SPT @ 10.50 m



Figure AH20: Borehole BH-PS-13 - SPT @ 12.00 m



Figure AH21: Borehole BH-PS-13 - SPT @ 13.50 m



Figure AH22: Borehole BH-PS-13 - SPT @ 15.00 m

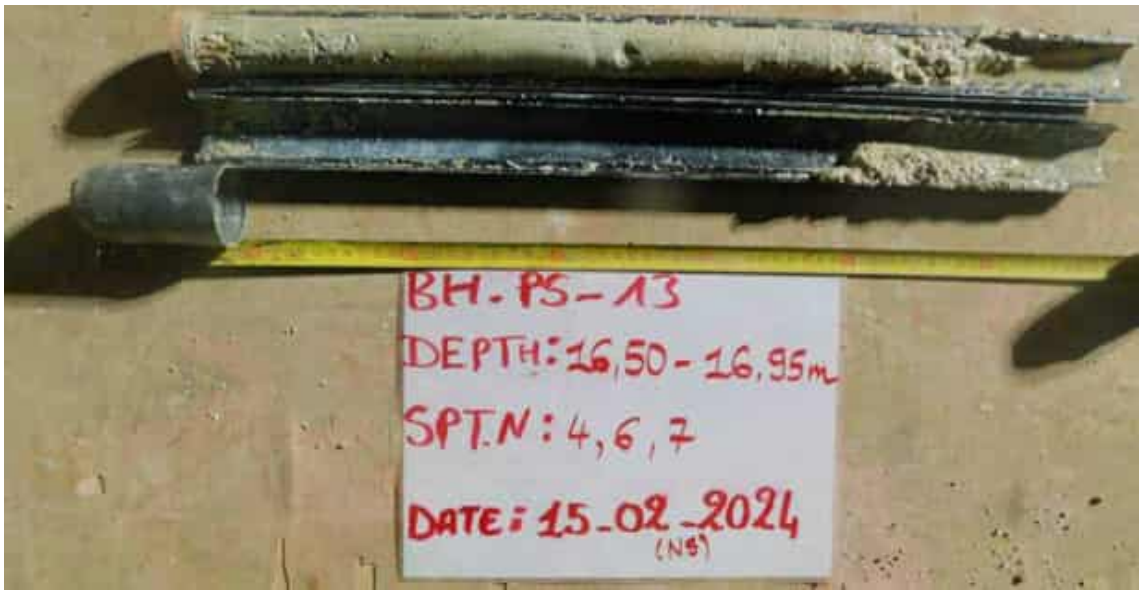


Figure AH23: Borehole BH-PS-13 - SPT @ 16.50 m

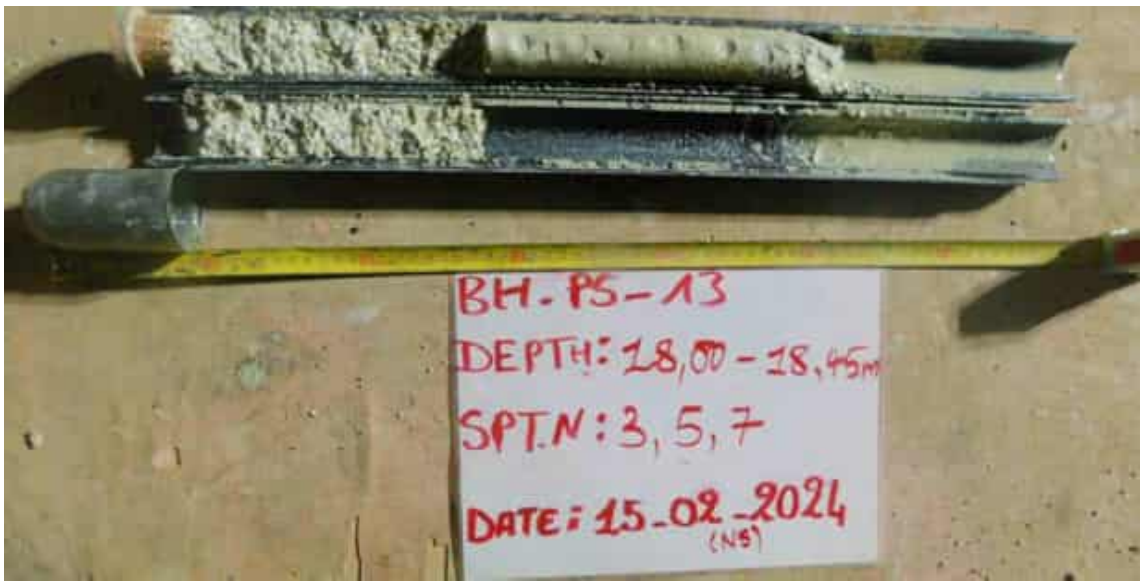


Figure AH24: Borehole BH-PS-13 - SPT @ 18.00 m



Figure AH25: Borehole BH-PS-13 - SPT @ 19.50 m

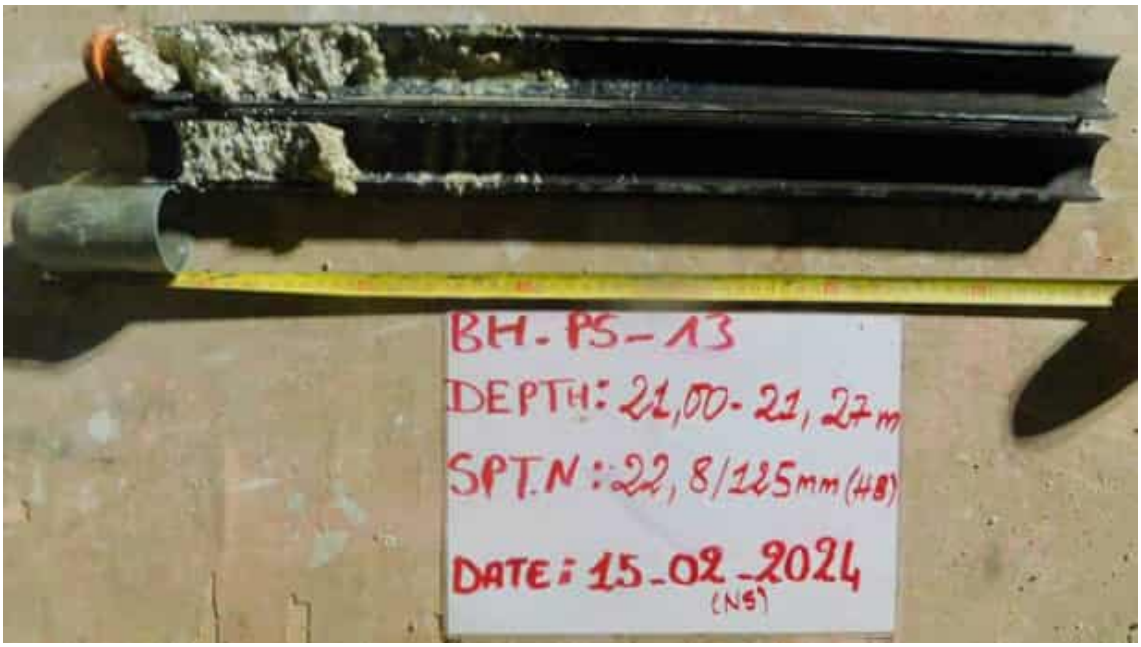


Figure AH26: Borehole BH-PS-13 - SPT @ 21.50 m



Figure AI01: Borehole BH-PS-14 - Depth from 0.00m to 4.00 m – Box 01



Figure AI02: Borehole BH-PS-13 - Depth from 4.00m to 8.00 m – Box 02



Figure AI03: Borehole BH-PS-14 - Depth from 8.00m to 12.00 m – Box 03



Figure AI04: Borehole BH-PS-14 - Depth from 12.00m to 16.00 m – Box 04



Figure AI05: Borehole BH-PS-14 - Depth from 16.00m to 20.00 m – Box 05



Figure AI06: Borehole BH-PS-14 - Depth from 20.00m to 24.00 m – Box 06



Figure AI07: Borehole BH-PS-14 - Depth from 24.00m to 28.00 m – Box 07



Figure AI08: Borehole BH-PS-14 - Depth from 28.00m to 32.00 m – Box 08



Figure AI09: Borehole BH-PS-14 - Depth from 32.00m to 36.00 m – Box 09



Figure AI10: Borehole BH-PS-14 - Depth from 36.00m to 40.00 m – Box 10



Figure AI11: Borehole BH-PS-14 - Depth from 40.00m to 44.00 m – Box 11



Figure AI12: Borehole BH-PS-14 - Depth from 44.00m to 46.50 m – Box 12



Figure AI13: Borehole BH-PS-14 - CS @ 1.50 m



Figure AI14: Borehole BH-PS-14 - SPT @ 1.50 m



Figure AI15: Borehole BH-PS-14 - CS @ 3.00 m



Figure AI16: Borehole BH-PS-14 - SPT @ 3.00 m



Figure AI17: Borehole BH-PS-14 - CS @ 4.50 m



Figure AI18: Borehole BH-PS-14 - SPT @ 4.50 m



Figure AI19: Borehole BH-PS-14 - CS @ 6.00 m



Figure AI20: Borehole BH-PS-14 - SPT @ 6.00 m



Figure AI21: Borehole BH-PS-14 - CS @ 7.50 m



Figure AI22: Borehole BH-PS-14 - SPT @ 7.50 m



Figure AI23: Borehole BH-PS-14 - CS @ 9.00 m

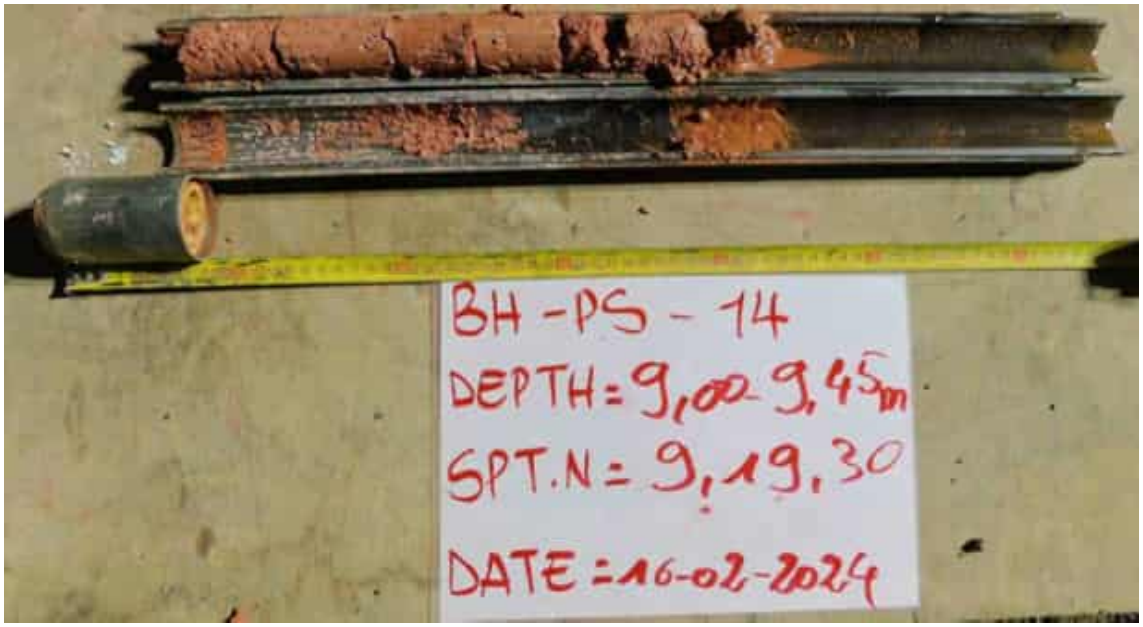


Figure AI24: Borehole BH-PS-14 - SPT @ 9.00 m



Figure AI25: Borehole BH-PS-14 - SPT @ 10.50 m



Figure AI26: Borehole BH-PS-14 - SPT @ 10.50 m



FigurAI27: Borehole BH-PS-14 - SPT @ 12.00 m



Figure AI28: Borehole BH-PS-14 - SPT @ 13.50 m



Figure AI29: Borehole BH-PS-14 - SPT @ 16.50 m

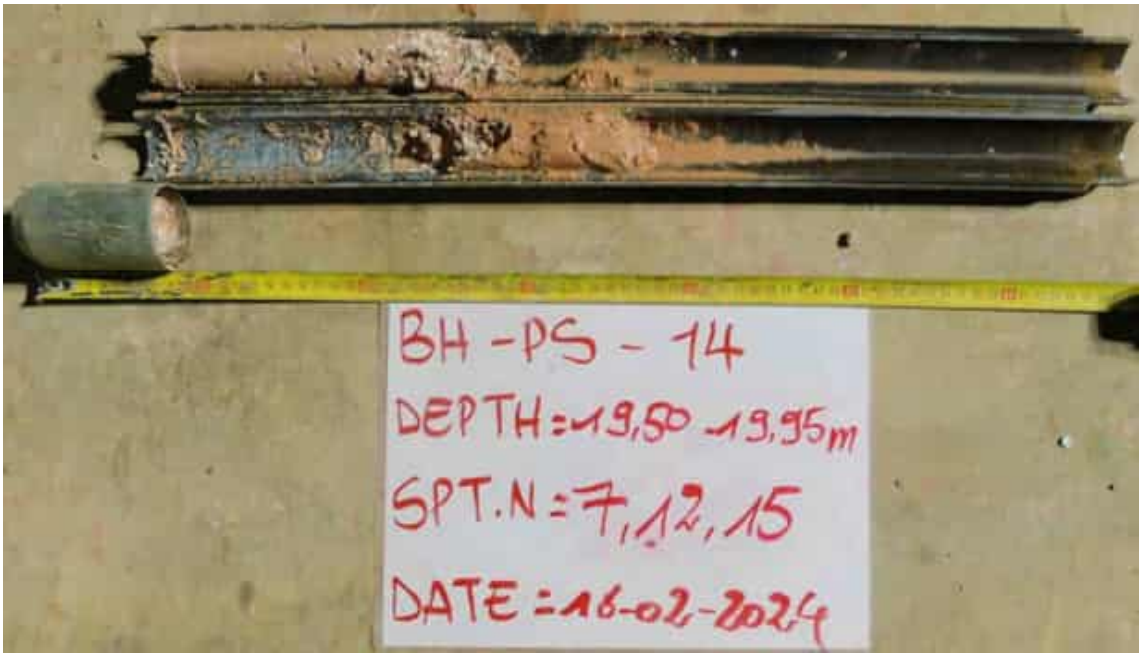


Figure AI30: Borehole BH-PS-14 - SPT @ 19.50 m



Figure AI31: Borehole BH-PS-14 - CS @ 22.50 m



Figure AI32: Borehole BH-PS-14 - SPT @ 22.50 m



Figure AI33: Borehole BH-PS-14 - SPT @ 25.50 m



Figure AI34: Borehole BH-PS-14 - CS @ 27.00 m



Figure AI35: Borehole BH-PS-14 - CS @ 28.50 m



Figure AI36: Borehole BH-PS-14 - SPT @ 28.50 m



Figure AI37: Borehole BH-PS-14 - CS @ 30.00 m



Figure AI38: Borehole BH-PS-14 - CS @ 31.50 m



Figure AJ01: Borehole BH- PS -06A - Depth from 0.00m to 4.00 m – Box 01



Figure AJ02: Borehole BH- PS -06A - Depth from 4.00m to 8.00 m – Box 02



Figure AJ03: Borehole BH- PS -06A - Depth from 8.00m to 12.00 m – Box 03



Figure AJ04: Borehole BH-PS-06A - Depth from 12.00m to 16.00 m – Box 04



Figure AJ05: Borehole BH-PS-06A - Depth from 16.00m to 20.00 m – Box 05



Figure AJ06-A: Borehole BH-PS-06A - Depth from 20.00m to 22.50 m – Box 06



Figure AJ06-B: Borehole BH-PS-06A - Depth from 20.00m to 24.00 m – Box 06



Figure AJ07: Borehole BH-PS-06A - Depth from 24.00m to 25.50 m – Box 07

APPENDIX B

Falling Head Permeability Test Results

Knight Piésold CONSULTING

Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	MI	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 12/11/2023
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-TSF-01		
EASTING	478908.40	**NORTHING**	1078090.10
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	24.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	9.445	m
Initial water level at start of test (not part of calc.)	0.280	m
Level of measuring point with respect to GL (not part of calc.)	0.040	m
Length of test zone at start of test	24.000	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

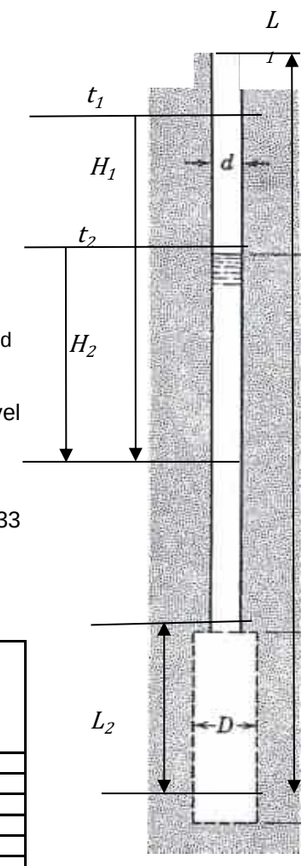
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333

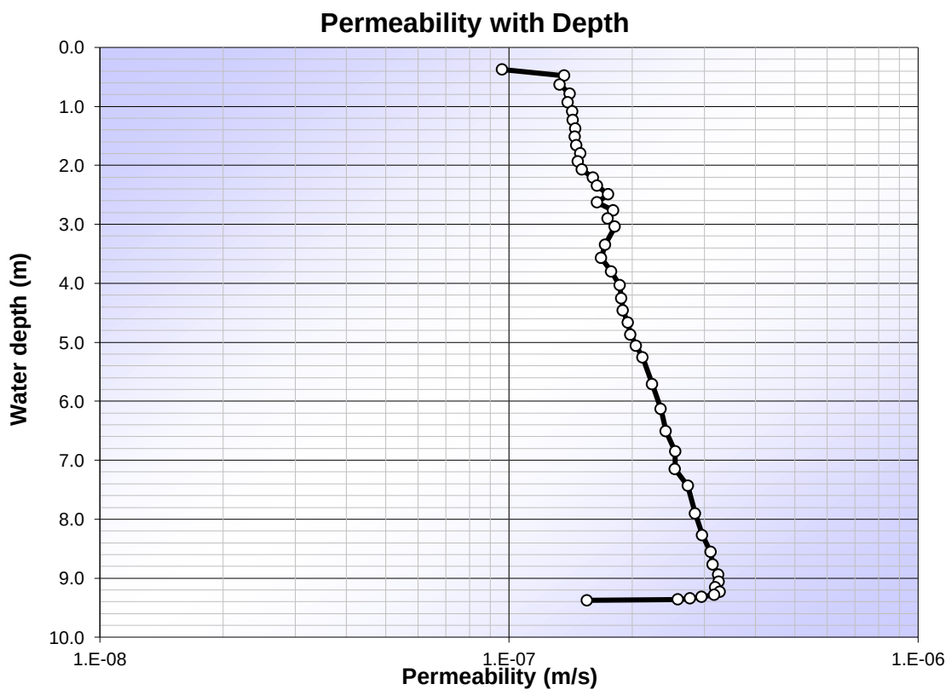


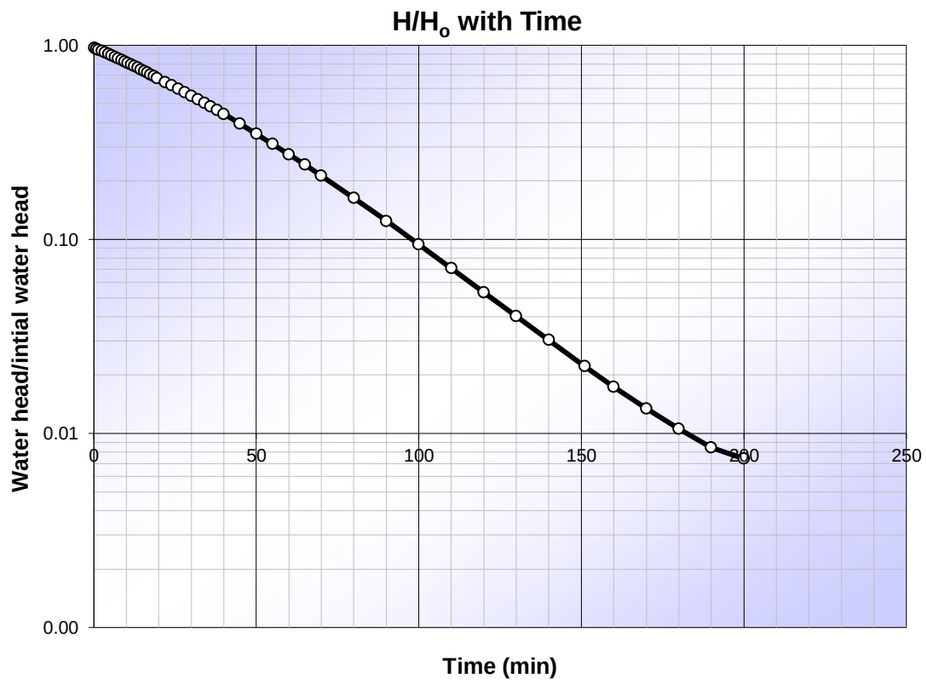
	Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1	0.25	15	0.310	-	-
2	0.83	50	0.375	112.07	Borehole
3	1.50	90	0.480	156.72	Borehole
4	2.50	150	0.630	150.00	Borehole
5	3.50	210	0.785	155.00	Borehole
6	4.50	270	0.935	150.00	Borehole
7	5.50	330	1.085	150.00	Borehole
8	6.50	390	1.232	147.00	Borehole
9	7.50	450	1.378	146.00	Borehole
10	8.50	510	1.520	142.00	Borehole
11	9.50	570	1.660	140.00	Borehole
12	10.50	630	1.800	140.00	Borehole
13	11.50	690	1.935	135.00	Borehole
14	12.50	750	2.070	135.00	Borehole
15	13.50	810	2.210	140.00	Borehole
16	14.50	870	2.350	140.00	Borehole
17	15.50	930	2.495	145.00	Borehole
18	16.50	990	2.628	133.00	Borehole
19	17.50	1050	2.770	142.00	Borehole
20	18.50	1110	2.904	134.00	Borehole
21	19.50	1170	3.040	136.00	Borehole
22	22.00	1320	3.347	122.80	Borehole
23	24.00	1440	3.575	114.00	Borehole
24	26.00	1560	3.805	115.00	Borehole
25	28.00	1680	4.034	114.50	Borehole
26	30.00	1800	4.254	110.00	Borehole
27	32.00	1920	4.465	105.50	Borehole
28	34.00	2040	4.671	103.00	Borehole
29	36.00	2160	4.870	99.50	Borehole
30	38.00	2280	5.065	97.50	Borehole
31	40.00	2400	5.257	96.00	Borehole
32	45.00	2700	5.715	91.60	Borehole
33	50.00	3000	6.134	83.80	Borehole
34	55	3300	6.510	75.20	Borehole
35	60	3600	6.855	69.00	Borehole
36	65	3900	7.155	60.00	Borehole
37	70	4200	7.435	56.00	Borehole
38	80	4800	7.904	46.90	Borehole
39	90	5400	8.270	36.60	Borehole
40	100	6000	8.557	28.70	Borehole
41	110	6600	8.774	21.70	Borehole
42	120	7200	8.941	16.70	Borehole
43	130	7800	9.066	12.50	Borehole
44	140	8400	9.158	9.20	Borehole
45	151	9060	9.235	7.00	Borehole
46	160	9600	9.281	5.11	Borehole
47	170	10200	9.318	3.70	Borehole
48	180	10800	9.345	2.70	Borehole
49	190.0	11,400	9.365	2.00	Borehole
50	200.0	12,000	9.375	1.00	Borehole

L_2 = depth of water beyond casing

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
23.7	194.2	9.14	-	-
23.6	193.6	9.07	0.122	9.6E-08
23.5	192.8	8.97	0.122	1.4E-07
23.4	191.6	8.82	0.122	1.3E-07
23.2	190.3	8.66	0.122	1.4E-07
23.1	189.1	8.51	0.122	1.4E-07
22.9	187.8	8.36	0.122	1.4E-07
22.8	186.6	8.21	0.122	1.4E-07
22.6	185.4	8.07	0.122	1.5E-07
22.5	184.3	7.93	0.122	1.4E-07
22.3	183.1	7.79	0.122	1.5E-07
22.2	182.0	7.65	0.122	1.5E-07
22.1	180.9	7.51	0.122	1.5E-07
21.9	179.8	7.38	0.122	1.5E-07
21.8	178.6	7.24	0.122	1.6E-07
21.7	177.5	7.10	0.122	1.6E-07
21.5	176.3	6.95	0.122	1.7E-07
21.4	175.2	6.82	0.122	1.6E-07
21.2	174.0	6.68	0.122	1.8E-07
21.1	172.9	6.54	0.122	1.7E-07
21.0	171.8	6.41	0.122	1.8E-07
20.7	169.3	6.10	0.122	1.7E-07
20.4	167.4	5.87	0.122	1.7E-07
20.2	165.5	5.64	0.122	1.8E-07
20.0	163.7	5.41	0.122	1.9E-07
19.7	161.9	5.19	0.122	1.9E-07
19.5	160.1	4.98	0.122	1.9E-07
19.3	158.4	4.77	0.122	2.0E-07
19.1	156.8	4.58	0.122	2.0E-07
18.9	155.2	4.38	0.122	2.0E-07
18.7	153.6	4.19	0.122	2.1E-07
18.3	149.9	3.73	0.122	2.2E-07
17.9	146.4	3.31	0.122	2.3E-07
17.5	143.4	2.94	0.122	2.4E-07
17.1	140.5	2.59	0.122	2.6E-07
16.8	138.1	2.29	0.122	2.5E-07
16.6	135.8	2.01	0.122	2.7E-07
16.1	131.9	1.54	0.122	2.9E-07
15.7	128.9	1.18	0.122	3.0E-07
15.4	126.6	0.89	0.122	3.1E-07
15.2	124.8	0.67	0.122	3.1E-07
15.1	123.4	0.50	0.122	3.2E-07
14.9	122.4	0.38	0.122	3.3E-07
14.8	121.7	0.29	0.122	3.2E-07
14.8	121.0	0.21	0.122	3.3E-07
14.7	120.6	0.16	0.122	3.2E-07
14.7	120.3	0.13	0.122	3.0E-07
14.7	120.1	0.10	0.122	2.8E-07
14.6	120.0	0.08	0.122	2.6E-07
14.6	119.9	0.07	0.122	1.6E-07
			AVG	**2.23E-07**

Estimated Permeability 2.23E-07 m/s





\\pefs2\PEProjects\PE301-00821 Doropo_Gold_Project\Site_Data\SI\2023 Site Investigation\FHT\FHT, BH-TSF-01

Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	MI	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 11/12/2023
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-TSF-02		
EASTING	479129.90	**NORTHING**	1078354.10
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	15.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	4.030	m
Initial water level at start of test (not part of calc.)	0.250	m
Level of measuring point with respect to GL (not part of calc.)	0.010	m
Length of test zone at start of test	15.000	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

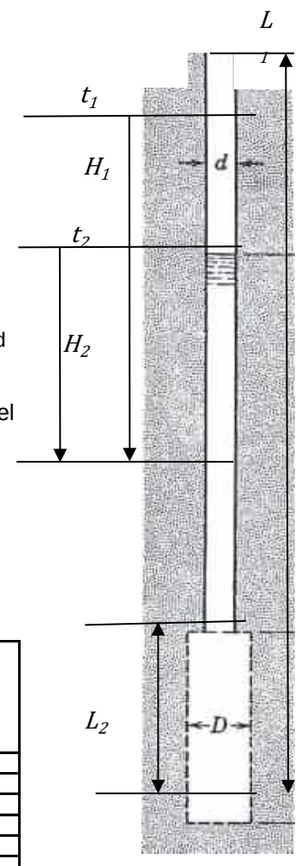
$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

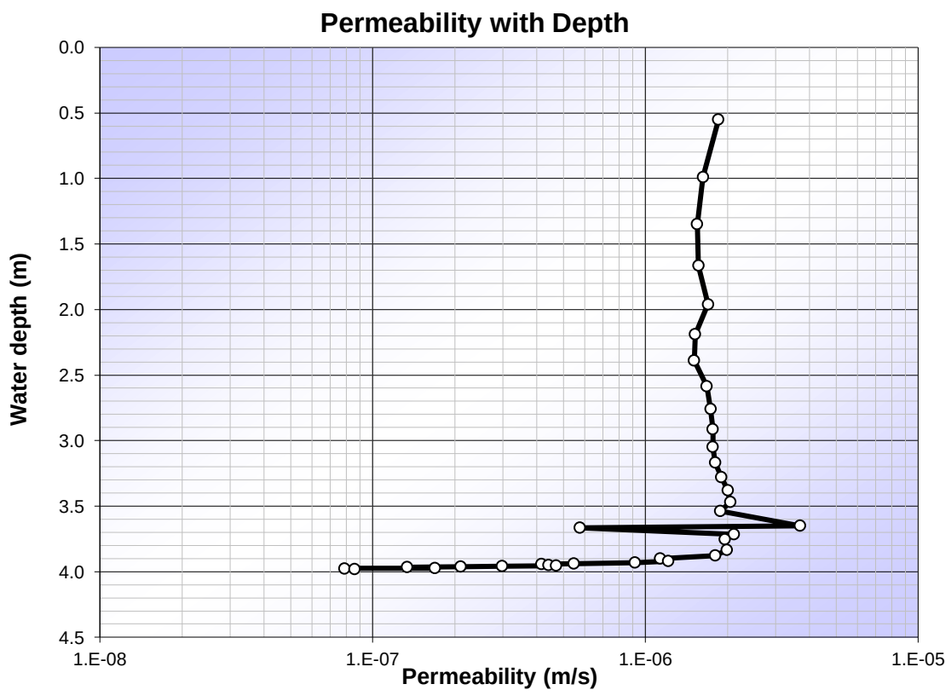


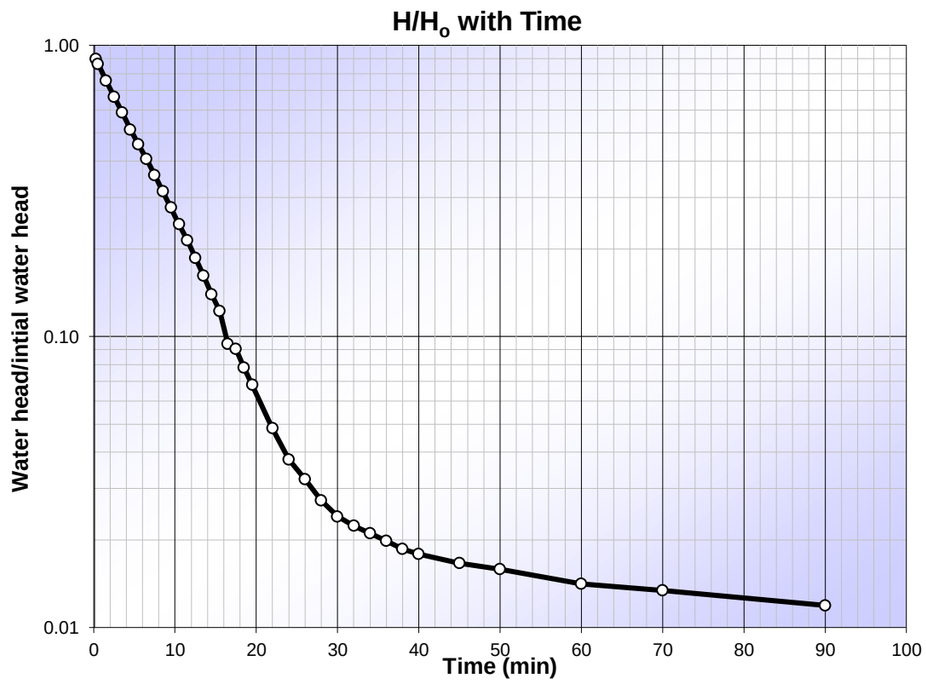
	Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1	0.25	15	0.410	-	-
2	0.50	30	0.550	560.00	Borehole
3	1.50	90	0.990	440.00	Borehole
4	2.50	150	1.350	360.00	Borehole
5	3.50	210	1.665	315.00	Borehole
6	4.50	270	1.960	295.00	Borehole
7	5.50	330	2.190	230.00	Borehole
8	6.50	390	2.390	200.00	Borehole
9	7.50	450	2.585	195.00	Borehole
10	8.50	510	2.760	175.00	Borehole
11	9.50	570	2.915	155.00	Borehole
12	10.50	630	3.050	135.00	Borehole
13	11.50	690	3.170	120.00	Borehole
14	12.50	750	3.280	110.00	Borehole
15	13.50	810	3.380	100.00	Borehole
16	14.50	870	3.468	88.00	Borehole
17	15.50	930	3.538	70.00	Borehole
18	16.50	990	3.650	112.00	Borehole
19	17.50	1050	3.665	15.00	Borehole
20	18.50	1110	3.715	50.00	Borehole
21	19.50	1170	3.755	40.00	Borehole
22	22.00	1320	3.835	32.00	Borehole
23	24.00	1440	3.878	21.50	Borehole
24	26.00	1560	3.900	11.00	Borehole
25	28.00	1680	3.920	10.00	Borehole
26	30.00	1800	3.933	6.50	Borehole
27	32.00	1920	3.940	3.50	Borehole
28	34.00	2040	3.945	2.50	Borehole
29	36.00	2160	3.950	2.50	Borehole
30	38.00	2280	3.955	2.50	Borehole
31	40.00	2400	3.958	1.50	Borehole
32	45.00	2700	3.963	1.00	Borehole
33	50.00	3000	3.966	0.60	Borehole
34	60	3600	3.973	0.70	Borehole
35	70	4200	3.976	0.30	Borehole
36	90	5400	3.982	0.30	Borehole
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					

L_2 = depth of water beyond casing

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
14.6	119.6	3.62	-	-
14.5	118.4	3.48	0.122	1.9E-06
14.0	114.8	3.04	0.122	1.6E-06
13.7	111.9	2.68	0.122	1.5E-06
13.3	109.3	2.37	0.122	1.6E-06
13.0	106.9	2.07	0.122	1.7E-06
12.8	105.0	1.84	0.122	1.5E-06
12.6	103.4	1.64	0.122	1.5E-06
12.4	101.8	1.45	0.122	1.7E-06
12.2	100.3	1.27	0.122	1.7E-06
12.1	99.1	1.12	0.122	1.8E-06
12.0	98.0	0.98	0.122	1.8E-06
11.8	97.0	0.86	0.122	1.8E-06
11.7	96.1	0.75	0.122	1.9E-06
11.6	95.2	0.65	0.122	2.0E-06
11.5	94.5	0.56	0.122	2.1E-06
11.5	94.0	0.49	0.122	1.9E-06
11.4	93.0	0.38	0.122	3.7E-06
11.3	92.9	0.37	0.122	5.8E-07
11.3	92.5	0.32	0.122	2.1E-06
11.2	92.2	0.28	0.122	2.0E-06
11.2	91.5	0.20	0.122	2.0E-06
11.1	91.2	0.15	0.122	1.8E-06
11.1	91.0	0.13	0.122	1.1E-06
11.1	90.8	0.11	0.122	1.2E-06
11.1	90.7	0.10	0.122	9.2E-07
11.1	90.7	0.09	0.122	5.5E-07
11.1	90.6	0.09	0.122	4.2E-07
11.1	90.6	0.08	0.122	4.4E-07
11.0	90.5	0.08	0.122	4.7E-07
11.0	90.5	0.07	0.122	3.0E-07
11.0	90.5	0.07	0.122	2.1E-07
11.0	90.4	0.06	0.122	1.3E-07
11.0	90.4	0.06	0.122	1.7E-07
11.0	90.4	0.05	0.122	7.9E-08
11.0	90.3	0.05	0.122	8.6E-08
			AVG	1.23E-06

Estimated Permeability 1.23E-06 m/s





Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	MI	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 12/11/2023
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-TSF-03		
EASTING	479059.90	**NORTHING**	1078404.90
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	15.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	1.900	m
Initial water level at start of test (not part of calc.)	0.055	m
Level of measuring point with respect to GL (not part of calc.)	0.030	m
Length of test zone at start of test	15.000	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for \ \frac{mL}{D} > 4$$

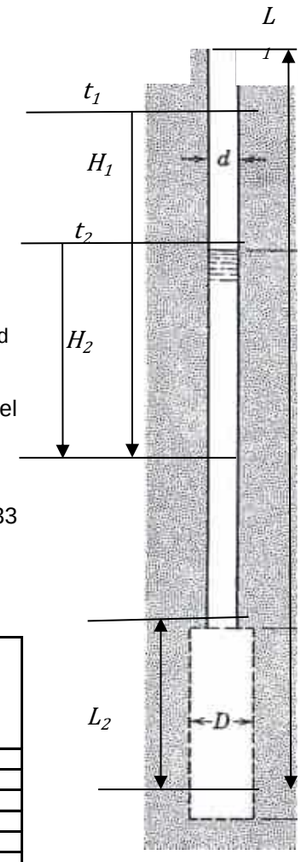
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333

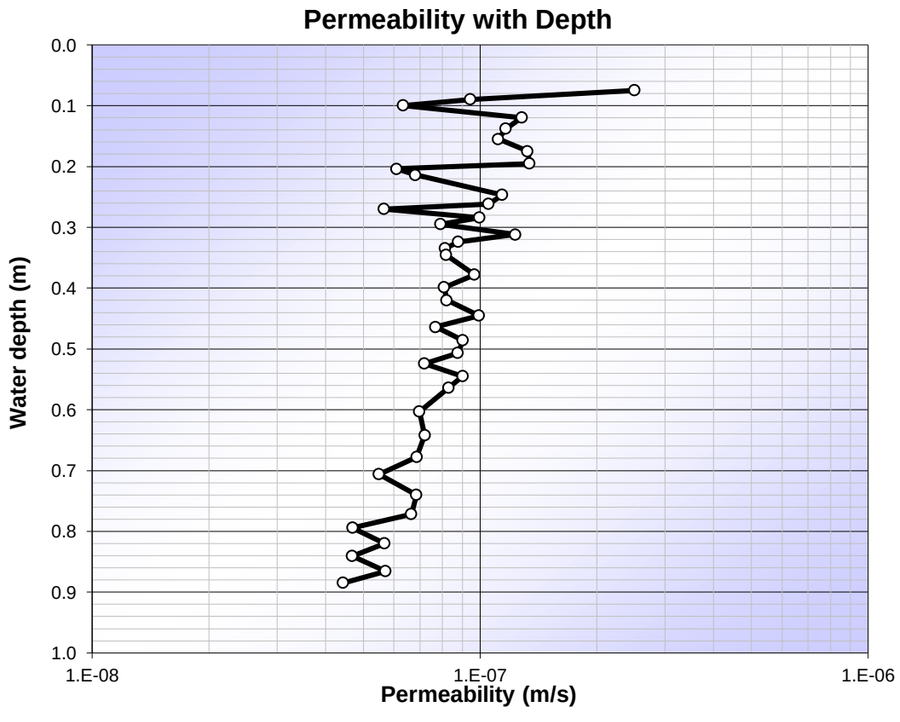


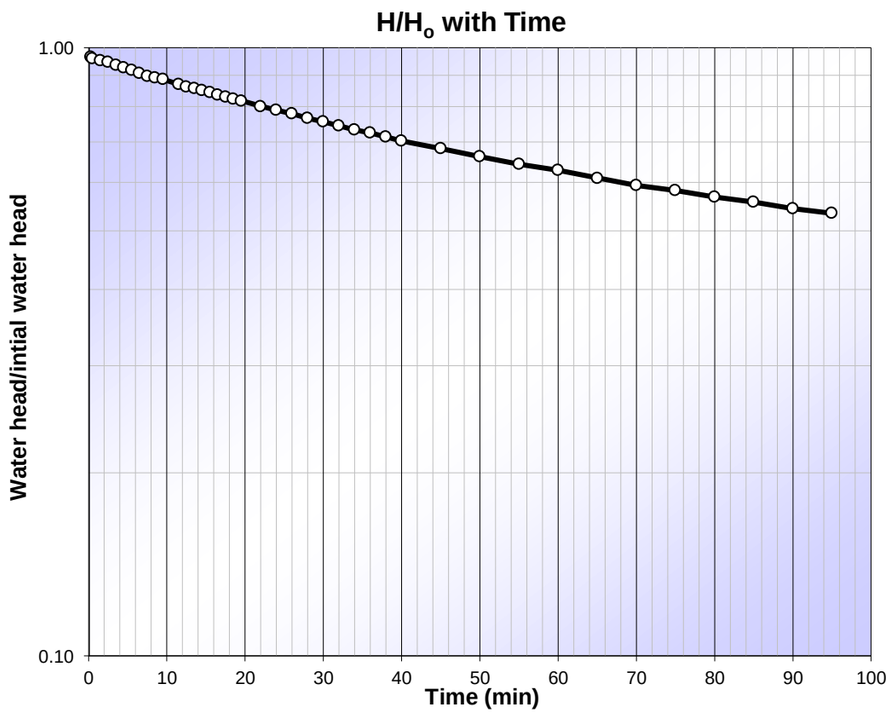
L_2 = depth of water beyond casing

	Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1	0.25	15	0.065	-	-
2	0.50	30	0.075	40.00	Borehole
3	1.50	90	0.090	15.00	Borehole
4	2.50	150	0.100	10.00	Borehole
5	3.50	210	0.120	20.00	Borehole
6	4.50	270	0.138	18.00	Borehole
7	5.50	330	0.155	17.00	Borehole
8	6.50	390	0.175	20.00	Borehole
9	7.50	450	0.195	20.00	Borehole
10	8.50	510	0.204	9.00	Borehole
11	9.50	570	0.214	10.00	Borehole
12	11.50	690	0.247	16.50	Borehole
13	12.50	750	0.262	15.00	Borehole
14	13.50	810	0.270	8.00	Borehole
15	14.50	870	0.284	14.00	Borehole
16	15.50	930	0.295	11.00	Borehole
17	16.50	990	0.312	17.00	Borehole
18	17.50	1050	0.324	12.00	Borehole
19	18.50	1110	0.335	11.00	Borehole
20	19.50	1170	0.346	11.00	Borehole
21	22.00	1320	0.378	12.80	Borehole
22	24.00	1440	0.399	10.50	Borehole
23	26.00	1560	0.420	10.50	Borehole
24	28.00	1680	0.445	12.50	Borehole
25	30.00	1800	0.464	9.50	Borehole
26	32.00	1920	0.486	11.00	Borehole
27	34.00	2040	0.507	10.50	Borehole
28	36.00	2160	0.524	8.50	Borehole
29	38.00	2280	0.545	10.50	Borehole
30	40.00	2400	0.564	9.50	Borehole
31	45.00	2700	0.603	7.80	Borehole
32	50.00	3000	0.642	7.80	Borehole
33	55	3300	0.678	7.20	Borehole
34	60	3600	0.706	5.60	Borehole
35	65	3900	0.740	6.80	Borehole
36	70	4200	0.772	6.40	Borehole
37	75	4500	0.794	4.40	Borehole
38	80	4800	0.820	5.20	Borehole
39	85	5100	0.841	4.20	Borehole
40	90	5400	0.866	5.00	Borehole
41	95	5700	0.885	3.80	Borehole
42					
43					
44					
45					
46					
47					
48					
49					
50					

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
14.9	122.4	1.84	-	-
14.9	122.3	1.83	0.122	2.5E-07
14.9	122.2	1.81	0.122	9.4E-08
14.9	122.1	1.80	0.122	6.3E-08
14.9	122.0	1.78	0.122	1.3E-07
14.9	121.8	1.76	0.122	1.2E-07
14.8	121.7	1.75	0.122	1.1E-07
14.8	121.5	1.73	0.122	1.3E-07
14.8	121.4	1.71	0.122	1.3E-07
14.8	121.3	1.70	0.122	6.1E-08
14.8	121.2	1.69	0.122	6.8E-08
14.8	120.9	1.65	0.122	1.1E-07
14.7	120.8	1.64	0.122	1.1E-07
14.7	120.7	1.63	0.122	5.7E-08
14.7	120.6	1.62	0.122	1.0E-07
14.7	120.5	1.61	0.122	7.9E-08
14.7	120.4	1.59	0.122	1.2E-07
14.7	120.3	1.58	0.122	8.8E-08
14.7	120.2	1.57	0.122	8.1E-08
14.7	120.1	1.55	0.122	8.2E-08
14.6	119.9	1.52	0.122	9.7E-08
14.6	119.7	1.50	0.122	8.1E-08
14.6	119.5	1.48	0.122	8.2E-08
14.6	119.3	1.46	0.122	9.9E-08
14.5	119.1	1.44	0.122	7.7E-08
14.5	119.0	1.41	0.122	9.0E-08
14.5	118.8	1.39	0.122	8.8E-08
14.5	118.7	1.38	0.122	7.2E-08
14.5	118.5	1.36	0.122	9.0E-08
14.4	118.3	1.34	0.122	8.3E-08
14.4	118.0	1.30	0.122	7.0E-08
14.4	117.7	1.26	0.122	7.2E-08
14.3	117.4	1.22	0.122	6.9E-08
14.3	117.2	1.19	0.122	5.5E-08
14.3	116.9	1.16	0.122	6.9E-08
14.2	116.6	1.13	0.122	6.6E-08
14.2	116.4	1.11	0.122	4.7E-08
14.2	116.2	1.08	0.122	5.7E-08
14.2	116.1	1.06	0.122	4.7E-08
14.1	115.9	1.03	0.122	5.7E-08
14.1	115.7	1.02	0.122	4.4E-08
			AVG	7.7E-08

Estimated Permeability 7.7E-08 m/s





\\pefs2\PEProjects\PE301-00821 Doropo_Gold_Project\Site_Data\SI\2023 Site Investigation\FHT\FHT, BH-TSF-03

Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	MI	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 13-12-2023
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-TSF-04		
EASTING	479257.80	**NORTHING**	1078782.90
GROUND CONDITIONS:			
Borehole diameter in test zone (uncased), (D)	0.122	m	
Area of test zone	0.0117	m^2	
Casing/ installation dia. (d) (if none d = D)	0.122	m	
Length of hole (L_1)	33.000	m	
Depth to base of casing/ sealed zone	0.000	m	
Rest water depth prior to test (if dry = L_1)	4.490	m	
Initial water level at start of test (not part of calc.)	0.260	m	
Level of measuring point with respect to GL (not part of calc.)	0.050	m	
Length of test zone at start of test	33.000	m	

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

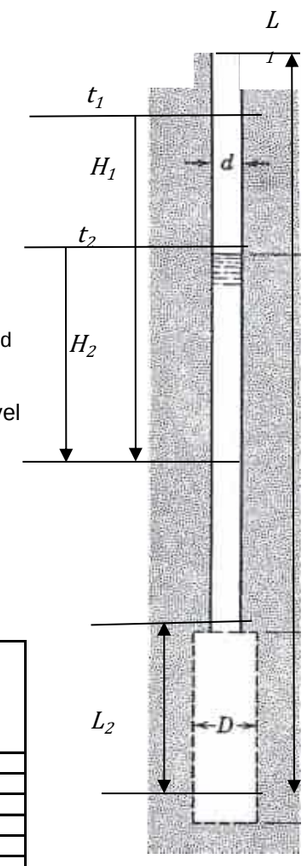
$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level 0.31666667

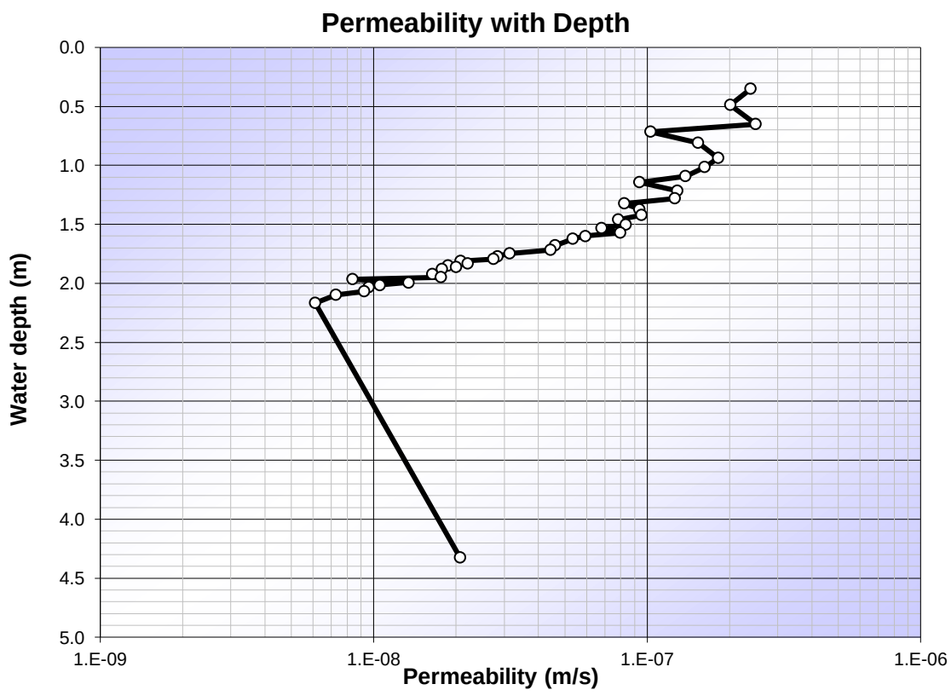


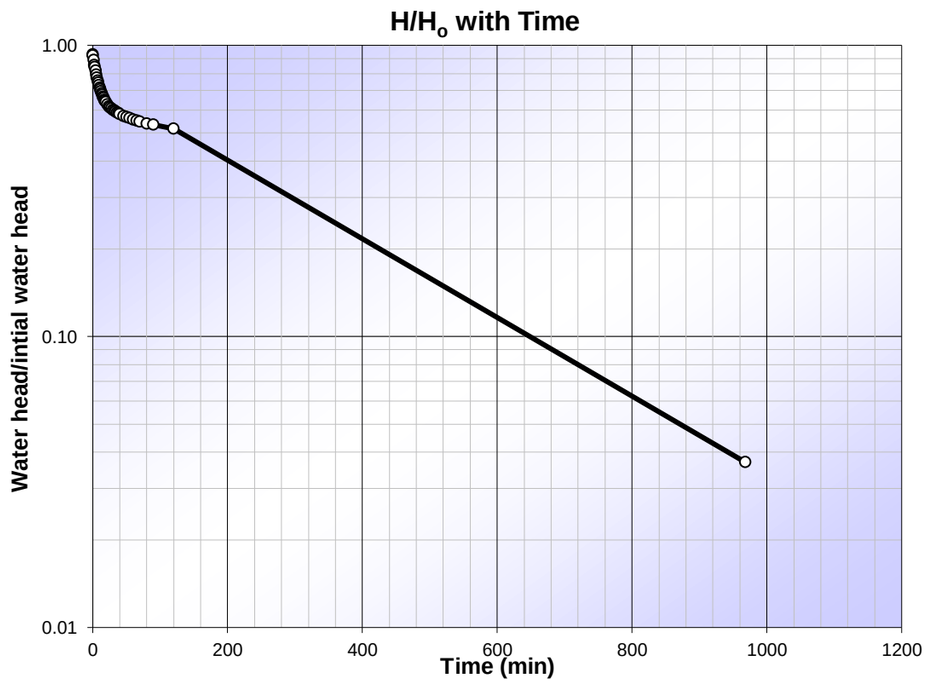
	Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1	0.32	19	0.320	-	-
2	0.50	30	0.350	166.67	Borehole
3	1.50	90	0.487	137.00	Borehole
4	2.50	150	0.650	163.00	Borehole
5	3.50	210	0.715	65.00	Borehole
6	4.50	270	0.810	95.00	Borehole
7	5.67	340	0.937	108.55	Borehole
8	6.50	390	1.015	93.98	Borehole
9	7.50	450	1.093	78.00	Borehole
10	8.50	510	1.145	52.00	Borehole
11	9.50	570	1.215	70.00	Borehole
12	10.50	630	1.282	67.00	Borehole
13	11.50	690	1.325	43.00	Borehole
14	12.50	750	1.373	48.00	Borehole
15	13.50	810	1.421	48.00	Borehole
16	14.50	870	1.460	39.00	Borehole
17	15.50	930	1.501	41.00	Borehole
18	16.50	990	1.534	33.00	Borehole
19	17.50	1050	1.572	38.00	Borehole
20	18.50	1110	1.600	28.00	Borehole
21	19.50	1170	1.625	25.00	Borehole
22	22.00	1320	1.678	21.20	Borehole
23	24.00	1440	1.718	20.00	Borehole
24	26.00	1560	1.746	14.00	Borehole
25	28.00	1680	1.771	12.50	Borehole
26	30.00	1800	1.795	12.00	Borehole
27	32.00	1920	1.813	9.00	Borehole
28	34.00	2040	1.832	9.50	Borehole
29	36.00	2160	1.848	8.00	Borehole
30	38.00	2280	1.865	8.50	Borehole
31	40.00	2400	1.880	7.50	Borehole
32	46.00	2760	1.921	6.83	Borehole
33	50.00	3000	1.950	7.25	Borehole
34	55	3300	1.967	3.40	Borehole
35	60	3600	1.994	5.40	Borehole
36	65	3900	2.015	4.20	Borehole
37	70	4200	2.034	3.80	Borehole
38	80	4800	2.070	3.60	Borehole
39	90	5400	2.098	2.80	Borehole
40	120	7200	2.167	2.30	Borehole
41	968	58080	4.324	2.54	Borehole
42					
43					
44					
45					
46					
47					
48					
49					
50					

L_2 = depth of water beyond casing

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
32.7	267.9	4.17	-	-
32.7	267.6	4.14	0.122	2.4E-07
32.5	266.5	4.00	0.122	2.0E-07
32.4	265.2	3.84	0.122	2.5E-07
32.3	264.6	3.78	0.122	1.0E-07
32.2	263.9	3.68	0.122	1.5E-07
32.1	262.8	3.55	0.122	1.8E-07
32.0	262.2	3.48	0.122	1.6E-07
31.9	261.5	3.40	0.122	1.4E-07
31.9	261.1	3.35	0.122	9.4E-08
31.8	260.5	3.28	0.122	1.3E-07
31.7	260.0	3.21	0.122	1.3E-07
31.7	259.6	3.17	0.122	8.3E-08
31.6	259.2	3.12	0.122	9.4E-08
31.6	258.8	3.07	0.122	9.5E-08
31.5	258.5	3.03	0.122	7.9E-08
31.5	258.2	2.99	0.122	8.4E-08
31.5	257.9	2.96	0.122	6.8E-08
31.4	257.6	2.92	0.122	8.0E-08
31.4	257.4	2.89	0.122	5.9E-08
31.4	257.2	2.87	0.122	5.4E-08
31.3	256.7	2.81	0.122	4.6E-08
31.3	256.4	2.77	0.122	4.4E-08
31.3	256.2	2.74	0.122	3.1E-08
31.2	256.0	2.72	0.122	2.8E-08
31.2	255.8	2.70	0.122	2.7E-08
31.2	255.6	2.68	0.122	2.1E-08
31.2	255.5	2.66	0.122	2.2E-08
31.2	255.3	2.64	0.122	1.9E-08
31.1	255.2	2.63	0.122	2.0E-08
31.1	255.1	2.61	0.122	1.8E-08
31.1	254.7	2.57	0.122	1.6E-08
31.1	254.5	2.54	0.122	1.8E-08
31.0	254.4	2.52	0.122	8.4E-09
31.0	254.1	2.50	0.122	1.3E-08
31.0	254.0	2.48	0.122	1.1E-08
31.0	253.8	2.46	0.122	9.6E-09
30.9	253.5	2.42	0.122	9.2E-09
30.9	253.3	2.39	0.122	7.3E-09
30.8	252.7	2.32	0.122	6.1E-09
28.7	235.0	0.17	0.122	2.1E-08
33.0	270.5	4.49	0.122	2.0E-08
			AVG	3.55E-08

Estimated Permeability 3.55E-08 m/s





\\pefs2\PEProjects\PE301-00821 Doropo_Gold_Project\Site_Data\SI\2023 Site Investigation\FHT\FHT, BH-TSF-04

Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	MI	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 16-12-2023
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-TSF-05		
EASTING	479173.30	**NORTHING**	1079249.40
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	33.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	8.020	m
Initial water level at start of test (not part of calc.)	0.020	m
Level of measuring point with respect to GL (not part of calc.)	0.020	m
Length of test zone at start of test	33.000	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

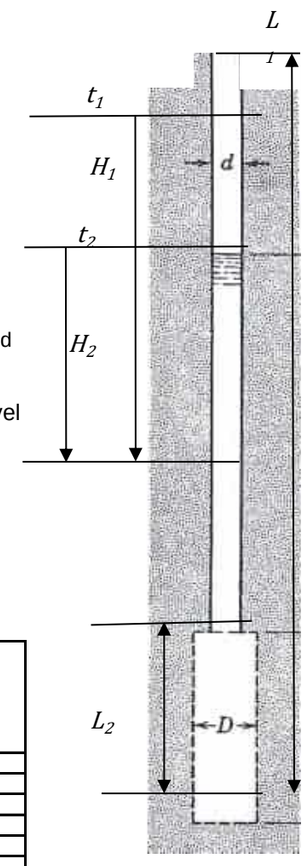
$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level 0.31666667

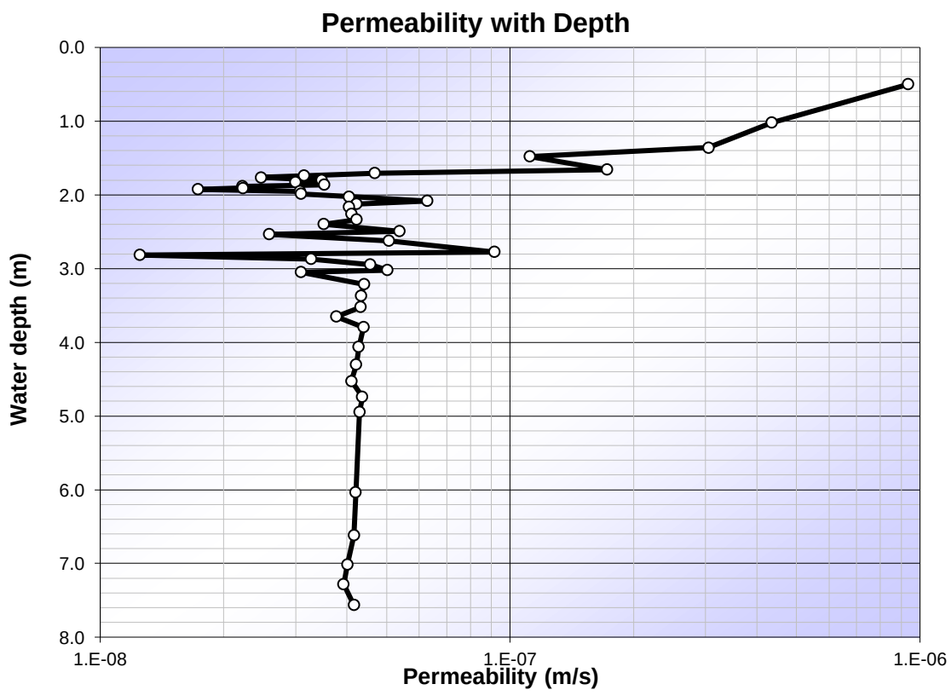


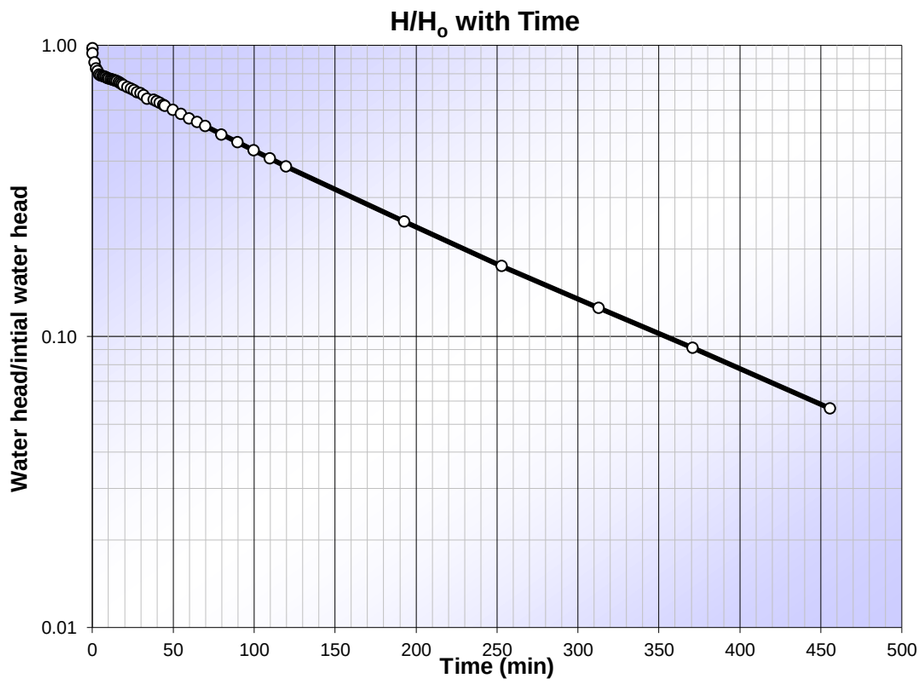
L_2 = depth of water beyond casing

	Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1	0.25	15	0.200	-	-
2	0.50	30	0.500	1200.00	Borehole
3	1.50	90	1.020	520.00	Borehole
4	2.50	150	1.360	340.00	Borehole
5	3.50	210	1.480	120.00	Borehole
6	4.50	270	1.660	180.00	Borehole
7	5.50	330	1.708	48.00	Borehole
8	6.50	390	1.740	32.00	Borehole
9	7.50	450	1.765	25.00	Borehole
10	8.50	510	1.800	35.00	Borehole
11	9.50	570	1.830	30.00	Borehole
12	10.50	630	1.865	35.00	Borehole
13	11.50	690	1.887	22.00	Borehole
14	12.50	750	1.909	22.00	Borehole
15	13.50	810	1.926	17.00	Borehole
16	14.50	870	1.956	30.00	Borehole
17	15.50	930	1.986	30.00	Borehole
18	16.50	990	2.025	39.00	Borehole
19	17.50	1050	2.085	60.00	Borehole
20	18.50	1110	2.125	40.00	Borehole
21	19.50	1170	2.163	38.00	Borehole
22	22.00	1320	2.258	38.00	Borehole
23	24.00	1440	2.335	38.50	Borehole
24	26.00	1560	2.398	31.50	Borehole
25	28.00	1680	2.493	47.50	Borehole
26	30.00	1800	2.538	22.50	Borehole
27	32.00	1920	2.625	43.50	Borehole
28	34.00	2040	2.778	76.50	Borehole
29	38.00	2280	2.819	10.25	Borehole
30	40.00	2400	2.872	26.50	Borehole
31	42.00	2520	2.945	36.50	Borehole
32	44.00	2640	3.024	39.50	Borehole
33	45.00	2700	3.048	24.00	Borehole
34	50	3000	3.215	33.40	Borehole
35	55	3300	3.373	31.60	Borehole
36	60	3600	3.525	30.40	Borehole
37	65	3900	3.653	25.60	Borehole
38	70	4200	3.797	28.80	Borehole
39	80	4800	4.062	26.50	Borehole
40	90	5400	4.305	24.30	Borehole
41	100	6000	4.526	22.10	Borehole
42	110	6600	4.745	21.90	Borehole
43	120	7200	4.946	20.10	Borehole
44	193	11580	6.036	14.93	Borehole
45	253	15180	6.622	9.77	Borehole
46	313	18780	7.018	6.60	Borehole
47	371	22260	7.287	4.64	Borehole
48	456.0	27360	7.567	3.29	Borehole
49					Borehole
50					

	L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
	32.8	268.9	7.82	-	-
	32.5	266.4	7.52	0.122	9.4E-07
	32.0	262.1	7.00	0.122	4.4E-07
	31.6	259.3	6.66	0.122	3.1E-07
	31.5	258.4	6.54	0.122	1.1E-07
	31.3	256.9	6.36	0.122	1.7E-07
	31.3	256.5	6.31	0.122	4.7E-08
	31.3	256.2	6.28	0.122	3.1E-08
	31.2	256.0	6.26	0.122	2.5E-08
	31.2	255.7	6.22	0.122	3.5E-08
	31.2	255.5	6.19	0.122	3.0E-08
	31.1	255.2	6.16	0.122	3.5E-08
	31.1	255.0	6.13	0.122	2.2E-08
	31.1	254.8	6.11	0.122	2.2E-08
	31.1	254.7	6.09	0.122	1.7E-08
	31.0	254.5	6.06	0.122	3.1E-08
	31.0	254.2	6.03	0.122	3.1E-08
	31.0	253.9	6.00	0.122	4.0E-08
	30.9	253.4	5.94	0.122	6.3E-08
	30.9	253.1	5.90	0.122	4.2E-08
	30.8	252.8	5.86	0.122	4.0E-08
	30.7	252.0	5.76	0.122	4.1E-08
	30.7	251.4	5.69	0.122	4.2E-08
	30.6	250.8	5.62	0.122	3.5E-08
	30.5	250.1	5.53	0.122	5.4E-08
	30.5	249.7	5.48	0.122	2.6E-08
	30.4	249.0	5.40	0.122	5.1E-08
	30.2	247.7	5.24	0.122	9.2E-08
	30.2	247.4	5.20	0.122	1.3E-08
	30.1	247.0	5.15	0.122	3.3E-08
	30.1	246.4	5.08	0.122	4.6E-08
	30.0	245.7	5.00	0.122	5.0E-08
	30.0	245.5	4.97	0.122	3.1E-08
	29.8	244.1	4.81	0.122	4.4E-08
	29.6	242.8	4.65	0.122	4.3E-08
	29.5	241.6	4.50	0.122	4.3E-08
	29.3	240.5	4.37	0.122	3.8E-08
	29.2	239.4	4.22	0.122	4.4E-08
	28.9	237.2	3.96	0.122	4.3E-08
	28.7	235.2	3.72	0.122	4.2E-08
	28.5	233.4	3.49	0.122	4.1E-08
	28.3	231.6	3.28	0.122	4.4E-08
	28.1	230.0	3.07	0.122	4.3E-08
	27.0	221.0	1.98	0.122	4.2E-08
	26.4	216.2	1.40	0.122	4.2E-08
	26.0	213.0	1.00	0.122	4.0E-08
	25.7	210.8	0.73	0.122	3.9E-08
	25.4	208.5	0.45	0.122	4.2E-08
	33.0	270.5	8.02	0.122	3.7E-08
				AVG	**4.0E-08**

Estimated Permeability 4.0E-08 m/s





\\pefs2\PEProjects\PE301-00821 Doropo_Gold_Project\Site_Data\SI\2023 Site Investigation\FHT\FHT, BH-TSF-05

Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	MI	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 17-12-2023
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-TSF-06		
EASTING	478870.10	**NORTHING**	1079562.10
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	22.500	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	6.753	m
Initial water level at start of test (not part of calc.)	0.040	m
Level of measuring point with respect to GL (not part of calc.)	0.030	m
Length of test zone at start of test	22.500	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

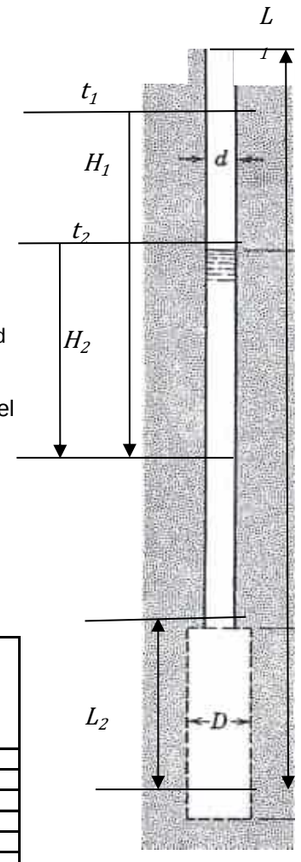
$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions — Rest water level

1. m = 1
2. Ground homogenous — 0.31666667

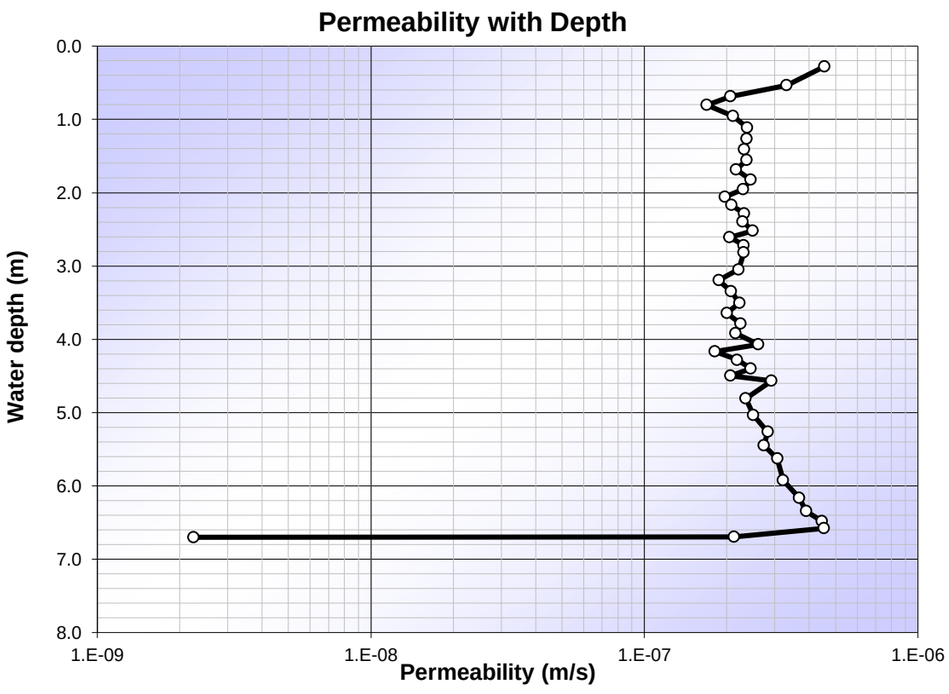


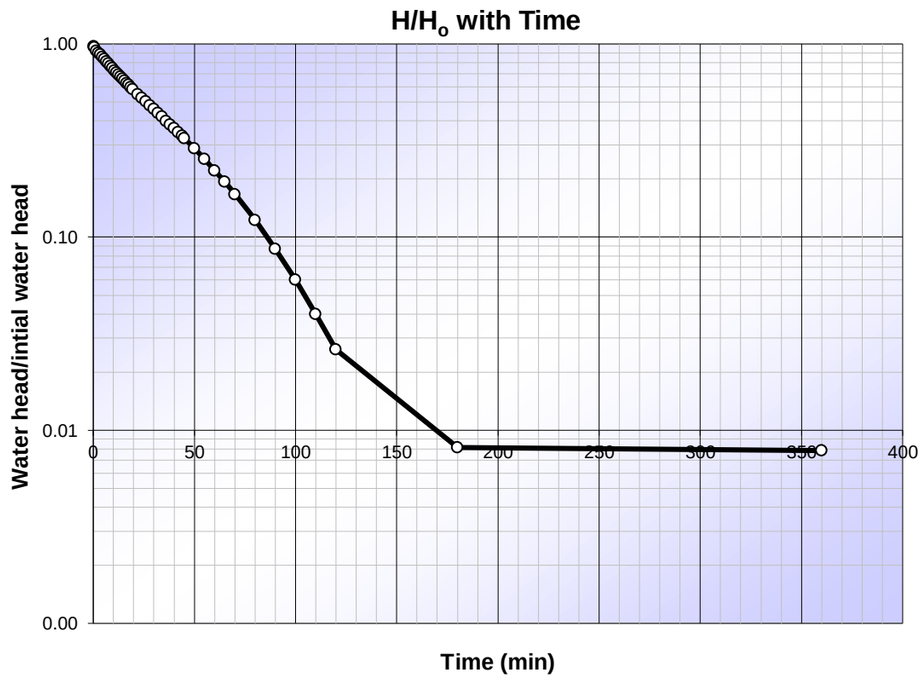
	Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1	0.25	15	0.190	-	-
2	0.50	30	0.280	360.00	Borehole
3	1.50	90	0.533	253.00	Borehole
4	2.50	150	0.685	152.00	Borehole
5	3.50	210	0.806	121.00	Borehole
6	4.50	270	0.953	147.00	Borehole
7	5.50	330	1.113	160.00	Borehole
8	6.50	390	1.267	154.00	Borehole
9	7.50	450	1.413	146.00	Borehole
10	8.50	510	1.557	144.00	Borehole
11	9.50	570	1.685	128.00	Borehole
12	10.50	630	1.825	140.00	Borehole
13	11.50	690	1.952	127.00	Borehole
14	12.50	750	2.058	106.00	Borehole
15	13.50	810	2.167	109.00	Borehole
16	14.50	870	2.285	118.00	Borehole
17	15.50	930	2.398	113.00	Borehole
18	16.50	990	2.517	119.00	Borehole
19	17.50	1050	2.612	95.00	Borehole
20	18.50	1110	2.716	104.00	Borehole
21	19.50	1170	2.817	101.00	Borehole
22	22.00	1320	3.047	92.00	Borehole
23	24.00	1440	3.194	73.50	Borehole
24	26.00	1560	3.349	77.50	Borehole
25	28.00	1680	3.507	79.00	Borehole
26	30.00	1800	3.642	67.50	Borehole
27	32.00	1920	3.786	72.00	Borehole
28	34.00	2040	3.917	65.50	Borehole
29	36.00	2160	4.067	75.00	Borehole
30	38.00	2280	4.166	49.50	Borehole
31	40.00	2400	4.280	57.00	Borehole
32	42.00	2520	4.401	60.50	Borehole
33	44.00	2640	4.498	48.50	Borehole
34	45	2700	4.564	66.00	Borehole
35	50	3000	4.808	48.80	Borehole
36	55	3300	5.036	45.60	Borehole
37	60	3600	5.259	44.60	Borehole
38	65	3900	5.446	37.40	Borehole
39	70	4200	5.626	36.00	Borehole
40	80	4800	5.924	29.80	Borehole
41	90	5400	6.167	24.30	Borehole
42	100	6000	6.346	17.90	Borehole
43	110	6600	6.484	13.80	Borehole
44	120	7200	6.576	9.20	Borehole
45	180	10800	6.698	2.03	Borehole
46	360	21600	6.700	0.01	Borehole

L_2 = depth of water beyond casing

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
22.3	182.9	6.56	-	-
22.2	182.1	6.47	0.122	4.5E-07
22.0	180.1	6.22	0.122	3.3E-07
21.8	178.8	6.07	0.122	2.1E-07
21.7	177.8	5.95	0.122	1.7E-07
21.5	176.6	5.80	0.122	2.1E-07
21.4	175.3	5.64	0.122	2.4E-07
21.2	174.0	5.49	0.122	2.4E-07
21.1	172.8	5.34	0.122	2.3E-07
20.9	171.7	5.20	0.122	2.4E-07
20.8	170.6	5.07	0.122	2.2E-07
20.7	169.5	4.93	0.122	2.4E-07
20.5	168.4	4.80	0.122	2.3E-07
20.4	167.6	4.70	0.122	2.0E-07
20.3	166.7	4.59	0.122	2.1E-07
20.2	165.7	4.47	0.122	2.3E-07
20.1	164.8	4.36	0.122	2.3E-07
20.0	163.8	4.24	0.122	2.5E-07
19.9	163.0	4.14	0.122	2.0E-07
19.8	162.2	4.04	0.122	2.3E-07
19.7	161.3	3.94	0.122	2.3E-07
19.5	159.5	3.71	0.122	2.2E-07
19.3	158.2	3.56	0.122	1.9E-07
19.2	157.0	3.40	0.122	2.1E-07
19.0	155.7	3.25	0.122	2.2E-07
18.9	154.6	3.11	0.122	2.0E-07
18.7	153.4	2.97	0.122	2.2E-07
18.6	152.3	2.84	0.122	2.2E-07
18.4	151.1	2.69	0.122	2.6E-07
18.3	150.3	2.59	0.122	1.8E-07
18.2	149.3	2.47	0.122	2.2E-07
18.1	148.4	2.35	0.122	2.4E-07
18.0	147.6	2.26	0.122	2.1E-07
17.9	147.0	2.19	0.122	2.9E-07
17.7	145.0	1.95	0.122	2.3E-07
17.5	143.1	1.72	0.122	2.5E-07
17.2	141.3	1.49	0.122	2.8E-07
17.1	139.8	1.31	0.122	2.7E-07
16.9	138.3	1.13	0.122	3.1E-07
16.6	135.9	0.83	0.122	3.2E-07
16.3	133.9	0.59	0.122	3.7E-07
16.2	132.4	0.41	0.122	3.9E-07
16.0	131.3	0.27	0.122	4.5E-07
15.9	130.5	0.18	0.122	4.5E-07
15.8	129.5	0.05	0.122	2.1E-07
15.8	129.5	0.05	0.122	2.2E-09
			AVG	**2.7E-07**

Estimated Permeability 2.7E-07 m/s





\\pefs2\PEProjects\PE301-00821 Doropo_Gold_Project\Site_Data\SI\2023 Site Investigation\FHT\FHT, BH-TSF-06

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	MI	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 19-12-2023
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-TSF-07		
EASTING	478310.70	**NORTHING**	1079476.10
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	39.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	11.745	m
Initial water level at start of test (not part of calc.)	0.010	m
Level of measuring point with respect to GL (not part of calc.)	0.000	m
Length of test zone at start of test	39.000	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

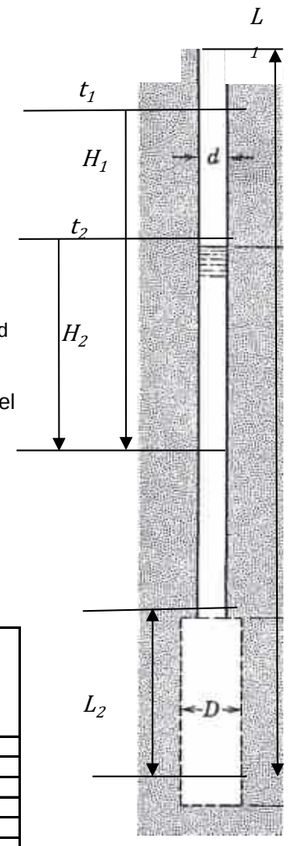
$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

0.31666667

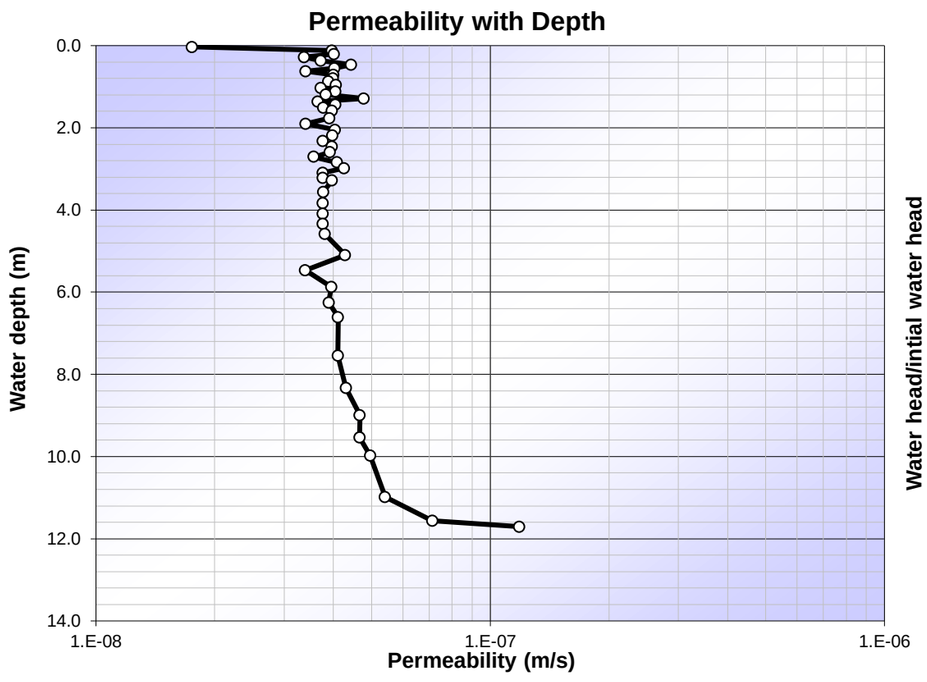


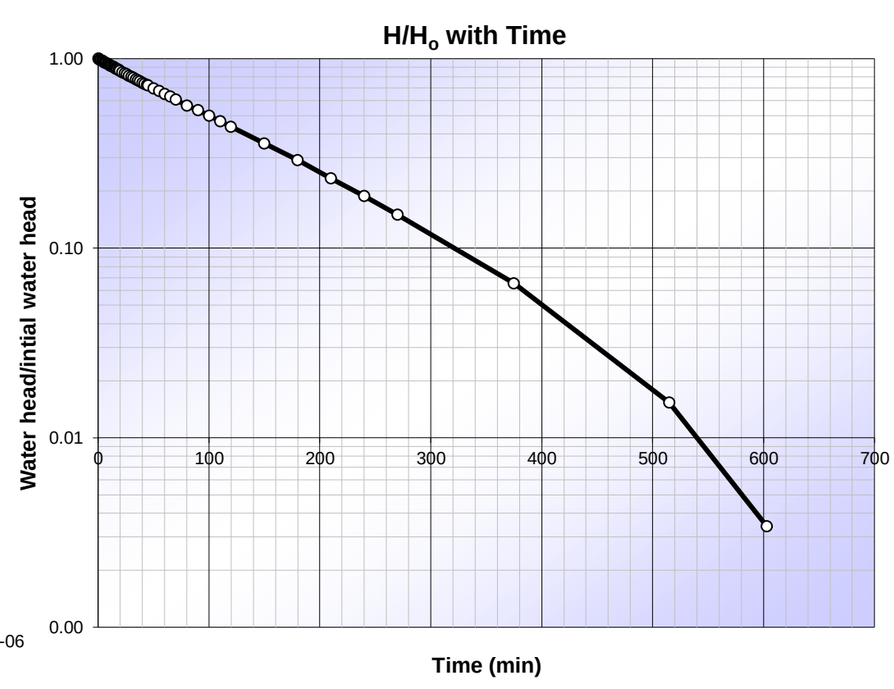
L_2 = depth of water beyond casing

	Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1	0.25	15	0.020	-	-
2	0.50	30	0.030	40.00	Borehole
3	1.50	90	0.120	90.00	Borehole
4	2.50	150	0.210	90.00	Borehole
5	3.50	210	0.285	75.00	Borehole
6	4.50	270	0.367	82.00	Borehole
7	5.50	330	0.464	97.00	Borehole
8	6.50	390	0.551	87.00	Borehole
9	7.50	450	0.624	73.00	Borehole
10	8.50	510	0.709	85.00	Borehole
11	9.50	570	0.793	84.00	Borehole
12	10.50	630	0.874	81.00	Borehole
13	11.50	690	0.958	84.00	Borehole
14	12.50	750	1.034	76.00	Borehole
15	13.50	810	1.116	82.00	Borehole
16	14.50	870	1.193	77.00	Borehole
17	15.50	930	1.288	95.00	Borehole
18	16.50	990	1.360	72.00	Borehole
19	17.50	1050	1.439	79.00	Borehole
20	18.50	1110	1.512	73.00	Borehole
21	19.50	1170	1.588	76.00	Borehole
22	22.00	1320	1.772	73.60	Borehole
23	24.00	1440	1.898	63.00	Borehole
24	26.00	1560	2.045	73.50	Borehole
25	28.00	1680	2.187	71.00	Borehole
26	30.00	1800	2.319	66.00	Borehole
27	32.00	1920	2.456	68.50	Borehole
28	34.00	2040	2.589	66.50	Borehole
29	36.00	2160	2.708	59.50	Borehole
30	38.00	2280	2.842	67.00	Borehole
31	40.00	2400	2.979	68.50	Borehole
32	42.00	2520	3.098	59.50	Borehole
33	44.00	2640	3.215	58.50	Borehole
34	45	2700	3.276	61.00	Borehole
35	50	3000	3.558	56.40	Borehole
36	55	3300	3.828	54.00	Borehole
37	60	3600	4.088	52.00	Borehole
38	65	3900	4.338	50.00	Borehole
39	70	4200	4.581	48.60	Borehole
40	80	4800	5.093	51.20	Borehole
41	90	5400	5.469	37.60	Borehole
42	100	6000	5.876	40.70	Borehole
43	110	6600	6.248	37.20	Borehole
44	120	7200	6.612	36.40	Borehole
45	150	9000	7.544	31.07	Borehole
46	180	10800	8.325	26.03	Borehole
	210	12600	8.997	22.40	Borehole
	240.0	14400	9.529	17.73	Borehole
	270.0	16200	9.977	14.93	Borehole
	375	22500	10.980	9.55	Borehole
	515	30900	11.565	4.18	Borehole
	603	36180	11.705	1.59	Borehole

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
39.0	319.5	11.73	-	-
39.0	319.4	11.72	0.122	1.8E-08
38.9	318.7	11.63	0.122	4.0E-08
38.8	318.0	11.54	0.122	4.0E-08
38.7	317.3	11.46	0.122	3.4E-08
38.6	316.7	11.38	0.122	3.7E-08
38.5	315.9	11.28	0.122	4.4E-08
38.4	315.2	11.19	0.122	4.0E-08
38.4	314.6	11.12	0.122	3.4E-08
38.3	313.9	11.04	0.122	4.0E-08
38.2	313.2	10.95	0.122	4.0E-08
38.1	312.5	10.87	0.122	3.9E-08
38.0	311.8	10.79	0.122	4.1E-08
38.0	311.2	10.71	0.122	3.7E-08
37.9	310.5	10.63	0.122	4.0E-08
37.8	309.9	10.55	0.122	3.8E-08
37.7	309.1	10.46	0.122	4.8E-08
37.6	308.5	10.39	0.122	3.7E-08
37.6	307.9	10.31	0.122	4.0E-08
37.5	307.3	10.23	0.122	3.8E-08
37.4	306.7	10.16	0.122	4.0E-08
37.2	305.1	9.97	0.122	3.9E-08
37.1	304.1	9.85	0.122	3.4E-08
37.0	302.9	9.70	0.122	4.0E-08
36.8	301.7	9.56	0.122	4.0E-08
36.7	300.7	9.43	0.122	3.8E-08
36.5	299.5	9.29	0.122	4.0E-08
36.4	298.5	9.16	0.122	3.9E-08
36.3	297.5	9.04	0.122	3.6E-08
36.2	296.4	8.90	0.122	4.1E-08
36.0	295.3	8.77	0.122	4.3E-08
35.9	294.3	8.65	0.122	3.8E-08
35.8	293.3	8.53	0.122	3.8E-08
35.7	292.8	8.47	0.122	4.0E-08
35.4	290.5	8.19	0.122	3.8E-08
35.2	288.3	7.92	0.122	3.8E-08
34.9	286.2	7.66	0.122	3.8E-08
34.7	284.1	7.41	0.122	3.8E-08
34.4	282.1	7.16	0.122	3.8E-08
33.9	277.9	6.65	0.122	4.3E-08
33.5	274.8	6.28	0.122	3.4E-08
33.1	271.5	5.87	0.122	4.0E-08
32.8	268.5	5.50	0.122	3.9E-08
32.4	265.5	5.13	0.122	4.1E-08
31.5	257.8	4.20	0.122	4.1E-08
30.7	251.4	3.42	0.122	4.3E-08
30.0	245.9	2.75	0.122	4.7E-08
29.5	241.6	2.22	0.122	4.7E-08
29.0	237.9	1.77	0.122	5.0E-08
28.0	229.7	0.76	0.122	5.4E-08
27.4	224.9	0.18	0.122	7.1E-08
27.3	223.7	0.04	0.122	1.2E-07
			AVG	**4.1E-08**

Estimated Permeability	**4.1E-08 m/s**





\\pefs2\PEProjects\PE301-00821 Doropo_Gold_Project\Site_Data\SI\2023 Site Investigation\FHT\FHT, BH-TSF-07

Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	MI	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 23-12-2023
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-TSF-08		
EASTING	477764.30	**NORTHING**	1078735.10
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	31.500	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	11.454	m
Initial water level at start of test (not part of calc.)	0.020	m
Level of measuring point with respect to GL (not part of calc.)	0.000	m
Length of test zone at start of test	31.500	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

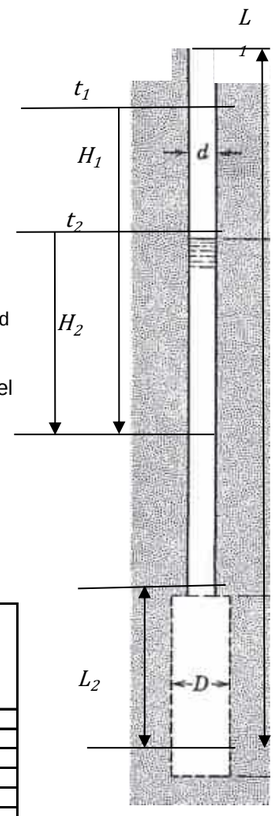
$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions — Rest water level

1. m = 1
2. Ground homogenous — 0.31666667

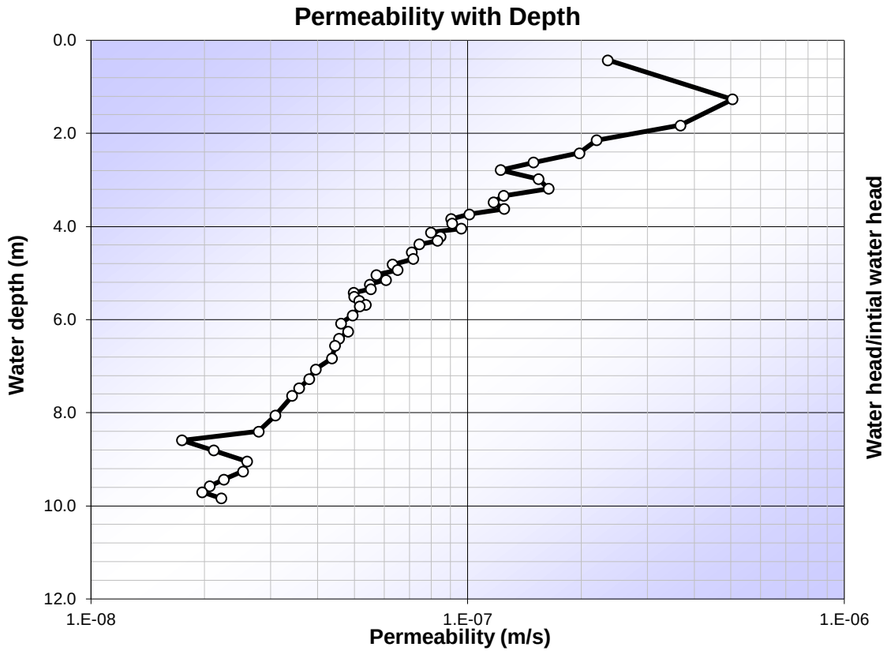


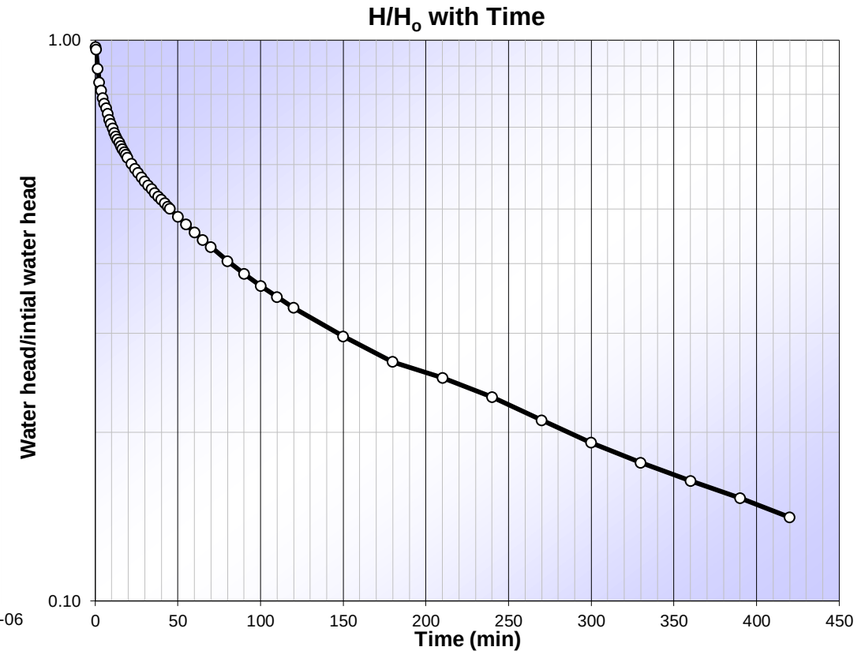
L_2 = depth of water beyond casing

	Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1	0.25	15	0.320	-	-
2	0.50	30	0.425	420.00	Borehole
3	1.50	90	1.266	841.00	Borehole
4	2.50	150	1.828	562.00	Borehole
5	3.50	210	2.147	319.00	Borehole
6	4.50	270	2.423	276.00	Borehole
7	5.50	330	2.625	202.00	Borehole
8	6.50	390	2.786	161.00	Borehole
9	7.50	450	2.984	198.00	Borehole
10	8.50	510	3.188	204.00	Borehole
11	9.50	570	3.339	151.00	Borehole
12	10.50	630	3.478	139.00	Borehole
13	11.50	690	3.623	145.00	Borehole
14	12.50	750	3.738	115.00	Borehole
15	13.50	810	3.839	101.00	Borehole
16	14.50	870	3.939	100.00	Borehole
17	15.50	930	4.043	104.00	Borehole
18	16.50	990	4.128	85.00	Borehole
19	17.50	1050	4.217	89.00	Borehole
20	18.50	1110	4.303	86.00	Borehole
21	19.50	1170	4.379	76.00	Borehole
22	22.00	1320	4.556	70.80	Borehole
23	24.00	1440	4.695	69.50	Borehole
24	26.00	1560	4.815	60.00	Borehole
25	28.00	1680	4.936	60.50	Borehole
26	30.00	1800	5.040	52.00	Borehole
27	32.00	1920	5.148	54.00	Borehole
28	34.00	2040	5.244	48.00	Borehole
29	36.00	2160	5.339	47.50	Borehole
30	38.00	2280	5.423	42.00	Borehole
31	40.00	2400	5.506	41.50	Borehole
32	42.00	2520	5.590	42.00	Borehole
33	44.00	2640	5.676	43.00	Borehole
34	45.00	2700	5.717	41.00	Borehole
35	50.00	3000	5.908	38.20	Borehole
36	55.00	3300	6.079	34.20	Borehole
37	60.00	3600	6.251	34.40	Borehole
38	65.00	3900	6.408	31.40	Borehole
	70.00	4200	6.556	29.60	Borehole
	80.00	4800	6.831	27.50	Borehole
39	90.00	5400	7.065	23.40	Borehole
40	100.00	6000	7.277	21.20	Borehole
41	110.00	6600	7.466	18.90	Borehole
42	120.00	7200	7.638	17.20	Borehole
43	150.00	9000	8.061	14.10	Borehole
44	180.00	10800	8.399	11.27	Borehole
45	210.00	12600	8.592	6.43	Borehole
46	240.00	14400	8.808	7.20	Borehole
	270.00	16200	9.049	8.03	Borehole
	300.00	18000	9.261	7.07	Borehole
	330.00	19800	9.433	5.73	Borehole
	360.00	21600	9.578	4.83	Borehole
	390.00	23400	9.706	4.27	Borehole
	420.00	25200	9.839	4.43	Borehole

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
31.2	255.6	11.13	-	-
31.1	254.7	11.03	0.122	2.4E-07
30.2	247.8	10.19	0.122	5.0E-07
29.7	243.2	9.63	0.122	3.7E-07
29.4	240.6	9.31	0.122	2.2E-07
29.1	238.3	9.03	0.122	2.0E-07
28.9	236.7	8.83	0.122	1.5E-07
28.7	235.4	8.67	0.122	1.2E-07
28.5	233.7	8.47	0.122	1.5E-07
28.3	232.1	8.27	0.122	1.6E-07
28.2	230.8	8.12	0.122	1.2E-07
28.0	229.7	7.98	0.122	1.2E-07
27.9	228.5	7.83	0.122	1.2E-07
27.8	227.6	7.72	0.122	1.0E-07
27.7	226.7	7.62	0.122	9.0E-08
27.6	225.9	7.52	0.122	9.1E-08
27.5	225.1	7.41	0.122	9.6E-08
27.4	224.4	7.33	0.122	8.0E-08
27.3	223.6	7.24	0.122	8.5E-08
27.2	222.9	7.15	0.122	8.3E-08
27.1	222.3	7.08	0.122	7.4E-08
26.9	220.9	6.90	0.122	7.1E-08
26.8	219.7	6.76	0.122	7.2E-08
26.7	218.7	6.64	0.122	6.3E-08
26.6	217.7	6.52	0.122	6.5E-08
26.5	216.9	6.41	0.122	5.7E-08
26.4	216.0	6.31	0.122	6.1E-08
26.3	215.2	6.21	0.122	5.5E-08
26.2	214.4	6.12	0.122	5.5E-08
26.1	213.7	6.03	0.122	5.0E-08
26.0	213.1	5.95	0.122	5.0E-08
25.9	212.4	5.86	0.122	5.2E-08
25.8	211.7	5.78	0.122	5.4E-08
25.8	211.3	5.74	0.122	5.2E-08
25.6	209.8	5.55	0.122	5.0E-08
25.4	208.4	5.38	0.122	4.6E-08
25.2	207.0	5.20	0.122	4.8E-08
25.1	205.7	5.05	0.122	4.6E-08
24.9	204.5	4.90	0.122	4.5E-08
24.7	202.2	4.62	0.122	4.4E-08
24.4	200.3	4.39	0.122	4.0E-08
24.2	198.5	4.18	0.122	3.8E-08
24.0	197.0	3.99	0.122	3.6E-08
23.9	195.6	3.82	0.122	3.4E-08
23.4	192.1	3.39	0.122	3.1E-08
23.1	189.4	3.06	0.122	2.8E-08
22.9	187.8	2.86	0.122	1.7E-08
22.7	186.0	2.65	0.122	2.1E-08
22.5	184.0	2.41	0.122	2.6E-08
22.2	182.3	2.19	0.122	2.5E-08
22.1	180.9	2.02	0.122	2.3E-08
21.9	179.7	1.88	0.122	2.1E-08
21.8	178.6	1.75	0.122	2.0E-08
21.7	177.5	1.62	0.122	2.2E-08
			AVG	**5.1E-08**

Estimated Permeability 5.1E-08 m/s





\\pefs2\PEProjects\PE301-00821 Doropo_Gold_Project\Site_Data\SI\2023 Site Investigation\FHT\FHT, BH-TSF-08

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	MI	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 21-12-2023
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-WSD-01		
EASTING	477954.80	**NORTHING**	1079065.10
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	15.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	1.812	m
Initial water level at start of test (not part of calc.)	0.010	m
Level of measuring point with respect to GL (not part of calc.)	0.000	m
Length of test zone at start of test	15.000	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

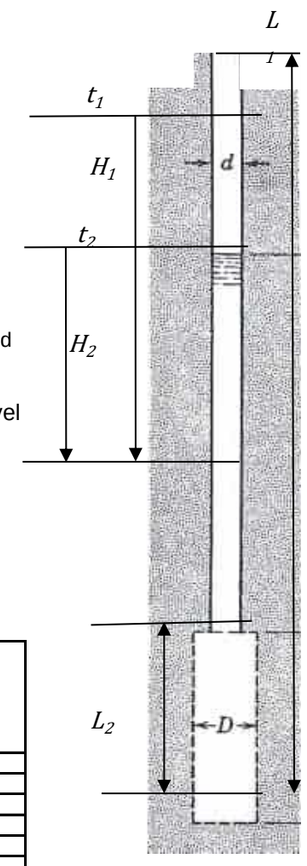
$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level 0.31666667

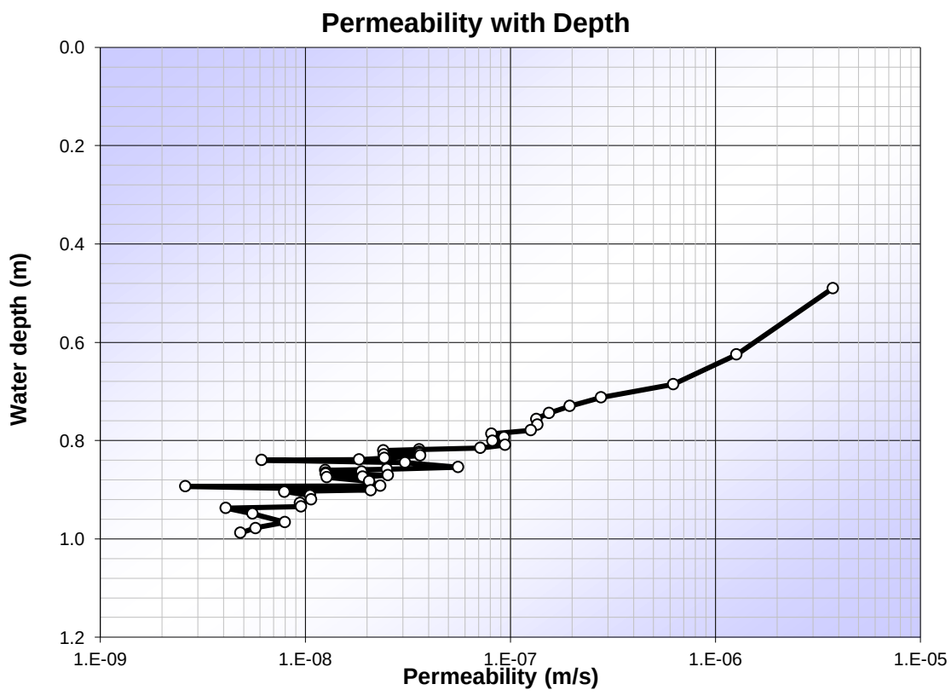


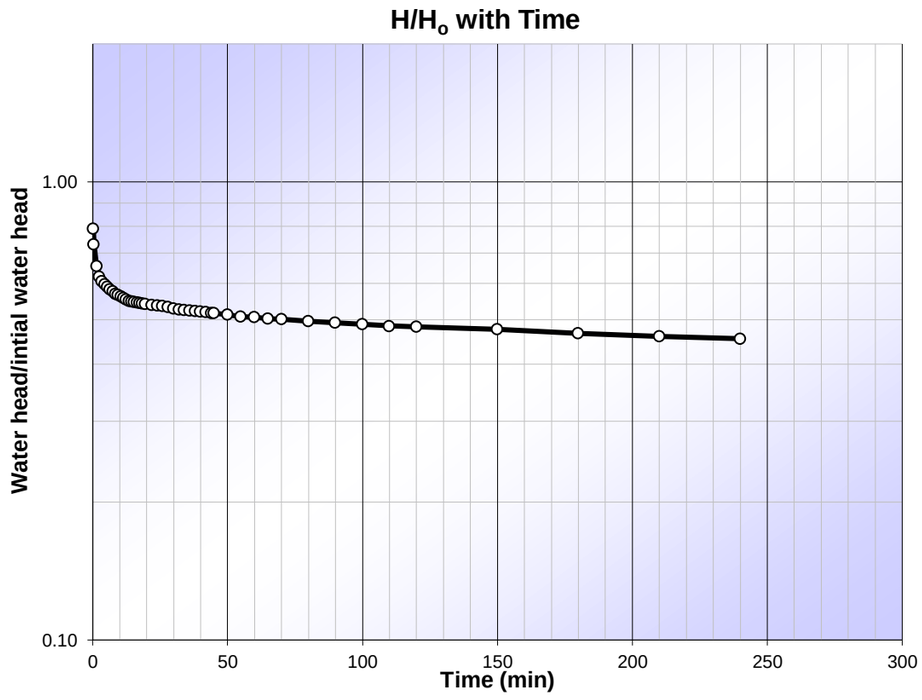
L_2 = depth of water beyond casing

	Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1	0.25	15	0.380	-	-
2	0.50	30	0.490	440.00	Borehole
3	1.50	90	0.625	135.00	Borehole
4	2.50	150	0.686	61.00	Borehole
5	3.50	210	0.712	26.00	Borehole
6	4.50	270	0.730	18.00	Borehole
7	5.50	330	0.744	14.00	Borehole
8	6.50	390	0.756	12.00	Borehole
9	7.50	450	0.768	12.00	Borehole
10	8.50	510	0.779	11.00	Borehole
11	9.50	570	0.786	7.00	Borehole
12	10.50	630	0.794	8.00	Borehole
13	11.50	690	0.801	7.00	Borehole
14	12.50	750	0.809	8.00	Borehole
15	13.50	810	0.815	6.00	Borehole
16	14.50	870	0.818	3.00	Borehole
17	15.50	930	0.820	2.00	Borehole
18	16.50	990	0.823	3.00	Borehole
19	17.50	1050	0.826	3.00	Borehole
20	18.50	1110	0.828	2.00	Borehole
21	19.50	1170	0.831	3.00	Borehole
22	22.00	1320	0.836	2.00	Borehole
23	24.00	1440	0.839	1.50	Borehole
24	26.00	1560	0.840	0.50	Borehole
25	28.00	1680	0.845	2.50	Borehole
26	30.00	1800	0.854	4.50	Borehole
27	32.00	1920	0.858	2.00	Borehole
28	34.00	2040	0.860	1.00	Borehole
29	36.00	2160	0.863	1.50	Borehole
30	38.00	2280	0.865	1.00	Borehole
31	40.00	2400	0.867	1.00	Borehole
32	42.00	2520	0.871	2.00	Borehole
33	44.00	2640	0.874	1.50	Borehole
34	45	2700	0.875	1.00	Borehole
35	50	3000	0.883	1.60	Borehole
36	55	3300	0.892	1.80	Borehole
37	60	3600	0.893	0.20	Borehole
38	65	3900	0.901	1.60	Borehole
39	70	4200	0.904	0.60	Borehole
40	80	4800	0.912	0.80	Borehole
41	90	5400	0.920	0.80	Borehole
42	100	6000	0.927	0.70	Borehole
43	110	6600	0.934	0.70	Borehole
44	120	7200	0.937	0.30	Borehole
45	150	9000	0.949	0.40	Borehole
46	180	10800	0.966	0.57	Borehole
47	210	12600	0.978	0.40	Borehole
48	240.0	14400	0.988	0.33	Borehole
49					Borehole
50					

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
14.6	119.8	1.43	-	-
14.5	118.9	1.32	0.122	3.7E-06
14.4	117.8	1.19	0.122	1.3E-06
14.3	117.3	1.13	0.122	6.2E-07
14.3	117.1	1.10	0.122	2.8E-07
14.3	117.0	1.08	0.122	2.0E-07
14.3	116.9	1.07	0.122	1.5E-07
14.2	116.8	1.06	0.122	1.3E-07
14.2	116.7	1.04	0.122	1.4E-07
14.2	116.6	1.03	0.122	1.3E-07
14.2	116.5	1.03	0.122	8.1E-08
14.2	116.4	1.02	0.122	9.3E-08
14.2	116.4	1.01	0.122	8.2E-08
14.2	116.3	1.00	0.122	9.5E-08
14.2	116.3	1.00	0.122	7.1E-08
14.2	116.2	0.99	0.122	3.6E-08
14.2	116.2	0.99	0.122	2.4E-08
14.2	116.2	0.99	0.122	3.6E-08
14.2	116.2	0.99	0.122	3.6E-08
14.2	116.2	0.98	0.122	2.4E-08
14.2	116.1	0.98	0.122	3.6E-08
14.2	116.1	0.98	0.122	2.4E-08
14.2	116.1	0.97	0.122	1.8E-08
14.2	116.1	0.97	0.122	6.1E-09
14.2	116.0	0.97	0.122	3.1E-08
14.1	116.0	0.96	0.122	5.6E-08
14.1	115.9	0.95	0.122	2.5E-08
14.1	115.9	0.95	0.122	1.3E-08
14.1	115.9	0.95	0.122	1.9E-08
14.1	115.9	0.95	0.122	1.3E-08
14.1	115.8	0.95	0.122	1.3E-08
14.1	115.8	0.94	0.122	2.5E-08
14.1	115.8	0.94	0.122	1.9E-08
14.1	115.8	0.94	0.122	1.3E-08
14.1	115.7	0.93	0.122	2.1E-08
14.1	115.6	0.92	0.122	2.3E-08
14.1	115.6	0.92	0.122	2.6E-09
14.1	115.6	0.91	0.122	2.1E-08
14.1	115.5	0.91	0.122	7.9E-09
14.1	115.5	0.90	0.122	1.1E-08
14.1	115.4	0.89	0.122	1.1E-08
14.1	115.4	0.89	0.122	9.4E-09
14.1	115.3	0.88	0.122	9.5E-09
14.1	115.3	0.88	0.122	4.1E-09
14.1	115.2	0.86	0.122	5.5E-09
14.0	115.0	0.85	0.122	8.0E-09
14.0	114.9	0.83	0.122	5.7E-09
14.0	114.9	0.82	0.122	4.8E-09
15.0	123.0	1.81	0.122	3.7E-08
			AVG	**2.7E-08**

Estimated Permeability 2.7E-08 m/s





Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	MI	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 22-12-2023
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-WSD-02		
EASTING	477869.30	**NORTHING**	1079065.60
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	15.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	0.783	m
Initial water level at start of test (not part of calc.)	0.010	m
Level of measuring point with respect to GL (not part of calc.)	0.000	m
Length of test zone at start of test	15.000	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

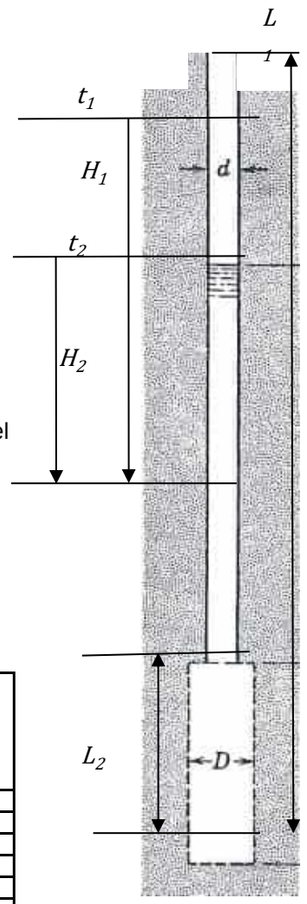
$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level 0.31666667

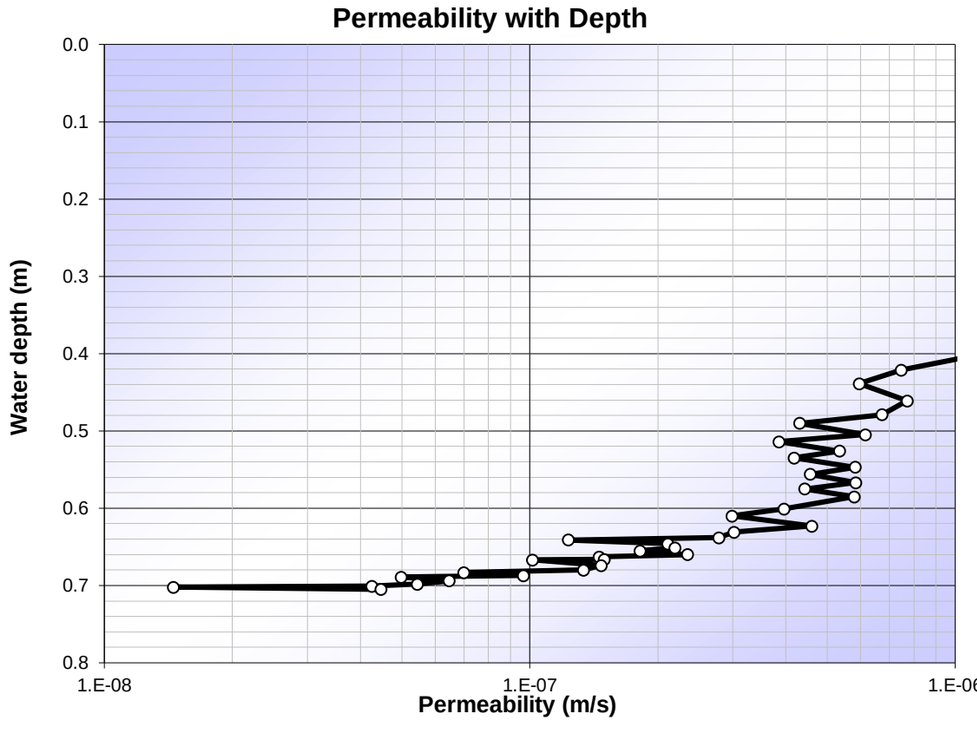


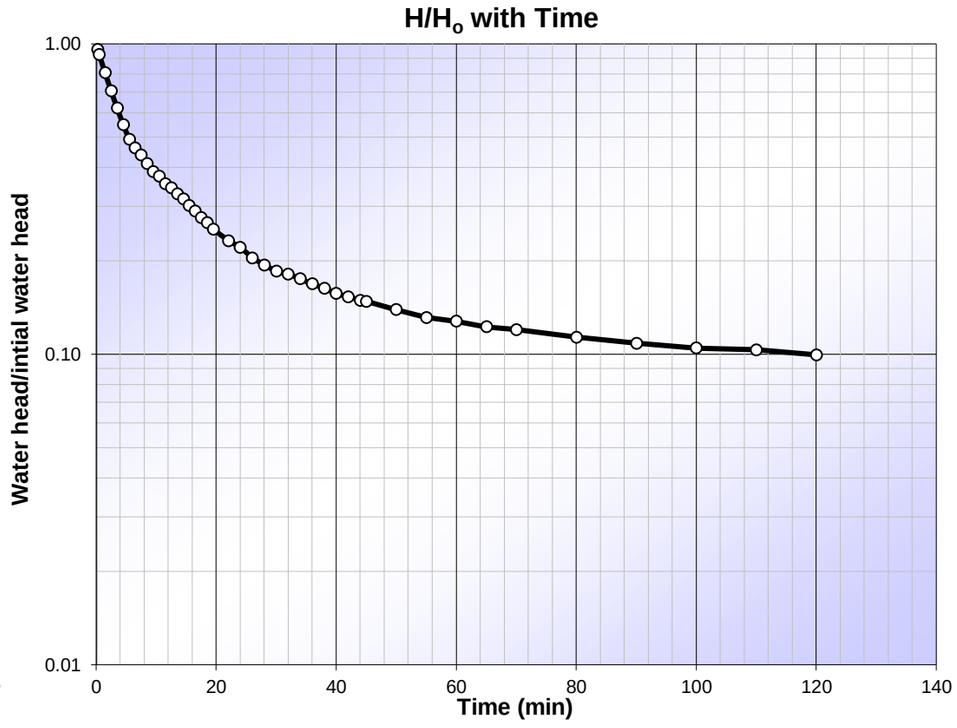
L_2 = depth of water beyond casing

	Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1	0.25	15	0.030	-	-
2	0.50	30	0.060	120.00	Borehole
3	1.50	90	0.150	90.00	Borehole
4	2.50	150	0.230	80.00	Borehole
5	3.50	210	0.296	66.00	Borehole
6	4.50	270	0.353	57.00	Borehole
7	5.50	330	0.397	44.00	Borehole
8	6.50	390	0.421	24.00	Borehole
9	7.50	450	0.439	18.00	Borehole
10	8.50	510	0.461	22.00	Borehole
11	9.50	570	0.479	18.00	Borehole
12	10.50	630	0.490	11.00	Borehole
13	11.50	690	0.505	15.00	Borehole
14	12.50	750	0.514	9.00	Borehole
15	13.50	810	0.526	12.00	Borehole
16	14.50	870	0.535	9.00	Borehole
17	15.50	930	0.547	12.00	Borehole
18	16.50	990	0.556	9.00	Borehole
19	17.50	1050	0.567	11.00	Borehole
20	18.50	1110	0.575	8.00	Borehole
21	19.50	1170	0.585	10.00	Borehole
22	22.00	1320	0.601	6.40	Borehole
23	24.00	1440	0.610	4.50	Borehole
24	26.00	1560	0.623	6.50	Borehole
25	28.00	1680	0.631	4.00	Borehole
26	30.00	1800	0.638	3.50	Borehole
27	32.00	1920	0.641	1.50	Borehole
28	34.00	2040	0.646	2.50	Borehole
29	36.00	2160	0.651	2.50	Borehole
30	38.00	2280	0.655	2.00	Borehole
31	40.00	2400	0.660	2.50	Borehole
32	42.00	2520	0.663	1.50	Borehole
33	44.00	2640	0.666	1.50	Borehole
34	45.00	2700	0.667	1.00	Borehole
35	50.00	3000	0.674	1.40	Borehole
36	55.00	3300	0.680	1.20	Borehole
37	60.00	3600	0.683	0.60	Borehole
38	65.00	3900	0.687	0.80	Borehole
39	70.00	4200	0.689	0.40	Borehole
40	80.00	4800	0.694	0.50	Borehole
41	90.00	5400	0.698	0.40	Borehole
42	100.00	6000	0.701	0.30	Borehole
43	110.00	6600	0.702	0.10	Borehole
44	120.00	7200	0.705	0.30	Borehole

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
15.0	122.7	0.75	-	-
14.9	122.5	0.72	0.122	1.9E-06
14.9	121.7	0.63	0.122	1.5E-06
14.8	121.1	0.55	0.122	1.6E-06
14.7	120.5	0.49	0.122	1.5E-06
14.6	120.1	0.43	0.122	1.4E-06
14.6	119.7	0.39	0.122	1.3E-06
14.6	119.5	0.36	0.122	7.5E-07
14.6	119.4	0.34	0.122	5.9E-07
14.5	119.2	0.32	0.122	7.7E-07
14.5	119.0	0.30	0.122	6.7E-07
14.5	118.9	0.29	0.122	4.3E-07
14.5	118.8	0.28	0.122	6.2E-07
14.5	118.7	0.27	0.122	3.9E-07
14.5	118.6	0.26	0.122	5.3E-07
14.5	118.6	0.25	0.122	4.2E-07
14.5	118.5	0.24	0.122	5.8E-07
14.4	118.4	0.23	0.122	4.6E-07
14.4	118.3	0.22	0.122	5.8E-07
14.4	118.2	0.21	0.122	4.4E-07
14.4	118.2	0.20	0.122	5.8E-07
14.4	118.0	0.18	0.122	4.0E-07
14.4	118.0	0.17	0.122	3.0E-07
14.4	117.8	0.16	0.122	4.6E-07
14.4	117.8	0.15	0.122	3.0E-07
14.4	117.7	0.15	0.122	2.8E-07
14.4	117.7	0.14	0.122	1.2E-07
14.4	117.7	0.14	0.122	2.1E-07
14.3	117.6	0.13	0.122	2.2E-07
14.3	117.6	0.13	0.122	1.8E-07
14.3	117.5	0.12	0.122	2.4E-07
14.3	117.5	0.12	0.122	1.5E-07
14.3	117.5	0.12	0.122	1.5E-07
14.3	117.5	0.12	0.122	1.0E-07
14.3	117.4	0.11	0.122	1.5E-07
14.3	117.4	0.10	0.122	1.3E-07
14.3	117.4	0.10	0.122	7.0E-08
14.3	117.3	0.10	0.122	9.7E-08
14.3	117.3	0.09	0.122	5.0E-08
14.3	117.3	0.09	0.122	6.5E-08
14.3	117.2	0.09	0.122	5.4E-08
14.3	117.2	0.08	0.122	4.3E-08
14.3	117.2	0.08	0.122	1.5E-08
14.3	117.2	0.08	0.122	4.5E-08
			AVG	**2.6E-07**

Estimated Permeability 2.6E-07 m/s





Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	VMKH	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 23/01/2024
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-PS-01		
EASTING	478358.29	**NORTHING**	478358.29
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	48.500	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	22.490	m
Initial water level at start of test (not part of calc.)	0.050	m
Level of measuring point with respect to GL (not part of calc.)	0.020	m
Length of test zone at start of test	48.500	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for \ \frac{mL}{D} > 4$$

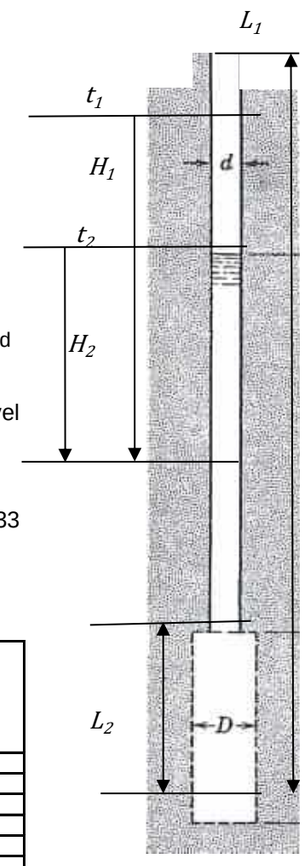
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333

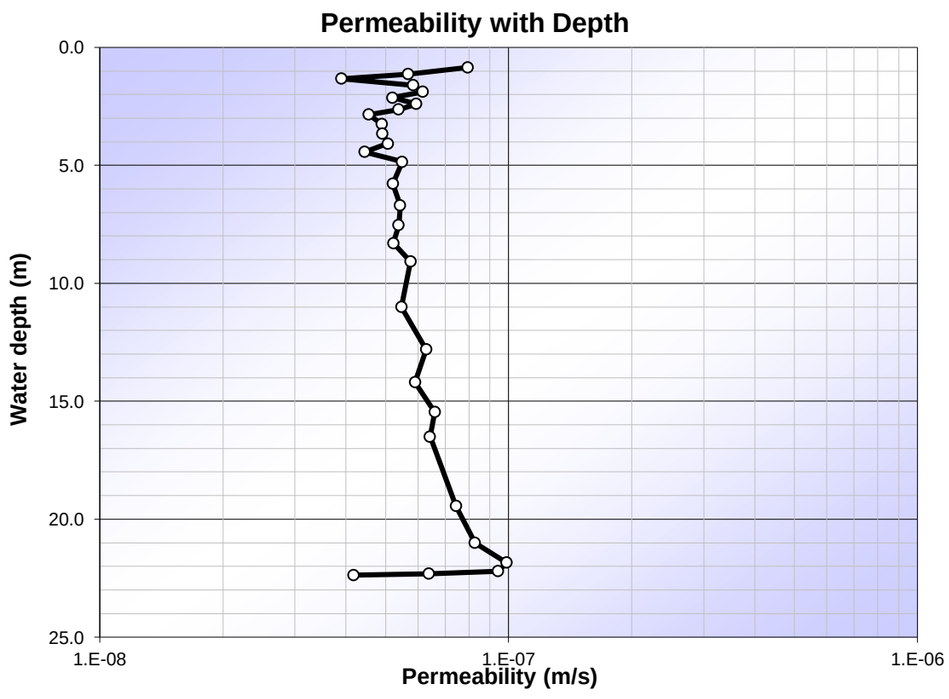


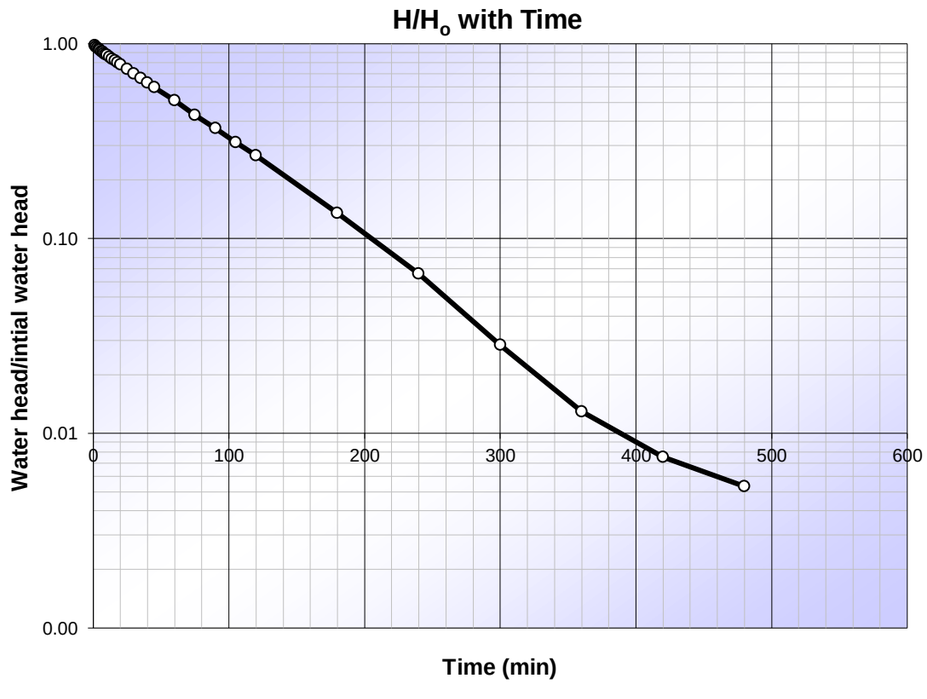
L_2 = depth of water beyond casing

Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1.00	60	0.450	-	-
2.00	120	0.850	400.00	Borehole
3.00	180	1.130	280.00	Borehole
4.00	240	1.320	190.00	Borehole
5.00	300	1.600	280.00	Borehole
6.00	360	1.890	290.00	Borehole
7.00	420	2.130	240.00	Borehole
8.00	480	2.400	270.00	Borehole
9.00	540	2.640	240.00	Borehole
10.00	600	2.840	200.00	Borehole
12.00	720	3.260	210.00	Borehole
14.00	840	3.670	205.00	Borehole
16.00	960	4.080	205.00	Borehole
18.00	1080	4.430	175.00	Borehole
20.00	1200	4.850	210.00	Borehole
25.00	1500	5.790	188.00	Borehole
30.00	1800	6.700	182.00	Borehole
35.00	2100	7.540	168.00	Borehole
40.00	2400	8.300	152.00	Borehole
45.00	2700	9.080	156.00	Borehole
60.00	3600	11.000	128.00	Borehole
75.00	4500	12.800	120.00	Borehole
90.00	5400	14.190	92.67	Borehole
105.00	6300	15.470	85.33	Borehole
120.00	7200	16.500	68.67	Borehole
180.00	10800	19.450	49.17	Borehole
240.00	14400	21.010	26.00	Borehole
300.00	18000	21.850	14.00	Borehole
360.00	21600	22.200	5.83	Borehole
420.00	25200	22.320	2.00	Borehole
480.00	28800	22.370	0.83	Borehole

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
48.1	393.9	22.04	-	-
47.7	390.6	21.64	0.122	7.9E-08
47.4	388.3	21.36	0.122	5.7E-08
47.2	386.7	21.17	0.122	3.9E-08
46.9	384.4	20.89	0.122	5.8E-08
46.6	382.0	20.60	0.122	6.2E-08
46.4	380.1	20.36	0.122	5.2E-08
46.1	377.9	20.09	0.122	6.0E-08
45.9	375.9	19.85	0.122	5.4E-08
45.7	374.3	19.65	0.122	4.6E-08
45.2	370.8	19.23	0.122	4.9E-08
44.8	367.5	18.82	0.122	4.9E-08
44.4	364.1	18.41	0.122	5.1E-08
44.1	361.2	18.06	0.122	4.4E-08
43.7	357.8	17.64	0.122	5.5E-08
42.7	350.1	16.70	0.122	5.2E-08
41.8	342.6	15.79	0.122	5.4E-08
41.0	335.7	14.95	0.122	5.4E-08
40.2	329.5	14.19	0.122	5.2E-08
39.4	323.1	13.41	0.122	5.8E-08
37.5	307.4	11.49	0.122	5.5E-08
35.7	292.6	9.69	0.122	6.3E-08
34.3	281.2	8.30	0.122	5.9E-08
33.0	270.7	7.02	0.122	6.6E-08
32.0	262.3	5.99	0.122	6.4E-08
29.1	238.1	3.04	0.122	7.4E-08
27.5	225.3	1.48	0.122	8.3E-08
26.7	218.4	0.64	0.122	9.9E-08
26.3	215.6	0.29	0.122	9.4E-08
26.2	214.6	0.17	0.122	6.4E-08
26.1	214.2	0.12	0.122	4.2E-08
			AVG	**6.0E-08**

Estimated Permeability 6.0E-08 m/s





\\pefs2\PEProjects\PE301-00821 Doropo_Gold_Project\Site_Data\SI\2023 Site Investigation\FHT\FHT others

Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	VMKH	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 24/01/2024
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-PS-02		
EASTING	478180.88	**NORTHING**	1076927.25
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	34.500	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	19.350	m
Initial water level at start of test (not part of calc.)	0.060	m
Level of measuring point with respect to GL (not part of calc.)	0.020	m
Length of test zone at start of test	34.500	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

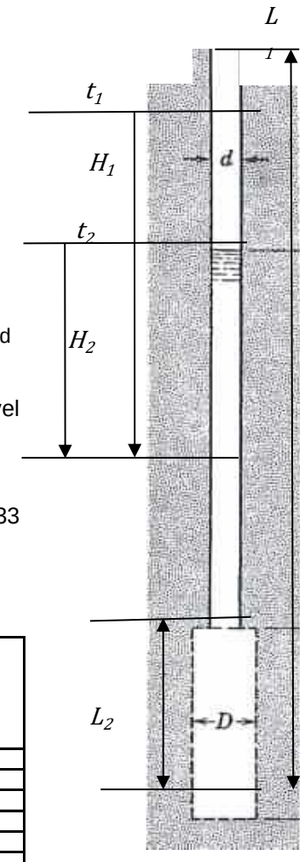
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333

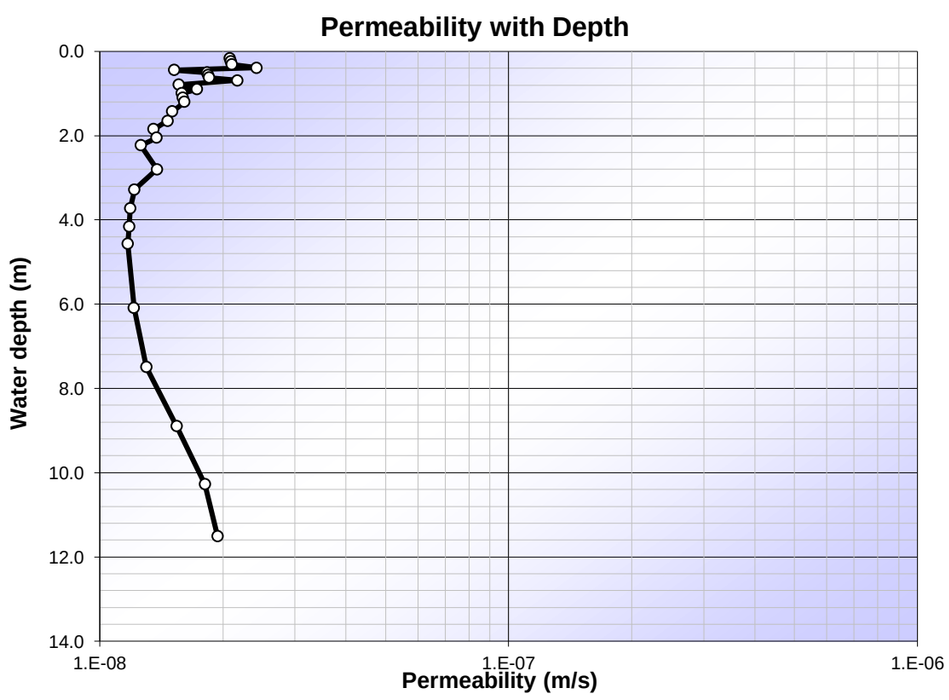


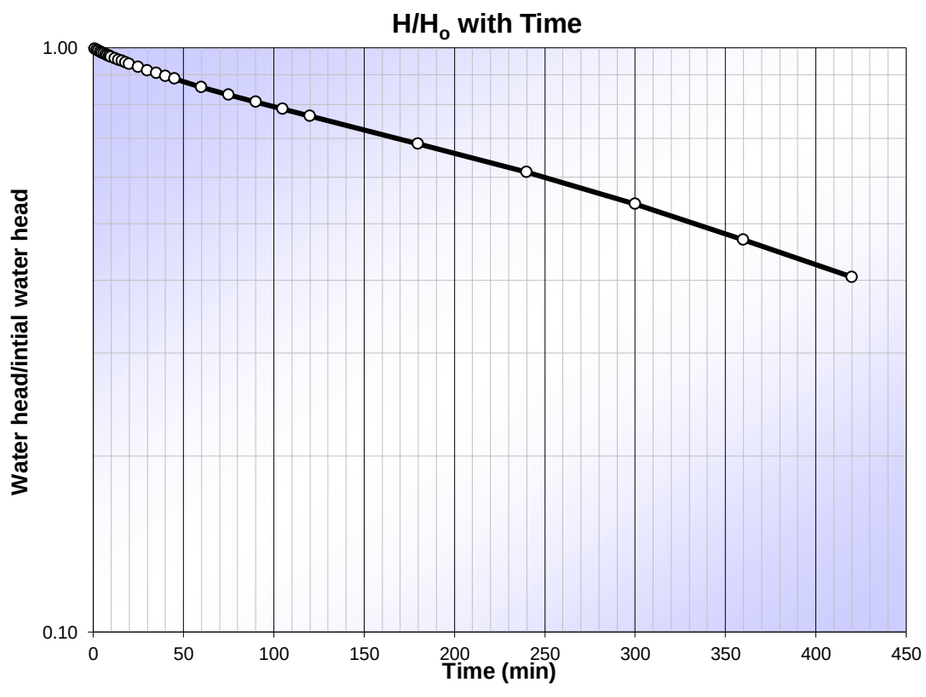
L_2 = depth of water beyond casing

Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1.00	60	0.100	-	-
2.00	120	0.170	70.00	Borehole
3.00	180	0.240	70.00	Borehole
4.00	240	0.310	70.00	Borehole
5.00	300	0.390	80.00	Borehole
6.00	360	0.440	50.00	Borehole
7.00	420	0.500	60.00	Borehole
8.00	480	0.560	60.00	Borehole
9.00	540	0.620	60.00	Borehole
10.00	600	0.690	70.00	Borehole
12.00	720	0.790	50.00	Borehole
14.00	840	0.900	55.00	Borehole
16.00	960	1.000	50.00	Borehole
18.00	1080	1.100	50.00	Borehole
20.00	1200	1.200	50.00	Borehole
25.00	1500	1.430	46.00	Borehole
30.00	1800	1.650	44.00	Borehole
35.00	2100	1.850	40.00	Borehole
40.00	2400	2.050	40.00	Borehole
45.00	2700	2.230	36.00	Borehole
60.00	3600	2.800	38.00	Borehole
75.00	4500	3.280	32.00	Borehole
90.00	5400	3.730	30.00	Borehole
105.00	6300	4.160	28.67	Borehole
120.00	7200	4.570	27.33	Borehole
180.00	10800	6.090	25.33	Borehole
240.00	14400	7.490	23.33	Borehole
300.00	18000	8.900	23.50	Borehole
360.00	21600	10.280	23.00	Borehole
420.00	25200	11.510	20.50	Borehole

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
34.4	282.0	19.25	-	-
34.3	281.4	19.18	0.122	2.1E-08
34.3	280.8	19.11	0.122	2.1E-08
34.2	280.2	19.04	0.122	2.1E-08
34.1	279.6	18.96	0.122	2.4E-08
34.1	279.2	18.91	0.122	1.5E-08
34.0	278.7	18.85	0.122	1.8E-08
33.9	278.2	18.79	0.122	1.8E-08
33.9	277.7	18.73	0.122	1.8E-08
33.8	277.1	18.66	0.122	2.2E-08
33.7	276.3	18.56	0.122	1.6E-08
33.6	275.4	18.45	0.122	1.7E-08
33.5	274.6	18.35	0.122	1.6E-08
33.4	273.8	18.25	0.122	1.6E-08
33.3	273.0	18.15	0.122	1.6E-08
33.1	271.1	17.92	0.122	1.5E-08
32.9	269.3	17.70	0.122	1.5E-08
32.7	267.6	17.50	0.122	1.4E-08
32.5	266.0	17.30	0.122	1.4E-08
32.3	264.5	17.12	0.122	1.3E-08
31.7	259.8	16.55	0.122	1.4E-08
31.2	255.9	16.07	0.122	1.2E-08
30.8	252.2	15.62	0.122	1.2E-08
30.3	248.7	15.19	0.122	1.2E-08
29.9	245.3	14.78	0.122	1.2E-08
28.4	232.9	13.26	0.122	1.2E-08
27.0	221.4	11.86	0.122	1.3E-08
25.6	209.8	10.45	0.122	1.5E-08
24.2	198.5	9.07	0.122	1.8E-08
23.0	188.4	7.84	0.122	1.9E-08
			AVG	**1.6E-08**

Estimated Permeability 1.6E-08 m/s





\\pefs2\PEProjects\PE301-00821 Doropo_Gold_Project\Site_Data\SI\2023 Site Investigation\FHT\FHT others

Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	VMKH	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 25/01/2024
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-PS-03		
EASTING	477985.87	**NORTHING**	1076980.73
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	32.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	18.690	m
Initial water level at start of test (not part of calc.)	0.050	m
Level of measuring point with respect to GL (not part of calc.)	0.020	m
Length of test zone at start of test	32.000	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

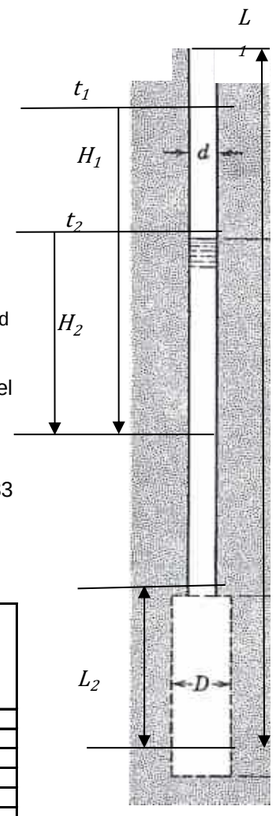
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333

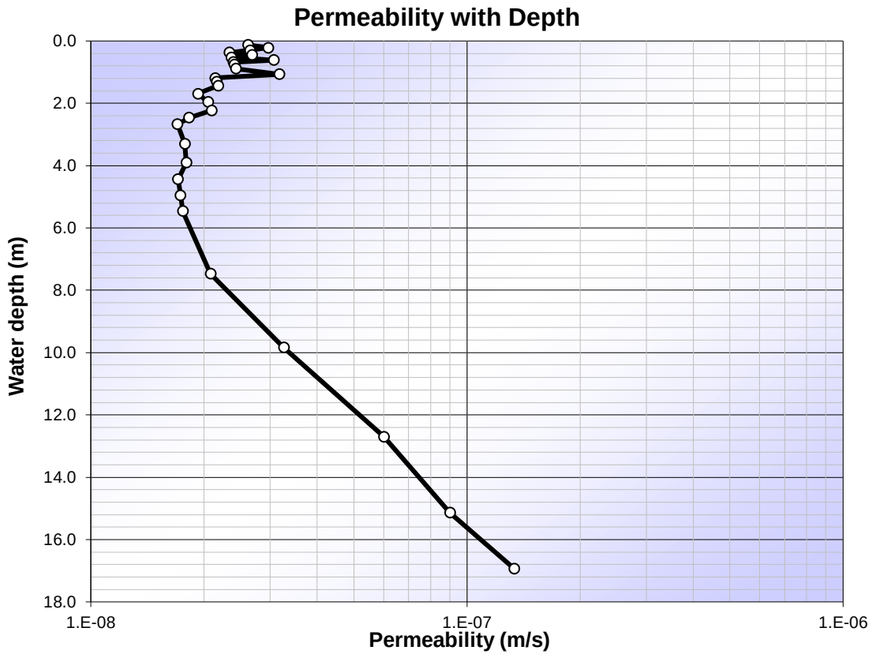


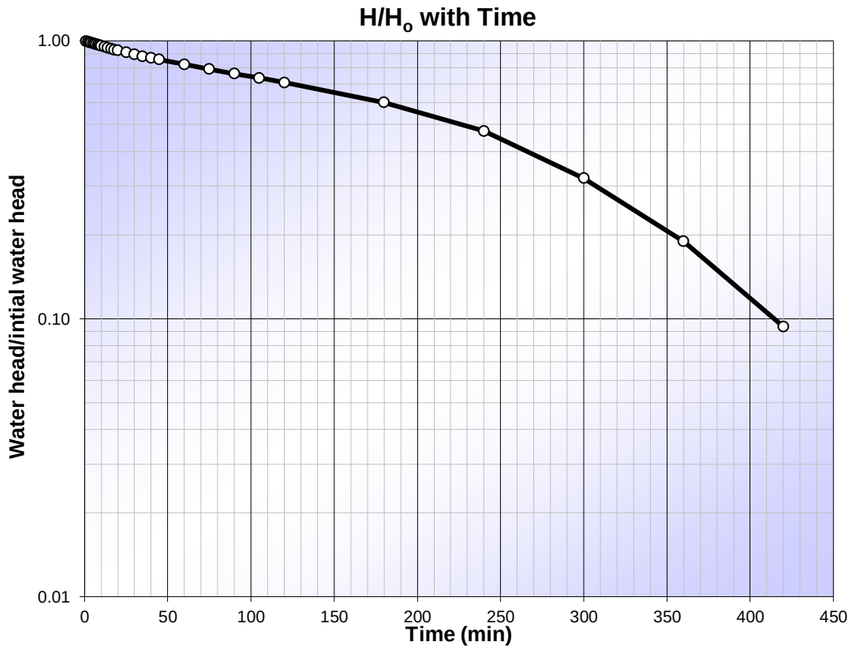
L_2 = depth of water beyond casing

Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1.00	60	0.050	-	-
2.00	120	0.130	80.00	Borehole
3.00	180	0.220	90.00	Borehole
4.00	240	0.300	80.00	Borehole
5.00	300	0.370	70.00	Borehole
6.00	360	0.450	80.00	Borehole
7.00	420	0.520	70.00	Borehole
8.00	480	0.610	90.00	Borehole
9.00	540	0.680	70.00	Borehole
10.00	600	0.750	70.00	Borehole
12.00	720	0.890	70.00	Borehole
14.00	840	1.070	90.00	Borehole
16.00	960	1.190	60.00	Borehole
18.00	1080	1.310	60.00	Borehole
20.00	1200	1.430	60.00	Borehole
25.00	1500	1.690	52.00	Borehole
30.00	1800	1.960	54.00	Borehole
35.00	2100	2.230	54.00	Borehole
40.00	2400	2.460	46.00	Borehole
45.00	2700	2.670	42.00	Borehole
60.00	3600	3.300	42.00	Borehole
75.00	4500	3.900	40.00	Borehole
90.00	5400	4.440	36.00	Borehole
105.00	6300	4.960	34.67	Borehole
120.00	7200	5.460	33.33	Borehole
180.00	10800	7.470	33.50	Borehole
240.00	14400	9.840	39.50	Borehole
300.00	18000	12.700	47.67	Borehole
360.00	21600	15.140	40.67	Borehole
420.00	25200	16.940	30.00	Borehole

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
32.0	261.9	18.64	-	-
31.9	261.2	18.56	0.122	2.6E-08
31.8	260.5	18.47	0.122	3.0E-08
31.7	259.8	18.39	0.122	2.7E-08
31.6	259.3	18.32	0.122	2.3E-08
31.6	258.6	18.24	0.122	2.7E-08
31.5	258.0	18.17	0.122	2.4E-08
31.4	257.3	18.08	0.122	3.1E-08
31.3	256.7	18.01	0.122	2.4E-08
31.3	256.1	17.94	0.122	2.4E-08
31.1	255.0	17.80	0.122	2.4E-08
30.9	253.5	17.62	0.122	3.2E-08
30.8	252.5	17.50	0.122	2.1E-08
30.7	251.6	17.38	0.122	2.2E-08
30.6	250.6	17.26	0.122	2.2E-08
30.3	248.4	17.00	0.122	1.9E-08
30.0	246.2	16.73	0.122	2.0E-08
29.8	244.0	16.46	0.122	2.1E-08
29.5	242.1	16.23	0.122	1.8E-08
29.3	240.4	16.02	0.122	1.7E-08
28.7	235.2	15.39	0.122	1.8E-08
28.1	230.3	14.79	0.122	1.8E-08
27.6	225.9	14.25	0.122	1.7E-08
27.0	221.6	13.73	0.122	1.7E-08
26.5	217.5	13.23	0.122	1.8E-08
24.5	201.1	11.22	0.122	2.1E-08
22.2	181.6	8.85	0.122	3.3E-08
19.3	158.2	5.99	0.122	6.0E-08
16.9	138.2	3.55	0.122	9.0E-08
15.1	123.4	1.75	0.122	1.3E-07
			AVG	**3.0E-08**

Estimated Permeability 3.0E-08 m/s





Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	VMKH	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 28/01/2024
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-PS-04		
EASTING	477965.87	**NORTHING**	1076977.55
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0234	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	20.800	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	14.200	m
Initial water level at start of test (not part of calc.)	0.030	m
Level of measuring point with respect to GL (not part of calc.)	0.020	m
Length of test zone at start of test	20.800	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

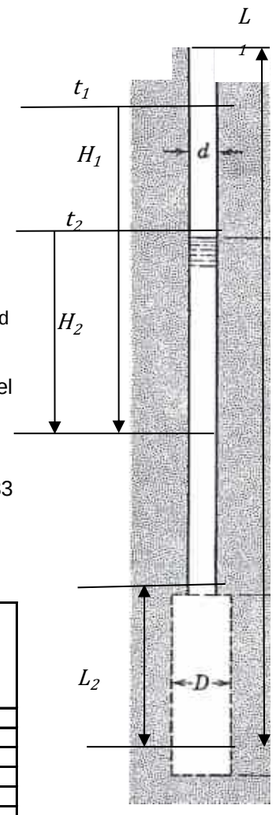
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333

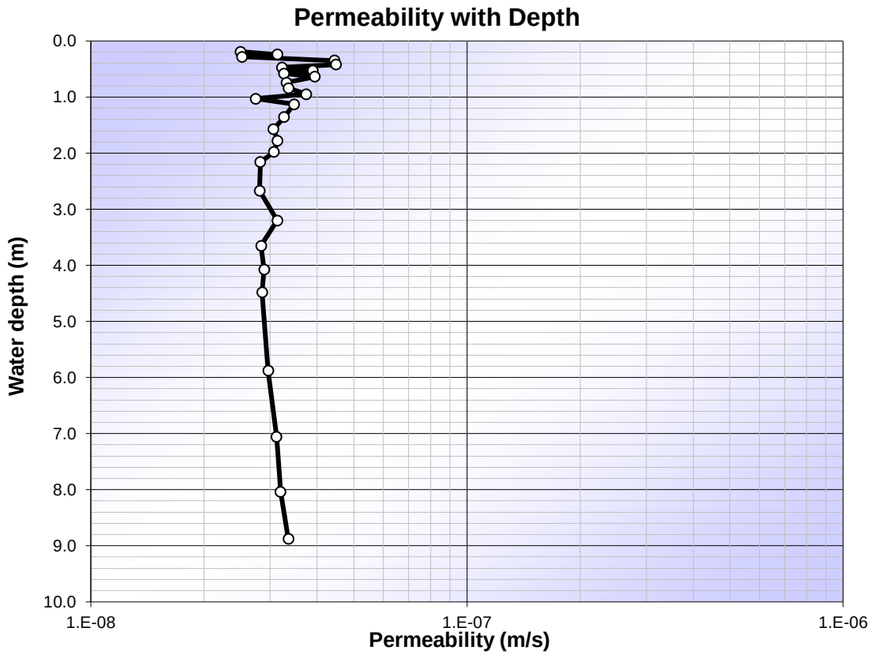


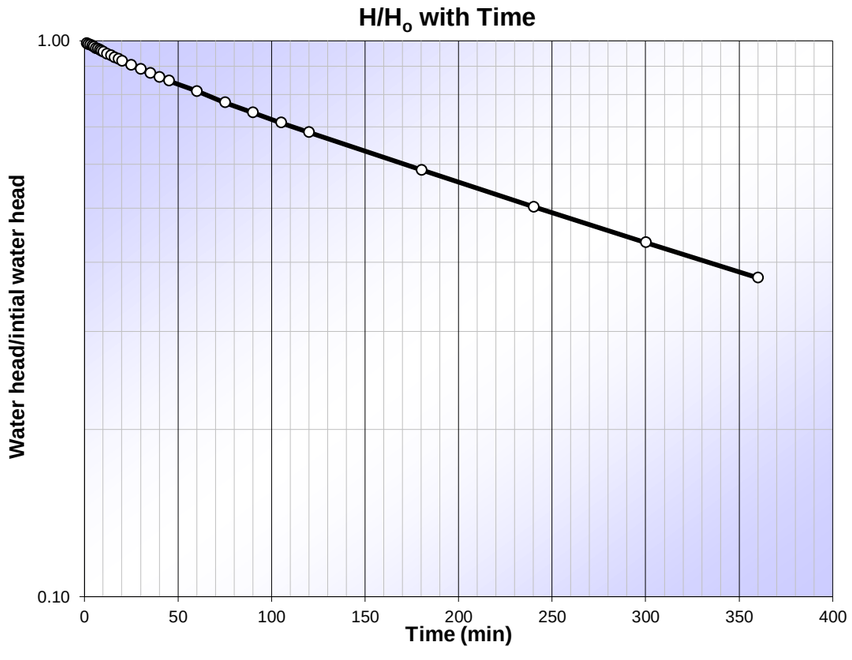
L_2 = depth of water beyond casing

Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1.00	60	0.150	-	-
2.00	120	0.190	40.00	Borehole
3.00	180	0.240	50.00	Borehole
4.00	240	0.280	40.00	Borehole
5.00	300	0.350	70.00	Borehole
6.00	360	0.420	70.00	Borehole
7.00	420	0.470	50.00	Borehole
8.00	480	0.530	60.00	Borehole
9.00	540	0.580	50.00	Borehole
10.00	600	0.640	60.00	Borehole
12.00	720	0.740	50.00	Borehole
14.00	840	0.840	50.00	Borehole
16.00	960	0.950	55.00	Borehole
18.00	1080	1.030	40.00	Borehole
20.00	1200	1.130	50.00	Borehole
25.00	1500	1.360	46.00	Borehole
30.00	1800	1.570	42.00	Borehole
35.00	2100	1.780	42.00	Borehole
40.00	2400	1.980	40.00	Borehole
45.00	2700	2.160	36.00	Borehole
60.00	3600	2.670	34.00	Borehole
75.00	4500	3.200	35.33	Borehole
90.00	5400	3.650	30.00	Borehole
105.00	6300	4.080	28.67	Borehole
120.00	7200	4.480	26.67	Borehole
180.00	10800	5.880	23.33	Borehole
240.00	14400	7.060	19.67	Borehole
300.00	18000	8.040	16.33	Borehole
360.00	21600	8.880	14.00	Borehole
				Hole collapsed

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
20.7	169.3	14.05	-	-
20.6	168.9	14.01	0.122	2.5E-08
20.6	168.5	13.96	0.122	3.1E-08
20.5	168.2	13.92	0.122	2.5E-08
20.5	167.6	13.85	0.122	4.4E-08
20.4	167.0	13.78	0.122	4.5E-08
20.3	166.6	13.73	0.122	3.2E-08
20.3	166.1	13.67	0.122	3.9E-08
20.2	165.7	13.62	0.122	3.3E-08
20.2	165.2	13.56	0.122	3.9E-08
20.1	164.4	13.46	0.122	3.3E-08
20.0	163.6	13.36	0.122	3.4E-08
19.9	162.7	13.25	0.122	3.7E-08
19.8	162.0	13.17	0.122	2.7E-08
19.7	161.2	13.07	0.122	3.5E-08
19.4	159.3	12.84	0.122	3.3E-08
19.2	157.6	12.63	0.122	3.1E-08
19.0	155.9	12.42	0.122	3.1E-08
18.8	154.3	12.22	0.122	3.1E-08
18.6	152.8	12.04	0.122	2.8E-08
18.1	148.6	11.53	0.122	2.8E-08
17.6	144.3	11.00	0.122	3.1E-08
17.2	140.6	10.55	0.122	2.8E-08
16.7	137.0	10.12	0.122	2.9E-08
16.3	133.8	9.72	0.122	2.9E-08
14.9	122.3	8.32	0.122	3.0E-08
13.7	112.6	7.14	0.122	3.1E-08
12.8	104.6	6.16	0.122	3.2E-08
11.9	97.7	5.32	0.122	3.4E-08
			AVG	**3.2E-08**

Estimated Permeability 3.2E-08 m/s





Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	VMKH	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 29/01/2024
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-PS-05		
EASTING	477936.63	**NORTHING**	1077054.81
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0234	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	27.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	19.230	m
Initial water level at start of test (not part of calc.)	0.400	m
Level of measuring point with respect to GL (not part of calc.)	0.020	m
Length of test zone at start of test	27.000	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

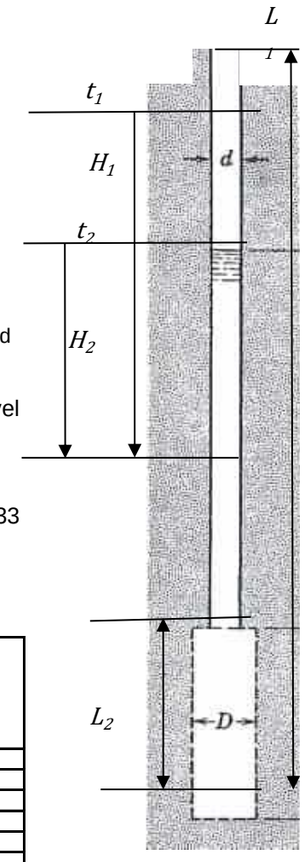
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333

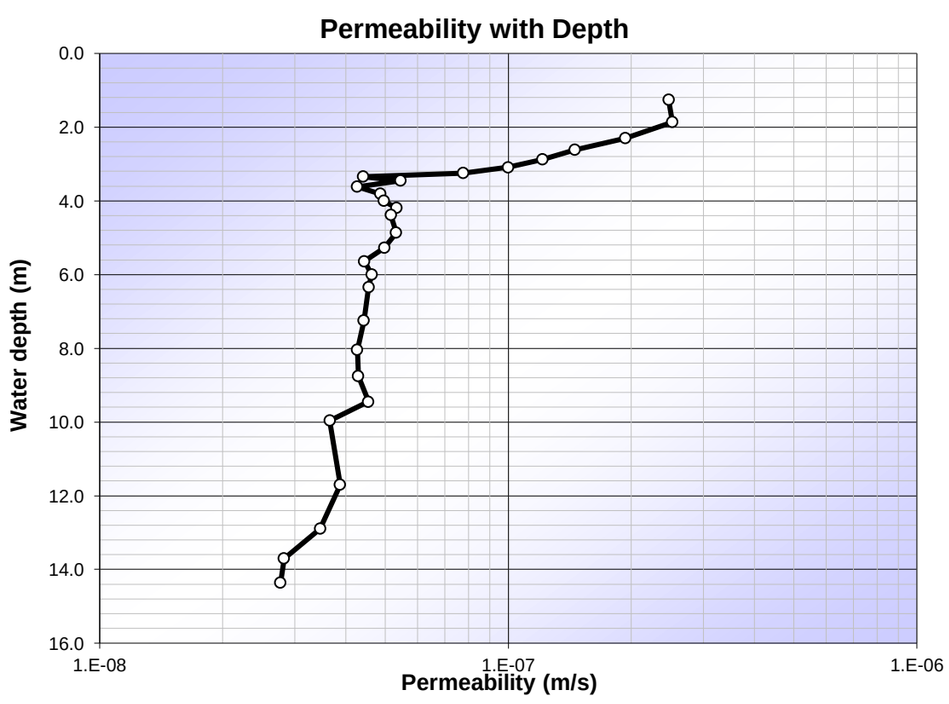


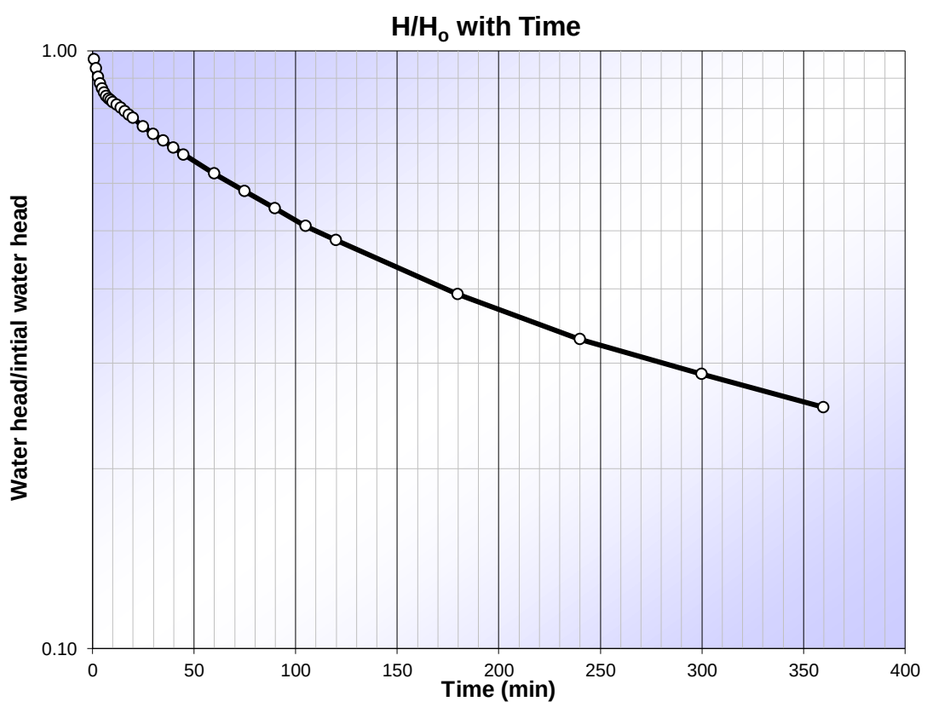
L_2 = depth of water beyond casing

Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1.00	60	0.640	-	-
2.00	120	1.260	620.00	Borehole
3.00	180	1.860	600.00	Borehole
4.00	240	2.300	440.00	Borehole
5.00	300	2.620	320.00	Borehole
6.00	360	2.880	260.00	Borehole
7.00	420	3.090	210.00	Borehole
8.00	480	3.250	160.00	Borehole
9.00	540	3.340	90.00	Borehole
10.00	600	3.450	110.00	Borehole
12.00	720	3.620	85.00	Borehole
14.00	840	3.810	95.00	Borehole
16.00	960	4.000	95.00	Borehole
18.00	1080	4.200	100.00	Borehole
20.00	1200	4.390	95.00	Borehole
25.00	1500	4.860	94.00	Borehole
30.00	1800	5.280	84.00	Borehole
35.00	2100	5.640	72.00	Borehole
40.00	2400	6.000	72.00	Borehole
45.00	2700	6.340	68.00	Borehole
60.00	3600	7.250	60.67	Borehole
75.00	4500	8.040	52.67	Borehole
90.00	5400	8.760	48.00	Borehole
105.00	6300	9.450	46.00	Borehole
120.00	7200	9.960	34.00	Borehole
180.00	10800	11.700	29.00	Borehole
240.00	14400	12.900	20.00	Borehole
300.00	18000	13.700	13.33	Borehole
360.00	21600	14.360	11.00	Borehole

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
26.4	216.1	18.59	-	-
25.7	211.0	17.97	0.122	2.5E-07
25.1	206.1	17.37	0.122	2.5E-07
24.7	202.5	16.93	0.122	1.9E-07
24.4	199.8	16.61	0.122	1.5E-07
24.1	197.7	16.35	0.122	1.2E-07
23.9	196.0	16.14	0.122	1.0E-07
23.8	194.7	15.98	0.122	7.8E-08
23.7	193.9	15.89	0.122	4.4E-08
23.6	193.0	15.78	0.122	5.4E-08
23.4	191.6	15.61	0.122	4.3E-08
23.2	190.1	15.42	0.122	4.9E-08
23.0	188.5	15.23	0.122	5.0E-08
22.8	186.9	15.03	0.122	5.3E-08
22.6	185.3	14.84	0.122	5.2E-08
22.1	181.5	14.37	0.122	5.3E-08
21.7	178.0	13.95	0.122	5.0E-08
21.4	175.1	13.59	0.122	4.4E-08
21.0	172.1	13.23	0.122	4.6E-08
20.7	169.3	12.89	0.122	4.6E-08
19.8	161.9	11.98	0.122	4.4E-08
19.0	155.4	11.19	0.122	4.3E-08
18.2	149.5	10.47	0.122	4.3E-08
17.6	143.9	9.78	0.122	4.5E-08
17.0	139.7	9.27	0.122	3.7E-08
15.3	125.4	7.53	0.122	3.9E-08
14.1	115.6	6.33	0.122	3.5E-08
13.3	109.0	5.53	0.122	2.8E-08
12.6	103.6	4.87	0.122	2.8E-08
			AVG	**7.4E-08**

Estimated Permeability 7.4E-08 m/s





\\pefs2\PEProjects\PE301-00821 Doropo_Gold_Project\Site_Data\SI\2023 Site Investigation\FHT\FHT others

Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	VMKH	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 6/02/2024
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-PS-06		
EASTING	478872.82	**NORTHING**	1079560.99
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	25.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	20.200	m
Initial water level at start of test (not part of calc.)	18.640	m
Level of measuring point with respect to GL (not part of calc.)	0.020	m
Length of test zone at start of test	25.000	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

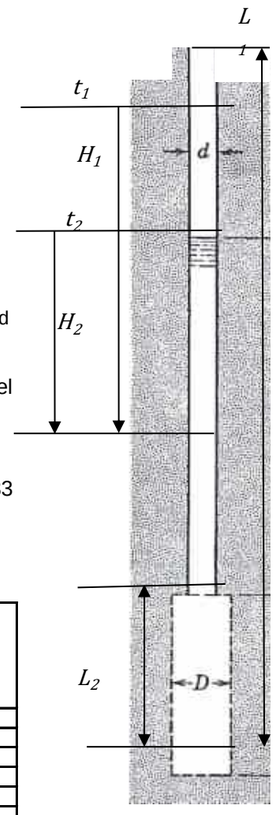
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333



L_2 = depth of water beyond casing

Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
0.00	0	3.520	-	-
1.00	60	4.050	530.00	Borehole
2.00	120	4.790	740.00	Borehole
3.00	180	5.310	520.00	Borehole
4.00	240	5.840	530.00	Borehole
5.00	300	6.230	390.00	Borehole
6.00	360	6.560	330.00	Borehole
7.00	420	6.790	230.00	Borehole
8.00	480	6.970	180.00	Borehole
9.00	540	7.180	210.00	Borehole
10.00	600	7.380	200.00	Borehole
12.00	720	7.830	225.00	Borehole
14.00	840	8.270	220.00	Borehole
16.00	960	8.730	230.00	Borehole
18.00	1080	9.100	185.00	Borehole
20.00	1200	9.500	200.00	Borehole
22.00	1320	9.780	140.00	Borehole
24.00	1440	10.100	160.00	Borehole
26.00	1560	10.400	150.00	Borehole
30.00	1800	11.020	155.00	Borehole
35.00	2100	11.530	102.00	Borehole
40.00	2400	11.930	80.00	Borehole
45.00	2700	12.360	86.00	Borehole
60.00	3600	13.320	64.00	Borehole
75.00	4500	14.010	46.00	Borehole
90.00	5400	14.620	40.67	Borehole
105.00	6300	15.050	28.67	Borehole
120.00	7200	15.440	26.00	Borehole
180.00	10800	16.450	16.83	Borehole
240.00	14400	17.030	9.67	Borehole
300.00	18000	17.480	7.50	Borehole
360.00	21600	17.710	3.83	Borehole

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
21.5	176.1	16.68	-	-
21.0	171.7	16.15	0.122	2.8E-07
20.2	165.7	15.41	0.122	4.2E-07
19.7	161.4	14.89	0.122	3.1E-07
19.2	157.0	14.36	0.122	3.4E-07
18.8	153.9	13.97	0.122	2.6E-07
18.4	151.1	13.64	0.122	2.3E-07
18.2	149.3	13.41	0.122	1.7E-07
18.0	147.8	13.23	0.122	1.3E-07
17.8	146.1	13.02	0.122	1.6E-07
17.6	144.4	12.82	0.122	1.5E-07
17.2	140.7	12.37	0.122	1.8E-07
16.7	137.1	11.93	0.122	1.9E-07
16.3	133.4	11.47	0.122	2.1E-07
15.9	130.3	11.10	0.122	1.8E-07
15.5	127.0	10.70	0.122	2.0E-07
15.2	124.8	10.42	0.122	1.5E-07
14.9	122.1	10.10	0.122	1.8E-07
14.6	119.7	9.80	0.122	1.8E-07
14.0	114.6	9.18	0.122	2.0E-07
13.5	110.4	8.67	0.122	1.4E-07
13.1	107.1	8.27	0.122	1.2E-07
12.6	103.6	7.84	0.122	1.4E-07
11.7	95.7	6.88	0.122	1.2E-07
11.0	90.1	6.19	0.122	1.0E-07
10.4	85.1	5.58	0.122	1.1E-07
10.0	81.6	5.15	0.122	8.5E-08
9.6	78.4	4.76	0.122	8.6E-08
8.6	70.1	3.75	0.122	7.1E-08
8.0	65.3	3.17	0.122	5.3E-08
7.5	61.6	2.72	0.122	5.1E-08
			AVG	**1.5E-07**

Estimated Permeability 1.5E-07 m/s

Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	VMKH	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 1/02/2024
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-PS-07		
EASTING	478309.51	**NORTHING**	1079475.54
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	35.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	19.860	m
Initial water level at start of test (not part of calc.)	0.600	m
Level of measuring point with respect to GL (not part of calc.)	0.020	m
Length of test zone at start of test	35.000	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

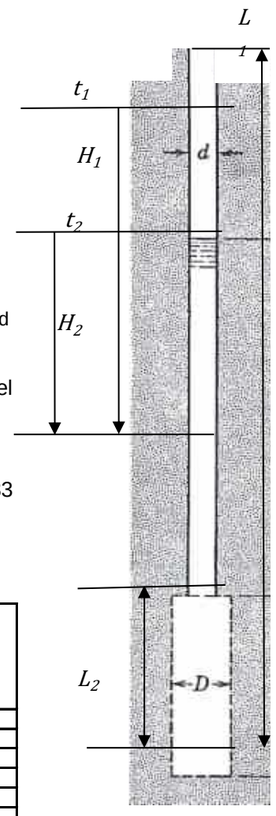
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333

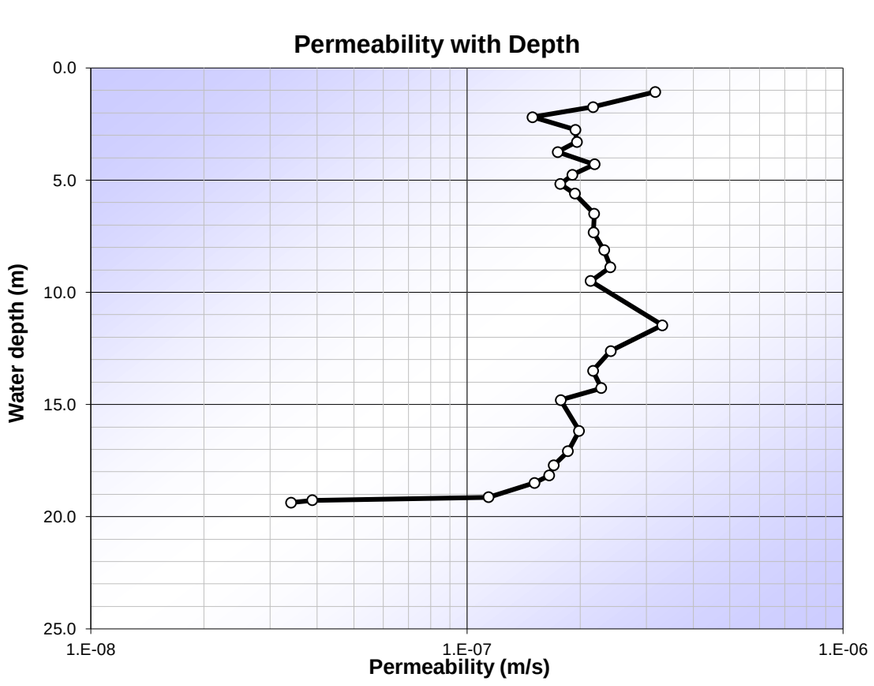


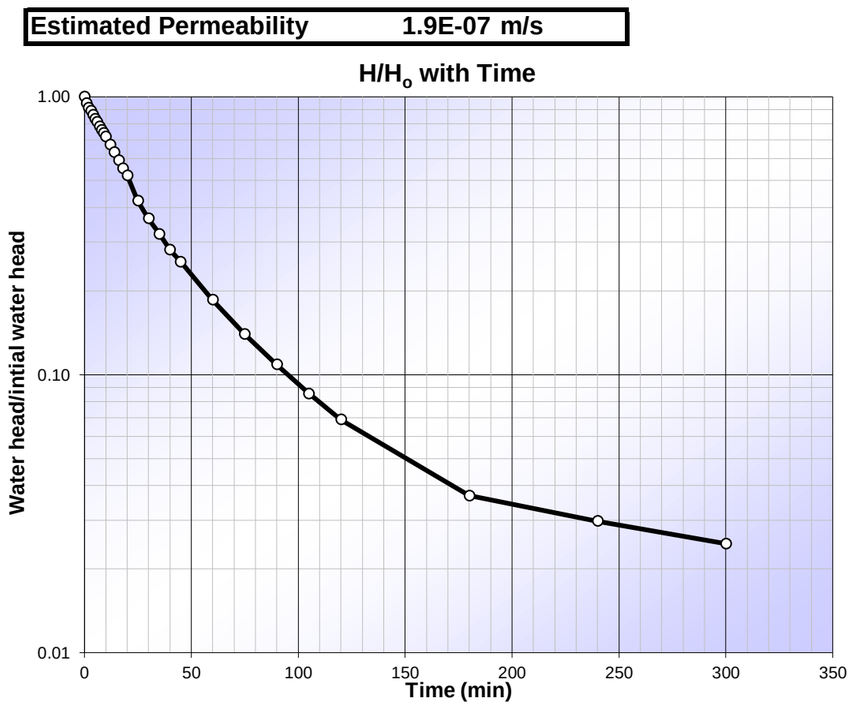
Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
0.00	0	0.000	-	-
1.00	60	1.060	1060.00	Borehole
2.00	120	1.740	680.00	Borehole
3.00	180	2.190	450.00	Borehole
4.00	240	2.750	560.00	Borehole
5.00	300	3.290	540.00	Borehole
6.00	360	3.750	460.00	Borehole
7.00	420	4.300	550.00	Borehole
8.00	480	4.760	460.00	Borehole
9.00	540	5.170	410.00	Borehole
10.00	600	5.600	430.00	Borehole
12.00	720	6.500	450.00	Borehole
14.00	840	7.320	410.00	Borehole
16.00	960	8.120	400.00	Borehole
18.00	1080	8.880	380.00	Borehole
20.00	1200	9.500	310.00	Borehole
25.00	1500	11.470	394.00	Borehole
30.00	1800	12.620	230.00	Borehole
35.00	2100	13.490	174.00	Borehole
40.00	2400	14.270	156.00	Borehole
45.00	2700	14.800	106.00	Borehole
60.00	3600	16.170	91.33	Borehole
75.00	4500	17.080	60.67	Borehole
90.00	5400	17.700	41.33	Borehole
105.00	6300	18.160	30.67	Borehole
120.00	7200	18.490	22.00	Borehole
180.00	10800	19.130	10.67	Borehole
240.00	14400	19.270	2.33	Borehole
300.00	18000	19.370	1.67	Borehole

L_2 = depth of water beyond casing

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
35.0	286.9	19.86	-	-
33.9	278.2	18.80	0.122	3.2E-07
33.3	272.6	18.12	0.122	2.2E-07
32.8	268.9	17.67	0.122	1.5E-07
32.3	264.3	17.11	0.122	1.9E-07
31.7	259.9	16.57	0.122	2.0E-07
31.3	256.1	16.11	0.122	1.7E-07
30.7	251.6	15.56	0.122	2.2E-07
30.2	247.9	15.10	0.122	1.9E-07
29.8	244.5	14.69	0.122	1.8E-07
29.4	241.0	14.26	0.122	1.9E-07
28.5	233.6	13.36	0.122	2.2E-07
27.7	226.9	12.54	0.122	2.2E-07
26.9	220.3	11.74	0.122	2.3E-07
26.1	214.1	10.98	0.122	2.4E-07
25.5	209.0	10.36	0.122	2.1E-07
23.5	192.9	8.39	0.122	3.3E-07
22.4	183.4	7.24	0.122	2.4E-07
21.5	176.3	6.37	0.122	2.2E-07
20.7	169.9	5.59	0.122	2.3E-07
20.2	165.6	5.06	0.122	1.8E-07
18.8	154.3	3.69	0.122	2.0E-07
17.9	146.9	2.78	0.122	1.9E-07
17.3	141.8	2.16	0.122	1.7E-07
16.8	138.0	1.70	0.122	1.7E-07
16.5	135.3	1.37	0.122	1.5E-07
15.9	130.1	0.73	0.122	1.1E-07
15.7	128.9	0.59	0.122	3.9E-08
15.6	128.1	0.49	0.122	3.4E-08
			AVG	**1.9E-07**

Estimated Permeability 1.9E-07 m/s





Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	VMKH	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 2/02/2024
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-PS-08		
EASTING	477885.01	**NORTHING**	1077028.97
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	20.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	13.670	m
Initial water level at start of test (not part of calc.)	0.500	m
Level of measuring point with respect to GL (not part of calc.)	0.020	m
Length of test zone at start of test	48.500	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

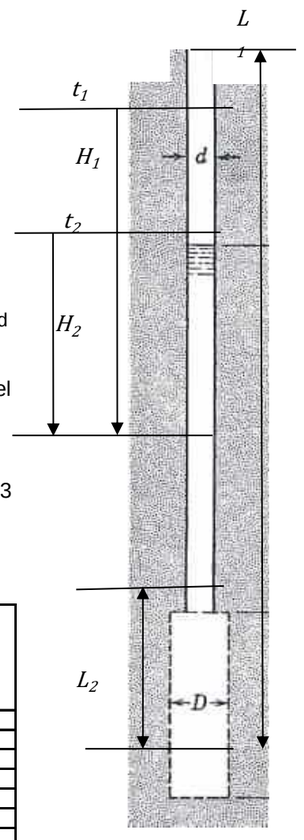
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333



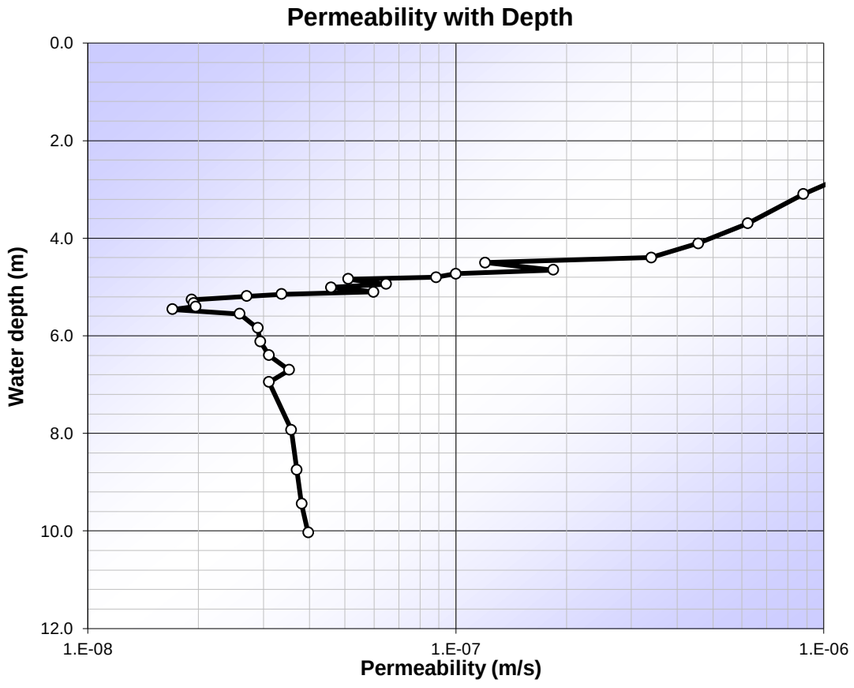
L_2 = depth of water beyond casing

Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
0.00	0	0.000	-	-
1.00	60	2.160	2160.00	Borehole
2.00	120	3.100	940.00	Borehole
3.00	180	3.700	600.00	Borehole
4.00	240	4.110	410.00	Borehole
5.00	300	4.400	290.00	Borehole
6.00	360	4.500	100.00	Borehole
7.00	420	4.650	150.00	Borehole
8.00	480	4.730	80.00	Borehole
9.00	540	4.800	70.00	Borehole
10.00	600	4.840	40.00	Borehole
12.00	720	4.940	50.00	Borehole
14.00	840	5.010	35.00	Borehole
16.00	960	5.100	45.00	Borehole
18.00	1080	5.150	25.00	Borehole
20.00	1200	5.190	20.00	Borehole
25.00	1500	5.260	14.00	Borehole
30.00	1800	5.330	14.00	Borehole
35.00	2100	5.400	14.00	Borehole
40.00	2400	5.460	12.00	Borehole
45.00	2700	5.550	18.00	Borehole
60.00	3600	5.840	19.33	Borehole
75.00	4500	6.120	18.67	Borehole
90.00	5400	6.400	18.67	Borehole
105.00	6300	6.700	20.00	Borehole
120.00	7200	6.950	16.67	Borehole
180.00	10800	7.930	16.33	Borehole
240.00	14400	8.750	13.67	Borehole
300.00	18000	9.440	11.50	Borehole
360.00	21600	10.030	9.83	Borehole

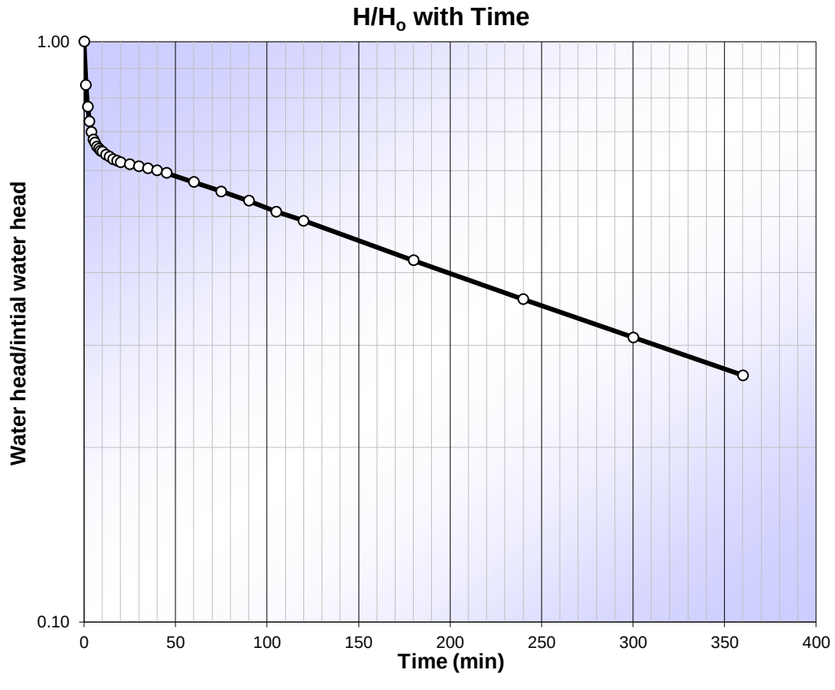
L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
20.0	163.9	13.67	-	-
17.8	146.2	11.51	0.122	1.7E-06
16.9	138.5	10.57	0.122	8.8E-07
16.3	133.6	9.97	0.122	6.2E-07
15.9	130.2	9.56	0.122	4.6E-07
15.6	127.9	9.27	0.122	3.4E-07
15.5	127.0	9.17	0.122	1.2E-07
15.4	125.8	9.02	0.122	1.8E-07
15.3	125.2	8.94	0.122	1.0E-07
15.2	124.6	8.87	0.122	8.8E-08
15.2	124.3	8.83	0.122	5.1E-08
15.1	123.4	8.73	0.122	6.5E-08
15.0	122.9	8.66	0.122	4.6E-08
14.9	122.1	8.57	0.122	6.0E-08
14.9	121.7	8.52	0.122	3.4E-08
14.8	121.4	8.48	0.122	2.7E-08
14.7	120.8	8.41	0.122	1.9E-08
14.7	120.2	8.34	0.122	1.9E-08
14.6	119.7	8.27	0.122	2.0E-08
14.5	119.2	8.21	0.122	1.7E-08
14.5	118.4	8.12	0.122	2.6E-08
14.2	116.1	7.83	0.122	2.9E-08
13.9	113.8	7.55	0.122	2.9E-08
13.6	111.5	7.27	0.122	3.1E-08
13.3	109.0	6.97	0.122	3.5E-08
13.1	107.0	6.72	0.122	3.1E-08
12.1	98.9	5.74	0.122	3.6E-08
11.3	92.2	4.92	0.122	3.7E-08
10.6	86.6	4.23	0.122	3.8E-08
10.0	81.7	3.64	0.122	4.0E-08
			AVG	**1.8E-07**

Estimated Permeability 1.8E-07 m/s

Permeability with Depth



H/H_o with Time



Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	VMKH	Job No.	PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date	4/02/2024
		Falling Head Permeability	Approved			

BOREHOLE ID	BH-PS-09		
EASTING	478131.20	NORTHING	1076938.65
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	41.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	20.770	m
Initial water level at start of test (not part of calc.)	0.130	m
Level of measuring point with respect to GL (not part of calc.)	0.020	m
Length of test zone at start of test	48.500	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

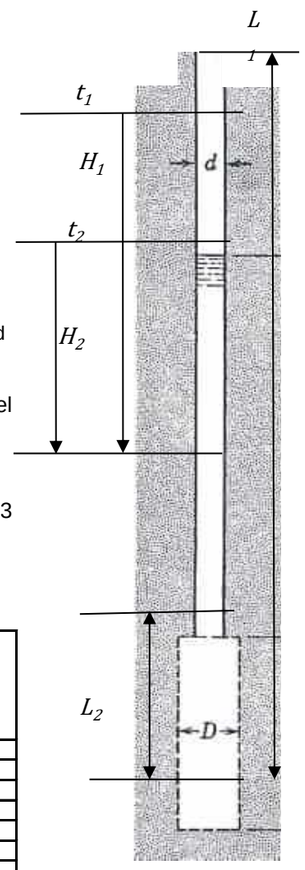
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333

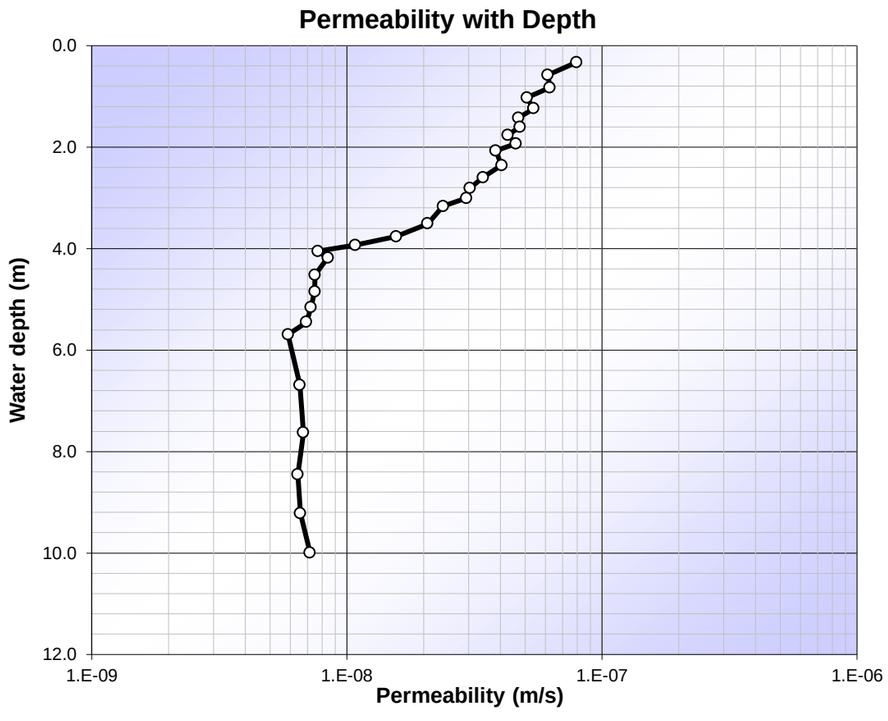


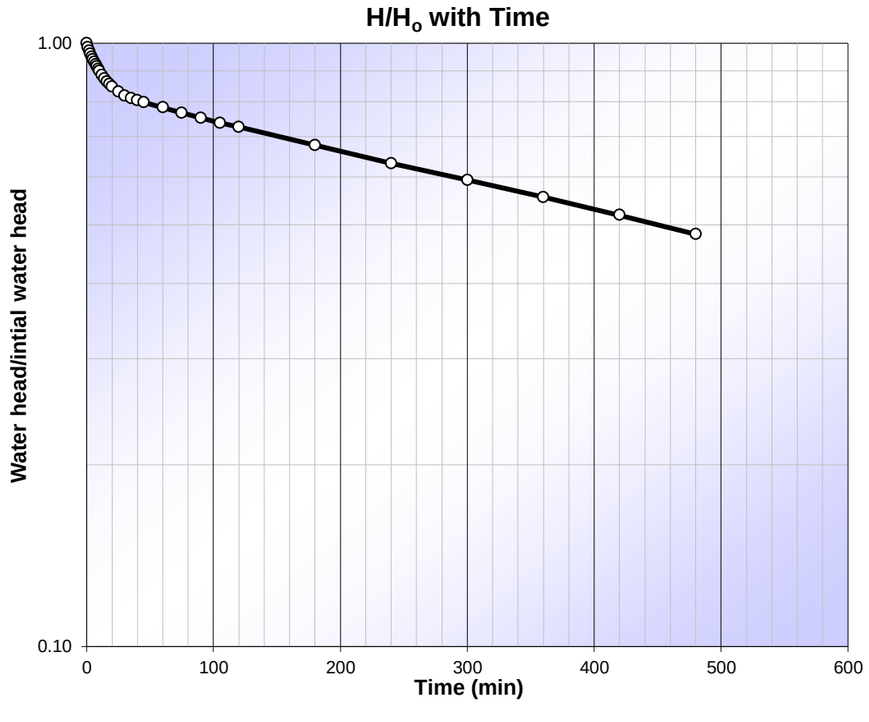
L_2 = depth of water beyond casing

Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
0.00	0	0.000	-	-
1.00	60	0.330	330.00	Borehole
2.00	120	0.580	250.00	Borehole
3.00	180	0.830	250.00	Borehole
4.00	240	1.030	200.00	Borehole
5.00	300	1.240	210.00	Borehole
6.00	360	1.420	180.00	Borehole
7.00	420	1.600	180.00	Borehole
8.00	480	1.760	160.00	Borehole
9.00	540	1.930	170.00	Borehole
10.00	600	2.070	140.00	Borehole
12.00	720	2.360	145.00	Borehole
14.00	840	2.600	120.00	Borehole
16.00	960	2.810	105.00	Borehole
18.00	1080	3.010	100.00	Borehole
20.00	1200	3.170	80.00	Borehole
25.00	1500	3.510	68.00	Borehole
30.00	1800	3.760	50.00	Borehole
35.00	2100	3.930	34.00	Borehole
40.00	2400	4.050	24.00	Borehole
45.00	2700	4.180	26.00	Borehole
60.00	3600	4.520	22.67	Borehole
75.00	4500	4.850	22.00	Borehole
90.00	5400	5.160	20.67	Borehole
105.00	6300	5.450	19.33	Borehole
120.00	7200	5.690	16.00	Borehole
180.00	10800	6.690	16.67	Borehole
240.00	14400	7.630	15.67	Borehole
300.00	18000	8.450	13.67	Borehole
360.00	21600	9.220	12.83	Borehole
420.00	25200	9.990	12.83	Borehole
480.00	28800	10.750	12.67	Borehole

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
41.0	336.1	20.77	-	-
40.7	333.4	20.44	0.122	7.9E-08
40.4	331.3	20.19	0.122	6.1E-08
40.2	329.3	19.94	0.122	6.2E-08
40.0	327.6	19.74	0.122	5.1E-08
39.8	325.9	19.53	0.122	5.4E-08
39.6	324.4	19.35	0.122	4.7E-08
39.4	323.0	19.17	0.122	4.8E-08
39.2	321.6	19.01	0.122	4.3E-08
39.1	320.2	18.84	0.122	4.6E-08
38.9	319.1	18.70	0.122	3.8E-08
38.6	316.7	18.41	0.122	4.0E-08
38.4	314.8	18.17	0.122	3.4E-08
38.2	313.0	17.96	0.122	3.0E-08
38.0	311.4	17.76	0.122	2.9E-08
37.8	310.1	17.60	0.122	2.4E-08
37.5	307.3	17.26	0.122	2.1E-08
37.2	305.2	17.01	0.122	1.6E-08
37.1	303.9	16.84	0.122	1.1E-08
37.0	302.9	16.72	0.122	7.7E-09
36.8	301.8	16.59	0.122	8.4E-09
36.5	299.0	16.25	0.122	7.5E-09
36.2	296.3	15.92	0.122	7.5E-09
35.8	293.8	15.61	0.122	7.2E-09
35.6	291.4	15.32	0.122	6.9E-09
35.3	289.4	15.08	0.122	5.9E-09
34.3	281.2	14.08	0.122	6.5E-09
33.4	273.5	13.14	0.122	6.7E-09
32.6	266.8	12.32	0.122	6.4E-09
31.8	260.5	11.55	0.122	6.6E-09
31.0	254.2	10.78	0.122	7.2E-09
			AVG	2.7E-08

Estimated Permeability 2.7E-08 m/s





Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	VMKH	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 12/02/2024
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-PS-10		
EASTING	478089.72	**NORTHING**	1076949.73
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	50.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	19.130	m
Initial water level at start of test (not part of calc.)	0.100	m
Level of measuring point with respect to GL (not part of calc.)	0.020	m
Length of test zone at start of test	48.500	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

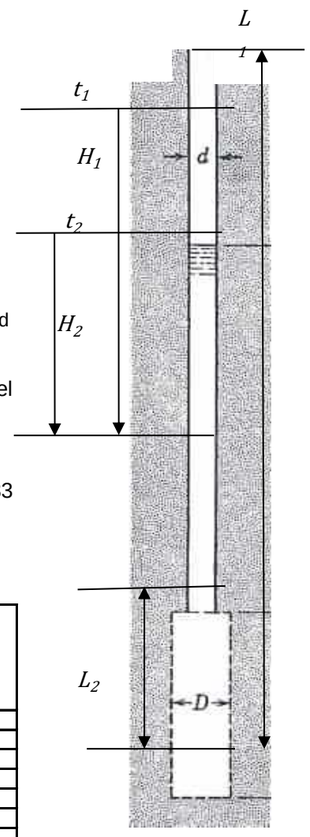
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333



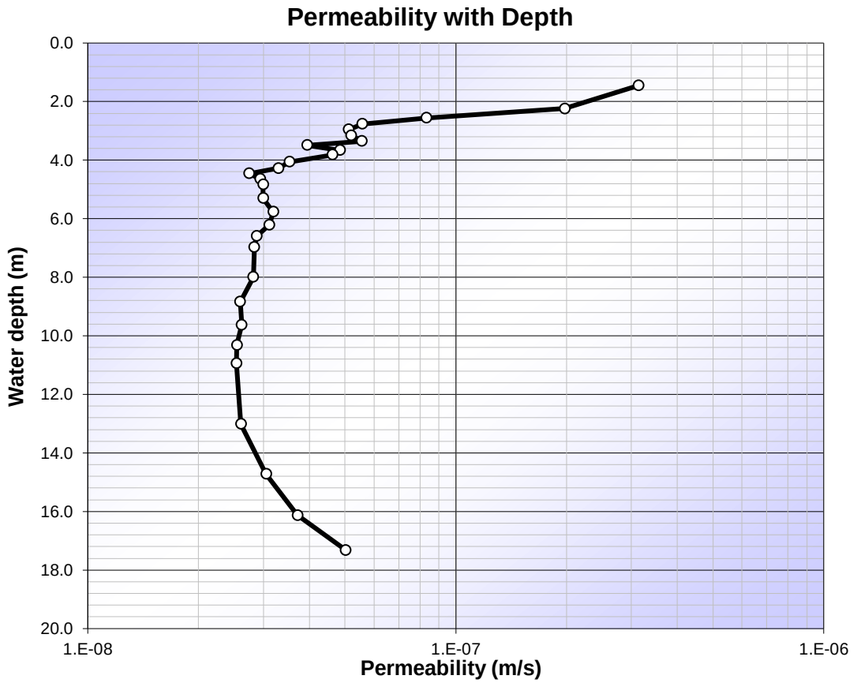
Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
0.00	0	0.100	-	-
1.00	60	1.450	1350.00	Borehole
2.00	120	2.240	790.00	Borehole
3.00	180	2.560	320.00	Borehole
4.00	240	2.770	210.00	Borehole
5.00	300	2.960	190.00	Borehole
6.00	360	3.150	190.00	Borehole
7.00	420	3.350	200.00	Borehole
8.00	480	3.490	140.00	Borehole
9.00	540	3.660	170.00	Borehole
10.00	600	3.820	160.00	Borehole
12.00	720	4.060	120.00	Borehole
14.00	840	4.280	110.00	Borehole
16.00	960	4.460	90.00	Borehole
18.00	1080	4.650	95.00	Borehole
20.00	1200	4.840	95.00	Borehole
25.00	1500	5.300	92.00	Borehole
30.00	1800	5.770	94.00	Borehole
35.00	2100	6.210	88.00	Borehole
40.00	2400	6.600	78.00	Borehole
45.00	2700	6.970	74.00	Borehole
60.00	3600	7.990	68.00	Borehole
75.00	4500	8.840	56.67	Borehole
90.00	5400	9.620	52.00	Borehole
105.00	6300	10.310	46.00	Borehole
120.00	7200	10.940	42.00	Borehole
180.00	10800	13.010	34.50	Borehole
240.00	14400	14.720	28.50	Borehole
300.00	18000	16.130	23.50	Borehole
360.00	21600	17.320	19.83	Borehole
				Hole Collapsed

L_2 = depth of water beyond casing

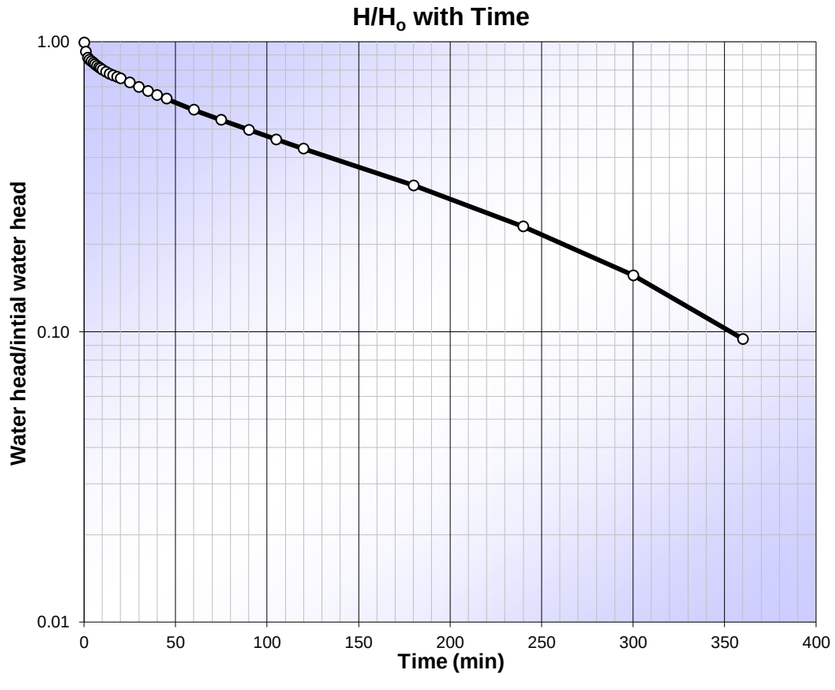
L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
48.5	397.5	19.03	-	-
48.5	397.5	17.68	0.122	3.1E-07
47.8	391.5	16.89	0.122	2.0E-07
47.4	388.9	16.57	0.122	8.3E-08
47.2	387.1	16.36	0.122	5.6E-08
47.0	385.6	16.17	0.122	5.1E-08
46.9	384.0	15.98	0.122	5.2E-08
46.7	382.4	15.78	0.122	5.6E-08
46.5	381.2	15.64	0.122	3.9E-08
46.3	379.8	15.47	0.122	4.9E-08
46.2	378.5	15.31	0.122	4.6E-08
45.9	376.6	15.07	0.122	3.5E-08
45.7	374.8	14.85	0.122	3.3E-08
45.5	373.3	14.67	0.122	2.7E-08
45.4	371.7	14.48	0.122	2.9E-08
45.2	370.2	14.29	0.122	3.0E-08
44.7	366.4	13.83	0.122	3.0E-08
44.2	362.5	13.36	0.122	3.2E-08
43.8	358.9	12.92	0.122	3.1E-08
43.4	355.7	12.53	0.122	2.9E-08
43.0	352.7	12.16	0.122	2.8E-08
42.0	344.3	11.14	0.122	2.8E-08
41.2	337.4	10.29	0.122	2.6E-08
40.4	331.0	9.51	0.122	2.6E-08
39.7	325.3	8.82	0.122	2.5E-08
39.1	320.2	8.19	0.122	2.5E-08
37.0	303.2	6.12	0.122	2.6E-08
35.3	289.2	4.41	0.122	3.1E-08
33.9	277.6	3.00	0.122	3.7E-08
32.7	267.9	1.81	0.122	5.0E-08
			AVG	**5.3E-08**

Estimated Permeability 5.3E-08 m/s

Permeability with Depth



H/H_o with Time



Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	VMKH	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 15/02/2024
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-PS-11		
EASTING	477986.16	**NORTHING**	1077079.88
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	27.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	18.400	m
Initial water level at start of test (not part of calc.)	0.050	m
Level of measuring point with respect to GL (not part of calc.)	0.020	m
Length of test zone at start of test	48.500	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

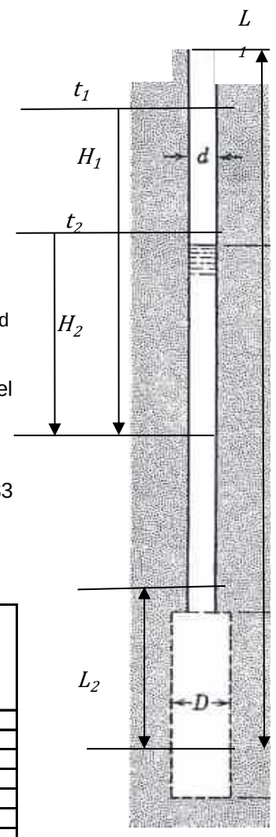
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333



L_2 = depth of water beyond casing

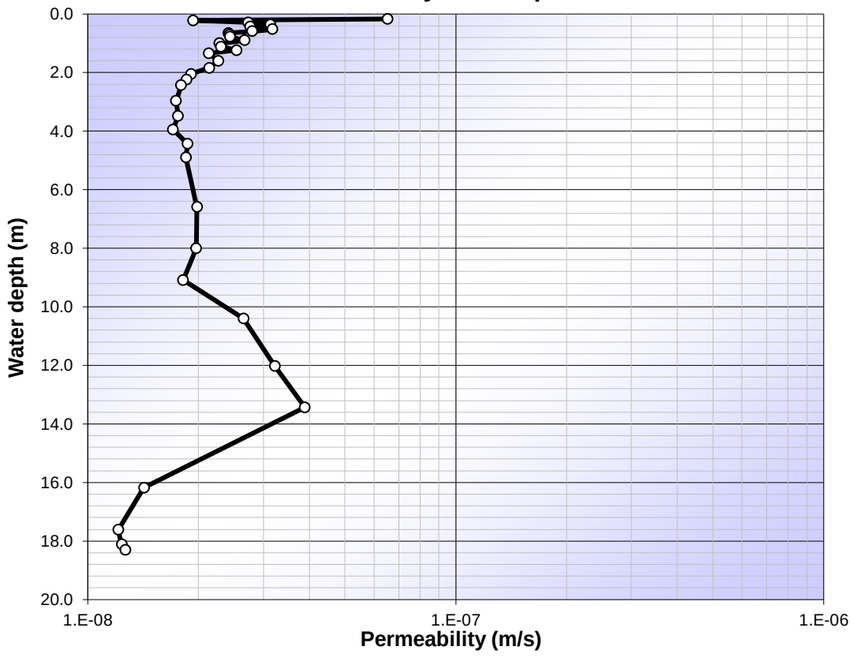
Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
0.00	0	0.000	-	-
1.00	60	0.170	170.00	Borehole
2.00	120	0.220	50.00	Borehole
3.00	180	0.290	70.00	Borehole
4.00	240	0.370	80.00	Borehole
5.00	300	0.440	70.00	Borehole
6.00	360	0.520	80.00	Borehole
7.00	420	0.590	70.00	Borehole
8.00	480	0.650	60.00	Borehole
9.00	540	0.710	60.00	Borehole
10.00	600	0.770	60.00	Borehole
12.00	720	0.900	65.00	Borehole
14.00	840	1.010	55.00	Borehole
16.00	960	1.120	55.00	Borehole
18.00	1080	1.240	60.00	Borehole
20.00	1200	1.340	50.00	Borehole
25.00	1500	1.600	52.00	Borehole
30.00	1800	1.840	48.00	Borehole
35.00	2100	2.050	42.00	Borehole
40.00	2400	2.250	40.00	Borehole
45.00	2700	2.440	38.00	Borehole
60.00	3600	2.970	35.33	Borehole
75.00	4500	3.480	34.00	Borehole
90.00	5400	3.950	31.33	Borehole
105.00	6300	4.440	32.67	Borehole
120.00	7200	4.900	30.67	Borehole
180.00	10800	6.600	28.33	Borehole
240.00	14400	8.000	23.33	Borehole
300.00	18000	9.090	18.17	Borehole
360.00	21600	10.400	21.83	Borehole
440.00	26400	12.020	20.25	Borehole
520.00	31200	13.440	17.75	Borehole
1360.00	81600	16.180	3.26	Borehole
2800.00	168000	17.620	1.00	Borehole
4240.00	254400	18.120	0.35	Borehole
5680.00	340800	18.300	0.13	Borehole

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
27.0	221.3	18.40	-	-
26.8	219.9	18.23	0.122	6.5E-08
26.8	219.5	18.18	0.122	1.9E-08
26.7	218.9	18.11	0.122	2.7E-08
26.6	218.3	18.03	0.122	3.1E-08
26.6	217.7	17.96	0.122	2.8E-08
26.5	217.0	17.88	0.122	3.2E-08
26.4	216.5	17.81	0.122	2.8E-08
26.4	216.0	17.75	0.122	2.4E-08
26.3	215.5	17.69	0.122	2.4E-08
26.2	215.0	17.63	0.122	2.4E-08
26.1	213.9	17.50	0.122	2.7E-08
26.0	213.0	17.39	0.122	2.3E-08
25.9	212.1	17.28	0.122	2.3E-08
25.8	211.1	17.16	0.122	2.5E-08
25.7	210.3	17.06	0.122	2.1E-08
25.4	208.2	16.80	0.122	2.3E-08
25.2	206.2	16.56	0.122	2.1E-08
25.0	204.5	16.35	0.122	1.9E-08
24.8	202.9	16.15	0.122	1.9E-08
24.6	201.3	15.96	0.122	1.8E-08
24.0	197.0	15.43	0.122	1.7E-08
23.5	192.8	14.92	0.122	1.8E-08
23.1	188.9	14.45	0.122	1.7E-08
22.6	184.9	13.96	0.122	1.9E-08
22.1	181.1	13.50	0.122	1.8E-08
20.4	167.2	11.80	0.122	2.0E-08
19.0	155.7	10.40	0.122	2.0E-08
17.9	146.8	9.31	0.122	1.8E-08
16.6	136.1	8.00	0.122	2.6E-08
15.0	122.8	6.38	0.122	3.2E-08
13.6	111.1	4.96	0.122	3.9E-08
10.8	88.7	2.22	0.122	1.4E-08
9.4	76.9	0.78	0.122	1.2E-08
8.9	72.8	0.28	0.122	1.2E-08
8.7	71.3	0.10	0.122	1.3E-08
			AVG	**2.3E-08**

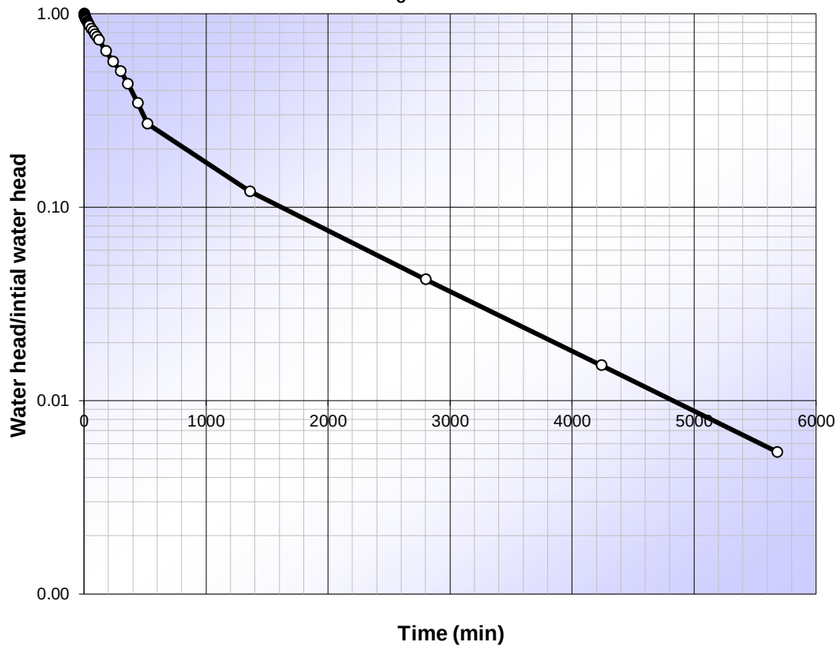
Estimated Permeability 2.3E-08 m/s

7.3

Permeability with Depth



H/H_o with Time



Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	VMKH	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 19/02/2024
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-PS-14		
EASTING	478343.19	**NORTHING**	1076877.98
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	46.500	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	21.900	m
Initial water level at start of test (not part of calc.)	0.300	m
Level of measuring point with respect to GL (not part of calc.)	0.020	m
Length of test zone at start of test	48.500	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for\ \frac{mL}{D} > 4$$

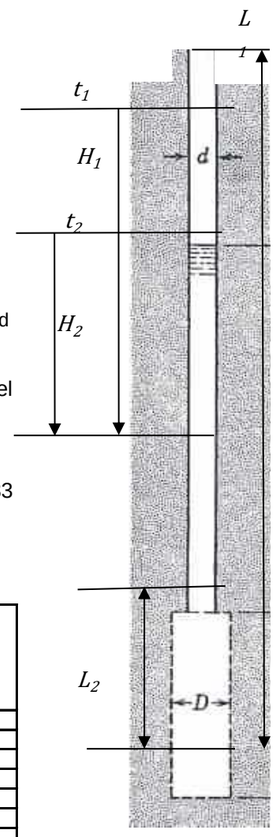
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333



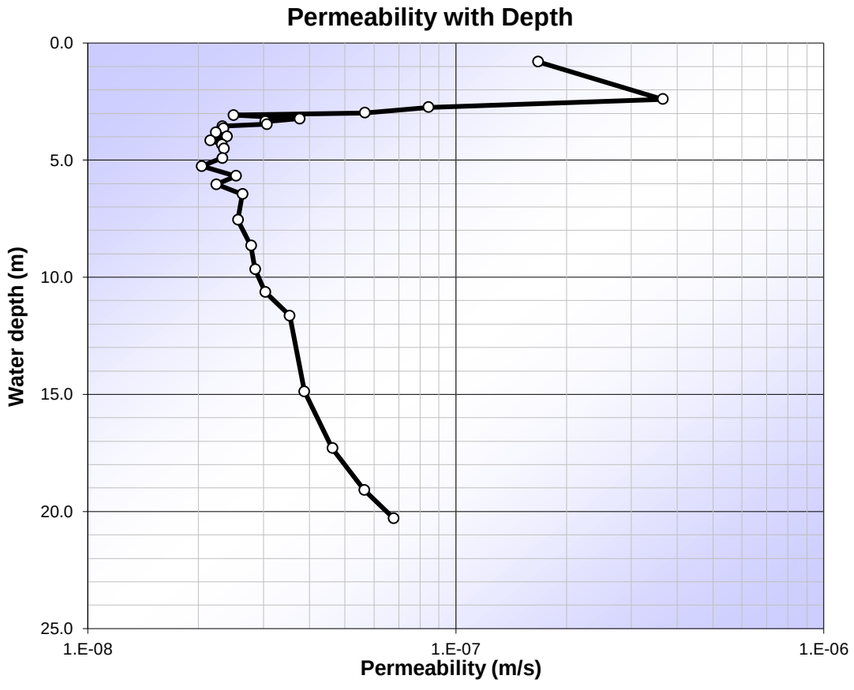
L_2 = depth of water beyond casing

Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
0.00	0	0.000	-	-
1.00	60	0.800	800.00	Borehole
2.00	120	2.400	1600.00	Borehole
3.00	180	2.750	350.00	Borehole
4.00	240	2.980	230.00	Borehole
5.00	300	3.080	100.00	Borehole
6.00	360	3.230	150.00	Borehole
7.00	420	3.350	120.00	Borehole
8.00	480	3.470	120.00	Borehole
9.00	540	3.560	90.00	Borehole
10.00	600	3.650	90.00	Borehole
12.00	720	3.820	85.00	Borehole
14.00	840	4.000	90.00	Borehole
16.00	960	4.160	80.00	Borehole
18.00	1080	4.330	85.00	Borehole
20.00	1200	4.500	85.00	Borehole
25.00	1500	4.910	82.00	Borehole
30.00	1800	5.260	70.00	Borehole
35.00	2100	5.680	84.00	Borehole
40.00	2400	6.040	72.00	Borehole
45.00	2700	6.450	82.00	Borehole
60.00	3600	7.560	74.00	Borehole
75.00	4500	8.650	72.67	Borehole
90.00	5400	9.660	67.33	Borehole
105.00	6300	10.630	64.67	Borehole
120.00	7200	11.640	67.33	Borehole
180.00	10800	14.880	54.00	Borehole
240.00	14400	17.300	40.33	Borehole
300.00	18000	19.080	29.67	Borehole
360.00	21600	20.300	20.33	Borehole

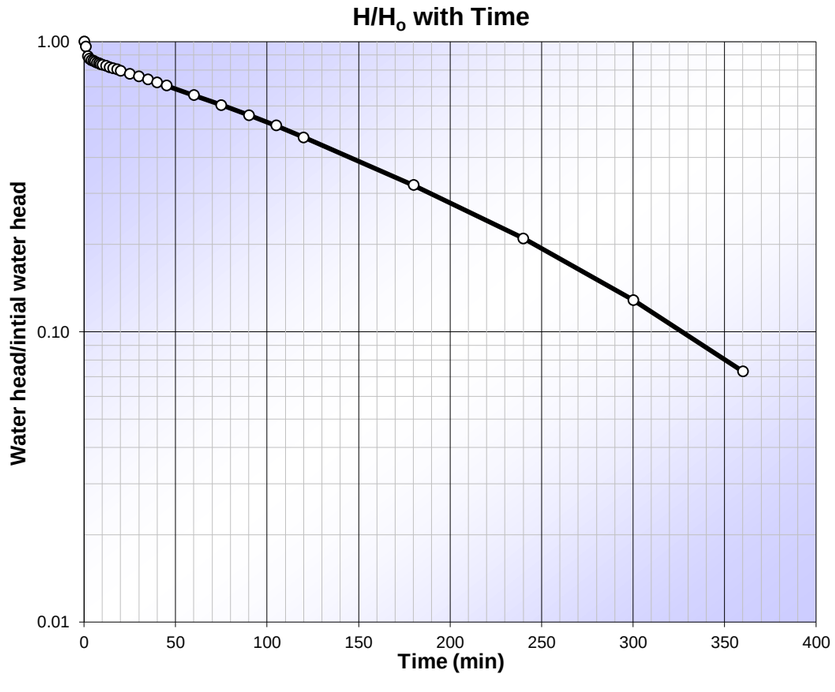
L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
46.5	381.1	21.90	-	-
45.7	374.6	21.10	0.122	1.7E-07
44.1	361.5	19.50	0.122	3.7E-07
43.8	358.6	19.15	0.122	8.4E-08
43.5	356.7	18.92	0.122	5.7E-08
43.4	355.9	18.82	0.122	2.5E-08
43.3	354.7	18.67	0.122	3.8E-08
43.2	353.7	18.55	0.122	3.0E-08
43.0	352.7	18.43	0.122	3.1E-08
42.9	352.0	18.34	0.122	2.3E-08
42.9	351.2	18.25	0.122	2.3E-08
42.7	349.8	18.08	0.122	2.2E-08
42.5	348.4	17.90	0.122	2.4E-08
42.3	347.0	17.74	0.122	2.2E-08
42.2	345.7	17.57	0.122	2.3E-08
42.0	344.3	17.40	0.122	2.3E-08
41.6	340.9	16.99	0.122	2.3E-08
41.2	338.0	16.64	0.122	2.0E-08
40.8	334.6	16.22	0.122	2.5E-08
40.5	331.6	15.86	0.122	2.2E-08
40.1	328.3	15.45	0.122	2.6E-08
38.9	319.2	14.34	0.122	2.6E-08
37.9	310.2	13.25	0.122	2.8E-08
36.8	302.0	12.24	0.122	2.8E-08
35.9	294.0	11.27	0.122	3.0E-08
34.9	285.7	10.26	0.122	3.5E-08
31.6	259.2	7.02	0.122	3.9E-08
29.2	239.3	4.60	0.122	4.6E-08
27.4	224.8	2.82	0.122	5.6E-08
26.2	214.8	1.60	0.122	6.8E-08
46.5	381.1	21.90	0.122	3.2E-08
			AVG	**3.3E-08**

Estimated Permeability 3.3E-08 m/s

Permeability with Depth



H/H_o with Time



Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	VMKH	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 20/01/2024
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-WDC-01		
EASTING	478398.16	**NORTHING**	1079575.74
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	15.000	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	2.710	m
Initial water level at start of test (not part of calc.)	0.010	m
Level of measuring point with respect to GL (not part of calc.)	0.020	m
Length of test zone at start of test	15.000	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for \ \frac{mL}{D} > 4$$

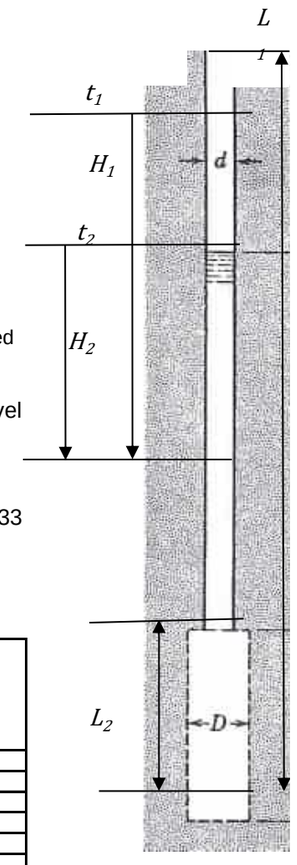
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333

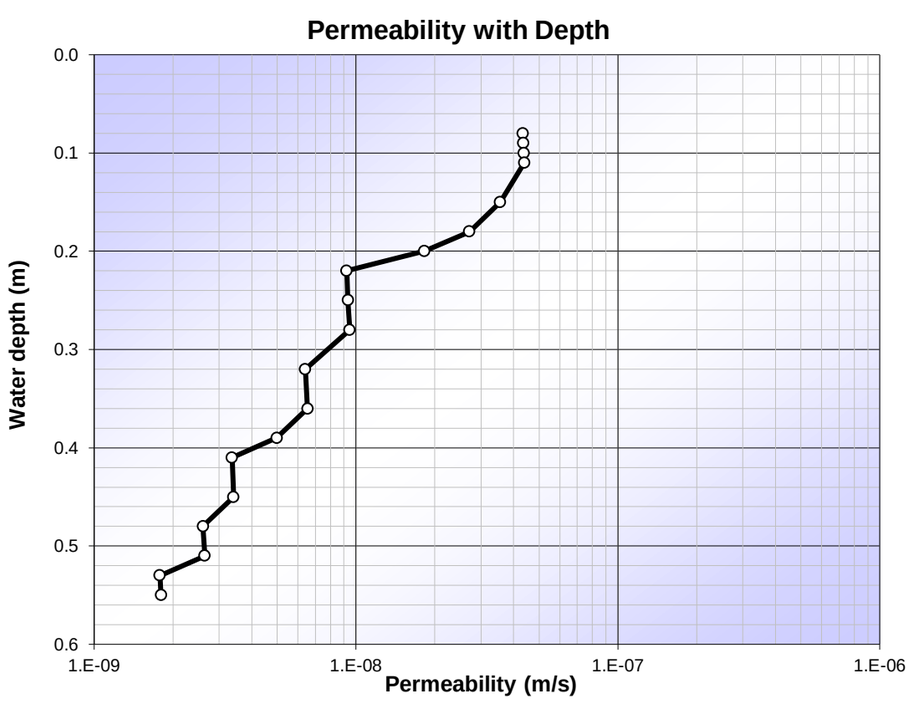


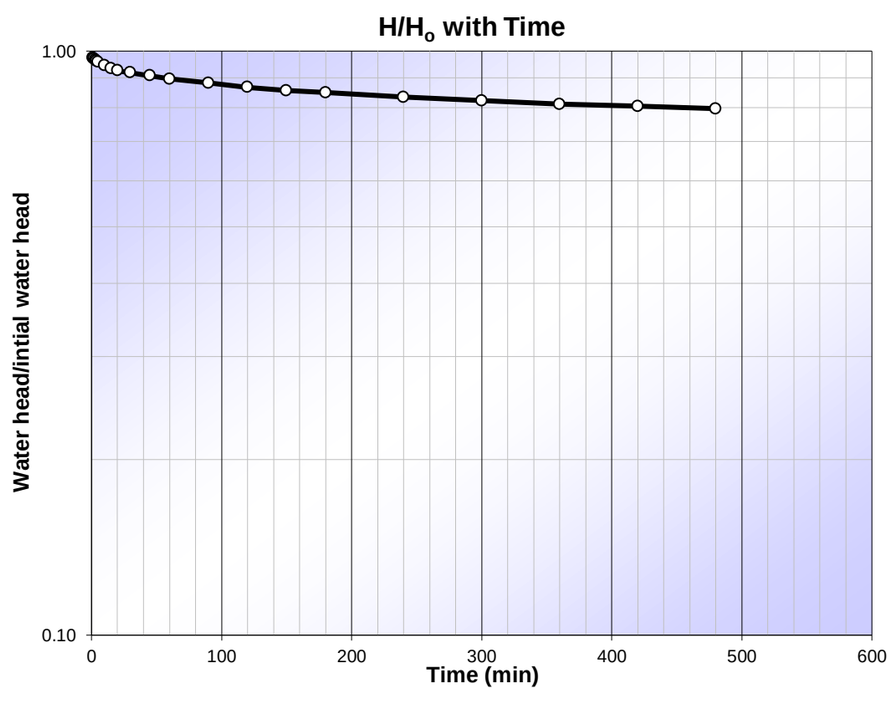
L_2 = depth of water beyond casing

Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1.00	60	0.070	-	-
2.00	120	0.080	10.00	Borehole
3.00	180	0.090	10.00	Borehole
4.00	240	0.100	10.00	Borehole
5.00	300	0.110	10.00	Borehole
10.00	600	0.150	8.00	Borehole
15.00	900	0.180	6.00	Borehole
20.00	1200	0.200	4.00	Borehole
30.00	1800	0.220	2.00	Borehole
45.00	2700	0.250	2.00	Borehole
60.00	3600	0.280	2.00	Borehole
90.00	5400	0.320	1.33	Borehole
120.00	7200	0.360	1.33	Borehole
150.00	9000	0.390	1.00	Borehole
180.00	10800	0.410	0.67	Borehole
240.00	14400	0.450	0.67	Borehole
300.00	18000	0.480	0.50	Borehole
360.00	21600	0.510	0.50	Borehole
420.00	25200	0.530	0.33	Borehole
480.00	28800	0.550	0.33	Borehole

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
14.9	122.4	2.64	-	-
14.9	122.3	2.63	0.122	4.3E-08
14.9	122.2	2.62	0.122	4.4E-08
14.9	122.1	2.61	0.122	4.4E-08
14.9	122.0	2.60	0.122	4.4E-08
14.9	121.7	2.56	0.122	3.6E-08
14.8	121.5	2.53	0.122	2.7E-08
14.8	121.3	2.51	0.122	1.8E-08
14.8	121.1	2.49	0.122	9.2E-09
14.8	120.9	2.46	0.122	9.3E-09
14.7	120.7	2.43	0.122	9.5E-09
14.7	120.3	2.39	0.122	6.4E-09
14.6	120.0	2.35	0.122	6.5E-09
14.6	119.8	2.32	0.122	5.0E-09
14.6	119.6	2.30	0.122	3.4E-09
14.6	119.3	2.26	0.122	3.4E-09
14.5	119.0	2.23	0.122	2.6E-09
14.5	118.8	2.20	0.122	2.6E-09
14.5	118.6	2.18	0.122	1.8E-09
14.5	118.4	2.16	0.122	1.8E-09
			AVG	**1.7E-08**

Estimated Permeability 1.7E-08 m/s





Calculation sheet from Form T4.3.1.1.45 Rev B

Knight Piésold CONSULTING	Project	Doropo Gold Project	Made by	VMKH	Job No. PE301-00821/05
	Subject	Feasibility Study Geotechnical Site Investigation	Checked		Date 20/01/2024
		Falling Head Permeability	Approved		

BOREHOLE ID	BH-HDC-01		
EASTING	486549.35	**NORTHING**	1074124.54
GROUND CONDITIONS:			

Borehole diameter in test zone (uncased), (D)	0.122	m
Area of test zone	0.0117	m^2
Casing/ installation dia. (d) (if none d = D)	0.122	m
Length of hole (L_1)	20.800	m
Depth to base of casing/ sealed zone	0.000	m
Rest water depth prior to test (if dry = L_1)	8.350	m
Initial water level at start of test (not part of calc.)	0.300	m
Level of measuring point with respect to GL (not part of calc.)	0.020	m
Length of test zone at start of test	20.800	m

All lengths/ depths are from the measuring point and not GL, i.e. if there is an upstand to the installation then the top of the upstand is the measuring point.

EQUATIONS

$$k_1 = \frac{d^2 \ln\left[\left(\frac{mL}{D}\right) + \sqrt{1 + \left(\frac{mL}{D}\right)^2}\right]}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2}$$

$$k_2 = \frac{d^2 \ln\left(\frac{2mL}{D}\right)}{8L(t_2 - t_1)} \ln\frac{H_1}{H_2} \quad for \ \frac{mL}{D} > 4$$

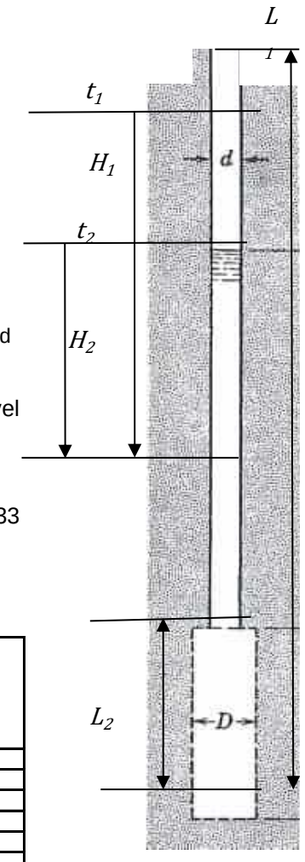
Hvorslev, M.J. (1951); the second form of the equation is a simplified version of the first. k_1 is used in the calculation.

Assumptions

1. m = 1
2. Ground homogenous

Rest water level

0.83333333

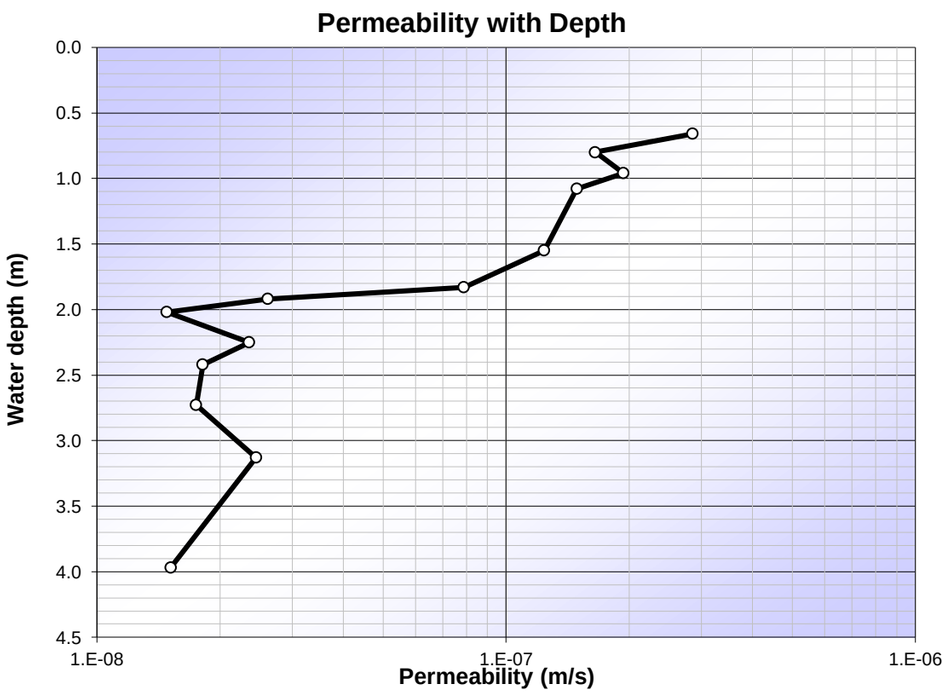


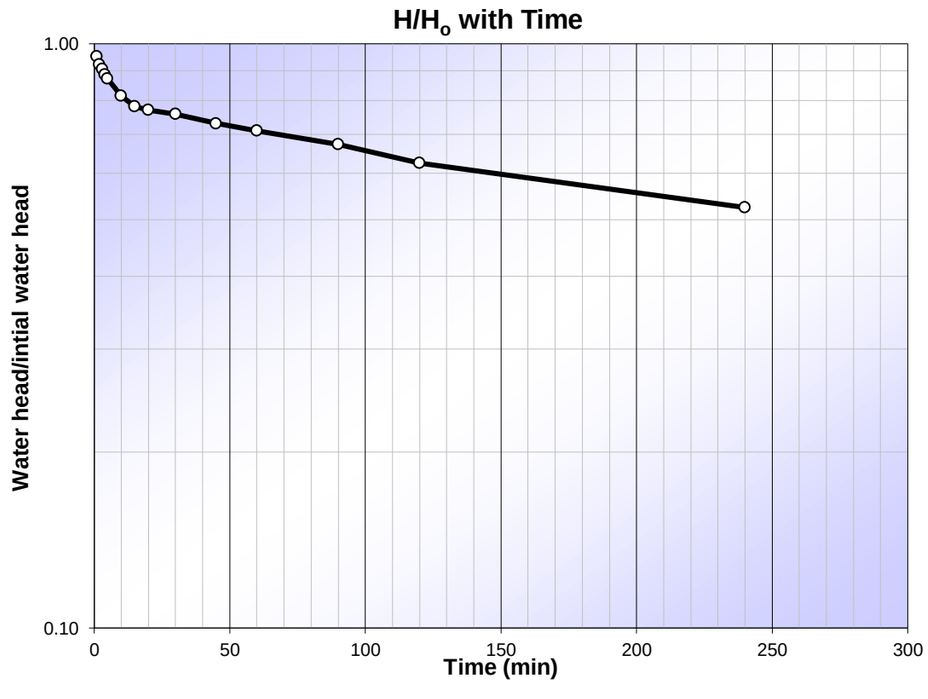
Time (min)	Time (sec)	Water Depth from Measuring Point (m)	Fall (mm/min)	Water drop through..
1.00	60	0.410	-	-
2.00	120	0.660	250.00	Borehole
3.00	180	0.800	140.00	Borehole
4.00	240	0.960	160.00	Borehole
5.00	300	1.080	120.00	Borehole
10.00	600	1.550	94.00	Borehole
15.00	900	1.830	56.00	Borehole
20.00	1200	1.920	18.00	Borehole
30.00	1800	2.020	10.00	Borehole
45.00	2700	2.250	15.33	Borehole
60.00	3600	2.420	11.33	Borehole
90.00	5400	2.730	10.33	Borehole
120.00	7200	3.130	13.33	Borehole
240.00	14400	3.970	7.00	Borehole

L_2 = depth of water beyond casing

L_2 (m)	L/D (-)	H (m)	d (m)	k (m/s)
20.4	167.1	7.94	-	-
20.1	165.1	7.69	0.122	2.9E-07
20.0	163.9	7.55	0.122	1.7E-07
19.8	162.6	7.39	0.122	1.9E-07
19.7	161.6	7.27	0.122	1.5E-07
19.3	157.8	6.80	0.122	1.2E-07
19.0	155.5	6.52	0.122	7.9E-08
18.9	154.8	6.43	0.122	2.6E-08
18.8	153.9	6.33	0.122	1.5E-08
18.6	152.0	6.10	0.122	2.4E-08
18.4	150.7	5.93	0.122	1.8E-08
18.1	148.1	5.62	0.122	1.7E-08
17.7	144.8	5.22	0.122	2.4E-08
16.8	138.0	4.38	0.122	1.5E-08
			AVG	**8.7E-08**

Estimated Permeability 8.7E-08 m/s





\\pefs2\PEProjects\PE301-00821 Doropo_Gold_Project\Site_Data\SI\2023 Site Investigation\FHT\FHT others

APPENDIX C

Test Pit Log and Photographs

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-01**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, pale brown, dry, loose. TOPSOIL	
0.4m			**GRAVEL**, clayey, with sand, medium plasticity fines, orange brown, dry to slightly moist, medium dense. LATERITE Sand particles are fine to coarse grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and medium strength.	BULK
1m			**CLAY**, sandy, with gravel, medium plasticity, yellow brown, moist (dry of plastic limit), hard. FERRICRETE Sand particles are fine to coarse grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and medium strength.	BULK
4m			Test pit TP-TSF-01 terminated at depth 4 m	

NOTES:
1. Excavation stopped at 4m as planned.
2. Many roots were found up to 0.4m depth
3. Seepage was not observed.
4. Pit was stable.
5. Coordinates are taken using handheld GPS (+/- 5m). Site local grid based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**23/01/2024**	**EASTING:**	**478954 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**23/01/2024**	**NORTHING:**	**1079384 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.0 x 5.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-02**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, trace gravel, dark brown, dry, very loose to loose. TOPSOIL Sand particles are fine grained and sub-rounded.	
0.4m			**SAND**, with clay, low plasticity fines, pale brown, slightly moist, medium dense. ALLUVIUM Sand particles are medium to coarse grained and sub-rounded.	BULK
1.55m			**SAND**, clayey, medium plasticity fines, pale grey, dry to slightly moist, medium dense to dense. RESIDUAL Sand particles are fine to medium grained and sub-angular to angular.	BULK
3.7m			Test pit TP-TSF-02 terminated at depth 3.7 m	

▼ Water Level Indicator

NOTES:
1. Excavation stopped at 3.7 m.
2. Few roots were found up to 0.4m depth.
3. Seepage was observed at 1.50m.
4. Pit was not Stable.

CONTRACTOR : NATCO	**DATE EXCAVATED: 22/12/2023**	**EASTING: 478696 m**
MACHINE : Excavator 330DL	**DATE PROFILED: 22/12/2023**	**NORTHING: 1079323 m**
LOGGED BY : Traore		
CHECKED BY :	**EXCAVATION SIZE: 1.2 x 6.0**	**ELEVATION: m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-03**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, dark brown, dry, loose. TOPSOIL Sand particles are fine grained and sub-rounded.	
0.4m			**GRAVEL**, with sand, trace clay, low plasticity fines, red brown, dry to slightly moist, medium dense. COLLUVIUM Sand particles are fine to coarse grained and sub-rounded. Gravel particles are medium to coarse grained, sub-rounded and low strength.	BULK
2.4m			**SAND**, clayey, medium plasticity fines, pale grey, dry to slightly moist, medium dense to dense. RESIDUAL Sand particles are fine to medium grained and sub-angular to angular.	BULK
3.7m			Test pit TP-TSF-03 terminated at depth 3.7 m	

NOTES:
1. Excavation stopped at 3.7 m.
2. Few roots were found up to 0.4m depth.
3. Seepage was not observed.
4. Pit was Stable.

CONTRACTOR : NATCO
MACHINE : Excavator 330DL

LOGGED BY : Traore
CHECKED BY :

DATE EXCAVATED: 26/12/2023
DATE PROFILED: 26/12/2023
EXCAVATION SIZE: 1.2 x 6.0

EASTING: 479233.3 m
NORTHING: 1078591 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-04**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, with clay, medium to high plasticity fines, dark grey, dry, loose. TOPSOIL Sand particles are medium grained and sub-angular.	
0.8m			**SAND**, with clay, low plasticity fines, yellow brown, moist to wet, medium dense. ALLUVIUM Sand particles are medium to coarse grained and sub-rounded.	BULK
2.3m			**CLAY**, sandy, medium plasticity, cream, moist (wet of plastic limit), firm. ALLUVIUM	BULK
3.9m			Test pit TP-TSF-04 terminated at depth 3.9 m	

NOTES:
1. Excavation stopped at 3.9 m.
2. Few roots were found up to 8.5m depthwith medium size.
3. Seepage was not observed.
4. Pit was not Stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**19/12/2023**	**EASTING:**	**479059.9 m**
MACHINE	**: Excavator 321**	**DATE PROFILED:**	**19/12/2023**	**NORTHING:**	**1078404.9 m**
LOGGED BY	**: Ilyas**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-05**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, dark brown. TOPSOIL Sand particles are fine grained and sub-rounded.	
0.5			0.5m **GRAVEL**, clayey, with sand, medium plasticity fines, orange brown, dry to slightly moist, dense. COLLUVIUM Sand particles are medium to coarse grained and sub-angular. Gravel particles are fine to medium grained, sub-angular and low strength.	
1.8			1.8m **CLAY**, sandy, medium plasticity, yellow brown, moist (dry of plastic limit), very stiff to hard. RESIDUAL Sand particles are medium to coarse grained and sub-angular.	
2.4			2.4m **SAND**, silty, with gravel, non-plastic fines, cream. EXTREMELY WEATHERED MATERIAL Gravel particles are fine to medium grained, sub-rounded to sub-angular and very low to low strength. Parent rock structure evident.	BULK
3.8			3.8m Test pit TP-TSF-05 terminated at depth 3.8 m	

NOTES:
1. Excavation stopped at 3.8m.
2. Few roots were found up to 0.5m depthwith medium size.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**19/12/2023**	**EASTING:**	**462686 m**
MACHINE	**: Excavator 321**	**DATE PROFILED:**	**19/12/2023**	**NORTHING:**	**1057560 m**
LOGGED BY	**: Ilyas**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-06**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SILT, sandy, trace gravel, non-plastic, pale grey, moist (dry of plastic limit). TOPSOIL	
0.3m			Topsoil was partially cleared.	
0.5			**CLAY**, sandy, with gravel, medium plasticity, orange brown, moist (dry of plastic limit), very stiff. LATERITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and medium strength.	BULK
1.0				
1.1m			**CLAY**, gravelly, with sand, medium plasticity, orange brown, moist (dry of plastic limit), hard. LATERITE Sand particles are fine to coarse grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and medium strength.	
1.5				
2.0				BULK
2.5				
2.9m			Test pit TP-TSF-06 terminated at depth 2.9 m	
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation stopped at 2.9m. Hard formation
2. Many roots to 0.3m depth
3. Seepage was not observed.
4. Pit was stable.
5. Coordinate taken using handheld GPS (+/- 5m). Site local grid based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**22/01/2024**	**EASTING:**	**477534.1 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**22/01/2024**	**NORTHING:**	**1078048 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.0 x 5.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-07**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, with gravel, red brown, dry. TOPSOIL	
0.4m			**SAND**, gravelly, red brown, dry, loose. COLLUVIUM Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-angular and low strength.	BULK
2m			**SAND**, trace clay, low plasticity fines, yellow, dry to slightly moist, medium dense. RESIDUAL Sand particles are fine to medium grained and sub-angular to angular.	BULK
3.5m			Test pit TP-TSF-07 terminated at depth 3.5 m	

NOTES:
1. Excavation stopped at 3.5 m.
2. Few roots were found up to 0.4m depth
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**22/12/2023**	**EASTING:**	**478870.1 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**22/12/2023**	**NORTHING:**	**1079562.1 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-08**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, dark brown, very loose to loose. TOPSOIL Sand particles are fine to medium grained and sub-rounded.	
0.5			0.5m **GRAVEL**, with sand, orange brown, dry, medium dense. COLLUVIUM Sand particles are fine grained and sub-angular. Gravel particles are medium to coarse grained, sub-angular and low strength.	BULK
1.7			1.7m Test pit TP-TSF-08 terminated at depth 1.7 m	

NOTES:
1. Excavation stopped at 1.70 m.
2. Few roots were found up to 0.5m depth
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**26/12/2023**	**EASTING:**	**479173.3 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**26/12/2023**	**NORTHING:**	**1079249.4 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-09**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, dark brown, very loose to loose. TOPSOIL	
0.3m			Sand particles are fine to medium grained and sub-rounded.	
			GRAVEL, with sand, trace clay, low plasticity fines, red brown, dry to slightly moist, medium dense. COLLUVIUM	
			Sand particles are fine grained and sub-rounded. Gravel particles are medium to coarse grained, sub-angular and low strength.	BULK
2m			**CLAY**, with sand, medium plasticity, pale grey, moist (dry of plastic limit), very stiff to hard. RESIDUAL	
			Sand particles are medium to coarse grained and sub-angular to angular.	BULK
3.3m			Test pit TP-TSF-09 terminated at depth 3.3 m	

NOTES:
1. Excavation stopped at 3.30 m.
2. Few roots were found up to 0.3m depth
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR : NATCO	**DATE EXCAVATED: 26/12/2023**	**EASTING: 479257 m**
MACHINE : Excavator 330DL	**DATE PROFILED: 26/12/2023**	**NORTHING: 1078782.9 m**
LOGGED BY : Traore		
CHECKED BY :	**EXCAVATION SIZE: 1.2 x 6.0**	**ELEVATION: m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-10**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, brown, very loose to loose. TOPSOIL	
0.2m			Sand particles are fine to medium grained and sub-rounded.	
0.5			**SAND**, gravelly, red brown, dry, medium dense. COLLUVIUM Sand particles are fine to medium grained and sub-rounded. Gravel particles are medium to coarse grained, sub-rounded and low strength.	BULK
1.0				
1.5				
2.0				
2.5				
2.6m			Test pit TP-TSF-10 terminated at depth 2.6 m	
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation stopped at 2.60m.
2. Few roots were found up to 0.20m depth
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**6/01/2024**	**EASTING:**	**477837.2 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**8/01/2024**	**NORTHING:**	**1077757.2 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-11**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, brown, very loose to loose. TOPSOIL	
0.3m			Sand particles are fine to medium grained and sub-rounded.	
			SAND, with gravel, trace clay, low plasticity fines, red brown, medium dense. COLLUVIUM	
0.5			Sand particles are fine grained and sub-rounded. Gravel particles are medium grained and sub-rounded.	
1.0				BULK
1.5				
1.8m			**SAND**, clayey, medium plasticity fines, yellow brown, dry to slightly moist, medium dense to dense. RESIDUAL	
2.0			Sand particles are fine to medium grained and sub-angular to angular.	
2.5				
3.0				BULK
3.5				
4.0			4m Test pit TP-TSF-11 terminated at depth 4 m	
4.5				
5.0				

NOTES:
1. Excavation stopped at 4.00 m.
2. Many roots were found up to 0.30m depth.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**6/01/2024**	**EASTING:**	**478214.6 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**6/01/2024**	**NORTHING:**	**1077607.3 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-12**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, dark brown, very loose to loose. TOPSOIL	
0.2m			Sand particles are fine to medium grained and sub-rounded.	
0.5			**GRAVEL**, sandy, red brown, dry, medium dense. COLLUVIUM Sand particles are medium grained and sub-rounded. Gravel particles are fine to coarse grained, sub-angular and low strength.	
1.0				BULK
1.5				
2.0				
2.2m			Test pit TP-TSF-12 terminated at depth 2.2 m	
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation stopped at 2.20 m.
2. Few roots were found up to 0.2m depth
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**26/12/2023**	**EASTING:**	**479199.6 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**26/12/2023**	**NORTHING:**	**1078914.2 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-13**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, dark brown, very loose to loose. TOPSOIL Sand particles are fine to medium grained and sub-rounded.	
0.4m			**SAND**, with clay, low plasticity fines, yellow brown, slightly moist, loose to medium dense. ALLUVIUM Sand particles are fine to medium grained and sub-rounded.	BULK
2.2m			**CLAY**, sandy, medium plasticity, green, moist (dry of plastic limit), very stiff to hard. RESIDUAL Sand particles are fine grained and sub-angular.	BULK
3.7m			Test pit TP-TSF-13 terminated at depth 3.7 m	

NOTES:
1. Excavation stopped at 3.70 m.
2. Few roots were found up to 0.4m depth
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR : NATCO
MACHINE : Excavator 330DL

LOGGED BY : Traore
CHECKED BY :

DATE EXCAVATED: 26/12/2023
DATE PROFILED: 26/12/2023
EXCAVATION SIZE: 1.2 x 6.0

EASTING: 479002.5 m
NORTHING: 1078536.3 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-14**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, dark brown, loose. TOPSOIL Sand particles are fine to medium grained and sub-angular.	
0.5			0.5m **GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, medium dense. COLLUVIUM Sand particles are medium to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded and low strength.	BULK
1.0				BULK
1.5				
2.0			2m **CLAY**, sandy, medium plasticity, cream, moist (dry of plastic limit), very stiff to hard. RESIDUAL	BULK
2.5				
3.0				BULK
3.5				
3.9			3.9m Test pit TP-TSF-14 terminated at depth 3.9 m	
4.0				
4.5				
5.0				

NOTES:
1. Excavation stopped at 3.9 m.
2. Few roots were found up to 0.5m depth with medium size.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**18/12/2023**	**EASTING:**	**478908.4 m**
MACHINE	**: Excavator 321**	**DATE PROFILED:**	**18/12/2023**	**NORTHING:**	**1078090.1 m**
LOGGED BY	**: Ilyas**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-15**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, dark brown, loose. TOPSOIL Sand particles are fine to medium grained and sub-angular.	
0.8m			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, medium dense. COLLUVIUM Sand particles are medium to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded and low strength.	BULK
2.65m			**CLAY**, with sand, medium plasticity, cream, moist (dry of plastic limit), very stiff. RESIDUAL Sand particles are fine to medium grained and sub-angular.	BULK
3.7m			Test pit TP-TSF-15 terminated at depth 3.7 m	

NOTES:
1. Excavation stopped at 3.7 m.
2. Few roots were found up to 0.5m depth with medium size.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**20/12/2023**	**EASTING:**	**477764.3 m**
MACHINE	**: Excavator 321**	**DATE PROFILED:**	**20/12/2023**	**NORTHING:**	**1078735.1 m**
LOGGED BY	**: Ilyas**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-16**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, yellow brown, loose. TOPSOIL Sand particles are fine to medium grained and sub-angular.	
0.6m			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, medium dense. COLLUVIUM Sand particles are medium to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded and low strength.	BULK
2.2m			**CLAY**, with sand, medium plasticity, cream, moist (dry of plastic limit), very stiff. RESIDUAL Sand particles are fine to medium grained and sub-angular.	BULK
3.5m			Test pit TP-TSF-16 terminated at depth 3.5 m	

NOTES:
1. Excavation stopped at 3.5 m.
2. Few roots were found up to 0.6m depth with medium size.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**21/12/2023**	**EASTING:**	**478310.7 m**
MACHINE	**: Excavator 321**	**DATE PROFILED:**	**21/12/2023**	**NORTHING:**	**1079476.1 m**
LOGGED BY	**: Ilyas**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-17**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, brown, very loose to loose. TOPSOIL Sand particles are fine to medium grained and sub-rounded.	
0.4m			**SAND**, gravelly, with clay, low plasticity fines, red brown, dry to slightly moist, loose. COLLUVIUM Sand particles are fine to medium grained and sub-rounded. Gravel particles are medium grained, sub-rounded and low strength.	BULK
1.7m			**CLAY**, sandy, medium plasticity, orange brown, moist (dry of plastic limit), very stiff to hard. RESIDUAL Sand particles are fine grained and sub-angular.	BULK
3.4m			Test pit TP-TSF-17 terminated at depth 3.4 m	

NOTES:
1. Excavation stopped at 3.40 m.
2. Few roots were found up to 0.4m depth
3.Seepage was not observed.
4. Pit was stable.

CONTRACTOR : NATCO
MACHINE : Excavator 330DL
LOGGED BY : Traore
CHECKED BY :

DATE EXCAVATED: 5/01/2024
DATE PROFILED: 5/01/2024
EXCAVATION SIZE: 1.2 x 6.0

EASTING: 478581.1 m
NORTHING: 1077576 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-18**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, dark brown, loose. TOPSOIL Sand particles are fine to medium grained and sub-angular.	
0.4m			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, medium dense. COLLUVIUM Sand particles are medium to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded and low strength.	BULK
2.2m			**CLAY**, trace sand, medium to high plasticity, green, moist (dry of plastic limit), very stiff to hard. RESIDUAL	BULK
3.3m			Test pit TP-TSF-18 terminated at depth 3.3 m	

NOTES:
1. Excavation stopped at 3.3 m.
2. Few roots were found up to 0.4m depth with medium size.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**21/12/2023**	**EASTING:**	**478288.5 m**
MACHINE	**: Excavator 321**	**DATE PROFILED:**	**21/12/2023**	**NORTHING:**	**1079238.6 m**
LOGGED BY	**: Ilyas**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-19**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, dark brown, loose. TOPSOIL	
0.2m			Sand particles are fine to medium grained and sub-angular. **CLAY**, with sand, medium plasticity, pale grey, moist (dry of plastic limit), firm. ALLUVIUM	
0.5				
0.7m			Sand particles are medium to coarse grained and sub-rounded. **SAND**, trace clay, low plasticity fines, yellow brown, dry to slightly moist, loose. ALLUVIUM	
1.0			Sand particles are medium to coarse grained and sub-rounded.	BULK
▼ 1.3				
1.4m			**SAND**, with clay, low plasticity fines, cream, dry to slightly moist, dense. RESIDUAL	
1.5			Sand particles are medium to coarse grained and sub-angular.	
2.0				
2.5				BULK
3.0				
3.5				
3.9m			Test pit TP-TSF-19 terminated at depth 3.9 m	
4.0				
4.5				
5.0				

NOTES:
1. Excavation stopped at 3.9 m.
2. Few roots were found up to 8.5m depth with medium size.
3. Seepage at 1.3m trickle inflow.
4. Pit not Stable.

▼ **Water Level Indicator**

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**21/12/2023**	**EASTING:**	**478698.2 m**
MACHINE	**: Excavator 321**	**DATE PROFILED:**	**21/12/2023**	**NORTHING:**	**1079512.2 m**
LOGGED BY	**: Ilyas**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-20**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, pale brown, dry, loose. TOPSOIL Topsoil was partially cleared.	
0.4m			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, dense. FERRICRETE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and medium strength.	BULK
1.4m			**CLAY**, sandy, trace gravel, high plasticity, yellow brown, moist (dry of plastic limit), hard. SAPROLITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and medium strength.	BULK
3m			Test pit TP-TSF-20 terminated at depth 3 m	

NOTES:
1. Excavation stopped at 3.0m. Hard formation
2. Few roots were found up to 0.4m depth.
3. Seepage was not observed.
4. Pit was stable.
5. Coordinate taken using handheld GPS (+/- 5m). Site local grid based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 23/01/2024
DATE PROFILED: 23/01/2024
EXCAVATION SIZE: 1.9 x 6.0

EASTING: 478437 m
NORTHING: 1079450 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-21**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, yellow brown, loose. TOPSOIL Sand particles are fine to medium grained and sub-angular.	
0.6m			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, medium dense. COLLUVIUM Sand particles are medium to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded and low strength.	BULK
3m			**CLAY**, trace sand, medium to high plasticity, green, moist (dry of plastic limit), very stiff to hard. RESIDUAL	BULK
3.9m			Test pit TP-TSF-21 terminated at depth 3.9 m	

NOTES:
1. Excavation stopped at 3.9 m.
2. Few roots were found up to 0.6m depth with medium size.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**20/12/2023**	**EASTING:**	**478162.5 m**
MACHINE	**: Excavator 321**	**DATE PROFILED:**	**20/12/2023**	**NORTHING:**	**1079361.2 m**
LOGGED BY	**: Ilyas**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-22**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, pale brown, dry, loose. TOPSOIL	
0.3m			Topsoil was partially cleared.	
			GRAVEL, sandy, trace clay, low plasticity fines, red brown, dry to slightly moist, very dense. LETERITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and medium strength.	BULK
1.3m			Test pit TP-TSF-22 terminated at depth 1.3 m	

NOTES:
1. Excavation Refusal at 1.30m (Very dense formation).
2. Few roots were found up to 0.3m depth.
3. Seepage was not observed.
4. Pit was stable.
5. Coordinate taken using handheld GPS (+/- 5m). Site local grid based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**23/01/2024**	**EASTING:**	**479378 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**23/01/2024**	**NORTHING:**	**1079014 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.0 x 5.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-23**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, trace clay, dark brown, very loose to loose. TOPSOIL	
0.3m			Sand particles are fine to medium grained and sub-rounded.	
			CLAY, with sand, medium plasticity, red brown, moist (dry of plastic limit), very stiff to hard. ALLUVIUM Sand particles are medium to coarse grained and sub-angular to angular.	BULK
2.4m			**SAND**, trace clay, low plasticity fines, dark grey, slightly moist, medium dense. ALLUVIUM Sand particles are medium to coarse grained and sub-rounded.	BULK
4.2m			Test pit TP-TSF-23 terminated at depth 4.2 m	

NOTES:
1. Excavation stopped at 4.20 m.
2. Few roots were found up to 0.3m depth.
3. Seepage was not observed.
4. Pit was not stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**27/12/2023**	**EASTING:**	**478640.2 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**27/12/2023**	**NORTHING:**	**1078568.7 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-24**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			CLAY, with sand, low plasticity, dark brown, firm. TOPSOIL	
0.3m			Sand particles are fine to medium grained and sub-rounded.	
			SAND, trace clay, low plasticity fines, brown, slightly moist, medium dense. ALLUVIUM	
			Sand particles are medium grained and sub-rounded.	BULK
3m			**SAND**, pale grey, slightly moist. RESIDUAL	
			Sand particles are fine to medium grained and sub-angular to angular.	BULK
4m			Test pit TP-TSF-24 terminated at depth 4 m	

NOTES:
1. Excavation stopped at 4.00 m.
2. Few roots were found up to 0.3m depth.
3. Seepage was observed.
4. Pit was not stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**27/12/2023**	**EASTING:**	**478331.7 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**27/12/2023**	**NORTHING:**	**1078740.4 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-25**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, dark brown, very loose to loose. TOPSOIL Sand particles are fine to medium grained and sub-rounded.	
0.4m			**GRAVEL**, sandy, red brown, dry, loose. COLLUVIUM Sand particles are medium grained and sub-rounded. Gravel particles are medium to coarse grained, sub-rounded and low strength.	BULK
2.4m			**SAND**, clayey, medium plasticity fines, green, dry to slightly moist, medium dense. RESIDUAL Sand particles are fine to medium grained and sub-angular to angular.	BULK
3.8m			Test pit TP-TSF-25 terminated at depth 3.8 m	

NOTES:
1. Excavation stopped at 3.8 m.
2. Few roots were found up to 0.4m depth.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**28/12/2023**	**EASTING:**	**478393.4 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**28/12/2023**	**NORTHING:**	**1078347 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-26**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, dark brown, very loose to loose. TOPSOIL	
0.3m			Sand particles are fine to medium grained and sub-rounded.	
			GRAVEL, sandy, with clay, low plasticity fines, red brown, dry to slightly moist, loose. COLLUVIUM Sand particles are medium grained and sub-rounded. Gravel particles are medium to coarse grained, sub-rounded and low strength.	BULK
2.3m			**SAND**, trace clay, low plasticity fines, grey, slightly moist, medium dense. RESIDUAL Sand particles are fine to medium grained and sub-angular to angular.	BULK
3.7m			Test pit TP-TSF-26 terminated at depth 3.7 m	

NOTES:
1. Excavation stopped at 3.70 m.
2. Few roots were found up to 0.3m depth.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**28/12/2023**	**EASTING:**	**478833.6 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**28/12/2023**	**NORTHING:**	**1078227.1 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-27**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, dark brown, dry, loose. TOPSOIL Sand particles are fine to medium grained and sub-angular.	
1.1m			**SAND**, with clay, low plasticity fines, yellow brown, moist to wet, medium dense. ALLUVIUM Sand particles are medium to coarse grained and sub-rounded.	BULK
2.3m			**CLAY**, sandy, grey, moist (near plastic limit), stiff. ALLUVIUM Sand particles are medium grained and sub-rounded.	BULK
4m			Test pit TP-TSF-27 terminated at depth 4 m	

NOTES:
1. Excavation stopped at 4.0 m.
2. Few roots were found up to 1.5m depth with medium size.
3. Seepage was observed at 2.0m with trickle inflow.
4. Pit was not stable.

▼ **Water Level Indicator**

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**20/12/2023**	**EASTING:**	**477995.3 m**
MACHINE	**: Excavator 321**	**DATE PROFILED:**	**20/12/2023**	**NORTHING:**	**1078888.3 m**
LOGGED BY	**: Ilyas**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-28**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, dark brown, very loose to loose. TOPSOIL Sand particles are fine to medium grained and sub-rounded.	
0.4m			**CLAY**, gravelly, with sand, low plasticity, red brown, moist (dry of plastic limit), stiff. COLLUVIUM Sand particles are fine grained and sub-rounded. Gravel particles are fine to medium grained, sub-angular and low strength.	BULK
1.5m			**CLAY**, with sand, medium plasticity, cream, moist (dry of plastic limit), very stiff to hard. RESIDUAL Sand particles are medium to coarse grained and sub-angular to angular.	BULK
3.3m			Test pit TP-TSF-28 terminated at depth 3.3 m	

NOTES:
1. Excavation stopped at 3.3 m.
2. Few roots were found up to 0.4m depth.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR : NATCO
MACHINE : Excavator 330DL

LOGGED BY : Traore
CHECKED BY :

DATE EXCAVATED: 22/12/2023
DATE PROFILED: 22/12/2023
EXCAVATION SIZE: 1.2 x 6.0

EASTING: 478954.6 m
NORTHING: 1079385.6 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-29**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, dark brown, dry, very loose. TOPSOIL Sand particles are fine to medium grained and sub-rounded.	
0.5			0.5m **GRAVEL**, clayey, with sand, low plasticity fines, red brown, dry to slightly moist, medium dense. COLLUVIUM Sand particles are fine grained and sub-angular. Gravel particles are medium to coarse grained, sub-angular to angular and low strength.	
1.0				BULK
1.5				
			1.7m **SAND**, with clay, medium plasticity fines, red brown, slightly moist, medium dense. RESIDUAL Sand particles are medium to coarse grained and sub-angular to angular.	
2.0				
2.5				
3.0				BULK
3.5				
4.0			4.1m Test pit TP-TSF-29 terminated at depth 4.1 m	
4.5				
5.0				

NOTES:
1. Excavation stopped at 4.1 m.
2. Few roots were found up to 0.5m depth.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR : NATCO	**DATE EXCAVATED: 22/12/2023**	**EASTING: 479010 m**
MACHINE : Excavator 330DL	**DATE PROFILED: 22/12/2023**	**NORTHING: 1079221 m**
LOGGED BY : Traore		
CHECKED BY :	**EXCAVATION SIZE: 1.2 x 6.0**	**ELEVATION: m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-30**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, dark brown, loose. TOPSOIL Sand particles are fine to medium grained and sub-angular.	
0.4m			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, medium dense. COLLUVIUM Sand particles are medium to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded and low strength.	BULK
1.8m			**CLAY**, with sand, medium plasticity, yellow brown, moist (dry of plastic limit), very stiff to hard. RESIDUAL Sand particles are fine to medium grained and sub-angular to angular.	BULK
3.7m			Test pit TP-TSF-30 terminated at depth 3.7 m	

NOTES:
1. Excavation stopped at 3.7 m.
2. Few roots were found up to 0.4m depth.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**21/12/2023**	**EASTING:**	**478604 m**
MACHINE	**: Excavator 320**	**DATE PROFILED:**	**21/12/2023**	**NORTHING:**	**1079057.1 m**
LOGGED BY	**: Ilyas**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-31**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, dark brown, very loose. TOPSOIL Sand particles are fine to medium grained and sub-rounded.	
0.5			0.5m **GRAVEL**, clayey, with sand, low plasticity fines, red brown, dry to slightly moist, medium dense. COLLUVIUM Sand particles are fine grained and sub-rounded. Gravel particles are fine to coarse grained, sub-angular and low strength.	
1.0				BULK
1.5				
1.8			1.8m **CLAY**, with sand, medium plasticity, pale grey, moist (dry of plastic limit), very stiff to hard. RESIDUAL Sand particles are fine to medium grained and sub-angular to angular.	
2.0				
2.5				
3.0				BULK
3.5				
3.8			3.8m Test pit TP-TSF-31 terminated at depth 3.8 m	
4.0				
4.5				
5.0				

NOTES:
1. Excavation stopped at 3.8 m.
2. Few roots were found up to 0.5m depth.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**22/12/2023**	**EASTING:**	**478604 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**22/12/2023**	**NORTHING:**	**1078912.4 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-32**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, brown, dry, very loose to loose. TOPSOIL Sand particles are fine to medium grained and sub-rounded.	
0.4m			**SAND**, trace clay, low plasticity fines, red brown, dry to slightly moist, medium dense. ALLUVIUM Sand particles are medium to coarse grained and sub-rounded.	BULK
2.3m			**SAND**, clayey, medium plasticity fines, orange brown, slightly moist, medium dense. RESIDUAL Sand particles are fine to medium grained and sub-angular to angular.	BULK
4.1m			Test pit TP-TSF-32 terminated at depth 4.1 m	

NOTES:
1. Excavation stopped at 4.10 m.
2. Few roots were found up to 0.4m depth.
3. Seepage was not observed
4. Pit was stable.

CONTRACTOR : NATCO	**DATE EXCAVATED: 27/12/2023**	**EASTING: 478915.2 m**
MACHINE : Excavator 330DL	**DATE PROFILED: 27/12/2023**	**NORTHING: 1078727.8 m**
LOGGED BY : Traore		
CHECKED BY :	**EXCAVATION SIZE: 1.2 x 6.0**	**ELEVATION: m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-33**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, dark brown, dry, very loose to loose. TOPSOIL Sand particles are fine to medium grained and sub-rounded.	
0.4m			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, medium dense. COLLUVIUM Sand particles are medium to coarse grained and sub-rounded. Gravel particles are medium to coarse grained, sub-rounded and low strength.	BULK
1.65m			**CLAY**, sandy, medium plasticity, orange brown, moist (dry of plastic limit), very stiff to hard. RESIDUAL Sand particles are fine to medium grained and sub-angular.	BULK
3.8m			Test pit TP-TSF-33 terminated at depth 3.8 m	

NOTES:
1. Excavation stopped at 3.8 m.
2. Few roots were found up to 0.4m depth.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**22/12/2023**	**EASTING:**	**478927.3 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**22/12/2023**	**NORTHING:**	**1078984.7 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-34**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, brown, dry, very loose to loose. TOPSOIL Sand particles are fine to medium grained and sub-rounded.	
0.5			0.5m **GRAVEL**, with sand, trace clay, low plasticity fines, red brown, dry to slightly moist, loose. COLLUVIUM Sand particles are fine grained and sub-rounded. Gravel particles are medium grained, sub-rounded and low strength.	
1.0				
1.5				BULK
2.0				
2.5			2.6m **SAND**, trace clay, low plasticity fines, red brown, dry to slightly moist, medium dense. ALLUVIUM Sand particles are fine to medium grained and sub-angular to angular.	
3.0				BULK
3.5				
3.8			3.8m Test pit TP-TSF-34 terminated at depth 3.8 m	
4.0				
4.5				
5.0				

NOTES:
1. Excavation stopped at 3.80m.
2. Few roots were found up to 0.50m depth.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**6/01/2024**	**EASTING:**	**478189.4 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**6/01/2024**	**NORTHING:**	**1077881.4 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-35**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SILT, sandy, trace gravel, non-plastic, pale grey, moist (dry of plastic limit), soft to firm. TOPSOIL	
0.3m			Topsoil was partially cleared.	
0.5			**CLAY**, sandy, with gravel, medium plasticity, orange brown, moist (dry of plastic limit), hard. LATERITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and medium strength.	
1.0				BULK
1.5				
1.8m			**CLAY**, gravelly, with sand, medium plasticity, yellow brown, moist (dry of plastic limit), hard. LATERITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and medium strength.	
2.0				
2.5				BULK
3.0				
3.1m			Test pit TP-TSF-35 terminated at depth 3.1 m	
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation stopped at 3.1m. Planned depth
2. Many roots were observed up to 0.3m depth.
3. Seepage was not observed observed.
4. Pit was stable.
5. Coordinate taken using handheld GPS (+/- 5m). Site local grid based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL

LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 22/01/2024
DATE PROFILED: 22/01/2024
EXCAVATION SIZE: 2.0 x 5.0

EASTING: 477793.7 m
NORTHING: 1078131.3 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-36**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, brown, dry, very loose to loose. TOPSOIL	
0.3m			Sand particles are fine to medium grained and sub-rounded.	
			SAND, trace clay, low plasticity fines, red, dry, loose. ALLUVIUM	
0.5			Sand particles are fine grained and sub-rounded.	
1.0				BULK
1.5				
1.9m			**SAND**, trace clay, low plasticity fines, orange brown, dry to slightly moist, medium dense. RESIDUAL	
2.0			Sand particles are fine to medium grained and sub-angular to angular.	
2.5				BULK
3.0				
3.4m			Test pit TP-TSF-36 terminated at depth 3.4 m	
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation stopped at 3.40 m.
2. Many roots were observed up to 0.3m depth.
3.Seepage was not observed.
4. Pit was stable.

CONTRACTOR : NATCO
MACHINE : Excavator 330DL

LOGGED BY : Traore
CHECKED BY :

DATE EXCAVATED: 28/12/2023
DATE PROFILED: 28/12/2023
EXCAVATION SIZE: 1.2 x 6.0

EASTING: 478504.1 m
NORTHING: 1078048.5 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-37**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, dark brown, dry, very loose to loose. TOPSOIL Sand particles are fine to medium grained and sub-rounded.	
0.5			0.5m **GRAVEL**, sandy and clayey, red brown, dry, medium dense. COLLUVIUM Sand particles are fine grained and sub-rounded. Gravel particles are medium grained, sub-rounded and low strength.	BULK
2.0			2.1m **SAND**, clayey, medium plasticity fines, orange brown, dry to slightly moist, medium dense. RESIDUAL Sand particles are fine to medium grained and sub-angular.	BULK
4.3			4.3m Test pit TP-TSF-37 terminated at depth 4.3 m	

NOTES:
1. Excavation stopped at 4.30m.
2. Few roots were found up to 0.50m depth.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**8/01/2024**	**EASTING:**	**478085.6 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**8/01/2024**	**NORTHING:**	**1078201.8 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-38**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, dark brown, very loose to loose. TOPSOIL Sand particles are fine to medium grained and sub-rounded.	
0.4m			**GRAVEL**, sandy, trace clay, low plasticity fines, red, dry to slightly moist, medium dense. COLLUVIUM Sand particles are medium grained and sub-rounded. Gravel particles are medium to coarse grained, sub-rounded and low strength.	BULK
2.6m			**SAND**, clayey, medium plasticity fines, grey, dry to slightly moist, medium dense. RESIDUAL Sand particles are fine to medium grained and sub-angular to angular.	BULK
3.9m			Test pit TP-TSF-38 terminated at depth 3.9 m	

NOTES:
1. Excavation stopped at 3.9m.
2. Few roots were found up to 0.40m depth.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR : NATCO
MACHINE : Excavator 330DL

LOGGED BY : Traore
CHECKED BY :

DATE EXCAVATED: 8/01/2024
DATE PROFILED: 8/01/2024
EXCAVATION SIZE: 1.2 x 6.0

EASTING: 477733.6 m
NORTHING: 1078449.5 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-39**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, dark brown, dry, very loose to loose. TOPSOIL	
0.3m			Sand particles are fine to medium grained and sub-rounded.	
			GRAVEL, sandy, red brown, dry, medium dense. COLLUVIUM Sand particles are fine grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded and low strength.	BULK
1.9m			**SAND**, pale grey, dry to slightly moist, loose to medium dense. RESIDUAL Sand particles are fine to medium grained and sub-angular to angular.	BULK
3.2m			Test pit TP-TSF-39 terminated at depth 3.2 m	

NOTES:
1. Excavation stopped at 3.20 m.
2. Few roots were found up to 0.3m depth.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**27/12/2023**	**EASTING:**	**478060.3 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**27/12/2023**	**NORTHING:**	**1078542.4 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
TSF
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-TSF-40**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, red brown, dry, very loose to loose. TOPSOIL	
0.25m			Sand particles are fine to medium grained and sub-rounded. **SAND**, with clay, low plasticity fines, red brown, dry to slightly moist, loose. ALLUVIUM Sand particles are medium grained and sub-rounded.	BULK
2.1m			**CLAY**, sandy, medium plasticity, red brown, moist (dry of plastic limit), very stiff to hard. RESIDUAL Sand particles are fine to medium grained and sub-angular.	BULK
4m			Test pit TP-TSF-40 terminated at depth 4 m	

NOTES:
1. Excavation stopped at 4.00 m.
2. Many roots to 0.25m depth.
3. Seepage was not observed.
4. Pit was stable.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**5/01/2024**	**EASTING:**	**478701.3 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**5/01/2024**	**NORTHING:**	**1077799.7 m**
LOGGED BY	**: Traore**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TSF TP 2024 05 10.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
ARO
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-ARO-01A**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, loose. TOPSOIL	
0.2m			Topsoil was partially cleared.	
0.5			**SAND**, silty, non-plastic fines, yellow brown, dry, dense. ALLUVIUM Sand particles are fine to coarse grained and sub-angular.	
1.0				
1.5				BULK
2.0				
2.5				
3.0				
3.3m			**SAND**, cobbly, with clay and gravel, yellow brown and cream, moist to wet, dense to very dense. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and sub-angular.	
3.5				
4.0				BULK
4.3m			Test pit TP-ARO-01A terminated at depth 4.3 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.3 m.
2. Few roots were observed up to 1.5m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**26/02/2024**	**EASTING:**	**469461 m**
MACHINE	**: Excavator 321**	**DATE PROFILED:**	**26/02/2024**	**NORTHING:**	**1065525 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 6.0**	**ELEVATION:**	**341 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
ARO
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-ARO-02A**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, dark grey, dry. TOPSOIL	
0.2m			Topsoil was partially cleared.	
			SAND, silty, non-plastic fines, yellow brown, dry, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-angular.	BULK
3.2m			**SAND**, gravelly, yellow brown, dry to slightly moist, medium dense. RESIDUAL Sand particles are fine to coarse grained and sub-angular.	BULK
3.6m			Gravel particles are fine grained, sub-angular and medium strength. Test pit TP-ARO-02A terminated at depth 3.6 m	

NOTES:
1. Refusal at 3.6 m.
2. Many roots were observed up to 1m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**26/02/2024**	**EASTING:**	**469451 m**
MACHINE	**: Excavator 321**	**DATE PROFILED:**	**26/02/2024**	**NORTHING:**	**1065540 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.1 x 6.0**	**ELEVATION:**	**349 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
ARO
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-ARO-03A**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, very loose. TOPSOIL	
0.2m			Topsoil was partially cleared.	
0.5			**SAND**, gravelly, with clay, medium plasticity fines, yellow brown and cream, slightly moist, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-angular. Gravel particles are fine grained, sub-angular and medium strength.	
1.0				
1.5				BULK
2.0				
2.5				
2.5m			**SAND**, gravelly, with cobbles, yellow brown and cream, slightly moist, dense. RESIDUAL Sand particles are fine to coarse grained and sub-angular. Gravel particles are fine grained, sub-angular and medium strength.	
▼				
3.0				BULK
3.5				
3.7m			Test pit TP-ARO-03A terminated at depth 3.7 m	
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.7 m.
2. Few roots were observed up to 0.7m depth.
3. Seepage was observed at 2.80m.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**27/02/2024**	**EASTING:**	**469502 m**
MACHINE	**: Excavator 321**	**DATE PROFILED:**	**27/02/2024**	**NORTHING:**	**1065555 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 6.0**	**ELEVATION:**	**362 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
ARO
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-ARO-04A**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, very loose. TOPSOIL	
0.2m			Topsoil was partially cleared.	
0.5			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, loose. ALLUVIUM	
0.6m			Sand particles are fine to coarse grained and sub-rounded.	
1.0			**SAND**, clayey, medium plasticity fines, orange and cream, dry to slightly moist, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-angular.	
1.5				BULK
2.0				
2.5				
2.7m			**SAND**, clayey, medium plasticity fines, brown and cream, dry to slightly moist, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	
3.0				BULK
3.5				
3.8m			Test pit TP-ARO-04A terminated at depth 3.8 m	
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.8m.
2. Few roots were observed up to 0.7m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator 321
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 27/02/2024
DATE PROFILED: 27/02/2024
EXCAVATION SIZE: 1.8 x 6.0

EASTING: 469494 m
NORTHING: 1065567 m
ELEVATION: 361 m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
AS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AS-01**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**GRAVEL**, sandy, with silt, non-plastic fines, dark grey and brown, dry, medium dense. TOPSOIL	
0.2m			Topsoil was partially cleared.	
0.5			**GRAVEL**, sandy, with clay, high plasticity fines, red brown, dry, very dense. LATERITE	BULK
0.7m			Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded.	
1.0			**GRAVEL**, sandy, with clay, low plasticity fines, yellow brown and white, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	
1.5				
2.0				
2.5				BULK
3.0				
3.5				
4.0				
4.1m			Test pit TP-AS-01 terminated at depth 4.1 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.10m.
2. A few roots were observed up to 0.20m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**21/02/2024**	**EASTING:**	**476314 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**22/02/2024**	**NORTHING:**	**1070930 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.6 x 6.0**	**ELEVATION:**	**343 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
AS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AS-02**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**GRAVEL**, sandy, with silt, non-plastic fines, dark grey and brown, dry, medium dense. TOPSOIL	
0.2m			Topsoil was partially cleared.	
0.5			**GRAVEL**, sandy, with clay, medium plasticity fines, orange brown, dry, very dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and high strength. Cementing is moderate.	
1.0				BULK
1.5				
2.0			2m	
			GRAVEL, sandy, with clay, high plasticity fines, orange and yellow, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and high strength. Cementing is moderate.	
2.5				
3.0				BULK
3.5				
4.0			4m Test pit TP-AS-02 terminated at depth 4 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4m.
2. A few roots were observed up to 0.20m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**21/02/2024**	**EASTING:**	**476275 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**22/02/2024**	**NORTHING:**	**1070872 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 6.0**	**ELEVATION:**	**347 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
AS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AS-03**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**GRAVEL**, sandy, with silt, non-plastic fines, dark grey and brown, dry, medium dense. TOPSOIL	
0.2m			Topsoil was partially cleared.	
0.5			**GRAVEL**, sandy, with clay, low plasticity fines, red brown, dry, very dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and high strength. Cementing is moderate.	
1.0				
1.5				BULK
2.0				
2.4m			**SAND**, with gravel and clay, low plasticity fines, orange and yellow, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	
2.5				
3.0				BULK
3.5				
4.0				
4.2m			Test pit TP-AS-03 terminated at depth 4.2 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.2m.
2. A few roots were observed up to 0.20m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**21/02/2024**	**EASTING:**	**476233 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**22/02/2024**	**NORTHING:**	**1070807 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 6.0**	**ELEVATION:**	**355 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
AS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AS-04**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SILT, sandy, trace gravel, non-plastic, pale grey, moist (dry of plastic limit), very soft to soft. TOPSOIL	
0.3m			Topsoil was partially cleared.	
0.5			**GRAVEL**, sandy, with clay, medium plasticity fines, red brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded.	
1.0				BULK
1.5				
1.6m			**SAND**, with gravel and clay, medium plasticity fines, orange brown, dry, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	
2.0				
2.5				BULK
3.0				
3.5				
3.8m			Test pit TP-AS-04 terminated at depth 3.8 m	
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 3.8m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**21/02/2024**	**EASTING:**	**476195 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**22/02/2024**	**NORTHING:**	**1070740 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 6.0**	**ELEVATION:**	**346 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
AS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AS-05**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, loose to medium dense. TOPSOIL Topsoil was partially cleared.	
0.4m			**SAND**, gravelly, with clay, medium plasticity fines, orange brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and low strength.	BULK
4.2m			Test pit TP-AS-05 terminated at depth 4.2 m	

NOTES:
1. Excavation was stopped at 4.2m.
2. A few roots were observed up to 0.4m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**22/02/2024**	**EASTING:**	**476151 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**22/02/2024**	**NORTHING:**	**1070673 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 6.0**	**ELEVATION:**	**345 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
AS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AS-06**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, loose to medium dense. TOPSOIL Topsoil was partially cleared.	
0.4m			**SAND**, gravelly, with clay, medium plasticity fines, orange brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and low strength.	BULK
4.1m			Test pit TP-AS-06 terminated at depth 4.1 m	

NOTES:
1. Excavation was stopped at 4.1m.
2. A few roots were observed up to 0.4m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**22/02/2024**	**EASTING:**	**476110 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**22/02/2024**	**NORTHING:**	**1070614 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.3 x 6.0**	**ELEVATION:**	**345 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
AS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AS-07**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SILT, sandy, trace gravel, non-plastic, pale grey, moist (dry of plastic limit), very soft to soft.	
0.15m			TOPSOIL Topsoil was partially cleared.	
0.4m			**GRAVEL**, sandy, with silt, non-plastic fines, orange brown, dry, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and low strength.	
			GRAVEL, sandy, with clay, medium plasticity fines, orange brown, dry to slightly moist, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and high strength.	BULK
3.8m			Test pit TP-AS-07 terminated at depth 3.8 m	

NOTES:
1. Excavation was stopped at 3.8m.
2. A few roots were observed up to 0.15m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**22/02/2024**	**EASTING:**	**476070 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**22/02/2024**	**NORTHING:**	**1070552 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.2 x 6.0**	**ELEVATION:**	**353 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
AS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AS-08**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SILT**, sandy, trace gravel, non-plastic, pale grey, moist (dry of plastic limit), very soft to soft. TOPSOIL	
0.2m			Topsoil was partially cleared.	
0.5			**GRAVEL**, sandy, with clay, low plasticity fines, red brown, dry, very dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and high strength.	
1.0				BULK
1.5				
2.0				
2.1m			**GRAVEL**, sandy, with silt, non-plastic fines, orange brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and low strength.	
2.5				BULK
3.0				
3.4m			Test pit TP-AS-08 terminated at depth 3.4 m	
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.4m.
2. A few roots were observed up to 0.2m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**22/02/2024**	**EASTING:**	**476032 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**22/02/2024**	**NORTHING:**	**1070485 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 6.0**	**ELEVATION:**	**345 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
AS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AS-09**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SILT**, sandy, trace gravel, non-plastic, pale grey, moist (dry of plastic limit), very soft to soft. TOPSOIL	
0.2m			Topsoil was partially cleared.	
0.5			**GRAVEL**, sandy, with clay, low plasticity fines, red brown, dry, very dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and high strength.	
1.0				BULK
1.5				
2.0				
2.2m			Test pit TP-AS-09 terminated at depth 2.2 m	
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 2.2m.
2. A few roots were observed up to 0.2m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**23/02/2024**	**EASTING:**	**475991 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**23/02/2024**	**NORTHING:**	**1070420 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.0 x 5.0**	**ELEVATION:**	**345 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
AS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AS-10**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SILT**, sandy, trace gravel, non-plastic, pale grey, moist (dry of plastic limit), very soft to soft.	
0.1m			TOPSOIL Topsoil was partially cleared.	
0.5			**GRAVEL**, sandy, with clay, medium plasticity fines, red brown, dry, very dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and high strength.	
1.0				
1.5				BULK
2.0				
2.5				
2.5m			**GRAVEL**, sandy, with clay, medium plasticity fines, orange brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and low strength.	
3.0				
3.5				BULK
4.0				
4.1m			Test pit TP-AS-10 terminated at depth 4.1 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.1m.
2. A few roots were observed up to 0.1m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**23/02/2024**	**EASTING:**	**475954 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**23/02/2024**	**NORTHING:**	**1070360 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.0 x 6.0**	**ELEVATION:**	**339 m**

KP_TP_2013_REV_0_DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
AS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AS-11**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SILT**, sandy, trace gravel, non-plastic, pale grey, moist (dry of plastic limit), very soft to soft.	
0.1m			TOPSOIL Topsoil was partially cleared.	
0.5			**GRAVEL**, sandy, with clay, medium plasticity fines, orange brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and medium strength.	
1.0				
1.5				
2.0				BULK
2.5				
3.0				
3.5				
4.0				
4m			**CLAY**, gravelly, with sand, high plasticity, brown and cream, moist (near plastic limit), stiff. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and medium strength.	BULK
4.5				
4.6m			Test pit TP-AS-11 terminated at depth 4.6 m	
5.0				

NOTES:
1. Excavation was stopped at 4.6m.
2. A few roots were observed up to 0.1m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**23/02/2024**	**EASTING:**	**475912 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**23/02/2024**	**NORTHING:**	**1070292 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.0 x 6.0**	**ELEVATION:**	**342 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
AS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AS-12**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SILT**, sandy, trace gravel, non-plastic, pale grey, moist (dry of plastic limit), very soft to soft.	
0.15m			TOPSOIL Topsoil was partially cleared.	
0.5			**GRAVEL**, sandy, with clay, high plasticity fines, orange brown and yellow, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and medium strength.	
1.0				
1.5				
2.0				BULK
2.5				
3.0				
3.5				
4.0			4m Test pit TP-AS-12 terminated at depth 4 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4m.
2. A few roots were observed up to 0.15m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**23/02/2024**	**EASTING:**	**475873 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**23/02/2024**	**NORTHING:**	**1070228 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 6.0**	**ELEVATION:**	**350 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
AS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AS-13**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, very loose.	
0.1m			TOPSOIL	
			Topsoil was partially cleared.	
			GRAVEL, clayey, with sand, high plasticity fines, orange brown and yellow, dry to slightly moist, dense.	
0.5			LATERITE	
			Sand particles are fine to coarse grained and sub-rounded.	
1.0			Gravel particles are fine to medium grained, rounded to sub-rounded and medium strength.	BULK
1.5				
1.8m			Test pit TP-AS-13 terminated at depth 1.8 m	
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 1.8m.
2. A few roots were observed up to 0.1m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**23/02/2024**	**EASTING:**	**475832 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**23/02/2024**	**NORTHING:**	**1070164 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 5.0**	**ELEVATION:**	**344 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
AS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AS-14**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, very loose.	
0.1m			TOPSOIL	
			Topsoil was partially cleared.	
0.5			**SAND**, clayey, with gravel, high plasticity fines, yellow brown and white, dry to slightly moist, dense. LATERITE	
			Sand particles are fine to coarse grained and sub-angular. Gravel particles are fine to medium grained, rounded to sub-angular and medium strength.	
1.0				
1.5				
2.0				BULK
2.5				
3.0				
3.5				
3.9m			Test pit TP-AS-14 terminated at depth 3.9 m	
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 3.9m.
2. A few roots were observed up to 0.1m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**23/02/2024**	**EASTING:**	**475772 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**23/02/2024**	**NORTHING:**	**1070228 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 6.0**	**ELEVATION:**	**340 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
AS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AS-15**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, very loose.	
0.15m			TOPSOIL Topsoil was partially cleared.	
			GRAVEL, clayey, with sand, medium plasticity fines, orange brown and yellow, dry, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and high strength.	BULK
3.4m			**GRAVEL**, clayey, with sand, high plasticity fines, orange pink and yellow, dry to slightly moist, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and high strength.	BULK
4.1m			Test pit TP-AS-15 terminated at depth 4.1 m	

NOTES:
1. Excavation was stopped at 4.1m.
2. A few roots were observed up to 0.15m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**24/02/2024**	**EASTING:**	**475826 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**24/02/2024**	**NORTHING:**	**1070311 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.0 x 6.0**	**ELEVATION:**	**338 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
Accommodation Village
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AV-01**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose. TOPSOIL	
0.2m			Topsoil was partially cleared.	
0.5			**GRAVEL**, sandy, with clay, low plasticity fines, red to pink brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded.	BULK
1.0				
1.1m			Test pit TP-AV-01 terminated at depth 1.1 m	
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 1.1m.
2. A few roots were observed up to 0.20m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**15/02/2024**	**EASTING:**	**476464 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**15/02/2024**	**NORTHING:**	**1074173 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
Accommodation Village
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AV-02**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose. TOPSOIL	
0.2m			Topsoil was partially cleared.	
0.5			**GRAVEL**, sandy, with clay, low plasticity fines, red brown, dry, very dense. LATERITE	BULK
0.6m			Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate. Test pit TP-AV-02 terminated at depth 0.6 m	
1.0				
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 0.6m.
2. A few roots were observed up to 0.20m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 15/02/2024
DATE PROFILED: 15/02/2024
EXCAVATION SIZE: 1.6 x 6.0

EASTING: 476619 m
NORTHING: 1074177 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
Accommodation Village
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AV-03**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**GRAVEL**, sandy, with silt, non-plastic fines, dark grey and brown, dry, loose to medium dense. TOPSOIL	
0.3m			Topsoil was partially cleared.	
0.5			**GRAVEL**, sandy, with clay, low plasticity fines, red brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	BULK
1.0				
1.1m			Test pit TP-AV-03 terminated at depth 1.1 m	
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 1.10m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL

LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 15/02/2024
DATE PROFILED: 15/02/2024
EXCAVATION SIZE: 1.6 x 6.0

EASTING: 476467 m
NORTHING: 1074013 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
Accommodation Village
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AV-04**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose. TOPSOIL Topsoil was partially cleared.	
0.5			0.5m **GRAVEL**, sandy, with clay, low plasticity fines, red brown, dry, medium dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded.	BULK
4.4			4.4m Test pit TP-AV-04 terminated at depth 4.4 m	

NOTES:
1. Excavation was stopped at 4.40m.
2. A few roots were observed up to 0.50m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**14/02/2024**	**EASTING:**	**476467 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**14/02/2024**	**NORTHING:**	**1074302 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.6 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
Accommodation Village
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AV-05**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			GRAVEL, sandy, with silt, non-plastic fines, dark grey and brown, dry, loose to medium dense. TOPSOIL	
0.3m			Topsoil was partially cleared.	
0.5			**GRAVEL**, sandy, with clay, low plasticity fines, yellow and red brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	
1.0				BULK
1.5				
1.7m			Test pit TP-AV-05 terminated at depth 1.7 m	
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 1.70m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**15/02/2024**	**EASTING:**	**476322 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**15/02/2024**	**NORTHING:**	**1074296 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.5 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
Accommodation Village
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-AV-06**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**GRAVEL**, sandy, with silt, non-plastic fines, dark grey and brown, dry, loose to medium dense. TOPSOIL	
0.3m			Topsoil was partially cleared.	
0.5			**GRAVEL**, sandy, with clay, low plasticity fines, yellow and red brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	BULK
1.0				
1.2m			Test pit TP-AV-06 terminated at depth 1.2 m	
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 1.20m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL

LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 15/02/2024
DATE PROFILED: 15/02/2024
EXCAVATION SIZE: 1.7 x 6.0

EASTING: 476316 m
NORTHING: 1074139 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
CMC
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-CMC-01**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			GRAVEL, sandy, with silt, non-plastic fines, dark grey and brown, dry, loose. TOPSOIL	
0.2m			Topsoil was partially cleared.	
			GRAVEL, sandy, with clay, low plasticity fines, yellow and red brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	BULK
2m			**CLAY**, sandy, trace gravel, high plasticity, pale pink and white, moist (dry of plastic limit), hard. SAPROLITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and low strength.	BULK
5.2m			Test pit TP-CMC-01 terminated at depth 5.2 m	

NOTES:
1. Excavation was stopped at 5.20m.
2. A few roots were observed up to 0.20m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**20/02/2024**	**EASTING:**	**479022 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**20/02/2024**	**NORTHING:**	**1077548 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.6 x 6.0**	**ELEVATION:**	**335 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
HA
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-HA-01**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose. TOPSOIL Topsoil was partially cleared.	
0.5			0.5m **GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry, very dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and sub-rounded to sub-angular. Cementing is moderate.	BULK
2.0			2m **CLAY**, gravelly, with sand, high plasticity, cream, moist (dry of plastic limit), very stiff. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained and rounded to sub-rounded.	BULK
3.0			3.1m **CLAY**, sandy, trace gravel, high plasticity, yellow brown and cream, moist (dry of plastic limit), very stiff. SAPROLITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and low strength.	BULK
4.0			4.1m Test pit TP-HA-01 terminated at depth 4.1 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.10m.
2. A few roots were observed up to 0.50m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**14/02/2024**	**EASTING:**	**478179 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**14/02/2024**	**NORTHING:**	**1075007 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
HA
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-HA-02**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose. TOPSOIL	
0.3m			Topsoil was partially cleared.	
0.5			**GRAVEL**, clayey, trace sand, medium plasticity fines, yellow brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	
1.0				BULK
1.5				
1.5m			**GRAVEL**, clayey, with sand, medium plasticity fines, yellow and pink brown, dry, very dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and sub-rounded to sub-angular.	
2.0				
2.5				BULK
3.0				
3.5				
3.8m			**CLAY**, gravelly, with sand, high plasticity, cream, moist (dry of plastic limit), very stiff. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained and rounded to sub-rounded.	
4.0				BULK
4.4m			Test pit TP-HA-02 terminated at depth 4.4 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.40m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**13/02/2024**	**EASTING:**	**478402 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**13/02/2024**	**NORTHING:**	**1075747 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.6 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
HA
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-HA-03**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**GRAVEL**, sandy, with silt, non-plastic fines, dark grey and brown, dry, loose to medium dense. TOPSOIL Topsoil was partially cleared.	
0.5			0.5m **CLAY**, sandy, with gravel, medium plasticity, orange brown, moist (dry of plastic limit), hard. LATERITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and low strength.	BULK
4.2			4.2m Test pit TP-HA-03 terminated at depth 4.2 m	

NOTES:
1. Excavation was stopped at 4.20m.
2. A few roots were observed up to 0.50m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**17/02/2024**	**EASTING:**	**478604 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**17/02/2024**	**NORTHING:**	**1076499 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
HDC
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-HDC-01**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, non-plastic fines, pale grey and brown, dry, very loose. TOPSOIL Topsoil was partially cleared.	
0.4m			**SILT**, sandy, low plasticity, orange brown, moist (dry of plastic limit), very stiff. ALLUVIUM Sand particles are fine to medium grained and sub-rounded.	
2.0				BULK
3.7m			**SAND**, with silt, non-plastic fines, dark grey, wet, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	
4.0				BULK
4.7m			Test pit TP-HDC-01 terminated at depth 4.7 m	

NOTES:
1. Excavation was stopped at 4.70m.
2. A few roots were observed up to 0.40m depth.
3. Seepage was observed at 4.70m.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 2/02/2024
DATE PROFILED: 2/02/2024
EXCAVATION SIZE: 1.7 x 5.0

EASTING: 486450 m
NORTHING: 1073641 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
HDC
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-HDC-02**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, non-plastic fines, pale grey and brown, dry, loose. TOPSOIL	
0.2m			Topsoil was partially cleared.	
0.5			**GRAVEL**, sandy, trace clay, medium plasticity fines, red brown, dry to slightly moist, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and medium strength.	
0.8m			**SAND**, silty, with gravel, low plasticity fines, orange brown, dry, medium dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and medium strength. Cementing is moderate.	BULK
1.0				
1.5				
1.5m			**SAND**, silty, with gravel, low plasticity fines, cream, dry, medium dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and medium strength. Cementing is moderate.	BULK
2.0				
2.1m			Test pit TP-HDC-02 terminated at depth 2.1 m	
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 2.1m.
2. A few roots were observed up to 0.80m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**1/02/2024**	**EASTING:**	**486898 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**1/02/2024**	**NORTHING:**	**1074517 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.3 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
HDC
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-HDC-03**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, non-plastic fines, pale grey and brown, dry, very loose. TOPSOIL Topsoil was partially cleared.	
0.4m			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to coarse grained, sub-rounded and medium strength. Cementing is moderate.	BULK
2.1m			**SAND**, silty, trace gravel, medium plasticity fines, cream, slightly moist, dense. RESIDUAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine grained and rounded to sub-rounded.	BULK
3.5m			Test pit TP-HDC-03 terminated at depth 3.5 m	

NOTES:
1. Excavation was stopped at 3.50m.
2. A few roots were observed up to 0.40m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**31/01/2024**	**EASTING:**	**486585 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**31/01/2024**	**NORTHING:**	**1074124 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
HDC
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-HDC-04**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, non-plastic fines, pale grey and brown, dry, very loose.	
0.1m			TOPSOIL Topsoil was partially cleared.	
			GRAVEL, sandy, trace clay, low plasticity fines, cream and red brown, dry to slightly moist, very dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded.	BULK
1.1m			**SAND**, clayey, high plasticity fines, grey and brown, dry to slightly moist, dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded.	BULK
1.9m			**GRANODIORITE**, medium to coarse grained, granular, massive, brown, very low strength. EXTREAMLY WEATHERED TO HIGHLY WEATHERED ROCK	BULK
2.8m			Test pit TP-HDC-04 terminated at depth 2.8 m	

NOTES:
1. Excavation was stopped at 2.80m.
2. A few roots were observed up to 0.10m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**2/02/2024**	**EASTING:**	**486456 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**2/02/2024**	**NORTHING:**	**1073861 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 5.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
HDC
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-HDC-05**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, non-plastic fines, pale grey and brown, dry, loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**SILT**, sandy, low plasticity, orange brown, moist (dry of plastic limit), very stiff. ALLUVIUM Sand particles are fine to medium grained and sub-rounded.	BULK
1.0				
1.5				
2.0				
2.5				
2.7m			Test pit TP-HDC-05 terminated at depth 2.7 m	
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 2.70m.
2. A few roots were observed up to 0.40m depth.
3. Seepage was observed at 2.70m with moderate inflow.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**1/02/2024**	**EASTING:**	**487534 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**1/02/2024**	**NORTHING:**	**1075064 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.6 x 5.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
HDC
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-HDC-06**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, non-plastic fines, pale grey and brown, dry, very loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**SAND**, gravelly, with silt, low plasticity fines, orange brown, dry, very dense. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded to sub-angular and medium to high strength.	BULK
1.0			1m **GRANODIORITE**, medium to coarse grained, granular, massive, yellow brown, very low strength. HIGHLY WEATHERED ROCK	
1.5				BULK
2.0			2m Test pit TP-HDC-06 terminated at depth 2 m	
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 2.0m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**1/02/2024**	**EASTING:**	**487156 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**1/02/2024**	**NORTHING:**	**1074864 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.0 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
PS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-PS-01**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose. TOPSOIL Topsoil is partially cleared.	
0.5			0.5m **GRAVEL**, with sand, trace clay, low plasticity fines, red brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded.	BULK
1.0				
1.3			1.3m Test pit TP-PS-01 terminated at depth 1.3 m	
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 1.30m.
2. A few roots were observed up to 0.50m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**13/02/2024**	**EASTING:**	**478361 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**13/02/2024**	**NORTHING:**	**1076875 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.6 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
PS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-PS-02**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**GRAVEL**, with sand, trace clay, low plasticity fines, red brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	BULK
1.0				
1.5				
2.0				
2.5			2.5m Test pit TP-PS-02 terminated at depth 2.5 m	
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 2.50m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**13/02/2024**	**EASTING:**	**478346 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**13/02/2024**	**NORTHING:**	**1076879 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
PS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-PS-03**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose to medium dense. TOPSOIL Topsoil is partially cleared.	
0.4m			**GRAVEL**, with sand, trace clay, low plasticity fines, red brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	BULK
1.1m			Test pit TP-PS-03 terminated at depth 1.1 m	

NOTES:
1. Refusal at 1.10m.
2. A few roots were observed up to 0.40m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**10/02/2024**	**EASTING:**	**478186 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**10/02/2024**	**NORTHING:**	**1076926 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
PS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-PS-04**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose to medium dense. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**GRAVEL**, with sand, trace clay, low plasticity fines, red brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	BULK
1.0				
1.1m			Test pit TP-PS-04 terminated at depth 1.1 m	
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 1.10m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**10/02/2024**	**EASTING:**	**478135 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**10/02/2024**	**NORTHING:**	**1076942 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
PS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-PS-05**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**GRAVEL**, sandy, with silt, non-plastic fines, dark grey and brown, dry, loose to medium dense. TOPSOIL Topsoil is partially cleared.	
0.5			0.5m **GRAVEL**, with sand and clay, medium plasticity fines, pink brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	BULK
2.8m			**CLAY**, with sand, trace gravel, high plasticity, yellow brown, moist (dry of plastic limit), very stiff. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained and rounded to sub-rounded.	BULK
4.2m			Test pit TP-PS-05 terminated at depth 4.2 m	

NOTES:
1. Excavation was stopped at 4.20m.
2. A few roots were observed up to 0.50m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**13/02/2024**	**EASTING:**	**478079 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**13/02/2024**	**NORTHING:**	**1076953 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.6 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
PS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-PS-06**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**GRAVEL**, sandy, with silt, non-plastic fines, dark grey and brown, dry, medium dense. TOPSOIL	
0.3m			Topsoil is partially cleared. **GRAVEL**, with sand, trace clay, low plasticity fines, red brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	BULK
0.9m			Test pit TP-PS-06 terminated at depth 0.9 m	

NOTES:
1. Refusal at 0.90m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**10/02/2024**	**EASTING:**	**477983 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**10/02/2024**	**NORTHING:**	**1076980 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 5.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
PS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-PS-07**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**GRAVEL**, sandy, with silt, non-plastic fines, dark grey and brown, dry, loose to medium dense. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**GRAVEL**, with sand, trace clay, low plasticity fines, red brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded.	BULK
4.2m			Test pit TP-PS-07 terminated at depth 4.2 m	

NOTES:
1. Excavation was stopped at 4.20m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**10/02/2024**	**EASTING:**	**477967 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**10/02/2024**	**NORTHING:**	**1076982 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
PS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-PS-08**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**GRAVEL**, clayey, with sand, high plasticity fines, red brown, dry, very dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded.	BULK
1.0				
1.1m			Test pit TP-PS-08 terminated at depth 1.1 m	
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 1.10m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**9/02/2024**	**EASTING:**	**477925 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**9/02/2024**	**NORTHING:**	**1077006 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
PS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-PS-09**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**CLAY**, with sand, trace gravel, high plasticity, orange brown, moist (dry of plastic limit), hard. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained and sub-rounded to angular.	BULK
1.0				
1.5				
2.0				
2.5				
3.0				
3.5				
4.0			4m Test pit TP-PS-09 terminated at depth 4 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.00m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**9/02/2024**	**EASTING:**	**477614 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**9/02/2024**	**NORTHING:**	**1076978 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.6 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
PS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-PS-10**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			GRAVEL, sandy, with silt, non-plastic fines, dark grey and brown, dry, medium dense. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**GRAVEL**, clayey, with sand, high plasticity fines, red brown, dry, very dense. FERRICRETE	BULK
0.7m			Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	
1.0			Test pit TP-PS-10 terminated at depth 0.7 m	
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 0.70m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 9/02/2024
DATE PROFILED: 9/02/2024
EXCAVATION SIZE: 1.5 x 5.0

EASTING: 477877 m
NORTHING: 1076965 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
PS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-PS-11**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**GRAVEL**, sandy, with silt, non-plastic fines, dark grey and brown, dry, medium dense. TOPSOIL Topsoil is partially cleared.	
0.5			0.5m **GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry, very dense. LATERITE	BULK
			0.8m Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate. Test pit TP-PS-11 terminated at depth 0.8 m	
1.0				
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 0.80m.
2. A few roots were observed up to 0.50m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**9/02/2024**	**EASTING:**	**477874 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**9/02/2024**	**NORTHING:**	**1077012 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 5.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0_DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
PS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-PS-12**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**GRAVEL**, sandy, with silt, non-plastic fines, dark grey and brown, dry, medium dense. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**GRAVEL**, with sand, trace clay, low plasticity fines, red brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	BULK
1.0			1m Test pit TP-PS-12 terminated at depth 1 m	
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 1.00m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**9/02/2024**	**EASTING:**	**477888 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**9/02/2024**	**NORTHING:**	**1077033 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 5.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
PS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-PS-13**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**GRAVEL**, sandy, with silt, non-plastic fines, dark grey and brown, dry, medium dense. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**GRAVEL**, with sand, trace clay, low plasticity fines, red brown, dry, very dense. LATERITE	BULK
0.6m			Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded.	
1.0			Test pit TP-PS-13 terminated at depth 0.6 m	
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 0.60m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**9/02/2024**	**EASTING:**	**477834 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**9/02/2024**	**NORTHING:**	**1077040 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 5.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
PS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-PS-14**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**CLAY**, sandy, with gravel, medium plasticity, red brown, moist (near plastic limit), very stiff. LATERITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained and rounded to sub-rounded.	
1.0				
1.5				
2.0				BULK
2.5				
3.0				
3.5				
4.0				
4.1m			Test pit TP-PS-14 terminated at depth 4.1 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.10m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**10/02/2024**	**EASTING:**	**477932 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**10/02/2024**	**NORTHING:**	**1077057 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
PS
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-PS-15**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose to medium dense. TOPSOIL Topsoil is partially cleared.	
0.4m			**GRAVEL**, with sand and clay, low plasticity fines, red brown, dry, very dense. LATERITE	BULK
0.7m			Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Test pit TP-PS-15 terminated at depth 0.7 m	

NOTES:
1. Refusal at 0.70m.
2. A few roots were observed up to 0.40m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**9/02/2024**	**EASTING:**	**477781 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**9/02/2024**	**NORTHING:**	**1077110 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 5.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-02**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SILT**, with sand, trace gravel, non-plastic, dark grey, moist (dry of plastic limit), firm.	
0.1m			TOPSOIL	
			Topsoil is partially cleared.	
			CLAY, sandy, trace gravel, high plasticity, orange and grey, moist (near plastic limit), stiff.	
			COLLUVIUM	
			Sand particles are fine to medium grained and sub-rounded to sub-angular.	
			Gravel particles are fine to medium grained, sub-rounded to sub-angular and medium strength.	
1.5				BULK
2.9m			**SAND**, clayey, medium plasticity fines, grey and cream, dry to slightly moist, medium dense.	
			ALLUVIUM	
			Sand particles are fine to coarse grained and sub-angular.	
3.5				BULK
4m			Test pit TP-SAR-02 terminated at depth 4 m	

NOTES:
1. Excavation was stopped at 4 m.
2. Few roots were observed up to 0.6m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**29/02/2024**	**EASTING:**	**461907 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**29/02/2024**	**NORTHING:**	**1054970 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.5 x 6.0**	**ELEVATION:**	**341 m**

KP_TP_2013_REV_0_DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-03**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, very loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**GRAVEL**, sandy, with clay, medium plasticity fines, orange brown, dry, very dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and high strength. Cementing is moderate.	BULK
1.0				
1.5				
2.0				
2.1m			Test pit TP-SAR-03 terminated at depth 2.1 m	
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 2.1 m.
2. Many roots were observed up to 0.5m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator 330DL

LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 29/02/2024
DATE PROFILED: 29/02/2024
EXCAVATION SIZE: 2.0 x 6.0

EASTING: 462238 m
NORTHING: 1055818 m
ELEVATION: 349 m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-04**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, dark grey, dry, very loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
			GRAVEL, sandy, with clay, medium plasticity fines, orange brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and medium strength.	BULK
3.9m			Test pit TP-SAR-04 terminated at depth 3.9 m	

NOTES:
1. Excavation was stopped at 3.90 m.
2. Few roots were observed up to 0.5m.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**29/02/2024**	**EASTING:**	**462258 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**1/03/2024**	**NORTHING:**	**1056778 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.0 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-05**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, very loose.	
0.15m			TOPSOIL	
			Topsoil is partially cleared.	
			GRAVEL, clayey, with sand, medium plasticity fines, orange brown and yellow, dry, dense.	
			LATERITE	
			Sand particles are fine to coarse grained and sub-rounded.	
			Gravel particles are fine to medium grained, rounded to sub-rounded and medium strength.	
0.5				
1.0				
1.5				
2.0				BULK
2.5				
3.0				
3.5				
4.0				
4.1m			Test pit TP-SAR-05 terminated at depth 4.1 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.10 m as planned depth.
2. Few roots were observed up to 0.6m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**1/03/2024**	**EASTING:**	**462686 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**1/03/2024**	**NORTHING:**	**1057560 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.6 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-06**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, loose.	
0.15m			TOPSOIL	
			Topsoil is partially cleared.	
			CLAY, sandy, with gravel, medium plasticity, orange brown, moist (dry of plastic limit), very stiff.	
0.5			LATERITE	
			Sand particles are fine to medium grained and sub-rounded to sub-angular.	
			Gravel particles are fine to medium grained, rounded to sub-rounded and medium strength.	
1.0				
1.5				
2.0				BULK
2.5				
3.0				
3.5				
4.0				
4m			Test pit TP-SAR-06 terminated at depth 4 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.00 m as planned depth.
2. Few roots were observed up to 0.15m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**1/03/2024**	**EASTING:**	**463316 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**1/03/2024**	**NORTHING:**	**1058285 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-07**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, dark grey, dry, loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**GRAVEL**, sandy, trace silt, medium plasticity fines, pale brown, dry to slightly moist, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and medium strength.	
1.0				BULK
1.5				
1.9m			**CLAY**, with sand, trace gravel, high plasticity, pale grey and cream, moist (dry of plastic limit), stiff. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine grained, sub-rounded and very low strength.	
2.0				
2.5				
3.0				BULK
3.5				
4.0			4m Test pit TP-SAR-07 terminated at depth 4 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.00 m.
2. Few roots were observed up to 0.4m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator 330DL

LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 2/03/2024
DATE PROFILED: 2/03/2024
EXCAVATION SIZE: 1.9 x 5.0

EASTING: 463962 m
NORTHING: 1058990 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-08**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, dark grey, dry, loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**CLAY**, sandy, trace gravel, high plasticity, red brown, moist (dry of plastic limit), very stiff. LATERITE Sand particles are fine to coarse grained and sub-rounded to sub-angular. Gravel particles are fine grained, rounded to sub-rounded and medium strength.	
1.0				
1.5				BULK
2.0				
2.5				
2.7m			**CLAY**, gravelly, with sand, medium plasticity, orange brown, moist (dry of plastic limit), hard. LATERITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine grained, rounded to sub-rounded and medium strength.	BULK
3.0				
3.1m			Test pit TP-SAR-08 terminated at depth 3.1 m	
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 3.10 m.
2. Many roots were observed up to 0.6m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator 330DL

LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 2/03/2024
DATE PROFILED: 2/03/2024
EXCAVATION SIZE: 2.2 x 5.0

EASTING: 464519 m
NORTHING: 1059757 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-09**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**CLAY**, sandy, trace gravel, medium plasticity, grey, moist (dry of plastic limit), firm.	
0.1m			TOPSOIL	
			Topsoil is partially cleared.	
0.5			**CLAY**, sandy, high plasticity, grey, moist (near plastic limit), stiff. ALLUVIUM	
			Sand particles are fine to coarse grained and sub-angular.	
1.0 ▼				
1.5				BULK
2.0				
2.5				
2.8m			Test pit TP-SAR-09 terminated at depth 2.8 m	
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 2.80 m. Pit unstable
2. A few roots were observed up to 0.2 m depth.
3. Seepage was observed at 1.0m.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**2/03/2024**	**EASTING:**	**465153 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**2/03/2024**	**NORTHING:**	**1060490 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.6 x 5.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-10**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, dark grey, dry, loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**GRAVEL**, clayey, with sand, medium plasticity fines, orange brown, dry, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and medium strength.	
1.0				
1.5				BULK
2.0				
2.5				
3.0				
3.3m			**SAND**, gravelly, with clay, medium plasticity fines, cream, dry to slightly moist, medium dense. RESIDUAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and medium strength.	BULK
3.5				
4.0				
4.1m			Test pit TP-SAR-10 terminated at depth 4.1 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.10 m as planned depth.
2. Many roots were observed up to 0.8 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**2/03/2024**	**EASTING:**	**465717 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**2/03/2024**	**NORTHING:**	**1061261 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.1 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0_DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-11**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, dark grey, dry, loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**SAND**, silty, trace gravel, non-plastic fines, orange, dry, medium dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, rounded to sub-rounded and medium strength.	BULK
0.8m			**GRAVEL**, sandy, trace clay, low plasticity fines, orange and white, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to coarse grained, rounded to sub-rounded and medium strength. Cementing is moderate.	
1.5				BULK
2.0				
2.2m			**CLAY**, with gravel, trace sand, high plasticity, yellow brown and cream, moist (dry of plastic limit), very stiff. SAPROLITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded and low strength.	
2.5				
3.0				
				BULK
3.5				
4.0				
4.5				
4.5m			Test pit TP-SAR-11 terminated at depth 4.5 m	
5.0				

NOTES:
1. Excavation was stopped at 4.50 m.
2. Many roots were observed up to 0.8 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**2/03/2024**	**EASTING:**	**466340 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**4/03/2024**	**NORTHING:**	**1061966 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.2 x 6.0**	**ELEVATION:**	**359 m**

KP_TP_2013_REV_0_DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-12**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**SAND**, gravelly, trace silt, non-plastic fines, cream and yellow brown, dry, dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, rounded to sub-rounded and medium strength.	
1.0				
1.5				BULK
2.0				
2.5				
3.0				
3.3m			**CLAY**, with gravel, trace sand, high plasticity, yellow brown and cream, moist (dry of plastic limit), very stiff. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine grained, sub-rounded and low strength.	
3.5				BULK
4.0				
4m			Test pit TP-SAR-12 terminated at depth 4 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.00 m as planned depth.
2. Many roots were observed up to 0.6 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**4/03/2024**	**EASTING:**	**466904 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**4/03/2024**	**NORTHING:**	**1062744 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.0 x 6.0**	**ELEVATION:**	**357 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-13**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, very loose.	
0.15m			TOPSOIL	
			Topsoil is partially cleared.	
			GRAVEL, clayey, with sand, medium plasticity fines, red brown, dry, dense.	
0.5			LATERITE	
			Sand particles are fine to coarse grained and sub-rounded.	
			Gravel particles are fine to medium grained, rounded to sub-rounded and medium strength.	
1.0				
1.5				
2.0				BULK
2.5				
3.0				
3.5				
4.0				
4m			Test pit TP-SAR-13 terminated at depth 4 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.00 m as planned depth.
2. Many roots were observed up to 0.15 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator 330DL

LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 4/03/2024
DATE PROFILED: 4/03/2024
EXCAVATION SIZE: 1.8 x 5.0

EASTING: 467538 m
NORTHING: 1063466 m
ELEVATION: 375 m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-14**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, very loose.	
0.15m			TOPSOIL	
			Topsoil is partially cleared.	
			GRAVEL, sandy, trace clay, low plasticity fines, orange brown, dry, very dense.	
			LATERITE	
			Sand particles are fine to coarse grained and sub-rounded.	
			Gravel particles are fine to coarse grained, rounded to sub-rounded and medium strength.	BULK
1.6m			**SAND**, gravelly, trace silt, non-plastic fines, cream and yellow brown, dry to slightly moist, dense.	
			RESIDUAL	
			Sand particles are fine to coarse grained and sub-rounded.	
			Gravel particles are fine grained, rounded to sub-rounded and medium strength.	BULK
3.3m			Test pit TP-SAR-14 terminated at depth 3.3 m	

NOTES:
1. Excavation was stopped at 3.30 m. Very dense formation
2. Many roots were observed up to 0.40 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**4/03/2024**	**EASTING:**	**468099 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**4/03/2024**	**NORTHING:**	**1064241 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.6 x 5.0**	**ELEVATION:**	**349 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-15**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, dark grey, dry, very loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**GRAVEL**, sandy, with silt, non-plastic fines, orange brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to coarse grained, rounded to sub-rounded and medium strength. Cementing is moderate.	BULK
1.0				
1.4m			**SAND**, gravelly, with silt, non-plastic fines, cream and yellow brown, dry to slightly moist, dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded to angular and medium strength.	
1.5				
2.0				BULK
2.5				
2.8m			Test pit TP-SAR-15 terminated at depth 2.8 m	
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 2.80 m.
2. Many roots were observed up to 0.60 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**5/03/2024**	**EASTING:**	**468730 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**5/03/2024**	**NORTHING:**	**1064953 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 5.0**	**ELEVATION:**	**349 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-17**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark brown and grey, dry, very loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**CLAY**, gravelly, with sand, high plasticity, orange brown, moist (dry of plastic limit), very stiff. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine grained, sub-rounded to angular and medium strength.	BULK
1.0				
1.5				
2.0				
2.5				
2.6m			Test pit TP-SAR-17 terminated at depth 2.6 m	
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 2.60 m.
2. Few roots were observed up to 0.40 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**5/03/2024**	**EASTING:**	**470038 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**5/03/2024**	**NORTHING:**	**1065956 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 6.0**	**ELEVATION:**	**377 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-18**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, very loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**CLAY**, gravelly, with sand, medium plasticity, orange brown, moist (dry of plastic limit), hard. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine grained, sub-rounded to angular and medium strength.	
1.0				
1.5				BULK
2.0				
2.5				
2.9m			Test pit TP-SAR-18 terminated at depth 2.9 m	
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 2.90 m.
2. Many roots were observed up to 0.40 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator 330DL

LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 6/03/2024
DATE PROFILED: 6/03/2024
EXCAVATION SIZE: 2.1 x 5.0

EASTING: 470585 m
NORTHING: 1066372 m
ELEVATION: 366 m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-19**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, <u>dry</u>, very loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**SAND**, gravelly, with silt, low plasticity fines, cream and yellow brown, <u>dry to slightly moist</u>, medium dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded to angular and medium strength.	
1.0				
1.5				BULK
2.0				
2.5				
3.0				
3m			**GRAVEL**, sandy, with silt, low plasticity fines, orange brown, <u>dry</u>, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to coarse grained, rounded to sub-rounded and medium strength. Cementing is moderate.	BULK
3.5				
4.0				
4m			Test pit TP-SAR-19 terminated at depth 4 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.00 m as planned depth.
2. Many roots were observed up to 0.90 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**6/03/2024**	**EASTING:**	**471124 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**6/03/2024**	**NORTHING:**	**1066809 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.0 x 6.0**	**ELEVATION:**	**357 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-20**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, very loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**SAND**, silty, non-plastic fines, grey, slightly moist, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	
1.0				
1.5				
2.0				BULK
2.5				
3.0				
3.4m			**SAND**, silty, trace gravel, non-plastic fines, grey, slightly moist, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	
3.5				BULK
3.8m			Gravel particles are fine grained, rounded to sub-rounded and medium strength. Test pit TP-SAR-20 terminated at depth 3.8 m	
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.80 m.
2. Many roots were observed up to 0.60 m depth.
3. Seepage was observed at 2.4m.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR : NATCO
MACHINE : Excavator 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 6/03/2024
DATE PROFILED: 6/03/2024
EXCAVATION SIZE: 2.2 x 5.0

EASTING: 471683 m
NORTHING: 1067209 m
ELEVATION: 347 m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-21**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, dark grey, dry, very loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**SAND**, gravelly, with silt, low plasticity fines, yellow brown, dry, dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded to angular and medium strength.	
1.0				
1.5				BULK
2.0				
2.5				
2.6m			**GRAVEL**, sandy, trace silt, low plasticity fines, yellow brown, dry to slightly moist, very dense. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to coarse grained, rounded to sub-rounded and medium strength.	BULK
3.0				
3.3m			Test pit TP-SAR-21 terminated at depth 3.3 m	
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.30 m as planned depth.
2. Many roots were observed up to 0.90 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator 330DL

LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 6/03/2024
DATE PROFILED: 6/03/2024
EXCAVATION SIZE: 2.1 x 5.0

EASTING: 472207 m
NORTHING: 1067714 m
ELEVATION: 343 m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-22**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, very loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**SAND**, gravelly, with silt, low plasticity fines, yellow brown and cream, dry, dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded to angular and medium strength.	
1.0				
1.5				BULK
2.0				
2.5				
2.6m			**GRAVEL**, sandy, trace silt, low plasticity fines, yellow brown and cream, dry to slightly moist, very dense. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to coarse grained, rounded to sub-rounded and medium strength.	
3.0				BULK
3.5				
3.8m			Test pit TP-SAR-22 terminated at depth 3.8 m	
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.80 m.
2. Many roots were observed up to 0.80 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**6/03/2024**	**EASTING:**	**472726 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**6/03/2024**	**NORTHING:**	**1068140 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.3 x 5.0**	**ELEVATION:**	**337 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-23**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, very loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**SAND**, gravelly, trace silt, low plasticity fines, yellow brown and cream, dry, dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded to angular and medium strength. Ferricrete nodules present.	
1.0				
1.5				BULK
2.0				
2.5				
3.0				
3m			**GRAVEL**, sandy, trace silt, low plasticity fines, yellow brown and cream, dry to slightly moist, dense. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to coarse grained, rounded to sub-rounded and medium strength. Ferricrete nodules present.	BULK
3.5				
3.7m			Test pit TP-SAR-23 terminated at depth 3.7 m	
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.70 m as planned depth.
2. Many roots were observed up to 0.80 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**7/03/2024**	**EASTING:**	**473256 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**7/03/2024**	**NORTHING:**	**1068575 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.3 x 5.0**	**ELEVATION:**	**310 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-24**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, <u>dry</u>, very loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**SAND**, with gravel, trace silt, low plasticity fines, orange, <u>dry</u>, medium dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded to angular and medium strength. Ferricrete nodules present.	BULK
1.0				
1.2m			**GRAVEL**, sandy, with clay, medium plasticity fines, red brown, <u>dry</u>, very dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, rounded to sub-rounded and high strength.	
1.5				BULK
2.0				
2.4m			**GRAVEL**, sandy, with cobbles, trace silt, low plasticity fines, yellow brown and cream, <u>dry to slightly moist</u>, dense. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to coarse grained, rounded to sub-rounded and medium strength.	
2.5				BULK
3.0				
3.4m			Test pit TP-SAR-24 terminated at depth 3.4 m	
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.40 m as planned depth.
2. Many roots were observed up to 0.80 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator 330DL

LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 7/03/2024
DATE PROFILED: 7/03/2024
EXCAVATION SIZE: 2.1 x 5.0

EASTING: 473796 m
NORTHING: 1069014 m
ELEVATION: 317 m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-25**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, very loose. TOPSOIL Topsoil is partially cleared.	
0.4m			**GRAVEL**, clayey, with sand, high plasticity fines, red brown, dry to slightly moist, medium dense. LATERITE Sand particles are fine to coarse grained and sub-rounded to sub-angular. Gravel particles are fine grained, rounded to sub-rounded and medium strength.	
2.0				BULK
3.5m			**CLAY**, gravelly, with sand, high plasticity, orange brown, moist (dry of plastic limit), very stiff. RESIDUAL Sand particles are fine to coarse grained and sub-rounded to sub-angular. Gravel particles are fine grained, rounded to sub-rounded and low strength.	
4.0				BULK
4.5m			Test pit TP-SAR-25 terminated at depth 4.5 m	

NOTES:
1. Excavation was stopped at 4.50 m.
2. Many roots were observed up to 0.40 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 7/03/2024
DATE PROFILED: 7/03/2024
EXCAVATION SIZE: 2.2 x 6.0

EASTING: 474324 m
NORTHING: 1069466 m
ELEVATION: 347 m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-26**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SILT, sandy, trace gravel, non-plastic, pale grey, moist (dry of plastic limit), soft. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded to sub-angular. Gravel particles are fine grained, rounded to sub-rounded and medium strength.	
1.0				
1.5				
2.0				BULK
2.5				
3.0				
3.5				
3.8m			**CLAY**, sandy, with gravel, high plasticity, orange brown, moist (dry of plastic limit), very stiff. RESIDUAL	BULK
4m			Sand particles are fine to coarse grained and sub-rounded to sub-angular. Gravel particles are fine grained, rounded to sub-rounded and medium strength. Test pit TP-SAR-26 terminated at depth 4 m	
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.00 m.
2. Many roots were observed up to 0.30 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**7/03/2024**	**EASTING:**	**474877 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**7/03/2024**	**NORTHING:**	**1069854 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 5.0**	**ELEVATION:**	**347 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-27**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, dark grey, dry, loose. TOPSOIL Topsoil is partially cleared.	
0.5			0.5m **GRAVEL**, sandy, with clay, medium plasticity fines, red brown, dry to slightly moist, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded to sub-angular. Gravel particles are fine grained, rounded to sub-rounded and medium strength.	BULK
1.9			1.9m Test pit TP-SAR-27 terminated at depth 1.9 m	

NOTES:
1. Refusal at 1.90 m.
2. Many roots were observed up to 0.50 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 8/03/2024
DATE PROFILED: 8/03/2024
EXCAVATION SIZE: 2.1 x 5.0

EASTING: 475394 m
NORTHING: 1070362 m
ELEVATION: 348 m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-28**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			GRAVEL, silty, trace sand, non-plastic fines, dark grey, dry, medium dense. TOPSOIL	
0.3m			Topsoil is partially cleared.	
			GRAVEL, with sand, trace clay, medium plasticity fines, orange brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded to sub-angular. Gravel particles are fine grained, rounded to sub-rounded and low strength.	BULK
4m			Test pit TP-SAR-28 terminated at depth 4 m	

NOTES:
1. Excavation was stopped at 4.00 m.
2. Many roots were observed up to 0.30 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**8/03/2024**	**EASTING:**	**475915 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**8/03/2024**	**NORTHING:**	**1070797 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 5.0**	**ELEVATION:**	**356 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-29**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, pale grey, dry, loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**GRAVEL**, with sand, trace clay, medium plasticity fines, orange brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded to sub-angular. Gravel particles are fine grained, rounded to sub-rounded and low strength.	
1.0				
1.5				BULK
2.0				
2.5				
3.0				
3m			**CLAY**, sandy, with gravel, high plasticity, orange brown, moist (dry of plastic limit), very stiff. RESIDUAL Sand particles are fine to coarse grained and sub-rounded to sub-angular. Gravel particles are fine grained, rounded to sub-rounded and medium strength.	
3.5				BULK
4.0				
4m			Test pit TP-SAR-29 terminated at depth 4 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.00 m.
2. Many roots were observed up to 0.30 m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**8/03/2024**	**EASTING:**	**476297 m**
MACHINE	**: Excavator 330DL**	**DATE PROFILED:**	**8/03/2024**	**NORTHING:**	**1071208 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.1 x 6.0**	**ELEVATION:**	**337 m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-30**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose to medium dense. TOPSOIL Topsoil is partially cleared.	
0.4m			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and medium strength. Cementing is moderate.	BULK
2.3m			**CLAY**, with sand, trace gravel, high plasticity, white and yellow brown, moist (dry of plastic limit), very stiff. SAPROLITE Sand particles are fine to coarse grained and sub-rounded.	BULK
3.7m			Test pit TP-SAR-30 terminated at depth 3.7 m	

NOTES:
1. Excavation was stopped at 3.70m.
2. A few roots were observed up to 0.40m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 6/02/2024
DATE PROFILED: 6/02/2024
EXCAVATION SIZE: 1.7 x 6.0

EASTING: 476637 m
NORTHING: 1071536 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-31**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
			GRAVEL, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and medium strength.	BULK
2.1m			**CLAY**, with sand, trace gravel, medium plasticity, orange brown, moist (dry of plastic limit), very stiff. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained and sub-rounded to angular.	
3.2m			**CLAY**, with sand, trace gravel, high plasticity, white and yellow brown, moist (dry of plastic limit), very stiff. SAPROLITE Sand particles are fine to coarse grained and sub-rounded.	BULK
3.7m			Test pit TP-SAR-31 terminated at depth 3.7 m	

NOTES:
1. Excavation was stopped at 3.70m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**7/02/2024**	**EASTING:**	**476956 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**7/02/2024**	**NORTHING:**	**1071745 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-32**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose. TOPSOIL Topsoil is partially cleared.	
0.4m			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and high strength.	BULK
1.5m			**CLAY**, sandy, trace gravel, high plasticity, yellow brown, moist (dry of plastic limit), very stiff. SAPROLITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and low strength.	BULK
2.5m			Test pit TP-SAR-32 terminated at depth 2.5 m	

NOTES:
1. Excavation was stopped at 2.50m.
2.A few roots were observed up to 0.40m depth.
3. No seepage was observed.
4. Pit was stable.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 7/02/2024
DATE PROFILED: 7/02/2024
EXCAVATION SIZE: 1.7 x 6.0

EASTING: 477217 m
NORTHING: 1071934 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-33**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**CLAY**, with sand, trace gravel, medium plasticity, pale grey and cream, moist (dry of plastic limit), soft to firm. TOPSOIL	
0.4m			Topsoil is partially cleared. **SILT/CLAY**, with sand, medium plasticity, orange brown, moist (near plastic limit). ALLUVIUM Sand particles are fine to medium grained and sub-rounded to sub-angular.	BULK
1.7m			**SILT**, sandy, medium plasticity, grey green, wet (near liquid limit), stiff. ALLUVIUM Sand particles are fine grained and sub-rounded to sub-angular.	BULK
3.2m			Test pit TP-SAR-33 terminated at depth 3.2 m	

NOTES:
1. Excavation was stopped at 3.20m.
2. A few roots were observed up to 0.40m depth.
3. Seepage was observed at 3.2m.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**7/02/2024**	**EASTING:**	**477434 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**7/02/2024**	**NORTHING:**	**1072181 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.6 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-34**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose to medium dense. TOPSOIL Topsoil is partially cleared.	
0.5			0.5m **CLAY**, with sand, trace gravel, medium plasticity, red brown, moist (dry of plastic limit), very stiff. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and very low strength.	
1.0				
1.5				BULK
2.0				
2.5				
			2.7m **CLAY**, with sand, trace gravel, medium plasticity, pink brown, moist (dry of plastic limit), very stiff. SAPROLITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and very low strength.	BULK
3.0				
3.5			3.5m Test pit TP-SAR-34 terminated at depth 3.5 m	
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.50m.
2. A few roots were observed up to 0.50m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 7/02/2024
DATE PROFILED: 7/02/2024
EXCAVATION SIZE: 1.5 x 6.0

EASTING: 477599 m
NORTHING: 1073068 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-35**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and high strength.	
1.0				
1.5				BULK
2.0				
2.4m			**CLAY**, with sand, trace gravel, medium plasticity, yellow brown, moist (dry of plastic limit), very stiff. SAPROLITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and very low strength.	
2.5				
3.0				BULK
3.5				
3.8m			Test pit TP-SAR-35 terminated at depth 3.8 m	
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.80m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**7/02/2024**	**EASTING:**	**477915 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**7/02/2024**	**NORTHING:**	**1073716 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-36**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose to medium dense. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**SAND**, silty, low plasticity fines, orange brown and cream, slightly moist, dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded.	
1.0				
1.5				
2.0				
2.5				BULK
3.0				
3.5				
4.0				
4.5				
4.9m			Test pit TP-SAR-36 terminated at depth 4.9 m	
5.0				

NOTES:
1. Excavation was stopped at 4.90m.
2.A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 8/02/2024
DATE PROFILED: 8/02/2024
EXCAVATION SIZE: 1.8 x 6.0

EASTING: 478040 m
NORTHING: 1074282 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-37**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose to medium dense. TOPSOIL Topsoil is partially cleared.	
0.7m			**SAND**, with gravel, trace silt, orange brown and cream, slightly moist, very dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and very low strength.	BULK
1.6m			**SAND**, with gravel, trace clay, cream, dry to slightly moist, very dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate.	BULK
4m			Test pit TP-SAR-37 terminated at depth 4 m	

NOTES:
1. Excavation was stopped at 4.00m.
2. A few roots were observed up to 0.70m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 8/02/2024
DATE PROFILED: 8/02/2024
EXCAVATION SIZE: 1.9 x 6.0

EASTING: 477616 m
NORTHING: 1074922 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-38**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and pale brown, dry, loose to medium dense. TOPSOIL Topsoil is partially cleared.	
0.5			0.5m **SAND**, trace silt and gravel, non-plastic fines, pale grey and cream, slightly moist, very dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and very low strength.	BULK
1.0				
1.5			1.6m **CLAY**, sandy, with gravel, medium plasticity, cream and yellow brown, moist (dry of plastic limit), stiff. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular.	
2.0				BULK
2.5			2.6m **SAND**, with gravel, trace clay, cream and yellow brown, dry to slightly moist, very dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded.	BULK
3.0			3m Gravel particles are fine to medium grained and rounded to sub-rounded. Cementing is moderate. Test pit TP-SAR-38 terminated at depth 3 m	
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.00m.
2. A few roots were observed up to 0.50m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**8/02/2024**	**EASTING:**	**477613 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**8/02/2024**	**NORTHING:**	**1075564 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-39**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and pale brown, dry, loose to medium dense. TOPSOIL Topsoil is partially cleared.	
0.7m			**CLAY**, sandy, with gravel, high plasticity, cream and yellow brown, moist (dry of plastic limit), hard. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular.	BULK
4m			Test pit TP-SAR-39 terminated at depth 4 m	

NOTES:
1. Excavation was stopped at 4.00m.
2.A few roots were observed up to 0.70m depth.
3. No seepage was observed.
4. Pit was stable.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 8/02/2024
DATE PROFILED: 8/02/2024
EXCAVATION SIZE: 1.9 x 6.0

EASTING: 477693 m
NORTHING: 1076265 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
SAR
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-SAR-40**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**GRAVEL**, sandy, with silt, non-plastic fines, brown, dry, medium dense. TOPSOIL Topsoil is partially cleared.	
0.7m			**CLAY**, sandy, with gravel, high plasticity, orange brown, moist (dry of plastic limit), hard. LATERITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and low strength.	BULK
4m			Test pit TP-SAR-40 terminated at depth 4 m	

NOTES:
1. Excavation was stopped at 4.00m.
2. A few roots were observed up to 0.70m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 8/02/2024
DATE PROFILED: 9/02/2024
EXCAVATION SIZE: 1.7 x 6.0

EASTING: 477817 m
NORTHING: 1076920 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WDC
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WDC-01**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, non-plastic fines, pale grey, dry, very loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
			GRAVEL, sandy, trace clay, low plasticity fines, orange brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and medium strength.	BULK
2.2m			**CLAY**, sandy, trace gravel, high plasticity, white and yellow brown, moist (dry of plastic limit), very stiff to hard. SAPROLITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and medium strength.	BULK
3.5m			Test pit TP-WDC-01 terminated at depth 3.5 m	

NOTES:
1. Excavation was stopped at 3.50m.
2. Many roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**29/01/2024**	**EASTING:**	**477911 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**29/01/2024**	**NORTHING:**	**1079494 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WDC
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WDC-02**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, non-plastic fines, pale grey and brown, dry, very loose. TOPSOIL Topsoil is partially cleared.	
0.6m			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, very dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and medium strength. Cementing is weak.	BULK
2.9m			**CLAY**, with gravel, trace sand, high plasticity, yellow brown, moist (dry of plastic limit), very stiff. SAPROLITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded and low strength.	BULK
3.7m			Test pit TP-WDC-02 terminated at depth 3.7 m	

NOTES:
1. Excavation was stopped at 3.70m.
2. A few roots were observed up to 0.60m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**30/01/2024**	**EASTING:**	**479284 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**30/01/2024**	**NORTHING:**	**1079397 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.6 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WDC
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WDC-03**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, non-plastic fines, pale grey, dry, very loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**GRAVEL**, clayey, with sand, medium plasticity fines, orange brown, dry to slightly moist, dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained, sub-rounded and medium strength. Cementing is weak.	
1.0				
1.5				BULK
2.0				
2.5				
2.5m			**CLAY**, sandy, trace gravel, high plasticity, yellow brown, moist (dry of plastic limit), very stiff. SAPROLITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and low strength.	BULK
3.0				
3.2m			Test pit TP-WDC-03 terminated at depth 3.2 m	
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.20m.
2. A few roots were observed up to 0.20m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**30/01/2024**	**EASTING:**	**478993 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**30/01/2024**	**NORTHING:**	**1079611 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WDC
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WDC-04**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, non-plastic fines, pale grey, dry, very loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**GRAVEL**, clayey, with sand, medium plasticity fines, brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and medium strength.	BULK
1.0				
1.4m			**GRANODIORITE**, medium to coarse grained, granular, massive, yellow brown, very low strength. HIGHLY WEATHERED ROCK	
1.5				
2.0				BULK
2.5				
2.8m			Test pit TP-WDC-04 terminated at depth 2.8 m	
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 2.80m.
2. Many roots were observed up to 0.20m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**29/01/2024**	**EASTING:**	**478111 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**29/01/2024**	**NORTHING:**	**1079469 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WDC
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WDC-05**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, non-plastic fines, pale grey, dry, very loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**SAND**, clayey, high plasticity fines, orange brown, dry to slightly moist, dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	
1.0				
1.5				BULK
2.0				
2.5				
2.5m			**SAND**, with clay, high plasticity fines, orange brown, wet, dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	
3.0				BULK
3.5 ▼				
3.8m			Test pit TP-WDC-05 terminated at depth 3.8 m	
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.80m.
2. A few roots were observed up to 0.20m depth.
3. Seepage was observed at 3.50m with trickle inflow.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**29/01/2024**	**EASTING:**	**478650 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**29/01/2024**	**NORTHING:**	**1079659 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WDC
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WDC-06**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, non-plastic fines, pale grey, dry, very loose.	
0.1m			TOPSOIL Topsoil is partially cleared.	
0.5			**GRAVEL**, clayey, with sand, high plasticity fines, orange brown, dry, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and medium strength.	BULK
1.0				
1.2m			**CLAY**, sandy, trace gravel, high plasticity, cream, moist (dry of plastic limit), very stiff. SAPROLITE Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded to sub-angular and medium strength.	
1.5				
2.0				BULK
2.5				
3.0				
3m			Test pit TP-WDC-06 terminated at depth 3 m	
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.00m.
2. Many roots were observed up to 0.10m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**29/01/2024**	**EASTING:**	**478397 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**29/01/2024**	**NORTHING:**	**1079580 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.6 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WHD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WHD-01**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, non-plastic fines, pale grey and brown, dry, very loose. TOPSOIL Topsoil is partially cleared.	
0.5			0.5m **SAND**, with gravel, trace silt, cream and orange brown, dry to slightly moist, dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded.	BULK
1.0				
1.5				
			1.7m **SAND**, with clay, trace gravel, cream, dry to slightly moist, very dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded.	
2.0				
2.5			2.5m **GRANODIORITE**, medium to coarse grained, granular, massive, brown, very low strength. EXTREMELY WEATHERED TO HIGHLY WEATHERED ROCK	BULK
3.0				
			3.2m Test pit TP-WHD-01 terminated at depth 3.2 m	
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.20m.
2.A few roots were observed up to 0.50m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**5/02/2024**	**EASTING:**	**482515 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**5/02/2024**	**NORTHING:**	**1071893 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WHD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WHD-02**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, non-plastic fines, pale grey and brown, dry, very loose. TOPSOIL Topsoil is partially cleared.	
0.7m			**CLAY**, trace sand, high plasticity, grey and yellow brown, moist (dry of plastic limit), very stiff. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular.	BULK
3m			**SAND**, with gravel and clay, cream and orange brown, dry to slightly moist, very dense. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and sub-rounded to angular.	BULK
3.8m			Test pit TP-WHD-02 terminated at depth 3.8 m	

NOTES:
1. Excavation was stopped at 3.80m.
2.A few roots were observed up to 0.70m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 5/02/2024
DATE PROFILED: 5/02/2024
EXCAVATION SIZE: 1.8 x 6.0

EASTING: 482891 m
NORTHING: 1071939 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WHD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WHD-03**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose to medium dense. TOPSOIL Topsoil is partially cleared.	
0.5			0.5m **CLAY**, with sand, high plasticity, yellow and red brown, moist (dry of plastic limit), very stiff. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular.	BULK
1.0				
1.5			1.6m **CLAY**, with sand and gravel, medium plasticity, yellow brown, moist (dry of plastic limit), very stiff. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular.	
2.0			2.1m **GRANODIORITE BOULDERS** brown and white, dry, low strength.	BULK
2.3			2.3m Test pit TP-WHD-03 terminated at depth 2.3 m	
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 2.30m.
2. A few roots were observed up to 0.50m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 6/02/2024
DATE PROFILED: 6/02/2024
EXCAVATION SIZE: 1.7 x 6.0

EASTING: 482828 m
NORTHING: 1072040 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WHD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WHD-04**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, very loose. TOPSOIL Topsoil is partially cleared.	
0.4m			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to coarse grained, sub-rounded and medium strength.	BULK
1.1m			**SAND**, with gravel and clay, cream and orange brown, dry to slightly moist, very dense. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and sub-rounded to angular.	BULK
1.9m			Test pit TP-WHD-04 terminated at depth 1.9 m	

NOTES:
1. Excavation was stopped at 1.90m.
2. A few roots were observed up to 0.40m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 5/02/2024
DATE PROFILED: 5/02/2024
EXCAVATION SIZE: 2.0 x 6.0

EASTING: 482744 m
NORTHING: 1071671 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WHD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WHD-05**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, very loose. TOPSOIL Topsoil is partially cleared.	
0.6m			**CLAY**, with sand, high plasticity, white and yellow brown, moist (dry of plastic limit), very stiff to hard. COLLUVIUM Sand particles are fine to coarse grained and sub-rounded.	BULK
3.7m			**SAND**, silty, low plasticity fines, pale grey and green, wet, dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	BULK
4.9m			Test pit TP-WHD-05 terminated at depth 4.9 m	

NOTES:
1. Excavation was stopped at 4.90m.
2. A few roots were observed up to 0.60m depth.
3. Seepage was observed at 4.9m.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 5/02/2024
DATE PROFILED: 5/02/2024
EXCAVATION SIZE: 1.7 x 6.0

EASTING: 481918 m
NORTHING: 1071763 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WHD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WHD-06**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**BOULDERS**, cobbly, with gravel, brown and white, dry, high strength. QUARTZ	BULK
0.8m			Test pit TP-WHD-06 terminated at depth 0.8 m	

NOTES:
1. Refusal 0.80m.
2. A few roots were observed up to 0.80m depth.
3. No Seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 5/02/2024
DATE PROFILED: 5/02/2024
EXCAVATION SIZE: 2.2 x 6.0

EASTING: 482189 m
NORTHING: 1071557 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WHD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WHD-07**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, medium dense. TOPSOIL Topsoil is partially cleared.	
0.4m			**SAND**, with silt, non-plastic fines, brown, slightly moist, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	BULK
1.5m			**SAND**, trace silt, non-plastic fines, yellow brown, wet, dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	BULK
2m			Test pit TP-WHD-07 terminated at depth 2 m	

NOTES:
1. Excavation was stopped at 2.00m.
2. A few roots were observed up to 0.40m depth.
3. Seepage was observed at 2.0m.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 6/02/2024
DATE PROFILED: 6/02/2024
EXCAVATION SIZE: 1.7 x 6.0

EASTING: 482866 m
NORTHING: 1072286 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WHD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WHD-08**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, very loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**CLAY**, with sand, trace gravel, medium plasticity, orange brown, moist (dry of plastic limit), very stiff. COLLUVIUM Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained and sub-rounded to angular.	
1.0				
1.5				BULK
2.0				
2.5				
2.6m			**SAND**, with gravel, trace silt, non-plastic fines, dark grey, wet, dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	
3.0				
3.5				BULK
▼				
3.9m			Test pit TP-WHD-08 terminated at depth 3.9 m	
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.90m.
2. A few roots were observed up to 0.20m depth.
3. Seepage was observed at 3.9m.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**6/02/2024**	**EASTING:**	**482929 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**6/02/2024**	**NORTHING:**	**1072259 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WHD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WHD-09**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale grey, dry, loose to medium dense. TOPSOIL Topsoil is partially cleared.	
0.5			0.5m **SAND**, silty, with gravel, low plasticity fines, orange brown, slightly moist, dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	
1.0				BULK
1.5			1.5m **SAND**, trace silt, non-plastic fines, yellow brown, wet, dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	
2.0				
2.5				BULK
3.0				
3.2			3.2m Test pit TP-WHD-09 terminated at depth 3.2 m	
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.20m.
2. A few roots were observed up to 0.50m depth.
3. Seepage was observed at 3.2m.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 6/02/2024
DATE PROFILED: 6/02/2024
EXCAVATION SIZE: 1.5 x 6.0

EASTING: 482769 m
NORTHING: 1072089 m
ELEVATION: m

KP_TP_2013_REV_0_DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WHD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WHD-10**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose to medium dense. TOPSOIL Topsoil is partially cleared.	
0.6m			**SAND**, trace silt, non-plastic fines, grey and green, wet, dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	BULK
2.8m			Test pit TP-WHD-10 terminated at depth 2.8 m	

NOTES:
1. Excavation was stopped at 2.80m.
2. A few roots were observed up to 0.60m depth.
3. Seepage was observed at 2.8m.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 5/02/2024
DATE PROFILED: 5/02/2024
EXCAVATION SIZE: 1.7 x 6.0

EASTING: 482412 m
NORTHING: 1071762 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WHD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WHD-11**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale grey and brown, dry, loose to medium dense. TOPSOIL Topsoil is partially cleared.	
0.4m			**SAND**, trace silt, non-plastic fines, grey and green, wet, dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	BULK
3.4m			Test pit TP-WHD-11 terminated at depth 3.4 m	

NOTES:
1. Excavation was stopped at 3.40m.
2. A few roots were observed up to 0.40m depth.
3. Seepage was observed at 3.4m.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 5/02/2024
DATE PROFILED: 5/02/2024
EXCAVATION SIZE: 1.4 x 6.0

EASTING: 481970 m
NORTHING: 1071438 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WHD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WHD-12**

Sheet 1 of 1 | *Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, non-plastic fines, pale grey and brown, dry, very loose. TOPSOIL Topsoil is partially cleared.	
0.4m			**SAND**, clayey, with silt, medium plasticity fines, orange brown, dry to slightly moist, dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded.	
0.5				
1.0				
1.5				
2.0				BULK
2.5				
3.0				
3.3m			**SAND**, with silt, trace gravel, non-plastic fines, orange brown, dry to slightly moist, dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded.	BULK
3.5				
3.9m			**GRANODIORITE**, medium to coarse grained, granular, massive, brown, very low strength. EXTREAMLY WEATHERED TO HIGHLY WEATHERED ROCK	BULK
4.0				
4.3m			Test pit TP-WHD-12 terminated at depth 4.3 m	
4.5				
5.0				

NOTES:
1. Excavation was stopped at 4.30m.
2.A few roots were observed up to 0.40m depth.
3. Seepage was observed at 4.3m.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 2/02/2024
DATE PROFILED: 3/02/2024
EXCAVATION SIZE: 1.6 x 6.0

EASTING: 482259 m
NORTHING: 1071072 m
ELEVATION: m

KP_TP_2013_REV_0_DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-01**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, non-plastic fines, pale grey, dry, very loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**SAND**, with gravel, trace silt, low plasticity fines, yellow brown, dry, dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded.	BULK
0.8m			**SAND**, clayey, with gravel, medium plasticity fines, cream, slightly moist, very dense. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and rounded to sub-rounded. Gravel particles are fine to coarse grained and rounded to sub-rounded.	
1.0				
1.5				BULK
2.0			2m Test pit TP-WSD-01 terminated at depth 2 m	
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 2.00m.
2. Many roots were observed up to 0.20m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**29/01/2024**	**EASTING:**	**477193 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**29/01/2024**	**NORTHING:**	**1079405 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-02**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, grey brown, dry, loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**CLAY**, sandy, with gravel, medium plasticity, yellow brown, moist (dry of plastic limit), hard. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded. Cementing is moderate.	BULK
1.0				
1.3m			Test pit TP-WSD-02 terminated at depth 1.3 m	
1.5				
2.0				
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 1.30m.
2. Many roots were observed up to 0.20m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**27/01/2024**	**EASTING:**	**479342 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**27/01/2024**	**NORTHING:**	**1079387 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-03**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, cream, dry, very loose. TOPSOIL Topsoil is partially cleared.	
0.4m			**GRAVEL**, sandy, trace clay, low plasticity fines, cream and red brown, dry to slightly moist, very dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and rounded to sub-rounded.	BULK
1.2m			Test pit TP-WSD-03 terminated at depth 1.2 m	

NOTES:
1. Refusal at 1.20m.
2. A few roots were observed up to 0.40m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**27/01/2024**	**EASTING:**	**477126 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**27/01/2024**	**NORTHING:**	**1079742 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-04**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, pale brown, dry, loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**CLAY**, sandy, trace gravel, medium plasticity, yellow and orange brown, moist (dry of plastic limit), very stiff. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded. Cementing is moderate.	BULK
1.0				
1.1m			**SAND**, yellow brown, slightly moist, very dense. EXTREMELY WEATHERED MATERIAL Sand particles are fine to coarse grained and sub-rounded.	
1.5				
2.0				BULK
2.5				
2.8m			Test pit TP-WSD-04 terminated at depth 2.8 m	
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Refusal at 2.80m.
2. Many roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**25/01/2024**	**EASTING:**	**477426 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**25/01/2024**	**NORTHING:**	**1079474 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-05**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, dark brown, dry, loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**CLAY**, sandy, trace gravel, medium plasticity, yellow brown, moist (dry of plastic limit), very stiff. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded. Cementing is moderate.	BULK
1.0				
1.5				
1.5m			**SAND**, clayey, low plasticity fines, grey and yellow brown, dry to slightly moist, dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded.	
2.0				BULK
2.5				
2.7m			Test pit TP-WSD-05 terminated at depth 2.7 m	
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 2.70m.
2. Many roots were observed up to 0.20m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**25/01/2024**	**EASTING:**	**477614 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**25/01/2024**	**NORTHING:**	**1079574 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.0 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-06**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, brown, dry, loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**SAND**, yellow brown, dry, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	BULK
1.0				
1.1m			**SAND**, trace gravel and clay, low plasticity fines, red brown, dry, dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded.	
1.5				
2.0				
2.1m			**GRANODIORITE**, medium to coarse grained, granular, massive, yellow brown, very low strength. HIGHLY WEATHERED ROCK	
2.5				BULK
3.0				
3.1m			Test pit TP-WSD-06 terminated at depth 3.1 m	
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.1m.
2. Many roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**27/01/2024**	**EASTING:**	**477261 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**27/01/2024**	**NORTHING:**	**1079592 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-07**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, dark brown, dry, very loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**SAND**, yellow brown, wet, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	
1.0				BULK
1.5 ▼				
1.7m			**SAND**, clayey, trace gravel, medium plasticity fines, yellow and grey, wet, dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded.	
2.0				BULK
2.5				
2.8m			Test pit TP-WSD-07 terminated at depth 2.8 m	
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 2.80m.
2. A few roots were observed up to 0.30m depth.
3. Seepage was observed at 1.5m with trickle inflow.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**27/01/2024**	**EASTING:**	**476897 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**27/01/2024**	**NORTHING:**	**1079798 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-08**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, dark grey, dry, very loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
			SAND, trace gravel, brown, dry, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded.	BULK
1.2m			**CLAY**, sandy, with gravel, medium plasticity, orange brown, moist (dry of plastic limit), very stiff. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded. Cementing is moderate.	BULK
3m			**CLAY**, with sand, trace gravel, high plasticity, yellow and orange brown, moist (dry of plastic limit), hard. SAPROLITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded.	BULK
4.4m			Test pit TP-WSD-08 terminated at depth 4.4 m	

NOTES:
1. Excavation was stopped at 4.4m.
2. Many roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**26/01/2024**	**EASTING:**	**477985 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**27/01/2024**	**NORTHING:**	**1079254 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-09**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, pale brown, dry, loose. TOPSOIL Topsoil is partially cleared.	
0.4m			**SAND**, trace clay, low plasticity fines, brown, slightly moist, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	BULK
2.3m			**SAND**, trace clay, low plasticity fines, dark grey and green, dry to slightly moist, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	BULK
4m			Test pit TP-WSD-09 terminated at depth 4 m	

▼ Water Level Indicator

NOTES:
1. **Excavation was stopped at 4.00m as planned depth.**
2. **A few roots were observed up to 0.40m depth.**
3. **Seepage was observed at 0.9m with trickle inflow.**
4. **Pit was not stable.**
5. **Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.**

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 24/01/2024
DATE PROFILED: 24/01/2024
EXCAVATION SIZE: 2.0 x 6.0

EASTING: 477867 m
NORTHING: 1079067 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-10**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, pale brown, dry, loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
			SAND, trace gravel, brown, slightly moist, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and sub-rounded.	
1.0				BULK
1.7m			**SAND**, clayey, trace gravel, low plasticity fines, cream, slightly moist, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded.	
2.5				BULK
3.3m			Test pit TP-WSD-10 terminated at depth 3.3 m	

NOTES:
1. Excavation was stopped at 3.30m as planned depth..
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**24/01/2024**	**EASTING:**	**477956 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**24/01/2024**	**NORTHING:**	**1079063 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.0 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-11**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, dark brown, dry, loose. TOPSOIL Topsoil is partially cleared.	
0.4m			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and medium strength.	BULK
2.9m			**CLAY**, with sand, high plasticity, white and yellow brown, moist (near plastic limit), very stiff to hard. SAPROLITE Sand particles are fine to coarse grained and sub-rounded.	BULK
4.4m			Test pit TP-WSD-11 terminated at depth 4.4 m	

NOTES:
1. Excavation was stopped at 4.4m.
2. Many roots were observed up to 0.40m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**27/01/2024**	**EASTING:**	**477898 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**27/01/2024**	**NORTHING:**	**1079271 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-12**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**CLAY**, with sand, low plasticity, pale brown, moist (dry of plastic limit), soft. TOPSOIL	
0.3m			Topsoil is partially cleared. Organic materials present.	
			SAND, trace gravel, brown, slightly moist, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded.	BULK
2.4m			**SAND**, clayey, trace gravel, low plasticity fines, pale grey and green, slightly moist, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded.	BULK
4m			Test pit TP-WSD-12 terminated at depth 4 m	

▼ Water Level Indicator

NOTES:
1. Excavation Excavation was stopped at 4.00 m as planned depth..
2. No roots were observed up up to 0.30m depth.
3. Seepage was observed at 1.5m.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**24/01/2024**	**EASTING:**	**477720 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**24/01/2024**	**NORTHING:**	**1079185 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-13**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, pale brown, dry, loose. TOPSOIL	
0.2m			Topsoil is partially cleared.	
0.5			**GRAVEL**, sandy, trace clay, low plasticity fines, brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and medium strength.	BULK
1.0				
1.1m			**SAND**, trace clay, low plasticity fines, yellow brown, slightly moist, dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded.	
1.5				
2.0				BULK
2.5				
3.0				
3.5				
3.5m			Test pit TP-WSD-13 terminated at depth 3.5 m	
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 3.50m as planned depth..
2. Many roots were observed up to 0.20m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**24/01/2024**	**EASTING:**	**477808 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**24/01/2024**	**NORTHING:**	**1078919 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.2 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-14**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, non-plastic fines, pale grey and brown, dry, very loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
			GRAVEL, sandy, trace clay, low plasticity fines, red brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and medium strength. Cementing is moderate.	
1.4m			**CLAY**, with sand, trace gravel, high plasticity, yellow brown, moist (dry of plastic limit), very stiff. RESIDUAL Sand particles are fine to medium grained and sub-rounded to sub-angular. Gravel particles are fine to medium grained, sub-rounded and low strength.	
2.5m			Test pit TP-WSD-14 terminated at depth 2.5 m	

NOTES:
1. Excavation was stopped at 2.50m. Hard formation
2. Many roots were observed up to 0.30m depth.
3. No Seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**30/01/2024**	**EASTING:**	**477653 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**30/01/2024**	**NORTHING:**	**1078791 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.7 x 5.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-15**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**CLAY**, with sand, low plasticity, pale brown, moist (dry of plastic limit), soft. TOPSOIL	
0.3m			Topsoil is partially cleared. Organic materials present.	
0.5			**SAND**, trace gravel, brown, slightly moist, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded.	BULK
1.0				
1.5				
2.0 ▼				
2.3m			Test pit TP-WSD-15 terminated at depth 2.3 m	
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 2.30m. Pit was not stable
2. A few roots were observed up to 0.30m depth.
3. Seepage was observed at 2.0m with moderate inflow.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

▼ **Water Level Indicator**

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**24/01/2024**	**EASTING:**	**477555 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**24/01/2024**	**NORTHING:**	**1079306 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.0 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-16**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, brown, dry, loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
0.5			**SAND**, with gravel, red brown, dry to slightly moist, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded.	BULK
0.8m			**SAND**, with gravel, trace silt, non-plastic fines, orange and grey, dry to slightly moist, very dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded.	
1.5				BULK
2.0				
2.2m			Test pit TP-WSD-16 terminated at depth 2.2 m	
2.5				
3.0				
3.5				
4.0				
4.5				
5.0				

NOTES:
1. Excavation was stopped at 2.20m.
2. A A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**25/01/2024**	**EASTING:**	**477447 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**25/01/2024**	**NORTHING:**	**1078988 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 5.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-17**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0			**SAND**, silty, trace gravel, non-plastic fines, brown, dry, loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
			SAND, trace gravel, brown, dry, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded.	
0.8m			**GRAVEL**, sandy, trace clay, low plasticity fines, red brown, dry to slightly moist, very dense. FERRICRETE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine to medium grained and sub-rounded.	BULK
1.4m			Test pit TP-WSD-17 terminated at depth 1.4 m	

NOTES:
1. Refusal at 1.40m.
2. A few roots were observed up to 0.30m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR : NATCO
MACHINE : Excavator CAT 330DL
LOGGED BY : Viraj
CHECKED BY :

DATE EXCAVATED: 25/01/2024
DATE PROFILED: 25/01/2024
EXCAVATION SIZE: 2.0 x 5.0

EASTING: 477317 m
NORTHING: 1079198 m
ELEVATION: m

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-18**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, pale brown, dry, loose. TOPSOIL Topsoil is partially cleared.	
0.4m			**GRAVEL**, sandy, with clay, low plasticity fines, brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and medium strength. Cementing is moderate.	BULK
1.9m			**SAND**, trace clay, low plasticity fines, yellow brown, dry to slightly moist, dense. RESIDUAL Sand particles are fine to coarse grained and sub-rounded.	BULK
3.5m			Test pit TP-WSD-18 terminated at depth 3.5 m	

NOTES:
1. Excavation was stopped at 3.50m as planned depth.
2. Many roots were observed up to 0.40m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**24/01/2024**	**EASTING:**	**477709 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**24/01/2024**	**NORTHING:**	**1078984 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**2.0 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-19**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
0.0			**SAND**, silty, trace gravel, non-plastic fines, brown, dry, loose. TOPSOIL Topsoil is partially cleared.	
0.4m			**GRAVEL**, clayey, with sand, medium plasticity fines, red brown, dry to slightly moist, dense. LATERITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained, sub-rounded and medium strength. Cementing is moderate.	BULK
2.8m			**CLAY**, gravelly, with sand, high plasticity, yellow brown, moist (dry of plastic limit), very stiff. SAPROLITE Sand particles are fine to coarse grained and sub-rounded. Gravel particles are fine grained and sub-rounded.	BULK
4.2m			Test pit TP-WSD-19 terminated at depth 4.2 m	

NOTES:
1. Excavation was stopped at 4.20m.
2. A few roots were observed up to 0.40m depth.
3. No seepage was observed.
4. Pit was stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**26/01/2024**	**EASTING:**	**477965 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**26/01/2024**	**NORTHING:**	**1079412 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.8 x 6.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25

Knight Piésold CONSULTING

Knight Piesold Pty Limited
A.C.N. 001 040 419
Level 1, 36 Cordelia Street
South Brisbane, QLD 4101
Australia

Doropo Gold Project
Ampella Mining
WSD
Site Investigation
Côte d'Ivoire

TEST PIT: **TP-WSD-20**	
Sheet 1 of 1	*Rev A*

JOB NUMBER: PE301-00821/05

DEPTH (m)	USC	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE
			SAND, silty, trace gravel, non-plastic fines, red brown, dry, loose. TOPSOIL	
0.3m			Topsoil is partially cleared.	
			SAND, trace clay, low plasticity fines, red brown, dry to slightly moist, medium dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	BULK
1.5m			**SAND**, trace clay, low plasticity fines, yellow brown, dry to slightly moist, dense. ALLUVIUM Sand particles are fine to coarse grained and sub-rounded.	BULK
3.7m			Test pit TP-WSD-20 terminated at depth 3.7 m	

▼ Water Level Indicator

NOTES:
1. Excavation was stopped at 3.70m as planned depth.
2. A few roots were observed up to 0.30m depth.
3. Seepage was observed at 3.0m.
4. Pit was not stable.
5. Coordinate was taken using handheld GPS (+/- 5m) and site local grid was based on UTM 30P.

CONTRACTOR	**: NATCO**	**DATE EXCAVATED:**	**25/01/2024**	**EASTING:**	**477780 m**
MACHINE	**: Excavator CAT 330DL**	**DATE PROFILED:**	**25/01/2024**	**NORTHING:**	**1079432 m**
LOGGED BY	**: Viraj**				
CHECKED BY	**:**	**EXCAVATION SIZE:**	**1.9 x 5.0**	**ELEVATION:**	**m**

KP_TP_2013_REV_0 DOROPO TP 2024 05 16.GPJ KP_DATATEMPLATE_TP_2013.GDT 19/12/25



Figure 01: TP-TSF-01 Test pit location



Figure 02: TP-TSF-01 Arising from 0.40 m to 1.00 m



Figure 03: TP-TSF-01 Arising from 0.40 m to 1.00 m with and without coarse material



Figure 04: TP-TSF-01 Consistency of arising from 0.40 m to 1.00 m



Figure 05: TP-TSF-01 Arising from 1.00 m to 4.00 m



Figure 06: TP-TSF-01 Arising from 1.00 m to 4.00 m with and without coarse material



Figure 07: TP-TSF-01 Consistency of arising from 1.00 m to 4.00



Figure 08: TP-TSF-01 Test pit



Figure 09: TP-TSF-01 Laterite Mottled horizon





Figure 10: TP-TSF-02 Test pit location



Figure 11: TP-TSF-02 Arising from 0.40 m to 1.55 m



Figure 12: TP-TSF-02 Consistency of arising from 0.40 m to 1.55 m



Figure 13: TP-TSF-02 Arising from 1.55 m to 3.70 m



Figure 14: TP-TSF-02 Consistency of arising from 1.55 m to 3.70 m



Figure 15: TP-TSF-02 Test pit



Figure 16: TP-TSF-03 Test pit location



Figure 17: TP-TSF-03 Arising from 0.40 m to 2.40 m



Figure 18: TP-TSF-03 Consistency of arising from 0.40 m to 2.40 m



Figure 19: TP-TSF-03 Arising from 2.40 m to 3.70 m



Figure 20: TP-TSF-03 Consistency of arising from 2.40 m to 3.70 m



Figure 21: TP-TSF-03 Test pit



Figure 22: TP-TSF-04 Test pit location



Figure 23: TP-TSF-04 Arising from 0.80 m to 2.30 m



Figure 24: TP-TSF-04 Consistency of arising from 0.80 m to 2.30 m



Figure 25: TP-TSF-04 Arising from 2.30 m to 3.90 m



Figure 26: TP-TSF-04 Consistency of arising from 2.30 m to 3.90 m



Figure 27: TP-TSF-04 Test pit



Figure 28: TP-TSF-05 Test pit location



Figure 29: TP-TSF-05 Arising from 0.00 m to 3.50 m



Figure 30: TP-TSF-05 Consistency of arising from 1.80 m to 2.40 m



Figure 31: TP-TSF-05 Consistency of arising from 2.40 m to 3.80 m



Figure 32: TP-TSF-05 Test pit



Figure 33: TP-TSF-06 Test pit location



Figure 34: TP-TSF-06 Arising from 0.30 m to 1.10 m



Figure 35: TP-TSF-06 Arising from 0.30 m to 1.10 m with and without coarse material

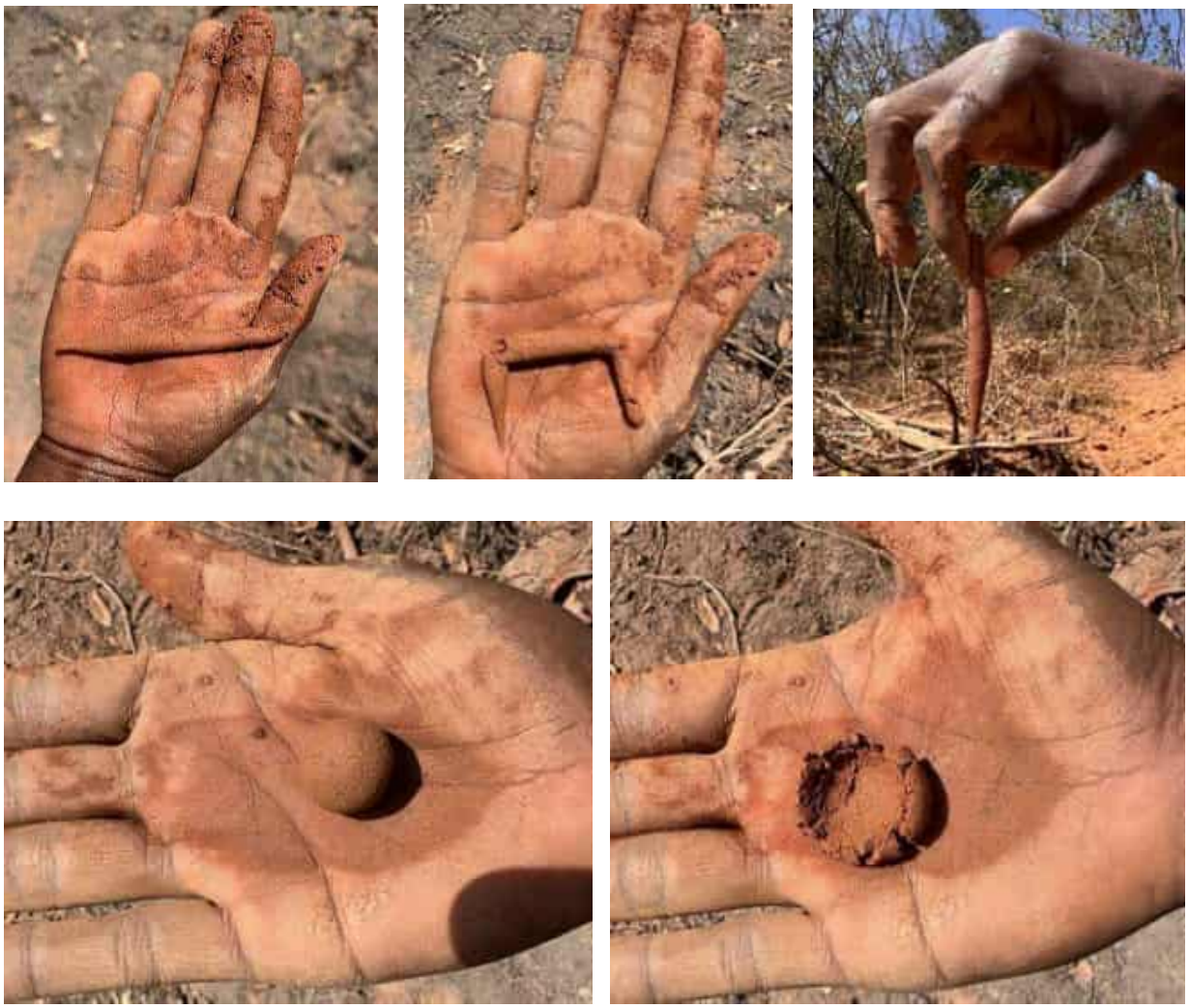


Figure 36: TP-TSF-06 Consistency of arising from 1.10 m to 2.90 m



Figure 37: TP-TSF-06 Arising from 1.10 m to 2.90 m



Figure 38: TP-TSF-06 Arising from 1.10 m to 2.90 m with and without coarse material



Figure 39: TP-TSF-06 Consistency of arising from 1.10 m to 2.90 m



Figure 40: TP-TSF-06 Test pit



Figure 41: TP-TSF-07 Test pit location



Figure 42: TP-TSF-07 Arising from 0.40 m to 2.00 m



Figure 43: TP-TSF-07 Consistency of arising from 0.40 m to 2.00 m



Figure 44: TP-TSF-07 Arising from 2.00 m to 3.50 m



Figure 45: TP-TSF-07 Consistency of arising from 2.00 m to 3.50 m



Figure 46: TP-TSF-07 Test pit



Figure 47: TP-TSF-08 Test pit location





Figure 48: TP-TSF-08 Arising from 0.50 m to 1.70 m



Figure 49: TP-TSF-08 Consistency of arising from 0.50 m to 1.70 m



Figure 50: TP-TSF-08 Test pit



Figure 51: TP-TSF-09 Test pit location



Figure 52: TP-TSF-09 Arising from 0.30 m to 2.00 m



Figure 53: TP-TSF-09 Consistency of arising from 0.30 m to 2.00 m



Figure 54: TP-TSF-09 Arising from 2.00 m to 3.30 m



Figure 55: TP-TSF-09 Consistency of arising from 2.00 m to 3.30 m



Figure 56: TP-TSF-09 Test pit



Figure 57: TP-TSF-10 Test pit location



Figure 58: TP-TSF-10 Arising from 0.20 m to 2.60 m



Figure 59: TP-TSF-10 Consistency of arising from 0.20 m to 2.60 m



Figure 60: TP-TSF-10 Test pit



Figure 61: TP-TSF-11 Test pit location



Figure 62: TP-TSF-11 Arising from 0.30 m to 1.80 m

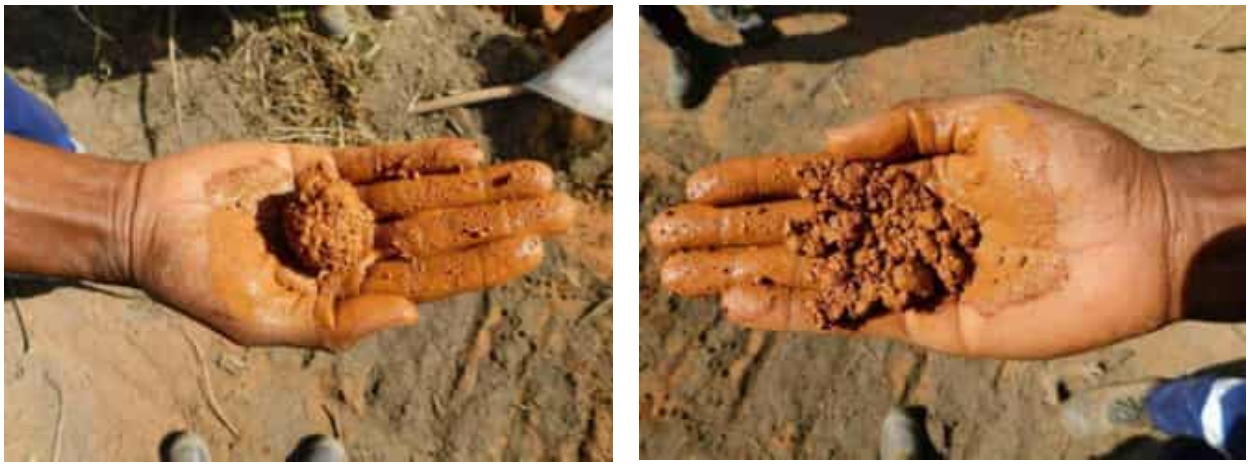


Figure 63: TP-TSF-11 Consistency of arising from 0.30 m to 1.80



Figure 64: TP-TSF-11 Arising from 1.80 m to 4.00 m



Figure 65: TP-TSF-11 Consistency of arising from 1.80 m to 4.00 m



Figure 66: TP-TSF-11 Test pit



Figure 67: TP-TSF-12 Test pit location



Figure 68: TP-TSF-12 Arising from 0.20 m to 2.20 m



Figure 69: TP-TSF-12 Consistency of arising from 0.20 m to 2.20 m



Figure 70: TP-TSF-12 Test pit



Figure 71: TP-TSF-13 Test pit location



Figure 72: TP-TSF-13 Arising from 0.40 m to 2.20 m



Figure 73: TP-TSF-13 Consistency of arising from 0.40 m to 2.20 m



Figure 74: TP-TSF-13 Arising from 2.20 m to 3.70 m



Figure 75: TP-TSF-13 Consistency of arising from 2.20 m to 3.70 m



Figure 76: TP-TSF-13 Test pit



Figure 77: TP-TSF-14 Test pit location



Figure 78: TP-TSF-14 Arising from 0.50 m to 2.00 m



Figure 79: TP-TSF-14 Arising from 2.00 m to 3.90 m



Figure 80: TP-TSF-14 Consistency of arising from 2.00 m to 3.90 m







Figure 81: TP-TSF-14 Test pit



Figure 82: TP-TSF-15 Test pit location



Figure 83: TP-TSF-15 Arising from 0.80 m to 2.70 m



Figure 84: TP-TSF-15 Consistency of arising from 0.80 m to 2.70 m



Figure 85: TP-TSF-15 Arising from 2.70 m to 3.70 m



Figure 86: TP-TSF-15 Consistency of arising from 2.70 m to 3.70 m



Figure 87: TP-TSF-15 Test pit



Figure 88: TP-TSF-16 Test pit location



Figure 89: TP-TSF-16 Arising from 0.60 m to 2.20 m



Figure 90: TP-TSF-16 Consistency of arising from 0.60 m to 2.20



Figure 91: TP-TSF-16 Arising from 2.20 m to 3.50 m



Figure 92: TP-TSF-16 Consistency of arising from 2.20 m to 3.50 m



Figure 93: TP-TSF-16 Test pit



Figure 94: TP-TSF-17 Test pit location



Figure 95: TP-TSF-17 Arising from 0.40 m to 1.70 m



Figure 96: TP-TSF-17 Consistency of arising from 0.40 m to 1.70 m



Figure 97: TP-TSF-17 Arising from 1.70 m to 3.40 m



Figure 98: TP-TSF-17 Consistency of arising from 1.70 m to 3.40 m



Figure 99: TP-TSF-17 Test pit



Figure 100: TP-TSF-18 Test pit location



Figure 101: TP-TSF-18 Arising from 0.40 m to 2.20 m



Figure 102: TP-TSF-18 Consistency of arising from 0.40 m to 2.20 m



Figure 103: TP-TSF-18 Arising from 2.20 m to 3.30 m



Figure 104: TP-TSF-18 Consistency of arising from 2.20 m to 3.30 m



Figure 105: TP-TSF-18 Test pit



Figure 106: TP-TSF-19 Test pit location



Figure 107: TP-TSF-19 Arising from 0.70 m to 1.40 m



Figure 108: TP-TSF-19 Consistency of arising at 1.40



Figure 109: TP-TSF-19 Arising from 1.40 m to 3.90 m



Figure 110: TP-TSF-19 Consistency of arising from 1.40 m to 3.90 m



Figure 111: TP-TSF-19 Test pit



Figure 112: TP-TSF-20 Test pit location



Figure 113: TP-TSF-20 Arising from 0.40 m to 1.40 m



Figure 114: TP-TSF-20 Consistency of arising from 0.40 m to 1.40 m



Figure 115: TP-TSF-20 Arising from 1.40 m to 3.00 m



Figure 116: TP-TSF-20 Arising from 1.40 m to 3.00 m with and without coarse material



Figure 117: TP-TSF-20 Consistency of arising from 1.40 m to 3.00m

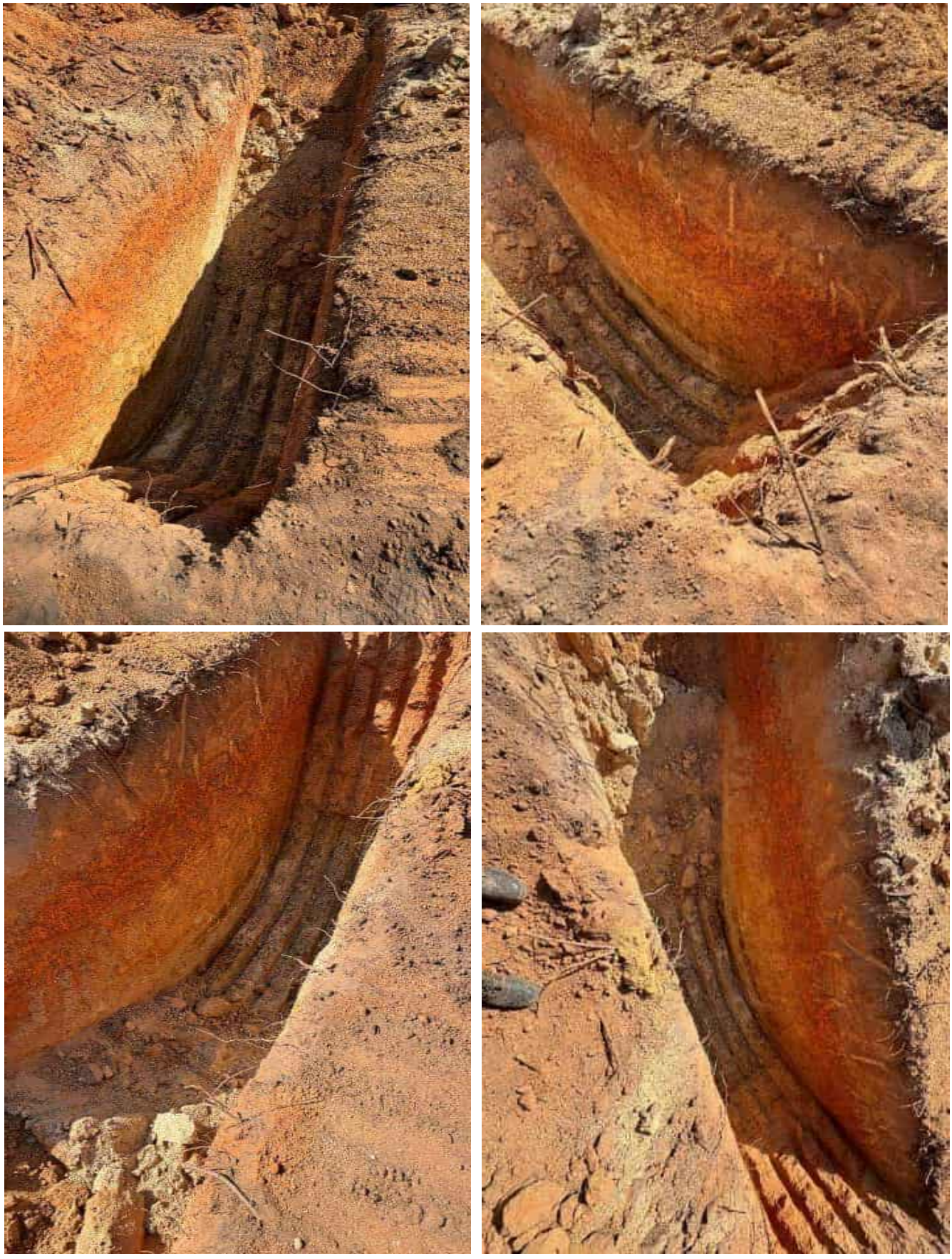


Figure 118: TP-TSF-20 Test pit



Figure 119: TP-TSF-21 Test pit location



Figure 120: TP-TSF-21 Arising from 0.60 m to 3.00 m



Figure 121: TP-TSF-21 Consistency of arising from 0.60 m to 3.00 m



Figure 122: TP-TSF-21 Arising from 3.00 m to 3.90 m



Figure 123: TP-TSF-21 Consistency of arising from 3.00 m to 3.90 m



Figure 124: TP-TSF-21 Test pit



Figure 125: TP-TSF-22 Test pit location



Figure 126: TP-TSF-22 Arising from 0.30 m to 1.30 m



Figure 127: TP-TSF-22 Arising from 0.30 m to 1.30 m with and without coarse material



Figure 128: TP-TSF-22 Consistency of arising from 0.30 m to 1.30m





Figure 129: TP-TSF-22 Test pit





Figure 130: TP-TSF-23 Test pit location



Figure 131: TP-TSF-23 Arising from 0.30 m to 2.40 m



Figure 132: TP-TSF-23 Consistency of arising from 0.30 m to 2.40 m



Figure 133: TP-TSF-23 Arising from 2.40 m to 4.20 m



Figure 134: TP-TSF-23 Consistency of arising from 2.40 m to 4.20 m





Figure 135: TP-TSF-23 Test pit



Figure 136: TP-TSF-24 Test pit location



Figure 137: TP-TSF-24 Arising from 0.30 m to 3.00 m



Figure 138: TP-TSF-24 Consistency of arising from 0.30 m to 3.00 m



Figure 139: TP-TSF-24 Arising from 3.00 m to 4.00 m



Figure 140: TP-TSF-24 Consistency of arising from 3.00 m to 4.00 m





Figure 141: TP-TSF-24 Test pit



Figure 142: TP-TSF-25 Test pit location



Figure 143: TP-TSF-25 Arising from 0.40 m to 2.40 m



Figure 144: TP-TSF-25 Consistency of arising from 0.40 m to 2.40 m



Figure 145: TP-TSF-25 Arising from 2.40 m to 3.80 m



Figure 146: TP-TSF-25 Consistency of arising from 2.40 m to 3.80 m

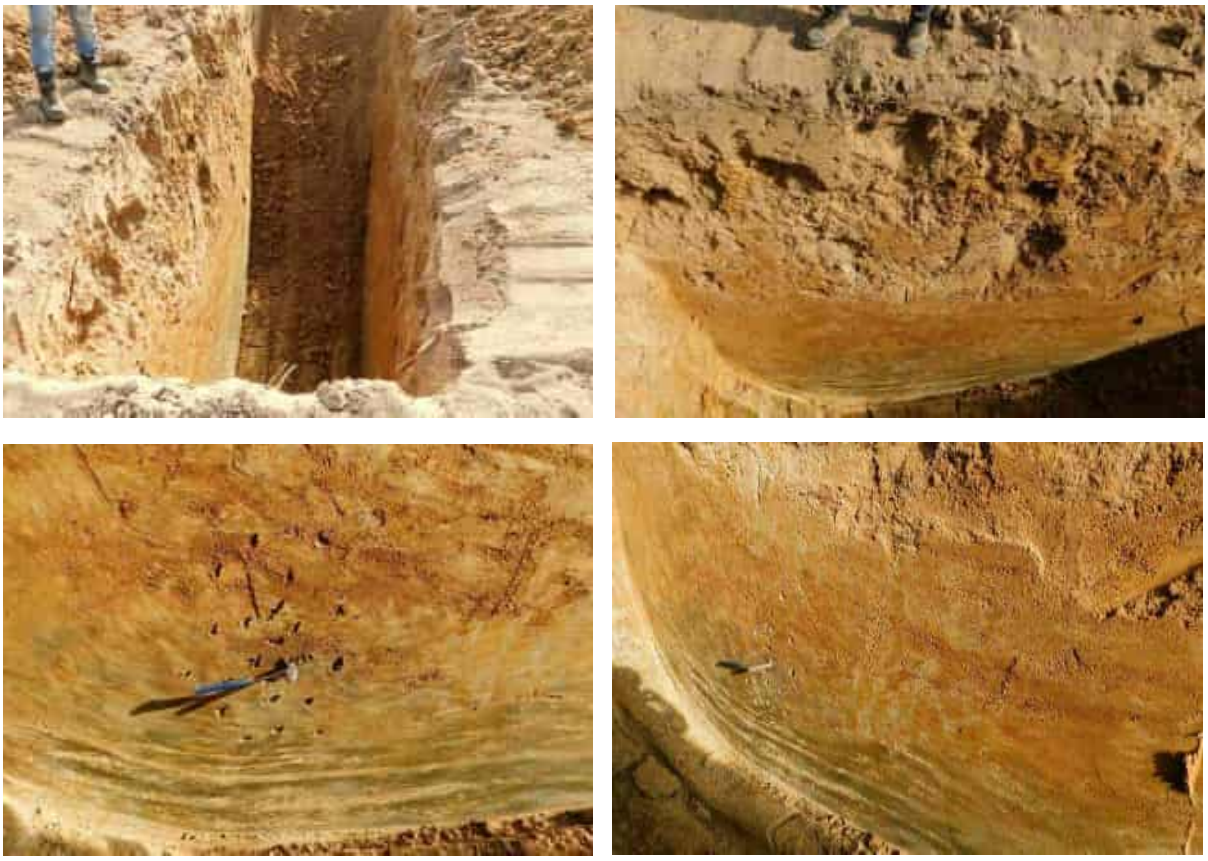


Figure 147: TP-TSF-25 Test pit



Figure 148: TP-TSF-26 Test pit location



Figure 149: TP-TSF-26 Arising from 0.30 m to 2.30 m



Figure 150: TP-TSF-26 Consistency of arising from 0.30 m to 2.30 m



Figure 151: TP-TSF-26 Arising from 2.30 m to 3.70 m



Figure 152: TP-TSF-26 Consistency of arising from 2.30 m to 3.70 m



Figure 153: TP-TSF-26 Test pit



Figure 154: TP-TSF-27 Test pit location



Figure 155: TP-TSF-27 Arising from 1.10 m to 2.30 m



Figure 156: TP-TSF-27 Consistency of arising from 1.10 m to 2.30



Figure 157: TP-TSF-27 Arising from 2.30 m to 4.00 m



Figure 158: TP-TSF-27 Consistency of arising from 2.30 m to 4.00 m



Figure 159: TP-TSF-27 Test Pit



Figure 160: TP-TSF-28 Test pit location



Figure 161: TP-TSF-28 Arising from 0.4 m to 1.50 m



Figure 162: TP-TSF-28 Consistency of arising from 0.4 m to 1.50 m



Figure 163: TP-TSF-28 Arising from 1.50 m to 3.30 m



Figure 164: TP-TSF-28 Consistency of arising from 1.50 m to 3.30 m



Figure 165: TP-TSF-28 Test Pit





Figure 166: TP-TSF-29 Test pit location



Figure 167: TP-TSF-29 Arising from 0.50 m to 1.70 m



Figure 168: TP-TSF-29 Consistency of arising from 0.50 m to 1.70 m



Figure 169: TP-TSF-29 Arising from 1.70 m to 4.10 m



Figure 170: TP-TSF-29 Consistency of arising from 1.70 m to 4.10 m



Figure 171: TP-TSF-29 Test Pit





Figure 172: TP-TSF-30 Test pit location



Figure 173: TP-TSF-30 Arising from 0.40 m to 1.80 m



Figure 174: TP-TSF-30 Consistency of arising from 0.40 m to 1.80



Figure 175: TP-TSF-30 Arising from 1.80 m to 3.70 m



Figure 176: TP-TSF-30 Consistency of arising from 0.30 m to 1.80





Figure 177: TP-TSF-30 Test Pit



Figure 178: TP-TSF-31 Test pit location



Figure 179: TP-TSF-31 Arising from 0.50 m to 1.80 m



Figure 180: TP-TSF-31 Consistency of arising from 0.50 m to 1.80 m



Figure 181: TP-TSF-31 Arising from 1.80 m to 3.80 m



Figure 182: TP-TSF-31 Consistency of arising from 1.80 m to 3.80 m



Figure 183: TP-TSF-31 Test Pit



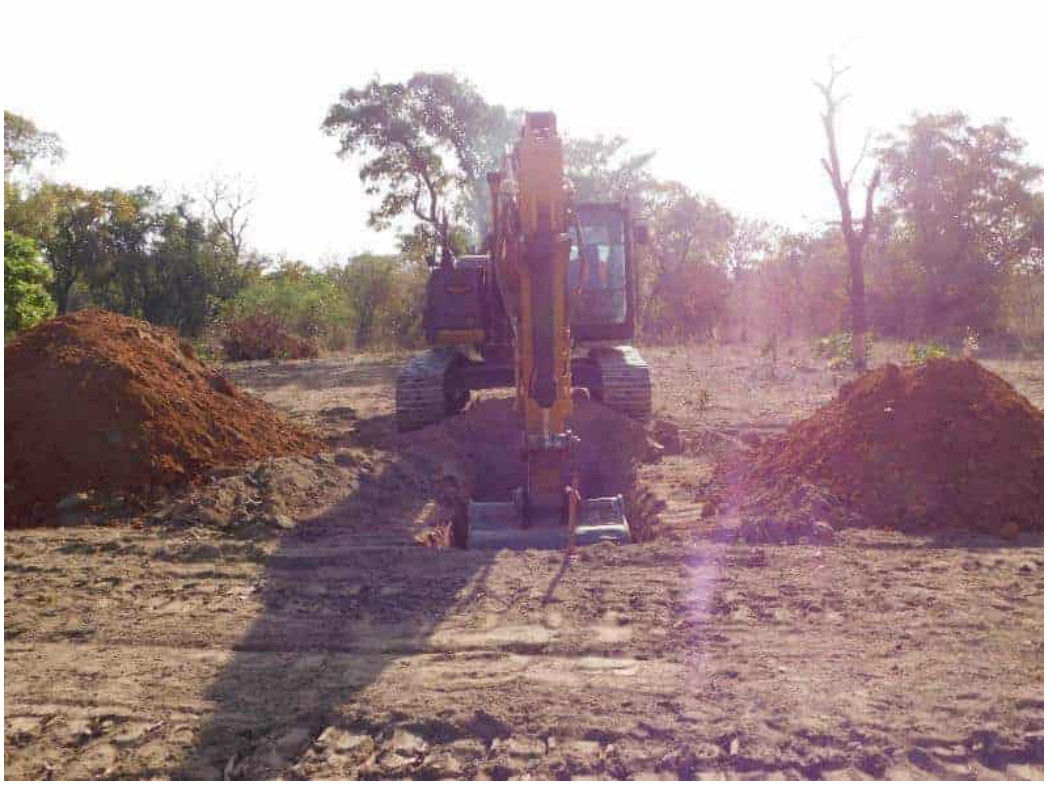


Figure 184: TP-TSF-32 Test pit location



Figure 185: TP-TSF-32 Arising from 0.40 m to 2.30 m



Figure 186: TP-TSF-32 Consistency of arising from 0.40 m to 2.30 m



Figure 187: TP-TSF-32 Arising from 2.30 m to 4.10 m



Figure 188: TP-TSF-32 Consistency of arising from 2.30 m to 4.10 m



Figure 189: TP-TSF-32 Test pit





Figure 190: TP-TSF-33 Test pit location



Figure 191: TP-TSF-33 Arising from 0.40 m to 1.65 m



Figure 192: TP-TSF-33 Consistency of arising from 0.40 m to 1.65 m



Figure 193: TP-TSF-33 Arising from 1.65 m to 3.80 m



Figure 194: TP-TSF-33 Consistency of arising from 1.65 m to 3.80 m





Figure 195: TP-TSF-33 Test Pit



Figure 196: TP-TSF-34 Test pit location



Figure 197: TP-TSF-34 Arising from 0.50 m to 2.60 m



Figure 198: TP-TSF-34 Consistency of arising from 0.50 m to 2.20 m



Figure 199: TP-TSF-34 Arising from 2.20 m to 3.80 m



Figure 200: TP-TSF-34 Consistency of arising from 2.60 m to 3.80 m



Figure 201: TP-TSF-34 Test pit



Figure 202: TP-TSF-35 Test pit location



Figure 203: TP-TSF-35 Arising from 0.30 m to 1.80 m



Figure 204: TP-TSF-35 Consistency of arising from 0.30 m to 1.80 m



Figure 205: TP-TSF-35 Arising from 1.80 m to 3.10 m



Figure 206: TP-TSF-35 Consistency of arising from 1.80 m to 3.10 m







Figure 207: TP-TSF-35 Test Pit





Figure 208: TP-TSF-36 Test pit location



Figure 209: TP-TSF-36 Arising from 0.30 m to 1.90 m



Figure 210: TP-TSF-36 Consistency of arising from 0.30 m to 1.90 m



Figure 211: TP-TSF-36 Arising from 1.90 m to 3.40 m



Figure 212: TP-TSF-36 Consistency of arising from 1.90 m to 3.40 m



Figure 213: TP-TSF-36 Test pit



Figure 214: TP-TSF-37 Test pit location



Figure 215: TP-TSF-37 Arising from 0.50 m to 2.10 m



Figure 216: TP-TSF-37 Consistency of arising from 0.50 m to 2.10 m



Figure 217: TP-TSF-37 Arising from 2.10 m to 4.30 m



Figure 218: TP-TSF-37 Consistency of arising from 2.10 m to 4.30 m



Figure 219: TP-TSF-37 Test pit



Figure 220: TP-TSF-38 Test pit location



Figure 221: TP-TSF-38 Arising from 0.40 m to 2.60 m



Figure 222: TP-TSF-38 Consistency of arising from 0.40 m to 2.60 m



Figure 223: TP-TSF-38 Arising from 2.60 m to 3.90 m



Figure 224: TP-TSF-38 Consistency of arising from 2.60 m to 3.90 m



Figure 225: TP-TSF-38 Test pit





Figure 226: TP-TSF-39 Test pit location



Figure 227: TP-TSF-39 Arising from 0.30 m to 1.90 m



Figure 228: TP-TSF-39 Consistency of arising from 0.30 m to 1.90 m



Figure 229: TP-TSF-39 Arising from 1.90 m to 3.20 m



Figure 230: TP-TSF-39 Consistency of arising from 1.90 m to 3.20 m



Figure 231: TP-TSF-39 Test pit



Figure 232: TP-TSF-40 Test pit location



Figure 233: TP-TSF-40 Arising from 0.25 m to 2.10 m



Figure 234: TP-TSF-40 Consistency of arising from 0.25 m to 2.10 m



Figure 235: TP-TSF-40 Arising from 2.10 m to 4.00 m



Figure 236: TP-TSF-40 Consistency of arising from 2.10 m to 4.00 m



Figure 237: TP-TSF-40 Test pit



Figure 01: TP-PS-01 – Test pit location



Figure 02: TP-PS-01 – Arisings from 0.30 m to 1.10 m



Figure 03: TP-PS-01 – Arisings from 0.30 m to 1.10 m with and without coarse material



Figure 04: TP-PS-01 – Consistency of arisings from 0.30 m to 1.10 m







Figure 05: TP-PS-01 – Test pit



Figure 06: TP-PS-02 – Test pit location



Figure 07: TP-PS-02 – Arisings from 0.30 m to 2.50 m



Figure 08: TP-PS-02 – Arisings from 0.30 m to 2.50 m with and without coarse material



Figure 09: TP-PS-02 – Consistency of arisings from 0.30 m to 2.50 m







Figure 10: TP-PS-02 – Test pit



Figure 11: TP-PS-03 – Test pit location



Figure 12: TP-PS-03 – Arisings from 0.40 m to 1.10 m



Figure 13: TP- PS-03 – Arisings from 0.40 m to 1.10 m with and without coarse material



Figure 14: TP- PS-03 – Consistency of arisings from 0.40 m to 1.10 m

.









Figure 15: TP-PS-03 – Test pit



Figure 16: TP-PS-04 – Test pit location



Figure 17: TP-PS-04 – Arisings from 0.30 m to 1.10 m



Figure 18: TP-PS-04 – Arisings from 0.30 m to 1.10 m with and without coarse material

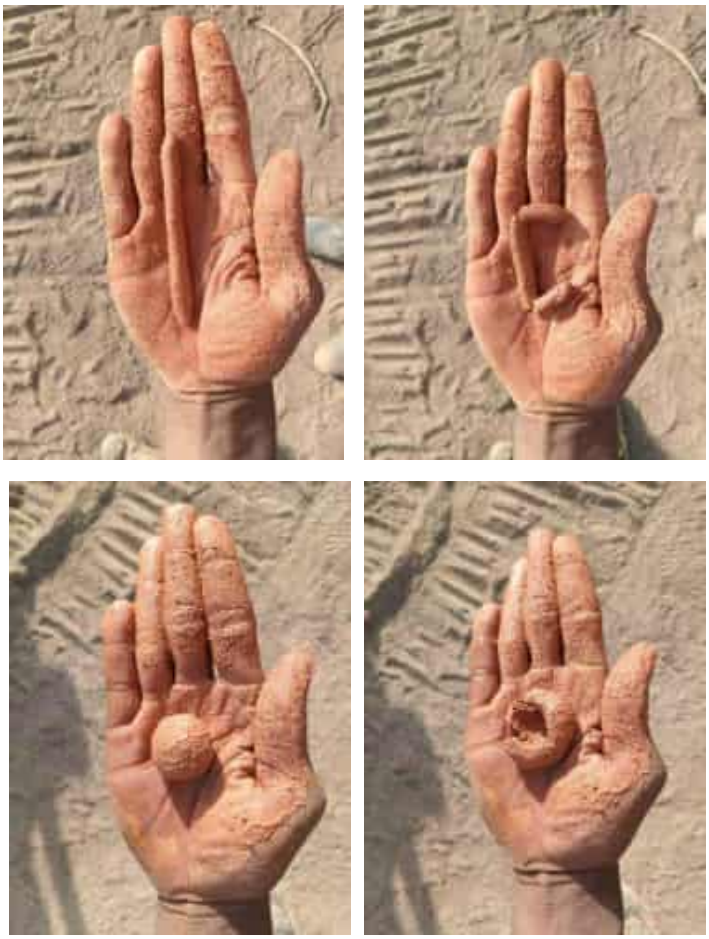


Figure 19: TP-PS-04 – Consistency of arisings from 0.30 m to 1.10 m







Figure 20: TP-PS-04 – Test pit



Figure 21: TP-PS-05 – Test pit location



Figure 22: TP-PS-05 – Arisings from 0.50 m to 2.80 m



Figure 23: TP-PS-05 – Arisings from 0.50 m to 2.80 m with and without coarse material



Figure 24: TP-PS-05 – Consistency of arisings from 0.50 m to 2.80 m



Figure 25: TP-PS-05 – Arisings from 2.80 m to 4.20 m



Figure 26: TP-PS-05 – Arisings from 2.80 m to 4.20 m with and without coarse material



Figure 27: TP-PS-05 – Consistency of arisings from 2.80 m to 4.20 m



Figure 28: TP-PS-05 – Test pit



Figure 29: TP-PS-06 – Test pit location



Figure 30: TP-PS-06 – Arisings from 0.30 m to 0.90 m





Figure 31: TP- PS-06 – Arisings from 0.30 m to 0.90 m with and without coarse material



Figure 32: TP- PS -06 – Consistency of arisings from 0.30 m to 0.90 m





Figure 33: TP-PS-06 – Test pit



Figure 34: TP-PS-07 – Test pit location



Figure 35: TP-PS-07 – Arisings from 0.30 m to 4.20 m



Figure 36: TP- PS-06 – Arisings from 0.30 m to 4.20 m with and without coarse material

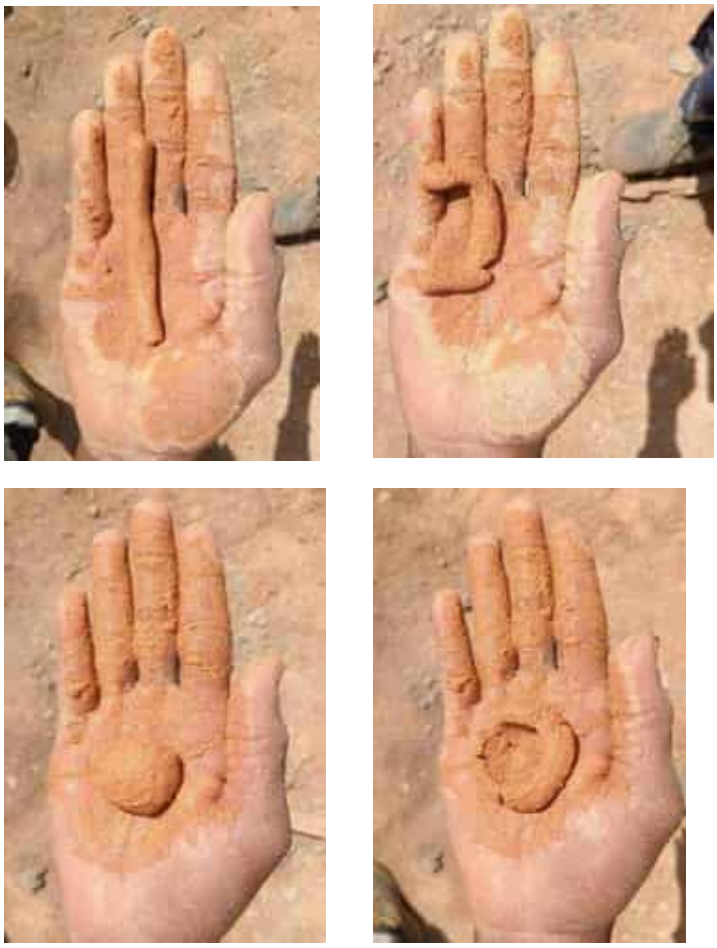


Figure 37: TP- PS -06 – Consistency of arisings from 0.30 m to 4.20 m







Figure 38: TP- PS -06 Test Pit



Figure 39: TP-PS-08 – Test pit location



Figure 40: TP- PS-08 – Arisings from 0.30 m to 1.10 m



Figure 41: TP- PS-08 – Arisings from 0.30 m to 1.10 m with and without coarse material



Figure 42: TP- PS-08 – Consistency of arisings from 0.30 m to 1.10 m







Figure 43: TP- PS-08 – Test pit



Figure 44: TP- PS-09– Test pit location



Figure 45: TP- PS-09– Arisings from 0 .30 m to 4.00 m



Figure 46: TP- PS-09– Arisings from 0.30 m to 4.00 m with and without coarse material



Figure 47: TP- PS-09– Consistency of arisings from 0.30 m to 4.00 m







Figure 48: TP- PS-09– Test pit



Figure 49: TP- PS-10– Test pit location



Figure 50: TP- PS-10– Arisings from 0 .30 m to 0.70 m



Figure 51: TP- PS-10– Arisings from 0.30 m to 0.70 m with and without coarse material

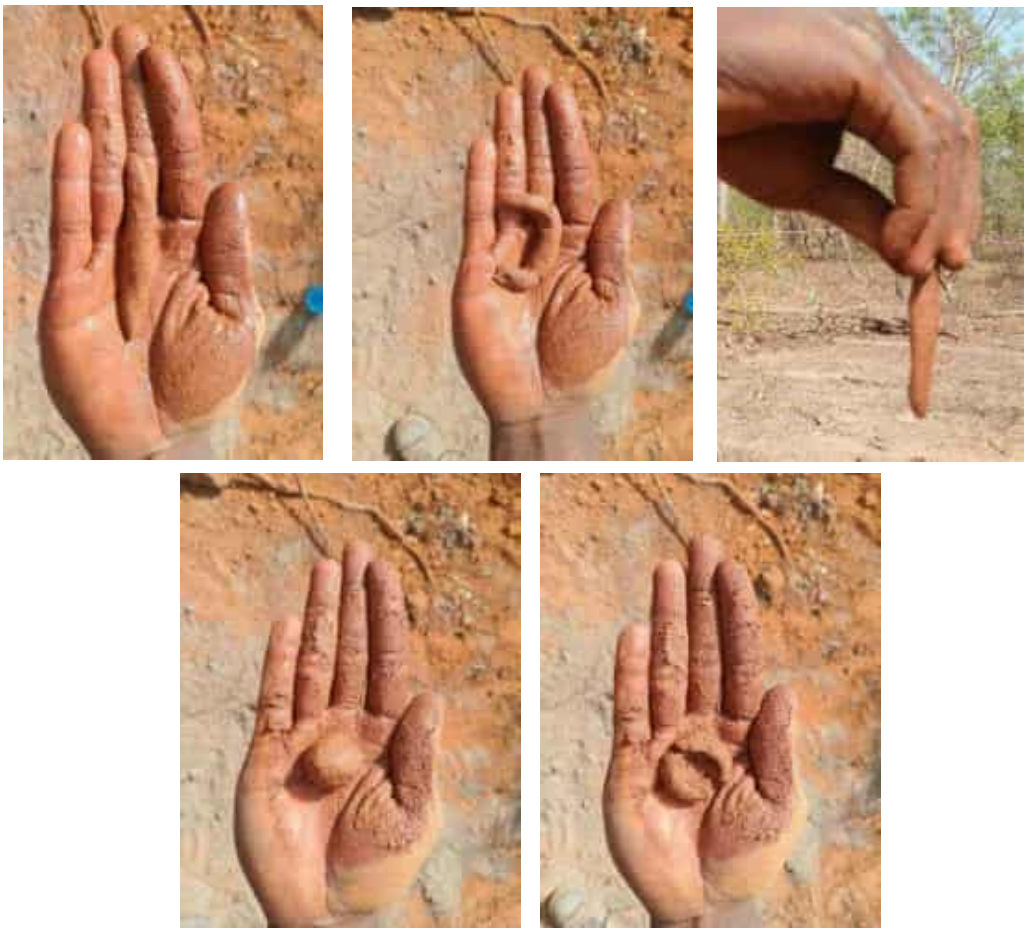


Figure 52: TP- PS-10– Consistency of arisings from 0.30 m to 0.70 m







Figure 53: TP- PS-10– Test pit



Figure 54: TP- PS-11– Test pit location



Figure 55: TP- PS-11– Arisings from 0 .50 m to 0.80 m



Figure 56: TP- PS-11– Arisings from 0.50 m to 0.80 m with and without coarse material

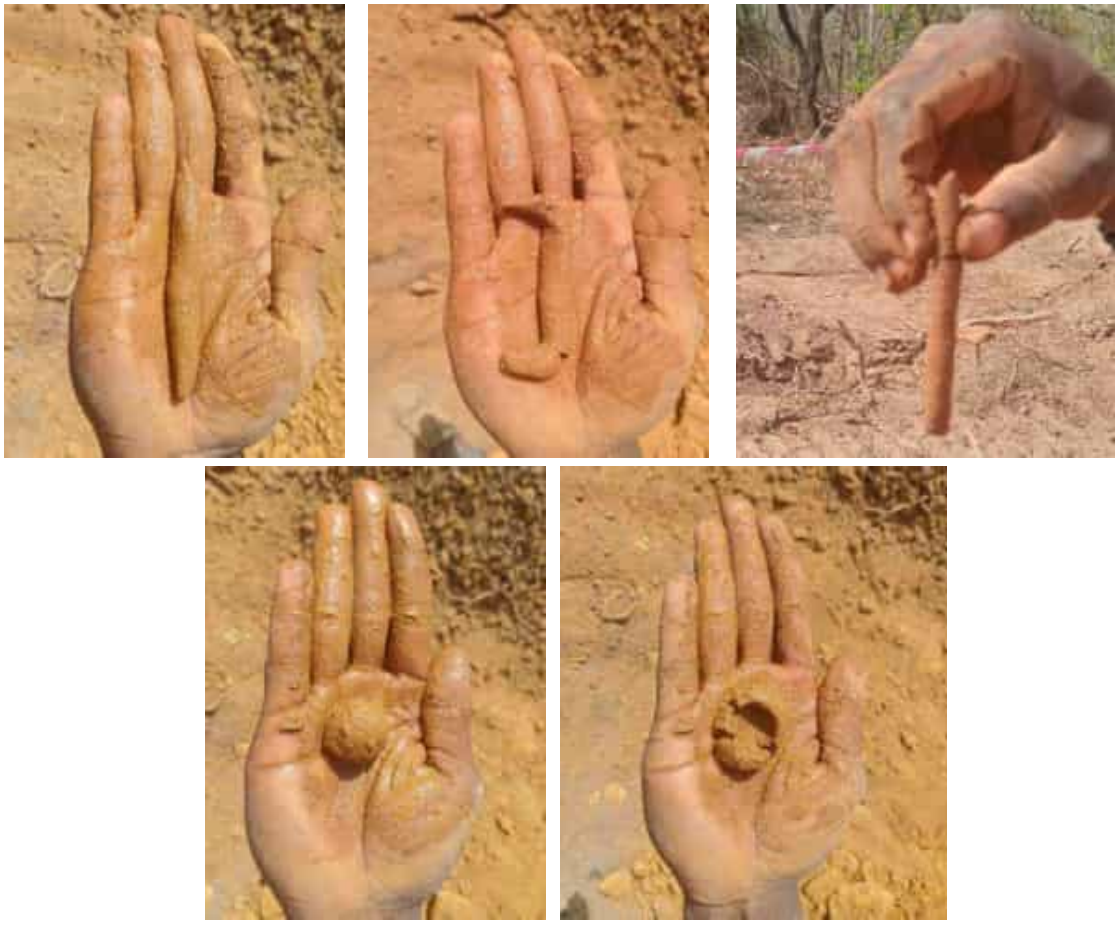


Figure 57: TP- PS-11– Consistency of arisings from 0.30 m to 0.70 m







Figure 58: TP- PS-11– Test pit



Figure 59: TP- PS-12– Test pit location



Figure 60: TP- PS-12– Arisings from 0.30 m to 1.00 m



Figure 61: TP- PS-12– Arisings from 0.30 m to 1.00 m with and without coarse material



Figure 62: TP- PS-12– Consistency of arisings from 0.30 m to 1.00 m



Figure 63: TP- PS-12– Test pit



Figure 64: TP- PS-13– Test pit location



Figure 65 TP- PS-13– Arisings from 0.20 m to 0.60 m



Figure 66: TP- PS-13– Arisings from 0.20 m to 0.60 m with and without coarse material



Figure 67: TP- PS-13– Consistency of arisings from 0.20 m to 0.60 m



Figure 68: TP- PS-13– Test pit



Figure 69: TP-PS-14 – Test pit location



Figure 70: TP-PS-14 – Arisings from 0.30 m to 4.10 m



Figure 71: TP- PS-14 – Arisings from 0.30 m to 4.10 m with and without coarse material

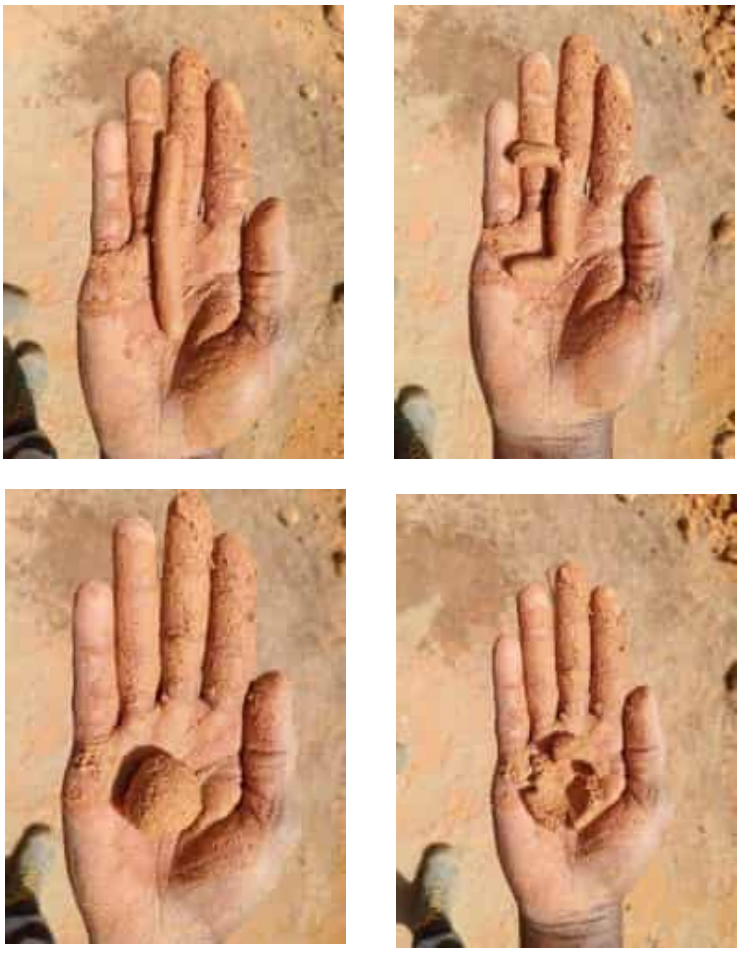


Figure 72: TP- PS -14 – Consistency of arisings from 0.30 m to 4.10 m







Figure 73: TP-PS-14 – Test pit



Figure 74: TP- PS-15– Test pit location



Figure 75: TP- PS-15– Arisings from 0.40 m to 0.70 m



Figure 76: TP- PS-15– Arisings from 0.40 m to 0.70 m with and without coarse material



Figure 77: TP- PS-15– Consistency of arisings from 0.40 m to 0.70 m







Figure 78: TP- PS-15– Test pit



Figure 01:TP-WSD-01 – Test pit location



Figure 02:TP-WSD-01 – Arising from 0.30 m to 0.80 m



Figure 03:TP-WSD-01 – Arising from 0.30 m to 0.80 m with and without coarse material

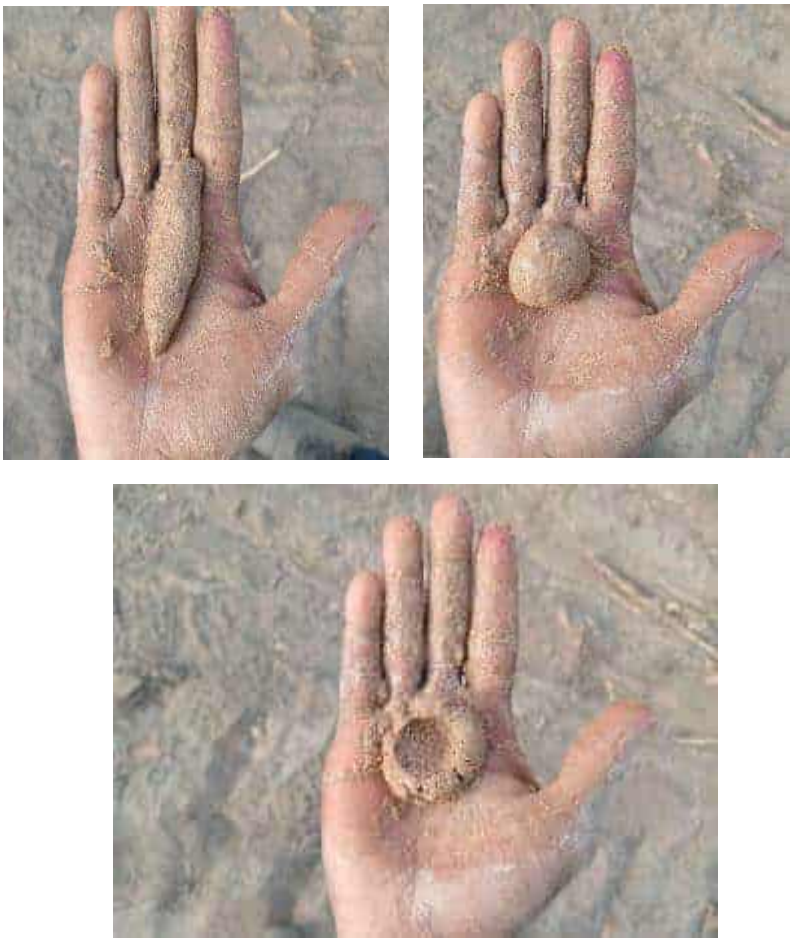


Figure 04:TP-WSD-01 – Consistency of arising from 0.30 m to 0.80 m



Figure 05:TP-WSD-01 – Arising from 0.80 m to 2.00 m



Figure 06:TP-WSD-01 – Arising from 0.80 m to 2.00 m with and without coarse material



Figure 07:TP-WSD-01 – Consistency of arising from 0.80 m to 2.00 m







Figure 08:TP-WSD-01-Test Pit



Figure 09: TP-WSD-02 – Test pit Location



Figure 11: TP-WSD-02 – Arising from 0.00 m to 0.20 m



Figure 12: TP-WSD-02 – Arising from 0.20 m to 1.30 m



Figure 13: TP-WSD-02 – Consistency of arising from 0.20 m to 1.30 m



Figure 14: TP-WSD-02 – Arising from 0.20 m to 1.30 m



Figure 15: TP-WSD-02 Test Pit



Figure 16: TP-WSD-03 – Test pit Location



Figure 17: TP-WSD-03 – Arising from 0.0 m to 1.20 m



Figure 18: TP-WSD-03 – Test Pit



Figure 19: TP-WSD-04 Test Pit Location



Figure 20: TP-WSD-04 Arising from 0.30 m to 1.10 m



Figure 21: TP-WSD-04 Arising from 0.30 m to 1.10 m with and without coarse material



Figure 22: TP-WSD-04 Consistency of arising from 0.30 m to 1.10 m



Figure 23: TP-WSD-04 Arising from 1.10 m to 2.80 m



Figure 24: TP-WSD-04 Arising from 1.10 m to 2.80 m with and without coarse material



Figure 25: TP-WSD-04 Consistency of arising from 1.10 m to 2.80 m





Figure 26: TP-WSD-04 Test Pit



Figure 27: TP-WSD-05 Test Pit Location



Figure 28: TP-WSD-05 Arising from 0.20 m to 1.50 m



Figure 29: TP-WSD-05 Arising from 0.20 m to 1.50 m with and without coarse material



Figure 30: TP-WSD-05 Consistency of arising from 0.20 m to 1.50 m



Figure 31: TP-WSD-05 Arising from 1.50 m to 2.70 m



Figure 32: TP-WSD-05 Arising from 1.50 m to 2.70 m with and without coarse material



Figure 33: TP-WSD-05 Consistency of arising from 1.50 m to 2.70 m



Figure 34: TP-WSD-05 Test Pit



Figure 35:TP-WSD-06 – Test pit Location



Figure 36:TP-WSD-06 – Arising from 0.30 m to 1.10 m



Figure 37:TP-WSD-06 – Arising from 0.30 m to 1.10 m with and without coarse material



Figure 38:TP-WSD-06 – Consistency of arising from 0.30 m to 1.10 m



Figure 39:TP-WSD-06 – Arising from 1.10 m to 2.10 m



Figure 40:TP-WSD-06 – Arising from 1.10 m to 2.10 m with and without coarse material



Figure 41:TP-WSD-06 – Consistency of arising from 1.10 m to 2.10 m



Figure 42:TP-WSD-06 –Arising from 2.10 m to 3.10 m



Figure 43:TP-WSD-06 – Arising from 2.10 m to 3.10 m with and without coarse material



Figure 44:TP-WSD-06 – Consistency of arising from 2.10 m to 3.10 m

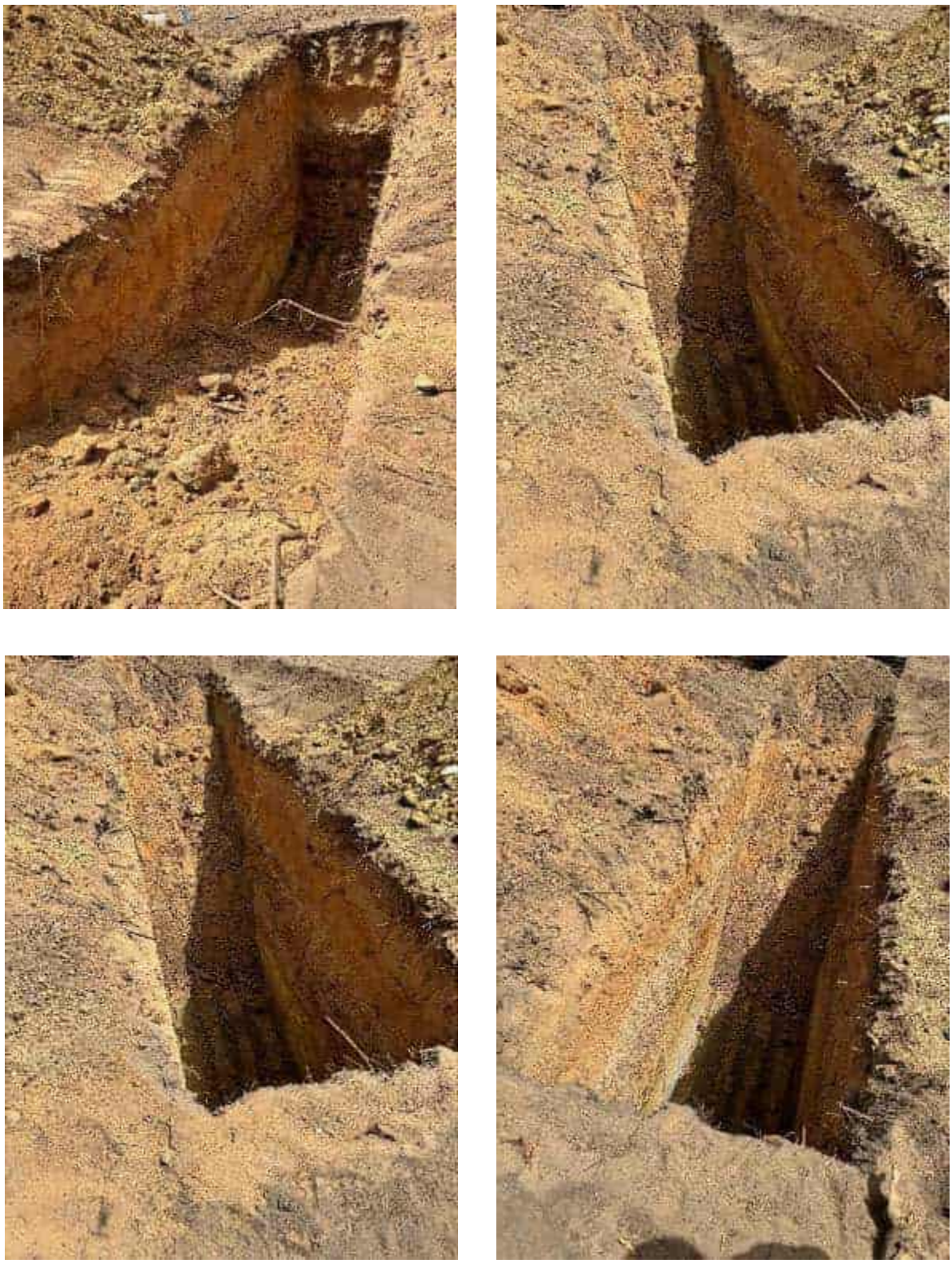


Figure 45:TP-WSD-06-Test Pit



Figure 46:TP-WSD-07 – Test pit Location



Figure 47:TP-WSD-07 – Arising from 0.30 m to 1.70 m



Figure 48:TP-WSD-07 – Consistency of arising from 0.30 m to 1.70 m



Figure 49:TP-WSD-07 – Arising from 1.70 m to 2.80 m



Figure 51:TP-WSD-07 – Arising from 1.70 m to 2.80 m with clay lumps



Figure 52:TP-WSD-07 – Consistency of arising from 1.70 m to 2.80



Figure 53:TP-WSD-08 – Test pit Location



Figure 54:TP-WSD-08 – Arising from 0.30 m to 1.80 m



Figure 55:TP-WSD-08 – Arising from 0.30 m to 1.80 m with and without coarse material



Figure 56:TP-WSD-08 – Consistency of arising from 0.30 m to 1.80 m



Figure 57:TP-WSD-08 – Arising from 3.00 m to 4.40 m



Figure 58:TP-WSD-08 – Arising from 3.00 m to 4.40 m with and without coarse material



Figure 59:TP-WSD-08 – Consistency of arising from 3.00 m to 4.40 m





Figure 60:TP-WSD-08 – Test pit



Figure 61: TP-WSD-09 Test Pit



Figure 62: TP-WSD-09 Arising from 0.40 m to 2.30 m



Figure 63: TP-WSD-09 Consistency of arising from 0.40 m to 2.30 m



Figure 64: TP-WSD-09 Arising from 2.30 m to 4.00 m



Figure 65: TP-WSD-09 Consistency of arising from 2.30 m to 4.00 m



Figure 66: TP-WSD-09 Test Pit



Figure 67: TP-WSD-10 Test Pit



Figure 68: TP-WSD-10 Arising from 0.30 m to 1.70 m



Figure 69: TP-WSD-10 Consistency of arising from 0.30 m to 1.70 m



Figure 70: TP-WSD-10 Arising from 1.70 m to 3.30 m



Figure 71: TP-WSD-10 Arising from 1.70 m to 3.30 m with and without coarse material



Figure 72: TP-WSD-10 Consistency of arising from1.70 m to 3.30 m







Figure 73: TP-WSD-10 Test Pit



Figure 74:TP-WSD-11 – Test pit Location



Figure 75:TP-WSD-11 – Arising from 0.40 m to 2.90 m



Figure 76:TP-WSD-11 – Arising from 0.40 m to 2.90 m



Figure 77:TP-WSD-11 – Arising from 0.40 m to 2.90 m with and without coarse material



Figure 78:TP-WSD-11 – Consistency of arising from 0.40 m to 2.90 m



Figure 79:TP-WSD-11 – Arising from 2.90 m to 4.40 m



Figure 80:TP-WSD-11 – Arising from 2.90 m to 4.40 m with and without coarse material

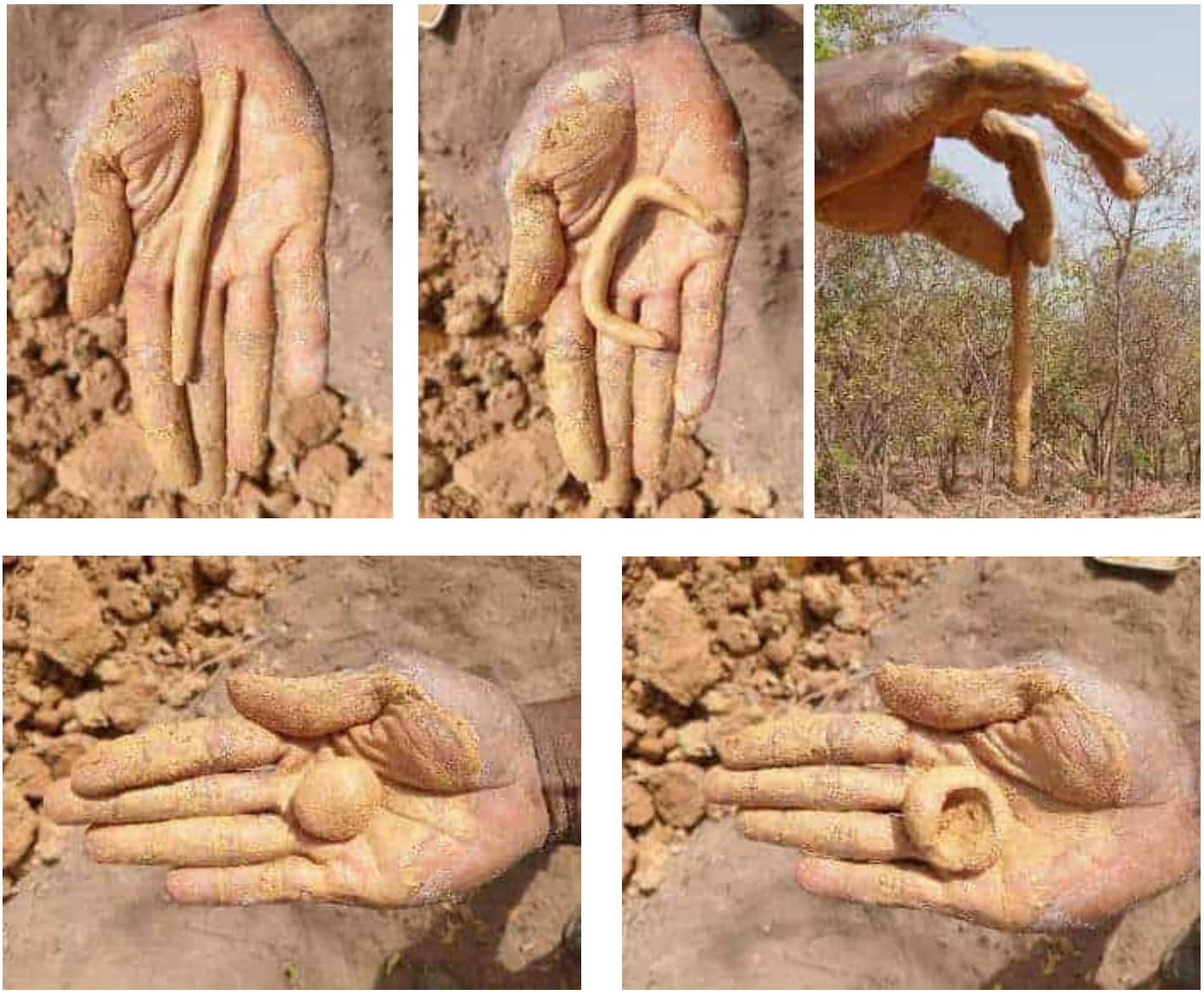


Figure 81:TP-WSD-11 – Consistency of arising from 2.90 m to 4.40 m

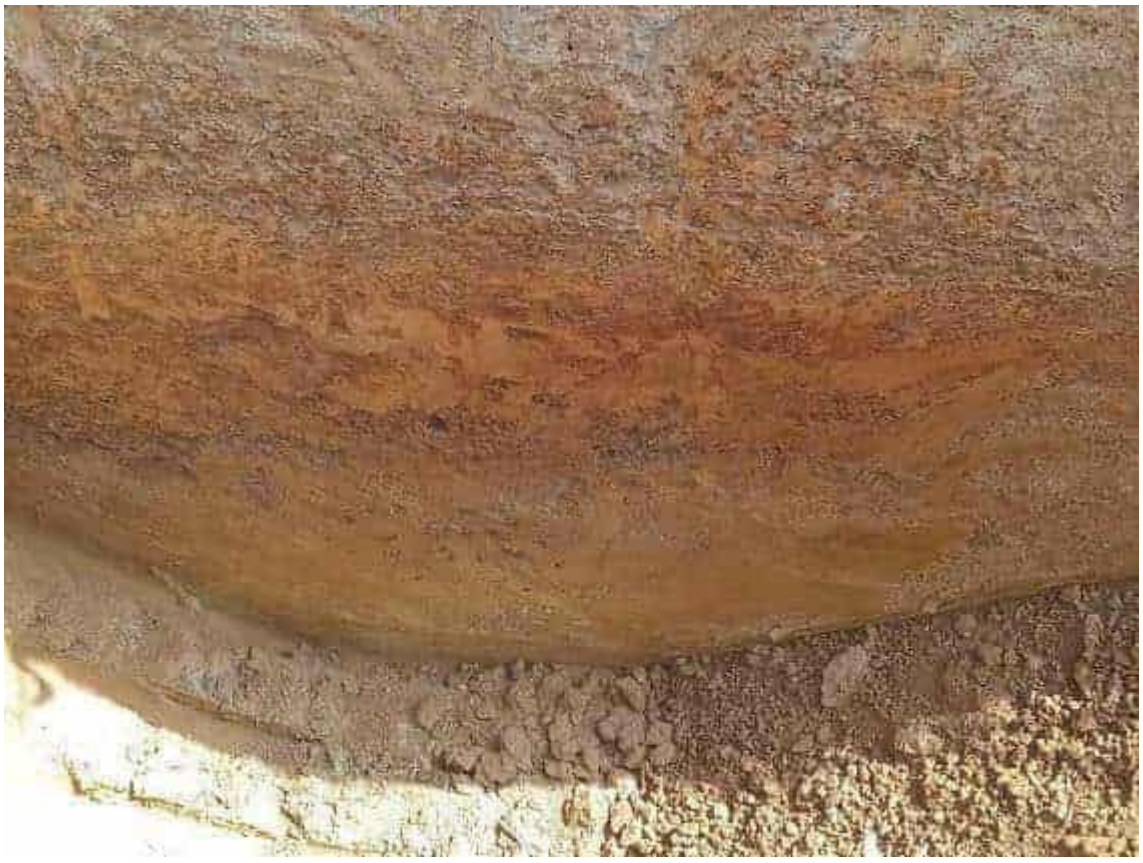






Figure 82:TP-WSD-11 –Test Pit



Figure 83: TP-WSD-12 Test Pit



Figure 84: TP-WSD-12 Arising from 0.30 m to 2.40 m



Figure 85: TP-WSD-12 Consistency of arising from 0.30 m to 2.40 m



Figure 86: TP-WSD-12 Arising from 2.40 m to 4.00 m



Figure 87: TP- WSD-12 Arising from 2.40 m to 4.00 m with and without coarse material



Figure 88: TP-WSD-12 Consistency of arising from 2.40 m to 4.00 m







Figure 89: TP-WSD-12 Test Pit



Figure 90: TP-WSD-13 Test Pit



Figure 91: TP-WSD-13 Arising from 0.20 m to 1.10 m



Figure 92: TP-WSD-13 Arising from 0.20 m to 1.10 m with and without coarse material



Figure 93: TP-WSD-13 Consistency of arising from 0.20 m to 1.10 m



Figure 94: TP-WSD-13 Arising from 1.10 m to 3.50 m



Figure 95: TP-WSD-13 Arising from 1.10 m to 3.50 m with and without coarse material



Figure 96: TP-WSD-13 Consistency of arising from 1.10 m to 3.50 m





Figure 97: TP-WSD-13 Test Pit



Figure 98:TP-WSD-14 – Test pit Location



Figure 99:TP-WSD-14 – Arising from 0.30 m to 1.40 m



Figure 100:TP-WSD-14 – Arising from 0.30 m to 1.40 m with and without coarse material



Figure 101:TP-WSD-14 – Consistency of arising from 0.30 m to 1.40 m



Figure 102:TP-WSD-14 – Arising from 1.40 m to 2.50 m



Figure 103:TP-WSD-14 – Arising from 1.40 m to 2.50 m with and without coarse material



Figure 104:TP-WSD-14 – Consistency of arising from 1.40 m to 2.50 m







Figure 105:TP-WSD-14-Test Pit



Figure 106: TP-WSD-15 Test Pit



Figure 107: TP-WSD-15 Arising from 0.30 m to 2.30 m







Figure 108: TP-WSD-15 Consistency of arising from 0.30 m to 2.30 m



Figure 109: TP-WSD-15 Test Pit



Figure 110: TP-WSD-16 Test Pit Location



Figure 111: TP-WSD-16 Arising from 0.30 m to 0.80 m



Figure 112: TP-WSD-16 Arising from 0.30 m to 0.80 m with and without coarse material



Figure 113: TP-WSD-16 Consistency of arising from 0.30 m to 0.80 m



Figure 114: TP-WSD-16 Arising from 0.80 m to 2.20 m



Figure 115: TP-WSD-16 Arising from 0.80 m to 2.20 m with and without coarse



Figure 116: TP-WSD-16 Consistency of arising from 0.80 m to 2.20 m







Figure 117: TP-WSD-16 Test Pit



Figure 118: TP-WSD-17 Test Pit Location



Figure 119: TP-WSD-17 Arising from 0.80 m to 1.40 m



Figure 120: TP-WSD-17 Arising from 0.80 m to 1.40 m with and without coarse



Figure 121: TP-WSD-17 Consistency of arising from 0.80 m to 1.40 m



Figure 122: TP-WSD-17 Test Pit



Figure 123: TP-WSD-18 Test Pit



Figure 124: TP-WSD-18 Arising from 0.40 m to 1.90 m



Figure 125: TP-WSD-18 Arising from 0.40 m to 1.90 m with and without coarse material



Figure 126: TP-WSD-18 Consistency of arising from 0.40 m to 1.90 m



Figure 127: TP-WSD-18 Arising from 1.90 m to 3.50 m



Figure 128: TP-WSD-18 Arising from 1.90 m to 3.50 m with and without coarse material



Figure 129: TP-WSD-18 Consistency of arising from 1.90 m to 3.50 m





Figure 130: TP-WSD-18 Test Pit



Figure 131: TP-WSD-19 – Test pit Location



Figure 132: TP-WSD-19 – Arising from 0.40 m to 2.80 m



Figure 133: TP-WSD-19 Arising from 0.40 m to 2.80 m with and without coarse material



Figure 134: TP-WSD-19 Consistency of arising from 0.40 m to 2.80 m



Figure 135: TP-WSD-19 – Arising from 2.80 m to 4.20 m



Figure 136: TP-WSD-19 Arising from 2.80 m to 4.20 m with and without coarse mater



Figure 137: TP-WSD-19 Consistency of arising from 2.80 m to 4.20 m



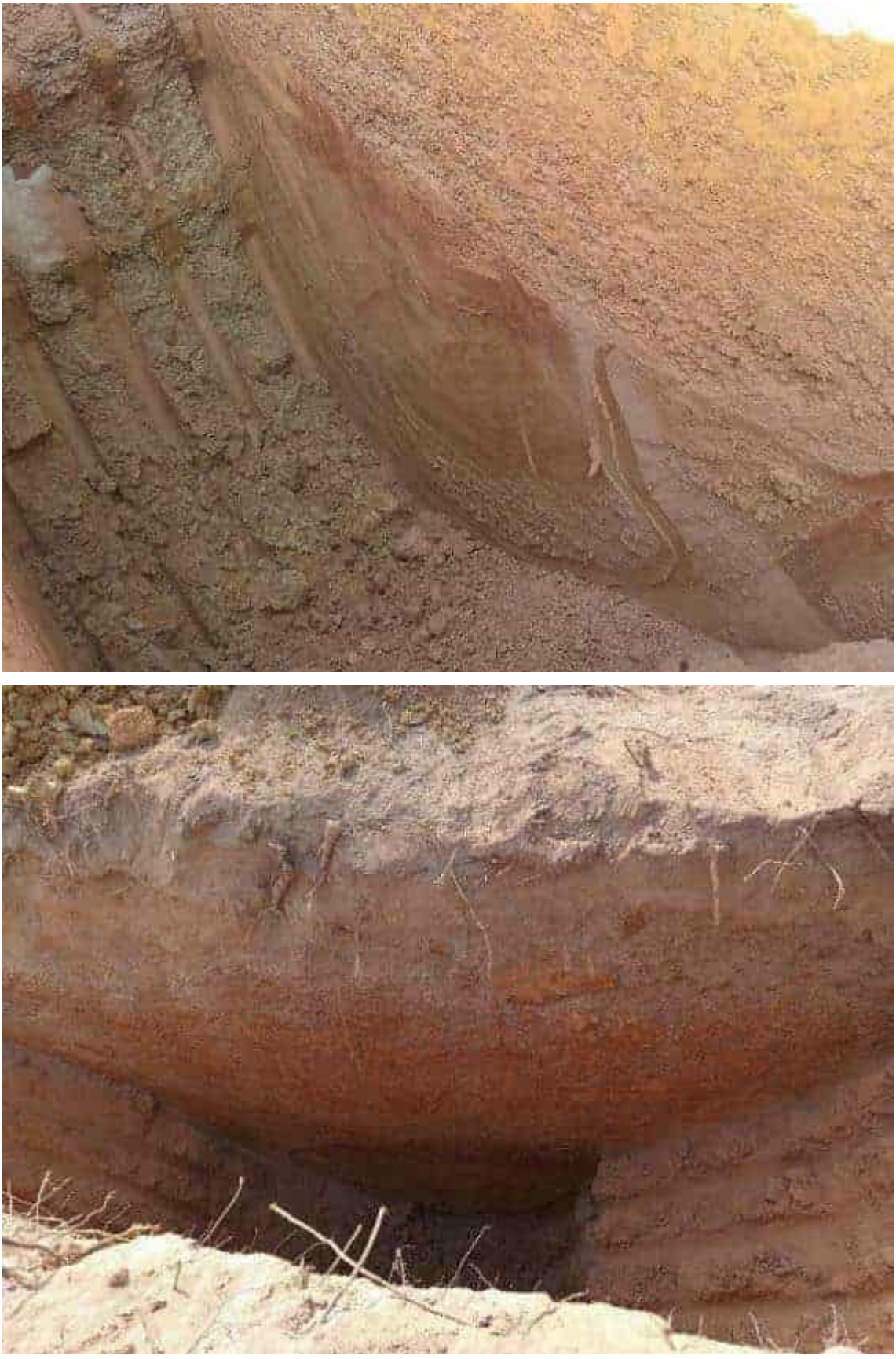


Figure 138: TP-WSD-19 Test Pit



Figure 139: TP-WSD-20 Test Pit Location



Figure 140: TP-WSD-20 Arising from 0.30 m to 1.50 m



Figure 141: TP-WSD-20 Arising from 0.30 m to 1.50 m with and without coarse



Figure 142: TP-WSD-20 Consistency of arising from 0.30 m to 1.50 m



Figure 143: TP-WSD-20 Arising from 1.50 m to 3.70 m



Figure 144: TP-WSD-20 Consistency of arising from 1.50 m to 3.70 m



Figure 145s: TP-WSD-20 Test Pit



Figure 1: TP-WHD-01 – Test pit location



Figure 2: TP-WHD-01 – Arising from 0 .50 m to 1.70 m



Figure 3:TP- WHD-01 – Arising from 0.50 m to 1.70 m with and without coarse material



Figure 4:TP- WHD-01 – Consistency of arising from 0.50 m to 1.70 m



Figure 5: TP-WHD-01 – Arising from 2.50 m to 3.20 m2.50 m to 3.20 m2.50 m to 3.20 m



Figure 6:TP- WHD-01 – Arising from 2.50 m to 3.20 m with and without coarse material



Figure 7:TP- WHD-01 – Consistency of arising from 2.50 m to 3.20 m





Figure 8: TP-WHD-01 – Test pit



Figure 9: TP-WHD-02 – Test pit Location



Figure 10: TP-WHD-02 – Arising from 0 .70 m to 3.00 m



Figure 11:TP- WHD-02 – Arising from 0.70 m to 3.00 m with and without coarse material



Figure 12:TP- WHD-02 – Consistency of arising from 0.70 m to 3.00 m



Figure 13: TP-WHD-02 – Arising from 3.00 m to 3.80 m



Figure 14:TP- WHD-02 – Arising from 3.00 m to 3.80 m with and without coarse material



Figure 15:TP- WHD-02 – Consistency of arising from 3.00 m to 3.80 m







Figure 16: TP-WHD-02 – Test pit



Figure 17: TP-WHD-03 – Test pit Location



Figure 18: TP-WHD-03 – Arising from 0 .50 m to 1.60 m



Figure 19:TP- WHD-03 – Arising from 0.50 m to 1.60 m with coarse material



Figure 20:TP- WHD-03 – Consistency of arising from 0.50 m to 1.60 m



Figure 21: TP-WHD-03 – Arising from 1.60 m to 2.10 m



Figure 22: TP-WHD-03 – Arising from 2.10 m to 2.30 m



Figure 23:TP- WHD-03 – Arising from 2.10 m to 2.30 m with coarse material

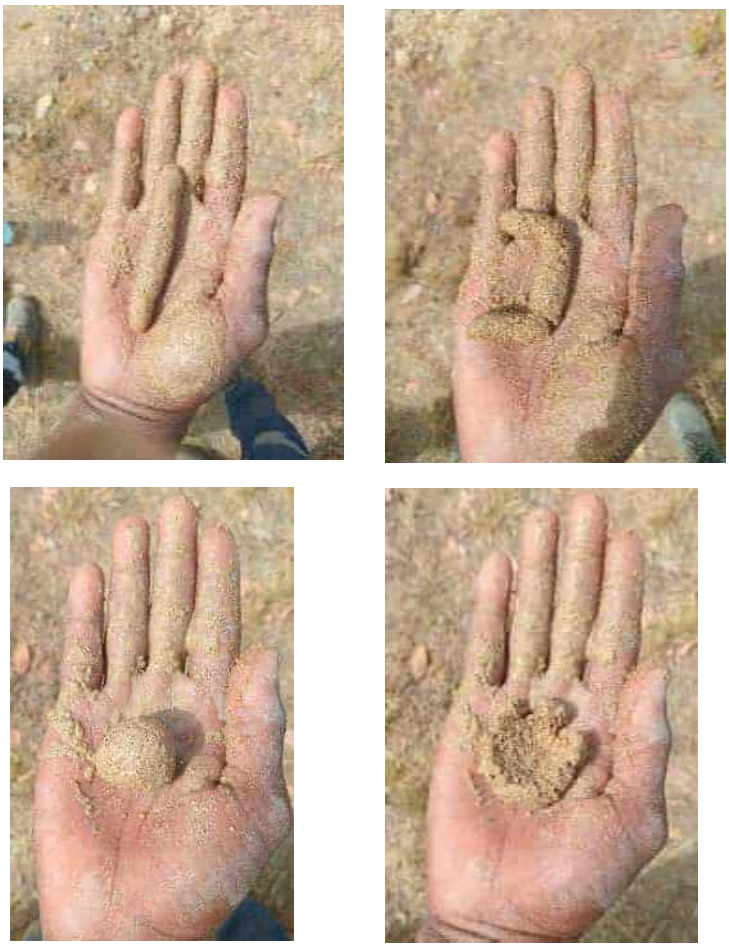


Figure 24:TP- WHD-03 – Consistency of arising from 2.10 m to 2.30 m







Figure 25: TP-WHD-03 – Test pit



Figure 26: TP-WHD-04 – Test pit Location

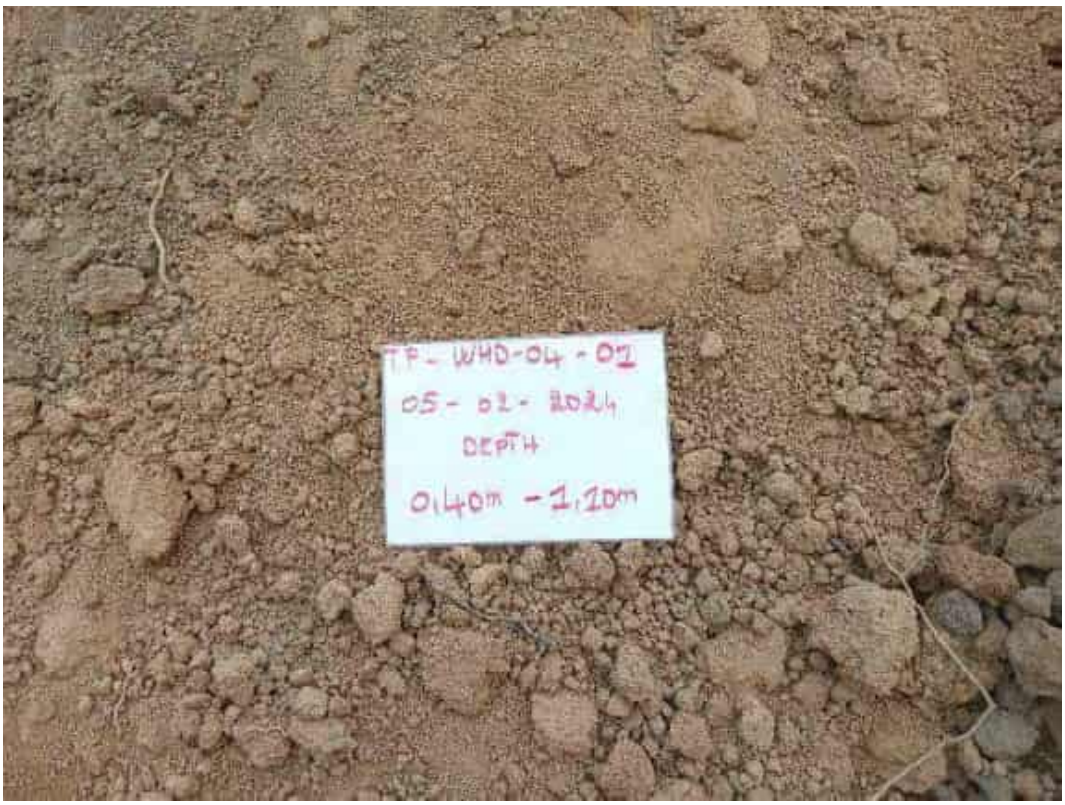


Figure 27: TP-WHD-04 – Arising from 0.40 m to 1.10 m



Figure 28:TP- WHD-04 – Arising from 0.40 m to 1.10 m with and without coarse material



Figure 29:TP- WHD-01 – Consistency of arising from 0.40 m to 1.10 m



Figure 30: TP-WHD-04 – Arising from 1.10 m to 1.90 m



Figure 31:TP- WHD-04 – Arising from 1.10 m to 1.90 m with and without coarse material



Figure 32:TP- WHD-04 – Consistency of arising from 1.10 m to 1.90 m







Figure 33: TP-WHD-04 – Test pit



Figure 34: TP-WHD-05 – Test pit Location



Figure 35: TP-WHD-05 – Arising from 0 .60 m to 3.70 m



Figure 36:TP-WHD-05 – Arising from 0.60 m to 3.70 m with and without coarse material



*

Figure 37:TP- TP-WHD-05 – Consistency of arising from 0.60 m to 3.70 m



Figure 38: TP-WHD-05 – Arising from 3.70 m to 4.90 m



Figure 39:TP- WHD-05 – Arising from 3.70 m to 4.90 m



Figure 40:TP- WHD-05 – Consistency of arising from 3.70 m to 4.90 m





Figure 41: TP-WHD-05 – Test pit



Figure 42: TP-WHD-06 – Test pit Location



Figure 43: TP-WHD-06 – Arising from 0.00 m to 0.80



Figure 44:TP- WHD-06 – Arising from 0.00 m to 0.80 m with coarse material



Figure 45: TP-WHD-06 – Test pit



Figure 46: TP-WHD-07 – Test pit Location



Figure 47: TP-WHD-07 – Arising from 0 .40 m to 1.50 m



Figure 48:TP- WHD-07 – Arising from 0.40 m to 1.50 m with and without coarse material



Figure 49:TP- WHD-07 – Consistency of arising from 0 .40 m to 1.50 m



Figure 50: TP-WHD-07 – Arising from 1.50 m to 2.00 m



Figure 51:TP- WHD-07 – Arising from 1.50 m to 2.00 m with coarse material



Figure 52:TP- WHD-07 – Consistency of arising from 1.50 m to 2.00 m







Figure 53: TP-WHD-07 – Test pit



Figure 54: TP-WHD-08 – Test pit Location.



Figure 55: TP-WHD-08 – Arising from 0 .20 m to 2.60 m



Figure 56:TP- WHD-08 – Arising from 0.20 m to 2.60 m with and without coarse material



Figure 57:TP- WHD-08 – Consistency of arising from 0.20 m to 2.60 m



Figure 58: TP-WHD-08 – Arising from 2.60 m to 3.90 m



Figure 59:TP- WHD-08 – Arising from 2.60 m to 3.90 m with coarse material



Figure 60:TP- WHD-08 – Consistency of arising from 2.50 m to 3.20 m







Figure 61: TP-WHD-08 – Test pit



Figure 62: TP-WHD-09 – Test pit Location



Figure 63: TP-WHD-09 – Arising from 0 .50 m to 1.50 m



Figure 64:TP- WHD-09 – Arising from 0.50 m to 1.50 m with and without coarse material



Figure 65:TP- WHD-09 – Consistency of arising from 0.50 m to 1.50 m



Figure 66: TP-WHD-09 – Arising from 1.50 m to 3.20 m



Figure 67:TP- WHD-09 – Arising from 1.50 m to 3.20 m with coarse material



Figure 68:TP- WHD-09 – Consistency of arising from 1.50 m to 3.20 m









Figure 69: TP-WHD-09 – Test pit



Figure 70: TP-WHD-10 – Test pit Location



Figure 71: TP-WHD-10 – Arising from 0 .60 m to 2.80 m



Figure 72:TP- WHD-10 – Arising from 0.60 m to 2.80 m



Figure 73:TP- WHD-10 – Consistency of arising from 0.60 m to 2.80 m







Figure 74: TP-WHD-10 – Test pit



Figure 75: TP-WHD-11 – Test pit Location



Figure 76: TP-WHD-11 – Arising from 0.40 m to 3.40 m



Figure 77:TP- WHD-11 – Arising from 0.40 m to 3.40 m



Figure 78:TP- WHD-01 – Consistency of arising from 0.40 m to 3.40 m







Figure 79: TP-WHD-11 – Test pit



Figure 80: TP-WHD-12 – Test pit Location



Figure 81: TP-WHD-12 – Arising from 0 .40 m to 3.30 m



Figure 82:TP- WHD-12 – Arising from 0.40 m to 3.30 m with and without coarse material



Figure 83:TP- WHD-12 – Consistency of arising from 0.40 m to 3.30



Figure 84: TP-WHD-12 – Arising from 3.30 m to 3.90 m



Figure 85: TP-WHD-12 – Arising from 3.30 m to 3.90 m with coarse material



Figure 86:TP- WHD-12 – Consistency of arising from 3.30 m to 3.90 m



Figure 87: TP-WHD-12 – Arising from 3.90 m to 4.30 m



Figure 88: TP-WHD-12 – Arising from 3.90 m to 4.30 m with coarse material





Figure 89:TP- WHD-12 – Consistency of arising from 3.90 m to 4.30 m

DOROPO GOLD PROJECT
DEFINITIVE FEASIBILITY STUDY
WATER HARVEST DAM





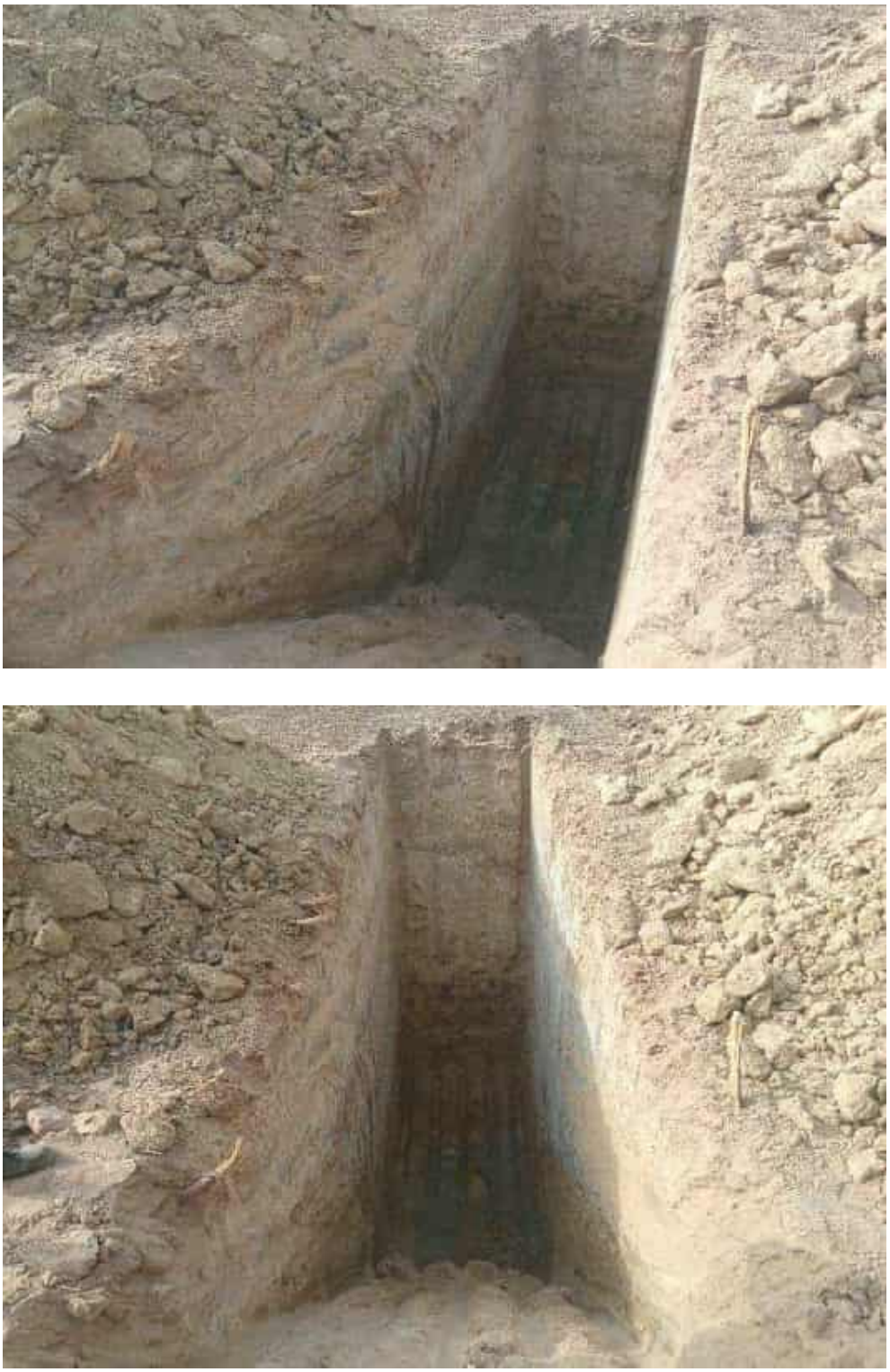


Figure 90: TP-WHD-12 –Test Pit



Figure 1:TP-WDC-01 – Test pit location



Figure 2:TP-WDC-01 – Arising from 0.30 m to 2.20 m



Figure 3:TP-WDC-01 – Arising from 0.30 m to 2.20 m



Figure 4:TP-WDC-01 – Arising from 0.30 m to 2.20 m with and without coarse material



Figure 5:TP-WDC-01 – Consistency of arising from 0.30 m to 2.20 m



Figure 6:TP-WSD-01 – Arising from 2.20 m to 3.50 m



Figure 7:TP-WDC-01 – Arising from 2.20 m to 3.50 m with and without coarse material



Figure 8:TP-WDC-01 – Consistency of arising from 2.20 m to 3.50 m







Figure 9:TP-WDC-01 –Test Pit



Figure 10:TP-WDC-02 – Test pit Location



Figure 11:TP-WDC-02 – Arising from 0.60 m to 2.90 m



Figure 12:TP-WDC-02 – Arising from 0.60 m to 2.90 m with and without coarse material



Figure 13:TP-WDC-02 – Consistency of arising from 0.60 m to 2.90 m



Figure 14:TP-WSD-02 – Arising from 2.90 m to 3.70 m



Figure 15:TP-WDC-02 – Arising from 2.90 m to 3.70 m with and without coarse material



Figure 16:TP-WDC-02 – Consistency of arising from 2.90 m to 3.70 m

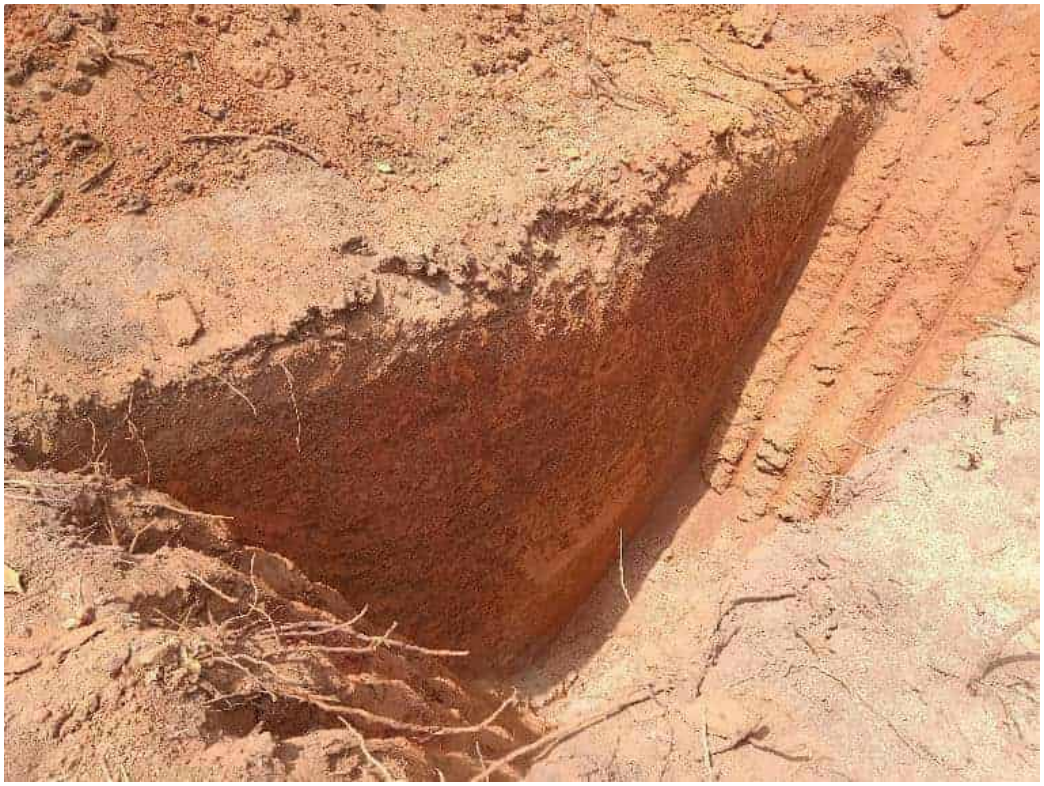






Figure 17:TP-WDC-02 –Test Pit



Figure18:TP-WDC-03 – Test pit Location





Figure 19:TP-WDC-03 – Arising from 0.20 m to 2.50 m



Figure 20:TP-WDC-03 – Arising from 0.20 m to 2.50 m with and without coarse material



Figure 21:TP-WDC-03 – Consistency of arising from 0.20 m to 2.50 m



Figure 22:TP-WDC-03 – Arising from 2.50 m to 3.20 m



Figure 23:TP-WDC-03 – Arising from 2.50 m to 3.20 m with and without coarse material



Figure 24:TP-WDC-03 – Consistency of arising from 2.50 m to 3.20 m







Figure 25:TP-WDC-03 Test Pit



Figure 26:TP-WDC-04 – Test pit Location



Figure 27:TP-WDC-04 – Arising from 0.20 m to 1.40 m



Figure 28:TP-WDC-04 – Arising from 0.20 m to 1.40 m with and without coarse material



Figure 29:TP-WDC-04 – Consistency of arising from 0.20 m to 1.40 m



Figure 30:TP-WDC-04 – Arising from 1.40 m to 2.80 m



Figure 31:TP-WDC-04 – Arising from 1.40 m to 2.80 m with and without coarse material



Figure 32:TP-WDC-04 – Consistency of arising from 1.40 m to 2.80 m





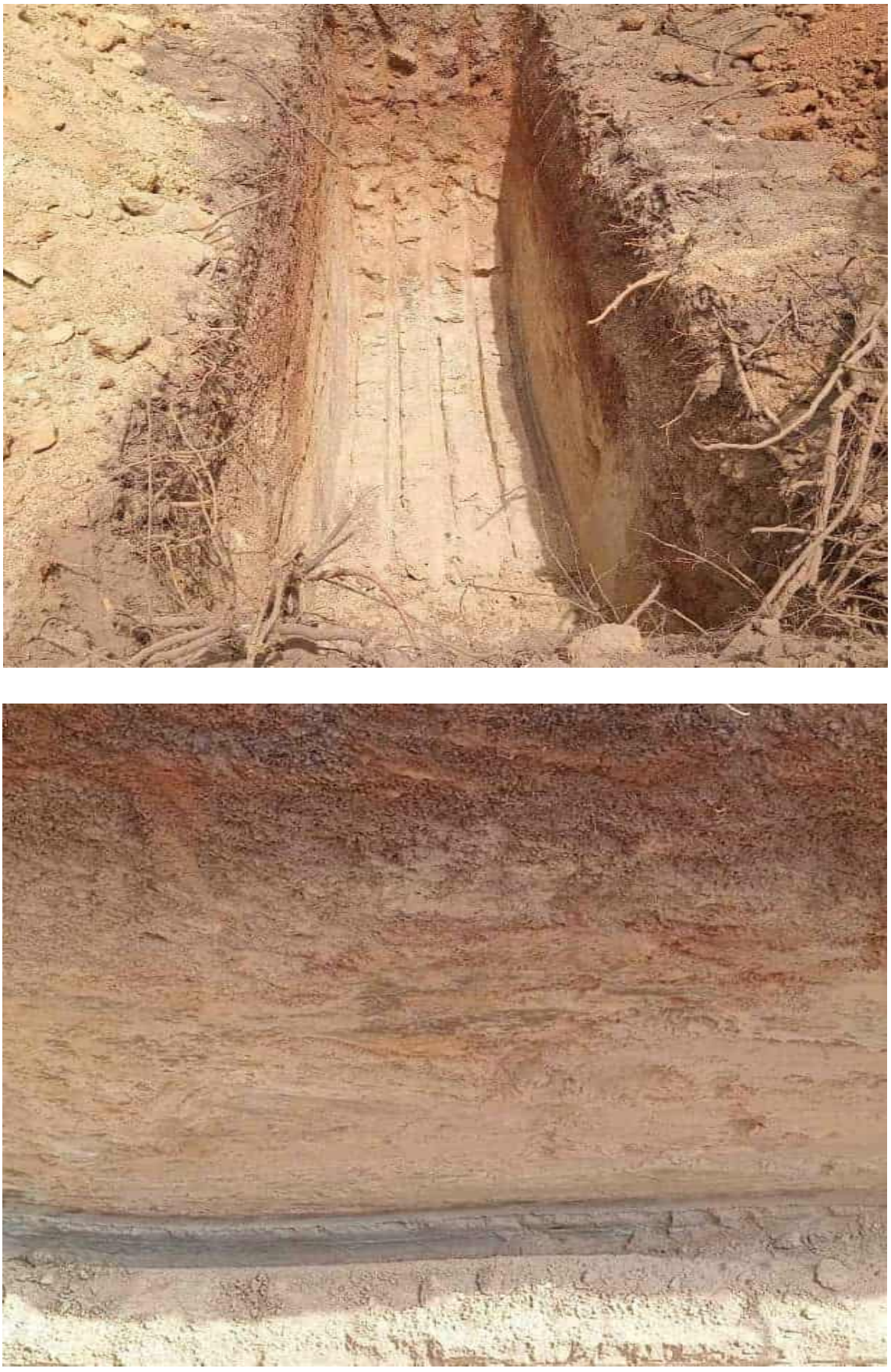


Figure 33:TP-WDC-04 Test Pit



Figure 34:TP-WDC-05 Test Pit Location



Figure 35:TP-WDC-05 Arising from 0.20 m to 2.50 m



Figure 36:TP-WDC-05 – Arising from 0.20 m to 2.50 m with and without coarse material



Figure 37:TP-WDC-05 – Consistency of arising from 0.20 m to 2.50 m



Figure 38:TP-WDC-05 Arising from 2.50 m to 3.80 m



Figure 39:TP-WDC-05 – Arising from 2.50 m to 3.80 m with and without coarse material



Figure 40:TP-WDC-05 – Consistency of arising from 2.50 m to 3.80 m





Figure 41:TP-WDC-05 Test Pit



Figure 42:TP-WDC-06 Test Pit Location



Figure 43:TP-WDC-06 Arising from 0.10 m to 1.20 m



Figure 44:TP-WDC-06 – Arising from 0.10 m to 1.20 m with and without coarse material



Figure 45:TP-WDC-06 – Consistency of arising from 0.10 m to 1.20 m



Figure 46:TP-WDC-06 Arising from 1.20 m to 3.00 m



Figure 47:TP-WDC-06 – Arising from 1.20 m to 3.00 m with and without coarse material



Figure 48:TP-WDC-06 – Consistency of arising from 1.20 m to 3.00 m







Figure 49:TP-WDC-06 Test Pit



Figure 1: TP-HDC-01 – Test pit location



Figure 2: TP-HDC-01 – Arising from 0.40 m to 3.70 m



Figure 3:TP- HDC-01 – Arising from 0.40 m to 3.70 m with and without coarse material



Figure 4:TP- HDC-01 – Consistency of arising from 0.40 m to 3.70



Figure 5: TP-HDC-01 – Arising from 3.70 m to 4.70 m



Figure 6:TP- HDC-01 – Arising from 3.70 m to 4.20 m with coarse material



Figure 7:TP- HDC-01 – Consistency of arising from 3.70 m to 4.20 m





Figure 8:TP- HDC-01-Test Pit



Figure 9: TP-HDC-02 – Test pit Location



Figure 10: TP-HDC-02 – Arising from 0.80 m to 1.50 m



Figure 11:TP- HDC-02 – Arising from 0.80 m to 1.50 m with and without coarse material



Figure 12:TP- HDC-023 – Consistency of arising from 0.80 m to 1.50 m

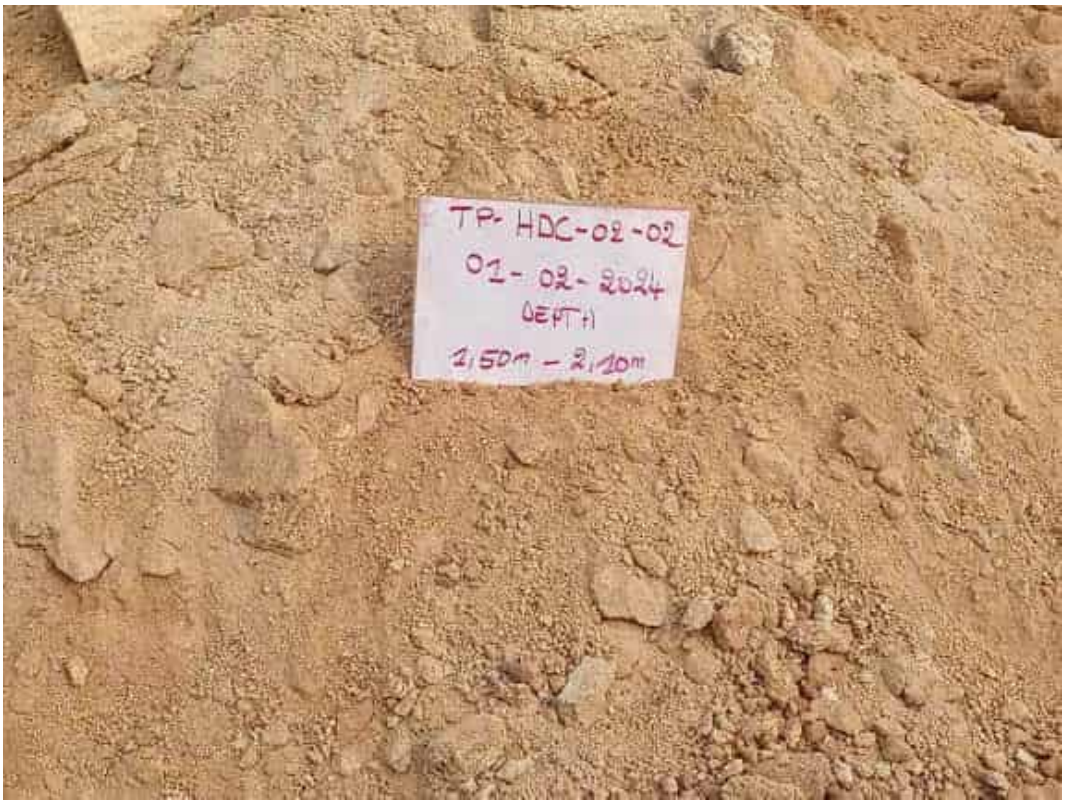


Figure 13: TP-HDC-02 – Arising from 1.50 m to 2.10 m



Figure 14:TP- HDC-02 – Arising from 1.50 m to 2.10 m with and without coarse material



Figure 15:TP- HDC-02 – Consistency of arising from 1.50 m to 2.10 m



Figure 16:TP- HDC-02-Test Pit



Figure 17: TP-HDC-03 – Test pit Location



Figure 18: TP-HDC-03 – Arising from 0.40 m to 2.10 m



Figure 19:TP- HDC-03 – Arising from 0.40 m to 2.10 m with and without coarse material



Figure 20:TP- HDC-03 – Consistency of arising from 0.40 m to 2.10 m



Figure 21: TP-HDC-03 – Arising from 0.40 m to 2.10 m



Figure 22: TP-HDC-03 – Arising from 2.10 m to 3.50 m



Figure 23:TP- HDC-03 – Arising from 2.10 m to 3.50 m with and without coarse material



Figure 24:TP- HDC-03 – Consistency of arising from 2.10 m to 3.50 m







Figure 25:TP- HDC-03-Test Pit



Figure 26: TP-HDC-04 – Test pit Location



Figure 27: TP-HDC-04 – Arising from 0.10 m to 1.10 m



Figure 28:TP- HDC-04 – Arising from 0.10 m to 1.10 m with and without coarse material



Figure 29:TP- HDC-04 – Consistency of arising from 0.10 m to 1.10 m



Figure 30: TP-HDC-04 – Arising from 1.10 m to 1.90 m



Figure 31:TP- HDC-04 – Arising from 1.10 m to 1.90 m with and without coarse material



Figure 32:TP- HDC-04 – Consistency of arising from 1.10 m to 1.90 m



Figure 33: TP-HDC-04 – Arising from 1.90 m to 2.80 m



Figure 34:TP- HDC-04 – Arising from 1.90 m to 2.80 m with and without coarse material



Figure 35:TP- HDC-04 – Consistency of arising from 1.90 m to 2.80 m





Figure 36:TP- HDC-04 –Test Pit



Figure 37: TP-HDC-05 – Test pit Location



Figure 38: TP-HDC-05 – Arising from 0.20 m to 2.70 m



Figure 39:TP- HDC-05 – Arising from 0.20 m to 2.70 m with coarse material



Figure 40:TP- HDC-05 – Consistency of arising from 0.20 m to 2.70 m



Figure 41:TP- HDC-05 Test Pit



Figure 42:TP- HDC-06 Test Pit Location



Figure 43: TP-HDC-06 – Arising from 0.30 m to 1.00 m



Figure 44:TP- HDC-08 – Arising from 0.30 m to 1.00 m with and without coarse material



Figure 45:TP- HDC-06 – Consistency of arising from 0.30 m to 1.00 m



Figure 46: TP-HDC-06 – Arising from 1.00 m to 2.00 m



Figure 47:TP- HDC-06 – Arising 1.00 m to 2.00 m with and without coarse material



Figure 48:TP- HDC-06 – Consistency of arising from 0.30 m to 1.00 m





Figure 49:TP- HDC-06-Test Pit



Figure 1: TP-AS-01 – Test pit Location



Figure 2: TP- AS-01 – Arising from 0.70 m to 4.10 m



Figure 3: TP- AS-01 –Arising from 0.70 m to 4.10 m with and without coarse material



Figure 4: TP- AS-01 – Consistency of arising from 0.20 m to 2.00 m





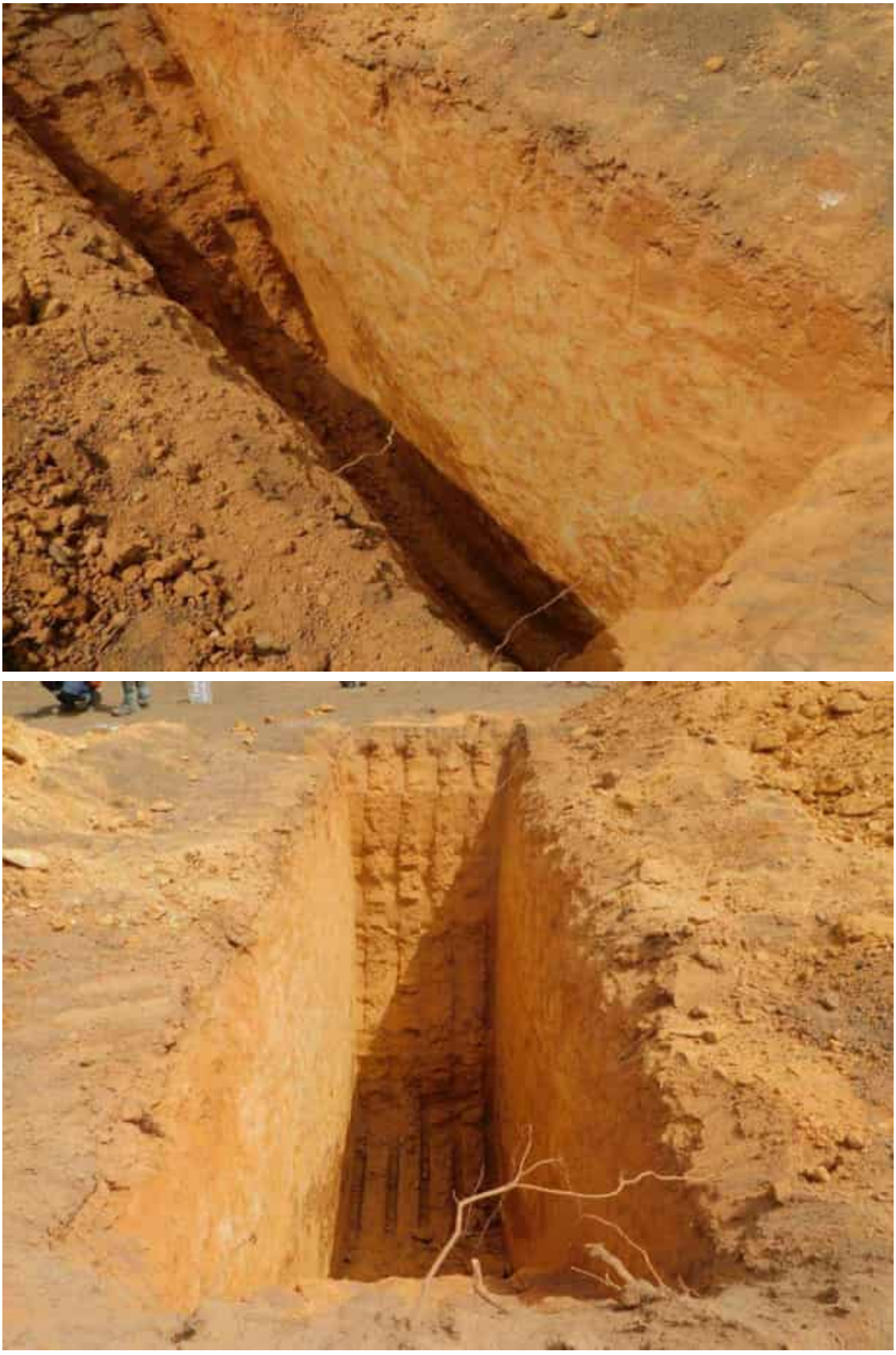


Figure 5: TP- AS-01 – Test pit



Figure 6: TP-AS-02 – Test pit Location



Figure 7: TP- AS-02 – Arising from 0.20 m to 2.00 m



Figure 8: TP- AS-02 –Arising from 0.20 m to 2.00 m with and without coarse material



Figure 9: TP- AS-02 – Consistency of arising from 0.20 m to 2.00 m



Figure 10: TP- AS-02 – Arising from 2.00 m to 4.00 m



Figure 11: TP- AS-02 –Arising from 2.00 m to 4.00 m with and without coarse material



Figure 12: TP- AS-01 – Consistency of arising from 2.00 m to 4.00 m







Figure 13: TP- AS-01 – Test pit



Figure 14: TP-AS-03 – Test pit Location



Figure 15: TP- AS-03 – Arising from 0.20 m to 2.40 m



Figure 16: TP- AS-03 –Arising from 0.20 m to 2.40 m with and without coarse material



Figure 17: TP- AS-03 – Consistency of arising from 0.20 m to 2.40 m



Figure 18: TP- AS-03 – Arising from 2.40 m to 4.20 m



Figure 19: TP- AS-03 –Arising from 2.40 m to 4.20 m with and without coarse material



Figure 20: TP- AS-03 – Consistency of arising from 2.40 m to 4.20 m







Figure 21: TP- AS-03 – Test pit



Figure 22: TP-AS-04 – Test pit Location



Figure 23: TP- AS-04 – Arising from 0.30 m to 1.60 m



Figure 24: TP- AS-04 –Arising from 0.30 m to 1.60 m with and without coarse material



Figure 25: TP- AS-04 – Consistency of arising from 0.30 m to 1.60 m



Figure 26: TP- AS-04 – Arising from 1.60 m to 3.80 m



Figure 27: TP- AS-04 –Arising from 1.60 m to 3.80 m with and without coarse material



Figure 28: TP- AS-04 – Consistency of arising from 1.60 m to 3.80 m





Figure 29: TP- AS-04 – Test pit



1

Figure 30: TP-AS-05 – Test pit Location



Figure 31: TP- AS-05 – Arising from 0.40 m to 4.20 m



Figure 32: TP- AS-05 –Arising from 0.40 m to 4.20 m with and without coarse material

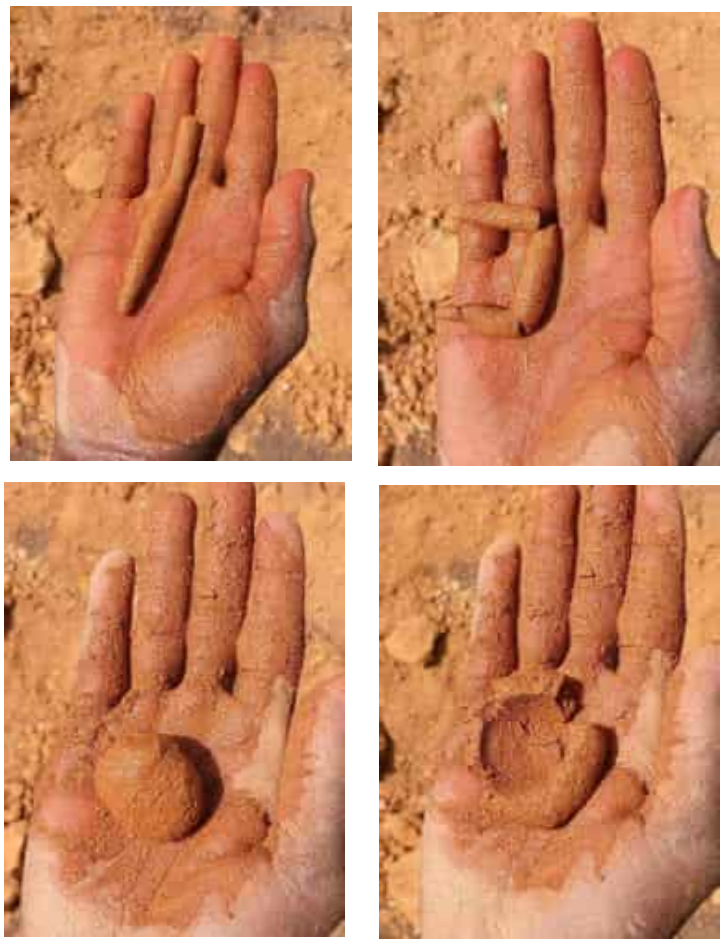


Figure 33: TP- AS-04 – Consistency of arising from 0.40 m to 4.20 m









Figure 34: TP- AS-05 – Test pit



Figure 35: TP-AS-06 – Test pit Location



Figure 36: TP- AS-06 – Arising from 0.40 m to 4.20 m



Figure 37: TP- AS-06 –Arising from 0.40 m to 4.20 m with and without coarse material



Figure 38: TP- AS-06 – Consistency of arising from 0.40 m to 4.20 m







Figure 39: TP- AS-06 – Test pit



Figure 40: TP-AS-07 – Test pit Location



Figure 41: TP- AS-07 – Arising from 0.40 m to 3.80 m



Figure 42: TP- AS-07 –Arising from 0.40 m to 3.80 m with and without coarse material



Figure 43: TP- AS-07 – Consistency of arising from 0.40 m to 3.80 m







Figure 44: TP- AS-07 – Test pit



Figure 45: TP-AS-08 – Test pit Location



Figure 46: TP- AS-08 – Arising from 0.20 m to 2.10 m



Figure 47: TP- AS-08 –Arising from 0.20 m to 2.10 m with and without coarse material



Figure 48: TP- AS-08 – Consistency of arising from 0.20 m to 2.10 m



Figure 49: TP- AS-08 – Arising from 2.20 m to 3.40 m



Figure 50: TP- AS-08 –Arising from 2.20 m to 3.40 m with and without coarse material



Figure 51: TP- AS-08 – Consistency of arising from 2.20 m to 3.40 m





Figure 52: TP- AS-08 – Test pit



Figure 53: TP-AS-09 – Test pit Location



Figure 54: TP- AS-09 – Arising from 0.20 m to 2.20 m



Figure 55: TP- AS-09 –Arising from 0.20 m to 2.20 m with and without coarse material



Figure 56: TP- AS-09– Consistency of arising from 0.20 m to 2.20 m







Figure 57: TP- AS-09 – Test pit



Figure 58: TP-AS-10 – Test pit Location



Figure 59: TP- AS-10 – Arising from 0.10 m to 2.50 m



Figure 60: TP- AS-10 –Arising from 0.10 m to 2.50 m with and without coarse material



Figure 61: TP- AS-10 – Consistency of arising from 0.10 m to 2.50 m



Figure 62: TP- AS-10 – Arising from 2.50 m to 4.10 m



Figure 63: TP- AS-10 –Arising from 2.50 m to 4.10 m with and without coarse material

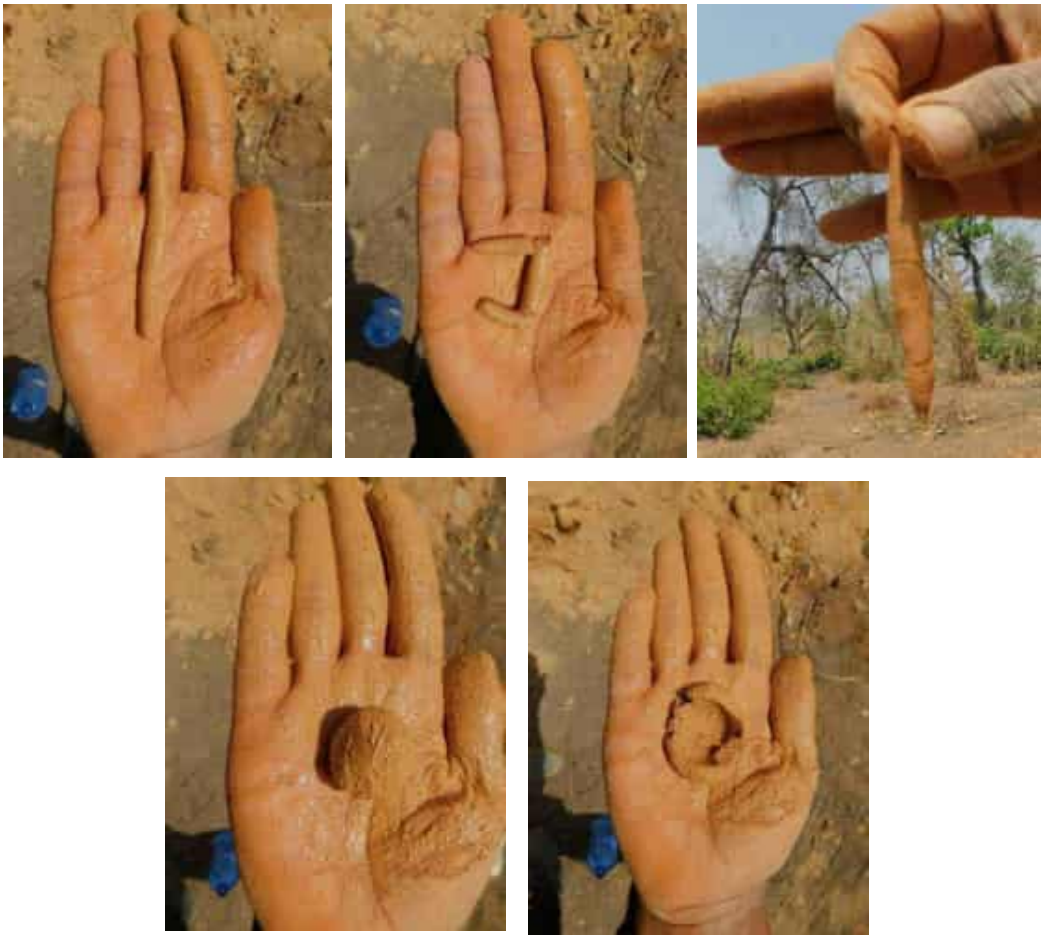


Figure 64: TP- AS-10 – Consistency of arising from 2.50 m to 4.10 m







Figure 65: TP- AS-10 – Test pit



Figure 66: TP-AS-11 – Test pit Location



Figure 67: TP- AS-11 – Arising from 0.10 m to 4.10 m



Figure 68: TP- AS-11 –Arising from 0.10 m to 4.10 m with and without coarse material



Figure 69: TP- AS-11 – Consistency of arising from 0.10 m to 4.10 m



Figure 70: TP- AS-11 – Arising from 4.10 m to 4.60 m



Figure 71: TP- AS-11 –Arising from 4.10 m to 4.60 m with and without coarse material



Figure 72: TP- AS-11 – Consistency of arising from 4.10 m to 4.60 m







Figure 73: TP-AS-11 – Test pit Location



Figure 74: TP-AS-12 – Test pit Location



Figure 75: TP- AS-12 – Arising from 0.15 m to 4.00 m



Figure 76: TP- AS-12 –Arising from 0.15 m to 4.00 m with and without coarse material



Figure 77: TP- AS-12 – Consistency of arising from 0.15 m to 4.00 m







Figure 78: TP- AS-12 – Test pit



Figure 79: TP-AS-13 – Test pit Location



Figure 80: TP- AS-13 – Arising from 0.10 m to 1.80 m



Figure 81: TP- AS-13 –Arising from 0.10 m to 1.80 m with and without coarse material



Figure 82: TP- AS-13 – Consistency of arising from 0.10 m to 1.80 m







Figure 83: TP- AS-13 – Test pit



Figure 84: TP-AS-14 – Test pit Location



Figure 85: TP- AS-14 – Arising from 0.10 m to 3.90 m



Figure 86: TP- AS-14 –Arising from 0.10 m to 3.90 m with and without coarse material



Figure 87: TP- AS-14 – Consistency of arising from 0.10 m to 3.90 m







Figure 88: TP- AS-14 – Arising from 0.10 m to 3.90 m



Figure 88: TP- AS-15 – Test pit Location



Figure 89: TP- AS-15 – Arising from 0.15 m to 3.40 m



Figure 90: TP- AS-15 –Arising from 0.15 m to 3.40 m with and without coarse material



Figure 91: TP- AS-15 – Consistency of arising from 0.15 m to 3.40 m



Figure 92: TP- AS-15 – Arising from 3.40 m to 4.10 m



Figure 93: TP- AS-15 –Arising from 3.40 m to 4.10 m with and without coarse material



Figure 94: TP- AS-15 – Consistency of arising from 3.40 m to 4.10 m





Figure 95: TP- AS-15 – Test pit



Figure 1: TP-AV-01 – Test pit Location



Figure 2: TP- AV-01 – Arising from 0.20 m to 1.10 m



Figure 3: TP- AV-01 –Arising from 0.20 m to 1.10 m with and without coarse material



Figure 4: TP- AV-01 – Consistency of arising from 0.20 m to 1.10 m







Figure 5: TP- AV-01 – Test pit



Figure 6: TP-AV-02 – Test pit Location



Figure 7: TP- AV-02 – Arising from 0.20 m to 0.60 m



Figure 8: TP- AV-02 –Arising from 0.20 m to 0.60 m with and without coarse material



Figure 9: TP- AV-02 – Consistency of arising from 0.20 m to 0.60 m





Figure 10: TP- AV-02 – Test pit



Figure 11: TP-AV-03 – Test pit Location



Figure 12: TP- AV-03 – Arising from 0.30 m to 1.10 m



Figure 13: TP- AV-03 –Arising from 0.30 m to 1.10 m with and without coarse material

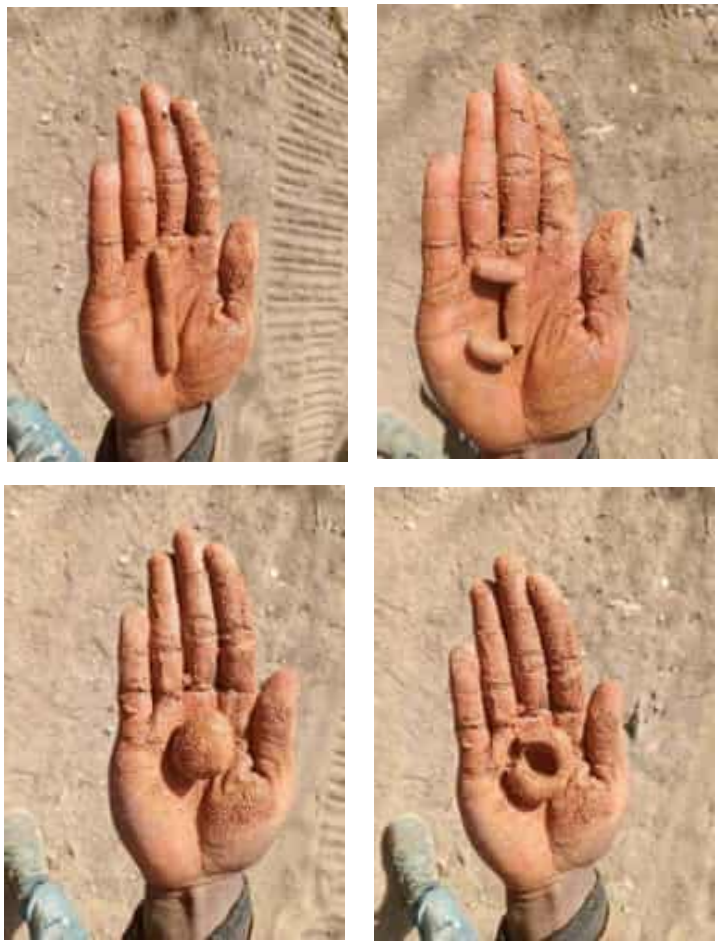


Figure 14: TP- AV-03 – Consistency of arising from 0.30 m to 1.10 m







Figure 15: TP- AV-03 – Test pit



Figure 22: TP-AV-04 – Test pit Location



Figure 23: TP- AV-04 – Arising from 0.50 m to 4.40 m



Figure 24: TP- AV-04 –Arising from 0.50 m to 4.40 m with and without coarse material



Figure 25: TP- AV-04 – Consistency of arising from 0.50 m to 4.40 m







Figure 26: TP- AV-04 – Test pit



Figure 27: TP-AV-05 – Test pit Location



Figure 28: TP- AV-05 – Arising from 0.30 m to 1.70 m



Figure 29: TP- AV-05 –Arising from 0.30 m to 1.70 m with and without coarse material



Figure 30: TP- AV-05 – Consistency of arising from 0.30 m to 1.70 m







Figure 31: TP- AV-05 – Test pit



Figure 32: TP-AV-06 – Test pit Location



Figure 33: TP- AV-06 – Arising from 0.30 m to 1.20 m



Figure 34: TP- AV-06 –Arising from 0.30 m to 1.20 m with and without coarse material

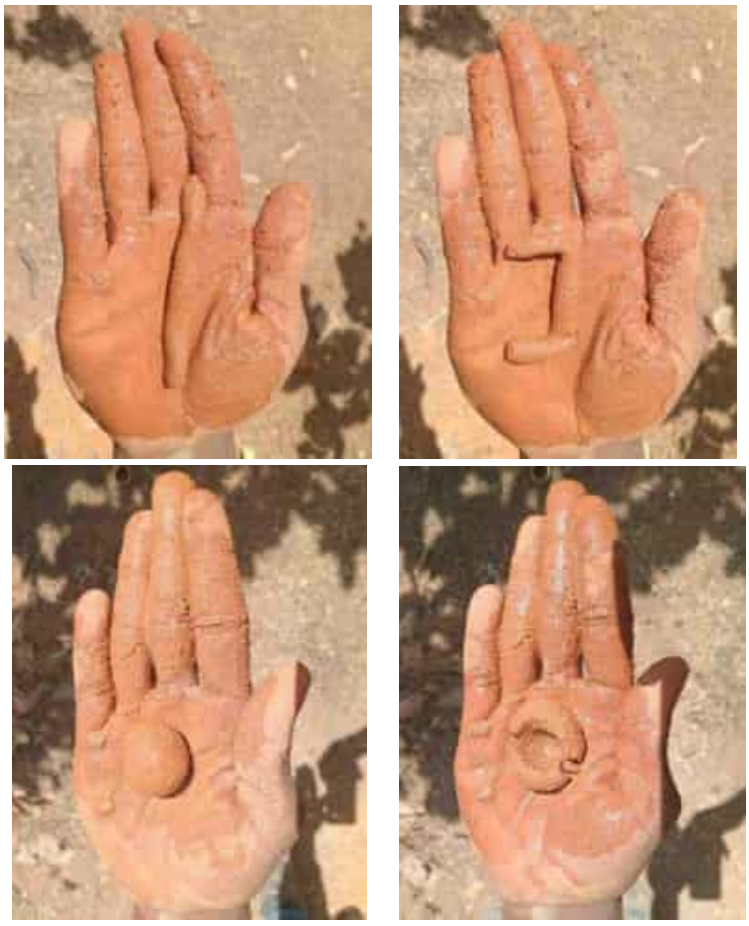


Figure 35: TP- AV-06 – Consistency of arising from 0.30 m to 1.20 m







Figure 36: TP- AV-06 – Test pit



Figure 1: TP-HA-01 – Test pit Location



Figure 2: TP- HA-01 – Arising from 0.50 m to 2.00 m



Figure 3: TP- HA-01 –Arising from 0.50 m to 2.00 m with and without coarse material



Figure 4: TP- HA-01 – Consistency of arising from 0.50 m to 2.00 m



Figure 5: TP- HA-01 – Arising from 2.00 m to 3.10 m



Figure 6: TP- HA-01 –Arising from 2.00 m to 3.10 m with and without coarse material



Figure 7: TP- HA-01 – Consistency of arising from 2.00 m to 3.10 m





Figure 8: TP- HA-01 – Arising from 3.10 m to 4.10 m



Figure 9: TP- HA-01 –Arising from 3.10 m to 4.10 m with and without coarse material



Figure 10: TP- HA-01 – Consistency of arising from 3.10 m to 4.10 m





Figure 11: TP- HA-01 – Test pit



Figure 12: TP-HA-02 – Test pit Location



Figure 13: TP- HA-02 – Arising from 0.30 m to 1.50 m



Figure 14: TP- HA-02 –Arising from 0.30 m to 1.50 m with and without coarse material



Figure 15: TP- HA-02 – Consistency of arising from 0.30 m to 1.50 m



Figure 16: TP- HA-02 – Arising from 1.50 m to 3.80 m



Figure 17: TP- HA-02 –Arising from 1.50 m to 3.80 m with and without coarse material



Figure 18: TP- HA-02 – Consistency of arising from 1.50 m to 3.80 m



Figure 19: TP- HA-02 – Arising from 3.80 m to 4.40 m



Figure 20: TP- HA-02 – Consistency of arising from 3.80 m to 4.40 m







Figure 21: TP- HA-02 – Test pit



Figure 22: TP-HA-03 – Test pit Location



Figure 23: TP- HA-03 – Arising from 0.40 m to 4.20 m



Figure 24: TP- HA-03 –Arising from 0.40 m to 4.20 m with and without coarse material

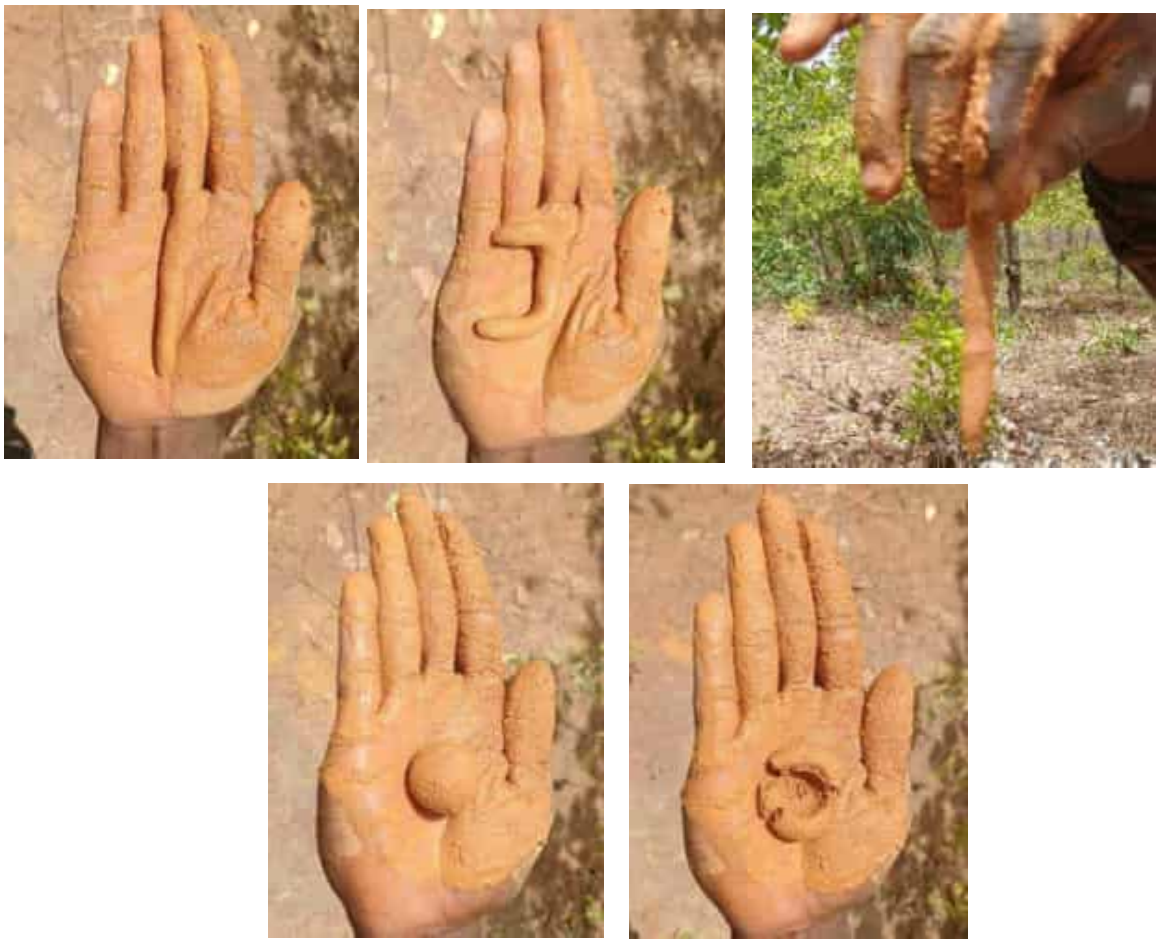


Figure 25: TP- HA-03 – Consistency of arising from 0.40 m to 4.20 m







Figure 27: TP- HA-03 – Test pit



Figure 1: TP-SAR-02– Test pit location before excavation



Figure 2: TP-SAR-02 – Test pit location



Figure 3: TP-SAR-02 – Arising from 0 .10 m to 2.90 m



Figure 4: TP-SAR-02 – Arising from 0.10 m to 2.90 m with and without coarse material



Figure 5: TP-SAR-02– Consistency of arising from 0.10 m to 2.90 m



Figure 6: TP-SAR-02– Arising from 2 .90 m to 4 m



Figure 7: TP-SAR-02 – Arising from 2.90 m to 4 m with and without coarse material



Figure 8: TP-SAR-02– Consistency of arising from 2.90 m to 4 m









Figure 9: TP-SAR-02 – Test pit



Figure 10: TP-SAR-03– Test pit Location before digging



Figure 11: TP-SAR-03– Test pit Location



Figure 12: TP-SAR-03– Arising from 0.2 m to 2.1 m



Figure 13: TP-SAR-03 – Arising from 0.2 m to 2.1 m with and without coarse material



Figure 14: TP-SAR-03– Consistency of arising from 0.2 m to 2.1 m









Figure 15: TP-SAR-03 – Test pit



Figure 16: TP-SAR-04– Test pit Location before digging



Figure 17: TP-SAR-04 – Test pit Location



Figure 18: TP-SAR-04 – Arising from 0 .30 m to 3.90 m



Figure 19: TP-SAR-04 – Arising from 0.30 m to 3.90 m with and without coarse material

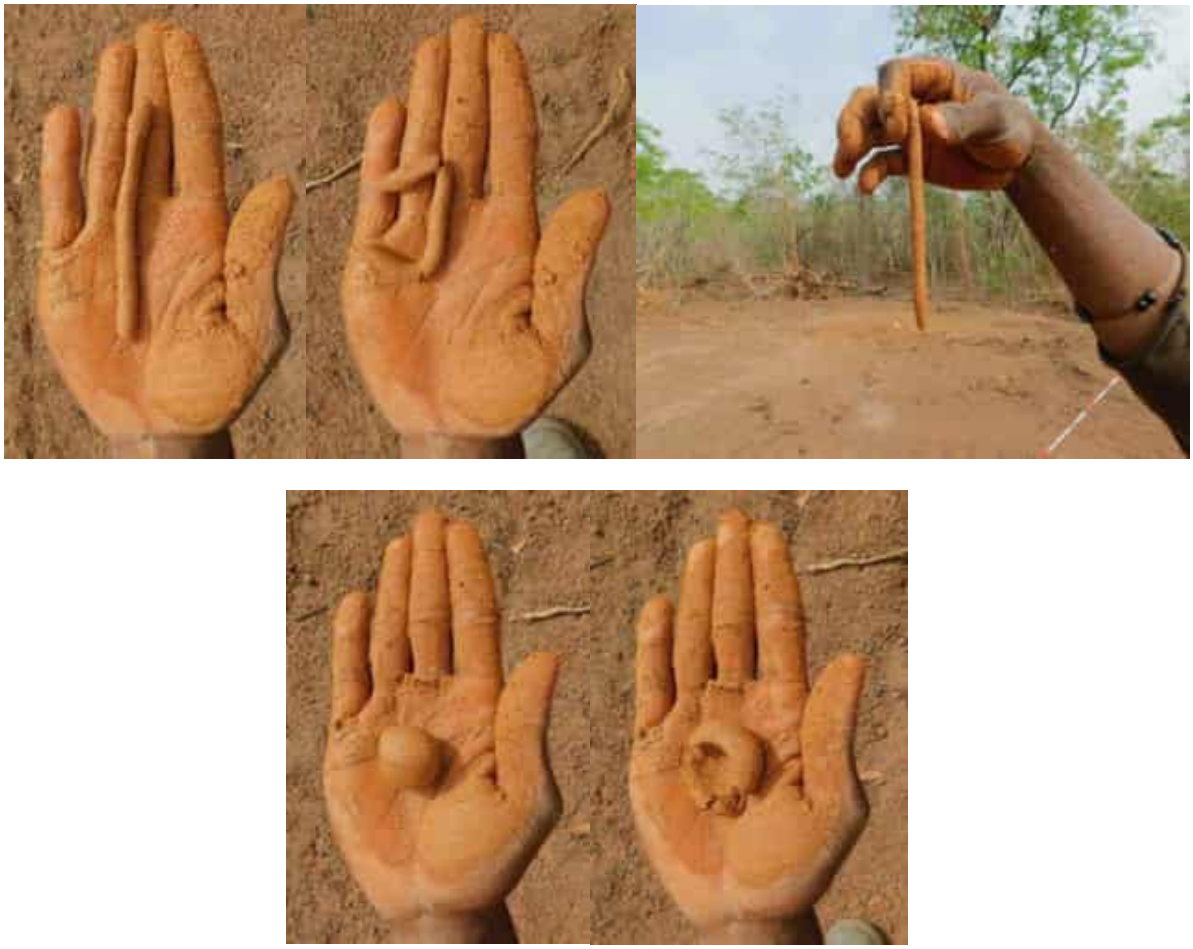


Figure 20: TP-SAR-04– Consistency of arising from 0.3 m to 3.90 m









Figure 21: TP-SAR-04 – Test pit



Figure 22: TP-SAR-05– Test pit Location before digging



Figure 23: TP-SAR-05 – Test pit Location



Figure 24: TP-SAR-05 – Arising from 0 .15 m to 4.10 m





Figure 25: TP-SAR-05 – Arising from 0.15 m to 4.10 m with and without coarse material

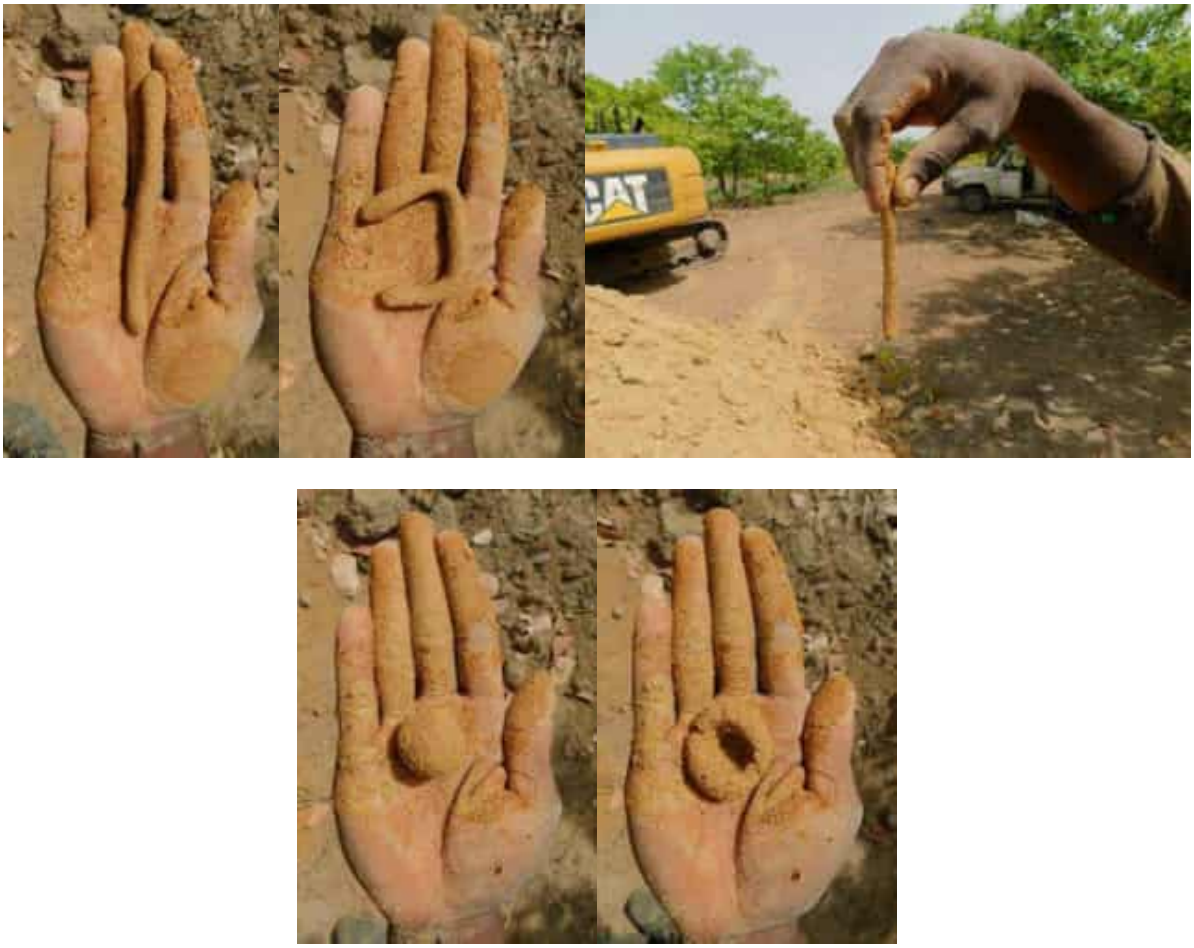


Figure 26: TP-SAR-05– Consistency of arising from 0.15 m to 4.10 m











Figure 27: TP-SAR-05 – Test pit



Figure 28: TP-SAR-06– Test pit Location before digging



Figure 29: TP-SAR-06 – Test pit Location



Figure 30: TP-SAR-06 – Arising from 0 .15 m to 4.00 m





Figure 31: TP-SAR-06 – Arising from 0.15 m to 4.00 m with and without coarse material

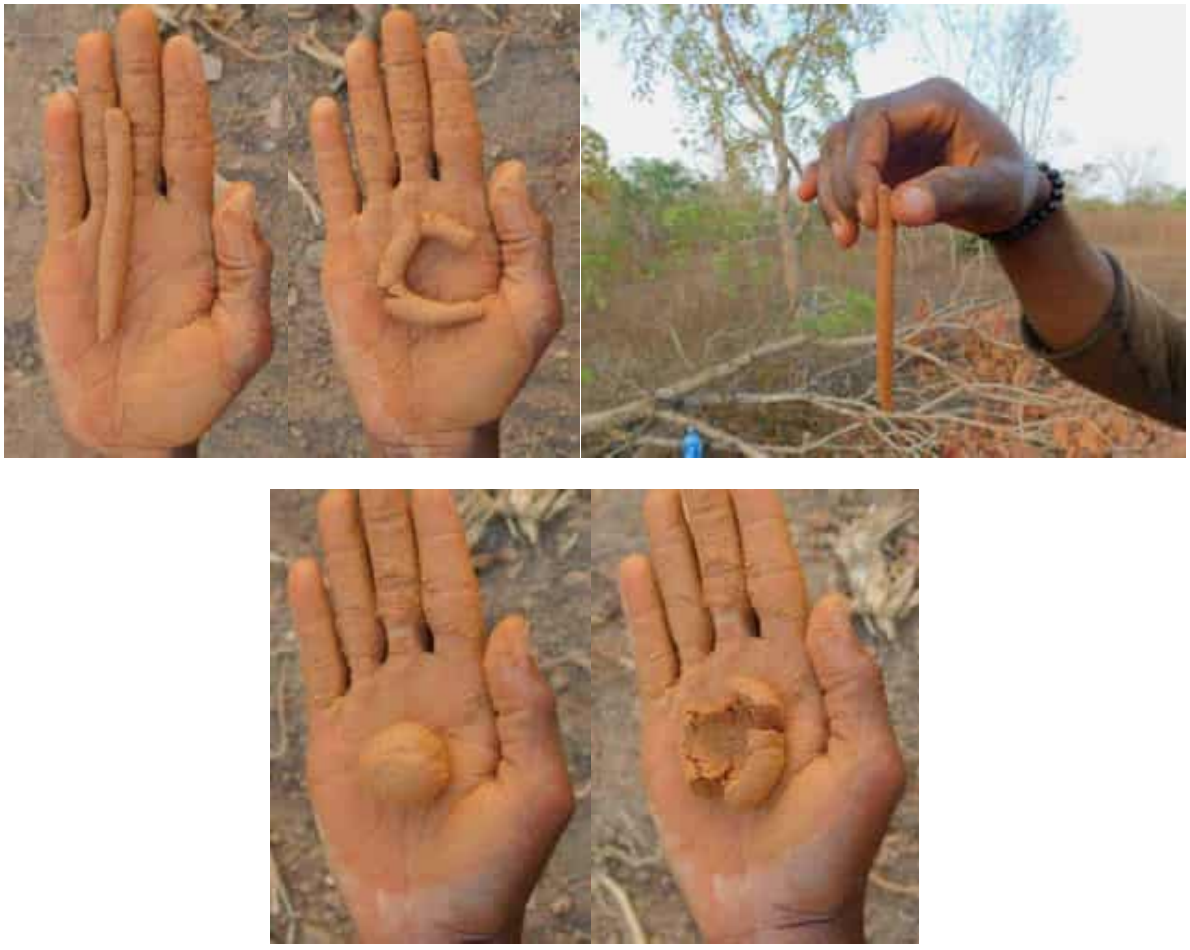


Figure 32: TP-SAR-06– Consistency of arising from 0.15 m to 4.00 m











Figure 33: TP-SAR-06 – Test pit



Figure 34: TP-SAR-07– Test pit Location before digging



Figure 35: TP-SAR-07 – Test pit Location



Figure 36: TP-SAR-07 – Arising from 0 .30 m to 1.90 m





Figure 37: TP-SAR-07 – Arising from 0.30 m to 1.90 m with and without coarse material



Figure 38: TP-SAR-07– Consistency of arising from 0.30 m to 1.90 m



Figure 39: TP-SAR-07 – Arising from 1 .90 m to 4.00 m



Figure 40: TP-SAR-07 – Arising from 1.90 m to 4.00 m with and without coarse material

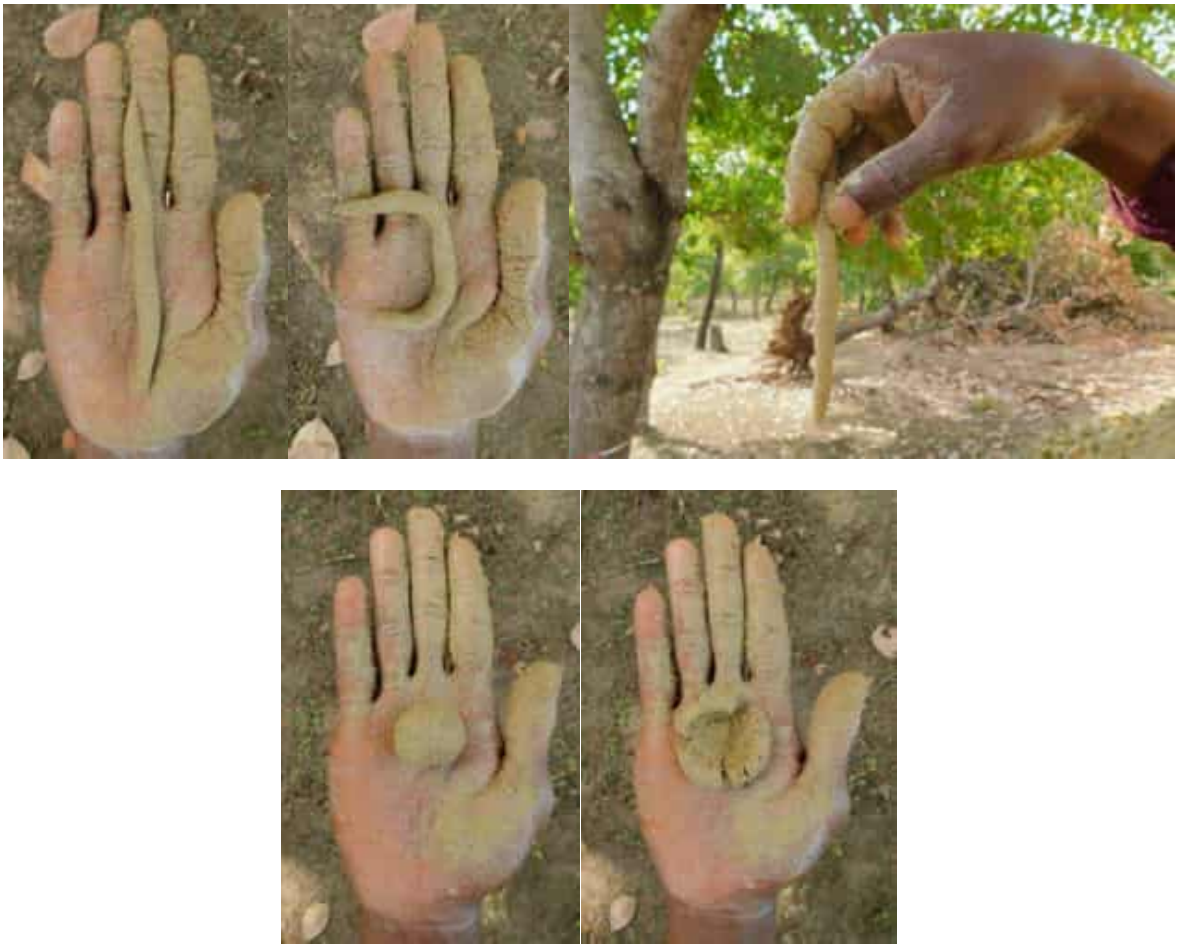


Figure 41: TP-SAR-07– Consistency of arising from 1.90 m to 4.00 m















Figure 42: TP-SAR-07 – Test pit



Figure 43: TP-SAR-08– Test pit Location before digging



Figure 44: TP-SAR-08 – Test pit Location



Figure 45: TP-SAR-08 – Arising from 0 .30 m to 2.70 m



Figure 46: TP-SAR-07 – Arising from 0.30 m to 2.70 m with and without coarse material

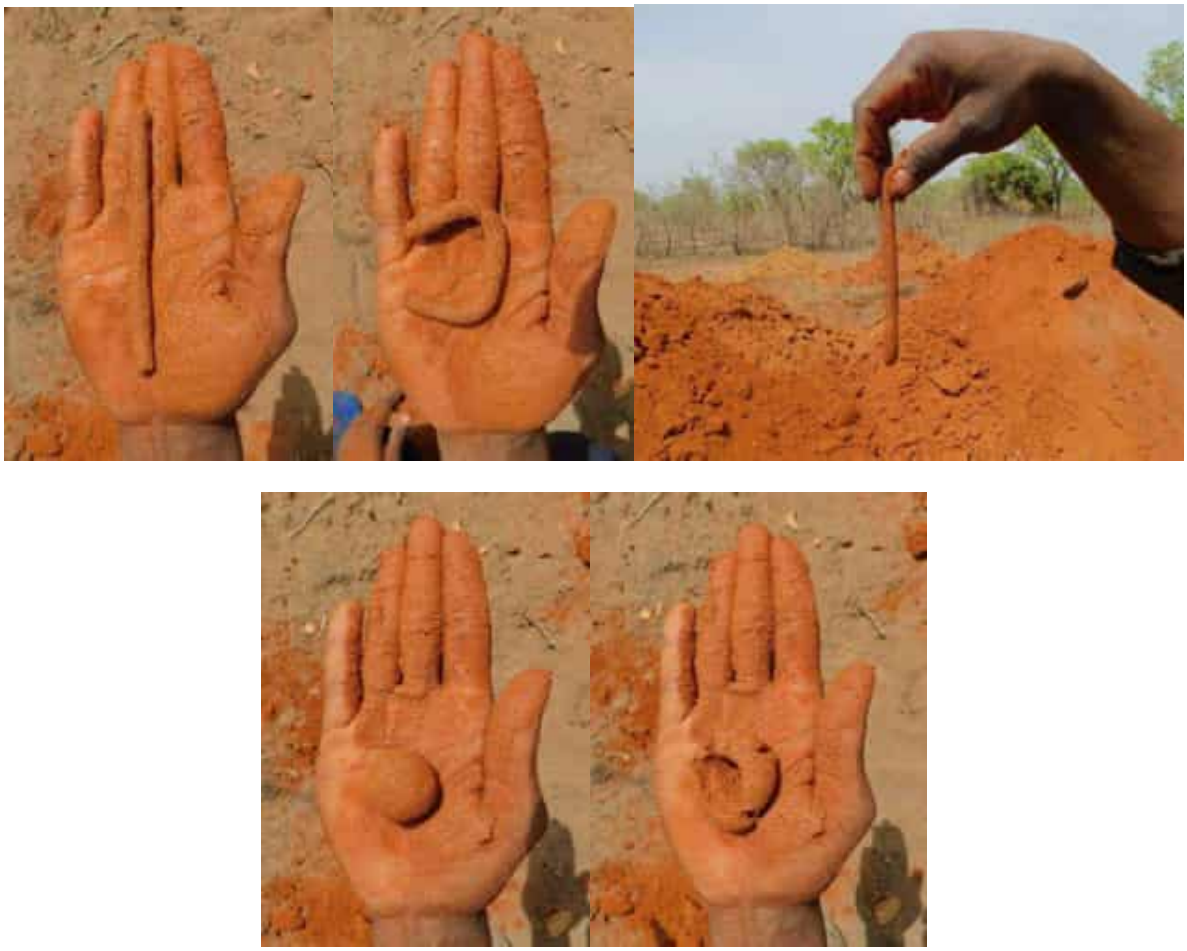


Figure 47: TP-SAR-08– Consistency of arising from 0.30 m to 2.70 m



Figure 48: TP-SAR-08– Arising from 2 .70 m to 3.10 m



Figure 49: TP-SAR-08 – Arising from 2.70 m to 3.10 m with and without coarse material



Figure 50: TP-SAR-08– Consistency of arising from 2.7 m to 3.10 m











Figure 51: TP-SAR-08 – Test pit



Figure 52: TP-SAR-09– Test pit Location before digging



Figure 53: TP-SAR-09 – Test pit Location



Figure 54: TP-SAR-09 – Arising from 0 .10 m to 2.80 m





Figure 55: TP-SAR-09 – Arising from 0.10 m to 2.80 m with and without coarse material



Figure 56: TP-SAR-09– Consistency of arising from 0.10 m to 2.80 m











Figure 57: TP-SAR-09 – Test pit



Figure 58: TP-SAR-10– Test pit Location before digging



Figure 59: TP-SAR-10 – Test pit Location



Figure 60: TP-SAR-10 – Arising from 0 .20 m to 3.30 m



Figure 61: TP-SAR-10 – Arising from 0.20 m to 3.3 m with and without coarse material



Figure 62: TP-SAR-09– Consistency of arising from 0.20 m to 3.30 m



Figure 63: TP-SAR-10 – Arising from 3.30 m to 4.10 m



Figure 64: TP-SAR-10 – Arising from 3.30 m to 4.10 m with and without coarse material



Figure 65: TP-SAR-10– Consistency of arising from 3.30m to 4.10 m











Figure 66: TP-SAR-10 – Test pit



Figure 67: TP-SAR-31 – Test pit Location



Figure 68: TP-SAR-31 – Arising from 0 .30 m to 2.10 m



Figure 69: TP-SAR-31 – Arising from 0.30 m to 2.10 m with and without coarse material



Figure 70: TP-SAR-31 – Consistency of arising from 0.30 m to 2.10 m



Figure 71: TP-SAR-31 – Arising from 2.10 m to 3.20 m



Figure 72: TP-SAR-31 – Arising from 3.20 m to 3.70 m



Figure 73: TP-SAR-31 – Arising from 3.20 m to 3.70 m with and without coarse material



Figure 74: TP-SAR-31 – Consistency of arising from 3.20 m to 3.70 m







Figure 75: TP-SAR-31 – Test pit



Figure 76: TP-SAR-32 – Test pit Location



Figure 77: TP-SAR-32 – Arising from 0 .40 m to 1.50 m



Figure 78: TP-SAR-32 – Arising from 0.40 m to 1.50 m with and without coarse material



Figure 79: TP-SAR-32 – Consistency of arising from 0.40 m to 1.50 m



Figure 80: TP-SAR-32 – Arising from 1.50 m to 2.50 m



Figure 81: TP-SAR-32 – Arising from 1.50 m to 2.50 m with and without coarse material



Figure 82: TP-SAR-32 – Consistency of arising from 1.50 m to 2.50 m







Figure 83: TP-SAR-32 – Test pit



Figure 84: TP-SAR-33 – Test pit Location



Figure 85: TP-SAR-33 – Arising from 0 .40 m to 1.70 m



Figure 86: TP-SAR-20 – Arising from 0.4 0 m to 1.70 m with and without coarse material

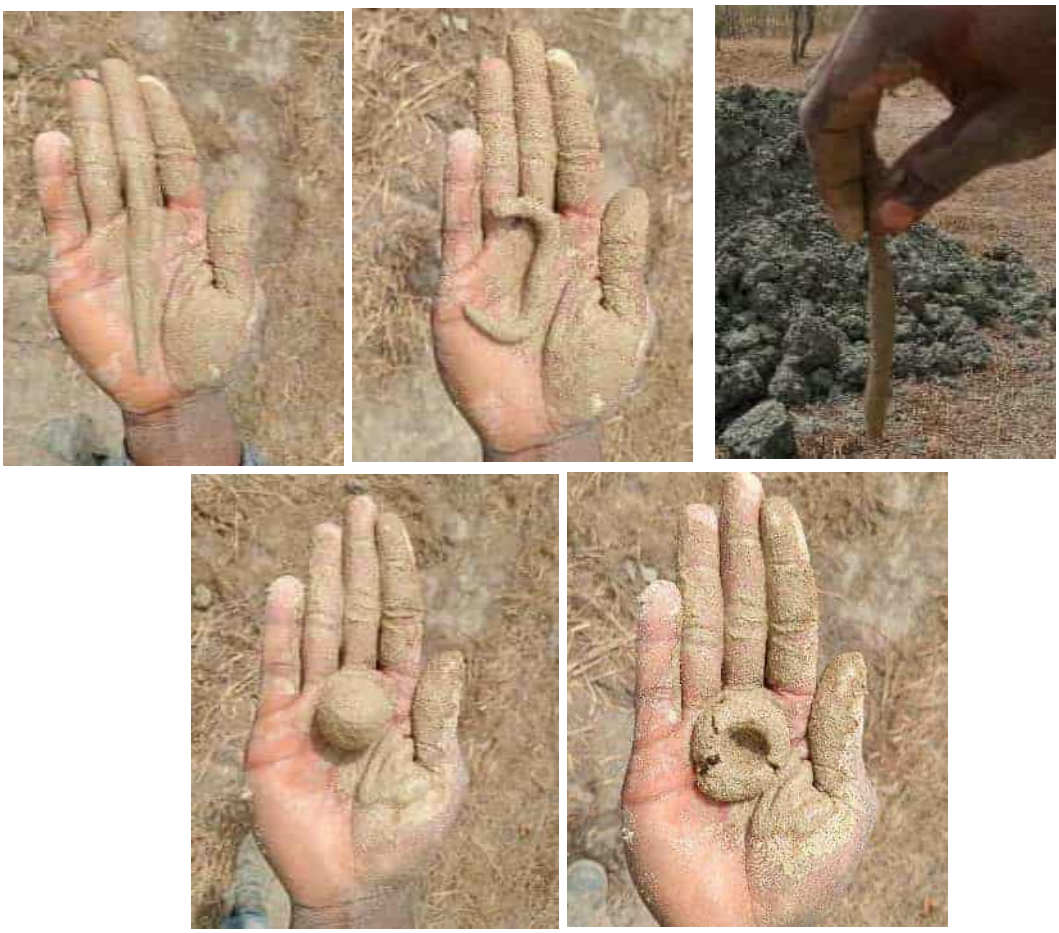


Figure 87: TP-SAR-31 – Consistency of arising from 0.40 m to 1.70 m



Figure 88: TP-SAR-33 – Arising from 1.70 m to 3.20 m



Figure 89: TP-SAR-33 – Arising from 1.70 m to 3.20 m with coarse material/clay lumps



Figure 90: TP-SAR-33 – Consistency of arising from 1.70 m to 3.20 m.





Figure 91: TP-SAR-33 – Test pit



Figure 92: TP-SAR-34 – Test pit Location



Figure 93: TP-SAR-34 – Arising from 0 .50 m to 2.70 m



Figure 94: TP-SAR-34 – Arising from 0.50 m to 2.70 m with and without coarse material

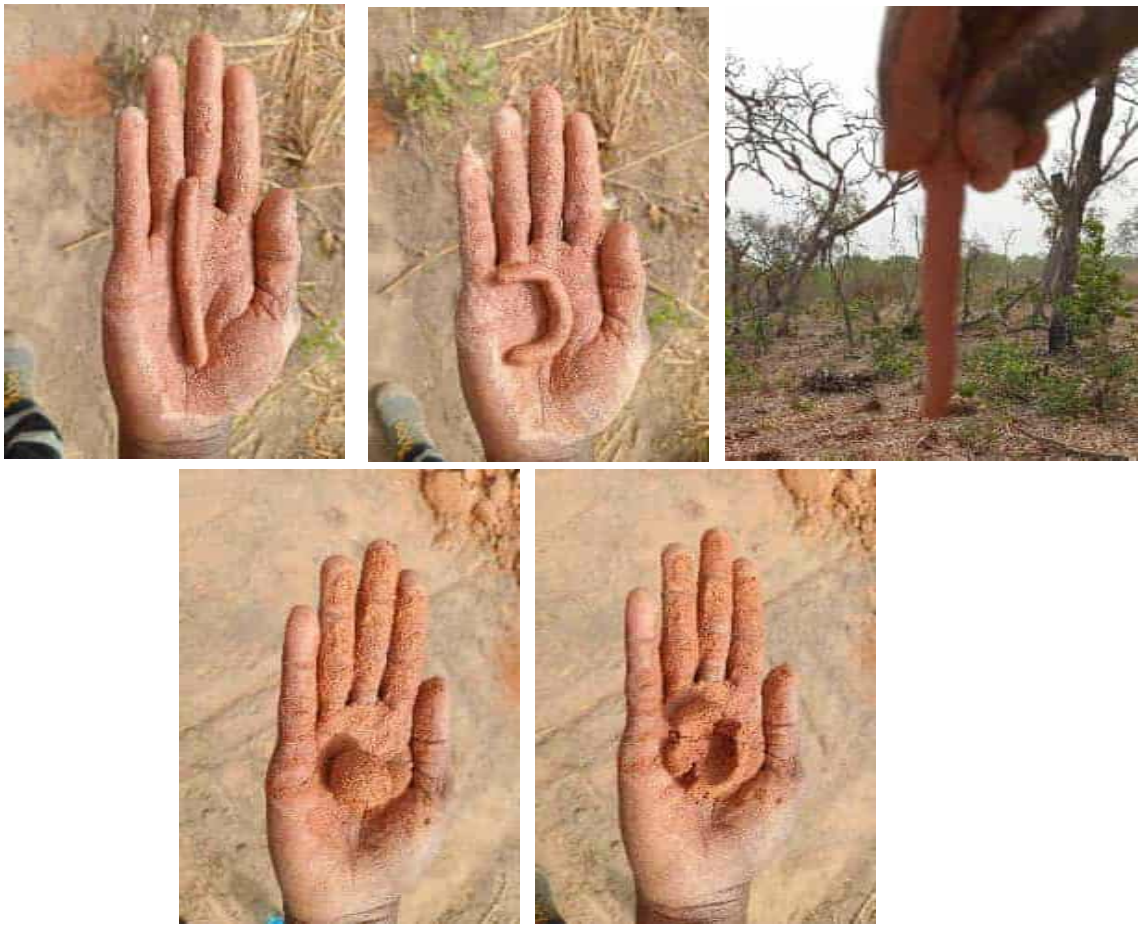


Figure 95: TP-SAR-34 – Consistency of arising from 0.50 m to 2.70 m



Figure 96: TP-SAR-34 – Arising from 2.70 m to 3.50 m



Figure 97: TP-SAR-31 – Arising from 3.20 m to 3.70 m with and without coarse material



Figure 98: TP-SAR-34 – Consistency of arising from 2.70 m to 3.50 m





Figure 99: TP-SAR-34 – Test pit



Figure 100: TP-SAR-35 – Test pit Location



Figure 101: TP-SAR-35 – Arising from 0 .30 m to 2.40 m



Figure 102: TP-SAR-35 – Arising from 0.30 m to 2.40 m with and without coarse material



Figure 103: TP-SAR-35 – Consistency of arising from 0.30 m to 2.40 m



Figure 104: TP-SAR-35 – Arising from 2.40 m to 3.80 m



Figure 105: TP-SAR-35 – Arising from 2.40 m to 3.80 m with and without coarse material



Figure 106: TP-SAR-35 – Consistency of arising from 2.40 m to 3.80 m









Figure 107: TP-SAR-35 – Test pit



Figure 108: TP-SAR-36 – Test pit Location



Figure 109: TP-SAR-36 – Arising from 0 .30 m to 4.90 m



Figure 110: TP-SAR-36 – Arising from 0.30 m to 4.90 m with fine and coarse material



Figure 111: TP-SAR-36 – Consistency of arising from 0.30 m to 4.90 m







Figure 112: TP-SAR-36 – Test pit



Figure 113: TP-SAR-37 – Test pit Location



Figure 114: TP-SAR-37 – Arising from 0 .70 m to 1.60 m



Figure 115: TP-SAR-37 – Arising from 0.70 m to 1.60 m with and without coarse material



Figure 116: TP-SAR-37 – Consistency of arising from 0.70 m to 1.60 m



Figure 117: TP-SAR-37 – Arising from 1.60 m to 4.00 m



Figure 118: TP-SAR-37 – Arising from 1.60 m to 4.00 m with and without coarse material



Figure 119: TP-SAR-37 – Consistency of arising from 1.60 m to 4.00 m





Figure 120: TP-SAR-37 – Test pit



Figure 121: TP-SAR-38– Test pit Location



Figure 122: TP-SAR-38 – Arising from 0.50 m to 1.60 m



Figure 123: TP-SAR-38 – Arising from 0.50 m to 1.60 m with fine and coarse material



Figure 124: TP-SAR-38 – Consistency of arising from 0.50 m to 1.60 m



Figure 125: TP-SAR-38 – Arising from 1.60 m to 2.60 m



Figure 126: TP-SAR-38 – Arising from 1.60 m to 2.60 m with and without coarse material

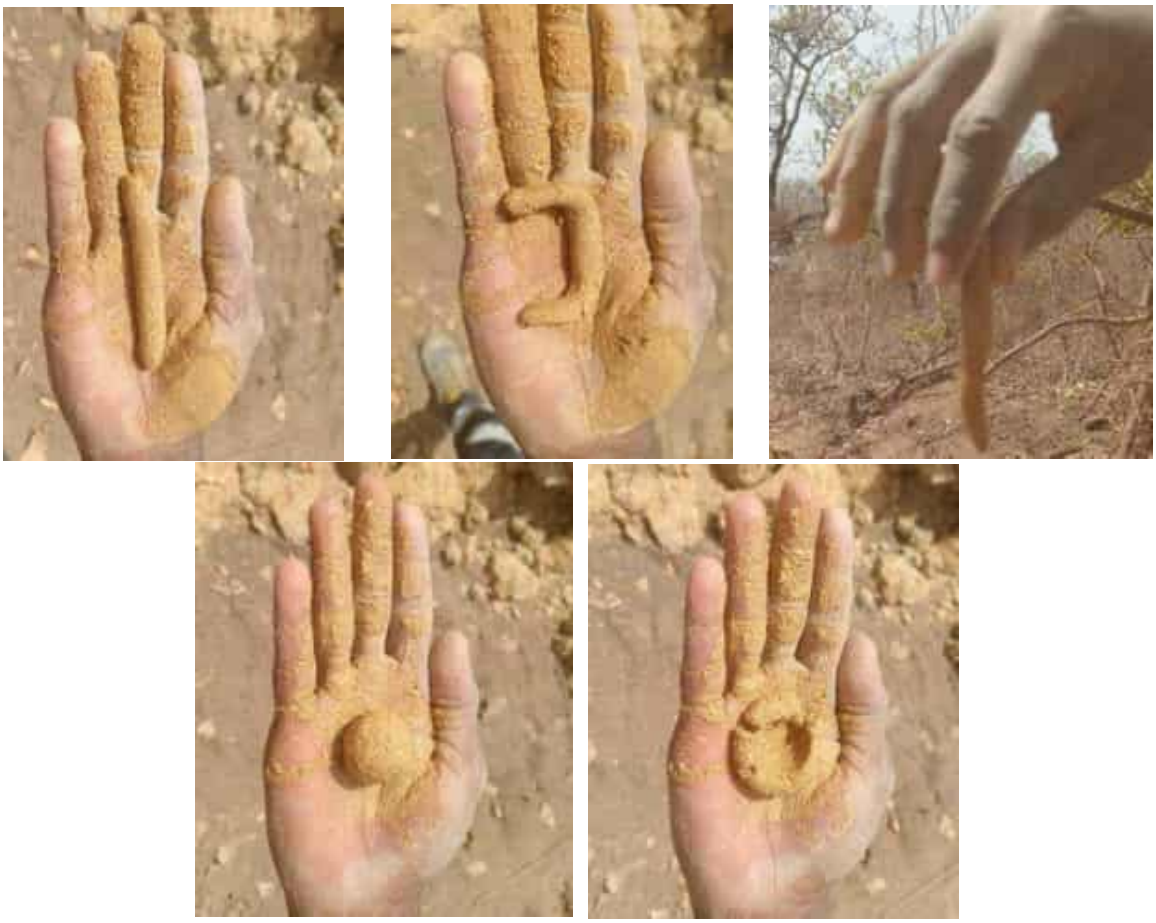


Figure 127: TP-SAR-38 – Consistency of arising from 1.60 m to 2.60 m



Figure 128: TP-SAR-38 – Arising from 2.60 m to 3.00 m



Figure 129: TP-SAR-38 – Arising from 2.60 m to 3.00 m with and without coarse material



Figure 130: TP-SAR-38 – Consistency of arising from 2.60 m to 3.00 m







Figure 131: TP-SAR-35 – Test pit



Figure 132: TP-SAR-39 – Test pit Location



Figure 133: TP-SAR-39 – Arising from 0 .70 m to 4.00 m



Figure 134: TP-SAR-39 – Arising from 0.70 m to 4.00 m with and without coarse material



Figure 135: TP-SAR-39 – Consistency of arising from 0.70 m to 4.00 m







Figure 136: TP-SAR-39 – Test pit



Figure 137: TP-SAR-40 – Test pit Location



Figure 138: TP-SAR-40 – Arising from 0 .70 m to 4.00 m



Figure 139: TP-SAR-40 – Arising from 0.70 m to 4.00 m with and without coarse material



Figure 140: TP-SAR-40 – Consistency of arising from 0.70 m to 4.00 m



.



Figure 141: TP-SAR-40 – Test pit



Figure 1: TP-ARO-01A – Test pit Location



Figure 2: TP-ARO-01A – Arising from 0 .20 m to 3.30 m



Figure 3: TP-ARO-01A – Arising from 0.20 m to 3.30 m with and without coarse material

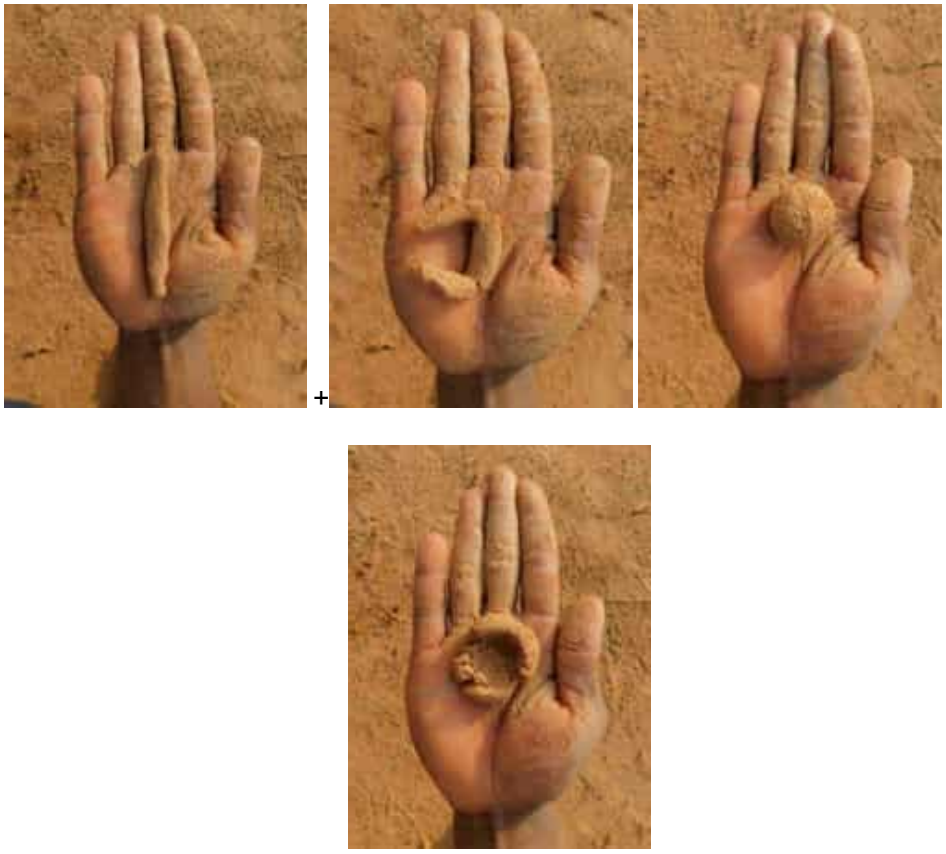


Figure 4: TP-ARO-01A – Consistency of arising from 0.20 m to 3.30 m



Figure 5: TP-ARO-01A – Arising from 3 .30 m to 4.30 m



Figure 6: TP-ARO-01A – Arising from 3.30 m to 4.30 m with and without coarse material

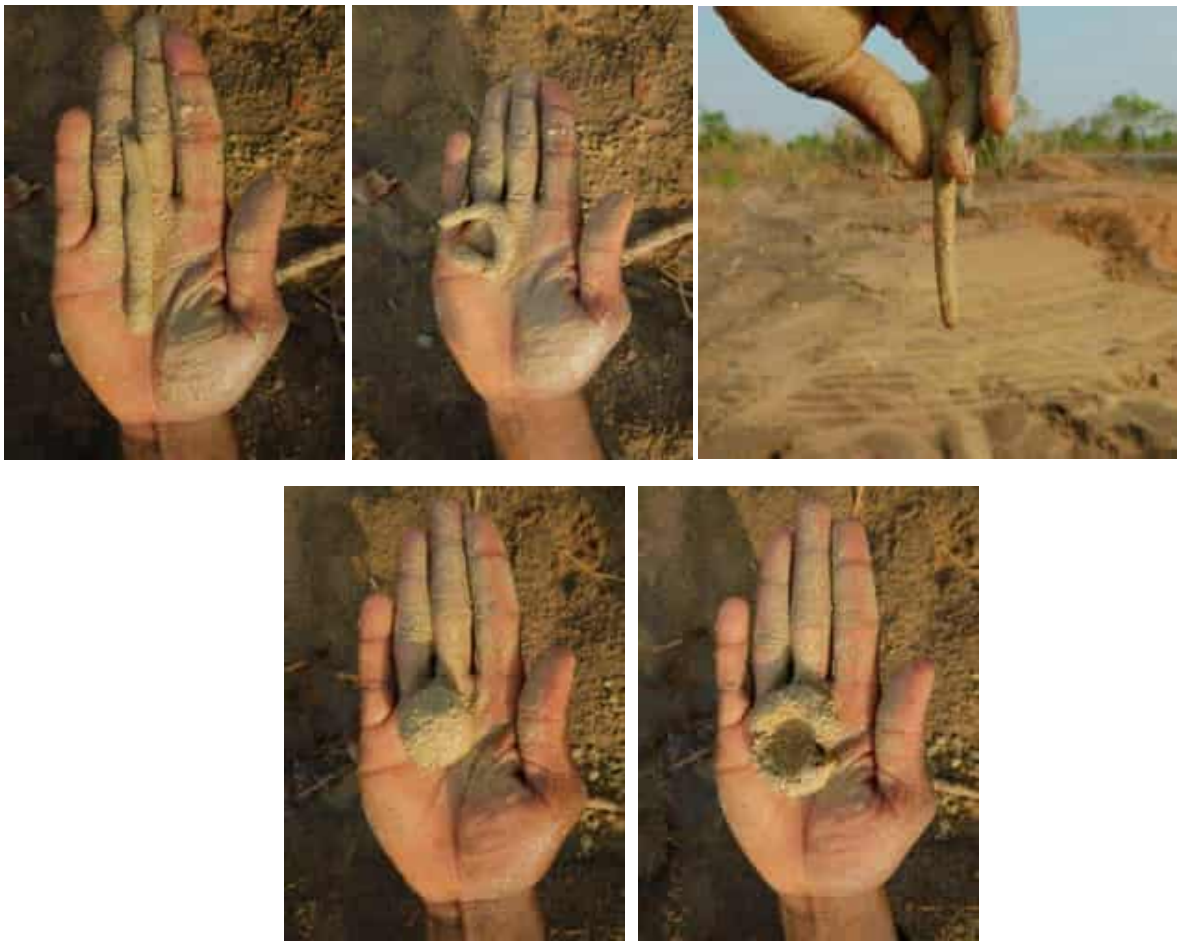


Figure 7: TP-ARO-01A – Consistency of arising from 3.30 m to 4.30 m

DOROPO GOLD PROJECT
DEFINITIVE FEASIBILITY STUDY
ACCESS ROAD OVERPASS





DOROPO GOLD PROJECT
DEFINITIVE FEASIBILITY STUDY
ACCESS ROAD OVERPASS







Figure 8: TP-ARO-01A – Test pit with rainwater



Figure 9: TP-ARO-02A – Test pit Location



Figure 10: TP-ARO-02A – Arising from 0.20 m to 3.20 m



Figure 11: TP-ARO-02 A– Arising from 0.20 m to 3.20 m with and without coarse material

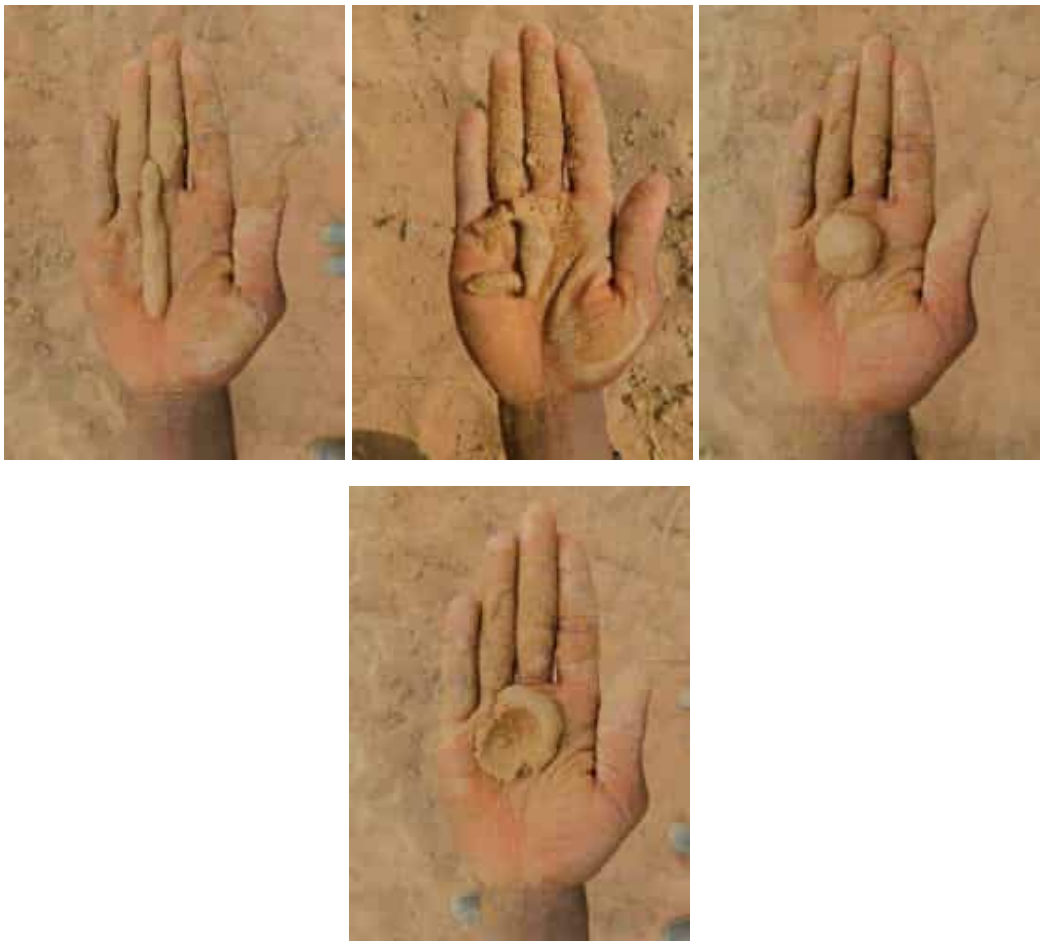


Figure 12: TP-ARO-02A – Consistency of arising from 0.20 m to 3.20 m



Figure 13: TP-AR0-02A – Arising from 3.20 m to 3.60 m



Figure 14: TP-ARO-02 A– Arising from 3.20 m to 3.60 m with and without coarse material



Figure 15: TP-ARO-02 A– Consistency of arising from 3.20 m to 3.60 m

DOROPO GOLD PROJECT
DEFINITIVE FEASIBILITY STUDY
ACCESS ROAD OVERPASS











Figure 16: TP-ARO-02A – Test pit



Figure 17: TP-ARO-03A – Test pit Location



Figure 18: TP-ARO-03A – Arising from 0.2 m to 2.5 m



Figure 19: TP-ARO-03A – Arising from 0.20 m to 2.50 m with and without coarse material

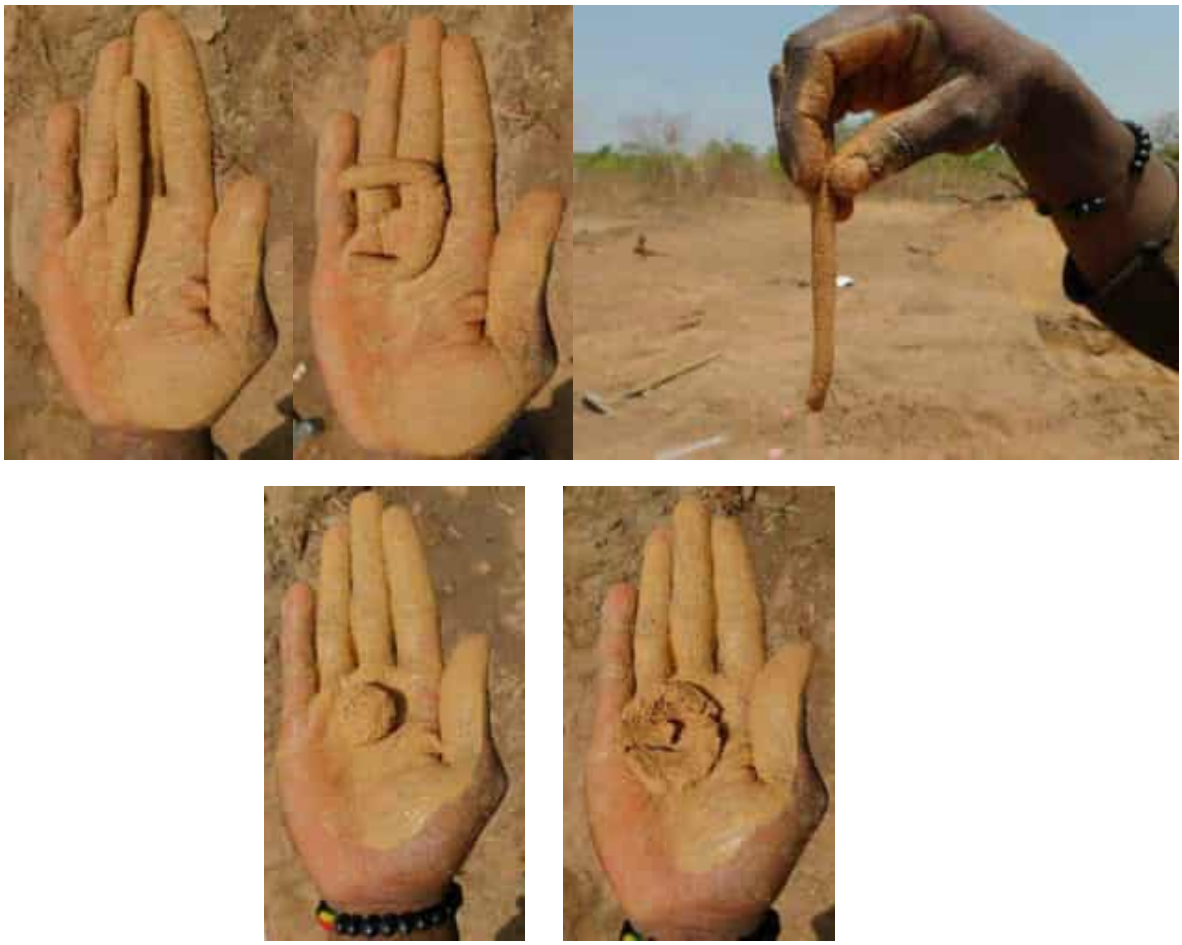


Figure 20: TP-ARO-03A – Consistency of arising from 0.20 m to 2.50 m



Figure 21: TP-ARO-03A – Arising from 2.50 m to 3.70 m



Figure 22: TP-ARO-03A – Arising from 2.50 m to 3.70 m with and without coarse material



Figure 23: TP-ARO-03A – Consistency of arising from 2.50 m to 3.70 m













Figure 24: TP-ARO-03A – Test pit



Figure 25: TP-ARO-04A – Test pit Location



Figure 26: TP-ARO-04A– Arising from 0.60 m to 2.70 m



Figure 27: TP-ARO-04A – Arising from 0.60 m to 2.70 m with and without coarse material

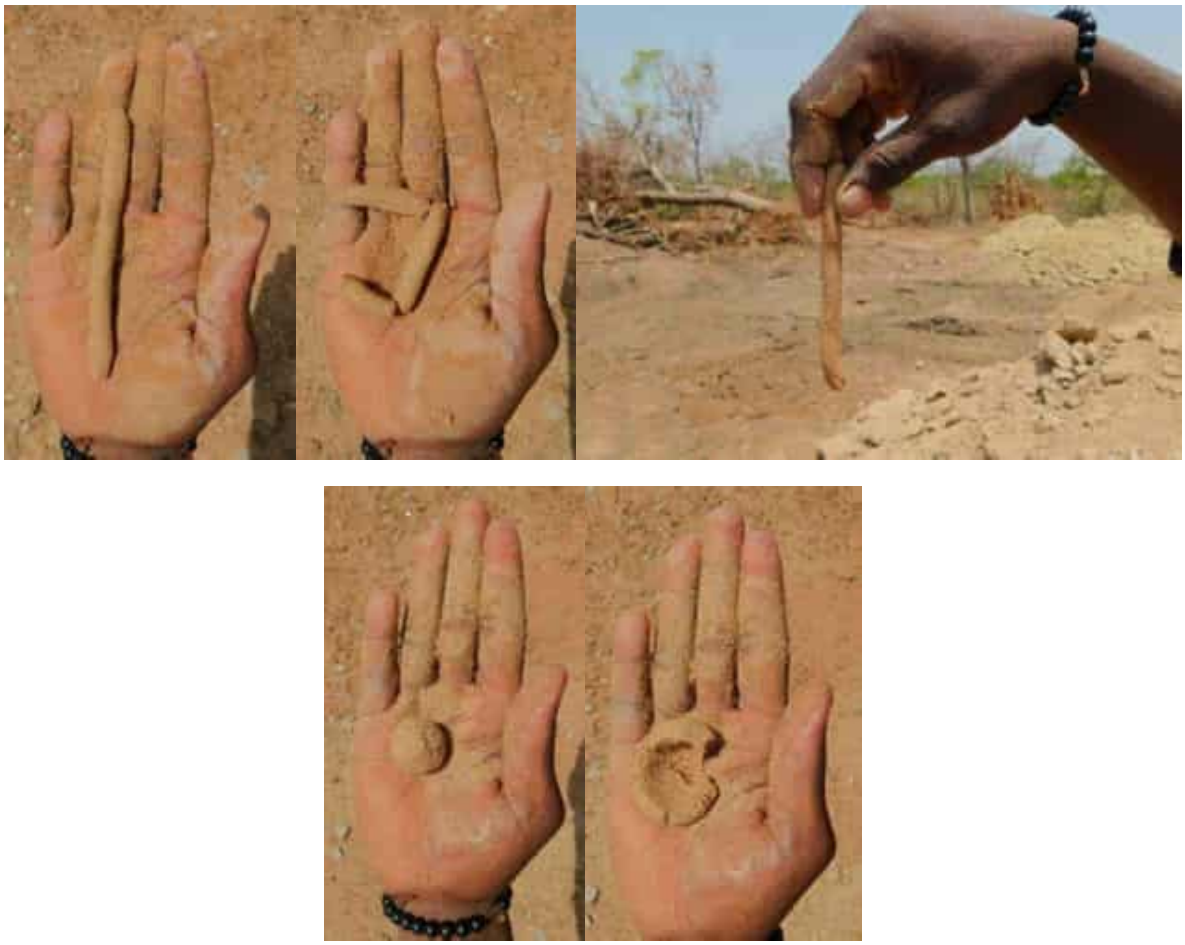


Figure 28: TP-ARO-04A – Consistency of arising from 0.60 m to 2.70 m



Figure 29: TP-ARO-04A – Arising from 2.70 m to 3.80 m



Figure 30: TP-ARO-04A – Arising from 2.70 m to 3.80 m with and without coarse material



Figure 31: TP-ARO-04A – Consistency of arising from 2.70 m to 3.80 m





DOROPO GOLD PROJECT
DEFINITIVE FEASIBILITY STUDY
ACCESS ROAD OVERPASS







Figure 32: TP-ARO-04A – Test pit



3

Figure 1: TP-CMC-01 – Test pit Location



Figure 2: TP- CMC-01 – Arising from 0.20 m to 2.00 m



Figure 3: TP- CMC-01 –Arising from 0.20 m to 2.00 m with and without coarse material



Figure 4: TP- CMC-01 – Consistency of arising from 0.20 m to 2.00 m



Figure 5: TP- CMC-01 – Arising from 2.00 m to 5.20 m



Figure 6: TP- CMC-01 –Arising from 2.00 m to 5.20 m with and without coarse material

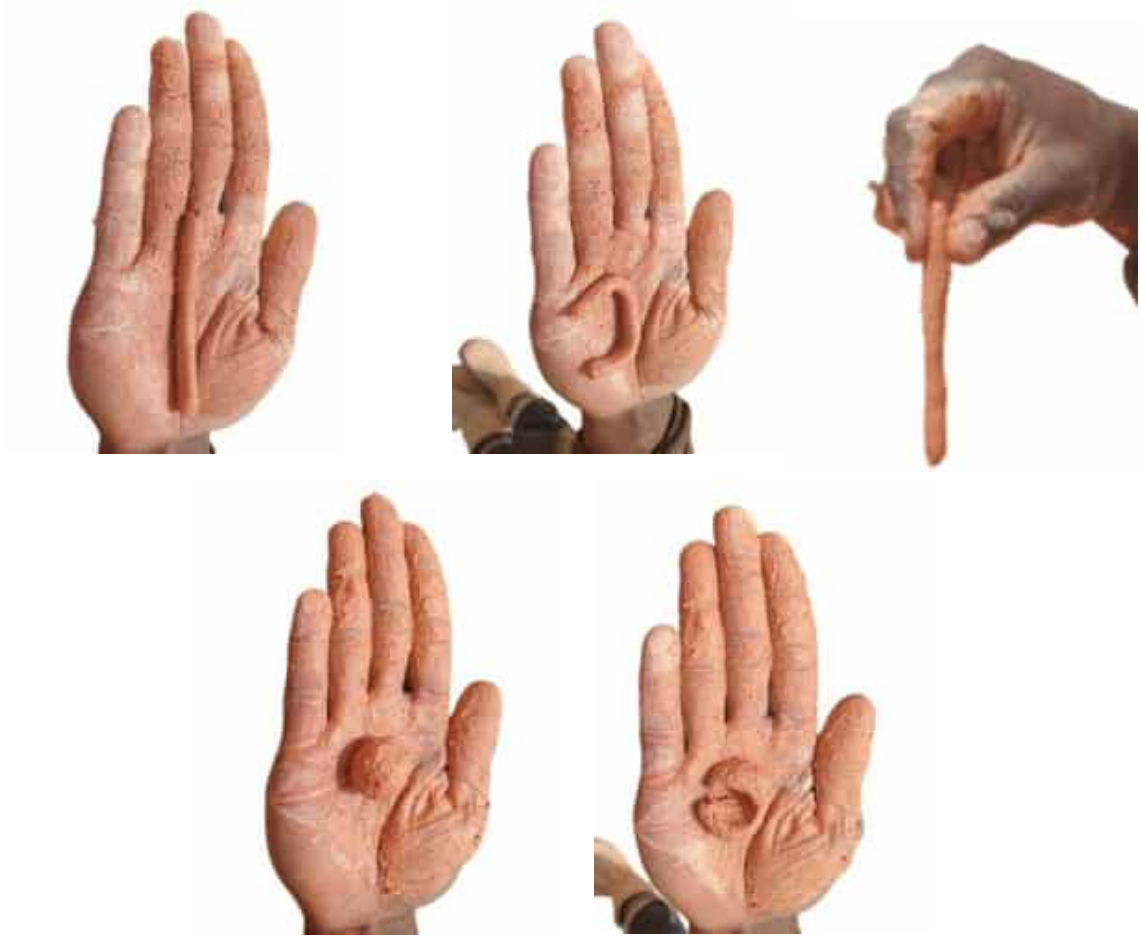


Figure 7: TP- CMC-01 – Consistency of arising from 2.00 m to 5.20 m





Figure 8: TP- CMC-01 – Test pit

APPENDIX 6.1

PFS TESTWORK REPORT

Metallurgical Testwork

conducted upon

Doropo Côte d'Ivoire Samples

for

Ampella Mining Côte d'Ivoire

Report No. A23136

September 2023

The results contained in this report relate only to the sample(s) submitted for testing.
ALS Metallurgy accepts no responsibility for the representativeness of the sample(s) submitted.

TABLE OF CONTENTS

		PAGE NO.
SUMMARY		*(i)*
1.	INTRODUCTION	1
2.	SAMPLES AND COMPOSITES	2
2.1	Drill Hole Interval Samples	2
2.2	Comminution and Gravity/Leach Composites	2
2.3	Master Composites	4
3.	SAMPLE PREPARATION	5
3.1	Comminution Testwork Composites	5
3.2	Gravity/Leach Testwork Composites	5
4.	UNCONFINED COMPRESSIVE STRENGTH (UCS) DETERMINATION	6
4.1	Test Procedure	6
4.2	Results	6
5.	BOND IMPACT CRUSHING WORK INDEX (CWi) DETERMINATION	8
5.1	Test Procedure	8
5.2	Results	9
6.	SMC TESTWORK	11
6.1	Test Procedure	11
6.2	Results	13
7.	BOND ABRASION INDEX (Ai) DETERMINATION	14
7.1	Test Procedure	14
7.2	Results	14
8.	BOND ROD MILL WORK INDEX (RWi) DETERMINATION	15
8.1	Test Procedure	15
8.2	Results	16

TABLE OF CONTENTS (Cont'd)

PAGE NO.

9. BOND BALL MILL WORK INDEX (BWi) DETERMINATION 17
9.1 Test Procedure 17
9.2 Results 18
10. ANALYTICAL 19
11. HEAD ANALYSIS 20
11.1 Interval Samples 20
11.2 Comminution Composite/Leach Composites 20
11.3 Master Composites 21
12. GRIND ESTABLISHMENT TESTWORK 23
12.1 Test Procedure 23
12.2 Grind Times: Comminution/Leach Composites 24
12.3 Grind Times: Master Composites 25
13. TESTWORK WATER 25
14. GRAVITY/CARBON-IN-LEACH (CIL) TESTWORK ON COMMINUTION SAMPLES 26
14.1 Test Procedures 26
14.1.1 Gravity Separation/Intensive Leach 26
14.1.2 Carbon-in-Leach (CIL) Tests 27
14.2 Results 28
15. GRAVITY/DIRECT LEACH TESTWORK: MASTER COMPOSITES 30
15.1 Test Procedures 30
15.1.1 Gravity Separation/Intensive Leach 30
15.1.2 Direct Cyanide Leach 31
15.2 Results 32
15.2.1 Influence of Grind P_{80} 32
15.2.2 Influence of Cyanide Solution Strength 36

APPENDICES

Appendix I	Samples and Composites Details
Appendix II	Unconfined Compressive Strength Determination – Details and Results
Appendix III	Bond Impact Crushing Work Index Determination – Details and Results
Appendix IV	SMC Testwork: JK Tech Report
Appendix V	Bond Abrasion Index Determination – Details and Results
Appendix VI	Bond Rod Mill Work Index Determination – Details and Results
Appendix VII	Bond Ball Mill Work Index Determination – Details and Results
Appendix VIII	Head Analysis Results
Appendix IX	Gravity/Carbon-in-Leach Testwork: Comminution Composites – Details and Results
Appendix X	Gravity/Direct Leach Testwork: Master Composites – Details and Results

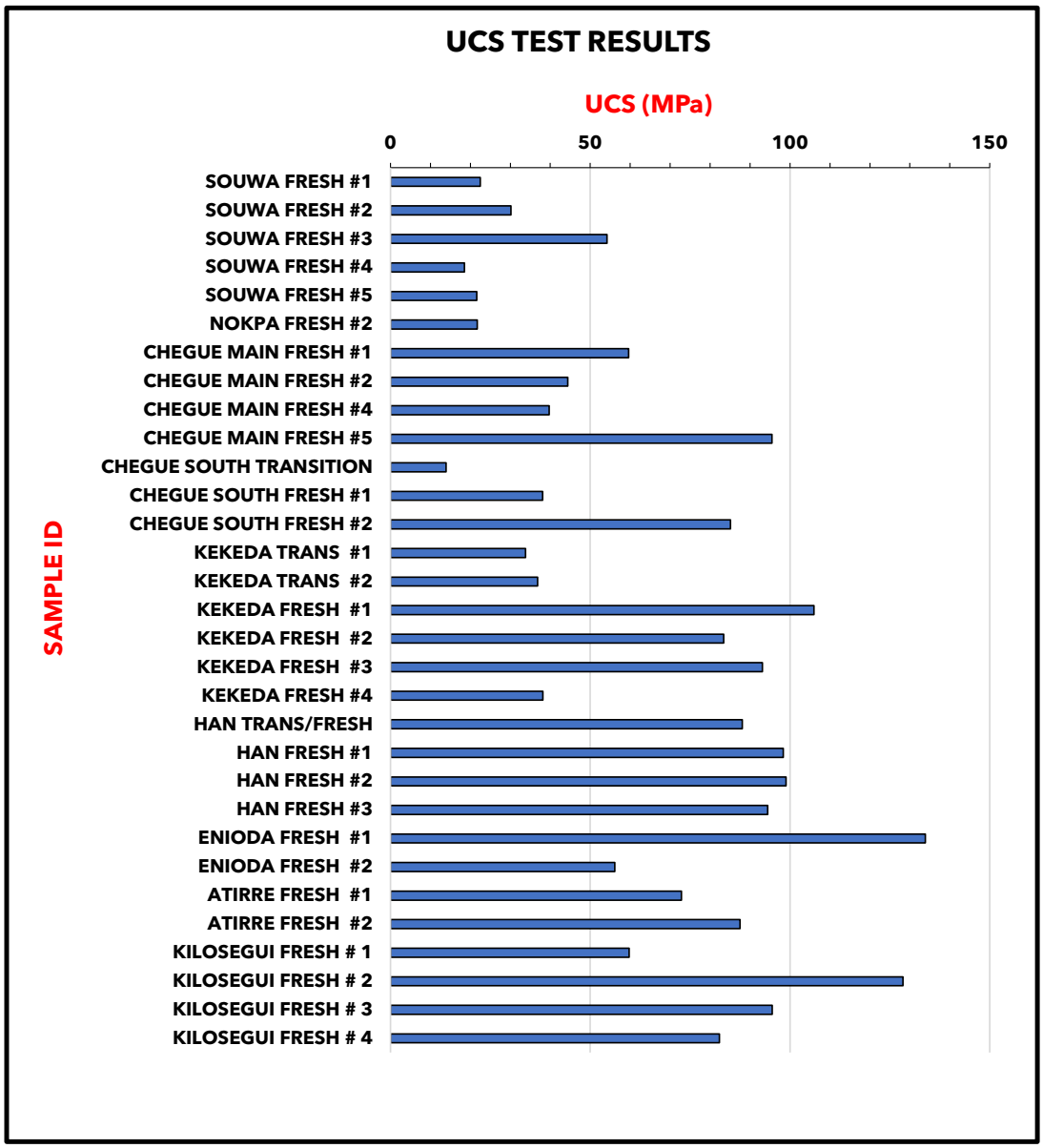
SUMMARY

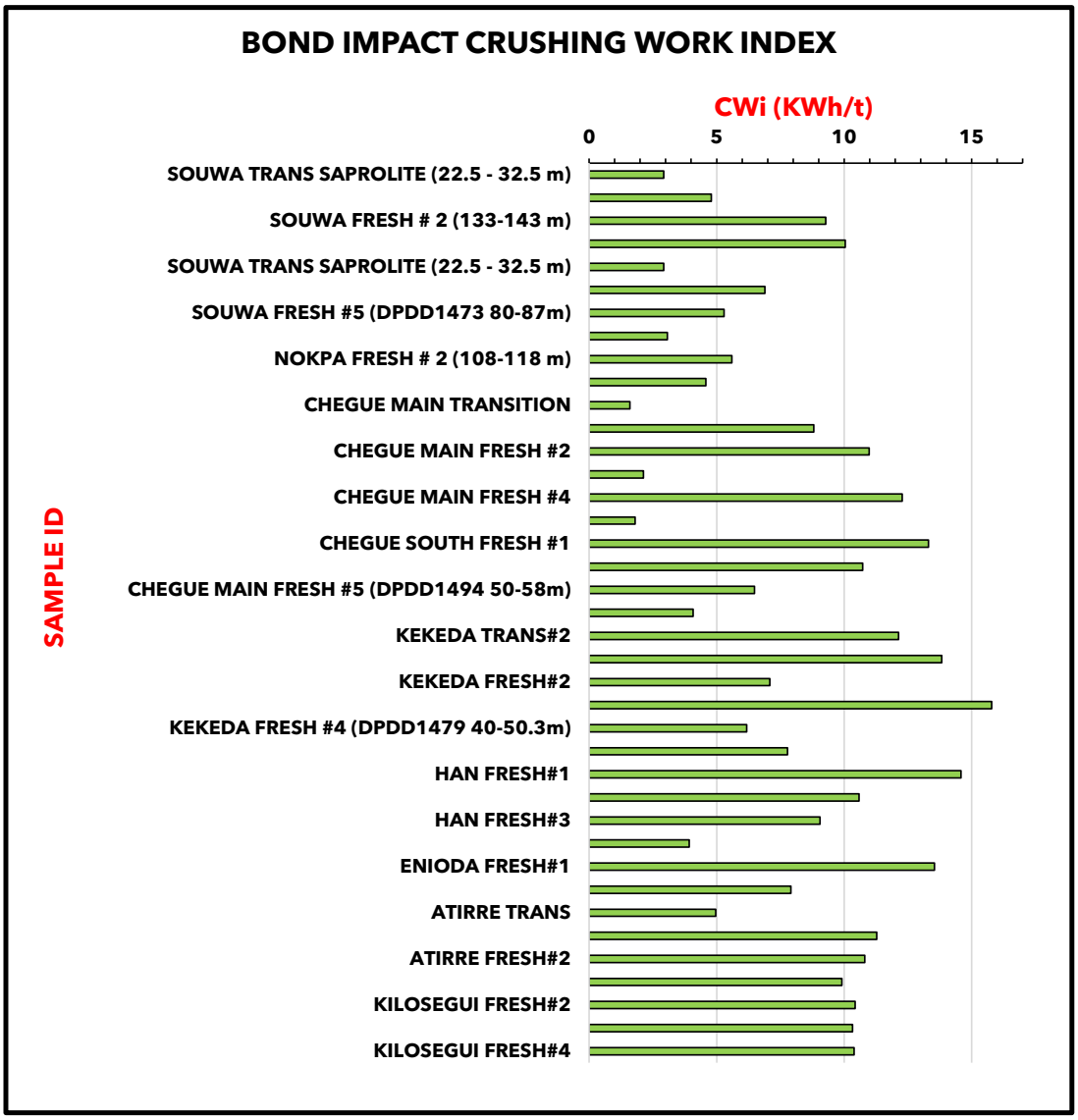
In January 2022, ALS Metallurgy Services (ALS) was requested by Mr Bruce Lilford, representing Ampella Mining Côte d'Ivoire (the Client), to conduct a defined program of metallurgical testwork on gold ore samples from the Doropo project, northeast Côte d'Ivoire.

Salient testwork results are as follows:

- **Comminution Testwork**

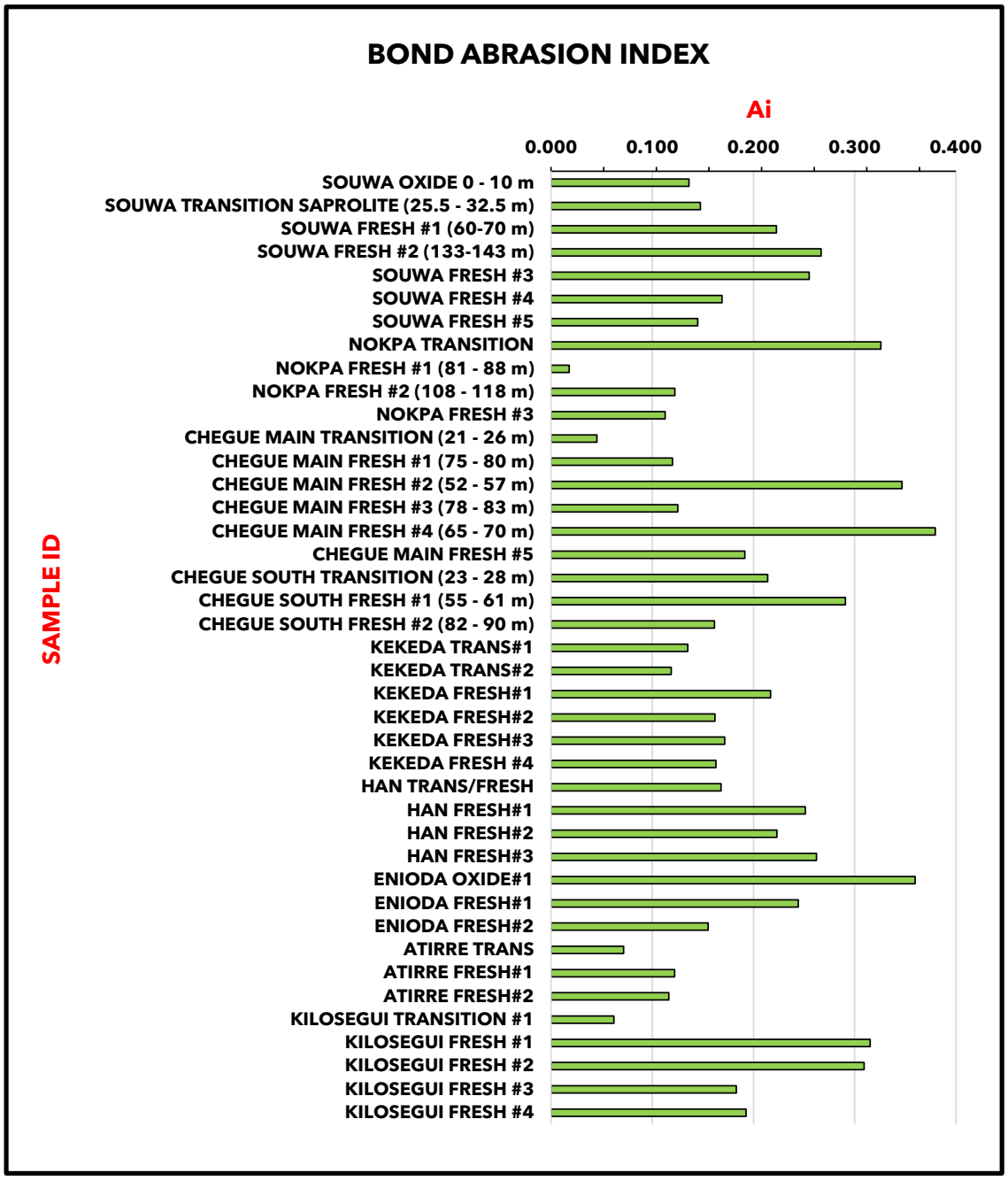
Comminution testwork results are illustrated in the following charts.

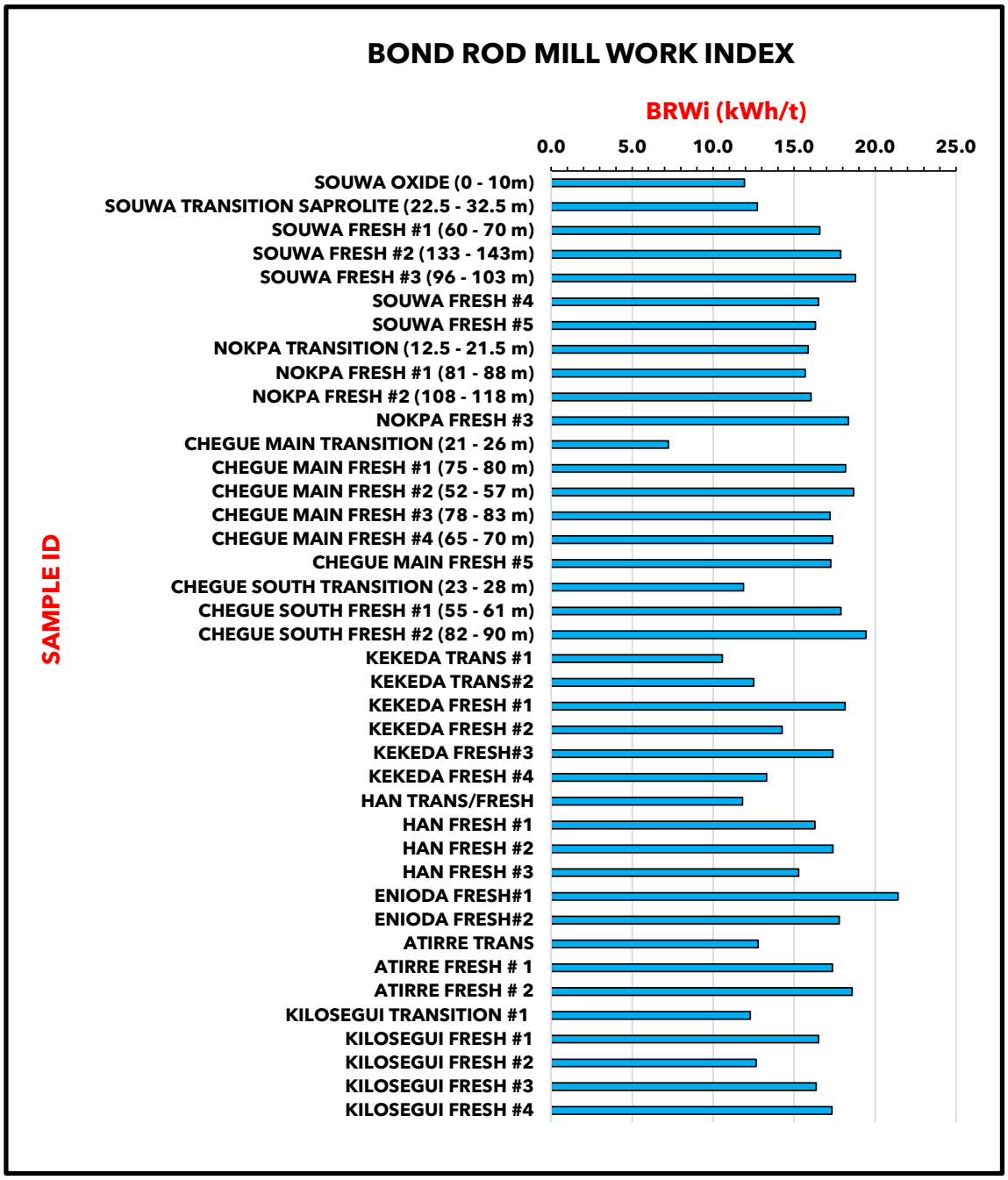


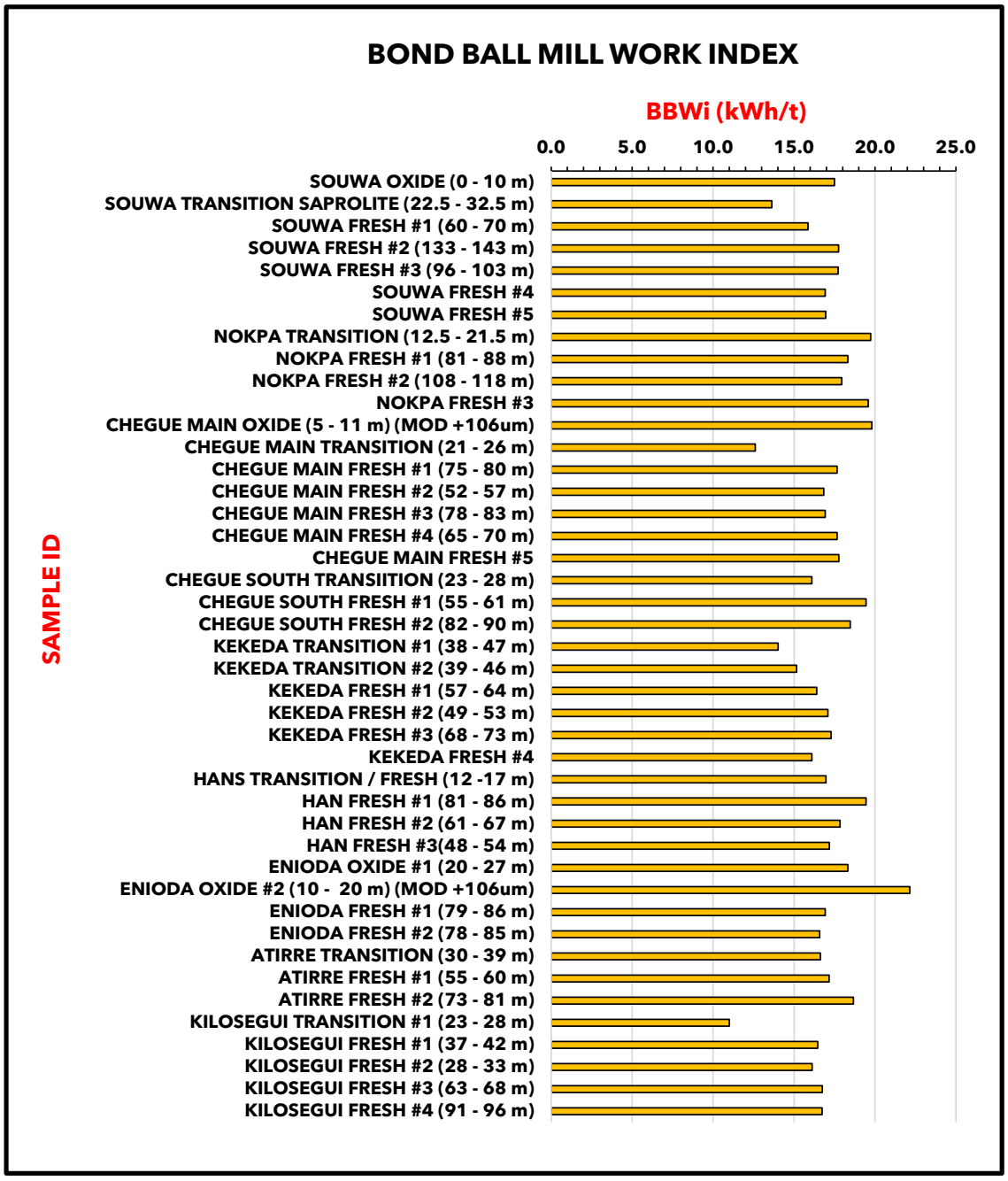

BOND IMPACT CRUSHING WORK INDEX
CWi (KWh/t)
0
5
10
15
SAMPLE ID
SOUWA TRANS SAPROLITE (22.5 - 32.5 m)
SOUWA FRESH # 2 (133-143 m)
SOUWA TRANS SAPROLITE (22.5 - 32.5 m)
SOUWA FRESH #5 (DPDD1473 80-87m)
NOKPA FRESH # 2 (108-118 m)
CHEGUE MAIN TRANSITION
CHEGUE MAIN FRESH #2
CHEGUE MAIN FRESH #4
CHEGUE SOUTH FRESH #1
CHEGUE MAIN FRESH #5 (DPDD1494 50-58m)
KEKEDA TRANS#2
KEKEDA FRESH#2
KEKEDA FRESH #4 (DPDD1479 40-50.3m)
HAN FRESH#1
HAN FRESH#3
ENIODA FRESH#1
ATIRRE TRANS
ATIRRE FRESH#2
KILOSEGUI FRESH#2
KILOSEGUI FRESH#4

SMC TESTWORK RESULTS										
Composite ID	**DWi (kWh/m³)**	**SG**	**Derived Parameters**					**Mi Parameters (kWh/t)**		
			A	**b**	**A*b**	**ta**	**SCSE**	**Mia**	**Mih**	**Mic**
Souwa Oxide	0.8	2.32	74.8	4.07	304.4	3.40	5.44	4.0	1.9	1.0
Souwa Trans Saprolite	2.6	2.56	65.9	1.51	99.5	1.01	6.84	9.6	5.8	3.0
Souwa Fresh 1	5.8	2.67	76.4	0.60	45.8	0.44	9.24	17.6	12.6	6.5
Souwa Fresh 2	6.8	2.69	79.4	0.50	39.7	0.38	9.89	19.7	14.6	7.6
Souwa Fresh 3	7.5	2.68	84.6	0.43	36.4	0.35	10.28	21.3	16.1	8.3
Nokpa Transition	3.1	2.58	69.1	1.21	83.6	0.84	7.24	11.0	7.0	3.6
Nokpa Fresh 1	3.1	2.66	60.0	1.42	85.2	0.83	7.22	10.7	6.8	3.5
Nokpa Fresh 2	4.7	2.67	69.3	0.82	56.8	0.55	8.43	14.8	10.2	5.3
Chegue Main Trans	0.5	2.48	77.1	6.23	480.3	5.02	4.88*	2.7	1.2	0.6
Chegue Main Fresh 1	6.8	2.68	66.0	0.59	38.9	0.38	9.96	20.0	14.8	7.7
Chegue Main Fresh 2	6.4	2.67	66.4	0.63	41.8	0.41	9.62	18.8	13.8	7.1
Chegue Main Fresh 3	6.0	2.65	63.4	0.69	43.7	0.43	9.40	18.2	13.2	6.8
Chegue Main Fresh 4	5.8	2.68	65.4	0.71	46.4	0.45	9.20	17.4	12.5	6.4
Chegue South Trans	3.3	2.56	61.8	1.28	79.1	0.80	7.38	11.5	7.4	3.8
Chegue South Fresh 1	7.2	2.68	77.8	0.48	37.3	0.36	10.15	20.8	15.7	8.1
Chegue South Fresh 2	7.4	2.72	69.7	0.53	36.9	0.35	10.29	21.0	15.8	8.2
Kekeda Trans 1	1.5	2.58	68.1	2.47	168.2	1.69	5.87	6.3	3.4	1.8
Kekeda Trans 2	2.8	2.58	69.9	1.31	91.6	0.92	7.02	10.2	6.3	3.3
Kekeda Fresh 1	6.1	2.70	76.0	0.58	44.1	0.42	9.44	18.1	13.2	6.8
Kekeda Fresh 2	4.5	2.68	72.6	0.82	59.5	0.58	8.28	14.2	9.7	5.0
Kekeda Fresh 3	5.7	2.72	69.9	0.68	47.5	0.45	9.17	17.1	12.2	6.3
Han Trans/Fresh	3.2	2.65	69.6	1.19	82.8	0.81	7.28	11.0	7.0	3.6
Han Fresh 1	5.8	2.67	75.0	0.62	46.5	0.45	9.18	17.5	12.5	6.5
Han Fresh 2	7.3	2.70	78.2	0.47	36.8	0.35	10.27	20.9	15.7	8.1
Han Fresh 3	5.7	2.69	73.4	0.64	47.0	0.45	9.17	17.2	12.4	6.4
Enioda Oxide 1	2.5	2.29	67.6	1.36	91.9	1.04	7.24	10.4	6.3	3.3
Enioda Fresh 1	8.6	2.70	80.2	0.39	31.3	0.30	11.10	23.6	18.4	9.5
Enioda Fresh 2	6.9	2.73	69.7	0.57	39.7	0.38	9.96	19.7	14.6	7.6

* Sample parameters are outside the range of parameters used when developing the SCSE model. As such SCSE values for flagged samples should be treated with caution


BOND ABRASION INDEX
Ai
0.000
0.100
0.200
0.300
0.400
SAMPLE ID
SOUWA OXIDE 0 - 10 m
SOUWA TRANSITION SAPROLITE (25.5 - 32.5 m)
SOUWA FRESH #1 (60-70 m)
SOUWA FRESH #2 (133-143 m)
SOUWA FRESH #3
SOUWA FRESH #4
SOUWA FRESH #5
NOKPA TRANSITION
NOKPA FRESH #1 (81 - 88 m)
NOKPA FRESH #2 (108 - 118 m)
NOKPA FRESH #3
CHEGUE MAIN TRANSITION (21 - 26 m)
CHEGUE MAIN FRESH #1 (75 - 80 m)
CHEGUE MAIN FRESH #2 (52 - 57 m)
CHEGUE MAIN FRESH #3 (78 - 83 m)
CHEGUE MAIN FRESH #4 (65 - 70 m)
CHEGUE MAIN FRESH #5
CHEGUE SOUTH TRANSITION (23 - 28 m)
CHEGUE SOUTH FRESH #1 (55 - 61 m)
CHEGUE SOUTH FRESH #2 (82 - 90 m)
KEKEDA TRANS#1
KEKEDA TRANS#2
KEKEDA FRESH#1
KEKEDA FRESH#2
KEKEDA FRESH#3
KEKEDA FRESH #4
HAN TRANS/FRESH
HAN FRESH#1
HAN FRESH#2
HAN FRESH#3
ENIODA OXIDE#1
ENIODA FRESH#1
ENIODA FRESH#2
ATIRRE TRANS
ATIRRE FRESH#1
ATIRRE FRESH#2
KILOSEGUI TRANSITION #1
KILOSEGUI FRESH #1
KILOSEGUI FRESH #2
KILOSEGUI FRESH #3
KILOSEGUI FRESH #4


BOND ROD MILL WORK INDEX
BRWi (kWh/t)
0.0
5.0
10.0
15.0
20.0
25.0
SAMPLE ID
SOUWA OXIDE (0 - 10m)
SOUWA TRANSITION SAPROLITE (22.5 - 32.5 m)
SOUWA FRESH #1 (60 - 70 m)
SOUWA FRESH #2 (133 - 143m)
SOUWA FRESH #3 (96 - 103 m)
SOUWA FRESH #4
SOUWA FRESH #5
NOKPA TRANSITION (12.5 - 21.5 m)
NOKPA FRESH #1 (81 - 88 m)
NOKPA FRESH #2 (108 - 118 m)
NOKPA FRESH #3
CHEGUE MAIN TRANSITION (21 - 26 m)
CHEGUE MAIN FRESH #1 (75 - 80 m)
CHEGUE MAIN FRESH #2 (52 - 57 m)
CHEGUE MAIN FRESH #3 (78 - 83 m)
CHEGUE MAIN FRESH #4 (65 - 70 m)
CHEGUE MAIN FRESH #5
CHEGUE SOUTH TRANSITION (23 - 28 m)
CHEGUE SOUTH FRESH #1 (55 - 61 m)
CHEGUE SOUTH FRESH #2 (82 - 90 m)
KEKEDA TRANS #1
KEKEDA TRANS#2
KEKEDA FRESH #1
KEKEDA FRESH #2
KEKEDA FRESH#3
KEKEDA FRESH #4
HAN TRANS/FRESH
HAN FRESH #1
HAN FRESH #2
HAN FRESH #3
ENIODA FRESH#1
ENIODA FRESH#2
ATIRRE TRANS
ATIRRE FRESH # 1
ATIRRE FRESH # 2
KILOSEGUI TRANSITION #1
KILOSEGUI FRESH #1
KILOSEGUI FRESH #2
KILOSEGUI FRESH #3
KILOSEGUI FRESH #4


BOND BALL MILL WORK INDEX
BBWi (kWh/t)
0.0
5.0
10.0
15.0
20.0
25.0
SAMPLE ID
SOUWA OXIDE (0 - 10 m)
SOUWA TRANSITION SAPROLITE (22.5 - 32.5 m)
SOUWA FRESH #1 (60 - 70 m)
SOUWA FRESH #2 (133 - 143 m)
SOUWA FRESH #3 (96 - 103 m)
SOUWA FRESH #4
SOUWA FRESH #5
NOKPA TRANSITION (12.5 - 21.5 m)
NOKPA FRESH #1 (81 - 88 m)
NOKPA FRESH #2 (108 - 118 m)
NOKPA FRESH #3
CHEGUE MAIN OXIDE (5 - 11 m) (MOD +106um)
CHEGUE MAIN TRANSITION (21 - 26 m)
CHEGUE MAIN FRESH #1 (75 - 80 m)
CHEGUE MAIN FRESH #2 (52 - 57 m)
CHEGUE MAIN FRESH #3 (78 - 83 m)
CHEGUE MAIN FRESH #4 (65 - 70 m)
CHEGUE MAIN FRESH #5
CHEGUE SOUTH TRANSIITION (23 - 28 m)
CHEGUE SOUTH FRESH #1 (55 - 61 m)
CHEGUE SOUTH FRESH #2 (82 - 90 m)
KEKEDA TRANSITION #1 (38 - 47 m)
KEKEDA TRANSITION #2 (39 - 46 m)
KEKEDA FRESH #1 (57 - 64 m)
KEKEDA FRESH #2 (49 - 53 m)
KEKEDA FRESH #3 (68 - 73 m)
KEKEDA FRESH #4
HANS TRANSITION / FRESH (12 -17 m)
HAN FRESH #1 (81 - 86 m)
HAN FRESH #2 (61 - 67 m)
HAN FRESH #3(48 - 54 m)
ENIODA OXIDE #1 (20 - 27 m)
ENIODA OXIDE #2 (10 - 20 m) (MOD +106um)
ENIODA FRESH #1 (79 - 86 m)
ENIODA FRESH #2 (78 - 85 m)
ATIRRE TRANSITION (30 - 39 m)
ATIRRE FRESH #1 (55 - 60 m)
ATIRRE FRESH #2 (73 - 81 m)
KILOSEGUI TRANSITION #1 (23 - 28 m)
KILOSEGUI FRESH #1 (37 - 42 m)
KILOSEGUI FRESH #2 (28 - 33 m)
KILOSEGUI FRESH #3 (63 - 68 m)
KILOSEGUI FRESH #4 (91 - 96 m)

• Head Assays

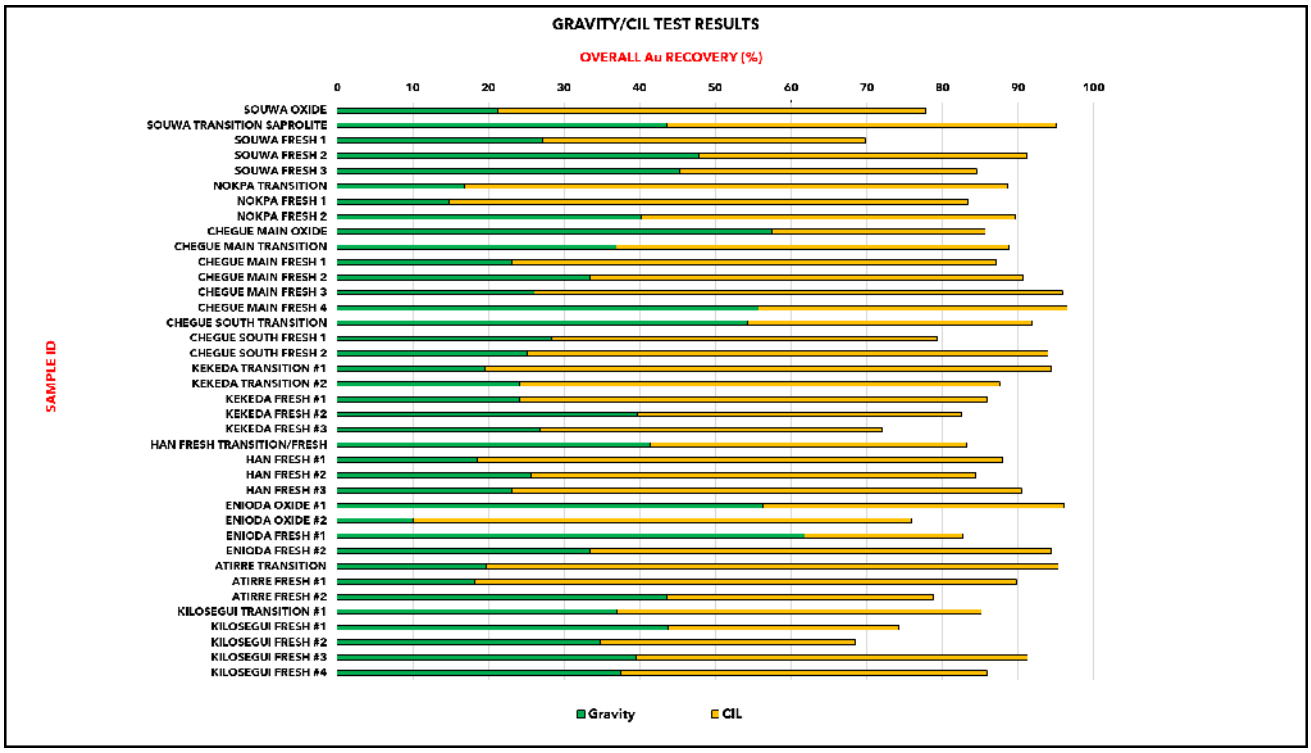
Composite head assays are presented in the following tables.

COMMINUTION COMPOSITES: HEAD ASSAYS								
Composite ID	**Sample ID**	**Au-1 (g/t)**	**Au-2 (g/t)**	**Au-Ave (g/t)**	**Ag (g/t)**	**As (ppm)**	**Cu (ppm)**	**Total S (%)**
Souwa Oxide	**CIS339751**	0.11	-	0.11	4.00	<5	36.0	<0.02
Souwa Trans Saprolite	**CIS339759**	0.65	-	0.65	<1	5.0	29.0	<0.02
Souwa Fresh 1	**CIS339766**	0.38	-	0.38	<1	<5	15.0	0.56
Souwa Fresh 2	**CIS339778**	5.07	-	5.07	<1	<5	15.0	0.56
Souwa Fresh 3	**CIS339791**	0.24	-	0.24	<1	10.0	15.0	0.14
Nokpa Trans	**CIS339802**	0.51	-	0.51	5.00	<5	70.0	<0.02
Nokpa Fresh 1	**CIS339793**	0.24	-	0.24	<1	<5	10.0	0.10
Nokpa Fresh 2	**CIS339798**	1.11	-	1.11	<1	<5	41.0	0.38
Chegue Main Oxide	**CIS339827**	1.82	-	1.82	<1	900	11.0	0.04
Chegue Main Trans	**CIS339829**	0.42	-	0.42	<1	<5	10.0	<0.02
Chegue Main Fresh 1	**CIS339807**	0.91	-	0.91	<1	<5	13.0	0.70
Chegue Main Fresh 2	**CIS339809**	0.74	-	0.74	<1	<5	18.0	0.32
Chegue Main Fresh 3	**CIS339812**	0.24	-	0.24	<1	<5	12.0	0.18
Chegue Main Fresh 4	**CIS339833**	0.62	-	0.62	<1	<5	14.0	0.70
Chegue South Trans	**CIS339851**	3.01	-	3.01	<1	<5	15.0	<0.02
Chegue South Fresh 1	**CIS339835**	0.25	0.29	0.27	<1	<5	10.0	0.16
Chegue South Fresh 2	**CIS339846**	1.02	-	1.02	<1	<5	44.0	0.42
Kekeda Trans 1	**CIS739203**	0.52	-	0.52	<1	<5	24.0	<0.02
Kekeda Trans 2	**CIS739219**	0.68	-	0.68	<1	<5	11.0	0.62
Kekeda Fresh 1	**CIS739205**	0.36	-	0.36	<1	<5	19.0	0.56
Kekeda Fresh 2	**CIS739211**	0.44	-	0.44	<1	<5	8.0	0.56
Kekeda Fresh 3	**CIS739217**	0.26	-	0.26	<1	<5	16.0	0.32
Han Trans/Fresh	**CIS739230**	0.24	-	0.24	<1	<5	34.0	0.18
Han Fresh 1	**CIS739237**	0.08	-	0.08	<1	<5	13.0	0.04
Han Fresh 2	**CIS739226**	0.13	-	0.13	<1	<5	23.0	0.10
Han Fresh 3	**CIS739238**	0.22	-	0.22	<1	<5	8.0	0.04
Enioda Oxide 1	**CIS739250**	1.10	1.09	1.10	<1	<5	22.0	<0.02
Enioda Oxide 2	**CIS739259**	0.04	-	0.04	<1	15.0	38.0	<0.02
Enioda Fresh 1	**CIS739242**	0.59	0.38	0.49	<1	25.0	17.0	0.12
Enioda Fresh 2	**CIS739257**	0.17	-	0.17	<1	15.0	55.0	0.10
Atirre Trans	**CIS739271**	0.08	-	0.08	<1	65.0	14.0	<0.02
Atirre Fresh 1	**CIS739265**	0.13	-	0.13	<1	35.0	11.0	0.04
Atirre Fresh 2	**CIS739261**	1.25	-	1.25	<1	55.0	26.0	0.48
Kilosegui Trans 1	**CIS734038**	1.82	-	1.82	<1	5.0	12.0	<0.02
Kilosegui Fresh 1	**CIS734025**	0.46	-	0.46	<1	10.0	8.0	0.18
Kilosegui Fresh 2	**CIS734031**	0.17	-	0.17	<1	10.0	21.0	<0.02
Kilosegui Fresh 3	**CIS734035**	0.66	-	0.66	<1	20.0	9.0	0.28
Kilosegui Fresh 4	**CIS734044**	0.21	0.27	0.24	<1	5.0	10.0	0.34

MASTER COMPOSITE HEAD ASSAYS								
Analyte/Method/Unit	**Au-Ave Fire Assay (g/t)**	**Au-Ave Photon (g/t)**	**Au Screen FA (g/t)**	**Ag (g/t)**	**As (ppm)**	**Cu (ppm)**	**S_{TOTAL} (%)**	**$S_{SULPHIDE}$ (%)**
MC1: Souwa Oxide (1)	0.27	-	0.46	<2	<10	38	<0.02	<0.02
MC8: Souwa Oxide (2)	0.33	0.48	-	-	-	-	-	-
MC9: Souwa Oxide (3)	0.42	-	-	-	-	-	-	-
MC26: Souwa Oxide	0.50	-	-	-	-	-	-	-
MC2: Souwa Trans	0.73	-	0.48	<2	<10	24	0.04	0.02
MC10: Souwa Trans	0.52	-	-	<2	<10	18	0.04	0.02
MC11: Souwa Fresh	2.45	-	-	<2	<10	18	0.58	0.56
MC12: Nopka Trans	2.10	-	-	<2	<10	20	0.04	<0.02
MC13: Nopka Fresh	1.74	-	-	<2	<10	14	0.32	0.30
MC3: Chegue Main Oxide	1.21	-	0.77	<2	<10	44	<0.02	<0.02
MC14: Chegue Main Oxide	1.12	-	-	4	390	42	<0.02	<0.02
MC04: Chegue Main Trans	0.47	-	0.50	<2	<10	12	<0.02	<0.02
MC15: Chegue Main Fresh	2.30	-	-	<2	<10	8	0.44	0.38
MC05: Chegue South Trans	1.46	-	2.04	<2	<10	16	0.06	0.06
MC16: Chegue South Trans	1.53	-	-	<2	<10	12	0.10	0.06
MC17: Chegue South Fresh	4.27	-	-	<2	10	10	0.22	0.22
MC6: Kekeda Trans	0.69	1.05	-	<2	30	16	0.42	0.18
MC18: Kekeda Fresh	3.56	-	-	<2	<10	24	0.44	0.42
MC19: Han Trans	13.31	-	-	<2	<10	20	0.50	0.40
MC20: Han Fresh	3.68	-	-	<2	<10	24	0.62	0.58
MC21: Enioda Oxide	1.09	-	-	2	<10	48	<0.02	<0.02
MC22: Enioda Trans	2.53	-	-	<2	<10	46	0.06	<0.02
MC23: Atirre Trans	2.24	-	-	<2	<10	12	0.04	<0.02
MC24: Atirre Fresh	1.29	-	-	<2	<10	18	0.52	0.42
MC25: Kilosegui Trans	1.79	-	-	<2	<10	10	0.06	0.04
MC7: Kilosegui Fresh	1.33	1.37	-	<2	30	8	0.30	0.24

• Gravity/CIL Testwork Results: Comminution Composite

Test results are illustrated in the following chart (P_{80}: 106 µm, oxygen injection, 45% solids (w/w), 0.05% (w/v) NaCN).



• Gravity/CIL Testwork Results: Master Composite

Gravity/cyanidation testwork was conducted on the Master composites to determine the influences of grind P_{80} (125 µm, 106 µm and 75 µm) and cyanide solution strength (0.070%, w/v, 0.050%, w/v, and 0.030%, w/v) on gold leaching performance.

The client reviewed the grinding testwork results and selected P_{80} of 106 µm (Oxide and Transition samples) and 75 µm (Fresh samples) for the testwork conducted to assess the influence cyanide solution strength.

Selected results are presented in the tables overleaf.

MASTER COMPOSITE GRAVITY/LEACH TESTWORK: INFLUENCE OF CYANIDE SOLUTION STRENGTH										
Test No (PW)	Composite ID	Grind (P_{80}, µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maintain	Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
7293	**Souwa Oxide Master Comp (MC-8)**	106	0.070	0.040	0.42	0.48	21.6	95.2	0.18	0.74
7295	**Souwa Oxide Master Comp (MC-8)**	106	0.050	0.030	0.51	0.48	21.8	94.1	0.15	0.86
7297	**Souwa Oxide Master Comp (MC-8)**	106	0.030	0.020	0.52	0.48	24.1	94.2	0.15	0.77
7294	**Souwa Oxide Master Comp (MC-9)**	106	0.070	0.040	0.74	0.42	39.5	97.3	0.21	0.74
7296	**Souwa Oxide Master Comp (MC-9)**	106	0.050	0.030	0.82	0.42	36.6	96.3	0.18	0.78
7298	**Souwa Oxide Master Comp (MC-9)**	106	0.030	0.020	0.86	0.42	48.0	97.7	0.21	0.97
7158	**Souwa Trans Master Comp (MC-2)**	106	0.070	0.040	0.56	0.73	29.4	91.1	0.12	0.74
7171	**Souwa Trans Master Comp (MC-2)**	106	0.050	0.030	0.55	0.73	22.3	92.8	0.14	2.67
7184	**Souwa Trans Master Comp (MC-2)**	106	0.030	0.020	0.83	0.73	41.6	93.9	0.08	0.52
7150	**Souwa Trans Master Comp (MC-10)**	106	0.070	0.040	0.81	0.52	54.7	96.3	0.15	0.79
7163	**Souwa Trans Master Comp (MC-10)**	106	0.050	0.030	0.72	0.52	36.2	91.7	0.12	0.77
7176	**Souwa Trans Master Comp (MC-10)**	106	0.030	0.020	0.76	0.52	30.2	84.1	0.08	0.66
7302	**Souwa Oxide Master Comp (MC-26)**	106	0.070	0.040	0.60	0.50	35.9	96.7	0.18	1.12
7303	**Souwa Oxide Master Comp (MC-26)**	106	0.050	0.030	0.73	0.50	38.3	96.6	0.12	1.02
7304	**Souwa Oxide Master Comp (MC-26)**	106	0.030	0.020	0.52	0.50	26.4	96.2	0.08	0.92
7213	**Souwa Fresh Master Comp (MC-11)**	75	0.070	0.040	2.86	2.45	42.4	89.2	0.09	0.35
7221	**Souwa Fresh Master Comp (MC-11)**	75	0.050	0.030	2.65	2.45	35.2	84.2	0.08	0.35
7229	**Souwa Fresh Master Comp (MC-11)**	75	0.030	0.020	2.84	2.45	46.3	87.7	0.06	0.31
7213	**Souwa Fresh Master Comp (MC-11)**	75	0.070	0.040	2.86	2.45	42.4	89.2	0.09	0.35
7221	**Souwa Fresh Master Comp (MC-11)**	75	0.050	0.030	2.65	2.45	35.2	84.2	0.08	0.35
7229	**Souwa Fresh Master Comp (MC-11)**	75	0.030	0.020	2.84	2.45	46.3	87.7	0.06	0.31
7151	**Nokpa Trans Master Comp (MC-12)**	106	0.070	0.040	2.04	2.10	20.2	93.6	0.20	0.75
7164	**Nokpa Trans Master Comp (MC-12)**	106	0.050	0.030	2.20	2.10	12.9	92.7	0.14	0.77
7177	**Nokpa Trans Master Comp (MC-12)**	106	0.030	0.020	2.06	2.10	13.7	93.7	0.08	0.66
7214	**Nokpa Fresh Master Comp (MC-13)**	75	0.070	0.040	1.88	1.74	31.6	86.2	0.06	0.38
7222	**Nokpa Fresh Master Comp (MC-13)**	75	0.050	0.030	2.01	1.74	29.9	81.6	0.08	0.36
7234	**Nokpa Fresh Master Comp (MC-13)**	75	0.030	0.020	2.30	1.74	42.6	86.1	0.06	0.30

Continued/…

MASTER COMP GRAVITY/LEACH TESTWORK: INFLUENCE OF CYANIDE SOLUTION STRENGTH (Cont'd)										
Test No (PW)	Composite ID	Grind (P_{80}, µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maintain	Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
7159	**Chegue Main Oxide Master Comp (MC-3)**	106	0.070	0.040	0.60	1.21	37.6	91.7	0.15	1.45
7172	**Chegue Main Oxide Master Comp (MC-3)**	106	0.050	0.030	0.63	1.21	37.6	92.0	0.12	1.37
7185	**Chegue Main Oxide Master Comp (MC-3)**	106	0.030	0.020	0.65	1.21	40.8	92.3	0.08	1.12
7152	**Chegue Main Oxide Master Comp (MC-14)**	106	0.070	0.040	1.14	1.12	45.7	95.6	0.21	1.84
7165	**Chegue Main Oxide Master Comp (MC-14)**	106	0.050	0.030	1.31	1.12	47.6	96.2	0.12	1.85
7178	**Chegue Main Oxide Master Comp (MC-14)**	106	0.030	0.020	1.13	1.12	43.1	95.6	0.06	1.76
7160	**Chegue Main Trans Master Comp (MC-4)**	106	0.070	>0.05	0.51	0.47	36.0	94.2	0.12	0.58
7173	**Chegue Main Trans Master Comp (MC-4)**	106	0.050	>0.05	0.57	0.47	38.6	93.9	0.14	0.56
7186	**Chegue Main Trans Master Comp (MC-4)**	106	0.030	>0.05	0.53	0.47	37.5	92.5	0.08	0.63
7215	**Chegue Main Fresh Master Comp (MC-15)**	75	0.070	0.040	2.47	2.30	53.2	90.7	0.14	0.37
7223	**Chegue Main Fresh Master Comp (MC-15)**	75	0.050	0.030	2.14	2.30	48.4	89.3	0.06	0.37
7235	**Chegue Main Fresh Master Comp (MC-15)**	75	0.030	0.020	2.01	2.30	48.2	89.1	0.08	0.32
7161	**Chegue South Trans Master Comp (MC-5)**	106	0.070	0.040	2.04	1.46	50.8	93.1	0.15	0.79
7174	**Chegue South Trans Master Comp (MC-5)**	106	0.050	0.030	1.48	1.46	36.9	90.2	0.09	0.76
7187	**Chegue South Trans Master Comp (MC-5)**	106	0.030	0.020	2.00	1.46	44.6	88.5	0.08	0.66
7153	**Chegue South Trans Master Comp (MC-16)**	106	0.070	0.040	1.47	1.53	37.1	85.0	0.18	0.68
7166	**Chegue South Trans Master Comp (MC-16)**	106	0.050	0.030	1.34	1.53	35.4	83.6	0.12	0.74
7179	**Chegue South Trans Master Comp (MC-16)**	106	0.030	0.020	1.45	1.53	32.2	77.9	0.09	0.67
7216	**Chegue South Fresh Master Comp (MC-17)**	75	0.070	0.040	4.45	4.27	48.2	74.8	0.12	0.39
7224	**Chegue South Fresh Master Comp (MC-17)**	75	0.050	0.030	4.68	4.27	47.1	73.4	0.08	0.35
7236	**Chegue South Fresh Master Comp (MC-17)**	75	0.030	0.020	3.46	4.27	44.6	68.0	0.08	0.24
7156	**Atirre Trans Master Comp (MC-23)**	106	0.070	0.040	2.08	2.24	45.9	94.0	0.12	1.17
7169	**Atirre Trans Master Comp (MC-23)**	106	0.050	0.030	2.16	2.24	46.5	93.1	0.12	0.80
7182	**Atirre Trans Master Comp (MC-23)**	106	0.030	0.020	2.52	2.24	48.5	92.8	0.08	0.58
7219	**Atirre Fresh Master Comp (MC-24)**	75	0.070	0.040	1.00	1.29	26.7	74.0	0.24	0.38
7227	**Atirre Fresh Master Comp (MC-24)**	75	0.050	0.030	0.87	1.29	33.1	73.5	0.12	0.34
7239	**Atirre Fresh Master Comp (MC-24)**	75	0.030	0.020	0.99	1.29	30.2	71.8	0.12	0.28

Continued/…

SOUWA MASTER COMP GRAVITY/LEACH TESTWORK: INFLUENCE OF CYANIDE SOLUTION STRENGTH (Cont'd)										
Test No (PW)	Composite ID	Grind (P_{80}, µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maintain	Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
7155	**Enioda Oxide Master Comp (MC-21)**	106	0.070	0.040	2.89	1.09	81.1	98.6	0.15	1.48
7168	**Enioda Oxide Master Comp (MC-21)**	106	0.050	0.030	1.73	1.09	68.1	97.7	0.18	1.07
7181	**Enioda Oxide Master Comp (MC-21)**	106	0.030	0.020	2.27	1.09	74.4	97.8	0.12	0.77
7386	**Enioda Trans Master Comp (MC-22)**	106	0.070	0.040	2.53	2.64	50.0	96.2	0.24	0.64
7387	**Enioda Trans Master Comp (MC-22)**	106	0.050	0.030	2.53	2.81	51.9	95.4	0.18	0.64
7388	**Enioda Trans Master Comp (MC-22)**	106	0.030	0.020	2.53	2.78	49.6	95.5	0.12	0.66
7354	**Enioda Fresh Master Comp (MC-27)**	75	0.070	0.040	1.79	5.47	55.8	93.3	0.24	0.24
7355	**Enioda Fresh Master Comp (MC-27)**	75	0.050	0.030	1.56	5.47	57.6	92.6	0.18	0.23
7356	**Enioda Fresh Master Comp (MC-27)**	75	0.030	0.020	1.29	5.47	53.0	90.7	0.12	0.24
7154	**Han Trans Master Comp (MC-19)**	106	0.070	0.040	12.36	13.31	71.0	96.8	0.13	0.31
7167	**Han Trans Master Comp (MC-19)**	106	0.050	0.030	11.36	13.31	69.0	95.2	0.08	0.38
7180	**Han Trans Master Comp (MC-19)**	106	0.030	0.020	11.46	13.31	67.3	94.7	0.06	0.44
7218	**Han Fresh Master Comp (MC-20)**	75	0.070	0.040	3.22	3.68	54.4	87.6	0.14	0.38
7226	**Han Fresh Master Comp (MC-20)**	75	0.050	0.030	3.81	3.68	52.1	86.9	0.12	0.35
7238	**Han Fresh Master Comp (MC-20)**	75	0.030	0.020	3.22	3.68	54.3	86.0	0.08	0.31
7149	**Kekeda Trans Master Comp (MC-6)**	106	0.070	0.040	1.13	1.05	33.0	92.0	0.13	0.64
7162	**Kekeda Trans Master Comp (MC-6)**	106	0.050	0.030	1.08	1.05	26.4	90.7	0.12	0.55
7175	**Kekeda Trans Master Comp (MC-6)**	106	0.030	0.020	1.10	1.05	28.3	89.1	0.06	0.55
7217	**Kekeda Fresh Master Comp (MC-18)**	75	0.070	0.040	4.59	3.56	42.4	92.3	0.18	0.37
7225	**Kekeda Fresh Master Comp (MC-18)**	75	0.050	0.030	3.34	3.56	33.7	88.3	0.12	0.33
7237	**Kekeda Fresh Master Comp (MC-18)**	75	0.030	0.020	3.46	3.56	35.5	87.6	0.06	0.31
7157	**Kilosegui Trans Master Comp (MC-25)**	106	0.070	0.040	1.50	1.79	37.8	92.7	0.12	0.42
7170	**Kilosegui Trans Master Comp (MC-25)**	106	0.050	0.030	1.63	1.79	38.0	92.3	0.12	0.49
7183	**Kilosegui Trans Master Comp (MC-25)**	106	0.030	0.020	1.53	1.79	36.8	92.2	0.09	0.34
7212	**Kilosegui Fresh Master Comp (MC-7)**	75	0.070	0.040	1.41	1.37	46.5	88.0	0.06	0.52
7220	**Kilosegui Fresh Master Comp (MC-7)**	75	0.050	0.030	1.24	1.37	39.2	85.5	0.06	0.38
7228	**Kilosegui Fresh Master Comp (MC-7)**	75	0.030	0.020	1.39	1.37	48.0	87.4	0.08	0.28

1. INTRODUCTION

In January 2022, ALS Metallurgy Services (ALS) was requested by Mr Bruce Lilford, representing Ampella Mining Côte d'Ivoire (the Client), to conduct a defined program of metallurgical testwork on gold ore samples from the Doropo project, northeast Côte d'Ivoire.

The work included the following:

- Sample preparation
- Unconfined compressive strength (UCS) and Bond impact crushing work index determinations
- SMC testwork
- Bond abrasion index (Ai) determinations
- Bond rod (RWi) and ball mill work index (BWi) determinations
- Composite head assays
- Grind establishment testwork
- Gravity separation/carbon-in-leach (CIL) testwork
- Gravity separation/direct cyanide leach testwork

The testwork was controlled by Ms Diana Ligman (Lycopodium), on behalf of the Client, with Mr Peter Wilkinson supervising the program on behalf of ALS. Testwork results were communicated to the client immediately when available, which enabled the program to progress on a fully informed basis.

The purpose of this report is to describe samples and testwork procedures used in the program together with some commentary on test results.

HAMID SHERIFF
Executive General Manager – Metallurgy Services

PETER WILKINSON
Principal Metallurgist

2. SAMPLES AND COMPOSITES

Five consignments of diamond drill core samples were delivered to ALS between December 2021 and November 2022 for metallurgical characterisation.

2.1 Drill Hole Interval Samples

Sample details are available in Appendix I and are summarised in the table below.

DRILL CORE SAMPLES RECEIVED				
Shipment	**Prospects**	**Date Received**	**No Intervals Received**	**Total Mass (kg)**
1	**Souwa, Nokpa**	December 2021	91	2,664
2	**Chegue Main & Chegue South**	February 2022	83	2,640
3	**Kekeda, Han, Enioda & Atirre**	March 2022	110	3,228
4	**Kilosegui**	April 2022	96	3,002
5	**Souwa, Chegue Main, Chegue South, Nokpa, Han, Kekeda, Enioda & Atirre**	November 2022	103	1,790
TOTAL			**483**	**13,324**

2.2 Comminution and Gravity/Leach Composites

The composites identified for comminution and subsequent CIL testwork are detailed in the following tables.

COMMINUTION AND GRAVITY/LEACH COMPOSITES								
Hole ID	**Interval (m)**		**Weathering**	**Bag No.**	**Barrel No.**	**Mass (kg)**		**Composite ID**
	From	**To**				**Site**	**ALS**	
DPDD1517	0.0	10.0	**Oxide**	1	1	30.00	26.40	**Souwa Oxide**
DPDD1462	22.5	32.5	**Transition**	1	15	41.00	38.32	**Souwa Transition Saprolite**
				2	16	40.00	36.52	
DPDD1520	60.0	70.0	**Fresh**	1	28	36.00	32.60	**Souwa Fresh 1**
				2	29	37.00	32.50	
DPDD1523	133.0	143.0	**Fresh**	1	50	36.00	33.02	**Souwa Fresh 2**
				2	51	35.00	32.26	
DPDD1527	96.0	103.0	**Fresh**	1	70	26.00	22.80	**Souwa Fresh 3**
				2	71	27.00	23.60	
DPDD1382	79.0	100.0	**Fresh**	1	3	33.60	32.90	**Souwa Fresh 4 (Comm)**
DPDD1473	80.0	94.0	**Fresh**	1	10	20.50	20.40	**Souwa Fresh 5 (Comm)**
DPDD1533	12.5	21.5	**Transition**	11	91	35.00	31.52	**Nokpa Transition**
DPDD1528	81.0	88.0	**Fresh**	1	74	23.00	19.52	**Nokpa Fresh 1**
				2	75	23.00	19.40	
DPDD1531	108.0	118.0	**Fresh**	1	84	35.00	31.98	**Nokpa Fresh 2**
				2	85	35.00	31.20	
DPDD1425	112.0	137.7	**Fresh**	2	27	29.80	30.00	**Nokpa Fresh 5 (Comm)**
DPDD1541	5.0	11.0	**Oxide**	1	41	31.00	30.80	**Chegue Main Oxide**

Continued/…

COMMINUTION AND GRAVITY/LEACH COMPOSITES (Cont'd)								
Hole ID	Interval (m)		Weathering	Bag No.	Barrel No.	Mass (kg)		Composite ID
	From	To				Site	ALS	
DPDD1541	16.0	26.0	Transition	1	43	21.00	21.00	Chegue Main Transition (Comm on Bag 2)
				2	44	27.00	27.06	
DPDD1536	70.0	80.0	Fresh	1	6	31.00	30.14	Chegue Main Fresh #1 (Comm on Bag 2)
				2	7	32.00	31.48	
DPDD1537	47.0	57.0	Fresh	1	10	33.00	32.02	Chegue Main Fresh #2 (Comm on Bag 2)
				2	11	35.00	31.58	
DPDD1538	78.0	88.0	Fresh	1	16	32.00	31.28	Chegue Main Fresh #3 (Comm on Bag 1)
				2	17	23.00	23.00	
DPDD1543	60.0	70.0	Fresh	1	50	34.00	32.74	Chegue Main Fresh #4 (Comm on Bag 2)
				2	51	33.00	31.56	
DPDD1494	50.0	58.0	Fresh	1	17	24.00	24.18	Chegue Main Fresh #5 (Comm)
DPDD1551	18.0	28.0	Transition	1	81	21.00	19.12	Chegue South Transition (Comm on Bag 2)
				2	82	27.00	26.60	
DPDD1544	44.5	54.5	Fresh	1	54	34.00	32.82	Chegue South Fresh #1 (Comm on Bag 1)
				2	55	34.00	32.66	
DPDD1549	82.0	90.0	Fresh	1	72	28.00	26.26	Chegue South Fresh #2 (Comm on Bag 2)
				2	73	28.00	26.68	
DPDD1559	39.0	46.0	Transition	1	26	38.00	38.98	Kekeda Transition #2
DPDD1554	57.0	64.0	Fresh	1	7	34.00	33.00	Kekeda Fresh #1
DPDD1556	49.0	58.0	Fresh	1	16	29.00	29.26	Kekeda Fresh #2 (Comm on Bag 1)
				2	17	29.00	29.24	
DPDD1558	68.0	73.0	Fresh	1	24	34.00	34.30	Kekeda Fresh #3
DPDD1479	44.0	50.3	Fresh	1	41	20.00	19.60	Kekeda Fresh 4 (Comm)
DPDD1562	12.0	22.0	Transition	1	49	37.00	36.92	Han Fresh Trans/Fresh (Comm on Bag 1)
				2	50	29.00	28.64	
DPDD1564	81.0	86.0	Fresh	1	59	32.00	31.78	Han Fresh #1
DPDD1561	57.0	67.0	Fresh	1	42	33.00	32.86	Han Fresh #2 (Comm on Bag 2)
				2	43	33.00	32.68	
DPDD1565	48.0	54.0	Fresh	1	60	26.00	26.34	Han Fresh #3
DPDD1571	20.0	27.0	Oxide	1	75	17.00	16.94	Enioda Oxide #1
DPDD1574	10.0	20.0	Oxide	1	85	28.00	27.64	Enioda Oxide #2 (Comm on Bag 1)
				2	86	20.00	18.80	
DPDD1567	79.0	86.0	Fresh	1	65	33.00	33.70	Enioda Fresh #1
DPDD1573	78.0	85.0	Fresh	1	82	45.00	44.56	Enioda Fresh #2
DPDD1580	30.0	39.0	Transition	1	103	24.00	25.56	Atirre Transition (Comm on Bag 2)
				2	104	25.00	24.42	
DPDD1578	55.0	60.0	Fresh	1	94	25.00	24.50	Atirre Fresh #1
DPDD1575	73.0	81.0	Fresh	1	88	26.00	25.96	Atirre Fresh #2 (Comm on Bag 1)
				2	89	26.00	25.64	
DPDD3012	23.0	33.0	Transition	1	67	24.00	23.82	Kilosegui Transition #1 (Comm on Bag 1)
				2	68	26.00	26.00	
DPDD3008	37.0	47.0	Fresh	1	43	31.20	31.10	Kilosegui Fresh #1 (Comm on Bag 1)
				2	44	32.00	31.62	
DPDD3010	23.0	33.0	Fresh	1	54	31.50	31.68	Kilosegui Fresh #2 (Comm on Bag 2)
				2	55	32.00	32.08	
DPDD3011	58.0	68.0	Fresh	1	61	32.00	31.94	Kilosegui Fresh #3 (Comm on Bag 2)
				2	62	32.00	32.06	
DPDD3013	86.0	96.0	Fresh	1	78	32.50	32.58	Kilosegui Fresh #4 (Comm on Bag 2)
				2	79	32.00	32.18	

2.3 Master Composites

The following Master composites were prepared.

MASTER COMPOSITES			
MC No.	**Composite ID**	**Estimated Au (g/t)**	**Mass (kg)**
MC-1	**Souwa Oxide Master Composite**	0.97	39.0
MC-2	**Souwa Transitional Master Composite**	0.68	42.0
MC-3	**Chegue Main Oxide Master Composite**	0.98	32.0
MC-4	**Chegue Main Transitional Master Composite**	0.43	40.0
MC-5	**Chegue South Transitional Master Composite**	1.98	39.0
MC-6	**Kekeda Transition Master Composite**	1.15	50.0
MC-7	**Kilosegui Fresh Master Composite**	1.04	506.0
MC-8	**Souwa Oxide Master Composite**	1.26	51.0
MC-9	**Souwa Oxide Master Composite**	3.11	50.0
MC-10	**Souwa Transitional Master Composite**	1.00	50.0
MC-11	**Souwa Fresh Master Composite**	2.23	50.0
MC-12	**Nokpa Transitional Master Composite**	4.06	49.6
MC-13	**Nokpa Fresh Master Composite**	1.45	50.0
MC-14	**Chegue Main Oxide Master Composite**	1.57	33.0
MC-15	**Chegue Main Fresh Master Composite**	2.00	50.0
MC-16	**Chegue South Transitional Master Composite**	2.89	50.0
MC-17	**Chegue South Fresh Master Composite**	3.04	50.0
MC-18	**Kekeda Fresh Master Composite**	2.86	50.0
MC-19	**Han Transitional Master Composite**	11.45	50.0
MC-20	**Han Fresh Master Composite**	2.95	50.0
MC-21	**Enioda Oxide Master Composite**	2.74	50.0
MC-22	**Enioda Transitional Master Composite**	2.06	30.0
MC-23	**Atirre Transitional Master Composite**	2.28	50.0
MC-24	**Atirre Fresh Master Composite**	0.75	50.0
MC-25	**Kilosegui Transitional Master Composite**	1.50	50.0
MC-26	**Souwa Oxide Master Composite**	2.35	41.7
MC-27	**Enioda Transitional Master Composite**	2.33	31.0

For the Souwa Oxide and Souwa Trans Master composites, multiple composites were produced. In the case of the Souwa Oxide, five similar composites were generated in an effort to achieve a gold grade consistent with the expected grade based on twinned-hole data. However, the composite consistently returned a lower grade than anticipated. Sample MC-1 was not subjected to further testwork based on the assayed grade.

Detailed composite recipes are included in Appendix I.

3. SAMPLE PREPARATION

The sample preparation procedures are briefly described below.

3.1 Comminution Testwork Composites

The composite was processed as follows:

(1) Select suitable specimens for UCS testwork.

(2) Ten specimens (-75 +50 mm) were selected for Bond impact crushing work index (CWi) determination.

(3) The test products from steps (1) and (2) were recombined with the remaining "as-received" sample.

(4) The sample from step (2) was control-crushed to <32 mm, homogenised by passing it three times through a rotary sample divider, and split into the following charges:

- 1 x 15 kg, screened at <31.5+26.0 mm, to obtain 5 sets of 20 specimens for SMC testwork.
- 1 x 5 kg, control-crushed to <19 mm, screened at <19.0+12.7 mm, to obtain 4 x 400 g lots for Bond Ai determination.
- 1 x 15 kg control-crushed to <12.7 mm for Bond rod mill work index (RWi) determination.
- 1 x 10 kg control-crushed to <3.35 mm, for Bond ball mill work index (BWi) determination.
- Reserve.

The client nominated 38 of the 42 comminution composites to be subjected to gravity/CIL tests to understand variability in composite grades. These were control-crushed to <3.35 mm, homogenised by passing three times through a rotary sample divider, and then split into 1 kg charges.

3.2 Gravity/Leach Testwork Composites

The composites were prepared, generally in accordance with the following procedure:

The composite was control-crushed to <3.35 mm, homogenised by passing it three times through a rotary sample divider, and split into the following charges:

- 1 x 1 kg, for head Au screen fire assay.
- 1 x 500 g, for detailed head assay.
- 3 x 1 kg, for grind establishment testwork.
- 3 x 3 kg, for gravity/leach testwork to investigate influence of grind size.
- 3 x 3 kg, for gravity/leach testwork to investigate effect of cyanide concentration at the optimum grind size.
- Reserve.

4. UNCONFINED COMPRESSIVE STRENGTH (UCS) DETERMINATION

Specimens were selected for UCS determinations.

4.1 Test Procedure

The selected specimens were tested in accordance with the following procedure:

(1) Each specimen was prepared using a diamond cutting saw and a lapping machine. The resultant cylindrical specimens had a height-to-width ratio of at least 1.5. Dimensional tolerances (straightness) were within 0.50 mm with the ends being flat and at right angles to the perpendicular. End smoothness was finished to within 25 µm (ASTM D4543 – 1985).

(2) The prepared specimen was subsequently tested using a *Servo-tronic* C089-10CR, 2000 kN capacity machine calibrated to "Grade A" in accordance with AS 2193 – 1978. Load was applied at 10 kN per minute with the final load, fracture mode and orientation mode being noted.

4.2 Results

The detailed test report sheets are available in Appendix II and salient results are presented in the following table.

UCS TEST RESULTS

Composite ID	UCS (MPa)		
	Ave.	Max.	Min.
Souwa Fresh #1	22.4	41.2	11.2
Souwa Fresh #2	30.1	55.2	11.1
Souwa Fresh #3	54.2	76.8	24.6
Souwa Fresh #4	18.5	23.3	13.8
Souwa Fresh #5	21.6	31.2	14.2
Nokpa Fresh #2	21.7	52.9	9.1
Chegue Main Fresh #1	59.6	65.1	54.1
Chegue Main Fresh #2	44.4	111.4	13.5
Chegue Main Fresh #4	39.7	103.1	13.8
Chegue Main Fresh #5	95.5	-	-
Chegue South Transition	13.9	-	-
Chegue South Fresh #1	38.1	109.3	10.0
Chegue South Fresh #2	85.1	145.0	55.1
Kekeda Trans #1	33.8	40.6	19.7
Kekeda Trans #2	36.8	69.3	20.9
Kekeda Fresh #1	106.0	165.3	68.3
Kekeda Fresh #2	83.4	122.7	46.9
Kekeda Fresh #3	93.1	129.9	50.3
Kekeda Fresh #4	38.1	60.1	17.7

UCS TEST RESULTS (Cont'd)

Composite ID	UCS (MPa)		
	Ave.	Max.	Min.
Han Trans/Fresh	88.0	112.8	45.1
Han Fresh #1	98.3	132.9	45.9
Han Fresh #2	99.0	187.2	17.6
Han Fresh #3	94.4	146.6	47.0
Enioda Fresh #1	133.9	219.2	66.6
Enioda Fresh #2	56.1	100.2	25.5
Atirre Fresh #1	72.8	97.9	32.7
Atirre Fresh #2	87.5	122.6	67.8
Kilosegui Fresh #1	59.7	107.7	25.7
Kilosegui Fresh #2	128.2	173.7	53.4
Kilosegui Fresh #3	95.6	130.2	37.4
Kilosegui Fresh #4	82.3	110.4	41.1

The following table provides relative descriptive strength terms for the data.

DESCRIPTIVE STRENGTH TERMS	
UCS (MPa)	**Descriptive Term**
<6	Very Weak
6 to 20	Weak
20 to 60	Medium Strong
60 to 200	Strong
>200	Very Strong

5. BOND IMPACT CRUSHING WORK INDEX (CWi) DETERMINATION

Ten specimens of each composite were submitted for CWi testwork.

The impact energy required to break the sample is noted and the Bond CWi is calculated from the sample thickness and the sample SG.

5.1 Test Procedure

The following test procedure was followed:

(1) Each specimen was placed on the test pedestal and the sample thickness (mm) noted.

(2) In a sequence of tests, the impact hammers were progressively raised and allowed to strike the test sample until it was broken through the full width of the sample. The impact energy (joules) was noted.

(3) This procedure was repeated for all specimens.

(4) At the completion of the test, sample SG was determined.

The crushing work index for each sample was calculated using the Bond[1] formula:

$$CWi = 53.49 \times \frac{Eb/d}{SG} kWh/tonne$$

Where:

CWi	=	Crushing work index (kWh/tonne)
Eb	=	Energy of breakage (joules)
d	=	Sample thickness (mm)
SG	=	Mineral SG

Sample SG determinations were determined using the following procedure:

(1) A portion of the broken samples, i.e., at least a quarter was recovered and crushed (rolls crushed to approximately -2 mm). The product was oven dried.

(2) A 1000 mL volumetric flask was filled to the mark and the added water weight noted.

$$M_1 = Weight\ of\ 1000\ mL\ of\ water$$

(3) Approximately 100 g of the dried sample was added to a partially filled flask.

$$M_2 = Weight\ of\ added\ test\ sample$$

[1] Bond, F.C. "Crushing Test by Pressure and Impact" (1946), Trans. AIME, Vol 169, pp 58-65

(4) The flask was then filled with water and the weight noted – vacuum was used to remove any entrained air.

$$M_3 = Weight\ of\ water\ plus\ test\ sample$$

$$SG = \frac{M_2}{M_1 - (M_3 - M_2)}$$

5.2 Results

The detailed impact crushing test report sheets are included in Appendix III and results are summarised in the following table.

BOND IMPACT CRUSHING TEST RESULTS

Sample ID	No Specimens	CWi (kWh/t)			Density (kg/m³)
		Ave.	Max.	Min.	
Souwa Trans Saprolite (22.5-32.5 m)	10	2.9	7.1	1.4	2,550
Souwa Fresh #1 (60-70 m)	10	4.8	6.7	1.7	2,650
Souwa Fresh #2 (133-143 m)	10	9.3	12.2	3.3	2,640
Souwa Fresh #3 (96-103 m)	10	10.0	15.0	6.9	2,580
Souwa Trans Saprolite (22.5-32.5 m)	10	2.9	7.1	1.4	2,550
Souwa Fresh #4 (DPDD1382 79-90 m)	10	6.9	12.5	3.5	2,600
Souwa Fresh #5 (DPDD1473 80-87 m)	7	5.3	7.1	3.5	2,590
Nokpa Fresh #1 (81-88 m)	10	3.1	4.1	2.0	2,570
Nokpa Fresh #2 (108-118 m)	10	5.6	10.3	1.8	2,640
Nokpa Fresh #3 (DPDD1425 120-137.7 m)	8	4.6	7.0	3.4	2,640
Chegue Main Transition	10	1.6	1.9	0.0	2,650
Chegue Main Fresh #1	10	8.8	18.0	2.0	2,600
Chegue Main Fresh #2	10	11.0	26.5	3.4	2,680
Chegue Main Fresh #3	10	2.1	3.9	1.9	2,690
Chegue Main Fresh #4	10	12.3	29.4	3.5	2,560
Chegue Main Fresh #5 (DPDD1494 50-58 m)	10	6.5	8.7	3.5	2,610
Chegue South Transition	9	1.8	2.0	1.7	2,600
Chegue South Fresh #1	10	13.3	24.4	6.8	2,590
Chegue South Fresh #2	10	10.7	14.1	8.6	2,700
Kekeda Trans #1	11	4.1	5.3	1.8	2,620
Kekeda Trans #2	10	12.1	17.2	8.6	2,640
Kekeda Fresh #1	9	13.8	16.8	8.3	2,660
Kekeda Fresh #2	10	7.1	20.2	4.0	2,570
Kekeda Fresh #3	10	15.8	18.8	9.3	2,600
Kekeda Fresh #4 (DPDD1479 40-50.3 m)	9	6.2	8.7	3.4	2,640
Han Trans/Fresh	10	7.8	11.6	4.9	2,670
Han Fresh #1	10	14.6	25.7	3.9	2,640
Han Fresh #2	10	10.6	15.2	7.0	2,600
Han Fresh #3	10	9.1	15.3	3.4	2,590

Continued/…

BOND IMPACT CRUSHING TEST RESULTS (Cont'd)					
Sample ID	**No Specimens**	**CWi (kWh/t)**			**Density (kg/m³)**
		Ave.	**Max.**	**Min.**	
Enioda Oxide #1	10	3.9	18.3	1.9	2,480
Enioda Fresh #1	10	13.5	17.7	9.0	2,580
Enioda Fresh #2	11	7.9	12.0	3.3	2,690
Atirre Trans	11	5.0	7.1	1.8	2,610
Atirre Fresh #1	10	11.3	15.5	6.9	2,700
Atirre Fresh #2	10	10.8	13.2	7.1	2,620
Kilosegui Fresh #1	10	9.9	12.6	7.0	2,620
Kilosegui Fresh #2	10	10.4	15.9	7.1	2,610
Kilosegui Fresh #3	10	10.3	14.5	5.4	2,560
Kilosegui Fresh #4	10	10.4	16.2	7.1	2,580

Descriptive strength terms for the CWi test results are provided in the following table.

DESCRIPTIVE STRENGTH TERMS	
CWi (kWh/t)	**Descriptive Term**
<10	Very Soft
10 to 14	Soft
14 to 18	Medium
18 to 22	Hard
22 to 26	Very Hard
>26	Extremely Hard

6. SMC TESTWORK

Sub-samples of the composites nominated by the client were submitted for SMC testwork. The standard (full) JK Tech drop-weight testwork provides ore-specific parameters for use in the JK Sim Met Mineral Processing Simulator Software and JK Sim Met Crusher model.

The SMC test was developed by SMC Testing Pty Ltd to provide a cost-effective means of obtaining these parameters from drill core or broken ROM rock samples in situations where limited quantities of material are available.

The SMC test generates a relationship between specific input energy (kWh/t) and the proportion of fragmented/broken product passing a specified sieve size. The results are used to determine the drop-weight index (DWi), which is a measure of the strength of the ore sample when broken under impact conditions. The DWi is directly related to the JK rock breakage parameters A and b; and can be used to determine the values of these parameters.

6.1 Test Procedure

The test procedure was as follows:

(1) A suitable sub-sample was used for in-situ SG determinations and to measure the mass of material per unit length of the sample. In-situ SG measurements were carried out by weighing each specimen in air and then fully submerged in water. The data were inserted in the following formula:

$$Density\ (insitu\ SG) = \frac{A}{A - B}$$

Where:

A = Mass of quartered core specimen in air

B = Mass of specimen, whilst it was totally submerged in water

(2) The sub-sample was control crushed to a nominal <32 mm and screened to recover particles in the size range <22.4+19.0 mm.

(3) One hundred particles in the nominated size range were selected in accordance with the SMC proprietary test procedure. These were divided into 5 groups of 20 specimens.

(4) Each group of 20 specimens was broken using the JK drop-weight tester at a different specific energy level. The target-specific breakage energy levels (Eis) are listed below:

- 3.5 kWh/t
- 2.5 kWh/t
- 1.0 kWh/t
- 0.5 kWh/t
- 0.25 kWh/t.

(5) The drop-weight device was configured such that a drop-weight head was raised to a known height and allowed to fall onto each specimen resting on the anvil. The key measurement used in the drop-weight test is the input energy. This was determined from the mass of the drop-weight head and the distance through which it falls, and the mass of the specimen being tested.

The difference in distance between the initial starting point and the final rest height of the drop-weight head is used to calculate the energy that is expended in breaking the particle.

Thus:

$$Ei = Mg(h - X_m)$$

Where:

Ei = Energy used for breakage

M = Drop-weight mass

g = Gravitational constant

h = Initial height of the drop-weight head above the anvil

X_m = Final height of the drop-weight head above the anvil

It is assumed that all the energy provided is used in the breakage of the particles (i.e., no rebounds).

$$E_{cs} = E_{is} = E_i/m$$

Where:

E_{is} = Specific energy input

E_{cs} = Specific comminution energy

m = Mean particle mass

(6) For each single drop test, the rest height was recorded. After the completion of the breakage of 20 particles in each group, the broken product was screened at a sieve size that is one-tenth of the original test particle size.

6.2 Results

Detailed SMC test results are presented in the JK Tech SMC report (JKTech Job No: 22001/P45), which is included in Appendix IV, and a summary of the results is provided in the following tables.

SMC TESTWORK RESULTS										
Composite ID	DWi (kWh/m³)	SG	Derived Parameters					Mi Parameters (kWh/t)		
			A	b	A*b	ta	SCSE	Mia	Mih	Mic
Souwa Oxide	0.8	2.32	74.8	4.07	304.4	3.40	5.44	4.0	1.9	1.0
Souwa Trans Saprolite	2.6	2.56	65.9	1.51	99.5	1.01	6.84	9.6	5.8	3.0
Souwa Fresh 1	5.8	2.67	76.4	0.60	45.8	0.44	9.24	17.6	12.6	6.5
Souwa Fresh 2	6.8	2.69	79.4	0.50	39.7	0.38	9.89	19.7	14.6	7.6
Souwa Fresh 3	7.5	2.68	84.6	0.43	36.4	0.35	10.28	21.3	16.1	8.3
Nokpa Transition	3.1	2.58	69.1	1.21	83.6	0.84	7.24	11.0	7.0	3.6
Nokpa Fresh 1	3.1	2.66	60.0	1.42	85.2	0.83	7.22	10.7	6.8	3.5
Nokpa Fresh 2	4.7	2.67	69.3	0.82	56.8	0.55	8.43	14.8	10.2	5.3
Chegue Main Trans	0.5	2.48	77.1	6.23	480.3	5.02	4.88*	2.7	1.2	0.6
Chegue Main Fresh 1	6.8	2.68	66.0	0.59	38.9	0.38	9.96	20.0	14.8	7.7
Chegue Main Fresh 2	6.4	2.67	66.4	0.63	41.8	0.41	9.62	18.8	13.8	7.1
Chegue Main Fresh 3	6.0	2.65	63.4	0.69	43.7	0.43	9.40	18.2	13.2	6.8
Chegue Main Fresh 4	5.8	2.68	65.4	0.71	46.4	0.45	9.20	17.4	12.5	6.4
Chegue South Trans	3.3	2.56	61.8	1.28	79.1	0.80	7.38	11.5	7.4	3.8
Chegue South Fresh 1	7.2	2.68	77.8	0.48	37.3	0.36	10.15	20.8	15.7	8.1
Chegue South Fresh 2	7.4	2.72	69.7	0.53	36.9	0.35	10.29	21.0	15.8	8.2
Kekeda Trans 1	1.5	2.58	68.1	2.47	168.2	1.69	5.87	6.3	3.4	1.8
Kekeda Trans 2	2.8	2.58	69.9	1.31	91.6	0.92	7.02	10.2	6.3	3.3
Kekeda Fresh 1	6.1	2.70	76.0	0.58	44.1	0.42	9.44	18.1	13.2	6.8
Kekeda Fresh 2	4.5	2.68	72.6	0.82	59.5	0.58	8.28	14.2	9.7	5.0
Kekeda Fresh 3	5.7	2.72	69.9	0.68	47.5	0.45	9.17	17.1	12.2	6.3
Han Trans/Fresh	3.2	2.65	69.6	1.19	82.8	0.81	7.28	11.0	7.0	3.6
Han Fresh 1	5.8	2.67	75.0	0.62	46.5	0.45	9.18	17.5	12.5	6.5
Han Fresh 2	7.3	2.70	78.2	0.47	36.8	0.35	10.27	20.9	15.7	8.1
Han Fresh 3	5.7	2.69	73.4	0.64	47.0	0.45	9.17	17.2	12.4	6.4
Enioda Oxide 1	2.5	2.29	67.6	1.36	91.9	1.04	7.24	10.4	6.3	3.3
Enioda Fresh 1	8.6	2.70	80.2	0.39	31.3	0.30	11.10	23.6	18.4	9.5
Enioda Fresh 2	6.9	2.73	69.7	0.57	39.7	0.38	9.96	19.7	14.6	7.6
Atirre Trans	2.3	2.57	68.8	1.64	112.8	1.14	6.57	8.6	5.1	2.7
Atirre Fresh 1	6.8	2.69	73.6	0.54	39.7	0.38	9.88	19.7	14.6	7.6
Atirre Fresh 2	7.4	2.71	75.0	0.49	36.8	0.35	10.29	21.0	15.8	8.2
Kilosegui Trans 1	2.6	2.60	73.4	1.37	100.6	1.00	6.81	9.4	5.7	3.0
Kilosegui Fresh 1	4.8	2.57	73.2	0.73	53.4	0.54	8.57	15.7	10.8	5.6
Kilosegui Fresh 2	4.3	2.63	77.5	0.79	61.2	0.60	8.15	13.9	9.4	4.9
Kilosegui Fresh 3	5.1	2.68	70.5	0.75	52.9	0.51	8.70	15.8	11.0	5.7
Kilosegui Fresh 4	5.5	2.58	70.9	0.66	46.8	0.47	9.06	17.3	12.3	6.4

* Sample parameters are outside the range of parameters used when developing the SCSE model. As such SCSE values for flagged samples should be treated with caution

7. BOND ABRASION INDEX (Ai) DETERMINATION

Sub-samples of the composites were submitted for Bond Ai determination using the standard procedure developed by F.C. Bond[1].

7.1 Test Procedure

The following test procedure was used:

(1) The testing machine consists of an impeller rotating at 632 rpm within a contra-rotating drum. The impeller incorporates a *Bisalloy, 500 Brinell* hardness steel paddle.

(2) Four successive 400 g samples of ore (<19+12.7 mm) were processed for 15 minutes each in the testing machine.

(3) At the completion of the test, the mass lost by the paddle was measured to 0.10 of a milligram. The abrasion index, Ai, is equivalent to the paddle mass loss expressed in grams.

(4) The combined products from the four 15-minute test periods were combined and then screened.

7.2 Results

The detailed Bond abrasion index testwork report sheet is available in Appendix V and a summary of the results is presented in the following table.

BOND ABRASION INDEX DETERMINATIONS			
Sample ID	**Bond Ai**	**Sample ID**	**Bond Ai**
Souwa Oxide (0-10 m)	0.1362	**Kekeda Trans #1**	0.1350
Souwa Transition Saprolite (25.5-32.5 m)	0.1476	**Kekeda Trans #2**	0.1187
Souwa Fresh #1 (60-70 m)	0.2227	**Kekeda Fresh #1**	0.2169
Souwa Fresh #2 (133-143 m)	0.2668	**Kekeda Fresh #2**	0.1620
Souwa Fresh #3	0.2550	**Kekeda Fresh #3**	0.1715
Souwa Fresh #4	0.1688	**Kekeda Fresh #4**	0.1628
Souwa Fresh #5	0.1448	**Han Trans/Fresh**	0.1680
Nokpa Transition	0.3258	**Han Fresh #1**	0.2511
Nokpa Fresh #1 (81-88 m)	0.0180	**Han Fresh #2**	0.2232
Nokpa Fresh #2 (108-118 m)	0.1224	**Han Fresh #3**	0.2623
Nokpa Fresh #3	0.1127	**Enioda Oxide #1**	0.3597
Chegue Main Transition (21-26 m)	0.0454	**Enioda Fresh #1**	0.2442
Chegue Main Fresh #1 (75-80 m)	0.1200	**Enioda Fresh #2**	0.1551
Chegue Main Fresh #2 (52-57 m)	0.3468	**Atirre Trans**	0.0718
Chegue Main Fresh #3 (78-83 m)	0.1251	**Atirre Fresh #1**	0.1221
Chegue Main Fresh #4 (65-70 m)	0.3796	**Atirre Fresh #2**	0.1163
Chegue Main Fresh #5 (50-58 m)	0.1914	**Kilosegui Transition #1**	0.0622
Chegue South Transition (23-28 m)	0.2139	**Kilosegui Fresh #1**	0.3152
Chegue South Fresh #1 (55-61 m)	0.2909	**Kilosegui Fresh #2**	0.3093
Chegue South Fresh #2 (82-90 m)	0.1614	**Kilosegui Fresh #3**	0.1830
-	-	**Kilosegui Fresh #4**	0.1927

The test results indicate the ores range from slightly abrasive to abrasive.

[1] Bond, F.C. "Metal Wear in Crushing and Grinding" (1963), 54th Ann. Mtg of Inst. Chem. Engrs. Houston, Texas

8. BOND ROD MILL WORK INDEX (RWi) DETERMINATION

Sub-samples of the composites were submitted for Bond RWi determination using the standard procedure developed by F.C. Bond[2].

8.1 Test Procedure

The following test procedure was used:

(1) The test sample was control-crushed to P_{100}: 12.7 mm and test portions were rotary split for the work index test.

(2) A known volume of ore (1,250 mL) was ground in the standard mill for a counted number of revolutions.

(3) The ground material was screened at a test aperture of 1,180 µm to remove the undersize material.

(4) Fresh feed was added to the oversize fraction to make it up to the original test mass.

(5) The number of mill revolutions was adjusted for each test cycle until a stable recirculating load was achieved.

(6) The work index was calculated using the following formula:

$$(Wi)_R = \frac{62.0}{(Pi)^{0.23} \times (Grp)^{0.625} \times \left(\frac{10}{\sqrt{P_{80}}} - \frac{10}{\sqrt{F_{80}}}\right)} \times 1.102$$

Where:

$(Wi)_R$ = Work index value expressed in kWh/tonne

Pi = Grindability test aperture (micrometres)

Grp = Mean of equilibrium grindability values (g/rev)

P_{80} = 80% passing size of the equilibrium product (micrometres)

F_{80} = 80% passing size of the feed to period 1 (micrometres)

[2] Bond, F.C. "Metal Wear in Crushing and Grinding" (1963), 54th Ann. Mtg of Inst. Chem. Engrs. Houston, Texas

8.2 Results

The detailed Bond RWi data sheet is provided in Appendix VI and key data are summarised in the following table.

BOND ROD MILL GRINDABILITY TEST RESULTS				
Sample ID	**F_{80} (mm)**	**P_{80} (mm)**	**Grp (g/rev)**	**Bond RWi (kWh/t)**
Souwa Oxide (0-10 m)	3,794	886	19.898	11.9
Souwa Transition Saprolite (22.5-32.5 m)	8,259	902	12.007	12.7
Souwa Fresh #1 (60-70 m)	10,970	878	6.905	16.6
Souwa Fresh #2 (133-143 m)	10,824	882	6.187	17.9
Souwa Fresh #3 (96-103 m)	10,986	807	5.151	18.8
Souwa Fresh #4	9,841	927	7.669	16.5
Souwa Fresh #5	9,647	925	7.854	16.3
Nokpa Transition (12.5-21.5 m)	10,493	901	7.742	15.9
Nokpa Fresh #1 (81-88 m)	10,134	920	8.169	15.7
Nokpa Fresh #2 (108-118 m)	10,260	936	7.999	16.0
Nokpa Fresh #3	10,274	941	6.486	18.4
Chegue Main Transition (21-26 m)	4,097	928	44.906	7.2
Chegue Main Fresh #1 (75-80 m)	11,463	869	5.817	18.2
Chegue Main Fresh #2 (52-57 m)	11,128	881	5.708	18.7
Chegue Main Fresh #3 (78-83 m)	11,134	925	6.869	17.2
Chegue Main Fresh #4 (65-70 m)	11,179	830	5.987	17.4
Chegue Main Fresh #5 (50-58 m)	10,159	862	6.505	17.3
Chegue South Transition (23-28 m)	5,124	890	16.570	11.9
Chegue South Fresh #1 (55-61 m)	11,325	844	5.797	17.9
Chegue South Fresh #2 (82-90 m)	10,971	854	5.198	19.4
Kekeda Trans #1	10,247	938	15.673	10.6
Kekeda Trans #2	10,656	934	11.732	12.5
Kekeda Fresh #1	10,330	869	6.027	18.1
Kekeda Fresh #2	10,472	894	9.117	14.3
Kekeda Fresh #3	10,278	887	6.604	17.4
Kekeda Fresh #4	9,770	903	10.548	13.3
Han Transition/Fresh	10,088	955	13.437	11.8
Han Fresh #1	10,468	878	7.217	16.3
Han Fresh #2	10,066	895	6.727	17.4
Han Fresh #3	10,083	919	8.524	15.3
Enioda Fresh #1	10,577	810	4.238	21.4
Enioda Fresh #2	10,316	866	6.201	17.8
Atirre Transition	9,956	961	12.013	12.8
Atirre Fresh #1	10,278	845	6.268	17.4
Atirre Fresh #2	10,565	853	5.641	18.6
Kilosegui Transition #1	9,239	928	12.610	12.3
Kilosegui Fresh #1	10,360	874	7.053	16.5
Kilosegui Fresh #2	9,530	882	11.209	12.7
Kilosegui Fresh #3	10,147	885	7.304	16.4
Kilosegui Fresh #4	10,206	869	6.505	17.3

The RWi values indicated the individual samples ranged in hardness from soft to very hard.

9. BOND BALL MILL WORK INDEX (BWi) DETERMINATION

Sub-samples of the composites were tested using the standard procedure developed by F.C. Bond[3] to determine the Bond BWi value at a closing screen aperture size of 106 µm.

9.1 Test Procedure

The test procedure was as follows:

(1) The composite was stage-crushed to 100% passing 3.35 mm and test portions rotary split out for the work index test.

(2) A known volume of ore (700 mL) was ground in the standard mill for a counted number of revolutions.

(3) The ground material was screened at a test aperture of 106 µm to remove the <106 µm material.

(4) Fresh feed was added to the >106 µm fraction to make-up to the original test weight.

(5) The number of mill revolutions was adjusted at each cycle until a stable recirculating load was achieved.

(6) The work index was calculated from the formula:

$$(Wi)_B = \frac{44.5}{(Pi)^{0.23} \times (Gbp)^{0.82} \times \left(\frac{10}{\sqrt{P_{80}}} - \frac{10}{\sqrt{F_{80}}}\right)} \times 1.102$$

Where:

$(Wi)_B$ = Work index value expressed in kWh/tonne

Pi = Grindability test aperture (micrometres)

Gbp = Mean of equilibrium grindability values (g/rev)

P_{80} = 80% passing size of the equilibrium product (micrometres)

F_{80} = 80% passing size of the feed to period 1 (micrometres)

[3] Bond, F.C. "Crushing and Grinding Calculations" (1961) British Chemical Engineering, Vol 6, No's 6, 8

9.2 Results

The detailed Bond BWi testwork report sheets are presented in Appendix VII and results are summarised in the following table.

BOND BALL MILL GRINDABILITY TEST RESULTS (TEST APERTURE 106 µm)				
Sample ID	**F_{80} (µm)**	**P_{80} (µm)**	**Gbp (g/rev)**	**Bond BWi (kWh/t)**
Souwa Oxide (0-10 m)	1,798	79	1.099	17.5
Souwa Transition Saprolite (22.5-32.5 m)	2,337	84	1.498	13.6
Souwa Fresh #1 (60-70 m)	2,517	82	1.213	15.9
Souwa Fresh #2 (133-143 m)	2,519	84	1.073	17.8
Souwa Fresh #3 (96-103 m)	2,528	83	1.065	17.7
Souwa Fresh #4	2,444	87	1.175	16.9
Souwa Fresh #5	2,437	90	1.200	17.0
Nokpa Transition (12.5-21.5 m)	2,423	82	0.935	19.7
Nokpa Fresh #1 (81-88 m)	2,652	87	1.052	18.3
Nokpa Fresh #2 (108-118 m)	2,779	90	1.099	17.9
Nokpa Fresh #3	2,478	85	0.965	19.6
Chegue Main Oxide (5-11 m) (MOD +106 µm)	1,123	86	1.104	19.8
Chegue Main Transition (21-26 m)	1,733	79	1.640	12.6
Chegue Main Fresh #1 (75-80 m)	2,824	87	1.094	17.7
Chegue Main Fresh #2 (52-57 m)	2,803	88	1.172	16.8
Chegue Main Fresh #3 (78-83 m)	2,754	84	1.126	16.9
Chegue Main Fresh #4 (65-70 m)	2,718	91	1.136	17.7
Chegue Main Fresh #5 (50-58 m)	2,414	86	1.100	17.8
Chegue South Transition (23-28 m)	2,191	88	1.282	16.1
Chegue South Fresh #1 (55-61 m)	2,769	86	0.969	19.4
Chegue South Fresh #2 (82-90 m)	2,763	84	1.007	18.5
Kekeda Transition #1 (38-47 m)	2,537	81	1.387	14.0
Kekeda Transition #2 (39-46 m)	2,638	88	1.338	15.2
Kekeda Fresh #1 (57-64 m)	2,114	86	1.236	16.4
Kekeda Fresh #2 (49-53 m)	2,579	86	1.135	17.1
Kekeda Fresh #3 (68-73 m)	2,183	83	1.124	17.3
Kekeda Fresh #4	2,333	81	1.189	16.1
Han Transition/Fresh (12-17 m)	2,027	85	1.178	17.0
Han Fresh #1 (81-86 m)	2,137	93	1.062	19.4
Han Fresh #2 (61-67 m)	2,131	80	1.055	17.8
Han Fresh #3(48-54 m)	2,481	81	1.088	17.2
Enioda Oxide #1 (20-27 m)	1,864	82	1.063	18.3
Enioda Oxide #2 (10-20 m) (MOD +106 µm)	959	87	1.009	22.2
Enioda Fresh #1 (79-86 m)	2,334	83	1.143	16.9
Enioda Fresh #2 (78-85 m)	2,080	79	1.144	16.6
Atirre Transition (30-39 m)	2,627	82	1.131	16.6
Atirre Fresh #1 (55-60 m)	2,534	81	1.084	17.2
Atirre Fresh #2 (73-81 m)	2,611	79	0.961	18.7
Kilosegui Transition #1 (23-28 m)	2,807	80	1.833	11.0
Kilosegui Fresh #1 (37-42 m)	2,756	84	1.162	16.5
Kilosegui Fresh #2 (28-33 m)	2,629	85	1.212	16.1
Kilosegui Fresh #3 (63-68 m)	2,725	84	1.138	16.7
Kilosegui Fresh #4 (91-96 m)	2,690	81	1.118	16.7

* Closing screen size 106 µm

Bond ball mill work index values fall into the following categories.

BOND BALL MILL WORK INDEX HARDNESS CATEGORIES	
Category	**kWh/t**
Very Soft	<7
Soft	7 - 9
Medium Hardness	9 - 14
Hard	14 - 20
Very Hard	>20

The BWi values spanned the range of medium to very hard ores.

10. ANALYTICAL

Assay samples generated during the test program were submitted to the ALS analytical laboratory in Perth for analysis.

The following analytical techniques were employed:

Gold in ores and leach residues:	Fire assay/ICP-MS finish
Gold in ores:	Chrysos PhotonAssay™
Gold in ores:	Screen fire assay
Gold in solution:	Direct ICP-MS
C_{TOTAL}, $C_{ORGANIC}$:	*Labfit* CS2000 analysis
S_{TOTAL}:	*Labfit* CS2000 analysis
Ag, As, Hg, Sb, etc.:	Mixed acid/ICP finish
Cu:	Mixed acid digest/ICP-OES

11. HEAD ANALYSIS

Representative head samples of the interval and composite samples were submitted for analysis.

11.1 Interval Samples

The interval sample assays are available in Appendix VIII. Data include gold and sulphur assays conducted on all intervals as well as additional fire assay and photon analysis on 21 selected intervals to increase confidence on interval gold grades.

11.2 Comminution Composite/Leach Composites

Comprehensive assay results on the comminution samples subsequently identified as leach composites and subjected to CIL tests are provided in Appendix VIII. Selected assay results are presented in the following tables.

COMMINUTION COMPOSITES: HEAD ASSAYS

Composite ID	Sample ID	Au-1 (g/t)	Au-2 (g/t)	Au-Ave (g/t)	Ag (g/t)	As (ppm)	Cu (ppm)	Total S (%)
Souwa Oxide	**CIS339751**	0.11	-	0.11	4.00	<5	36.0	<0.02
Souwa Trans Saprolite	**CIS339759**	0.65	-	0.65	<1	5.0	29.0	<0.02
Souwa Fresh 1	**CIS339766**	0.38	-	0.38	<1	<5	15.0	0.56
Souwa Fresh 2	**CIS339778**	5.07	-	5.07	<1	<5	15.0	0.56
Souwa Fresh 3	**CIS339791**	0.24	-	0.24	<1	10.0	15.0	0.14
Nokpa Trans	**CIS339802**	0.51	-	0.51	5.00	<5	70.0	<0.02
Nokpa Fresh 1	**CIS339793**	0.24	-	0.24	<1	<5	10.0	0.10
Nokpa Fresh 2	**CIS339798**	1.11	-	1.11	<1	<5	41.0	0.38
Chegue Main Oxide	**CIS339827**	1.82	-	1.82	<1	900	11.0	0.04
Chegue Main Trans	**CIS339829**	0.42	-	0.42	<1	<5	10.0	<0.02
Chegue Main Fresh 1	**CIS339807**	0.91	-	0.91	<1	<5	13.0	0.70
Chegue Main Fresh 2	**CIS339809**	0.74	-	0.74	<1	<5	18.0	0.32
Chegue Main Fresh 3	**CIS339812**	0.24	-	0.24	<1	<5	12.0	0.18
Chegue Main Fresh 4	**CIS339833**	0.62	-	0.62	<1	<5	14.0	0.70
Chegue South Trans	**CIS339851**	3.01	-	3.01	<1	<5	15.0	<0.02
Chegue South Fresh 1	**CIS339835**	0.25	0.29	0.27	<1	<5	10.0	0.16
Chegue South Fresh 2	**CIS339846**	1.02	-	1.02	<1	<5	44.0	0.42
Kekeda Trans 1	**CIS739203**	0.52	-	0.52	<1	<5	24.0	<0.02
Kekeda Trans 2	**CIS739219**	0.68	-	0.68	<1	<5	11.0	0.62
Kekeda Fresh 1	**CIS739205**	0.36	-	0.36	<1	<5	19.0	0.56
Kekeda Fresh 2	**CIS739211**	0.44	-	0.44	<1	<5	8.0	0.56
Kekeda Fresh 3	**CIS739217**	0.26	-	0.26	<1	<5	16.0	0.32

Continued/…

COMMINUTION COMPOSITES: HEAD ASSAYS (Cont'd)								
Composite ID	Sample ID	Au-1 (g/t)	Au-2 (g/t)	Au-Ave (g/t)	Ag (g/t)	As (ppm)	Cu (ppm)	Total S (%)
Han Trans/Fresh	CIS739230	0.24	-	0.24	<1	<5	34.0	0.18
Han Fresh 1	CIS739237	0.08	-	0.08	<1	<5	13.0	0.04
Han Fresh 2	CIS739226	0.13	-	0.13	<1	<5	23.0	0.10
Han Fresh 3	CIS739238	0.22	-	0.22	<1	<5	8.0	0.04
Enioda Oxide 1	CIS739250	1.10	1.09	1.10	<1	<5	22.0	<0.02
Enioda Oxide 2	CIS739259	0.04	-	0.04	<1	15.0	38.0	<0.02
Enioda Fresh 1	CIS739242	0.59	0.38	0.49	<1	25.0	17.0	0.12
Enioda Fresh 2	CIS739257	0.17	-	0.17	<1	15.0	55.0	0.10
Atirre Trans	CIS739271	0.08	-	0.08	<1	65.0	14.0	<0.02
Atirre Fresh 1	CIS739265	0.13	-	0.13	<1	35.0	11.0	0.04
Atirre Fresh 2	CIS739261	1.25	-	1.25	<1	55.0	26.0	0.48
Kilosegui Trans 1	CIS734038	1.82	-	1.82	<1	5.0	12.0	<0.02
Kilosegui Fresh 1	CIS734025	0.46	-	0.46	<1	10.0	8.0	0.18
Kilosegui Fresh 2	CIS734031	0.17	-	0.17	<1	10.0	21.0	<0.02
Kilosegui Fresh 3	CIS734035	0.66	-	0.66	<1	20.0	9.0	0.28
Kilosegui Fresh 4	CIS734044	0.21	0.27	0.24	<1	5.0	10.0	0.34

11.3 Master Composites

The detailed Master composite head sample assays are available in Appendix VIII and selected results are presented in the following table.

MASTER COMPOSITE HEAD ASSAYS								
Analyte/Method/Unit	Au-Ave Fire Assay (g/t)	Au-Ave Photon (g/t)	Au Screen FA (g/t)	Ag (g/t)	As (ppm)	Cu (ppm)	S_{TOTAL} (%)	$S_{SULPHIDE}$ (%)
MC1: Souwa Oxide (1)	0.27	-	0.46	<2	<10	38	<0.02	<0.02
MC8: Souwa Oxide (2)	0.33	0.48	-	-	-	-	-	-
MC9: Souwa Oxide (3)	0.42	-	-	-	-	-	-	-
MC26: Souwa Oxide	0.50	-	-	-	-	-	-	-
MC2: Souwa Trans	0.73	-	0.48	<2	<10	24	0.04	0.02
MC10: Souwa Trans	0.52	-	-	<2	<10	18	0.04	0.02
MC11: Souwa Fresh	2.45	-	-	<2	<10	18	0.58	0.56
MC12: Nokpa Trans	2.10	-	-	<2	<10	20	0.04	<0.02
MC13: Nokpa Fresh	1.74	-	-	<2	<10	14	0.32	0.30
MC3: Chegue Main Oxide	1.21	-	0.77	<2	<10	44	<0.02	<0.02
MC14: Chegue Main Oxide	1.12	-	-	4	390	42	<0.02	<0.02
MC04: Chegue Main Trans	0.47	-	0.50	<2	<10	12	<0.02	<0.02
MC15: Chegue Main Fresh	2.30	-	-	<2	<10	8	0.44	0.38
MC5: Chegue South Trans	1.46	-	2.04	<2	<10	16	0.06	0.06
MC16: Chegue South Trans	1.53	-	-	<2	<10	12	0.10	0.06
MC17: Chegue South Fresh	4.27	-	-	<2	10	10	0.22	0.22

Continued/…

MASTER COMPOSITE HEAD ASSAYS (Cont'd)								
Analyte/Method/Unit	**Au-Ave Fire Assay (g/t)**	**Au-Ave Photon (g/t)**	**Au Screen FA (g/t)**	**Ag (g/t)**	**As (ppm)**	**Cu (ppm)**	**S_{TOTAL} (%)**	**$S_{SULPHIDE}$ (%)**
MC6: Kekeda Trans	0.69	1.05	-	<2	30	16	0.42	0.18
MC18: Kekeda Fresh	3.56	-	-	<2	<10	24	0.44	0.42
MC19: Han Trans	13.31	-	-	<2	<10	20	0.50	0.40
MC20: Han Fresh	3.68	-	-	<2	<10	24	0.62	0.58
MC21: Enioda Oxide	1.09	-	-	2	<10	48	<0.02	<0.02
MC22: Enioda Trans	2.53	-	-	<2	<10	46	0.06	<0.02
MC23: Atirre Trans	2.24	-	-	<2	<10	12	0.04	<0.02
MC24: Atirre Fresh	1.29	-	-	<2	<10	18	0.52	0.42
MC25: Kilosegui Trans	1.79	-	-	<2	<10	10	0.06	0.04
MC7: Kilosegui Fresh	1.33	1.37	-	<2	30	8	0.30	0.24

Comments on the assay data for the Master composites are as follows:

- Average gold fire assays range from 0.27 g/t to 13.31 g/t. Several composites exhibited potential for variable gold grade and "spotty" gold.
- Silver head assays are consistently <2 ppm.
- Sulphide sulphur levels are generally low (<0.02%) indicating the absence of significant amounts of sulphide minerals.
- The low levels of organic carbon in the composites indicate that gold-robbing is unlikely to occur during cyanidation.
- Copper levels in the composites range from 0 ppm to 48 ppm, consequently, in some cases potential exists for excess cyanide consumption due to complexation with copper.
- Arsenic levels range are very low (<10 ppm) indicating the absence of significant arsenopyrite and associated refractory gold.

12. GRIND ESTABLISHMENT TESTWORK

Representative sub-samples of each composite were submitted for grind establishment in preparation for extractive testwork.

12.1 Test Procedure

The grind establishment procedure was conducted as follows:

(1) One-kilogram sub-samples were ground in a laboratory stainless steel rod mill at 50% solids (w/w) for various times.

(2) The ground solids were wet screened over a 90 µm aperture sieve.

(3) The screen oversize material was dried and then re-screened over a nest of screens, with a 90 µm bottom screen. The 90 µm screen undersize material was combined with the undersize material from step (2).

(4) Each size fraction was dried, weighed, and the masses were used to determine the particle size distribution (PSD).

(5) The resultant sizing data were utilised to determine the grinding times necessary to realise the target P_{80} grind size stipulated by the client.

For the Master Composite grind determinations, the bottom screen aperture was 63 µm.

12.2 Grind Times: Comminution/Leach Composites

The requisite grind times to achieve specific P_{80} value are presented in the table below.

GRIND ESTABLISHMENT RESULTS: P_{80} 106 µm					
Sample ID	Grind Time		Sample ID	Grind Time	
	min	sec		min	sec
Souwa Oxide	6	57	**Kekeda Transition #1**	9	3
Souwa Transition Saprolite	9	36	**Kekeda Transition #2**	9	40
Souwa Fresh 1	9	37	**Kekeda Fresh #1**	15	50
Souwa Fresh 2	11	31	**Kekeda Fresh #2**	12	36
Souwa Fresh 3	15	17	**Kekeda Fresh #3**	10	46
Nokpa Transition	6	42	**Han Fresh Trans/Fresh**	11	11
Nokpa Transition	9	59	**Han Fresh #1**	17	59
Nokpa Fresh 1	12	5	**Han Fresh #2**	10	1
Nokpa Fresh 2	14	28	**Han Fresh #3**	13	28
Chegue Main Oxide	5	29	**Enioda Oxide #1**	9	47
Chegue Main Transition	11	9	**Enioda Oxide #2**	4	13
Chegue Main Fresh #1	10	20	**Enioda Fresh #1**	11	47
Chegue Main Fresh #2	10	53	**Enioda Fresh #2**	9	23
Chegue Main Fresh #3	11	59	**Atirre Fresh #1**	13	45
Chegue Main Fresh #4	10	59	**Atirre Fresh #2**	12	12
Chegue South Transition	7	59	**Kilosegui Transition #1**	5	45
Chegue South Fresh #2	15	16	**Kilosegui Fresh #1**	11	16
Chegue South Fresh #1	12	3	**Kilosegui Fresh #2**	11	39
			Kilosegui Fresh #3	13	18
			Kilosegui Fresh #4	10	58

12.3 Grind Times: Master Composites

The requisite grind times to achieve specific P_{80} values are presented in the table below.

GRIND ESTABLISHMENT RESULTS						
Sample ID	P_{80} 125 µm		P_{80} 106 µm		P_{80} 75 µm	
	min	sec	min	sec	min	sec
MC-8 Souwa Oxide Master Comp	3	31	4	15	6	27
MC-9 Souwa Oxide Master Comp	3	58	4	48	7	27
MC-26 Souwa Oxide Master Comp	4	26	5	27	8	43
MC-2 Souwa Trans Master Comp	8	40	10	7	14	21
MC-10 Souwa Trans Master Comp	7	13	8	25	13	9
MC-11 Souwa Fresh Master Comp	10	49	12	9	16	43
MC-12 Nokpa Trans Master Comp	8	18	9	21	14	1
MC-13 Nokpa Fresh Master Comp	14	9	15	42	21	44
MC-3 Chegue Main Oxide Master Comp	4	21	5	7	8	4
MC-14 Chegue Main Oxide Master Comp	4	8	4	49	8	16
MC-4 Chegue Main Trans Master Comp	8	54	10	3	14	46
MC-15 Chegue Main Fresh Master Comp	11	21	13	1	18	30
MC-5 Chegue South Trans Master Comp	11	33	13	18	18	24
MC-16 Chegue South Trans Master Comp	10	24	11	51	16	44
MC-17 Chegue South Trans Master Comp	14	21	16	17	21	57
MC-6 Kekeda Transition Master Comp	8	40	10	15	14	29
MC-18 Kekeda Fresh Master Comp	9	0	10	28	14	45
MC-19 Han Trans Master Comp	10	27	12	10	17	26
MC-20 Han Fresh Master Comp	11	53	13	29	18	7
MC-21 Enioda Oxide Master Comp	6	0	7	12	10	48
MC-22 Enioda Trans Master Comp	5	7	6	5	9	5
MC-27 Enioda Fresh Master Comp	5	8	6	1	8	57
MC-23 Atirre Trans Master Comp	7	20	8	38	12	22
MC-24 Atirre Fresh Master Comp	11	33	12	55	17	19
MC-25 Kilosegui Trans Master Comp	7	45	8	42	12	0
MC-7 Kilosegui Fresh Master Comp	8	21	9	39	13	16

13. TESTWORK WATER

All leaching testwork was conducted using Perth tap water.

14. GRAVITY/CARBON-IN-LEACH (CIL) TESTWORK ON COMMINUTION SAMPLES

Gravity separation followed by CIL of the gravity tailings was conducted on the comminution composites to determine gold and silver extraction characteristics, as well as to obtain calculated head grades for the samples for comparison purposes to assayed head grades.

14.1 Test Procedures

The following test procedures were used.

14.1.1 Gravity Separation/Intensive Leach

The following test procedure was followed:

(1) The 3 kg test sample was ground to P_{80}: 106 µm and passed through a laboratory *Knelson* KC-MD3 gravity concentrator, with the following specifications:

- 0.12 kW drive
- 1500 rpm
- 3.5 L/min fluidisation flow rate.

(2) Each Knelson gravity concentrate was submitted for an intensive leach under the following conditions:

- Solids : 20% (w/w)
- NaOH : 0.8%
- LeachWELL™ : 2% (w/w)
- NaCN : 5% (w/w)
- Oxygen Sparge
- Duration : 24 hours

(3) The intensive leach solution was analysed for Au, Ag, and S.

(4) The washed gravity concentrate intensive leach tailings were recombined with the Knelson gravity tailings for cyanide leach testwork.

14.1.2 Carbon-in-Leach (CIL) Tests

The CIL test procedure is described below:

(1) The combined gravity tailings product was transferred into a 10-litre leach bottle with a screw-on lid. Slurry agitation was applied by mechanical rollers.

(2) Perth tap water was added as required to establish a 45% (w/w) solids slurry.

(3) Lime was added as required to establish a pH of 10.0 and maintained at ≥9.8 for the remainder of the test.

(4) *Haycarb YAO* was added (30 g/L).

(5) Sodium cyanide was added to the slurry to establish an initial cyanide concentration of 0.050% (w/w) and maintained at ≥0.025% (w/w) for the remainder of the test.

(6) The slurry was sparged with oxygen to maintain a dissolved oxygen (DO) level of ≥20 ppm for the duration of the test.

(7) At each monitoring interval (2, 4, 8 and 24 hours), solution and carbon samples were collected for cyanide titration and Au, Ag, and As assay. In addition, slurry pH and DO levels were measured and recorded.

(8) At the termination of the test (40 hours), the terminal pH, oxygen, and cyanide levels were determined, and a solution sample was taken for Au, Ag, and As assay.

(9) The remaining loaded carbon was screened out, washed, dried, weighed, and submitted for Au, Ag, and As assay.

(10) The residual slurry was filtered and washed. The filter cake and dried and a sub-sample was split out and assayed for Au, Ag, As, Cu, and S.

14.2 Results

Detailed test report sheets are included in Appendix IX, and gravity/gold and gravity/silver leach results are summarised in the following tables.

GRAVITY/CIL TESTWORK SUMMARY (GOLD): P_{80}: 106 µm								
Test No. (PW)	Sample ID	Gold (g/t)			Gold Extraction (%)		Reagents (kg/t)	
		Leach Residue	Calc'd Head	Assay Head	Gravity	Gravity+ Leach	NaCN	Lime
6371	**Souwa Oxide**	0.03	0.13	0.11	21.2	77.8	1.06	1.32
6372	**Souwa Transition Saprolite**	0.03	0.60	0.65	43.6	95.0	0.94	0.43
6373	**Souwa Fresh 1**	0.10	0.33	0.38	27.1	69.8	0.80	0.20
6374	**Souwa Fresh 2**	0.42	4.77	5.07	47.9	91.2	0.61	0.19
6375	**Souwa Fresh 3**	0.03	0.19	0.24	45.3	84.5	0.64	0.20
6376	**Nokpa Transition**	0.07	0.62	0.51	16.8	88.7	1.37	1.20
6377	**Nokpa Fresh 1**	0.04	0.24	0.24	14.9	83.3	0.79	0.24
6378	**Nokpa Fresh 2**	0.12	1.16	1.11	40.2	89.6	0.82	0.18
6384	**Chegue Main Oxide**	0.05	1.43	1.82	57.4	85.7	0.74	0.33
6383	**Chegue Main Transition**	0.02	0.48	0.42	36.9	88.8	0.70	0.20
6379	**Chegue Main Fresh 1**	0.13	0.91	0.91	23.1	87.1	0.79	0.25
6380	**Chegue Main Fresh 2**	0.12	1.04	0.74	33.4	90.7	0.74	0.20
6381	**Chegue Main Fresh 3**	0.03	0.23	0.24	26.0	95.9	0.62	0.19
6382	**Chegue Main Fresh 4**	0.08	0.86	0.62	55.7	96.5	0.64	0.16
6387	**Chegue South Transition**	0.28	4.54	3.01	54.2	91.9	0.88	0.23
6385	**Chegue South Fresh 1**	0.03	0.37	0.27	28.4	79.3	0.66	0.15
6386	**Chegue South Fresh 2**	0.15	0.73	1.02	25.1	93.9	0.67	0.18
6388	**Kekeda Transition #1**	0.03	0.54	0.52	19.6	94.4	0.94	0.30
6389	**Kekeda Transition #2**	0.08	0.64	0.68	24.1	87.6	0.69	0.17
6390	**Kekeda Fresh #1**	0.06	0.42	0.36	24.1	85.9	0.73	0.18
6391	**Kekeda Fresh #2**	0.06	0.34	0.44	39.7	82.5	0.55	0.33
6392	**Kekeda Fresh #3**	0.05	0.18	0.26	26.8	72.0	0.67	0.17
6394	**Han Fresh Transition/Fresh**	0.02	0.17	0.24	41.5	83.1	0.94	0.17
6393	**Han Fresh #1**	0.02	0.12	0.08	18.6	88.0	0.58	0.13
6395	**Han Fresh #2**	0.02	0.13	0.13	25.7	84.4	0.73	0.15
6396	**Han Fresh #3**	0.03	0.31	0.22	23.1	90.5	0.60	0.13
6397	**Enioda Oxide #1**	0.05	1.28	1.10	56.2	96.1	0.76	0.22
6400	**Enioda Oxide #2**	0.01	0.09	0.04	10.0	75.8	0.85	0.35
6398	**Enioda Fresh #1**	0.13	0.54	0.49	61.8	82.7	0.67	0.15
6399	**Enioda Fresh #2**	0.03	0.17	0.17	33.4	94.4	0.82	0.18
6401	**Atirre Transition**	0.01	0.11	0.08	19.8	95.3	0.96	0.27
6402	**Atirre Fresh #1**	0.02	0.20	0.13	18.2	89.7	0.70	0.19
6403	**Atirre Fresh #2**	0.24	1.13	1.25	43.6	78.8	0.72	0.22
6407	**Kilosegui Transition #1**	0.09	1.03	1.82	37.0	85.2	0.78	0.19
6404	**Kilosegui Fresh #1**	0.05	0.34	0.46	43.7	74.2	0.67	0.17
6405	**Kilosegui Fresh #2**	0.05	0.19	0.17	34.8	68.5	0.24	0.15
6406	**Kilosegui Fresh #3**	0.19	0.60	0.66	39.5	91.2	0.60	0.20
6408	**Kilosegui Fresh #4**	0.04	0.28	0.24	37.5	85.9	0.57	0.18

Continued/…

GRAVITY/CIL TESTWORK SUMMARY (GOLD): P_{80}: 106 µm								
Test No. (PW)	Sample ID	Gold (g/t)			Gold Extraction (%)		Reagents (kg/t)	
		Leach Residue	Calc'd Head	Assay Head	Gravity	Gravity+ Leach	NaCN	Lime
6371	**Souwa Oxide**	0.5	5.5	4.0	19.3	90.9	1.06	1.32
6372	**Souwa Transition Saprolite**	0.5	0.6	<1	8.1	18.3	0.94	0.43
6373	**Souwa Fresh 1**	0.5	0.8	<1	7.9	33.7	0.80	0.20
6374	**Souwa Fresh 2**	0.5	1.0	<1	18.5	49.3	0.61	0.19
6375	**Souwa Fresh 3**	0.5	0.6	<1	5.9	16.1	0.64	0.20
6376	**Nokpa Transition**	0.5	4.0	5.0	35.0	87.6	1.37	1.20
6377	**Nokpa Fresh 1**	0.5	0.6	<1	5.9	16.8	0.79	0.24
6378	**Nokpa Fresh 2**	0.5	0.8	<1	13.5	38.7	0.82	0.18
6384	**Chegue Main Oxide**	0.5	1.5	<1	10.1	49.6	0.74	0.33
6383	**Chegue Main Transition**	0.5	0.6	<1	4.5	15.6	0.70	0.20
6379	**Chegue Main Fresh 1**	0.5	1.0	<1	1.5	12.2	0.79	0.25
6380	**Chegue Main Fresh 2**	0.5	0.6	<1	6.7	16.8	0.74	0.20
6381	**Chegue Main Fresh 3**	0.5	0.6	<1	3.0	13.9	0.62	0.19
6382	**Chegue Main Fresh 4**	0.5	0.6	<1	6.4	66.2	0.64	0.16
6387	**Chegue South Transition**	0.5	0.9	<1	7.9	31.0	0.88	0.23
6385	**Chegue South Fresh 1**	0.5	0.7	<1	6.2	22.2	0.66	0.15
6386	**Chegue South Fresh 2**	0.5	0.6	<1	8.4	42.3	0.67	0.18
6388	**Kekeda Transition #1**	0.5	0.8	<1	9.1	35.2	0.94	0.30
6389	**Kekeda Transition #2**	0.5	0.9	<1	12.9	45.9	0.69	0.17
6390	**Kekeda Fresh #1**	0.5	0.9	<1	9.5	42.4	0.73	0.18
6391	**Kekeda Fresh #2**	0.5	1.1	<1	21.2	56.3	0.55	0.33
6392	**Kekeda Fresh #3**	0.5	0.8	<1	7.4	35.4	0.67	0.17
6394	**Han Fresh Transition/Fresh**	0.5	0.6	<1	1.5	13.1	0.94	0.17
6393	**Han Fresh #1**	0.5	0.6	<1	5.7	22.8	0.58	0.13
6395	**Han Fresh #2**	0.5	0.6	<1	1.7	12.3	0.73	0.15
6396	**Han Fresh #3**	0.5	0.7	<1	4.9	32.7	0.60	0.13
6397	**Enioda Oxide #1**	0.5	1.2	<1	14.1	57.5	0.76	0.22
6400	**Enioda Oxide #2**	0.5	0.6	<1	5.9	16.1	0.85	0.35
6398	**Enioda Fresh #1**	0.5	0.6	<1	1.6	12.5	0.67	0.15
6399	**Enioda Fresh #2**	0.5	0.6	<1	1.6	12.2	0.82	0.18
6401	**Atirre Transition**	0.5	0.6	<1	2.6	21.4	0.96	0.27
6402	**Atirre Fresh #1**	0.5	0.8	<1	6.4	39.5	0.70	0.19
6403	**Atirre Fresh #2**	0.5	0.6	<1	6.2	19.6	0.72	0.22
6407	**Kilosegui Transition #1**	0.5	0.7	<1	5.8	16.0	0.78	0.19
6404	**Kilosegui Fresh #1**	0.5	0.6	<1	1.6	12.3	0.67	0.17
6405	**Kilosegui Fresh #2**	0.5	0.6	<1	10.6	26.7	0.24	0.15
6406	**Kilosegui Fresh #3**	0.5	0.7	<1	7.1	33.1	0.60	0.20
6408	**Kilosegui Fresh #4**	0.5	0.6	<1	6.2	16.4	0.57	0.18

Comments on the above data are as follows:

- The average gold extractions (gravity + CIL) for all oxide, transition and fresh ore types were 83.9%, 90.0% and 85.0%, respectively. The lowest gold extraction for each of the oxidation profiles were 75.8% (Oxide) 83.1% (Transition) and 68.5% (Fresh).
- Calculated head grades were broadly consistent with assayed grades, with an overall difference between calculated versus assayed grades of +9%.
- Silver head grades were mostly <1 g/t. Two samples containing ~5 g/t silver returned silver extractions of 88% and 91%.

15. GRAVITY/DIRECT LEACH TESTWORK: MASTER COMPOSITES

Gravity separation, followed by direct cyanide leaching of the gravity tailings was conducted on the Master composites, to determine the influence of grind product sizing and cyanide solution strength on gold and silver extraction characteristics.

15.1 Test Procedures

The following test procedures were used.

15.1.1 Gravity Separation/Intensive Leach

The following test procedure was followed:

(1) The 3 kg test sample was ground to P_{80}: 125 µm, 106 µm or 75 µm and passed through a laboratory *Knelson* KC-MD3 gravity concentrator, with the following specifications:

- 0.12 kW drive
- 1500 rpm
- 3.5 L/min fluidisation flow rate.

(2) Each Knelson gravity concentrate was submitted for an intensive leach under the following conditions:

- Solids : 20% (w/w)
- NaOH : 0.8%
- LeachWELL™ : 2% (w/w)
- NaCN : 5% (w/w)
- Oxygen Sparge
- Duration : 24 hours

(3) The intensive leach solution was analysed for Au, Ag, and S.

(4) The washed gravity concentrate intensive leach tailings were recombined with the Knelson gravity tailings for cyanide leach testwork.

15.1.2 Direct Cyanide Leach

Direct cyanidation time leach (bottle roll) testwork was conducted on the combined gravity tail products to determine gold extraction characteristics.

The following procedure was followed:

(1) The combined gravity tailings product was transferred into a 10-litre leach bottle with a screw-on lid. Slurry agitation was applied by mechanical rollers.

(2) Perth tap water was added to establish a slurry comprising 45% solids (w/w).

(3) Sufficient hydrated lime was added to the slurry to establish a pH of ~10.5.

(4) The slurry was sparged with oxygen to maintain a slurry dissolved oxygen (DO) content of >20 ppm for the duration of the leach test.

(5) Sodium cyanide was added to the slurry to establish an initial cyanide solution concentration of 0.100 (w/v), or as specified. The cyanide solution strength was maintained at ≥0.050% (w/v), or as specified for the duration of the leach.

(6) At regular intervals (2, 4, 8 and 24 hours), slurry pH, DO, and cyanide concentration were measured and recorded.

(7) Lime was added as required to maintain the target pH (~9.8).

(8) Intermediate solution sub-samples (2, 4, 8 and 24 hours) were assayed for gold, silver, and arsenic.

(9) At the conclusion of the test (40 hours), the terminal pH, oxygen, and cyanide levels were measured, and a solution sample was assayed for gold, silver, and arsenic.

(10) The residual slurry sample was washed with Perth tap water and filtered. The washed filter cake (leach residue solids) was oven dried before splitting out a sub-sample for gold, silver, arsenic, total sulphur, and sulphide sulphur assays.

(11) A tailings sub-sample was reserved for diagnostic gold analysis.

15.2 Results

Detailed test report sheets are included in Appendix X. The results are summarised in the following sections.

15.2.1 Influence of Grind P_{80}

Tests were conducted on each Master Composite at three grind sizes: P_{80}: 125 µm, P_{80}: 106 µm and P_{80}: 75 µm. The gravity/leach results are summarised in the following tables.

SOUWA MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND

Test No. (PW)	Composite ID	Grind (P_{80}, µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
7246	**Souwa Oxide Master Composite (MC-8)**	125	0.55	0.48	28.7	94.5	0.21	0.98
7247	**Souwa Oxide Master Composite (MC-8)**	106	0.52	0.48	25.7	92.3	0.21	0.82
7248	**Souwa Oxide Master Composite (MC-8)**	75	0.49	0.48	22.7	95.9	0.18	0.94
7249	**Souwa Oxide Master Composite (MC-9)**	125	0.93	0.42	48.7	97.9	0.30	0.78
7250	**Souwa Oxide Master Composite (MC-9)**	106	0.91	0.42	44.2	96.7	0.30	0.83
7251	**Souwa Oxide Master Composite (MC-9)**	75	0.66	0.42	37.1	97.0	0.27	0.87
7267	**Souwa Oxide Master Composite (MC-26)**	125	1.44	0.50	55.6	97.9	0.27	1.03
7268	**Souwa Oxide Master Composite (MC-26)**	106	0.69	0.50	34.0	95.7	0.36	0.77
7269	**Souwa Oxide Master Composite (MC-26)**	75	0.86	0.50	47.7	97.7	0.33	0.68
7012	**Souwa Transition Master Composite (MC-2)**	125	0.62	0.73	32.6	91.9	0.14	0.83
7013	**Souwa Transition Master Composite (MC-2)**	106	0.63	0.73	35.3	93.6	0.18	0.77
7014	**Souwa Transition Master Composite (MC-2)**	75	0.69	0.73	31.2	92.8	0.15	0.83
6964	**Souwa Transition Master Composite (MC-10)**	125	0.63	0.52	38.9	93.7	0.30	0.65
6965	**Souwa Transition Master Composite (MC-10)**	106	0.58	0.52	40.1	93.1	0.21	0.65
6966	**Souwa Transition Master Composite (MC-10)**	75	0.81	0.52	45.4	95.1	0.24	0.65
6967	**Souwa Fresh Master Composite (MC-11)**	125	2.61	2.45	47.9	90.4	0.14	0.30
6968	**Souwa Fresh Master Composite (MC-11)**	106	2.78	2.45	53.2	92.1	0.14	0.31
6969	**Souwa Fresh Master Composite (MC-11)**	75	2.63	2.45	50.2	93.0	0.14	0.36

CHEGUE MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND								
Test No. (PW)	Composite ID	Grind (P_{80}, µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
7015	**Chegue Main Oxide Master Comp (MC-3)**	125	0.65	1.21	45.6	92.3	0.21	1.44
7016	**Chegue Main Oxide Master Comp (MC-3)**	106	0.75	1.21	44.7	93.3	0.18	1.48
7017	**Chegue Main Oxide Master Comp (MC-3)**	75	0.58	1.21	38.6	91.4	0.18	1.54
6976	**Chegue Main Oxide Master Comp (MC-14)**	125	1.09	1.12	41.9	95.4	0.21	1.61
6977	**Chegue Main Oxide Master Comp (MC-14)**	106	1.08	1.12	43.5	96.3	0.21	1.50
6978	**Chegue Main Oxide Master Comp (MC-14)**	75	1.12	1.12	43.4	96.4	0.24	1.38
6979	**Chegue Main Fresh Master Comp (MC-15)**	125	2.07	2.30	52.4	91.8	0.12	0.42
6980	**Chegue Main Fresh Master Comp (MC-15)**	106	2.72	2.30	57.9	93.0	0.12	0.44
6981	**Chegue Main Fresh Master Comp (MC-15)**	75	2.38	2.30	55.0	93.3	0.12	0.44
7018	**Chegue Main Trans Master Comp (MC-4)**	125	0.47	0.47	37.4	92.5	0.15	0.79
7019	**Chegue Main Trans Master Comp (MC-4)**	106	0.49	0.47	39.8	93.8	0.21	0.59
7020	**Chegue Main Trans Master Comp (MC-4)**	75	0.51	0.47	44.5	96.1	0.18	0.68
7021	**Chegue South Trans Master Comp (MC-5)**	125	1.71	1.46	44.2	93.0	0.21	0.67
7022	**Chegue South Trans Master Comp (MC-5)**	106	1.60	1.46	44.3	88.1	0.21	0.64
7023	**Chegue South Trans Master Comp (MC-5)**	75	1.99	1.46	45.6	95.0	0.18	0.59
6982	**Chegue South Trans Master Comp (MC-16)**	125	1.37	1.53	38.5	85.4	0.26	0.55
6983	**Chegue South Trans Master Comp (MC-16)**	106	1.57	1.53	41.5	87.9	0.18	0.70
6984	**Chegue South Trans Master Comp (MC-16)**	75	1.53	1.53	41.0	88.2	0.24	0.65
6985	**Chegue South Fresh Master Comp (MC-17)**	125	4.30	4.27	57.5	83.7	0.24	0.26
6986	**Chegue South Fresh Master Comp (MC-17)**	106	3.28	4.27	59.3	86.0	0.24	0.25
6987	**Chegue South Fresh Master Comp (MC-17)**	75	3.38	4.27	56.9	87.1	0.18	0.30

KEKEDA MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND								
Test No. (PW)	Composite ID	Grind (P_{80}, µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
6831	**Kekeda Transition Master Comp (MC-6)**	125	1.46	1.05	49.6	93.8	0.24	0.43
6832	**Kekeda Transition Master Comp (MC-6)**	106	1.52	1.05	52.3	94.7	0.27	0.39
6833	**Kekeda Transition Master Comp (MC-6)**	75	1.16	1.05	33.1	94.0	0.27	0.36
6988	**Kekeda Fresh Master Comp (MC-18)**	125	3.66	3.56	50.1	94.4	0.15	0.47
6989	**Kekeda Fresh Master Comp (MC-18)**	106	3.17	3.56	48.9	94.6	0.15	0.43
6990	**Kekeda Fresh Master Comp (MC-18)**	75	3.33	3.56	43.4	95.8	0.18	0.45

KILOSEGUI MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND								
Test No. (PW)	Composite ID	Grind (P_{80}, µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
7009	**Kilosegui Trans Master Comp (MC-25)**	125	1.57	1.79	40.3	90.4	0.12	0.49
7010	**Kilosegui Trans Master Comp (MC-25)**	106	1.66	1.79	45.4	92.8	0.12	0.48
7011	**Kilosegui Trans Master Comp (MC-25)**	75	1.54	1.79	39.5	94.1	0.12	0.47
6834	**Kilosegui Fresh Master Comp (MC-7)**	125	1.37	1.37	53.3	83.2	0.15	0.30
6835	**Kilosegui Fresh Master Comp (MC-7)**	106	1.42	1.37	54.6	85.2	0.21	0.30
6836	**Kilosegui Fresh Master Comp (MC-7)**	75	1.39	1.37	49.6	87.0	0.24	0.34

ATIRRE MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND								
Test No. (PW)	Composite ID	Grind (P_{80}, µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
7003	**Atirre Trans Master Comp (MC-23)**	125	2.35	2.24	48.8	95.7	0.25	0.59
7004	**Atirre Trans Master Comp (MC-23)**	106	2.09	2.24	47.6	95.7	0.27	0.58
7005	**Atirre Trans Master Comp (MC-23)**	75	2.05	2.24	48.1	95.1	0.27	0.52
7006	**Atirre Fresh Master Comp (MC-24)**	125	1.03	1.29	44.3	81.5	0.12	0.46
7007	**Atirre Fresh Master Comp (MC-24)**	106	0.85	1.29	43.5	82.4	0.14	0.48
7008	**Atirre Fresh Master Comp (MC-24)**	75	1.14	1.29	42.0	83.4	0.12	0.52

HAN MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND								
Test No. (PW)	Composite ID	Grind (P_{80}, µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
6991	**Han Trans Master Comp (Mc-19)**	125	10.43	13.31	73.1	97.6	0.15	0.34
6992	**Han Trans Master Comp (Mc-19)**	106	12.40	13.31	71.5	97.7	0.15	0.32
6993	**Han Trans Master Comp (Mc-19)**	75	12.62	13.31	67.4	97.9	0.15	0.42
6994	**Han Fresh Master Comp (Mc-20)**	125	3.04	3.68	63.8	93.8	0.15	0.52
6995	**Han Fresh Master Comp (Mc-20)**	106	3.43	3.68	64.4	94.5	0.18	0.39
6996	**Han Fresh Master Comp (Mc-20)**	75	3.38	3.68	63.3	95.9	0.18	0.48

ENIODA MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND								
Test No. (PW)	Composite ID	Grind (P_{80}, µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
6997	**Enioda Oxide Master Comp (MC-21)**	125	2.94	1.09	81.4	98.6	0.30	0.78
6998	**Enioda Oxide Master Comp (MC-21)**	106	3.27	1.09	83.8	99.1	0.24	0.92
6999	**Enioda Oxide Master Comp (MC-21)**	75	2.63	1.09	80.0	98.9	0.21	0.99
7342	**Enioda Trans Master Comp (MC-22)**	125	3.06	2.53	57.2	97.1	0.39	0.49
7343	**Enioda Trans Master Comp (MC-22)**	106	2.92	2.53	58.0	97.6	0.39	0.49
7344	**Enioda Trans Master Comp (MC-22)**	75	2.89	2.53	57.0	97.1	0.39	0.45
7348	**Enioda Fresh Master Comp (MC-27)**	125	1.98	5.47	58.6	92.4	0.27	0.17
7349	**Enioda Fresh Master Comp (MC-27)**	106	1.71	5.47	56.9	92.4	0.30	0.17
7350	**Enioda Fresh Master Comp (MC-27)**	75	1.90	5.47	62.1	94.2	0.24	0.19

NOKPA MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND								
Test No. (PW)	Composite ID	Grind (P_{80}, µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
6970	**Nokpa Trans Master Comp (MC-12)**	125	2.06	2.10	19.3	93.9	0.18	0.86
6971	**Nokpa Trans Master Comp (MC-12)**	106	2.14	2.10	20.9	94.4	0.18	0.87
6972	**Nokpa Trans Master Comp (MC-12)**	75	1.87	2.10	16.1	95.7	0.18	0.86
6973	**Nokpa Fresh Master Comp (MC-13)**	125	1.96	1.74	36.5	87.7	0.15	0.28
6974	**Nokpa Fresh Master Comp (MC-13)**	106	1.79	1.74	37.9	89.4	0.14	0.34
6975	**Nokpa Fresh Master Comp (MC-13)**	75	1.96	1.74	38.4	91.3	0.12	0.38

Comments on the above data are as follows:

- Gold extraction from the Oxide and Transitional ore types from each deposit was largely unaffected by grind size. The intermediate grind size of P_{80} is 106 µm was selected as optimal for subsequent testing.
- Finer grinding of the fresh ores provided a benefit to gold extraction. Therefore, a grind size of P_{80} is 75 µm was selected as optimal for subsequent testing on the Fresh ore types.
- Calculated head grades for gold were mostly close to the assayed head grade with a few exceptions:
    - Chegue Main Oxide MC-3; assayed grade 1.21 g/t vs average calculated grade of 0.64 g/t.
    - Enioda Oxide MC-21; assayed grade of 1.09 g/t vs calculated grade of 2.62 g/t.
    - Enioda Fresh MC-27; assayed grade of 5.47 g/t vs calculated grade of 1.71 g/t.

15.2.2 Influence of Cyanide Solution Strength

Tests were conducted on each Master Composite at the selected P_{80} size to assess the influence of cyanide solution strength on gold extraction. The gravity/leach results are summarised in the following tables.

SOUWA MASTER COMPOSITE GRAVITY/LEACH TESTWORK: INFLUENCE OF CYANIDE SOLUTION STRENGTH										
Test No. (PW)	Composite ID	Grind (P_{80}, µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maintain	Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
7293	**Souwa Oxide Master Composite (MC-8)**	106	0.070	0.040	0.42	0.48	21.6	95.2	0.18	0.74
7295	**Souwa Oxide Master Composite (MC-8)**	106	0.050	0.030	0.51	0.48	21.8	94.1	0.15	0.86
7297	**Souwa Oxide Master Composite (MC-8)**	106	0.030	0.020	0.52	0.48	24.1	94.2	0.15	0.77
7294	**Souwa Oxide Master Composite (MC-9)**	106	0.070	0.040	0.74	0.42	39.5	97.3	0.21	0.74
7296	**Souwa Oxide Master Composite (MC-9)**	106	0.050	0.030	0.82	0.42	36.6	96.3	0.18	0.78
7298	**Souwa Oxide Master Composite (MC-9)**	106	0.030	0.020	0.86	0.42	48.0	97.7	0.21	0.97
7158	**Souwa Transition Master Composite (MC-2)**	106	0.070	0.040	0.56	0.73	29.4	91.1	0.12	0.74
7171	**Souwa Transition Master Composite (MC-2)**	106	0.050	0.030	0.55	0.73	22.3	92.8	0.14	2.67
7184	**Souwa Transition Master Composite (MC-2)**	106	0.030	0.020	0.83	0.73	41.6	93.9	0.08	0.52
7150	**Souwa Transition Master Composite (MC-10)**	106	0.070	0.040	0.81	0.52	54.7	96.3	0.15	0.79
7163	**Souwa Transition Master Composite (MC-10)**	106	0.050	0.030	0.72	0.52	36.2	91.7	0.12	0.77
7176	**Souwa Transition Master Composite (MC-10)**	106	0.030	0.020	0.76	0.52	30.2	84.1	0.08	0.66
7302	**Souwa Oxide Master Composite (MC-26)**	106	0.070	0.040	0.60	0.50	35.9	96.7	0.18	1.12
7303	**Souwa Oxide Master Composite (MC-26)**	106	0.050	0.030	0.73	0.50	38.3	96.6	0.12	1.02
7304	**Souwa Oxide Master Composite (MC-26)**	106	0.030	0.020	0.52	0.50	26.4	96.2	0.08	0.92
7213	**Souwa Fresh Master Composite (MC-11)**	75	0.070	0.040	2.86	2.45	42.4	89.2	0.09	0.35
7221	**Souwa Fresh Master Composite (MC-11)**	75	0.050	0.030	2.65	2.45	35.2	84.2	0.08	0.35
7229	**Souwa Fresh Master Composite (MC-11)**	75	0.030	0.020	2.84	2.45	46.3	87.7	0.06	0.31

NOKPA MASTER COMPOSITE GRAVITY/LEACH TESTWORK: INFLUENCE OF CYANIDE SOLUTION STRENGTH										
Test No. (PW)	Composite ID	Grind (P_{80}, µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maintain	Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
7151	Nokpa Trans Master Composite (MC-12)	106	0.070	0.040	2.04	2.10	20.2	93.6	0.20	0.75
7164	Nokpa Trans Master Composite (MC-12)	106	0.050	0.030	2.20	2.10	12.9	92.7	0.14	0.77
7177	Nokpa Trans Master Composite (MC-12)	106	0.030	0.020	2.06	2.10	13.7	93.7	0.08	0.66
7214	Nokpa Fresh Master Composite (MC-13)	75	0.070	0.040	1.88	1.74	31.6	86.2	0.06	0.38
7222	Nokpa Fresh Master Composite (MC-13)	75	0.050	0.030	2.01	1.74	29.9	81.6	0.08	0.36
7234	Nokpa Fresh Master Composite (MC-13)	75	0.030	0.020	2.30	1.74	42.6	86.1	0.06	0.30

CHEGUE MASTER COMPOSITE GRAVITY/LEACH TESTWORK: INFLUENCE OF CYANIDE SOLUTION STRENGTH										
Test No. (PW)	Composite ID	Grind (P_{80}, µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maintain	Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
7159	Chegue Main Oxide Master Composite (MC-3)	106	0.070	0.040	0.60	1.21	37.6	91.7	0.15	1.45
7172	Chegue Main Oxide Master Composite (MC-3)	106	0.050	0.030	0.63	1.21	37.6	92.0	0.12	1.37
7185	Chegue Main Oxide Master Composite (MC-3)	106	0.030	0.020	0.65	1.21	40.8	92.3	0.08	1.12
7152	Chegue Main Oxide Master Composite (MC-14)	106	0.070	0.040	1.14	1.12	45.7	95.6	0.21	1.84
7165	Chegue Main Oxide Master Composite (MC-14)	106	0.050	0.030	1.31	1.12	47.6	96.2	0.12	1.85
7178	Chegue Main Oxide Master Composite (MC-14)	106	0.030	0.020	1.13	1.12	43.1	95.6	0.06	1.76
7160	Chegue Main Trans Master Composite (MC-4)	106	0.070	>0.05	0.51	0.47	36.0	94.2	0.12	0.58
7173	Chegue Main Trans Master Composite (MC-4)	106	0.050	>0.05	0.57	0.47	38.6	93.9	0.14	0.56
7186	Chegue Main Trans Master Composite (MC-4)	106	0.030	>0.05	0.53	0.47	37.5	92.5	0.08	0.63
7215	Chegue Main Fresh Master Composite (MC-15)	75	0.070	0.040	2.47	2.30	53.2	90.7	0.14	0.37
7223	Chegue Main Fresh Master Composite (MC-15)	75	0.050	0.030	2.14	2.30	48.4	89.3	0.06	0.37
7235	Chegue Main Fresh Master Composite (MC-15)	75	0.030	0.020	2.01	2.30	48.2	89.1	0.08	0.32
7161	Chegue South Trans Master Composite (MC-5)	106	0.070	0.040	2.04	1.46	50.8	93.1	0.15	0.79
7174	Chegue South Trans Master Composite (MC-5)	106	0.050	0.030	1.48	1.46	36.9	90.2	0.09	0.76
7187	Chegue South Trans Master Composite (MC-5)	106	0.030	0.020	2.00	1.46	44.6	88.5	0.08	0.66
7153	Chegue South Trans Master Composite (MC-16)	106	0.070	0.040	1.47	1.53	37.1	85.0	0.18	0.68
7166	Chegue South Trans Master Composite (MC-16)	106	0.050	0.030	1.34	1.53	35.4	83.6	0.12	0.74
7179	Chegue South Trans Master Composite (MC-16)	106	0.030	0.020	1.45	1.53	32.2	77.9	0.09	0.67
7216	Chegue South Fresh Master Composite (MC-17)	75	0.070	0.040	4.45	4.27	48.2	74.8	0.12	0.39
7224	Chegue South Fresh Master Composite (MC-17)	75	0.050	0.030	4.68	4.27	47.1	73.4	0.08	0.35
7236	Chegue South Fresh Master Composite (MC-17)	75	0.030	0.020	3.46	4.27	44.6	68.0	0.08	0.24

ATIRRE MASTER COMPOSITE GRAVITY/LEACH TESTWORK: INFLUENCE OF CYANIDE SOLUTION STRENGTH										
Test No. (PW)	Composite ID	Grind (P_{80}, µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maintain	Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
7156	Atirre Trans Master Composite (MC-23)	106	0.070	0.040	2.08	2.24	45.9	94.0	0.12	1.17
7169	Atirre Trans Master Composite (MC-23)	106	0.050	0.030	2.16	2.24	46.5	93.1	0.12	0.80
7182	Atirre Trans Master Composite (MC-23)	106	0.030	0.020	2.52	2.24	48.5	92.8	0.08	0.58
7219	Atirre Fresh Master Composite (MC-24)	75	0.070	0.040	1.00	1.29	26.7	74.0	0.24	0.38
7227	Atirre Fresh Master Composite (MC-24)	75	0.050	0.030	0.87	1.29	33.1	73.5	0.12	0.34
7239	Atirre Fresh Master Composite (MC-24)	75	0.030	0.020	0.99	1.29	30.2	71.8	0.12	0.28

ENIODA MASTER COMPOSITE GRAVITY/LEACH TESTWORK: INFLUENCE OF CYANIDE SOLUTION STRENGTH										
Test No. (PW)	Composite ID	Grind (P_{80}, µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maintain	Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
7155	Enioda Oxide Master Composite (MC-21)	106	0.070	0.040	2.89	1.09	81.1	98.6	0.15	1.48
7168	Enioda Oxide Master Composite (MC-21)	106	0.050	0.030	1.73	1.09	68.1	97.7	0.18	1.07
7181	Enioda Oxide Master Composite (MC-21)	106	0.030	0.020	2.27	1.09	74.4	97.8	0.12	0.77
7386	Enioda Trans Master Composite (MC-22)	106	0.070	0.040	2.53	2.64	50.0	96.2	0.24	0.64
7387	Enioda Trans Master Composite (MC-22)	106	0.050	0.030	2.53	2.81	51.9	95.4	0.18	0.64
7388	Enioda Trans Master Composite (MC-22)	106	0.030	0.020	2.53	2.78	49.6	95.5	0.12	0.66
7354	Enioda Fresh Master Composite (MC-27)	75	0.070	0.040	1.79	5.47	55.8	93.3	0.24	0.24
7355	Enioda Fresh Master Composite (MC-27)	75	0.050	0.030	1.56	5.47	57.6	92.6	0.18	0.23
7356	Enioda Fresh Master Composite (MC-27)	75	0.030	0.020	1.29	5.47	53.0	90.7	0.12	0.24

HAN MASTER COMPOSITE GRAVITY/LEACH TESTWORK: INFLUENCE OF CYANIDE SOLUTION STRENGTH										
Test No. (PW)	Composite ID	Grind (P_{80}, µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maintain	Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
7154	Han Trans Master Composite (MC-19)	106	0.070	0.040	12.36	13.31	71.0	96.8	0.13	0.31
7167	Han Trans Master Composite (MC-19)	106	0.050	0.030	11.36	13.31	69.0	95.2	0.08	0.38
7180	Han Trans Master Composite (MC-19)	106	0.030	0.020	11.46	13.31	67.3	94.7	0.06	0.44
7218	Han Fresh Master Composite (MC-20)	75	0.070	0.040	3.22	3.68	54.4	87.6	0.14	0.38
7226	Han Fresh Master Composite (MC-20)	75	0.050	0.030	3.81	3.68	52.1	86.9	0.12	0.35
7238	Han Fresh Master Composite (MC-20)	75	0.030	0.020	3.22	3.68	54.3	86.0	0.08	0.31

KEKEDA MASTER COMPOSITE GRAVITY/LEACH TESTWORK: INFLUENCE OF CYANIDE SOLUTION STRENGTH										
Test No. (PW)	Composite ID	Grind (P_{80}, µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maintain	Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
7149	**Kekeda Trans Master Composite (MC-6)**	106	0.070	0.040	1.13	1.05	33.0	92.0	0.13	0.64
7162	**Kekeda Trans Master Composite (MC-6)**	106	0.050	0.030	1.08	1.05	26.4	90.7	0.12	0.55
7175	**Kekeda Trans Master Composite (MC-6)**	106	0.030	0.020	1.10	1.05	28.3	89.1	0.06	0.55
7217	**Kekeda Fresh Master Composite (MC-18)**	75	0.070	0.040	4.59	3.56	42.4	92.3	0.18	0.37
7225	**Kekeda Fresh Master Composite (MC-18)**	75	0.050	0.030	3.34	3.56	33.7	88.3	0.12	0.33
7237	**Kekeda Fresh Master Composite (MC-18)**	75	0.030	0.020	3.46	3.56	35.5	87.6	0.06	0.31

KILOSEGUI MASTER COMPOSITE GRAVITY/LEACH TESTWORK: INFLUENCE OF CYANIDE SOLUTION STRENGTH										
Test No. (PW)	Composite ID	Grind (P_{80}, µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maintain	Calc'd Head	Assay Head	Gravity	40 hrs	NaCN	Lime
7157	**Kilosegui Trans Master Composite (MC-25)**	106	0.070	0.040	1.50	1.79	37.8	92.7	0.12	0.42
7170	**Kilosegui Trans Master Composite (MC-25)**	106	0.050	0.030	1.63	1.79	38.0	92.3	0.12	0.49
7183	**Kilosegui Trans Master Composite (MC-25)**	106	0.030	0.020	1.53	1.79	36.8	92.2	0.09	0.34
7212	**Kilosegui Fresh Master Composite (MC-7)**	75	0.070	0.040	1.41	1.37	46.5	88.0	0.06	0.52
7220	**Kilosegui Fresh Master Composite (MC-7)**	75	0.050	0.030	1.24	1.37	39.2	85.5	0.06	0.38
7228	**Kilosegui Fresh Master Composite (MC-7)**	75	0.030	0.020	1.39	1.37	48.0	87.4	0.08	0.28

Comments on the above data are as follows:

- A decrease in gold extraction was evident in some samples, most notably transitional and fresh ores, with decreasing cyanide strength.
- Cyanide consumptions were generally low to moderate.
- The leach profiles for several samples indicated gold extraction continued when terminated at 40 hours. Stronger cyanide concentration conditions may promote higher gold extraction if economical to do so.

The average gold extraction achieved in the cyanide sensitivity tests on each ore type at the selected grind size is summarised in the table below.

AVERAGE GOLD EXTRACTION (%) AT VARYING CYANIDE CONCENTRATION AT OPTIMUM GRIND SIZE							
Sample Type	Oxide	Trans	Fresh	Sample Type	Oxide	Trans	Fresh
Souwa	96	92	87	**Enioda**	98	96	92
Nokpa	-	93	85	**Han**	-	96	87
Chegue Main	94	94	90	**Kekeda**	-	91	89
Chegue South	-	86	72	**Kilosegui**	-	92	87
Atirre	-	93	73				

APPENDICES

APPENDIX I

Samples and Composites Details

A23136 - AMPELLA MINING COTE D'IVOIRE
SAMPLE INVENTORY - RECEIVED DECEMBER 2021

NUMBER	PROSPECT	SAMPLE ID	HOLE ID	INTERVAL FROM (m)	INTERVAL TO (m)	SAMPLE TYPE	WEATHERING	BAG NO.	BARREL NO.	SITE WEIGHT (kg)	ALS WEIGHT (kg)	AWB NO.	ASSIGNED TO COMP ID
1	Souwa	CIS339751	DPDD1517	0.00	10.00	Drill Core	OXIDE	BAG1	BARREL 1	30	26.4	9417849663	Souwa Oxide
2	Souwa	CIS339752	DPDD1517	10.00	20.00	Drill Core	TRANSITION	BAG1	BARREL 2	28	24.8	9417846266	
						Drill Core		BAG2	BARREL 3	38	36.1	9790205832	
3	Souwa	CIS339753	DPDD1518	18.00	28.00	Drill Core	TRANSITION	BAG1	BARREL 4	29	25.5	9417794610	
						Drill Core		BAG2	BARREL 5	19	15.9	9417796312	
4	Souwa	CIS339754	DPDD1518	28.00	37.00	Drill Core	TRANSITION	BAG1	BARREL 6	30	27.2	9417799215	
						Drill Core		BAG2	BARREL 7	35	31.6	9417806020	
5	Souwa	CIS339755	DPDD1518	37.00	42.00	Drill Core	TRANSITION	BAG1	BARREL 8	41	38.4	9790186696	
6	Souwa	CIS339756	DPDD1518	42.00	47.00	Drill Core	FRESH	BAG1	BARREL 9	43	40.1	9790189150	
7	Souwa	CIS339757	DPDD1462	6.00	12.50	Drill Core	OXIDE	BAG1	BARREL 10	28	24.3	9790191176	
						Drill Core		BAG2	BARREL 11	31	28.0	9417817345	
8	Souwa	CIS339758	DPDD1462	12.50	22.50	Drill Core	TRANSITION	BAG1	BARREL 12	40	36.7	9790153494	
						Drill Core		BAG2	BARREL 13	40	36.8	9417821674	
						Drill Core		BAG3	BARREL 14	32	32.9	9790203356	
9	Souwa	CIS339759	DPDD1462	22.50	32.50	Drill Core	TRANSITION	BAG1	BARREL 15	41	38.3	2250738534	Souwa Transition Saprolite
						Drill Core		BAG2	BARREL 16	40	36.5	9417840110	
						Drill Core		BAG3	BARREL 17	34	NSR	9790189150	
10	Souwa	CIS339760	DPDD1519	39.00	44.00	Drill Core	TRANSITION	BAG1	BARREL 18	40	38.2	3725444984	
11	Souwa	CIS339761	DPDD1519	44.00	54.00	Drill Core	FRESH	BAG1	BARREL 19	40	37.2	9417853071	
						Drill Core		BAG2	BARREL 20	31	27.7	2250761203	
12	Souwa	CIS339762	DPDD1519	54.00	64.00	Drill Core	FRESH	BAG1	BARREL 21	37	34.4	9417861493	
						Drill Core		BAG2	BARREL 22	37	33.2	2250767105	
13	Souwa	CIS339763	DPDD1519	64.00	71.00	Drill Core	FRESH	BAG1	BARREL 23	28	25.2	9417866264	
						Drill Core		BAG2	BARREL 24	24	20.7	2250771261	
14	Souwa	CIS339764	DPDD1520	45.00	50.00	Drill Core	TRANSITION	BAG1	BARREL 25	35	31.7	9417872785	
15	Souwa	CIS339765	DPDD1520	50.00	60.00	Drill Core	FRESH	BAG1	BARREL 26	35	31.2	2250778250	
						Drill Core		BAG2	BARREL 27	35	31.9	2250780464	
16	Souwa	CIS339766	DPDD1520	60.00	70.00	Drill Core	FRESH	BAG1	BARREL 28	36	32.6	2250782306	Souwa Fresh 1
						Drill Core		BAG2	BARREL 29	37	32.5	9417883064	
17	Souwa	CIS339767	DPDD1520	70.00	80.00	Drill Core	FRESH	BAG1	BARREL 30	35	31.9	2250789096	
						Drill Core		BAG2	BARREL 31	36	33.0	3725037094	
18	Souwa	CIS339768	DPDD1460	11.00	20.00	Drill Core	OXIDE	BAG1	BARREL 32	37	33.6	3350526955	
						Drill Core		BAG2	BARREL 33	33	30.3	3725010376	
19	Souwa	CIS339769	DPDD1460	20.00	30.00	Drill Core	TRANSITION	BAG1	BARREL 34	39	35.8	3350564980	
						Drill Core		BAG2	BARREL 35	39	35.8	3350573822	
20	Souwa	CIS339770	DPDD1460	30.00	40.00	Drill Core	TRANSITION	BAG1	BARREL 36	34	30.7	3350580962	
						Drill Core		BAG2	BARREL 37	40	35.7	3725053872	
						Drill Core		BAG3	BARREL 38	38	34.3	3725065072	
21	Souwa	CIS339771	DPDD1521	37.00	47.00	Drill Core	TRANSITION	BAG1	BARREL 39	25	21.2	3725071066	
						Drill Core		BAG2	BARREL 40	32	28.0	3725109043	
22	Souwa	CIS339772	DPDD1521	47.00	52.00	Drill Core	TRANSITION	BAG1	BARREL 41	27	23.0	3725126381	
23	Souwa	CIS339773	DPDD1521	52.00	62.00	Drill Core	FRESH	BAG1	BARREL 42	34	29.7	1426120570	
						Drill Core		BAG2	BARREL 43	36	32.3	1426138641	
24	Souwa	CIS339774	DPDD1521	62.00	67.00	Drill Core	FRESH	BAG1	BARREL 44	36	32.3	3725182182	
25	Souwa	CIS339775	DPDD1522	55.00	65.00	Drill Core	FRESH	BAG1	BARREL 45	33	30.6	1426157320	
						Drill Core		BAG2	BARREL 46	36	33.3	3725203333	
26	Souwa	CIS339776	DPDD1522	65.00	70.00	Drill Core	FRESH	BAG1	BARREL 47	37	33.0	3725207323	
27	Souwa	CIS339777	DPDD1523	123.00	133.00	Drill Core	FRESH	BAG1	BARREL 48	35	31.5	3725212993	
						Drill Core		BAG2	BARREL 49	36	33.3	2742410532	
28	Souwa	CIS339778	DPDD1523	133.00	143.00	Drill Core	FRESH	BAG1	BARREL 50	36	33.0	2742446910	Souwa Fresh 2
						Drill Core		BAG2	BARREL 51	35	32.3	2742450712	
29	Souwa	CIS339779	DPDD1524	0.00	10.00	Drill Core	OXIDE	BAG1	BARREL 52	27	NSR	1384957206	
30	Souwa	CIS339780	DPDD1524	10.00	20.00	Drill Core	OXIDE	BAG1	BARREL 53	26	22.5	1384961760	
						Drill Core		BAG2	BARREL 54	27	22.8	1384965293	
31	Souwa	CIS339781	DPDD1524	20.00	30.00	Drill Core	OXIDE	BAG1	BARREL 55	26	22.7	2742467965	
						Drill Core		BAG2	BARREL 56	24	20.5	1384974603	
32	Souwa	CIS339782	DPDD1524	30.00	38.00	Drill Core	OXIDE	BAG1	BARREL 57	24	20.9	2742476822	
						Drill Core		BAG2	BARREL 58	24	20.9	2742479622	
33	Souwa	CIS339783	DPDD1524	38.00	43.00	Drill Core	OXIDE	BAG1	BARREL 59	28	25.2	1384985906	
34	Souwa	CIS339784	DPDD1524	43.00	51.00	Drill Core	TRANSITION	BAG1	BARREL 60	36	32.6	9164889156	
35	Souwa	CIS339785	DPDD1525	51.00	61.00	Drill Core	FRESH	BAG1	BARREL 61	36	31.8	7955767746	
						Drill Core		BAG2	BARREL 62	37	33.2	7955770992	
36	Souwa	CIS339786	DPDD1525	61.00	71.00	Drill Core	FRESH	BAG1	BARREL 63	36	32.4	4902218705	
						Drill Core		BAG2	BARREL 64	35	31.8	4902222710	
37	Souwa	CIS339787	DPDD1526	18.00	28.00	Drill Core	OXIDE	BAG1	BARREL 65	25	21.7	3704000742	
38	Souwa	CIS339788	DPDD1526	28.00	33.00	Drill Core	OXIDE	BAG1	BARREL 66	17	13.2	4902227035	
39	Souwa	CIS339789	DPDD1526	33.00	39.00	Drill Core	OXIDE	BAG1	BARREL 67	22	18.1	4902231213	
40	Souwa	CIS339790	DPDD1527	86.00	96.00	Drill Core	FRESH	BAG1	BARREL 68	35	32.0	3704011721	
						Drill Core		BAG2	BARREL 69	33	30.3	4902237476	
41	Souwa	CIS339791	DPDD1527	96.00	103.00	Drill Core	FRESH	BAG1	BARREL 70	26	22.8	3704016713	Souwa Fresh 3
						Drill Core		BAG2	BARREL 71	27	23.6	3704019653	
42	Nokpa	CIS339792	DPDD1528	71.00	81.00	Drill Core	FRESH	BAG1	BARREL 72	35	31.2	4902244362	
						Drill Core		BAG2	BARREL 73	28	28.7	4902246764	
43	Nokpa	CIS339793	DPDD1528	81.00	88.00	Drill Core	FRESH	BAG1	BARREL 74	23	19.5	4902250441	Nokpa Fresh 1
						Drill Core		BAG2	BARREL 75	23	19.4	4909941072	
44	Nokpa	CIS339794	DPDD1529	79.00	86.00	Drill Core	FRESH	BAG1	BARREL 76	26	22.2	5881286865	
						Drill Core		BAG2	BARREL 77	22	18.1	4909965292	
45	Nokpa	CIS339795	DPDD1530	62.50	72.50	Drill Core	FRESH	BAG1	BARREL 78	31	27.6	4909942726	
						Drill Core		BAG2	BARREL 79	35	30.8	4909943076	
46	Nokpa	CIS339796	DPDD1531	88.00	98.00	Drill Core	FRESH	BAG1	BARREL 80	32	27.9	4909943640	
						Drill Core		BAG2	BARREL 81	36	32.0	5881289610	
47	Nokpa	CIS339797	DPDD1531	98.00	108.00	Drill Core	FRESH	BAG1	BARREL 82	23	19.1	5881290041	
						Drill Core		BAG2	BARREL 83	33	29.6	4909946440	
48	Nokpa	CIS339798	DPDD1531	108.00	118.00	Drill Core	FRESH	BAG1	BARREL 84	35	32.0	4909946764	Nokpa Fresh 2
						Drill Core		BAG2	BARREL 85	35	31.2	4909946974	
49	Nokpa	CIS339799	DPDD1531	118.00	128.00	Drill Core	FRESH	BAG1	BARREL 86	35	31.4	5881293471	
						Drill Core		BAG2	BARREL 87	33	30.1	5881294274	
50	Nokpa	CIS339800	DPDD1531	128.00	133.00	Drill Core	FRESH	BAG1	BARREL 88	36	32.7	5881294650	
51	Nokpa	CIS339801	DPDD1532	54.50	64.50	Drill Core	FRESH	BAG1	BARREL 89	36	32.4	4909949225	
						Drill Core		BAG2	BARREL 90	34	30.1	5881295254	
52	Nokpa	CIS339802	DPDD1533	12.50	21.50	Drill Core	TRANSITION	BAG1	BARREL 91	35	31.5	4909949763	Nokpa Transition
53	Nokpa	CIS339803	DPDD1534	54.00	63.00	Drill Core	FRESH	BAG1	BARREL 92	31	27.3	4909950010	
						Drill Core		BAG2	BARREL 93	32	29.0	5881295954	
										3023	2664		

A23136 - AMPELLA MINING COTE D'IVOIRE
SAMPLE INVENTORY - RECEIVED FEBRUARY 2022

NUMBER	PROSPECT	SAMPLE ID	HOLE ID	INTERVAL FROM (m)	INTERVAL TO (m)	WEATHERING	BAG NO.	BARREL NO.	SITE WEIGHT (kg)	ALS WEIGHT (kg)	ASSIGNED TO COMP ID
1	Chegue Main	CIS339804	DPDD1535	0	10	TRANSITION	BAG1	BARREL 1	31	30.8	
2	Chegue Main	CIS339805	DPDD1535	10	20	TRANSITION	BAG1	BARREL 2	31	24.7	
							BAG2	BARREL 3	31	31.4	
3	Chegue Main	CIS339806	DPDD1535	20	26	TRANSITION	BAG1	BARREL 4	20	20.2	
							BAG2	BARREL 5	20	20.0	
4	Chegue Main	CIS339807	DPDD1536	70	80	FRESH	BAG1	BARREL 6	31	30.1	Chegue Main Fresh # 1 (Comm on Bag 2)
							BAG2	BARREL 7	32	31.5	
5	Chegue Main	CIS339808	DPDD1536	80	90	FRESH	BAG1	BARREL 8	32	31.3	
							BAG2	BARREL 9	31	30.4	
6	Chegue Main	CIS339809	DPDD1537	47	57	FRESH	BAG1	BARREL 10	33	32.0	Chegue Main Fresh # 2 (Comm on Bag 2)
							BAG2	BARREL 11	35	31.6	
7	Chegue Main	CIS339810	DPDD1537	57	67	FRESH	BAG1	BARREL 12	33	31.7	
							BAG2	BARREL 13	29	28.1	
8	Chegue Main	CIS339811	DPDD1537	67	75	FRESH	BAG1	BARREL 14	27	26.2	
							BAG2	BARREL 15	31	29.8	
9	Chegue Main	CIS339812	DPDD1538	78	88	FRESH	BAG1	BARREL 16	32	31.3	Chegue Main Fresh # 3 (Comm on Bag 1)
							BAG2	BARREL 17	23	23.0	
10	Chegue Main	CIS339813	DPDD1538	88	98	FRESH	BAG1	BARREL 18	28	27.1	
							BAG2	BARREL 19	32	32.1	
11	Chegue Main	CIS339814	DPDD1546	77	87	FRESH	BAG1	BARREL 20	33	31.9	
							BAG2	BARREL 21	32	31.8	
12	Chegue Main	CIS339815	DPDD1546	87	94	FRESH	BAG1	BARREL 22	22	19.9	
							BAG2	BARREL 23	24	22.8	
13	Chegue Main	CIS339816	DPDD1458	3.5	13	OXYDE	BAG1	BARREL 24	41	39.5	
							BAG2	BARREL 25	42	40.7	
14	Chegue Main	CIS339817	DPDD1458	13	23	TRANSITION	BAG1	BARREL 26	38	36.8	
							BAG2	BARREL 27	38	36.9	
15	Chegue Main	CIS339818	DPDD1458	23	33	TRANSITION	BAG1	BARREL 28	47	45.6	
							BAG2	BARREL 29	48	47.1	
16	Chegue Main	CIS339819	DPDD1458	33	40	TRANSITION	BAG1	BARREL 30	41	39.0	
							BAG2	BARREL 31	47	45.0	
17	Chegue Main	CIS339820	DPDD1539	78	88	FRESH	BAG1	BARREL 32	34	33.4	
							BAG2	BARREL 33	31	30.8	
18	Chegue Main	CIS339821	DPDD1539	88	98	FRESH	BAG1	BARREL 34	29	28.9	
							BAG2	BARREL 35	31	30.2	
19	Chegue Main	CIS339822	DPDD1539	98	103	FRESH	BAG1	BARREL 36	25	NSR	
20	Chegue Main	CIS339823	DPDD1540	53	60	TRANSITION	BAG1	BARREL 37	34	32.8	
21	Chegue Main	CIS339824	DPDD1540	60	66	FRESH	BAG1	BARREL 38	40	38.8	
22	Chegue Main	CIS339825	DPDD1540	66	72	FRESH	BAG1	BARREL 39	39	38.1	
23	Chegue Main	CIS339826	DPDD1541	0	5	OXYDE	BAG1	BARREL 40	28	28.4	
24	Chegue Main	CIS339827	DPDD1541	5	11	OXYDE	BAG1	BARREL 41	31	30.8	Chegue Main Oxide
25	Chegue Main	CIS339828	DPDD1541	11	16	TRANSITION	BAG1	BARREL 42	26	25.4	
26	Chegue Main	CIS339829	DPDD1541	16	26	TRANSITION	BAG1	BARREL 43	21	21.0	Chegue Main Transition (Comm on Bag 2)
							BAG2	BARREL 44	27	27.1	
27	Chegue Main	CIS339830	DPDD1542	53	61	TRANSITION	BAG1	BARREL 45	21	20.9	
							BAG2	BARREL 46	24	24.1	
28	Chegue Main	CIS339831	DPDD1542	61	66	TRANSITION	BAG1	BARREL 47	31	31.3	
29	Chegue Main	CIS339832	DPDD1543	50	60	FRESH	BAG1	BARREL 48	38	36.5	
							BAG2	BARREL 49	34	32.4	
30	Chegue Main	CIS339833	DPDD1543	60	70	FRESH	BAG1	BARREL 50	34	32.7	Chegue Main Fresh # 4 (Comm on Bag 2)
							BAG2	BARREL 51	33	31.6	
31	Chegue Main	CIS339834	DPDD1543	70	80	FRESH	BAG1	BARREL 52	28	26.2	
							BAG2	BARREL 53	33	30.8	
32	Chegue South	CIS339835	DPDD1544	44.5	54.5	FRESH	BAG1	BARREL 54	34	32.8	Chegue South Fresh # 1 (Comm on Bag 1)
							BAG2	BARREL 55	34	32.7	
33	Chegue South	CIS339836	DPDD1544	54.5	64.5	FRESH	BAG1	BARREL 56	34	32.4	
							BAG2	BARREL 57	34	32.9	
34	Chegue South	CIS339837	DPDD1544	64.5	74.5	FRESH	BAG1	BARREL 58	35	32.9	
							BAG2	BARREL 59	34	32.3	
35	Chegue South	CIS339838	DPDD1545	20	30	TRANSITION	BAG1	BARREL 60	39	37.2	
							BAG2	BARREL 61	41	39.3	
36	Chegue South	CIS339839	DPDD1547	44	54	FRESH	BAG1	BARREL 62	34	32.7	
							BAG2	BARREL 63	33	31.6	
37	Chegue South	CIS339840	DPDD1547	54	64	FRESH	BAG1	BARREL 64	32	30.1	
							BAG2	BARREL 65	33	31.7	
38	Chegue South	CIS339841	DPDD1547	64	69	FRESH	BAG1	BARREL 66	33	31.1	
39	Chegue South	CIS339842	DPDD1548	35	40	TRANSITION	BAG1	BARREL 67	38	36.7	
40	Chegue South	CIS339843	DPDD1548	40	45	FRESH	BAG1	BARREL 68	34	33.3	
41	Chegue South	CIS339844	DPDD1548	45	52	FRESH	BAG1	BARREL 69	47	44.9	
42	Chegue South	CIS339845	DPDD1549	72	82	FRESH	BAG1	BARREL 70	32	30.8	
							BAG2	BARREL 71	34	32.7	
43	Chegue South	CIS339846	DPDD1549	82	90	FRESH	BAG1	BARREL 72	28	26.3	Chegue South Fresh # 2 (Comm on Bag 2)
							BAG2	BARREL 73	28	26.7	
44	Chegue South	CIS339847	DPDD1550	62.5	72.5	FRESH	BAG1	BARREL 74	34	32.3	
							BAG2	BARREL 75	35	33.1	
45	Chegue South	CIS339848	DPDD1550	72.5	82.5	FRESH	BAG1	BARREL 76	35	33.3	
							BAG2	BARREL 77	33	31.2	
46	Chegue South	CIS339849	DPDD1551	0	8	OXYDE	BAG1	BARREL 78	32	30.2	
47	Chegue South	CIS339850	DPDD1551	8	18	TRANSITION	BAG1	BARREL 79	23	21.7	
							BAG2	BARREL 80	22	20.5	
48	Chegue South	CIS339851	DPDD1551	18	28	TRANSITION	BAG1	BARREL 81	21	19.1	Chegue South Transition (Comm on Bag 2)
							BAG2	BARREL 82	27	26.6	
49	Chegue South	CIS339852	DPDD1552	67	73	FRESH	BAG1	BARREL 83	41	39.5	
50	Chegue South	CIS339853	DPDD1552	77	83	FRESH	BAG1	BARREL 84	41	39.5	
51	Chegue South	CIS339854	DPDD1552	90	96	FRESH	BAG1	BARREL 85	41	39.5	
								85	2763	2640	

A23136 - AMPELLA MINING COTE D'IVOIRE
SAMPLE INVENTORY - RECEIVED MARCH 2022

NUMBER	PROSPECT	SAMPLE ID	HOLE ID	INTERVAL FROM (m)	INTERVAL TO (m)	WEATHERING	BAG NO.	BARREL NO.	SITE WEIGHT (kg)	ALS WEIGHT (kg)	ASSIGNED TO COMP ID
1	KEKEDA	CIS739201	DPDD1553	34	44	TRANSITION	BAG1	BARREL 1	28	28.30	
							BAG2	BARREL 2	23	22.70	
		CIS739202	DPDD1553	44	52	TRANSITION	BAG1	BARREL 3	34	34.18	
2	KEKEDA	CIS739203	DPDD1554	38	47	TRANSITION	BAG1	BARREL 4	34	34.46	Kekeda Transition #1
		CIS739204	DPDD1554	47	57	FRESH	BAG1	BARREL 5	30	23.48	
							BAG2	BARREL 6	23	29.82	
		CIS739205	DPDD1554	57	64	FRESH	BAG1	BARREL 7	34	33.00	Kekeda Fresh #1
3	KEKEDA	CIS739206	DPDD1555	17	22	TRANSITION	BAG1	BARREL 8	27	27.60	
		CIS739207	DPDD1555	22	32	FRESH	BAG1	BARREL 9	36	36.48	
							BAG2	BARREL 10	33	33.00	
		CIS739208	DPDD1555	32	42	FRESH	BAG1	BARREL 11	33	32.94	
							BAG2	BARREL 12	32	31.96	
4	KEKEDA	CIS739209	DPDD1556	34	39	TRANSITION	BAG1	BARREL 13	34	33.40	
		CIS739210	DPDD1556	39	49	FRESH	BAG1	BARREL 14	28	28.72	
							BAG2	BARREL 15	32	31.90	
		CIS739211	DPDD1556	49	58	FRESH	BAG1	BARREL 16	29	29.26	Kekeda Fresh #2 (Comm on Bag 1)
							BAG2	BARREL 17	29	29.24	
		CIS739212	DPDD1556	58	63	FRESH	BAG1	BARREL 18	32	32.24	
5	KEKEDA	CIS739213	DPDD1557	6	16	TRANSITION	BAG1	BARREL 19	34	34.04	
							BAG2	BARREL 20	30	34.04	
		CIS739214	DPDD1557	16	24	TRANSITION	BAG1	BARREL 21	32	32.50	
		CIS739215	DPDD1557	24	29	TRANSITION	BAG1	BARREL 22	34	33.86	
6	KEKEDA	CIS739216	DPDD1558	58	68	FRESH	BAG1	BARREL 23	34	33.74	
		CIS739217	DPDD1558	68	73	FRESH	BAG1	BARREL 24	34	34.30	Kekeda Fresh #3
7	KEKEDA	CIS739218	DPDD1559	29	39	TRANSITION	BAG1	BARREL 25	39	38.82	
		CIS739219	DPDD1559	39	46	TRANSITION	BAG1	BARREL 26	38	38.98	Kekeda Transition #2
8	KEKEDA	CIS739220	DPDD1455	10	20	TRANSITION	BAG1	BARREL 27	36	36.10	
							BAG2	BARREL 28	36	37.00	
							BAG3	BARREL 29	33	37.74	
							BAG4	BARREL 30	28	27.98	
	KEKEDA	CIS739221	DPDD1455	20	30	TRANSITION	BAG1	BARREL 31	36	35.72	
							BAG2	BARREL 32	36	36.46	
							BAG3	BARREL 33	33	33.28	
							BAG4	BARREL 34	20	19.66	
9	Han	CIS739222	DPDD1560	47	57	FRESH	BAG1	BARREL 35	34	33.62	
							BAG2	BARREL 36	29	29.36	
		CIS739223	DPDD1560	57	63	FRESH	BAG1	BARREL 37	39	39.78	
10	Han	CIS739224	DPDD1561	37	47	FRESH	BAG1	BARREL 38	36	33.60	
							BAG2	BARREL 39	32	31.92	
	Han	CIS739225	DPDD1561	47	57	FRESH	BAG1	BARREL 40	32	32.22	
							BAG2	BARREL 41	33	33.06	
	Han	CIS739226	DPDD1561	57	67	FRESH	BAG1	BARREL 42	33	32.86	Han Fresh #2 (Comm on Bag 2)
							BAG2	BARREL 43	33	32.68	
	Han	CIS739227	DPDD1561	67	77	FRESH	BAG1	BARREL 44	34	33.22	
							BAG2	BARREL 45	31	30.74	
	Han	CIS739228	DPDD1561	77	85	FRESH	BAG1	BARREL 46	27	26.44	
							BAG2	BARREL 47	22	21.82	
	Han	CIS739229	DPDD1561	85	90	FRESH	BAG1	BARREL 48	29	29.80	
11	Han	CIS739230	DPDD1562	12	22	TRANSITION	BAG1	BARREL 49	37	36.92	Han Fresh Trans/Fresh (Comm on Bag 1)
							BAG2	BARREL 50	29	28.64	
	Han	CIS739231	DPDD1562	22	31	TRANSITION	BAG1	BARREL 51	28	27.78	
							BAG2	BARREL 52	25	24.60	
	Han	CIS739232	DPDD1562	31	36	TRANSITION	BAG1	BARREL 53	31	31.16	
12	Han	CIS739233	DPDD1563	48	58	FRESH	BAG1	BARREL 54	41	40.82	
	Han	CIS739234	DPDD1563	58	64	FRESH	BAG1	BARREL 55	27	27.18	
13	Han	CIS739235	DPDD1564	65	75	FRESH	BAG1	BARREL 56	30	29.76	
							BAG2	BARREL 57	27	27.60	
	Han	CIS739236	DPDD1564	75	81	FRESH	BAG1	BARREL 58	37	37.62	
	Han	CIS739237	DPDD1564	81	86	FRESH	BAG1	BARREL 59	32	31.78	Han Fresh #1
14	Han	CIS739238	DPDD1565	48	54	FRESH	BAG1	BARREL 60	26	26.34	Han Fresh #3
15	Han	CIS739239	DPDD1566	21	31	TRANSITION	BAG1	BARREL 61	33	32.66	
16	ENIODA	CIS739240	DPDD1567	63	69	TRANSITION	BAG1	BARREL 62	33	31.95	
	ENIODA	CIS739241	DPDD1567	69	79	FRESH	BAG1	BARREL 63	31	30.68	
							BAG2	BARREL 64	23	22.76	
	ENIODA	CIS739242	DPDD1567	79	86	FRESH	BAG1	BARREL 65	33	33.70	Enioda Fresh #1
17	ENIODA	CIS739243	DPDD1568	15	20	OXIDE	BAG1	BARREL 66	13	12.12	
	ENIODA	CIS739244	DPDD1568	20	29	OXIDE	BAG1	BARREL 67	31	31.32	
18	ENIODA	CIS739245	DPDD1569	66	76	FRESH	BAG1	BARREL 68	25	25.06	
							BAG2	BARREL 69	23	23.04	
	ENIODA	CIS739246	DPDD1569	76	83	FRESH	BAG1	BARREL 70	36	32.78	
19	ENIODA	CIS739247	DPDD1570	50	60	TRANSITION	BAG1	BARREL 71	33	35.68	
							BAG2	BARREL 72	34	33.54	
	ENIODA	CIS739248	DPDD1570	60	65	FRESH	BAG1	BARREL 73	33	32.70	
20	ENIODA	CIS739249	DPDD1571	13	20	OXIDE	BAG1	BARREL 74	25	24.74	
	ENIODA	CIS739250	DPDD1571	20	27	OXIDE	BAG1	BARREL 75	17	16.94	Enioda Oxide #1
	ENIODA	CIS739251	DPDD1571	27	32	TRANSITION	BAG1	BARREL 76	25	24.36	
21	ENIODA	CIS739252	DPDD1572	4	10	OXIDE	BAG1	BARREL 77	29	28.76	
	ENIODA	CIS739253	DPDD1572	10	20	OXIDE	BAG1	BARREL 78	22	22.22	
	ENIODA	CIS739254	DPDD1572	20	25	OXIDE	BAG1	BARREL 79	19	18.26	
	ENIODA	CIS739255	DPDD1572	25	31	OXIDE	BAG1	BARREL 80	16	15.50	
22	ENIODA	CIS739256	DPDD1573	73	78	FRESH	BAG1	BARREL 81	32	32.02	
	ENIODA	CIS739257	DPDD1573	78	85	FRESH	BAG1	BARREL 82	45	44.56	Enioda Fresh #2
23	ENIODA	CIS739258	DPDD1574	4	10	OXIDE	BAG1	BARREL 83	29	28.68	
							BAG2	BARREL 84	20	19.32	
	ENIODA	CIS739259	DPDD1574	10	20	OXIDE	BAG1	BARREL 85	28	27.64	Enioda oxide #2 (Comm on Bag 1)
							BAG2	BARREL 86	20	18.80	
	ENIODA	CIS739260	DPDD1574	20	28	OXIDE	BAG1	BARREL 87	32	31.22	
24	ATIRRE	CIS739261	DPDD1575	73	81	FRESH	BAG1	BARREL 88	26	25.96	Atire Fresh #2 (Comm on Bag 1)
							BAG2	BARREL 89	26	25.64	
25	ATIRRE	CIS739262	DPDD1576	16	21	TRANSITION	BAG1	BARREL 90	33	34.66	
	ATIRRE	CIS739263	DPDD1576	21	31	TRANSITION	BAG1	BARREL 91	20	19.50	
							BAG2	BARREL 92	20	20.84	
26	ATIRRE	CIS739264	DPDD1577	53	58	FRESH	BAG1	BARREL 93	32	31.52	
27	ATIRRE	CIS739265	DPDD1578	55	60	FRESH	BAG1	BARREL 94	25	24.50	Atire Fresh #1
	ATIRRE	CIS739266	DPDD1578	60	70	FRESH	BAG1	BARREL 95	27	27.04	
							BAG2	BARREL 96	21	20.60	
28	ATIRRE	CIS739267	DPDD1579	8	14	TRANSITION	BAG1	BARREL 97	21	21.88	
							BAG2	BARREL 98	21	20.74	
	ATIRRE	CIS739268	DPDD1579	14	24	TRANSITION	BAG1	BARREL 99	25	25.10	
							BAG2	BARREL 100	14	23.64	
29	ATIRRE	CIS739269	DPDD1580	15	25	TRANSITION	BAG1	BARREL 101	36	35.68	
	ATIRRE	CIS739270	DPDD1580	25	30	TRANSITION	BAG1	BARREL 102	24	23.44	
	ATIRRE	CIS739271	DPDD1580	30	39	TRANSITION	BAG1	BARREL 103	24	25.56	Atire Transition (Comm on Bag 2)
							BAG2	BARREL 104	25	24.42	
	ATIRRE	CIS739272	DPDD1580	39	44	FRESH	BAG1	BARREL 105	33	32.68	
30	ATIRRE	CIS739273	DPDD1581	11	20	TRANSITION	BAG1	BARREL 106	20	19.12	
							BAG2	BARREL 107	20	19.74	
	ATIRRE	CIS739274	DPDD1581	20	30	TRANSITION	BAG1	BARREL 108	30	30.34	
							BAG2	BARREL 109	36	36.68	
	ATIRRE	CIS739275	DPDD1581	30	36	TRANSITION	BAG1	BARREL 110	20	19.74	
									3217.00	3228.25	

A23136 - AMPELLA MINING COTE D'IVOIRE
SAMPLE INVENTORY - RECEIVED APRIL 2022

NUMBER	PROSPECT	SAMPLE ID	HOLE ID	INTERVAL FROM (m)	INTERVAL TO (m)	WEATHERING	BAG NO.	BARREL NO.	SITE WEIGHT (kg)	ALS WEIGHT (kg)	ASSIGNED TO COMP ID
1	Kilosegui	CIS734001	DPDD3001	1.3	11.3	FRESH	BAG1	BARREL 1	36.5	36.68	
							BAG2	BARREL 2	34.5	34.72	
2		CIS734002	DPDD3001	11.3	20	FRESH	BAG1	BARREL 3	32	31.74	
							BAG2	BARREL 4	24	24.14	
3		CIS734003	DPDD3001	20	25	FRESH	BAG1	BARREL 5	31	31.64	
4	Kilosegui	CIS734004	DPDD3002	26	36	FRESH	BAG1	BARREL 6	32.5	32.66	
							BAG2	BARREL 7	32.5	32.80	
5		CIS734005	DPDD3002	36	46	FRESH	BAG1	BARREL 8	32	32.38	
							BAG2	BARREL 9	32	32.42	
6		CIS734006	DPDD3002	46	51	FRESH	BAG1	BARREL 10	25.5	25.56	
7	Kilosegui	CIS734007	DPDD3003	7	17	FRESH	BAG1	BARREL 11	24	24.04	
							BAG2	BARREL 12	35	35.26	
8		CIS734008	DPDD3003	17	27	FRESH	BAG1	BARREL 13	30.5	30.74	
							BAG2	BARREL 14	30	30.06	
9		CIS734009	DPDD3003	27	37	FRESH	BAG1	BARREL 15	32	32.08	
							BAG2	BARREL 16	31.5	31.44	
10		CIS734010	DPDD3003	37	42	FRESH	BAG1	BARREL 17	30.5	30.60	
11	Kilosegui	CIS734011	DPDD3004	19	29	FRESH	BAG1	BARREL 18	33	33.02	
							BAG2	BARREL 19	32.5	32.48	
12		CIS734012	DPDD3004	29	39	FRESH	BAG1	BARREL 20	32	32.28	
							BAG2	BARREL 21	32	32.42	
13		CIS734013	DPDD3004	39	48	FRESH	BAG1	BARREL 22	32	32.08	
							BAG2	BARREL 23	25.5	25.42	
14	Kilosegui	CIS734014	DPDD3005	6	11	TRANSITION	BAG1	BARREL 24	36	36.00	
15		CIS734015	DPDD3005	11	21	FRESH	BAG1	BARREL 25	30	29.92	
							BAG2	BARREL 26	30	30.30	
16		CIS734016	DPDD3005	21	29	FRESH	BAG1	BARREL 27	25	24.54	
							BAG2	BARREL 28	25	24.74	
17	Kilosegui	CIS734017	DPDD3006	86	96	FRESH	BAG1	BARREL 29	33	32.90	
							BAG2	BARREL 30	32	31.84	
18		CIS734018	DPDD3006	96	106	FRESH	BAG1	BARREL 31	33	32.08	
							BAG2	BARREL 32	33	32.58	
19		CIS734019	DPDD3006	106	112	FRESH	BAG1	BARREL 33	40	39.86	
20	Kilosegui	CIS734020	DPDD3007	15.7	25.7	FRESH	BAG1	BARREL 34	34	33.32	
							BAG2	BARREL 35	30.5	30.74	
21		CIS734021	DPDD3007	25.7	35.7	FRESH	BAG1	BARREL 36	31	31.16	
							BAG2	BARREL 37	31	30.42	
22		CIS734022	DPDD3007	35.7	45.7	FRESH	BAG1	BARREL 38	32	32.02	
							BAG2	BARREL 39	31.5	32.48	
23		CIS734023	DPDD3007	45.7	52	FRESH	BAG1	BARREL 40	40.5	40.10	
24	Kilosegui	CIS734024	DPDD3008	27	37	FRESH	BAG1	BARREL 41	37	37.12	
							BAG2	BARREL 42	30	30.20	
25		CIS734025	DPDD3008	37	47	FRESH	BAG1	BARREL 43	31.2	31.10	**Kilosgui Fresh #1 (Comm on Bag 1)**
							BAG2	BARREL 44	32	31.62	
26		CIS734026	DPDD3008	47	57	FRESH	BAG1	BARREL 45	32.5	32.30	
							BAG2	BARREL 46	31.5	31.26	
27	Kilosegui	CIS734027	DPDD3009	18	25	TRANSITION	BAG1	BARREL 47	35	35.02	
28		CIS734028	DPDD3009	25	35	FRESH	BAG1	BARREL 48	33.5	33.54	
							BAG2	BARREL 49	31	31.56	
29		CIS734029	DPDD3009	35	45	FRESH	BAG1	BARREL 50	31	31.30	
							BAG2	BARREL 51	30.5	30.30	
30	Kilosegui	CIS734030	DPDD3010	13	23	FRESH	BAG1	BARREL 52	32	32.20	
							BAG2	BARREL 53	31	31.02	
31		CIS734031	DPDD3010	23	33	FRESH	BAG1	BARREL 54	31.5	31.68	**Kilosgui Fresh #2 (Comm on Bag 2)**
							BAG2	BARREL 55	32	32.08	
32		CIS734032	DPDD3010	33	38	FRESH	BAG1	BARREL 56	31	31.86	
33	Kilosegui	CIS734033	DPDD3011	38	48	FRESH	BAG1	BARREL 57	31.5	31.68	
							BAG2	BARREL 58	32.5	32.96	
34		CIS734034	DPDD3011	48	58	FRESH	BAG1	BARREL 59	32.5	32.50	
							BAG2	BARREL 60	32	32.28	
35		CIS734035	DPDD3011	58	68	FRESH	BAG1	BARREL 61	32	31.94	**Kilosgui Fresh #3 (Comm on Bag 2)**
							BAG2	BARREL 62	32	32.06	
36		CIS734036	DPDD3011	68	78	FRESH	BAG1	BARREL 63	30.5	29.88	
							BAG2	BARREL 64	32.5	32.28	
37	Kilosegui	CIS734037	DPDD3012	13	23	TRANSITION	BAG1	BARREL 65	28	27.86	
							BAG2	BARREL 66	19	18.40	
38		CIS734038	DPDD3012	23	33	TRANSITION	BAG1	BARREL 67	24	23.82	**Kilosegui Transition #1 (Comm on Bag 1)**
							BAG2	BARREL 68	26	26.00	
39		CIS734039	DPDD3012	33	38	TRANSITION	BAG1	BARREL 69	28.5	28.54	
40		CIS734040	DPDD3012	38	48	FRESH	BAG1	BARREL 70	31	31.30	
							BAG2	BARREL 71	31.5	31.88	
41	Kilosegui	CIS734041	DPDD3013	56	66	FRESH	BAG1	BARREL 72	29.5	29.72	
							BAG2	BARREL 73	29	28.82	
42		CIS734042	DPDD3013	66	76	FRESH	BAG1	BARREL 74	33	32.04	
							BAG2	BARREL 75	33.5	32.56	
43		CIS734043	DPDD3013	76	86	FRESH	BAG1	BARREL 76	32	32.06	
							BAG2	BARREL 77	32	32.42	
44		CIS734044	DPDD3013	86	96	FRESH	BAG1	BARREL 78	32.5	32.58	**Kilosgui Fresh #4 (Comm on Bag 2)**
							BAG2	BARREL 79	32	32.18	
45	Kilosegui	CIS734045	DPDD3014	38	48	FRESH	BAG1	BARREL 80	32.5	32.24	
							BAG2	BARREL 81	33	32.46	
46		CIS734046	DPDD3014	48	58	FRESH	BAG1	BARREL 82	31.5	31.02	
							BAG2	BARREL 83	32	31.38	
47		CIS734047	DPDD3014	58	68	FRESH	BAG1	BARREL 84	34	33.50	
							BAG2	BARREL 85	33	32.78	
48	Kilosegui	CIS734048	DPDD3015	6.3	13	TRANSITION	BAG1	BARREL 86	31	31.06	
49		CIS734049	DPDD3015	13	23	FRESH	BAG1	BARREL 87	33	32.68	
							BAG2	BARREL 88	32	31.64	
50		CIS734050	DPDD3015	23	33	FRESH	BAG1	BARREL 89	31	31.30	
							BAG2	BARREL 90	33	32.68	
51		CIS734051	DPDD3015	33	40.25	FRESH	BAG1	BARREL 91	22	21.98	
							BAG2	BARREL 92	26	25.40	
52	Kilosegui	CIS734052	DPDD3016	29	39	FRESH	BAG1	BARREL 93	32	32.20	
							BAG2	BARREL 94	33	32.54	
53		CIS734053	DPDD3016	39	49	FRESH	BAG1	BARREL 95	33	32.88	
							BAG2	BARREL 96	33	32.52	
									3005.20	3001.84	

A23136 - AMPELLA MINING COTE D'IVOIRE
SAMPLE INVENTORY - RECEIVED NOVEMBER 2022

NUMBER	PROSPECT	SAMPLE ID	HOLE ID	INTERVAL FROM (m)	INTERVAL TO (m)	WEATHERING	BAG NO.	BARREL NO.	SITE WEIGHT (kg)	ALS WEIGHT (kg)	ASSIGNED TO COMP ID
	Souwa	CIS 790001	DPRD1102	136	147	FRESH	BAG1	BARREL 1	20	19.1	
							BAG2	BARREL 2	23	22.3	
	Souwa	CIS 790002	DPDD1382	79	100	FRESH	BAG1	BARREL 3	33.6	32.9	Souwa Fresh 4 (Comm)
							BAG2	BARREL 4	23.4	22.6	
	Souwa	CIS 790003	DPDD1386	90	116	FRESH	BAG1	BARREL 5	35.2	35.2	
							BAG2	BARREL 6	35	34.9	
							BAG3	BARREL 7	35	35.0	
	Souwa	CIS 790004	DPDD1473	44	47	TRANSITION	BAG1	BARREL 8	2.8	2.7	
	Souwa	CIS 790005	DPDD1473	72	77	FRESH	BAG1	BARREL 9	12.3	11.9	
	Souwa	CIS 790006	DPDD1473	80	94	FRESH	BAG1	BARREL 10	20.5	20.4	Souwa Fresh 5 (Comm)
							BAG2	BARREL 11	20.4	20.4	
	Souwa	CIS 790007	DPDD1584	40	45	TRANSITION	BAG1	BARREL 12	18.5	18.0	
	Souwa	CIS 790008	DPDD1584	50	65	FRESH	BAG1	BARREL 13	31	30.9	
	Souwa	CIS 790009	DPDD1586	72	90	FRESH	BAG1	BARREL 14	21	21.1	
							BAG2	BARREL 15	18	18.1	
	CHEGUE MAIN	CIS 790010	DPDD1487	82	87	FRESH	BAG1	BARREL 16	10.5	10.4	
	CHEGUE MAIN	CIS 790011	DPDD1494	50	58	FRESH	BAG1	BARREL 17	24	24.2	Chegue Main Fresh (Comm)
	CHEGUE MAIN	CIS 790012	DPDD1501	84	97	FRESH	BAG1	BARREL 18	28.4	28.8	
	CHEGUE MAIN	CIS 790013	DPDD1591	26	34	TRANSITION	BAG1	BARREL 19	25.3	25.4	
	CHEGUE MAIN	CIS 790014	DPDD1592	0	10	OXIDE	BAG1	BARREL 20	22	23.4	
							BAG2	BARREL 21	17.6	17.0	
	CHEGUE MAIN	CIS 790015	DPDD1594	52	56	FRESH	BAG1	BARREL 22	17.2	6.8	
	CHEGUE SOUTH	CIS 790016	DPDD1595	7	20	TRANSITION	BAG1	BARREL 23	24.5	24.5	
							BAG2	BARREL 24	18.8	18.4	
	NOKPA	CIS 790017	DPDD1425	100	107	FRESH	BAG1	BARREL 25	12.3	12.0	
	NOKPA	CIS 790018	DPDD1425	112	137.7	FRESH	BAG1	BARREL 26	22.5	22.4	
							BAG2	BARREL 27	29.8	30.0	Nokpa Fresh 5 (Comm)
	NOKPA	CIS 790019	DPDD1491	7	11	OXIDE	BAG1	BARREL 28	1.6	1.8	
	NOKPA	CIS 790020	DPDD1587	78	109	FRESH	BAG1	BARREL 29	30	29.8	
							BAG2	BARREL 30	26.3	25.8	
	NOKPA	CIS 790021	DPDD1589	0	3	OXIDE	BAG1	BARREL 31	3.4	3.1	
	HAN	CIS 790022	DPRD0470	86	107	FRESH	BAG1	BARREL 32	29.2	29.0	
							BAG2	BARREL 33	30.8	30.0	
							BAG3	BARREL 34	25.8	24.9	
	HAN	CIS 790023	DPDD1502	51.85	59.5	FRESH	BAG1	BARREL 35	11.1	10.5	
	KEKEDA	CIS 790024	DPRD1373	58	72	FRESH	BAG1	BARREL 36	27.7	27.4	
							BAG2	BARREL 37	13.5	12.7	
	KEKEDA	CIS 790025	DPDD1436	24	32	FRESH	BAG1	BARREL 38	24.4	24.3	
	KEKEDA	CIS 790026	DPDD1436	39	43	FRESH	BAG1	BARREL 39	8.6	7.6	
	KEKEDA	CIS 790027	DPDD1439	44	59	FRESH	BAG1	BARREL 40	29.7	29.9	
	KEKEDA	CIS 790028	DPDD1479	44	50.3	FRESH	BAG1	BARREL 41	20	19.6	Kekeda Fresh 4 (Comm)
	KEKEDA	CIS 790029	DPDD1598	36	45	FRESH	BAG1	BARREL 42	20.3	19.7	
	KEKEDA	CIS 790030	DPDD1599	67	77	FRESH	BAG1	BARREL 43	22.3	22.2	
	KEKEDA	CIS 790031	DPDD1600	18	29	FRESH	BAG1	BARREL 44	27	26.9	
	ENIODA	CIS 790032	DPDD1604	47.07	60	TRANSITION	BAG1	BARREL 45	17	16.6	
	ENIODA	CIS 790033	DPDD1605	40	54	TRANSITION	BAG1	BARREL 46	27.4	27.4	
	ENIODA	CIS 790034	DPDD1513	99	106	FRESH	BAG1	BARREL 47	13.6	13.2	
	CHEGUE SOUTH	CIS 790035	DPDD1487	70	72	FRESH	BAG1	BARREL48	4.2	4.4	
	CHEGUE SOUTH	CIS 790036	DPDD1597	66	68	FRESH	BAG2		4.9	4.9	
	CHEGUE MAIN	CIS 790037	DPDD1594	45	52	FRESH	BAG3		15	14.7	
	CHEGUE MAIN	CIS 790038	DPDD1591	36	40.8	FRESH	BAG4		6.9	6.8	
	NOKPA	CIS 790039	DPDD1589	25	36	TRANSITION	BAG1	BARREL49	29.2	29.2	
	NOKPA	CIS 790040	DPDD1588	26	35	TRANSITION	BAG1	BARREL50	23	22.9	
	NOKPA	CIS 790041	DPDD1491	28	33	TRANSITION	BAG2		7.6	7.5	
	HAN	CIS 790042	DPDD1602	18.9	23.5	FRESH	BAG1	BARREL51	14.8	14.0	
	HAN	CIS 790043	DPDD1503	38.15	42.35	FRESH	BAG2		6.8	6.6	
	CHEGUE SOUTH	CIS 790044	DPRC3527	0	6	OXIDE	BAG1	BARREL52	7.5	7.5	
	CHEGUE SOUTH	CIS 790045	DPRC3504	0	2	OXIDE	BAG2		2.8	2.5	
	CHEGUE SOUTH	CIS 790046	DPRC3508	0	2	OXIDE	BAG3		1	1.2	
	CHEGUE SOUTH	CIS 790047	DPRC3486	0	3	OXIDE	BAG4		2.1	2.2	
	CHEGUE SOUTH	CIS 790048	DPRC3528	56	57	FRESH	BAG1	BARREL 53	23.6	2.2	
	CHEGUE MAIN	CIS 790049	DPRC3354	48	59	FRESH	BAG 2			21.4	
	CHEGUE MAIN	CIS 790050	DPRC3358	51	62	FRESH	BAG 1	BARREL 54	22.9	22.4	
	CHEGUE MAIN	CIS 790051	DPRC3409	63	71	FRESH	BAG 1	BARREL 55	25.2	25.3	
	CHEGUE MAIN	CIS 790052	DPRC3409	83	104	FRESH	BAG1	BARREL 56	23.1	22.8	
							BAG2	BARREL 57	29.8	29.3	
	CHEGUE MAIN	CIS 790053	DPRC3441	60	71	FRESH	BAG1	BARREL 58	12.9	12.5	
	CHEGUE MAIN	CIS 790054	DPRC3462	23	35	FRESH	BAG1	BARREL 59	9.1	9.0	
	CHEGUE MAIN	CIS 790055	DPRC3458	35	41	FRESH	BAG1	BARREL 60	10	9.8	
	KEKEDA	CIS 790056	DPRC3239	0	2	OXIDE	BAG1	BARREL 61	1	1.0	
	KEKEDA	CIS 790057	DPRC3244	2	5	OXIDE	BAG2		1	1.8	
	KEKEDA	CIS 790058	DPRC3259	2	5	OXIDE	BAG3		2.7	2.4	
	KEKEDA	CIS 790059	DPRC3281	2	6	OXIDE	BAG4		1.8	1.8	
	KEKEDA	CIS 790060	DPRC3240	40	44	FRESH	BAG1	BARREL 62	9	8.7	
	KEKEDA	CIS 790061	DPRC3245	40	50	FRESH	BAG2		10.3	10.1	
	KEKEDA	CIS 790062	DPRC3250	38	42	FRESH	BAG1	BARREL 63	9	9.0	
	KEKEDA	CIS 790063	DPRC3255	28	35	FRESH	BAG2		23.5	23.5	
	KEKEDA	CIS 790064	DPRC3256	30	32	FRESH	BAG1	BARREL 64	2.3	2.5	
	KEKEDA	CIS 790065	DPRC3262	25	30	FRESH	BAG2		16.8	16.4	
	KEKEDA	CIS 790066	DPRC3271	43	52	FRESH	BAG1	BARREL 65	5.8	5.6	
	KEKEDA	CIS 790067	DPRC3300	18	24	FRESH	BAG2		21.2	21.4	
	KEKEDA	CIS 790068	DPRC3312	23	30	FRESH	BAG1	BARREL 66	11.2	11.3	
	KEKEDA	CIS 790069	DPRC3319	79	92	FRESH	BAG2		23	22.9	
	KEKEDA	CIS 790070	DPRC3323	44	59	FRESH	BAG1	BARREL 67	12	11.9	
	HAN	CIS 790071	DPRC3629	35	45	FRESH	BAG1	BARREL 68	35	35.0	
	HAN	CIS 790072	DPRC3621	8	18	FRESH	BAG1	BARREL 69	24.2	24.0	
	HAN	CIS 790073	DPRC3612	24	30	FRESH	BAG1	BARREL 70	22	22.0	
	HAN	CIS 790074	DPRC3598	26	34	FRESH	BAG1	BARREL 71	26	26.0	
	HAN	CIS 790075	DPRC3595	31	41	FRESH	BAG1	BARREL 72	27.9	27.7	
	HAN	CIS 790076	DPRC3591	29	33	FRESH	BAG1	BARREL 73	7	6.8	
	HAN	CIS 790077	DPRC3584	21	27	FRESH	BAG2		10.4	10.5	
	HAN	CIS 790078	DPRC3581	30	41	FRESH	BAG1	BARREL 74	24	24.0	
	HAN	CIS 790079	DPRC3578	21	30	FRESH	BAG1	BARREL 75	27	26.8	
	HAN	CIS 790080	DPRC3578	36	41	FRESH	BAG1	BARREL 76	15	14.7	
	HAN	CIS 790081	DPRC3566	46	61	FRESH	BAG1	BARREL 77	24	24.2	
	HAN	CIS 790082	DPRC3565	26	33	FRESH	BAG1	BARREL 78	10	9.6	
	HAN	CIS 790083	DPRC3547	75	93	FRESH	BAG1	BARREL 79	20	20.0	
							BAG2	BARREL 80	18.5	18.5	
	HAN	CIS 790084	DPRC3546	51	60	FRESH	BAG1	BARREL 81	19	18.9	
	ENIODA	CIS 790085	DPRC3709	83	86	FRESH	BAG1	BARREL 82	6	6.0	
	ENIODA	CIS 790086	DPRC3704	74	82	FRESH	BAG2		31	21.2	
	ENIODA	CIS 790087	DPRC3703	53	56	FRESH	BAG1	BARREL 83	9	8.7	
	ENIODA	CIS 790088	DPRC3700	67	77	FRESH	BAG2		16	15.8	
	ATTIRE	CIS 790089	DPRC5969	98	101	FRESH	BAG1	BARREL 84	9	8.8	
									1826.30	1789.65	

SOUWA OXIDE MASTER COMPOSITE — MC1

NUMBER	PROSPECT	SAMPLE ID	HOLE ID	TWINNED HOLE ID	INTERVAL FROM (m)	INTERVAL TO (m)	SAMPLE TYPE	WEATHERING	BAG NO.	BARREL NO.	SITE WEIGHT	ALS WEIGHT	ALS AU ASSAY	TO COMP Mass (kg)
1	Souwa	CIS339751	DPDD1517	DPRC0850	0.00	10.00	Drill Core	OXIDE	BAG1	BARREL 1	30	26.4	0.14	8
7	Souwa	CIS339757	DPDD1462	DPRC0843	6.00	12.50	Drill Core	OXIDE	BAG1	BARREL 10	28	24.3	0.17	8
							Drill Core		BAG2	BARREL 11	31	28.0		
18	Souwa	CIS339768	DPDD1460	DPRC0061	11.00	20.00	Drill Core	OXIDE	BAG1	BARREL 32	37	33.6	0.71	8
							Drill Core		BAG2	BARREL 33	33	30.3		
31	Souwa	CIS339781	DPDD1524	DPRC1160	20.00	30.00	Drill Core	OXIDE	BAG1	BARREL 55	26	22.7	0.32	2
							Drill Core		BAG2	BARREL 56	24	20.5		
32	Souwa	CIS339782	DPDD1524	DPRC1160	30.00	38.00	Drill Core	OXIDE	BAG1	BARREL 57	24	20.9	6.71	3
							Drill Core		BAG2	BARREL 58	24	20.9		
33	Souwa	CIS339783	DPDD1524	DPRC1160	38.00	43.00	Drill Core	OXIDE	BAG1	BARREL 59	28	25.2	0.72	2
37	Souwa	CIS339787	DPDD1526	DPRC1289	18.00	28.00	Drill Core	OXIDE	BAG1	BARREL 65	25	21.7	0.73	3
38	Souwa	CIS339788	DPDD1526	DPRC1289	28.00	33.00	Drill Core	OXIDE	BAG1	BARREL 66	17	13.2	1.58	3
39	Souwa	CIS339789	DPDD1526	DPRC1289	33.00	39.00	Drill Core	OXIDE	BAG1	BARREL 67	22	18.1	0.35	2
												TOTAL	**0.97**	**39**
												SOUWA OXIDE MASTER COMPOSITE		

SOUWA TRANSITIONAL MASTER COMPOSITE — MC2

NUMBER	PROSPECT	SAMPLE ID	HOLE ID	TWINNED HOLE ID	INTERVAL FROM (m)	INTERVAL TO (m)	SAMPLE TYPE	WEATHERING	BAG NO.	BARREL NO.	SITE WEIGHT (kg)	ALS WEIGHT (kg)	ALS AU ASSAY	TO COMP Mass (kg)
2	Souwa	CIS339752	DPDD1517	DPRC0850	10.00	20.00	Drill Core	TRANSITION	BAG1	BARREL 2	28	24.8	1.23	6.00
							Drill Core		BAG2	BARREL 3	38	36.1		
3	Souwa	CIS339753	DPDD1518	DPRC0851	18.00	28.00	Drill Core	TRANSITION	BAG1	BARREL 4	29	25.5	0.69	2.00
							Drill Core		BAG2	BARREL 5	19	15.9		
4	Souwa	CIS339754	DPDD1518	DPRC0851	28.00	37.00	Drill Core	TRANSITION	BAG1	BARREL 6	30	27.2	0.14	2.00
							Drill Core		BAG2	BARREL 7	35	31.6		
5	Souwa	CIS339755	DPDD1518	DPRC0851	37.00	42.00	Drill Core	TRANSITION	BAG1	BARREL 8	41	38.4	0.84	2.00
8	Souwa	CIS339758	DPDD1462	DPRC0843	12.50	22.50	Drill Core	TRANSITION	BAG1	BARREL 12	40	36.7	0.71	3.00
							Drill Core		BAG2	BARREL 13	40	36.8		
							Drill Core		BAG3	BARREL 14	32	32.9		
9	Souwa	CIS339759	DPDD1462	DPRC0843	22.50	32.50	Drill Core	TRANSITION	BAG1	BARREL 15	41	38.3	0.61	3.00
							Drill Core		BAG2	BARREL 16	40	36.5		
							Drill Core		~~BAG3~~	~~BARREL 17~~	~~34~~	~~NSR~~		
10	Souwa	CIS339760	DPDD1519	DPRC0844	39.00	44.00	Drill Core	TRANSITION	BAG1	BARREL 18	40	38.2	1.15	6.00
19	Souwa	CIS339769	DPDD1460	DPRC0061	20.00	30.00	Drill Core	TRANSITION	BAG1	BARREL 34	39	35.8	0.13	3.00
							Drill Core		BAG2	BARREL 35	39	35.8		
20	Souwa	CIS339770	DPDD1460	DPRC0061	30.00	40.00	Drill Core	TRANSITION	BAG1	BARREL 36	34	30.7	0.45	3.00
							Drill Core		BAG2	BARREL 37	40	35.7		
							Drill Core		BAG3	BARREL 38	38	34.3		
21	Souwa	CIS339771	DPDD1521	DPRC0062	37.00	47.00	Drill Core	TRANSITION	BAG1	BARREL 39	25	21.2	0.42	3.00
							Drill Core		BAG2	BARREL 40	32	28.0		
22	Souwa	CIS339772	DPDD1521	DPRC0062	47.00	52.00	Drill Core	TRANSITION	BAG1	BARREL 41	27	23.0	0.30	3.00
34	Souwa	CIS339784	DPDD1524	DPRC1160	43.00	51.00	Drill Core	TRANSITION	BAG1	BARREL 60	36	32.6	0.52	6.00
												TOTAL	**0.68**	**42**
												SOUWA TRANSITIONAL MASTER COMPOSITE		

CHEGUE MAIN OXIDE MASTER COMPOSITE — MC3

NUMBER	PROSPECT	SAMPLE ID	HOLE ID	TWINNED HOLE ID	INTERVAL FROM (m)	INTERVAL TO (m)	SAMPLE TYPE	WEATHERING	BAG NO.	BARREL NO.	SITE WEIGHT (kg)	ALS WEIGHT (kg)	ALS AU ASSAY	TO COMP Mass (kg)
13	Chegue Main	CIS339816	DPDD1458	DPRC0881	3.5	13		OXYDE	BAG1	BARREL 24	41	39.5	0.36	16
									BAG2	BARREL 25	42	40.7		
23	Chegue Main	CIS339826	DPDD1541	DPRC0474	0	5		OXYDE	BAG1	BARREL 40	28	28.4	1.48	8
24	Chegue Main	CIS339827	DPDD1541	DPRC0474	5	11		OXYDE	BAG1	BARREL 41	31	30.8	1.72	8
												TOTAL	**0.98**	**32**
												CHEGUE MAIN OXIDE MASTER COMPOSITE		

CHEGUE MAIN TRANSITIONAL MASTER COMPOSITE — MC4

NUMBER	PROSPECT	SAMPLE ID	HOLE ID	TWINNED HOLE ID	INTERVAL FROM (m)	INTERVAL TO (m)	SAMPLE TYPE	WEATHERING	BAG NO.	BARREL NO.	SITE WEIGHT (kg)	ALS WEIGHT (kg)	ALS AU ASSAY	TO COMP Mass (kg)
1	Chegue Main	CIS339804	DPDD1535	DPRC2136	0	10		TRANSITION	BAG1	BARREL 1	31	30.8	0.24	4
2	Chegue Main	CIS339805	DPDD1535	DPRC2136	10	20		TRANSITION	BAG1	BARREL 2	31	24.7	0.31	4
									BAG2	BARREL 3	31	31.4		
14	Chegue Main	CIS339817	DPDD1458	DPRC0881	13	23		TRANSITION	BAG1	BARREL 26	38	36.8	0.33	4
									BAG2	BARREL 27	38	36.9		
15	Chegue Main	CIS339818	DPDD1458	DPRC0881	23	33		TRANSITION	BAG1	BARREL 28	47	45.6	0.56	4
									BAG2	BARREL 29	48	47.1		
16	Chegue Main	CIS339819	DPDD1458	DPRC0881	33	40		TRANSITION	BAG1	BARREL 30	41	39.0	0.16	
									BAG2	BARREL 31	47	45.0		
20	Chegue Main	CIS339823	DPDD1540	DPRC0143	53	60		TRANSITION	BAG1	BARREL 37	34	32.8	0.28	8
25	Chegue Main	CIS339828	DPDD1541	DPRC0474	11	16		TRANSITION	BAG1	BARREL 42	26	25.4	0.54	4
26	Chegue Main	CIS339829	DPDD1541	DPRC0474	16	26		TRANSITION	BAG1	BARREL 43	21	21.0	0.33	4
									BAG2	BARREL 44	27	27.1		
27	Chegue Main	CIS339830	DPDD1542	DPRC0475	53	61		TRANSITION	BAG1	BARREL 45	21	20.9	0.72	8
									BAG2	BARREL 46	24	24.1		
												TOTAL	**0.43**	**40**
												CHEGUE MAIN TRANSITIONAL MASTER COMPOSITE		

CHEGUE SOUTH TRANSITIONAL MASTER COMPOSITE — MC5

NUMBER	PROSPECT	SAMPLE ID	HOLE ID	TWINNED HOLE ID	INTERVAL FROM (m)	INTERVAL TO (m)	SAMPLE TYPE	WEATHERING	BAG NO.	BARREL NO.	SITE WEIGHT (kg)	ALS WEIGHT (kg)	ALS AU ASSAY	TO COMP Mass (kg)
35	Chegue South	CIS339838	DPDD1545	DPRC2110	20	30		TRANSITION	BAG1	BARREL 60	39	37.2	0.74	13
									BAG2	BARREL 61	41	39.3		
39	Chegue South	CIS339842	DPDD1548	DPRC2344	35	40		TRANSITION	BAG1	BARREL 67	38	36.7	2.80	13
47	Chegue South	CIS339850	DPDD1551	DPRC0681	8	18		TRANSITION	BAG1	BARREL 79	23	21.7	0.11	7
									BAG2	BARREL 80	22	20.5		
48	Chegue South	CIS339851	DPDD1551	DPRC0681	18	28		TRANSITION	BAG1	BARREL 81	21	19.1	5.09	6
									BAG2	BARREL 82	27	26.6		
												TOTAL	**1.98**	**39**
												CHEGUE SOUTH TRANSITIONAL MASTER COMPOSITE		

KEKEDA TRANSITION MASTER COMPOSITE — MC6

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS739206	DPDD1555	DPRC2287	17	22	1.46	5
CIS739213	DPDD1557	DPRC0521	6	16	2.63	9
CIS739214		DPRC0521	16	24	0.59	7
CIS739215		DPRC0521	24	29	0.74	5
CIS739218	DPDD1559	DPRC2269	29	39	0.89	9
CIS739219		DPRC2269	39	46	0.68	6
CIS739220	DPDD1455	DPRC0513	10	20	0.59	9

TOTAL (kg) 50

KILOSGUI FRESH MASTER COMPOSITE — MC7

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (STotal %)	ALS Assay (Au g/t)	ALS Mass kg
CIS734002	DPDD3001	DPRC5014	11.3	20	0.32	1.6	28
CIS734004	DPDD3002	DPRC5015	26	36	0.12	0.68	33
CIS734005		DPRC5015	36	46	0.32	1.47	33
CIS734008	DPDD3003	DPRC5052	17	27	0.44	1.7	33
CIS734009		DPRC5052	27	37	0.56	2.47	33
CIS734010		DPRC5052	37	42	0.14	0.58	16
CIS734028	DPDD3009	DPRC5249	25	35	0.36	1.19	33
CIS734030	DPDD3010	DPRC5261	13	23	0.22	1.09	33
CIS734033	DPDD3011	DPRC5272	38	48	0.42	1.17	33
CIS734034		DPRC5272	48	58	0.38	1.28	33
CIS734035		DPRC5272	58	68	0.3	0.76	33
CIS734040	DPDD3012	DPRC5314	38	48	0.38	1.94	33
CIS734043	DPDD3013	DPRC5321	76	86	0.34	1.73	33
CIS734045	DPDD3014	DPRC5405	38	48	0.36	1.77	33
CIS734046		DPRC5405	48	58	0.56	0.99	33
CIS734053	DPDD3016	DPRC5527	39	49	0.24	0.77	33

TOTAL (kg) 506

SOUWA OXIDE MASTER COMPOSITE — MC8

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS339768	DPDD1460	DPRC0061	11	20	3.6	8
CIS339782	DPDD1524	DPRC1160	30	38	6.7	7
CIS339783		DPRC1160	38	43	0.72	9
CIS339787	DPDD1526	DPRC1289	18	28	0.73	18
CIS339788		DPRC1289	28	33	1.58	9

TOTAL (kg) 51

SOUWA OXIDE MASTER COMPOSITE — MC9

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg	Approx Remaining Mass kg
CIS339768	DPDD1460	DPRC0061	11	20	0.71	25	22
CIS339782	DPDD1524	DPRC1160	30	38	6.7	20	10
CIS339783		DPRC1160	38	43	0.72	5	8

TOTAL (kg) 50
Predicted grade (g/t) 3.11

SOUWA TRANSITIONAL MASTER COMPOSITE — MC10

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	MASS TO COMP kg
CIS339752	DPDD1517	DPRC0850	10	20	1.23	7.6
CIS339753	DPDD1518	DPRC0851	18	28	0.69	7.6
CIS339755		DPRC0851	37	42	0.84	3.8
CIS339758	DPDD1462	DPRC0843	13	23	0.71	7.6
CIS339759		DPRC0843	23	33	0.61	7.6
CIS339760	DPDD1519	DPRC0844	39	44	1.15	3.8
CIS339784	DPDD1524	DPRC1160	43	51	0.52	6.1
CIS790004	DPDD1473		44	47	1.65	2.3
CIS790007	DPDD1584		40	45	2.84	3.8

*ESTIMATE

TOTAL (kg) 50.0
Predicted grade (g/t) 1.00

SOUWA FRESH MASTER COMPOSITE — MC11

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS339761	DPDD1519	DPRC0844	44	54	2.36	3.3
CIS339778	DPDD1523	DPRC1413	133	143	4.55	3.3
CIS339785	DPDD1525	DPRC1108	51	61	2.33	3.3
CIS339790	DPDD1527	DPRC1095	86	96	0.97	3.3
CIS790001	DPRD1102		136	147	0.72	3.7
CIS790002	DPDD1382		79	100	5.21	7.0
CIS790003	DPDD1386		90	116	0.99	8.7
CIS790005	DPDD1473		72	77	1.47	1.7
CIS790006	DPDD1473		80	94	1.2	4.7
CIS790008	DPDD1584		50	65	2.57	5.0
CIS790009	DPDD1586		72	90	1.47	6.0

*ESTIMATE

TOTAL (kg) 50.0
Predicted grade (g/t) 2.23

NOPKA TRANSITIONAL MASTER COMPOSITE — MC12

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS339802	DPDD1533	DPRC1058	12.5	21.5	0.6	4.0
CIS 790039	DPDD1589		25	36	2.16	22.7
CIS 790040	DPDD1588		26	35	7.13	19.9
CIS 790041	DPDD1491		28	34	2.66	3.0

*ESTIMATE

TOTAL (kg) 49.6
Predicted grade (g/t) 4.06

NOPKA FRESH MASTER COMPOSITE — MC13

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS339796	DPDD1531	DPDD1426	88	98	0.89	4.4
CIS339797		DPDD1426	98	108	4.52	4.4
CIS339798		DPDD1426	108	118	1.07	4.4
CIS339799		DPDD1426	118	128	0.77	4.4
CIS339801	DPDD1532	DPRC1052	55	65	0.65	4.4
CIS790017	DPDD1425		100	107	1.14	3.1
CIS790018	DPDD1425		112	137.7	1.89	11.3
CIS790020	DPDD1587		78	109	0.95	13.6

*ESTIMATE

TOTAL (kg) 50.0
Predicted grade (g/t) 1.45

CHEGUE MAIN OXIDE MASTER COMPOSITE MC14

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS339826	DPDD1541	DPRC0474	0	5	1.48	12.5
CIS339827		DPRC0474	5	11	1.75	10.6
CIS790014	DPDD1592		0	10	1.49	9.9
					*ESTIMATE	

TOTAL (kg) 33.0
Predicted grade (g/t) 1.57

CHEGUE MAIN FRESH MASTER COMPOSITE MC15

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS339809	DPDD1537	DPRC2062	47	57	0.72	7.0
CIS339810		DPRC2062	57	67	0.83	7.0
CIS339833	DPDD1543	DPRC2052	60	70	0.78	7.0
CIS790010	DPDD1487		82	87	1.52	3.5
CIS790011	DPDD1494		50	58	1.15	5.6
CIS790012	DPDD1501		84	97	5.49	9.1
CIS790015	DPDD1594		52	56	1.49	2.8
CIS790037	DPDD1594		45	52	2.87	4.9
CIS790038	DPDD1591		36	40.8	1.26	3.3
					*ESTIMATE	

TOTAL (kg) 50.0
Predicted grade (g/t) 2.00

CHEGUE SOUTH TRANSITIONAL MASTER COMPOSITE MC16

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS339838	DPDD1545	DPRC2110	20	30	0.74	17.9
CIS339842	DPDD1548	DPRC2344	35	40	2.8	8.9
CIS790016	DPDD1595		7	20	4.59	23.2
					*ESTIMATE	

TOTAL (kg) 50.0
Predicted grade (g/t) 2.89

CHEGUE SOUTH FRESH MASTER COMPOSITE MC17

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS339837	DPDD1544	DPRC0913	64.5	74.5	2.9	10.9
CIS339843	DPDD1548	DPRC2344	40	45	1.14	5.4
CIS339844		DPRC2344	45	52	11.85	7.6
CIS339847	DPDD1550	DPRC0750	62.5	72.5	0.59	10.9
CIS339848		DPRC0750	72.5	82.5	1.36	10.9
CIS 790035	DPDD1487		70	72	0.71	2.2
CIS 790036	DPDD1597		66	68	0.63	2.2
					*ESTIMATE	

TOTAL (kg) 50.0
Predicted grade (g/t) 3.04

KEKEDA FRESH MASTER COMPOSITE — MC18

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS739208	DPDD1555	DPRC2287	32	42	3.95	4.7
CIS739210	DPDD1556	DPRC0014	39	49	1.54	4.7
CIS739216	DPDD1558	DPRC0005	58	68	0.69	4.7
CIS790024	DPRD1373		58	72	1.91	6.5
CIS790025	DPDD1436		24	32	1	3.7
CIS790026	DPDD1436		39	43	1.18	1.9
CIS790027	DPDD1439		44	59	9.01	7.0
CIS790028	DPDD1479		44	50.3	1.11	2.0
CIS790029	DPDD1598		36	45	0.47	5.1
CIS790030	DPDD1599		67	77	4.57	4.7
CIS790031	DPDD1600		18	29	1.35	5.1
					*ESTIMATE	

TOTAL (kg) 50.0
Predicted grade (g/t) 2.86

HAN TRANSITIONAL MASTER COMPOSITE — MC19

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS739231	DPDD1562	DPRC0570	22	31	23.55	23.7
CIS739239	DPDD1566	DPRC2443	21	31	0.55	26.3
					*ESTIMATE	

TOTAL (kg) 50.0
Predicted grade (g/t) 11.45

HAN FRESH MASTER COMPOSITE — MC20

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS739225	DPDD1561	DPRC2296	47	57	0.58	8.7
CIS739233	DPDD1563	DPRC2468	48	58	1.89	8.7
CIS790022	DPRD0470		86	107	0.89	18.3
CIS790023	DPRD1502		51.85	59.5	1.82	6.7
CIS790042	DPDD1602		18.9	23.5	15.8	4.0
CIS790043	DPDD1503		38.15	42.35	9.44	3.7
					*ESTIMATE	

TOTAL (kg) 50.0
Predicted grade (g/t) 2.95

ENIODA OXIDE MASTER COMPOSITE — MC21

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS739253	DPDD1572	DPRC2635	10	20	0.64	17.2
CIS739254		DPRC2635	20	25	1.57	8.6
CIS739255		DPRC2635	25	31	2.35	10.3
CIS739260	DPDD1574	DPRC0102	20	28	6.39	13.8
					*ESTIMATE	

TOTAL (kg) 50.0
Predicted grade (g/t) 2.74

ENIODA TRANSITIONAL MASTER COMPOSITE — MC22

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS 790032	DPDD1604		47.07	60	3.09	10.0
CIS 790033	DPDD1605		40	54	1.55	20.0
					*ESTIMATE	

TOTAL (kg)	30.0
Predicted grade (g/t)	2.06

ATTIRE TRANSITIONAL MASTER COMPOSITE — MC23

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS739262	DPDD1576	DPRC0117	16	21	1.29	8.0
CIS739268	DPDD1579	DPRC3022	14	24	1.75	15.0
CIS739269	DPDD1580	DPRC2944	15	25	0.53	15.0
CIS739273	DPDD1581	DPRC3015	11	20	7.42	7.0
CIS739275		DPRC3015	30	36	3.55	5.0
					*ESTIMATE	

TOTAL (kg)	50.0
Predicted grade (g/t)	2.28

ATTIRE FRESH MASTER COMPOSITE — MC24

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS739261	DPDD1575	DPRC3064	73	81	0.99	22.2
CIS739266	DPDD1578	DPRC3023	60	70	0.56	27.8
					*ESTIMATE	

TOTAL (kg)	50.0
Predicted grade (g/t)	0.75

KILOSEGUI TRANSITIONAL MASTER COMPOSITE — MC25

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS734027	DPDD3009	DPRC5249	18	25	1.45	10.9
CIS734037	DPDD3012	DPRC5314	13	23	1.46	15.6
CIS734038		DPRC5314	23	33	1.32	15.6
CIS734039		DPRC5314	33	38	2.03	7.8
					*ESTIMATE	

TOTAL (kg)	50.0
Predicted grade (g/t)	1.50

SOUWA OXIDE MASTER COMPOSITE — MC26

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS339768	DPDD1460	DPRC0061	11.00	20.00	0.71	18.3
CIS339782	DPDD1524	DPRC1160	30.00	38.00	6.71	9.2
CIS339783	DPDD1524	DPRC1160	38.00	43.00	0.72	7.5
CIS339789	DPDD1526	DPRC1289	33.00	39.00	0.35	6.7
					*ESTIMATE	

TOTAL (kg)	41.7
Predicted grade (g/t)	2.35

ENIODA FRESH MASTER COMPOSITE

MC27

Sample ID	Hole ID	Twinned Hole ID	Interval From (m)	Interval To (m)	ALS Assay (Au g/t)	ALS Mass kg
CIS 790034	DPDD1513		99	106	**5.18**	**7**
CIS 790085	DPRC3709		83.00	86.00	2.09	3.0
CIS 790086	DPRC3704		74.00	82.00	1.10	8.0
CIS 790087	DPRC3703		53.00	56.00	0.80	3.0
CIS 790088	DPRC3700		67.00	77.00	1.84	10.0

*ESTIMATE

TOTAL (kg)	31.0
Predicted grade (g/t)	2.33

APPENDIX II

Unconfined Compressive Strength Determination

Details and Results

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**SOUWA FRESH #1**
SAMPLE	**DPDD1520 60-70m # 1**
DATE	**Mar-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**PQ Core**
Diameter (mm) :	**55.91**
Height (mm) :	**105.95**
Area (mm^2) :	**2455.1**
Weight (kg)	**0.695**
Density (kg/dm^3)	**2.670**

Test Results :

Failure At :	**66.283 (kN)**
Failure Mode :	**Columnar**
U.C.S. :	**26.998 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	SOUWA FRESH #1
SAMPLE	DPDD1520 60-70m #2
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	PQ Core
Diameter (mm) :	55.91
Height (mm) :	120.35
Area (mm^2) :	2455.1
Weight (kg)	0.793
Density (kg/dm^3)	2.684

Test Results :

Failure At :	50.849 (kN)
Failure Mode :	Shear
U.C.S. :	20.712 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136	
CLIENT	AMPELLA MINING COTE D'IVOIRE	
COMPOSITE	SOUWA FRESH #1	
SAMPLE	DPDD1520 60-70m	# 3
DATE	Mar-22	

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**PQ Core**
Diameter (mm) :	**55.91**
Height (mm) :	**118.55**
Area (mm^2) :	**2455.1**
Weight (kg)	**0.776**
Density (kg/dm^3)	**2.666**

Test Results :

Failure At :	**29.774 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**12.127 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**SOUWA FRESH #1**
SAMPLE	**DPDD1520 60-70m #4**
DATE	**Mar-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**PQ Core**
Diameter (mm) :	**55.91**
Height (mm) :	**117.02**
Area (mm^2) :	**2455.1**
Weight (kg)	**0.770**
Density (kg/dm^3)	**2.678**

Test Results :

Failure At :	**101.067 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**41.166 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**SOUWA FRESH #1**
SAMPLE	**DPDD1520 60-70m #5**
DATE	**Mar-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**PQ Core**
Diameter (mm) :	**55.91**
Height (mm) :	**124.92**
Area (mm^2) :	**2455.1**
Weight (kg)	**0.798**
Density (kg/dm^3)	**2.602**

Test Results :

Failure At :	**27.552 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**11.222 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	SOUWA FRESH #2
SAMPLE	DPDD1523 133-143m # 1
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	PQ Core
Diameter (mm) :	55.94
Height (mm) :	118.89
Area (mm^2) :	2457.7
Weight (kg)	0.766
Density (kg/dm^3)	2.621

Test Results :

Failure At :	28.992 (kN)
Failure Mode :	Cataclasis
U.C.S. :	11.796 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	SOUWA FRESH #2
SAMPLE	DPDD1523 133-143m #2
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	PQ Core
Diameter (mm) :	55.94
Height (mm) :	128.34
Area (mm^2) :	2457.7
Weight (kg)	0.853
Density (kg/dm^3)	2.703

Test Results :

Failure At :	135.589 (kN)
Failure Mode :	Shear
U.C.S. :	55.168 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	SOUWA FRESH #2
SAMPLE	DPDD1523 133-143m # 3
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	PQ Core
Diameter (mm) :	55.94
Height (mm) :	140.44
Area (mm^2) :	2457.7
Weight (kg)	0.931
Density (kg/dm^3)	2.698

Test Results :

Failure At :	84.335 (kN)
Failure Mode :	Shear
U.C.S. :	34.314 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	SOUWA FRESH #2
SAMPLE	DPDD1523 133-143m #4
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	PQ Core
Diameter (mm) :	55.94
Height (mm) :	141.75
Area (mm^2) :	2457.7
Weight (kg)	0.939
Density (kg/dm^3)	2.694

Test Results :

Failure At :	94.317 (kN)
Failure Mode :	Shear
U.C.S. :	38.376 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	SOUWA FRESH #2
SAMPLE	DPDD1523 133-143m #5
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	PQ Core
Diameter (mm) :	55.94
Height (mm) :	122.61
Area (mm^2) :	2457.7
Weight (kg)	0.805
Density (kg/dm^3)	2.672

Test Results :

Failure At :	27.222 (kN)
Failure Mode :	Shear
U.C.S. :	11.076 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	SOUWA FRESH #3
SAMPLE	DPDD1527 96-103m # 1
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	PQ Core
Diameter (mm) :	55.84
Height (mm) :	114.41
Area (mm^2) :	2449.0
Weight (kg)	0.749
Density (kg/dm^3)	2.675

Test Results :

Failure At :	60.255 (kN)
Failure Mode :	Shear
U.C.S. :	24.604 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**SOUWA FRESH #3**
SAMPLE	**DPDD1527 96-103m #2**
DATE	**Mar-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**PQ Core**
Diameter (mm) :	**55.84**
Height (mm) :	**116.20**
Area (mm^2) :	**2449.0**
Weight (kg)	**0.761**
Density (kg/dm^3)	**2.674**

Test Results :

Failure At :	**188.198 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**76.848 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**SOUWA FRESH #3**
SAMPLE	**DPDD1527 96-103m # 3**
DATE	**Mar-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**PQ Core**
Diameter (mm) :	**55.84**
Height (mm) :	**128.00**
Area (mm^2) :	**2449.0**
Weight (kg)	**0.840**
Density (kg/dm^3)	**2.680**

Test Results :

Failure At :	**113.403 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**46.307 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	SOUWA FRESH #3
SAMPLE	DPDD1527 96-103m #4
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	PQ Core
Diameter (mm) :	55.84
Height (mm) :	139.67
Area (mm^2) :	2449.0
Weight (kg)	0.918
Density (kg/dm^3)	2.685

Test Results :

Failure At :	149.282 (kN)
Failure Mode :	Columnar
U.C.S. :	60.957 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	SOUWA FRESH #3
SAMPLE	DPDD1527 96-103m #5
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	PQ Core
Diameter (mm) :	55.84
Height (mm) :	118.42
Area (mm^2) :	2449.0
Weight (kg)	0.776
Density (kg/dm^3)	2.676

Test Results :

Failure At :	152.325 (kN)
Failure Mode :	Shear
U.C.S. :	62.200 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**NOKPA FRESH #2**
SAMPLE	**DPDD1531 108-118m # 1**
DATE	**Mar-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**PQ Core**
Diameter (mm) :	**55.73**
Height (mm) :	**108.49**
Area (mm^2) :	**2439.3**
Weight (kg)	**0.701**
Density (kg/dm^3)	**2.648**

Test Results :

Failure At :	**50.320 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**20.629 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	NOKPA FRESH #2
SAMPLE	DPDD1531 108-118m #2
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	PQ Core
Diameter (mm) :	55.73
Height (mm) :	104.51
Area (mm^2) :	2439.3
Weight (kg)	0.677
Density (kg/dm^3)	2.654

Test Results :

Failure At :	36.260 (kN)
Failure Mode :	Shear
U.C.S. :	14.865 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**NOKPA FRESH #2**
SAMPLE	**DPDD1531 108-118m # 3**
DATE	**Mar-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**PQ Core**
Diameter (mm) :	**55.73**
Height (mm) :	**94.89**
Area (mm^2) :	**2439.3**
Weight (kg)	**0.596**
Density (kg/dm^3)	**2.574**

Test Results :

Failure At :	**26.799 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**10.986 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	NOKPA FRESH #2
SAMPLE	DPDD1531 108-118m #4
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	PQ Core
Diameter (mm) :	55.73
Height (mm) :	108.22
Area (mm^2) :	2439.3
Weight (kg)	0.671
Density (kg/dm^3)	2.541

Test Results :

Failure At :	129.068 (kN)
Failure Mode :	Shear
U.C.S. :	52.912 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**NOKPA FRESH #2**
SAMPLE	**DPDD1531 108-118m #5**
DATE	**Mar-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**PQ Core**
Diameter (mm) :	**55.73**
Height (mm) :	**104.78**
Area (mm^2) :	**2439.3**
Weight (kg)	**0.695**
Density (kg/dm^3)	**2.721**

Test Results :

Failure At :	**22.279 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**9.133 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE MAIN FRESH #1
SAMPLE	DPDD1536 75-80m # 1
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	79.02
Area (mm^2) :	2434.1
Weight (kg)	0.513
Density (kg/dm^3)	2.669

Test Results :

Failure At :	131.623 (kN)
Failure Mode :	Columnar
U.C.S. :	54.075 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE MAIN FRESH #1
SAMPLE	DPDD1536 75-80m #2
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	102.74
Area (mm^2) :	2434.1
Weight (kg)	0.661
Density (kg/dm^3)	2.643

Test Results :

Failure At :	158.516 (kN)
Failure Mode :	Shear/Columnar
U.C.S. :	65.124 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136	
CLIENT	AMPELLA MINING COTE D'IVOIRE	
COMPOSITE	CHEGUE MAIN FRESH #2	
SAMPLE	DPDD1537 52-57m	# 1
DATE	Mar-22	

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	110.73
Area (mm^2) :	2434.1
Weight (kg)	0.726
Density (kg/dm^3)	2.694

Test Results :

Failure At :	32.775 (kN)
Failure Mode :	Shear
U.C.S. :	13.465 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE MAIN FRESH #2
SAMPLE	DPDD1537 52-57m #2
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	102.25
Area (mm^2) :	2434.1
Weight (kg)	0.668
Density (kg/dm^3)	2.686

Test Results :

Failure At :	271.208 (kN)
Failure Mode :	Shear
U.C.S. :	111.422 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE MAIN FRESH #2
SAMPLE	DPDD1537 52-57m #3
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	106.84
Area (mm^2) :	2434.1
Weight (kg)	0.706
Density (kg/dm^3)	2.716

Test Results :

Failure At :	129.807 (kN)
Failure Mode :	Shear
U.C.S. :	53.329 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE MAIN FRESH #2
SAMPLE	DPDD1537 52-57m #4
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	91.48
Area (mm^2) :	2434.1
Weight (kg)	0.601
Density (kg/dm^3)	2.700

Test Results :

Failure At :	44.129 (kN)
Failure Mode :	Shear
U.C.S. :	18.130 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE MAIN FRESH #2
SAMPLE	DPDD1537 52-57m #5
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	93.69
Area (mm^2) :	2434.1
Weight (kg)	0.617
Density (kg/dm^3)	2.704

Test Results :

Failure At :	61.997 (kN)
Failure Mode :	Shear
U.C.S. :	25.471 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136	
CLIENT	AMPELLA MINING COTE D'IVOIRE	
COMPOSITE	CHEGUE MAIN FRESH #4	
SAMPLE	DPDD1543 65-70m	# 1
DATE	Mar-22	

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	127.04
Area (mm^2) :	2434.1
Weight (kg)	0.836
Density (kg/dm^3)	2.702

Test Results :

Failure At :	40.390 (kN)
Failure Mode :	Shear
U.C.S. :	16.594 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE MAIN FRESH #4
SAMPLE	DPDD1543 65-70m #2
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	112.61
Area (mm^2) :	2434.1
Weight (kg)	0.738
Density (kg/dm^3)	2.693

Test Results :

Failure At :	33.560 (kN)
Failure Mode :	Shear
U.C.S. :	13.788 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE MAIN FRESH #4
SAMPLE	DPDD1543 65-70m #3
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	92.79
Area (mm^2) :	2434.1
Weight (kg)	0.609
Density (kg/dm^3)	2.694

Test Results :

Failure At :	250.942 (kN)
Failure Mode :	Shear/Columnar
U.C.S. :	103.096 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE MAIN FRESH #4
SAMPLE	DPDD1543 65-70m #4
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	93.33
Area (mm^2) :	2434.1
Weight (kg)	0.600
Density (kg/dm^3)	2.640

Test Results :

Failure At :	61.526 (kN)
Failure Mode :	Shear
U.C.S. :	25.277 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE SOUTH FRESH #1
SAMPLE	DPDD1544 55-61m # 1
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	103.67
Area (mm^2) :	2434.1
Weight (kg)	0.687
Density (kg/dm^3)	2.724

Test Results :

Failure At :	265.928 (kN)
Failure Mode :	Columnar
U.C.S. :	109.253 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**CHEGUE SOUTH FRESH #1**
SAMPLE	**DPDD1544 55-61m # 2**
DATE	**Mar-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**Full Core NX**
Diameter (mm) :	**55.67**
Height (mm) :	**100.05**
Area (mm^2) :	**2434.1**
Weight (kg)	**0.655**
Density (kg/dm^3)	**2.688**

Test Results :

Failure At :	**35.823 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**14.717 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**CHEGUE SOUTH FRESH #1**
SAMPLE	**DPDD1544 55-61m # 3**
DATE	**Mar-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**Full Core NX**
Diameter (mm) :	**55.67**
Height (mm) :	**102.15**
Area (mm^2) :	**2434.1**
Weight (kg)	**0.671**
Density (kg/dm^3)	**2.698**

Test Results :

Failure At :	**33.563 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**13.789 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136	
CLIENT	AMPELLA MINING COTE D'IVOIRE	
COMPOSITE	CHEGUE SOUTH FRESH #1	
SAMPLE	DPDD1544 55-61m	# 4
DATE	Mar-22	

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	116.12
Area (mm^2) :	2434.1
Weight (kg)	0.763
Density (kg/dm^3)	2.701

Test Results :

Failure At :	24.329 (kN)
Failure Mode :	Shear
U.C.S. :	9.995 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**CHEGUE SOUTH FRESH #1**
SAMPLE	**DPDD1544 55-61m # 5**
DATE	**Mar-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**Full Core NX**
Diameter (mm) :	**55.67**
Height (mm) :	**98.13**
Area (mm^2) :	**2434.1**
Weight (kg)	**0.645**
Density (kg/dm^3)	**2.701**

Test Results :

Failure At :	**104.081 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**42.760 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE SOUTH FRESH #2
SAMPLE	DPDD1549 82-90m # 1
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	115.39
Area (mm^2) :	2434.1
Weight (kg)	0.759
Density (kg/dm^3)	2.701

Test Results :

Failure At :	179.851 (kN)
Failure Mode :	Shear
U.C.S. :	73.889 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE SOUTH FRESH #2
SAMPLE	DPDD1549 82-90m #2
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	121.77
Area (mm^2) :	2434.1
Weight (kg)	0.798
Density (kg/dm^3)	2.692

Test Results :

Failure At :	177.934 (kN)
Failure Mode :	Shear
U.C.S. :	73.102 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE SOUTH FRESH #2
SAMPLE	DPDD1549 82-90m # 3
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	112.05
Area (mm^2) :	2434.1
Weight (kg)	0.734
Density (kg/dm^3)	2.691

Test Results :

Failure At :	134.201 (kN)
Failure Mode :	Shear
U.C.S. :	55.134 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE SOUTH FRESH #2
SAMPLE	DPDD1549 82-90m #4
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	92.31
Area (mm^2) :	2434.1
Weight (kg)	0.607
Density (kg/dm^3)	2.702

Test Results :

Failure At :	191.168 (kN)
Failure Mode :	Shear
U.C.S. :	78.539 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE SOUTH FRESH #2
SAMPLE	DPDD1549 82-90m #5
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core NX
Diameter (mm) :	55.67
Height (mm) :	86.99
Area (mm^2) :	2434.1
Weight (kg)	0.568
Density (kg/dm^3)	2.684

Test Results :

Failure At :	352.846 (kN)
Failure Mode :	Columnar
U.C.S. :	144.962 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	CHEGUE SOUTH TRANSITION
SAMPLE	DPDD1551 23-28m #1
DATE	Mar-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	Full Core HQ
Diameter (mm) :	63.39
Height (mm) :	111.94
Area (mm^2) :	3156.0
Weight (kg)	0.912
Density (kg/dm^3)	2.581

Test Results :

Failure At :	43.854 (kN)
Failure Mode :	Columnar
U.C.S. :	13.896 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136	
CLIENT	AMPELLA MINING COTE D'IVOIRE	
COMPOSITE	HAN TRANS/FRESH	
SAMPLE	DPDD1562 12-17m	# 1
DATE	Apr-22	

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	55.93
Height (mm) :	137.32
Area (mm^2) :	2456.9
Weight (kg)	0.860
Density (kg/dm^3)	2.548

Test Results :

Failure At :	110.909 (kN)
Failure Mode :	Shear
U.C.S. :	45.143 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136	
CLIENT	AMPELLA MINING COTE D'IVOIRE	
COMPOSITE	HAN TRANS/FRESH	
SAMPLE	DPDD1562 12-17m	# 2
DATE	Apr-22	

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	63.17
Height (mm) :	102.67
Area (mm^2) :	3134.1
Weight (kg)	0.856
Density (kg/dm^3)	2.660

Test Results :

Failure At :	205.986 (kN)
Failure Mode :	Shear/Columnar
U.C.S. :	65.724 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136	
CLIENT	AMPELLA MINING COTE D'IVOIRE	
COMPOSITE	HAN TRANS/FRESH	
SAMPLE	DPDD1562 12-17m	# 3
DATE	Apr-22	

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	63.20
Height (mm) :	96.54
Area (mm^2) :	3137.1
Weight (kg)	0.811
Density (kg/dm^3)	2.676

Test Results :

Failure At :	353.751 (kN)
Failure Mode :	Shear
U.C.S. :	112.765 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136	
CLIENT	AMPELLA MINING COTE D'IVOIRE	
COMPOSITE	HAN TRANS/FRESH	
SAMPLE	DPDD1562 12-17m	# 4
DATE	Apr-22	

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	63.55
Height (mm) :	121.58
Area (mm^2) :	3171.9
Weight (kg)	1.009
Density (kg/dm^3)	2.617

Test Results :

Failure At :	339.859 (kN)
Failure Mode :	Shear
U.C.S. :	107.146 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136	
CLIENT	AMPELLA MINING COTE D'IVOIRE	
COMPOSITE	HAN TRANS/FRESH	
SAMPLE	DPDD1562 12-17m	# 5
DATE	Apr-22	

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	63.23
Height (mm) :	107.20
Area (mm^2) :	3140.0
Weight (kg)	0.898
Density (kg/dm^3)	2.668

Test Results :

Failure At :	352.133 (kN)
Failure Mode :	Shear
U.C.S. :	109.410 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**HAN FRESH #1**
SAMPLE	**DPDD1564 81-86m # 1**
DATE	**Apr-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**HQ Core**
Diameter (mm) :	**56.11**
Height (mm) :	**123.88**
Area (mm^2) :	**2472.7**
Weight (kg)	**0.812**
Density (kg/dm^3)	**2.652**

Test Results :

Failure At :	**268.452 (kN)**
Failure Mode :	**Shear/Columnar**
U.C.S. :	**108.567 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	HAN FRESH #1
SAMPLE	DPDD1564 81-86m # 2
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	55.98
Height (mm) :	123.44
Area (mm^2) :	2461.2
Weight (kg)	0.810
Density (kg/dm^3)	2.667

Test Results :

Failure At :	319.546 (kN)
Failure Mode :	Columnar
U.C.S. :	129.831 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	HAN FRESH #1
SAMPLE	DPDD1564 81-86m # 3
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	55.98
Height (mm) :	128.49
Area (mm^2) :	2461.2
Weight (kg)	0.841
Density (kg/dm^3)	2.660

Test Results :

Failure At :	327.205 (kN)
Failure Mode :	Columnar
U.C.S. :	132.943 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136	
CLIENT	AMPELLA MINING COTE D'IVOIRE	
COMPOSITE	HAN FRESH #1	
SAMPLE	DPDD1564 81-86m	# 4
DATE	Apr-22	

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	55.84
Height (mm) :	134.05
Area (mm^2) :	2449.0
Weight (kg)	0.878
Density (kg/dm^3)	2.674

Test Results :

Failure At :	112.464 (kN)
Failure Mode :	Shear
U.C.S. :	45.923 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**HAN FRESH #1**
SAMPLE	**DPDD1564 81-86m # 5**
DATE	**Apr-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**HQ Core**
Diameter (mm) :	**55.92**
Height (mm) :	**111.43**
Area (mm^2) :	**2456.0**
Weight (kg)	**0.725**
Density (kg/dm^3)	**2.651**

Test Results :

Failure At :	**182.855 (kN)**
Failure Mode :	**Shear/Columnar**
U.C.S. :	**74.453 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	HAN FRESH #2
SAMPLE	DPDD1561 61-67m # 1
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ
Diameter (mm) :	55.96
Height (mm) :	125.03
Area (mm^2) :	2459.5
Weight (kg)	0.822
Density (kg/dm^3)	2.674

Test Results :

Failure At :	144.787 (kN)
Failure Mode :	Shear
U.C.S. :	58.869 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	HAN FRESH #2
SAMPLE	DPDD1561 61-67m # 2
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ
Diameter (mm) :	55.94
Height (mm) :	96.85
Area (mm^2) :	2457.7
Weight (kg)	0.637
Density (kg/dm^3)	2.676

Test Results :

Failure At :	165.503 (kN)
Failure Mode :	Shear
U.C.S. :	67.340 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	HAN FRESH #2
SAMPLE	DPDD1561 61-67m # 3
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ
Diameter (mm) :	55.78
Height (mm) :	90.38
Area (mm^2) :	2443.7
Weight (kg)	0.594
Density (kg/dm^3)	2.689

Test Results :

Failure At :	457.403 (kN)
Failure Mode :	Shear
U.C.S. :	187.177 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136	
CLIENT	AMPELLA MINING COTE D'IVOIRE	
COMPOSITE	HAN FRESH #2	
SAMPLE	DPDD1561 61-67m	# 4
DATE	Apr-22	

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ
Diameter (mm) :	55.91
Height (mm) :	85.81
Area (mm^2) :	2455.1
Weight (kg)	0.563
Density (kg/dm^3)	2.673

Test Results :

Failure At :	402.633 (kN)
Failure Mode :	Shear
U.C.S. :	163.999 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136	
CLIENT	AMPELLA MINING COTE D'IVOIRE	
COMPOSITE	HAN FRESH #2	
SAMPLE	DPDD1561 61-67m	# 5
DATE	Apr-22	

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ
Diameter (mm) :	55.97
Height (mm) :	90.95
Area (mm^2) :	2460.4
Weight (kg)	0.595
Density (kg/dm^3)	2.658

Test Results :

Failure At :	43.407 (kN)
Failure Mode :	Shear
U.C.S. :	17.642 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**HAN FRESH #3**
SAMPLE	**DPDD1556 48-54m # 1**
DATE	**Apr-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NQ^2**
Diameter (mm) :	**47.51**
Height (mm) :	**116.97**
Area (mm^2) :	**1772.8**
Weight (kg)	**0.556**
Density (kg/dm^3)	**2.679**

Test Results :

Failure At :	**181.503 (kN)**
Failure Mode :	**Columnar**
U.C.S. :	**102.382 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	HAN FRESH #3
SAMPLE	DPDD1556 48-54m # 2
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2
Diameter (mm) :	47.50
Height (mm) :	111.44
Area (mm^2) :	1772.1
Weight (kg)	0.525
Density (kg/dm^3)	2.659

Test Results :

Failure At :	83.294 (kN)
Failure Mode :	Shear
U.C.S. :	47.004 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	HAN FRESH #3
SAMPLE	DPDD1556 48-54m # 3
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2
Diameter (mm) :	47.76
Height (mm) :	118.17
Area (mm^2) :	1791.5
Weight (kg)	0.562
Density (kg/dm^3)	2.656

Test Results :

Failure At :	262.601 (kN)
Failure Mode :	Shear/Columnar
U.C.S. :	146.581 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136	
CLIENT	AMPELLA MINING COTE D'IVOIRE	
COMPOSITE	HAN FRESH #3	
SAMPLE	DPDD1556 48-54m	# 4
DATE	Apr-22	

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2
Diameter (mm) :	47.71
Height (mm) :	110.63
Area (mm^2) :	1787.8
Weight (kg)	0.529
Density (kg/dm^3)	2.674

Test Results :

Failure At :	85.420 (kN)
Failure Mode :	Shear
U.C.S. :	47.781 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**HAN FRESH #3**
SAMPLE	**DPDD1556 48-54m # 5**
DATE	**Apr-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NQ^2**
Diameter (mm) :	**47.60**
Height (mm) :	**117.20**
Area (mm^2) :	**1779.5**
Weight (kg)	**0.556**
Density (kg/dm^3)	**2.667**

Test Results :

Failure At :	**228.302 (kN)**
Failure Mode :	**Shear/Columnar/Cataclasis**
U.C.S. :	**128.294 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KEKEDA TRANS #1**
SAMPLE	**DPDD1554 38-47m # 1**
DATE	**Apr-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**HQ Core**
Diameter (mm) :	**63.28**
Height (mm) :	**71.70**
Area (mm^2) :	**3145.0**
Weight (kg)	**0.544**
Density (kg/dm^3)	**2.414**

Test Results :

Failure At :	**111.422 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**35.428 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	KEKEDA TRANS #1
SAMPLE	DPDD1554 38-47m # 2
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	63.13
Height (mm) :	71.38
Area (mm^2) :	3130.1
Weight (kg)	0.544
Density (kg/dm^3)	2.434

Test Results :

Failure At :	127.146 (kN)
Failure Mode :	Shear
U.C.S. :	40.620 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KEKEDA TRANS #1**
SAMPLE	**DPDD1554 38-47m # 3**
DATE	**Apr-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**HQ Core**
Diameter (mm) :	**63.35**
Height (mm) :	**78.05**
Area (mm^2) :	**3152.0**
Weight (kg)	**0.609**
Density (kg/dm^3)	**2.476**

Test Results :

Failure At :	**124.475 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**39.491 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KEKEDA TRANS #1**
SAMPLE	**DPDD1554 38-47m # 4**
DATE	**Apr-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**HQ Core**
Diameter (mm) :	**62.59**
Height (mm) :	**117.14**
Area (mm^2) :	**3076.8**
Weight (kg)	**0.917**
Density (kg/dm^3)	**2.543**

Test Results :

Failure At :	**60.532 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**19.674 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136	
CLIENT	AMPELLA MINING COTE D'IVOIRE	
COMPOSITE	KEKEDA TRANS #2	
SAMPLE	DPDD1559 39-46m	# 1
DATE	Apr-22	

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.75
Height (mm) :	96.11
Area (mm^2) :	1790.8
Weight (kg)	0.431
Density (kg/dm^3)	2.503

Test Results :

Failure At :	37.440 (kN)
Failure Mode :	Shear
U.C.S. :	20.907 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	KEKEDA TRANS #2
SAMPLE	DPDD1559 39-46m # 2
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.64
Height (mm) :	82.30
Area (mm^2) :	1782.5
Weight (kg)	0.367
Density (kg/dm^3)	2.504

Test Results :

Failure At :	123.542 (kN)
Failure Mode :	Shear
U.C.S. :	69.308 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	KEKEDA TRANS #2
SAMPLE	DPDD1559 39-46m # 3
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.80
Height (mm) :	79.36
Area (mm^2) :	1794.5
Weight (kg)	0.347
Density (kg/dm^3)	2.435

Test Results :

Failure At :	62.377 (kN)
Failure Mode :	Shear
U.C.S. :	34.760 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	KEKEDA TRANS #2
SAMPLE	DPDD1559 39-46m # 4
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.75
Height (mm) :	83.43
Area (mm^2) :	1790.8
Weight (kg)	0.374
Density (kg/dm^3)	2.503

Test Results :

Failure At :	62.240 (kN)
Failure Mode :	Columnar
U.C.S. :	34.756 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136	
CLIENT	AMPELLA MINING COTE D'IVOIRE	
COMPOSITE	KEKEDA TRANS #2	
SAMPLE	DPDD1559 39-46m	# 5
DATE	Apr-22	

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.62
Height (mm) :	75.69
Area (mm^2) :	1781.0
Weight (kg)	0.337
Density (kg/dm^3)	2.503

Test Results :

Failure At :	43.448 (kN)
Failure Mode :	Shear
U.C.S. :	24.395 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KEKEDA FRESH #1**
SAMPLE	**DPDD1554 57-64m # 1**
DATE	**Apr-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NQ^2**
Diameter (mm) :	**47.74**
Height (mm) :	**114.90**
Area (mm^2) :	**1790.0**
Weight (kg)	**0.558**
Density (kg/dm^3)	**2.711**

Test Results :

Failure At :	**295.854 (kN)**
Failure Mode :	**Columnar**
U.C.S. :	**165.281 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KEKEDA FRESH #1**
SAMPLE	**DPDD1554 57-64m # 2**
DATE	**Apr-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NQ^2**
Diameter (mm) :	**47.51**
Height (mm) :	**95.35**
Area (mm^2) :	**1772.8**
Weight (kg)	**0.458**
Density (kg/dm^3)	**2.711**

Test Results :

Failure At :	**121.068 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**68.292 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	KEKEDA FRESH #1
SAMPLE	DPDD1554 57-64m # 3
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2
Diameter (mm) :	47.57
Height (mm) :	106.87
Area (mm^2) :	1777.3
Weight (kg)	0.509
Density (kg/dm^3)	2.681

Test Results :

Failure At :	140.611 (kN)
Failure Mode :	Shear/Columnar
U.C.S. :	79.116 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	KEKEDA FRESH #2
SAMPLE	DPDD1554 57-64m # 4
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2
Diameter (mm) :	47.54
Height (mm) :	108.33
Area (mm^2) :	1775.0
Weight (kg)	0.517
Density (kg/dm^3)	2.689

Test Results :

Failure At :	199.327 (kN)
Failure Mode :	Shear
U.C.S. :	112.294 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	KEKEDA FRESH #1
SAMPLE	DPDD1554 57-64m # 5
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2
Diameter (mm) :	47.44
Height (mm) :	114.02
Area (mm^2) :	1767.6
Weight (kg)	0.549
Density (kg/dm^3)	2.722

Test Results :

Failure At :	244.475 (kN)
Failure Mode :	Shear
U.C.S. :	138.311 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	KEKEDA FRESH #2
SAMPLE	DPDD1556 49-53m # 1
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	55.91
Height (mm) :	126.05
Area (mm^2) :	2455.1
Weight (kg)	0.820
Density (kg/dm^3)	2.651

Test Results :

Failure At :	301.278 (kN)
Failure Mode :	Columnar
U.C.S. :	122.715 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	KEKEDA FRESH #2
SAMPLE	DPDD1556 49-53m # 2
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	56.03
Height (mm) :	123.92
Area (mm^2) :	2465.6
Weight (kg)	0.815
Density (kg/dm^3)	2.666

Test Results :

Failure At :	175.887 (kN)
Failure Mode :	Columnar
U.C.S. :	71.335 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	KEKEDA FRESH #2
SAMPLE	DPDD1556 49-53m # 3
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	55.91
Height (mm) :	121.01
Area (mm^2) :	2455.1
Weight (kg)	0.790
Density (kg/dm^3)	2.658

Test Results :

Failure At :	249.423 (kN)
Failure Mode :	Shear/Columnar
U.C.S. :	101.594 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	KEKEDA FRESH #2
SAMPLE	DPDD1556 49-53m # 4
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	56.02
Height (mm) :	109.74
Area (mm^2) :	2464.8
Weight (kg)	0.714
Density (kg/dm^3)	2.639

Test Results :

Failure At :	115.596 (kN)
Failure Mode :	Shear
U.C.S. :	46.899 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	KEKEDA FRESH #2
SAMPLE	DPDD1556 49-53m # 5
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	56.00
Height (mm) :	125.19
Area (mm^2) :	2463.0
Weight (kg)	0.817
Density (kg/dm^3)	2.650

Test Results :

Failure At :	183.322 (kN)
Failure Mode :	Columnar
U.C.S. :	74.430 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KEKEDA FRESH #3**
SAMPLE	**DPDD1558 68-73m # 1**
DATE	**Apr-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NQ^2 Core**
Diameter (mm) :	**47.60**
Height (mm) :	**107.84**
Area (mm^2) :	**1779.5**
Weight (kg)	**0.514**
Density (kg/dm^3)	**2.676**

Test Results :

Failure At :	**231.249 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**129.950 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	KEKEDA FRESH #3
SAMPLE	DPDD1558 68-73m # 2
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.56
Height (mm) :	94.23
Area (mm^2) :	1776.5
Weight (kg)	0.453
Density (kg/dm^3)	2.703

Test Results :

Failure At :	89.344 (kN)
Failure Mode :	Shear
U.C.S. :	50.291 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	KEKEDA FRESH #3
SAMPLE	DPDD1558 68-73m # 3
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.50
Height (mm) :	103.12
Area (mm^2) :	1772.1
Weight (kg)	0.492
Density (kg/dm^3)	2.695

Test Results :

Failure At :	171.300 (kN)
Failure Mode :	Columnar
U.C.S. :	96.667 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KEKEDA FRESH #3**
SAMPLE	**DPDD1558 68-73m # 4**
DATE	**Apr-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NQ^2 Core**
Diameter (mm) :	**47.53**
Height (mm) :	**107.69**
Area (mm^2) :	**1774.3**
Weight (kg)	**0.517**
Density (kg/dm^3)	**2.705**

Test Results :

Failure At :	**117.001 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**65.942 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	KEKEDA FRESH #3
SAMPLE	DPDD1558 68-73m # 5
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.47
Height (mm) :	103.83
Area (mm^2) :	1769.8
Weight (kg)	0.489
Density (kg/dm^3)	2.660

Test Results :

Failure At :	217.025 (kN)
Failure Mode :	Shear/Columnar
U.C.S. :	122.626 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ATIRRE FRESH #1
SAMPLE	DPDD1578 55-60m # 1
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.63
Height (mm) :	104.92
Area (mm^2) :	1781.8
Weight (kg)	0.504
Density (kg/dm^3)	2.697

Test Results :

Failure At :	119.382 (kN)
Failure Mode :	Columnar
U.C.S. :	67.002 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ATIRRE FRESH #1
SAMPLE	DPDD1578 55-60m # 2
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.78
Height (mm) :	92.07
Area (mm^2) :	1793.0
Weight (kg)	0.439
Density (kg/dm^3)	2.662

Test Results :

Failure At :	152.638 (kN)
Failure Mode :	Columnar
U.C.S. :	85.130 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ATIRRE FRESH #1
SAMPLE	DPDD1578 55-60m # 3
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.72
Height (mm) :	110.03
Area (mm^2) :	1788.5
Weight (kg)	0.524
Density (kg/dm^3)	2.661

Test Results :

Failure At :	175.184 (kN)
Failure Mode :	Columnar
U.C.S. :	97.950 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ATIRRE FRESH #1
SAMPLE	DPDD1578 55-60m # 4
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.66
Height (mm) :	109.03
Area (mm^2) :	1784.0
Weight (kg)	0.523
Density (kg/dm^3)	2.688

Test Results :

Failure At :	145.251 (kN)
Failure Mode :	Columnar
U.C.S. :	81.418 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ATIRRE FRESH #1
SAMPLE	DPDD1578 55-60m # 5
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.63
Height (mm) :	81.38
Area (mm^2) :	1781.8
Weight (kg)	0.392
Density (kg/dm^3)	2.701

Test Results :

Failure At :	58.218 (kN)
Failure Mode :	Shear
U.C.S. :	32.674 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ATIRRE FRESH #2
SAMPLE	DPDD1575 73-81m # 1
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	55.53
Height (mm) :	142.18
Area (mm^2) :	2421.8
Weight (kg)	0.930
Density (kg/dm^3)	2.700

Test Results :

Failure At :	232.868 (kN)
Failure Mode :	Columnar
U.C.S. :	96.153 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ATIRRE FRESH #2
SAMPLE	DPDD1575 73-81m # 2
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	55.60
Height (mm) :	130.03
Area (mm^2) :	2427.9
Weight (kg)	0.858
Density (kg/dm^3)	2.716

Test Results :

Failure At :	297.710 (kN)
Failure Mode :	Columnar
U.C.S. :	122.618 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ATIRRE FRESH #2
SAMPLE	DPDD1575 73-81m # 3
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	55.31
Height (mm) :	139.72
Area (mm^2) :	2402.7
Weight (kg)	0.845
Density (kg/dm^3)	2.516

Test Results :

Failure At :	188.610 (kN)
Failure Mode :	Columnar
U.C.S. :	78.500 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ATIRRE FRESH #2
SAMPLE	DPDD1575 73-81m # 4
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	55.52
Height (mm) :	136.38
Area (mm^2) :	2421.0
Weight (kg)	0.891
Density (kg/dm^3)	2.698

Test Results :

Failure At :	174.858 (kN)
Failure Mode :	Columnar
U.C.S. :	72.227 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ATIRRE FRESH #2
SAMPLE	DPDD1575 73-81m # 5
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	55.29
Height (mm) :	134.85
Area (mm^2) :	2400.9
Weight (kg)	0.875
Density (kg/dm^3)	2.702

Test Results :

Failure At :	162.881 (kN)
Failure Mode :	Columnar
U.C.S. :	67.840 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**ENIODA FRESH #1**
SAMPLE	**DPDD1567 79-86m # 1**
DATE	**Apr-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NQ^2 Core**
Diameter (mm) :	**47.71**
Height (mm) :	**113.60**
Area (mm^2) :	**1787.8**
Weight (kg)	**0.538**
Density (kg/dm^3)	**2.648**

Test Results :

Failure At :	**224.544 (kN)**
Failure Mode :	**Shear/Columnar**
U.C.S. :	**125.601 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ENIODA FRESH #1
SAMPLE	DPDD1567 79-86m # 2
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.61
Height (mm) :	105.83
Area (mm^2) :	1780.3
Weight (kg)	0.511
Density (kg/dm^3)	2.713

Test Results :

Failure At :	147.972 (kN)
Failure Mode :	Shear
U.C.S. :	83.118 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ENIODA FRESH #1
SAMPLE	DPDD1567 79-86m # 3
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.93
Height (mm) :	116.80
Area (mm^2) :	1804.3
Weight (kg)	0.549
Density (kg/dm^3)	2.606

Test Results :

Failure At :	120.238 (kN)
Failure Mode :	Columnar
U.C.S. :	66.640 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ENIODA FRESH #1
SAMPLE	DPDD1567 79-86m # 4
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.49
Height (mm) :	118.42
Area (mm^2) :	1771.3
Weight (kg)	0.564
Density (kg/dm^3)	2.687

Test Results :

Failure At :	309.837 (kN)
Failure Mode :	Columnar
U.C.S. :	174.920 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ENIODA FRESH #1
SAMPLE	DPDD1567 79-86m # 5
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	NQ^2 Core
Diameter (mm) :	47.51
Height (mm) :	115.89
Area (mm^2) :	1772.8
Weight (kg)	0.558
Density (kg/dm^3)	2.716

Test Results :

Failure At :	388.524 (kN)
Failure Mode :	Columnar
U.C.S. :	219.158 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ENIODA FRESH #2
SAMPLE	DPDD1573 78-85m # 1
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	55.81
Height (mm) :	108.82
Area (mm^2) :	2446.3
Weight (kg)	0.722
Density (kg/dm^3)	2.714

Test Results :

Failure At :	245.089 (kN)
Failure Mode :	Columnar
U.C.S. :	100.187 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ENIODA FRESH #2
SAMPLE	DPDD1573 78-85m # 2
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	55.81
Height (mm) :	100.19
Area (mm^2) :	2446.3
Weight (kg)	0.689
Density (kg/dm^3)	2.811

Test Results :

Failure At :	62.375 (kN)
Failure Mode :	Shear
U.C.S. :	25.497 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**ENIODA FRESH #2**
SAMPLE	**DPDD1573 78-85m # 3**
DATE	**Apr-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**HQ Core**
Diameter (mm) :	**55.80**
Height (mm) :	**107.91**
Area (mm^2) :	**2445.4**
Weight (kg)	**0.698**
Density (kg/dm^3)	**2.646**

Test Results :

Failure At :	**163.715 (kN)**
Failure Mode :	**Columnar**
U.C.S. :	**66.947 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ENIODA FRESH #2
SAMPLE	DPDD1573 78-85m # 4
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	55.80
Height (mm) :	113.86
Area (mm^2) :	2445.4
Weight (kg)	0.758
Density (kg/dm^3)	2.721

Test Results :

Failure At :	126.479 (kN)
Failure Mode :	Shear
U.C.S. :	51.720 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
COMPOSITE	ENIODA FRESH #2
SAMPLE	DPDD1573 78-85m # 5
DATE	Apr-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	HQ Core
Diameter (mm) :	55.89
Height (mm) :	117.13
Area (mm^2) :	2453.3
Weight (kg)	0.782
Density (kg/dm^3)	2.721

Test Results :

Failure At :	89.008 (kN)
Failure Mode :	Shear
U.C.S. :	36.280 (MPa)

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 1**
HOLE ID	**DPDD3008 37 - 42 m # 1**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**56.05**
Height (mm) :	**98.96**
Area (mm^2) :	**2467.4**
Weight (kg)	**0.649**
Density (kg/dm^3)	**2.657**

Test Results :

Failure At :	**91.415 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**37.049 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 1**
HOLE ID	**DPDD3008 37 - 42 m # 2**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**56.05**
Height (mm) :	**132.05**
Area (mm^2) :	**2467.4**
Weight (kg)	**0.866**
Density (kg/dm^3)	**2.657**

Test Results :

Failure At :	**123.483 (kN)**
Failure Mode :	**Columnar**
U.C.S. :	**50.046 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 1**
HOLE ID	**DPDD3008 37 - 42 m # 3**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**56.05**
Height (mm) :	**100.23**
Area (mm^2) :	**2467.4**
Weight (kg)	**0.656**
Density (kg/dm^3)	**2.654**

Test Results :

Failure At :	**192.753 (kN)**
Failure Mode :	**Columnar**
U.C.S. :	**78.120 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 1**
HOLE ID	**DPDD3008 37 - 42 m # 4**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**56.05**
Height (mm) :	**103.82**
Area (mm^2) :	**2467.4**
Weight (kg)	**0.683**
Density (kg/dm^3)	**2.665**

Test Results :

Failure At :	**63.507 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**25.738 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 1**
HOLE ID	**DPDD3008 37 - 42 m # 5**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**56.05**
Height (mm) :	**120.57**
Area (mm^2) :	**2467.4**
Weight (kg)	**0.792**
Density (kg/dm^3)	**2.663**

Test Results :

Failure At :	**265.831 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**107.737 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 2**
HOLE ID	**DPDD3010 28 - 33 m # 1**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**55.86**
Height (mm) :	**135.87**
Area (mm^2) :	**2450.7**
Weight (kg)	**0.865**
Density (kg/dm^3)	**2.598**

Test Results :

Failure At :	**342.806 (kN)**
Failure Mode :	**Columnar**
U.C.S. :	**139.880 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 2**
HOLE ID	**DPDD3010 28 - 33 m # 2**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**55.86**
Height (mm) :	**135.11**
Area (mm^2) :	**2450.7**
Weight (kg)	**0.875**
Density (kg/dm^3)	**2.644**

Test Results :

Failure At :	**130.868 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**53.400 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 2**
HOLE ID	**DPDD3010 28 - 33 m # 3**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**55.86**
Height (mm) :	**134.04**
Area (mm^2) :	**2450.7**
Weight (kg)	**0.855**
Density (kg/dm^3)	**2.602**

Test Results :

Failure At :	**350.276 (kN)**
Failure Mode :	**Cataclasis**
U.C.S. :	**142.928 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 2**
HOLE ID	**DPDD3010 28 - 33 m # 4**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**55.86**
Height (mm) :	**135.42**
Area (mm^2) :	**2450.7**
Weight (kg)	**0.865**
Density (kg/dm^3)	**2.605**

Test Results :

Failure At :	**321.875 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**131.340 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 2**
HOLE ID	**DPDD3010 28 - 33 m # 5**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**55.86**
Height (mm) :	**135.84**
Area (mm^2) :	**2450.7**
Weight (kg)	**0.867**
Density (kg/dm^3)	**2.604**

Test Results :

Failure At :	**425.675 (kN)**
Failure Mode :	**Cataclasis**
U.C.S. :	**173.695 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 3**
HOLE ID	**DPDD3011 63 - 68 m # 1**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**55.78**
Height (mm) :	**129.64**
Area (mm^2) :	**2443.7**
Weight (kg)	**0.842**
Density (kg/dm^3)	**2.659**

Test Results :

Failure At :	**91.516 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**37.450 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 3**
HOLE ID	**DPDD3011 63 - 68 m # 2**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**55.78**
Height (mm) :	**104.71**
Area (mm^2) :	**2443.7**
Weight (kg)	**0.679**
Density (kg/dm^3)	**2.652**

Test Results :

Failure At :	**257.649 (kN)**
Failure Mode :	**Cataclasis**
U.C.S. :	**105.434 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 3**
HOLE ID	**DPDD3011 63 - 68 m # 3**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**55.78**
Height (mm) :	**115.91**
Area (mm^2) :	**2443.7**
Weight (kg)	**0.743**
Density (kg/dm^3)	**2.622**

Test Results :

Failure At :	**278.725 (kN)**
Failure Mode :	**Cataclasis**
U.C.S. :	**114.059 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 3**
HOLE ID	**DPDD3011 63 - 68 m # 4**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**55.78**
Height (mm) :	**119.04**
Area (mm^2) :	**2443.7**
Weight (kg)	**0.773**
Density (kg/dm^3)	**2.656**

Test Results :

Failure At :	**221.636 (kN)**
Failure Mode :	**Columnar**
U.C.S. :	**90.697 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 3**
HOLE ID	**DPDD3011 63 - 68 m # 5**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**55.78**
Height (mm) :	**136.12**
Area (mm^2) :	**2443.7**
Weight (kg)	**0.884**
Density (kg/dm^3)	**2.659**

Test Results :

Failure At :	**318.212 (kN)**
Failure Mode :	**Shear/Cataclasis**
U.C.S. :	**130.218 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 4**
HOLE ID	**DPDD3013 91 - 96 m # 1**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**55.92**
Height (mm) :	**102.99**
Area (mm^2) :	**2456.0**
Weight (kg)	**0.674**
Density (kg/dm^3)	**2.663**

Test Results :

Failure At :	**146.600 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**59.691 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 4**
HOLE ID	**DPDD3013 91 - 96 m # 2**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**55.92**
Height (mm) :	**103.44**
Area (mm^2) :	**2456.0**
Weight (kg)	**0.683**
Density (kg/dm^3)	**2.687**

Test Results :

Failure At :	**267.500 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**108.918 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 4**
HOLE ID	**DPDD3013 91 - 96 m # 3**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**55.92**
Height (mm) :	**91.52**
Area (mm^2) :	**2456.0**
Weight (kg)	**0.602**
Density (kg/dm^3)	**2.679**

Test Results :

Failure At :	**271.067 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**110.370 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 4**
HOLE ID	**DPDD3013 91 - 96 m # 4**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**55.92**
Height (mm) :	**94.26**
Area (mm^2) :	**2456.0**
Weight (kg)	**0.619**
Density (kg/dm^3)	**2.675**

Test Results :

Failure At :	**224.920 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**91.581 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
COMPOSITE	**KILOSEGUI FRESH # 4**
HOLE ID	**DPDD3013 91 - 96 m # 5**
DATE	**May-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample type :	**NX Full Core**
Diameter (mm) :	**55.92**
Height (mm) :	**91.53**
Area (mm^2) :	**2456.0**
Weight (kg)	**0.601**
Density (kg/dm^3)	**2.673**

Test Results :

Failure At :	**100.905 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**41.085 (MPa)**

Typical Compressive Strengths :

Rock Type	U.C.S. (MPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Limestone	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (MPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	**A23136**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
INTERVAL	**SOUWA FRESH #4** #1
SPECIMEN NO	**DPDD1382 79-90m**
DATE	**Nov-22**

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample supplied :	**1/4 Core***
Diameter (mm) :	**82.00**
Height (mm) :	**103.4**
Top Length (mm)	**39.5**

Test Results :

Failure At :	**17.300 (kN)**
Failure Mode :	**Columnar / Cataclasis**
U.C.S. :	**13.8 (MPa)**

***Non-standard core size, correction factor applied - values to be considered indicative only**

Typical Compressive Strengths :

Rock Type	U.C.S. (mPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Nepheline	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (mPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
INTERVAL	SOUWA FRESH #4 #2
SPECIMEN NO	DPDD1382 79-90m
DATE	Nov-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample supplied :	**1/4 Core***
Diameter (mm) :	**82.00**
Height (mm) :	**105.9**
Top Length (mm)	**39.5**

Test Results :

Failure At :	**29.254 (kN)**
Failure Mode :	**Shear / Columnar**
U.C.S. :	**23.3 (MPa)**

***Non-standard core size, correction factor applied - values to be considered indicative only**

Typical Compressive Strengths :

Rock Type	U.C.S. (mPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Nepheline	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (mPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
INTERVAL	SOUWA FRESH #5 #1
SPECIMEN NO	DPDD1473 80-87m
DATE	Nov-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample supplied :	**1/2 Core***
Diameter (mm) :	**55.78**
Height (mm) :	**136.8**
Top Length (mm)	**26.4**

Test Results :

Failure At :	**16.124 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**14.2 (MPa)**

***Non-standard core size, correction factor applied - values to be considered indicative only**

Typical Compressive Strengths :

Rock Type	U.C.S. (mPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Nepheline	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (mPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
INTERVAL	SOUWA FRESH #5 #2
SPECIMEN NO	DPDD1473 80-87m
DATE	Nov-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample supplied :	**1/2 Core***
Diameter (mm) :	**56.22**
Height (mm) :	**136.4**
Top Length (mm)	**26.6**

Test Results :

Failure At :	**27.138 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**23.5 (MPa)**

***Non-standard core size, correction factor applied - values to be considered indicative only**

Typical Compressive Strengths :

Rock Type	U.C.S. (mPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Nepheline	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (mPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
INTERVAL	SOUWA FRESH #5 #3
SPECIMEN NO	DPDD1473 80-87m
DATE	Nov-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample supplied :	**1/2 Core***
Diameter (mm) :	**55.85**
Height (mm) :	**135.5**
Top Length (mm)	**26.4**

Test Results :

Failure At :	**20.116 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**17.7 (MPa)**

***Non-standard core size, correction factor applied - values to be considered indicative only**

Typical Compressive Strengths :

Rock Type	U.C.S. (mPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Nepheline	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (mPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
INTERVAL	SOUWA FRESH #5 #4
SPECIMEN NO	DPDD1473 80-87m
DATE	Nov-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample supplied :	**1/2 Core***
Diameter (mm) :	**55.72**
Height (mm) :	**129.9**
Top Length (mm)	**26.4**

Test Results :

Failure At :	**35.444 (kN)**
Failure Mode :	**Shear / Columnar**
U.C.S. :	**31.2 (MPa)**

***Non-standard core size, correction factor applied - values to be considered indicative only**

Typical Compressive Strengths :

Rock Type	U.C.S. (mPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Nepheline	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (mPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
INTERVAL	CHEGUE MAIN FRESH #5 #1
SPECIMEN NO	DPDD1494 50-58m
DATE	Nov-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample supplied :	**1/2 Core***
Diameter (mm) :	**56.18**
Height (mm) :	**137.2**
Top Length (mm)	**26.6**

Test Results :

Failure At :	**110.313 (kN)**
Failure Mode :	**Shear / Columnar**
U.C.S. :	**95.5 (MPa)**

***Non-standard core size, correction factor applied - values to be considered indicative only**

Typical Compressive Strengths :

Rock Type	U.C.S. (mPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Nepheline	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (mPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
INTERVAL	KEKEDA FRESH #4 #1
SPECIMEN NO	DPDD1479 44-50.3m
DATE	Nov-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample supplied :	**1/2 Core***
Diameter (mm) :	**55.92**
Height (mm) :	**118.4**
Top Length (mm)	**26.5**

Test Results :

Failure At :	**41.897 (kN)**
Failure Mode :	**Shear / Columnar**
U.C.S. :	**36.6 (MPa)**

***Non-standard core size, correction factor applied - values to be considered indicative only**

Typical Compressive Strengths :

Rock Type	U.C.S. (mPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Nepheline	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (mPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
INTERVAL	KEKEDA FRESH #4 #2
SPECIMEN NO	DPDD1479 44-50.3m
DATE	Nov-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample supplied :	**1/2 Core***
Diameter (mm) :	**56.01**
Height (mm) :	**117.3**
Top Length (mm)	**26.5**

Test Results :

Failure At :	**20.343 (kN)**
Failure Mode :	**Shear**
U.C.S. :	**17.7 (MPa)**

***Non-standard core size, correction factor applied - values to be considered indicative only**

Typical Compressive Strengths :

Rock Type	U.C.S. (mPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Nepheline	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (mPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

UNCONFINED COMPRESSIVE STRENGTH DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
INTERVAL	KEKEDA FRESH #4 #3
SPECIMEN NO	DPDD1479 44-50.3m
DATE	Nov-22

Instrument : Servo-Tronic 2000kN machine.

Rate Of Load Application = 20 kN / minute

Sample Details :

Sample supplied :	**1/2 Core***
Diameter (mm) :	**56.25**
Height (mm) :	**139.2**
Top Length (mm)	**26.6**

Test Results :

Failure At :	**69.452 (kN)**
Failure Mode :	**Shear / Columnar**
U.C.S. :	**60.1 (MPa)**

***Non-standard core size, correction factor applied - values to be considered indicative only**

Typical Compressive Strengths :

Rock Type	U.C.S. (mPa)	
	Dry	Saturated
Basalt	106-168	85-223
Pyroclastic Basalt	143	64
Dolomite	114	95
Granite	98-119	104-114
Pyrophyritic Granite	86	95
Tourmaline Granite	158	107
Granulite	151	82
Gneiss	96-155	91-174
Granitic Gneiss	106-159	72-135
Nepheline	73-85	48-98
Quartzite	256	206
Sandstone	81	73

Descriptive Strength Terms :

U.C.S. (mPa)	Strength
< 6	Very Weak
6-20	Weak
20-60	Med' Strong
60-200	Strong
> 200	Very Strong

APPENDIX III

Bond Impact Crushing Work Index Determination

Details and Results

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*SOUWA FRESH # 1 (60-70 m)*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	2/03/2022

TEST RESULTS

Impact Work Index (Average)	4.8	kWh/tonne
	4.3	kWh/short ton
Sample SG	2.65	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	67.38	10.8	3.3
2	67.76	21.7	6.5
3	66.49	16.3	5.0
4	66.93	10.8	3.3
5	66.42	16.3	5.0
6	67.16	21.7	6.5
7	65.95	16.3	5.0
8	65.49	5.4	1.7
9	65.04	21.7	6.7
10	64.69	16.3	5.1

Maximum Work Index	6.7
Minimum Work Index	1.7
Standard Deviation	1.6

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**SOUWA FRESH # 1 (60-70 m)**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.65
Date	Mar-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	67.38	2.65	8	3.0	10.8	0.16	2.9	3.3
2	67.76	2.67	16	6.0	21.7	0.32	5.9	6.5
3	66.49	2.62	12	4.6	16.3	0.24	4.5	5.0
4	66.93	2.64	8	3.0	10.8	0.16	3.0	3.3
5	66.42	2.61	12	4.6	16.3	0.24	4.5	5.0
6	67.16	2.64	16	6.1	21.7	0.32	5.9	6.5
7	65.95	2.60	12	4.6	16.3	0.25	4.5	5.0
8	65.49	2.58	4	1.6	5.4	0.08	1.5	1.7
9	65.04	2.56	16	6.2	21.7	0.33	6.1	6.7
10	64.69	2.55	12	4.7	16.3	0.25	4.6	5.1
						Average	4.3	4.8
						Max	6.1	6.7
						Min	1.5	1.7
						Sdev	1.5	1.6

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*SOUWA FRESH # 2 (133-143 m)*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	2/03/2022

TEST RESULTS

Impact Work Index (Average)	9.3	kWh/tonne
	8.4	kWh/short ton
Sample SG	2.64	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	67.07	32.5	9.9
2	66.44	38.0	11.6
3	65.13	38.0	11.8
4	65.94	32.5	10.0
5	65.96	10.8	3.3
6	65.29	21.7	6.7
7	65.60	21.7	6.7
8	64.73	27.1	8.5
9	64.51	38.0	12.0
10	63.24	38.0	12.2

Maximum Work Index	12.2
Minimum Work Index	3.3
Standard Deviation	2.9

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**SOUWA FRESH # 2 (133-143 m)**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.64
Date	Mar-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	67.07	2.64	24	9.1	32.5	0.49	8.9	9.9
2	66.44	2.62	28	10.7	38.0	0.57	10.5	11.6
3	65.13	2.56	28	10.9	38.0	0.58	10.7	11.8
4	65.94	2.60	24	9.2	32.5	0.49	9.1	10.0
5	65.96	2.60	8	3.1	10.8	0.16	3.0	3.3
6	65.29	2.57	16	6.2	21.7	0.33	6.1	6.7
7	65.60	2.58	16	6.2	21.7	0.33	6.1	6.7
8	64.73	2.55	20	7.8	27.1	0.42	7.7	8.5
9	64.51	2.54	28	11.0	38.0	0.59	10.8	12.0
10	63.24	2.49	28	11.2	38.0	0.60	11.0	12.2
						Average	8.4	9.3
						Max	11.0	12.2
						Min	3.0	3.3
						Sdev	2.7	2.9

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*SOUWA FRESH # 3 (96-103 m)*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	2/03/2022

TEST RESULTS

Impact Work Index (Average)	10.0	kWh/tonne
	9.1	kWh/short ton
Sample SG	2.58	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	67.35	27.1	8.4
2	67.68	48.8	15.0
3	67.84	27.1	8.3
4	67.54	32.5	10.0
5	66.84	32.5	10.1
6	65.39	38.0	12.1
7	65.45	27.1	8.6
8	65.78	21.7	6.9
9	65.43	27.1	8.6
10	63.11	38.0	12.5

Maximum Work Index	15.0
Minimum Work Index	6.9
Standard Deviation	2.5

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**SOUWA FRESH # 3 (96-103 m)**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.58
Date	Mar-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	67.35	2.65	20	7.5	27.1	0.40	7.6	8.4
2	67.68	2.66	36	13.5	48.8	0.72	13.6	15.0
3	67.84	2.67	20	7.5	27.1	0.40	7.5	8.3
4	67.54	2.66	24	9.0	32.5	0.48	9.1	10.0
5	66.84	2.63	24	9.1	32.5	0.49	9.2	10.1
6	65.39	2.57	28	10.9	38.0	0.58	10.9	12.1
7	65.45	2.58	20	7.8	27.1	0.41	7.8	8.6
8	65.78	2.59	16	6.2	21.7	0.33	6.2	6.9
9	65.43	2.58	20	7.8	27.1	0.41	7.8	8.6
10	63.11	2.48	28	11.3	38.0	0.60	11.3	12.5

Average	9.1	10.0
Max	13.6	15.0
Min	6.2	6.9
Sdev	2.2	2.5

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*SOUWA TRANS SAPROLITE (22.5 - 32.5 m)*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	2/03/2022

TEST RESULTS

Impact Work Index (Average)	2.9	kWh/tonne
	2.6	kWh/short ton
Sample SG	2.55	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	82.39	16.3	4.2
2	83.73	5.4	1.4
3	83.31	5.4	1.4
4	82.66	16.3	4.1
5	82.39	5.4	1.4
6	79.77	27.1	7.1
7	83.94	5.4	1.4
8	82.44	10.8	2.8
9	82.39	5.4	1.4
10	82.35	16.3	4.2

Maximum Work Index	7.1
Minimum Work Index	1.4
Standard Deviation	2.0

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**SOUWA TRANS SAPROLITE (22.5 - 32.5 m)**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.55
Date	Mar-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	82.39	3.24	12	3.7	16.3	0.20	3.8	4.2
2	83.73	3.30	4	1.2	5.4	0.06	1.2	1.4
3	83.31	3.28	4	1.2	5.4	0.07	1.2	1.4
4	82.66	3.25	12	3.7	16.3	0.20	3.7	4.1
5	82.39	3.24	4	1.2	5.4	0.07	1.3	1.4
6	79.77	3.14	20	6.4	27.1	0.34	6.5	7.1
7	83.94	3.30	4	1.2	5.4	0.06	1.2	1.4
8	82.44	3.25	8	2.5	10.8	0.13	2.5	2.8
9	82.39	3.24	4	1.2	5.4	0.07	1.3	1.4
10	82.35	3.24	12	3.7	16.3	0.20	3.8	4.2

Average	2.6	2.9
Max	6.5	7.1
Min	1.2	1.4
Sdev	1.8	2.0

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*NOKPA FRESH # 1 (81-88 m)*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	2/03/2022

TEST RESULTS

Impact Work Index (Average)	3.1	kWh/tonne
	2.8	kWh/short ton
Sample SG	2.57	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	55.07	10.8	4.1
2	55.22	10.8	4.1
3	55.27	10.8	4.1
4	55.28	10.8	4.1
5	55.49	10.8	4.1
6	55.20	5.4	2.0
7	55.32	5.4	2.0
8	55.36	5.4	2.0
9	55.30	5.4	2.0
10	55.30	5.4	2.0

Maximum Work Index	4.1
Minimum Work Index	2.0
Standard Deviation	1.1

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**NOKPA FRESH # 1 (81-88 m)**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.57
Date	Mar-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	55.07	2.17	8	3.7	10.8	0.20	3.7	4.1
2	55.22	2.17	8	3.7	10.8	0.20	3.7	4.1
3	55.27	2.18	8	3.7	10.8	0.20	3.7	4.1
4	55.28	2.18	8	3.7	10.8	0.20	3.7	4.1
5	55.49	2.18	8	3.7	10.8	0.20	3.7	4.1
6	55.20	2.17	4	1.8	5.4	0.10	1.9	2.0
7	55.32	2.18	4	1.8	5.4	0.10	1.9	2.0
8	55.36	2.18	4	1.8	5.4	0.10	1.8	2.0
9	55.30	2.18	4	1.8	5.4	0.10	1.9	2.0
10	55.30	2.18	4	1.8	5.4	0.10	1.9	2.0
						Average	2.8	3.1
						Max	3.7	4.1
						Min	1.8	2.0
						Sdev	1.0	1.1

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*NOKPA FRESH # 2 (108-118 m)*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	2/03/2022

TEST RESULTS

Impact Work Index (Average)	5.6	kWh/tonne
	5.1	kWh/short ton
Sample SG	2.64	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	67.96	32.5	9.7
2	66.55	21.7	6.6
3	64.58	10.8	3.4
4	64.13	32.5	10.3
5	65.66	10.8	3.4
6	65.08	27.1	8.5
7	63.91	10.8	3.4
8	63.58	16.3	5.2
9	62.88	5.4	1.8
10	60.44	10.8	3.6

Maximum Work Index	10.3
Minimum Work Index	1.8
Standard Deviation	3.0

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**NOKPA FRESH # 2 (108-118 m)**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.64
Date	Mar-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	67.96	2.68	24	9.0	32.5	0.48	8.8	9.7
2	66.55	2.62	16	6.1	21.7	0.33	6.0	6.6
3	64.58	2.54	8	3.1	10.8	0.17	3.1	3.4
4	64.13	2.52	24	9.5	32.5	0.51	9.3	10.3
5	65.66	2.59	8	3.1	10.8	0.17	3.0	3.4
6	65.08	2.56	20	7.8	27.1	0.42	7.7	8.5
7	63.91	2.52	8	3.2	10.8	0.17	3.1	3.4
8	63.58	2.50	12	4.8	16.3	0.26	4.7	5.2
9	62.88	2.48	4	1.6	5.4	0.09	1.6	1.8
10	60.44	2.38	8	3.4	10.8	0.18	3.3	3.6

Average	5.1	5.6
Max	9.3	10.3
Min	1.6	1.8
Sdev	2.7	3.0

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*CHEGUE MAIN FRESH #1*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	2/03/2022

TEST RESULTS

Impact Work Index (Average)	8.8	kWh/tonne
	8.0	kWh/short ton
Sample SG	2.60	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	55.74	5.4	2.0
2	55.75	38.0	14.0
3	55.77	16.3	6.0
4	55.74	32.5	12.0
5	55.80	16.3	6.0
6	55.99	32.5	12.0
7	55.81	16.3	6.0
8	56.05	48.8	18.0
9	55.80	16.3	6.0
10	55.97	16.3	6.0

Maximum Work Index	18.0
Minimum Work Index	2.0
Standard Deviation	4.9

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**CHEGUE MAIN FRESH #1**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.60
Date	Mar-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	55.74	2.19	4	1.8	5.4	0.10	1.8	2.0
2	55.75	2.19	28	12.8	38.0	0.68	12.7	14.0
3	55.77	2.20	12	5.5	16.3	0.29	5.4	6.0
4	55.74	2.19	24	10.9	32.5	0.58	10.9	12.0
5	55.80	2.20	12	5.5	16.3	0.29	5.4	6.0
6	55.99	2.20	24	10.9	32.5	0.58	10.8	12.0
7	55.81	2.20	12	5.5	16.3	0.29	5.4	6.0
8	56.05	2.21	36	16.3	48.8	0.87	16.3	18.0
9	55.80	2.20	12	5.5	16.3	0.29	5.4	6.0
10	55.97	2.20	12	5.4	16.3	0.29	5.4	6.0

Average	8.0	8.8
Max	16.3	18.0
Min	1.8	2.0
Sdev	4.4	4.9

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*CHEGUE MAIN FRESH #2*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	2/03/2022

TEST RESULTS

Impact Work Index (Average)	11.0	kWh/tonne
	9.9	kWh/short ton
Sample SG	2.68	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	65.43	86.8	26.5
2	63.22	32.5	10.3
3	63.82	38.0	11.9
4	65.84	21.7	6.6
5	63.99	27.1	8.5
6	64.29	21.7	6.8
7	63.13	10.8	3.4
8	63.60	54.2	17.1
9	65.11	21.7	6.7
10	62.88	38.0	12.1

Maximum Work Index	26.5
Minimum Work Index	3.4
Standard Deviation	6.7

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**CHEGUE MAIN FRESH #2**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.68
Date	Mar-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	65.43	2.58	64	24.8	86.8	1.33	24.0	26.5
2	63.22	2.49	24	9.6	32.5	0.51	9.3	10.3
3	63.82	2.51	28	11.1	38.0	0.59	10.8	11.9
4	65.84	2.59	16	6.2	21.7	0.33	6.0	6.6
5	63.99	2.52	20	7.9	27.1	0.42	7.7	8.5
6	64.29	2.53	16	6.3	21.7	0.34	6.1	6.8
7	63.13	2.49	8	3.2	10.8	0.17	3.1	3.4
8	63.60	2.50	40	16.0	54.2	0.85	15.4	17.1
9	65.11	2.56	16	6.2	21.7	0.33	6.0	6.7
10	62.88	2.48	28	11.3	38.0	0.60	10.9	12.1

Average	9.9	11.0
Max	24.0	26.5
Min	3.1	3.4
Sdev	6.0	6.7

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*CHEGUE MAIN FRESH #3*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	2/03/2022

TEST RESULTS

Impact Work Index (Average)	2.1	kWh/tonne
	1.9	kWh/short ton
Sample SG	2.69	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	55.86	5.4	1.9
2	55.82	5.4	1.9
3	55.83	5.4	1.9
4	55.90	10.8	3.9
5	56.00	5.4	1.9
6	55.87	5.4	1.9
7	55.90	5.4	1.9
8	55.79	5.4	1.9
9	55.17	5.4	2.0
10	55.95	5.4	1.9

Maximum Work Index	3.9
Minimum Work Index	1.9
Standard Deviation	0.6

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**CHEGUE MAIN FRESH #3**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.69
Date	Mar-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	55.86	2.20	4	1.8	5.4	0.10	1.8	1.9
2	55.82	2.20	4	1.8	5.4	0.10	1.8	1.9
3	55.83	2.20	4	1.8	5.4	0.10	1.8	1.9
4	55.90	2.20	8	3.6	10.8	0.19	3.5	3.9
5	56.00	2.20	4	1.8	5.4	0.10	1.7	1.9
6	55.87	2.20	4	1.8	5.4	0.10	1.8	1.9
7	55.90	2.20	4	1.8	5.4	0.10	1.7	1.9
8	55.79	2.20	4	1.8	5.4	0.10	1.8	1.9
9	55.17	2.17	4	1.8	5.4	0.10	1.8	2.0
10	55.95	2.20	4	1.8	5.4	0.10	1.7	1.9
						Average	1.9	2.1
						Max	3.5	3.9
						Min	1.7	1.9
						Sdev	0.6	0.6

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*CHEGUE MAIN FRESH #4*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	2/03/2022

TEST RESULTS

Impact Work Index (Average)	12.3	kWh/tonne
	11.1	kWh/short ton
Sample SG	2.56	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	64.18	16.3	5.3
2	63.50	10.8	3.6
3	64.49	27.1	8.8
4	67.28	65.1	20.3
5	64.60	10.8	3.5
6	65.64	92.2	29.4
7	63.68	21.7	7.1
8	64.15	59.7	19.5
9	62.12	43.4	14.6
10	64.02	32.5	10.6

Maximum Work Index	29.4
Minimum Work Index	3.5
Standard Deviation	8.5

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**CHEGUE MAIN FRESH #4**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.56
Date	Mar-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	64.18	2.53	12	4.7	16.3	0.25	4.8	5.3
2	63.50	2.50	8	3.2	10.8	0.17	3.2	3.6
3	64.49	2.54	20	7.9	27.1	0.42	8.0	8.8
4	67.28	2.65	48	18.1	65.1	0.97	18.3	20.3
5	64.60	2.54	8	3.1	10.8	0.17	3.2	3.5
6	65.64	2.58	68	26.3	92.2	1.40	26.6	29.4
7	63.68	2.51	16	6.4	21.7	0.34	6.5	7.1
8	64.15	2.53	44	17.4	59.7	0.93	17.6	19.5
9	62.12	2.45	32	13.1	43.4	0.70	13.2	14.6
10	64.02	2.52	24	9.5	32.5	0.51	9.6	10.6
						Average	11.1	12.3
						Max	26.6	29.4
						Min	3.2	3.5
						Sdev	7.7	8.5

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*CHEGUE SOUTH FRESH #1*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	2/03/2022

TEST RESULTS

Impact Work Index (Average)	13.3	kWh/tonne
	12.0	kWh/short ton
Sample SG	2.59	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	64.49	32.5	10.4
2	64.39	59.7	19.2
3	63.94	32.5	10.5
4	63.46	27.1	8.8
5	65.32	27.1	8.6
6	61.27	32.5	11.0
7	66.04	21.7	6.8
8	64.42	75.9	24.4
9	64.03	43.4	14.0
10	63.96	59.7	19.3

Maximum Work Index	24.4
Minimum Work Index	6.8
Standard Deviation	5.8

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**CHEGUE SOUTH FRESH #1**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.59
Date	Mar-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	64.49	2.54	24	9.5	32.5	0.50	9.5	10.4
2	64.39	2.54	44	17.4	59.7	0.93	17.4	19.2
3	63.94	2.52	24	9.5	32.5	0.51	9.5	10.5
4	63.46	2.50	20	8.0	27.1	0.43	8.0	8.8
5	65.32	2.57	20	7.8	27.1	0.42	7.8	8.6
6	61.27	2.41	24	9.9	32.5	0.53	9.9	11.0
7	66.04	2.60	16	6.2	21.7	0.33	6.2	6.8
8	64.42	2.54	56	22.1	75.9	1.18	22.1	24.4
9	64.03	2.52	32	12.7	43.4	0.68	12.7	14.0
10	63.96	2.52	44	17.5	59.7	0.93	17.5	19.3

Average	12.0	13.3
Max	22.1	24.4
Min	6.2	6.8
Sdev	5.2	5.8

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*CHEGUE SOUTH FRESH #2*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	2/03/2022

TEST RESULTS

Impact Work Index (Average)	10.7	kWh/tonne
	9.7	kWh/short ton
Sample SG	2.70	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	61.18	43.4	14.1
2	62.79	27.1	8.6
3	62.64	38.0	12.0
4	63.32	38.0	11.9
5	64.56	38.0	11.7
6	65.54	32.5	9.9
7	65.17	32.5	9.9
8	63.70	32.5	10.1
9	61.99	27.1	8.7
10	62.23	32.5	10.4

Maximum Work Index	14.1
Minimum Work Index	8.6
Standard Deviation	1.7

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**CHEGUE SOUTH FRESH #2**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.70
Date	Mar-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	61.18	2.41	32	13.3	43.4	0.71	12.7	14.1
2	62.79	2.47	20	8.1	27.1	0.43	7.8	8.6
3	62.64	2.47	28	11.4	38.0	0.61	10.9	12.0
4	63.32	2.49	28	11.2	38.0	0.60	10.8	11.9
5	64.56	2.54	28	11.0	38.0	0.59	10.6	11.7
6	65.54	2.58	24	9.3	32.5	0.50	8.9	9.9
7	65.17	2.57	24	9.4	32.5	0.50	9.0	9.9
8	63.70	2.51	24	9.6	32.5	0.51	9.2	10.1
9	61.99	2.44	20	8.2	27.1	0.44	7.9	8.7
10	62.23	2.45	24	9.8	32.5	0.52	9.4	10.4

Average	9.7	10.7
Max	12.7	14.1
Min	7.8	8.6
Sdev	1.5	1.7

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*CHEGUE MAIN TRANSITION*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	2/03/2022

TEST RESULTS

Impact Work Index (Average)	1.6	kWh/tonne
	1.4	kWh/short ton
Sample SG	2.65	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	59.84	5.4	1.8
2	63.35	5.4	1.7
3	63.44	5.4	1.7
4	62.59	5.4	1.8
5	59.03	5.4	1.9
6	63.38	5.4	1.7
7	59.24	5.4	1.9
8	62.88	0.0	0.0
9	61.95	5.4	1.8
10	62.94	5.4	1.7

Maximum Work Index	1.9
Minimum Work Index	0.0
Standard Deviation	0.6

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**CHEGUE MAIN TRANSITION**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.65
Date	Mar-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	59.84	2.36	4	1.7	5.4	0.09	1.7	1.8
2	63.35	2.49	4	1.6	5.4	0.09	1.6	1.7
3	63.44	2.50	4	1.6	5.4	0.09	1.6	1.7
4	62.59	2.46	4	1.6	5.4	0.09	1.6	1.8
5	59.03	2.32	4	1.7	5.4	0.09	1.7	1.9
6	63.38	2.50	4	1.6	5.4	0.09	1.6	1.7
7	59.24	2.33	4	1.7	5.4	0.09	1.7	1.9
8	62.88	2.48	0	0.0	0.0	0.00	0.0	0.0
9	61.95	2.44	4	1.6	5.4	0.09	1.6	1.8
10	62.94	2.48	4	1.6	5.4	0.09	1.6	1.7

Average	1.4	1.6
Max	1.7	1.9
Min	0.0	0.0
Sdev	0.5	0.6

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*CHEGUE SOUTH TRANSITION*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	2/03/2022

TEST RESULTS

Impact Work Index (Average)	1.8	kWh/tonne
	1.6	kWh/short ton
Sample SG	2.60	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	63.88	5.4	1.8
2	65.36	5.4	1.7
3	63.45	5.4	1.8
4	61.16	5.4	1.8
5	64.11	5.4	1.7
6	62.77	5.4	1.8
7	63.34	5.4	1.8
8	55.28	5.4	2.0
9	60.54	5.4	1.8

Maximum Work Index	2.0
Minimum Work Index	1.7
Standard Deviation	0.1

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**CHEGUE SOUTH TRANSITION**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.60
Date	Mar-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	63.88	2.51	4	1.6	5.4	0.08	1.6	1.8
2	65.36	2.57	4	1.6	5.4	0.08	1.5	1.7
3	63.45	2.50	4	1.6	5.4	0.09	1.6	1.8
4	61.16	2.41	4	1.7	5.4	0.09	1.7	1.8
5	64.11	2.52	4	1.6	5.4	0.08	1.6	1.7
6	62.77	2.47	4	1.6	5.4	0.09	1.6	1.8
7	63.34	2.49	4	1.6	5.4	0.09	1.6	1.8
8	55.28	2.18	4	1.8	5.4	0.10	1.8	2.0
9	60.54	2.38	4	1.7	5.4	0.09	1.7	1.8
						Average	1.6	1.8
						Max	1.8	2.0
						Min	1.5	1.7
						Sdev	0.1	0.1

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*KEKEDA TRANS#1*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	13/04/2022

TEST RESULTS

Impact Work Index (Average)	4.1	kWh/tonne
	3.7	kWh/short ton
Sample SG	2.62	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	62.63	10.8	3.5
2	62.73	16.3	5.3
3	63.28	16.3	5.3
4	62.21	10.8	3.6
5	62.01	10.8	3.6
6	63.24	16.3	5.3
7	63.06	10.8	3.5
8	62.98	16.3	5.3
9	92.93	10.8	2.4
10	62.47	16.3	5.3
11	62.91	5.4	1.8

Maximum Work Index	5.3
Minimum Work Index	1.8
Standard Deviation	1.3

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**KEKEDA TRANS#1**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.62
Date	Apr-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	62.63	2.47	8	3.2	10.8	0.17	3.2	3.5
2	62.73	2.47	12	4.9	16.3	0.26	4.8	5.3
3	63.28	2.49	12	4.8	16.3	0.26	4.8	5.3
4	62.21	2.45	8	3.3	10.8	0.17	3.2	3.6
5	62.01	2.44	8	3.3	10.8	0.17	3.2	3.6
6	63.24	2.49	12	4.8	16.3	0.26	4.8	5.3
7	63.06	2.48	8	3.2	10.8	0.17	3.2	3.5
8	62.98	2.48	12	4.8	16.3	0.26	4.8	5.3
9	92.93	3.66	8	2.2	10.8	0.12	2.2	2.4
10	62.47	2.46	12	4.9	16.3	0.26	4.8	5.3
11	62.91	2.48	4	1.6	5.4	0.09	1.6	1.8
						Average	3.7	4.1
						Max	4.8	5.3
						Min	1.6	1.8
						Sdev	1.2	1.3

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*KEKEDA TRANS#2*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	13/04/2022

TEST RESULTS

Impact Work Index (Average)	12.1	kWh/tonne
	11.0	kWh/short ton
Sample SG	2.64	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	64.19	43.4	13.7
2	63.71	27.1	8.6
3	63.63	32.5	10.4
4	63.59	38.0	12.1
5	64.09	54.2	17.2
6	63.11	43.4	14.0
7	63.50	27.1	8.7
8	62.70	38.0	12.3
9	62.34	32.5	10.6
10	64.30	43.4	13.7

Maximum Work Index	17.2
Minimum Work Index	8.6
Standard Deviation	2.7

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**KEKEDA TRANS#2**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.64
Date	Apr-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	64.19	2.53	32	12.7	43.4	0.68	12.4	13.7
2	63.71	2.51	20	8.0	27.1	0.43	7.8	8.6
3	63.63	2.51	24	9.6	32.5	0.51	9.4	10.4
4	63.59	2.50	28	11.2	38.0	0.60	11.0	12.1
5	64.09	2.52	40	15.9	54.2	0.85	15.6	17.2
6	63.11	2.48	32	12.9	43.4	0.69	12.6	14.0
7	63.50	2.50	20	8.0	27.1	0.43	7.8	8.7
8	62.70	2.47	28	11.3	38.0	0.61	11.1	12.3
9	62.34	2.45	24	9.8	32.5	0.52	9.6	10.6
10	64.30	2.53	32	12.6	43.4	0.67	12.4	13.7

Average	11.0	12.1
Max	15.6	17.2
Min	7.8	8.6
Sdev	2.4	2.7

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*KEKEDA FRESH#1*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	13/04/2022

TEST RESULTS

Impact Work Index (Average)	13.8	kWh/tonne
	12.5	kWh/short ton
Sample SG	2.66	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	65.82	27.1	8.3
2	65.73	38.0	11.6
3	65.61	43.4	13.3
4	64.81	48.8	15.2
5	66.00	54.2	16.6
6	64.03	43.4	13.7
7	65.21	54.2	16.8
8	64.83	43.4	13.5
9	63.34	48.8	15.5

Maximum Work Index	16.8
Minimum Work Index	8.3
Standard Deviation	2.7

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**KEKEDA FRESH#1**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.66
Date	Apr-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	65.82	2.59	20	7.7	27.1	0.41	7.5	8.3
2	65.73	2.59	28	10.8	38.0	0.58	10.5	11.6
3	65.61	2.58	32	12.4	43.4	0.66	12.1	13.3
4	64.81	2.55	36	14.1	48.8	0.75	13.7	15.2
5	66.00	2.60	40	15.4	54.2	0.82	15.0	16.6
6	64.03	2.52	32	12.7	43.4	0.68	12.4	13.7
7	65.21	2.57	40	15.6	54.2	0.83	15.2	16.8
8	64.83	2.55	32	12.5	43.4	0.67	12.2	13.5
9	63.34	2.49	36	14.4	48.8	0.77	14.1	15.5

Average	12.5	13.8
Max	15.2	16.8
Min	7.5	8.3
Sdev	2.4	2.7

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*KEKEDA FRESH#2*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	12/04/2022

TEST RESULTS

Impact Work Index (Average)	7.1	kWh/tonne
	6.4	kWh/short ton
Sample SG	2.57	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	55.53	10.8	4.1
2	55.98	21.7	8.1
3	55.89	10.8	4.0
4	55.86	16.3	6.1
5	55.85	10.8	4.1
6	55.85	10.8	4.1
7	55.80	27.1	10.1
8	55.90	54.2	20.2
9	55.88	10.8	4.0
10	55.92	16.3	6.1

Maximum Work Index	20.2
Minimum Work Index	4.0
Standard Deviation	5.1

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**KEKEDA FRESH#2**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.57
Date	Apr-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	55.53	2.19	8	3.7	10.8	0.20	3.7	4.1
2	55.98	2.20	16	7.3	21.7	0.39	7.3	8.1
3	55.89	2.20	8	3.6	10.8	0.19	3.7	4.0
4	55.86	2.20	12	5.5	16.3	0.29	5.5	6.1
5	55.85	2.20	8	3.6	10.8	0.19	3.7	4.1
6	55.85	2.20	8	3.6	10.8	0.19	3.7	4.1
7	55.80	2.20	20	9.1	27.1	0.49	9.2	10.1
8	55.90	2.20	40	18.2	54.2	0.97	18.3	20.2
9	55.88	2.20	8	3.6	10.8	0.19	3.7	4.0
10	55.92	2.20	12	5.5	16.3	0.29	5.5	6.1
						Average	6.4	7.1
						Max	18.3	20.2
						Min	3.7	4.0
						Sdev	4.6	5.1

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*KEKEDA FRESH#3*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	12/04/2022

TEST RESULTS

Impact Work Index (Average)	15.8	kWh/tonne
	14.3	kWh/short ton
Sample SG	2.60	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	59.55	54.2	18.8
2	61.58	43.4	14.5
3	60.31	54.2	18.5
4	60.82	54.2	18.4
5	60.27	54.2	18.6
6	59.11	43.4	15.1
7	59.73	48.8	16.9
8	60.33	32.5	11.1
9	60.41	27.1	9.3
10	60.22	48.8	16.7

Maximum Work Index	18.8
Minimum Work Index	9.3
Standard Deviation	3.3

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**KEKEDA FRESH#3**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.60
Date	Apr-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	59.55	2.34	40	17.1	54.2	0.91	17.0	18.8
2	61.58	2.42	32	13.2	43.4	0.70	13.1	14.5
3	60.31	2.37	40	16.8	54.2	0.90	16.8	18.5
4	60.82	2.39	40	16.7	54.2	0.89	16.6	18.4
5	60.27	2.37	40	16.9	54.2	0.90	16.8	18.6
6	59.11	2.33	32	13.8	43.4	0.73	13.7	15.1
7	59.73	2.35	36	15.3	48.8	0.82	15.3	16.9
8	60.33	2.38	24	10.1	32.5	0.54	10.1	11.1
9	60.41	2.38	20	8.4	27.1	0.45	8.4	9.3
10	60.22	2.37	36	15.2	48.8	0.81	15.1	16.7
						Average	14.3	15.8
						Max	17.0	18.8
						Min	8.4	9.3
						Sdev	3.0	3.3

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*HAN TRANS/FRESH*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	12/04/2022

TEST RESULTS

Impact Work Index (Average)	7.8	kWh/tonne
	7.0	kWh/short ton
Sample SG	2.67	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	63.85	27.1	8.5
2	64.83	16.3	5.0
3	65.64	38.0	11.6
4	65.55	16.3	5.0
5	67.28	32.5	9.7
6	64.87	27.1	8.4
7	67.55	38.0	11.3
8	65.06	16.3	5.0
9	66.67	16.3	4.9
10	65.24	27.1	8.3

Maximum Work Index	11.6
Minimum Work Index	4.9
Standard Deviation	2.7

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**HAN TRANS/FRESH**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.67
Date	Apr-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	63.85	2.51	20	8.0	27.1	0.42	7.7	8.5
2	64.83	2.55	12	4.7	16.3	0.25	4.6	5.0
3	65.64	2.58	28	10.8	38.0	0.58	10.5	11.6
4	65.55	2.58	12	4.6	16.3	0.25	4.5	5.0
5	67.28	2.65	24	9.1	32.5	0.48	8.8	9.7
6	64.87	2.55	20	7.8	27.1	0.42	7.6	8.4
7	67.55	2.66	28	10.5	38.0	0.56	10.2	11.3
8	65.06	2.56	12	4.7	16.3	0.25	4.5	5.0
9	66.67	2.62	12	4.6	16.3	0.24	4.4	4.9
10	65.24	2.57	20	7.8	27.1	0.42	7.6	8.3

Average	7.0	7.8
Max	10.5	11.6
Min	4.4	4.9
Sdev	2.4	2.7

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*HAN FRESH#1*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	12/04/2022

TEST RESULTS

Impact Work Index (Average)	14.6	kWh/tonne
	13.2	kWh/short ton
Sample SG	2.64	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	56.04	54.2	19.7
2	55.77	27.1	9.9
3	55.93	54.2	19.7
4	55.95	38.0	13.8
5	55.80	43.4	15.8
6	55.99	27.1	9.8
7	55.78	70.5	25.7
8	55.95	10.8	3.9
9	55.78	27.1	9.9
10	55.98	48.8	17.7

Maximum Work Index	25.7
Minimum Work Index	3.9
Standard Deviation	6.4

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**HAN FRESH#1**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.64
Date	Apr-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	56.04	2.21	40	18.1	54.2	0.97	17.8	19.7
2	55.77	2.20	20	9.1	27.1	0.49	8.9	9.9
3	55.93	2.20	40	18.2	54.2	0.97	17.8	19.7
4	55.95	2.20	28	12.7	38.0	0.68	12.5	13.8
5	55.80	2.20	32	14.6	43.4	0.78	14.3	15.8
6	55.99	2.20	20	9.1	27.1	0.48	8.9	9.8
7	55.78	2.20	52	23.7	70.5	1.26	23.2	25.7
8	55.95	2.20	8	3.6	10.8	0.19	3.6	3.9
9	55.78	2.20	20	9.1	27.1	0.49	8.9	9.9
10	55.98	2.20	36	16.3	48.8	0.87	16.0	17.7

Average	13.2	14.6
Max	23.2	25.7
Min	3.6	3.9
Sdev	5.8	6.4

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*HAN FRESH#2*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	14/04/2022

TEST RESULTS

Impact Work Index (Average)	10.6	kWh/tonne
	9.6	kWh/short ton
Sample SG	2.60	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	65.84	27.1	8.5
2	64.34	38.0	12.2
3	66.12	48.8	15.2
4	63.10	38.0	12.4
5	64.27	32.5	10.4
6	64.34	27.1	8.7
7	64.26	27.1	8.7
8	64.45	43.4	13.9
9	63.92	21.7	7.0
10	63.47	27.1	8.8

Maximum Work Index	15.2
Minimum Work Index	7.0
Standard Deviation	2.7

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**HAN FRESH#2**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.60
Date	Apr-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	65.84	2.59	20	7.7	27.1	0.41	7.7	8.5
2	64.34	2.53	28	11.1	38.0	0.59	11.0	12.2
3	66.12	2.60	36	13.8	48.8	0.74	13.8	15.2
4	63.10	2.48	28	11.3	38.0	0.60	11.2	12.4
5	64.27	2.53	24	9.5	32.5	0.51	9.4	10.4
6	64.34	2.53	20	7.9	27.1	0.42	7.9	8.7
7	64.26	2.53	20	7.9	27.1	0.42	7.9	8.7
8	64.45	2.54	32	12.6	43.4	0.67	12.6	13.9
9	63.92	2.52	16	6.4	21.7	0.34	6.3	7.0
10	63.47	2.50	20	8.0	27.1	0.43	8.0	8.8
						Average	9.6	10.6
						Max	13.8	15.2
						Min	6.3	7.0
						Sdev	2.4	2.7

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*HAN FRESH#3*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	14/04/2022

TEST RESULTS

Impact Work Index (Average)	9.1	kWh/tonne
	8.2	kWh/short ton
Sample SG	2.59	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	65.15	16.3	5.2
2	65.20	38.0	12.1
3	66.10	10.8	3.4
4	64.01	32.5	10.5
5	66.11	48.8	15.3
6	64.58	32.5	10.4
7	66.60	43.4	13.5
8	67.73	16.3	5.0
9	66.40	21.7	6.8
10	66.19	27.1	8.5

Maximum Work Index	15.3
Minimum Work Index	3.4
Standard Deviation	4.0

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**HAN FRESH#3**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.59
Date	Apr-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	65.15	2.56	12	4.7	16.3	0.25	4.7	5.2
2	65.20	2.57	28	10.9	38.0	0.58	10.9	12.1
3	66.10	2.60	8	3.1	10.8	0.16	3.1	3.4
4	64.01	2.52	24	9.5	32.5	0.51	9.5	10.5
5	66.11	2.60	36	13.8	48.8	0.74	13.8	15.3
6	64.58	2.54	24	9.4	32.5	0.50	9.4	10.4
7	66.60	2.62	32	12.2	43.4	0.65	12.2	13.5
8	67.73	2.67	12	4.5	16.3	0.24	4.5	5.0
9	66.40	2.61	16	6.1	21.7	0.33	6.1	6.8
10	66.19	2.61	20	7.7	27.1	0.41	7.7	8.5

Average	8.2	9.1
Max	13.8	15.3
Min	3.1	3.4
Sdev	3.6	4.0

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*ENIODA OXIDE#1*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	11/04/2022

TEST RESULTS

Impact Work Index (Average)	3.9	kWh/tonne
	3.5	kWh/short ton
Sample SG	2.48	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	63.04	5.4	1.9
2	61.26	5.4	1.9
3	62.60	16.3	5.6
4	64.12	54.2	18.3
5	59.20	5.4	2.0
6	62.25	5.4	1.9
7	60.93	5.4	1.9
8	61.11	5.4	1.9
9	62.12	5.4	1.9
10	61.17	5.4	1.9

Maximum Work Index	18.3
Minimum Work Index	1.9
Standard Deviation	5.2

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**ENIODA OXIDE#1**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.48
Date	Apr-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	63.04	2.48	4	1.6	5.4	0.09	1.7	1.9
2	61.26	2.41	4	1.7	5.4	0.09	1.7	1.9
3	62.60	2.46	12	4.9	16.3	0.26	5.1	5.6
4	64.12	2.52	40	15.8	54.2	0.85	16.5	18.3
5	59.20	2.33	4	1.7	5.4	0.09	1.8	2.0
6	62.25	2.45	4	1.6	5.4	0.09	1.7	1.9
7	60.93	2.40	4	1.7	5.4	0.09	1.7	1.9
8	61.11	2.41	4	1.7	5.4	0.09	1.7	1.9
9	62.12	2.45	4	1.6	5.4	0.09	1.7	1.9
10	61.17	2.41	4	1.7	5.4	0.09	1.7	1.9
						Average	3.5	3.9
						Max	16.5	18.3
						Min	1.7	1.9
						Sdev	4.7	5.2

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*ENIODA FRESH#1*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	14/04/2022

TEST RESULTS

Impact Work Index (Average)	13.5	kWh/tonne
	12.3	kWh/short ton
Sample SG	2.58	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	64.61	32.5	10.5
2	64.26	38.0	12.3
3	62.73	27.1	9.0
4	63.24	43.4	14.3
5	63.96	48.8	15.9
6	64.01	43.4	14.1
7	64.31	48.8	15.8
8	64.97	38.0	12.1
9	63.63	54.2	17.7
10	64.85	43.4	13.9

Maximum Work Index	17.7
Minimum Work Index	9.0
Standard Deviation	2.6

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**ENIODA FRESH#1**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.58
Date	Apr-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	64.61	2.54	24	9.4	32.5	0.50	9.5	10.5
2	64.26	2.53	28	11.1	38.0	0.59	11.1	12.3
3	62.73	2.47	20	8.1	27.1	0.43	8.1	9.0
4	63.24	2.49	32	12.9	43.4	0.69	12.9	14.3
5	63.96	2.52	36	14.3	48.8	0.76	14.4	15.9
6	64.01	2.52	32	12.7	43.4	0.68	12.7	14.1
7	64.31	2.53	36	14.2	48.8	0.76	14.3	15.8
8	64.97	2.56	28	10.9	38.0	0.58	11.0	12.1
9	63.63	2.51	40	16.0	54.2	0.85	16.0	17.7
10	64.85	2.55	32	12.5	43.4	0.67	12.6	13.9

Average	12.3	13.5
Max	16.0	17.7
Min	8.1	9.0
Sdev	2.4	2.6

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*ENIODA FRESH#2*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	14/04/2022

TEST RESULTS

Impact Work Index (Average)	7.9	kWh/tonne
	7.2	kWh/short ton
Sample SG	2.69	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	66.00	10.8	3.3
2	66.38	21.7	6.5
3	65.44	21.7	6.6
4	64.02	32.5	10.1
5	65.32	27.1	8.3
6	65.06	16.3	5.0
7	62.85	38.0	12.0
8	64.87	27.1	8.3
9	65.20	16.3	5.0
10	63.57	38.0	11.9
11	64.77	32.5	10.0

Maximum Work Index	12.0
Minimum Work Index	3.3
Standard Deviation	2.9

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**ENIODA FRESH#2**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.69
Date	Apr-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	66.00	2.60	8	3.1	10.8	0.16	3.0	3.3
2	66.38	2.61	16	6.1	21.7	0.33	5.9	6.5
3	65.44	2.58	16	6.2	21.7	0.33	6.0	6.6
4	64.02	2.52	24	9.5	32.5	0.51	9.2	10.1
5	65.32	2.57	20	7.8	27.1	0.42	7.5	8.3
6	65.06	2.56	12	4.7	16.3	0.25	4.5	5.0
7	62.85	2.47	28	11.3	38.0	0.60	10.9	12.0
8	64.87	2.55	20	7.8	27.1	0.42	7.5	8.3
9	65.20	2.57	12	4.7	16.3	0.25	4.5	5.0
10	63.57	2.50	28	11.2	38.0	0.60	10.8	11.9
11	64.77	2.55	24	9.4	32.5	0.50	9.1	10.0
						Average	7.2	7.9
						Max	10.9	12.0
						Min	3.0	3.3
						Sdev	2.6	2.9

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*ATIRRE TRANS*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	11/04/2022

TEST RESULTS

Impact Work Index (Average)	5.0	kWh/tonne
	4.5	kWh/short ton
Sample SG	2.61	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	63.31	10.8	3.5
2	63.45	21.7	7.0
3	63.36	16.3	5.3
4	63.39	16.3	5.3
5	63.13	21.7	7.1
6	63.26	16.3	5.3
7	62.02	16.3	5.4
8	63.42	16.3	5.3
9	63.07	5.4	1.8
10	63.39	10.8	3.5
11	63.29	16.3	5.3

Maximum Work Index	7.1
Minimum Work Index	1.8
Standard Deviation	1.5

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**ATIRRE TRANS**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.61
Date	Apr-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	63.31	2.49	8	3.2	10.8	0.17	3.2	3.5
2	63.45	2.50	16	6.4	21.7	0.34	6.4	7.0
3	63.36	2.49	12	4.8	16.3	0.26	4.8	5.3
4	63.39	2.50	12	4.8	16.3	0.26	4.8	5.3
5	63.13	2.49	16	6.4	21.7	0.34	6.4	7.1
6	63.26	2.49	12	4.8	16.3	0.26	4.8	5.3
7	62.02	2.44	12	4.9	16.3	0.26	4.9	5.4
8	63.42	2.50	12	4.8	16.3	0.26	4.8	5.3
9	63.07	2.48	4	1.6	5.4	0.09	1.6	1.8
10	63.39	2.50	8	3.2	10.8	0.17	3.2	3.5
11	63.29	2.49	12	4.8	16.3	0.26	4.8	5.3
						Average	4.5	5.0
						Max	6.4	7.1
						Min	1.6	1.8
						Sdev	1.4	1.5

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*ATIRRE FRESH#1*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	12/04/2022

TEST RESULTS

Impact Work Index (Average)	11.3	kWh/tonne
	10.2	kWh/short ton
Sample SG	2.70	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	62.58	43.4	13.8
2	64.48	38.0	11.7
3	61.96	38.0	12.2
4	64.64	27.1	8.3
5	62.86	21.7	6.9
6	63.75	32.5	10.1
7	61.17	27.1	8.8
8	62.09	38.0	12.1
9	64.56	43.4	13.3
10	62.38	48.8	15.5

Maximum Work Index	15.5
Minimum Work Index	6.9
Standard Deviation	2.7

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**ATIRRE FRESH#1**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.70
Date	Apr-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	62.58	2.46	32	13.0	43.4	0.69	12.5	13.8
2	64.48	2.54	28	11.0	38.0	0.59	10.6	11.7
3	61.96	2.44	28	11.5	38.0	0.61	11.0	12.2
4	64.64	2.54	20	7.9	27.1	0.42	7.5	8.3
5	62.86	2.47	16	6.5	21.7	0.35	6.2	6.9
6	63.75	2.51	24	9.6	32.5	0.51	9.2	10.1
7	61.17	2.41	20	8.3	27.1	0.44	8.0	8.8
8	62.09	2.44	28	11.5	38.0	0.61	11.0	12.1
9	64.56	2.54	32	12.6	43.4	0.67	12.1	13.3
10	62.38	2.46	36	14.7	48.8	0.78	14.1	15.5

Average	10.2	11.3
Max	14.1	15.5
Min	6.2	6.9
Sdev	2.5	2.7

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*ATIRRE FRESH#2*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	12/04/2022

TEST RESULTS

Impact Work Index (Average)	10.8	kWh/tonne
	9.8	kWh/short ton
Sample SG	2.62	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	59.28	32.5	11.2
2	60.82	32.5	10.9
3	58.97	38.0	13.2
4	60.39	32.5	11.0
5	61.08	38.0	12.7
6	58.22	21.7	7.6
7	61.57	32.5	10.8
8	62.55	21.7	7.1
9	60.53	32.5	11.0
10	62.33	38.0	12.5

Maximum Work Index	13.2
Minimum Work Index	7.1
Standard Deviation	2.0

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**ATIRRE FRESH#2**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.62
Date	Apr-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	59.28	2.33	24	10.3	32.5	0.55	10.2	11.2
2	60.82	2.39	24	10.0	32.5	0.54	9.9	10.9
3	58.97	2.32	28	12.1	38.0	0.64	11.9	13.2
4	60.39	2.38	24	10.1	32.5	0.54	10.0	11.0
5	61.08	2.40	28	11.6	38.0	0.62	11.5	12.7
6	58.22	2.29	16	7.0	21.7	0.37	6.9	7.6
7	61.57	2.42	24	9.9	32.5	0.53	9.8	10.8
8	62.55	2.46	16	6.5	21.7	0.35	6.4	7.1
9	60.53	2.38	24	10.1	32.5	0.54	10.0	11.0
10	62.33	2.45	28	11.4	38.0	0.61	11.3	12.5
						Average	9.8	10.8
						Max	11.9	13.2
						Min	6.4	7.1
						Sdev	1.8	2.0

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*KILOSEGUI FRESH#1*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	11/05/2022

TEST RESULTS

Impact Work Index (Average)	9.9	kWh/tonne
	9.0	kWh/short ton
Sample SG	2.62	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	63.76	38.0	12.2
2	63.49	38.0	12.2
3	61.60	27.1	9.0
4	61.83	32.5	10.8
5	62.90	27.1	8.8
6	63.86	21.7	7.0
7	63.53	27.1	8.7
8	62.18	21.7	7.1
9	62.35	32.5	10.7
10	61.49	38.0	12.6

Maximum Work Index	12.6
Minimum Work Index	7.0
Standard Deviation	2.1

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**KILOSEGUI FRESH#1**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.62
Date	May-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	63.76	2.51	28	11.2	38.0	0.60	11.0	12.2
2	63.49	2.50	28	11.2	38.0	0.60	11.1	12.2
3	61.60	2.43	20	8.2	27.1	0.44	8.2	9.0
4	61.83	2.43	24	9.9	32.5	0.53	9.7	10.8
5	62.90	2.48	20	8.1	27.1	0.43	8.0	8.8
6	63.86	2.51	16	6.4	21.7	0.34	6.3	7.0
7	63.53	2.50	20	8.0	27.1	0.43	7.9	8.7
8	62.18	2.45	16	6.5	21.7	0.35	6.5	7.1
9	62.35	2.45	24	9.8	32.5	0.52	9.7	10.7
10	61.49	2.42	28	11.6	38.0	0.62	11.4	12.6

Average	9.0	9.9
Max	11.4	12.6
Min	6.3	7.0
Sdev	1.9	2.1

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*KILOSEGUI FRESH#2*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	11/05/2022

TEST RESULTS

Impact Work Index (Average)	10.4	kWh/tonne
	9.4	kWh/short ton
Sample SG	2.61	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	63.43	32.5	10.5
2	61.91	32.5	10.8
3	62.02	32.5	10.8
4	63.76	32.5	10.5
5	61.95	27.1	9.0
6	63.01	21.7	7.1
7	63.03	48.8	15.9
8	63.45	27.1	8.8
9	63.34	27.1	8.8
10	64.30	38.0	12.1

Maximum Work Index	15.9
Minimum Work Index	7.1
Standard Deviation	2.4

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**KILOSEGUI FRESH#2**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.61
Date	May-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	63.43	2.50	24	9.6	32.5	0.51	9.5	10.5
2	61.91	2.44	24	9.8	32.5	0.53	9.8	10.8
3	62.02	2.44	24	9.8	32.5	0.52	9.8	10.8
4	63.76	2.51	24	9.6	32.5	0.51	9.5	10.5
5	61.95	2.44	20	8.2	27.1	0.44	8.1	9.0
6	63.01	2.48	16	6.4	21.7	0.34	6.4	7.1
7	63.03	2.48	36	14.5	48.8	0.77	14.4	15.9
8	63.45	2.50	20	8.0	27.1	0.43	7.9	8.8
9	63.34	2.49	20	8.0	27.1	0.43	8.0	8.8
10	64.30	2.53	28	11.1	38.0	0.59	11.0	12.1
						Average	9.4	10.4
						Max	14.4	15.9
						Min	6.4	7.1
						Sdev	2.2	2.4

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*KILOSEGUI FRESH#3*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	11/05/2022

TEST RESULTS

Impact Work Index (Average)	10.3	kWh/tonne
	9.3	kWh/short ton
Sample SG	2.56	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	64.66	27.1	8.8
2	63.99	32.5	10.7
3	67.67	21.7	6.7
4	63.90	32.5	10.7
5	64.55	21.7	7.0
6	63.54	16.3	5.4
7	62.42	38.0	12.7
8	62.85	43.4	14.5
9	63.95	43.4	14.2
10	62.95	38.0	12.6

Maximum Work Index	14.5
Minimum Work Index	5.4
Standard Deviation	3.2

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**KILOSEGUI FRESH#3**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.56
Date	May-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	64.66	2.55	20	7.9	27.1	0.42	7.9	8.8
2	63.99	2.52	24	9.5	32.5	0.51	9.6	10.7
3	67.67	2.66	16	6.0	21.7	0.32	6.1	6.7
4	63.90	2.52	24	9.5	32.5	0.51	9.7	10.7
5	64.55	2.54	16	6.3	21.7	0.34	6.4	7.0
6	63.54	2.50	12	4.8	16.3	0.26	4.9	5.4
7	62.42	2.46	28	11.4	38.0	0.61	11.5	12.7
8	62.85	2.47	32	12.9	43.4	0.69	13.1	14.5
9	63.95	2.52	32	12.7	43.4	0.68	12.9	14.2
10	62.95	2.48	28	11.3	38.0	0.60	11.4	12.6
						Average	9.3	10.3
						Max	13.1	14.5
						Min	4.9	5.4
						Sdev	2.9	3.2

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*KILOSEGUI FRESH#4*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	11/05/2022

TEST RESULTS

Impact Work Index (Average)	10.4	kWh/tonne
	9.4	kWh/short ton
Sample SG	2.58	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	63.26	21.7	7.1
2	61.90	21.7	7.3
3	63.67	38.0	12.4
4	61.92	32.5	10.9
5	63.59	38.0	12.4
6	63.12	32.5	10.7
7	55.53	43.4	16.2
8	63.52	21.7	7.1
9	62.73	27.1	9.0
10	62.66	32.5	10.8

Maximum Work Index	16.2
Minimum Work Index	7.1
Standard Deviation	2.9

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**KILOSEGUI FRESH#4**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.58
Date	May-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	63.26	2.49	16	6.4	21.7	0.34	6.4	7.1
2	61.90	2.44	16	6.6	21.7	0.35	6.6	7.3
3	63.67	2.51	28	11.2	38.0	0.60	11.2	12.4
4	61.92	2.44	24	9.8	32.5	0.53	9.9	10.9
5	63.59	2.50	28	11.2	38.0	0.60	11.2	12.4
6	63.12	2.49	24	9.7	32.5	0.52	9.7	10.7
7	55.53	2.19	32	14.6	43.4	0.78	14.7	16.2
8	63.52	2.50	16	6.4	21.7	0.34	6.4	7.1
9	62.73	2.47	20	8.1	27.1	0.43	8.1	9.0
10	62.66	2.47	24	9.7	32.5	0.52	9.8	10.8
						Average	9.4	10.4
						Max	14.7	16.2
						Min	6.4	7.1
						Sdev	2.6	2.9

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*KILOSEGUI FRESH#1*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	11/05/2022

TEST RESULTS

Impact Work Index (Average)	9.9	kWh/tonne
	9.0	kWh/short ton
Sample SG	2.62	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	63.76	38.0	12.2
2	63.49	38.0	12.2
3	61.60	27.1	9.0
4	61.83	32.5	10.8
5	62.90	27.1	8.8
6	63.86	21.7	7.0
7	63.53	27.1	8.7
8	62.18	21.7	7.1
9	62.35	32.5	10.7
10	61.49	38.0	12.6

Maximum Work Index	12.6
Minimum Work Index	7.0
Standard Deviation	2.1

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**KILOSEGUI FRESH#1**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.62
Date	May-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	63.76	2.51	28	11.2	38.0	0.60	11.0	12.2
2	63.49	2.50	28	11.2	38.0	0.60	11.1	12.2
3	61.60	2.43	20	8.2	27.1	0.44	8.2	9.0
4	61.83	2.43	24	9.9	32.5	0.53	9.7	10.8
5	62.90	2.48	20	8.1	27.1	0.43	8.0	8.8
6	63.86	2.51	16	6.4	21.7	0.34	6.3	7.0
7	63.53	2.50	20	8.0	27.1	0.43	7.9	8.7
8	62.18	2.45	16	6.5	21.7	0.35	6.5	7.1
9	62.35	2.45	24	9.8	32.5	0.52	9.7	10.7
10	61.49	2.42	28	11.6	38.0	0.62	11.4	12.6

Average	9.0	9.9
Max	11.4	12.6
Min	6.3	7.0
Sdev	1.9	2.1

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*KILOSEGUI FRESH#2*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	11/05/2022

TEST RESULTS

Impact Work Index (Average)	10.4	kWh/tonne
	9.4	kWh/short ton
Sample SG	2.61	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	63.43	32.5	10.5
2	61.91	32.5	10.8
3	62.02	32.5	10.8
4	63.76	32.5	10.5
5	61.95	27.1	9.0
6	63.01	21.7	7.1
7	63.03	48.8	15.9
8	63.45	27.1	8.8
9	63.34	27.1	8.8
10	64.30	38.0	12.1

Maximum Work Index	15.9
Minimum Work Index	7.1
Standard Deviation	2.4

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**KILOSEGUI FRESH#2**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.61
Date	May-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	63.43	2.50	24	9.6	32.5	0.51	9.5	10.5
2	61.91	2.44	24	9.8	32.5	0.53	9.8	10.8
3	62.02	2.44	24	9.8	32.5	0.52	9.8	10.8
4	63.76	2.51	24	9.6	32.5	0.51	9.5	10.5
5	61.95	2.44	20	8.2	27.1	0.44	8.1	9.0
6	63.01	2.48	16	6.4	21.7	0.34	6.4	7.1
7	63.03	2.48	36	14.5	48.8	0.77	14.4	15.9
8	63.45	2.50	20	8.0	27.1	0.43	7.9	8.8
9	63.34	2.49	20	8.0	27.1	0.43	8.0	8.8
10	64.30	2.53	28	11.1	38.0	0.59	11.0	12.1
						Average	9.4	10.4
						Max	14.4	15.9
						Min	6.4	7.1
						Sdev	2.2	2.4

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*KILOSEGUI FRESH#3*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	11/05/2022

TEST RESULTS

Impact Work Index (Average)	10.3	kWh/tonne
	9.3	kWh/short ton
Sample SG	2.56	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	64.66	27.1	8.8
2	63.99	32.5	10.7
3	67.67	21.7	6.7
4	63.90	32.5	10.7
5	64.55	21.7	7.0
6	63.54	16.3	5.4
7	62.42	38.0	12.7
8	62.85	43.4	14.5
9	63.95	43.4	14.2
10	62.95	38.0	12.6

Maximum Work Index	14.5
Minimum Work Index	5.4
Standard Deviation	3.2

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**KILOSEGUI FRESH#3**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.56
Date	May-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	64.66	2.55	20	7.9	27.1	0.42	7.9	8.8
2	63.99	2.52	24	9.5	32.5	0.51	9.6	10.7
3	67.67	2.66	16	6.0	21.7	0.32	6.1	6.7
4	63.90	2.52	24	9.5	32.5	0.51	9.7	10.7
5	64.55	2.54	16	6.3	21.7	0.34	6.4	7.0
6	63.54	2.50	12	4.8	16.3	0.26	4.9	5.4
7	62.42	2.46	28	11.4	38.0	0.61	11.5	12.7
8	62.85	2.47	32	12.9	43.4	0.69	13.1	14.5
9	63.95	2.52	32	12.7	43.4	0.68	12.9	14.2
10	62.95	2.48	28	11.3	38.0	0.60	11.4	12.6
						Average	9.3	10.3
						Max	13.1	14.5
						Min	4.9	5.4
						Sdev	2.9	3.2

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*KILOSEGUI FRESH#4*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	11/05/2022

TEST RESULTS

Impact Work Index (Average)	10.4	kWh/tonne
	9.4	kWh/short ton
Sample SG	2.58	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	63.26	21.7	7.1
2	61.90	21.7	7.3
3	63.67	38.0	12.4
4	61.92	32.5	10.9
5	63.59	38.0	12.4
6	63.12	32.5	10.7
7	55.53	43.4	16.2
8	63.52	21.7	7.1
9	62.73	27.1	9.0
10	62.66	32.5	10.8

Maximum Work Index	16.2
Minimum Work Index	7.1
Standard Deviation	2.9

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**KILOSEGUI FRESH#4**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.58
Date	May-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	63.26	2.49	16	6.4	21.7	0.34	6.4	7.1
2	61.90	2.44	16	6.6	21.7	0.35	6.6	7.3
3	63.67	2.51	28	11.2	38.0	0.60	11.2	12.4
4	61.92	2.44	24	9.8	32.5	0.53	9.9	10.9
5	63.59	2.50	28	11.2	38.0	0.60	11.2	12.4
6	63.12	2.49	24	9.7	32.5	0.52	9.7	10.7
7	55.53	2.19	32	14.6	43.4	0.78	14.7	16.2
8	63.52	2.50	16	6.4	21.7	0.34	6.4	7.1
9	62.73	2.47	20	8.1	27.1	0.43	8.1	9.0
10	62.66	2.47	24	9.7	32.5	0.52	9.8	10.8
						Average	9.4	10.4
						Max	14.7	16.2
						Min	6.4	7.1
						Sdev	2.6	2.9

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*SOUWA FRESH #4 (DPDD1382 79-90m)*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	29/11/2022

TEST RESULTS

Impact Work Index (Average)	6.9	kWh/tonne
	6.2	kWh/short ton
Sample SG	2.60	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	63.72	21.7	7.0
2	63.75	16.3	5.3
3	64.44	16.3	5.2
4	63.01	10.8	3.5
5	63.35	16.3	5.3
6	62.61	16.3	5.4
7	62.55	38.0	12.5
8	63.00	21.7	7.1
9	62.96	21.7	7.1
10	64.02	32.5	10.5

Maximum Work Index	12.5
Minimum Work Index	3.5
Standard Deviation	2.7

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**SOUWA FRESH #4 (DPDD1382 79-90m)**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.60
Date	Nov-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	63.72	2.51	16	6.4	21.7	0.34	6.4	7.0
2	63.75	2.51	12	4.8	16.3	0.26	4.8	5.3
3	64.44	2.54	12	4.7	16.3	0.25	4.7	5.2
4	63.01	2.48	8	3.2	10.8	0.17	3.2	3.5
5	63.35	2.49	12	4.8	16.3	0.26	4.8	5.3
6	62.61	2.46	12	4.9	16.3	0.26	4.8	5.4
7	62.55	2.46	28	11.4	38.0	0.61	11.3	12.5
8	63.00	2.48	16	6.5	21.7	0.34	6.4	7.1
9	62.96	2.48	16	6.5	21.7	0.34	6.4	7.1
10	64.02	2.52	24	9.5	32.5	0.51	9.5	10.5
						Average	6.2	6.9
						Max	11.3	12.5
						Min	3.2	3.5
						Sdev	2.5	2.7

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*SOUWA FRESH #5 (DPDD1473 80-87m)*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	29/11/2022

TEST RESULTS

Impact Work Index (Average)	5.3	kWh/tonne
	4.8	kWh/short ton
Sample SG	2.59	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	63.61	21.7	7.1
2	63.12	10.8	3.6
3	63.89	21.7	7.0
4	64.02	16.3	5.3
5	63.29	10.8	3.5
6	63.71	16.3	5.3
7	63.74	16.3	5.3

Maximum Work Index	7.1
Minimum Work Index	3.5
Standard Deviation	1.4

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**SOUWA FRESH #5 (DPDD1473 80-87m)**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.59
Date	Nov-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	63.61	2.50	16	6.4	21.7	0.34	6.4	7.1
2	63.12	2.49	8	3.2	10.8	0.17	3.2	3.6
3	63.89	2.52	16	6.4	21.7	0.34	6.4	7.0
4	64.02	2.52	12	4.8	16.3	0.25	4.8	5.3
5	63.29	2.49	8	3.2	10.8	0.17	3.2	3.5
6	63.71	2.51	12	4.8	16.3	0.26	4.8	5.3
7	63.74	2.51	12	4.8	16.3	0.26	4.8	5.3
						Average	4.8	5.3
						Max	6.4	7.1
						Min	3.2	3.5
						Sdev	1.3	1.4

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*NOKPA FRESH #3 (DPDD1425 120-137.7m)*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	29/11/2022

TEST RESULTS

Impact Work Index (Average)	4.6	kWh/tonne
	4.1	kWh/short ton
Sample SG	2.64	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	61.82	10.8	3.6
2	62.19	10.8	3.5
3	62.84	21.7	7.0
4	64.02	10.8	3.4
5	63.23	10.8	3.5
6	63.90	16.3	5.2
7	63.74	16.3	5.2
8	62.87	16.3	5.3

Maximum Work Index	7.0
Minimum Work Index	3.4
Standard Deviation	1.3

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**NOKPA FRESH #3 (DPDD1425 120-137.7m)**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.64
Date	Nov-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	61.82	2.43	8	3.3	10.8	0.18	3.2	3.6
2	62.19	2.45	8	3.3	10.8	0.17	3.2	3.5
3	62.84	2.47	16	6.5	21.7	0.35	6.3	7.0
4	64.02	2.52	8	3.2	10.8	0.17	3.1	3.4
5	63.23	2.49	8	3.2	10.8	0.17	3.2	3.5
6	63.90	2.52	12	4.8	16.3	0.25	4.7	5.2
7	63.74	2.51	12	4.8	16.3	0.26	4.7	5.2
8	62.87	2.48	12	4.8	16.3	0.26	4.8	5.3

Average	4.1	4.6
Max	6.3	7.0
Min	3.1	3.4
Sdev	1.2	1.3

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*CHEGUE MAIN FRESH #5 (DPDD1494 50-58m)*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	29/11/2022

TEST RESULTS

Impact Work Index (Average)	6.5	kWh/tonne
	5.9	kWh/short ton
Sample SG	2.61	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	63.76	21.7	7.0
2	63.94	21.7	7.0
3	63.51	16.3	5.3
4	63.57	21.7	7.0
5	63.77	10.8	3.5
6	62.90	10.8	3.5
7	63.06	21.7	7.1
8	63.81	27.1	8.7
9	62.78	21.7	7.1
10	64.07	27.1	8.7

Maximum Work Index	8.7
Minimum Work Index	3.5
Standard Deviation	1.8

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**CHEGUE MAIN FRESH #5 (DPDD1494 50-58m)**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.61
Date	Nov-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	63.76	2.51	16	6.4	21.7	0.34	6.3	7.0
2	63.94	2.52	16	6.4	21.7	0.34	6.3	7.0
3	63.51	2.50	12	4.8	16.3	0.26	4.8	5.3
4	63.57	2.50	16	6.4	21.7	0.34	6.3	7.0
5	63.77	2.51	8	3.2	10.8	0.17	3.2	3.5
6	62.90	2.48	8	3.2	10.8	0.17	3.2	3.5
7	63.06	2.48	16	6.4	21.7	0.34	6.4	7.1
8	63.81	2.51	20	8.0	27.1	0.43	7.9	8.7
9	62.78	2.47	16	6.5	21.7	0.35	6.4	7.1
10	64.07	2.52	20	7.9	27.1	0.42	7.9	8.7

Average	5.9	6.5
Max	7.9	8.7
Min	3.2	3.5
Sdev	1.7	1.8

BOND IMPACT CRUSHABILITY TEST RESULTS

Sample Identity	:	*KEKEDA FRESH #4 (DPDD1479 40-50.3m)*
Job Number	:	A23136
Client	:	AMPELLA MINING COTE D'IVOIRE
Date	:	29/11/2022

TEST RESULTS

Impact Work Index (Average)	6.2	kWh/tonne
	5.6	kWh/short ton
Sample SG	2.64	

Specimen Number	Thickness (mm)	Impact Energy (joules)	Work Index (kWh/tonne)
1	63.80	16.3	5.2
2	63.43	27.1	8.7
3	62.39	21.7	7.1
4	63.28	21.7	7.0
5	64.23	16.3	5.1
6	63.33	21.7	7.0
7	63.10	16.3	5.2
8	64.05	10.8	3.4
9	63.38	21.7	7.0
0	0.00	0.0	0.0

Maximum Work Index	8.7
Minimum Work Index	0.0
Standard Deviation	2.4

Bond Impact Crushing Work Index - WORK SHEET

Job Number	**A23136**
Sample Identity	**KEKEDA FRESH #4 (DPDD1479 40-50.3m)**
Client	**AMPELLA MINING COTE D'IVOIRE**
Sample Screen Size (mm)	-76+51
Sample SG	2.64
Date	Nov-22

Specimen Number	Specimen Thickness (mm)	Specimen Thickness (inch)	Impact Energy (ft-lbs)	Impact Energy (ft-lbs)/inch	Impact Energy (joules)	Impact Energy (joules)/mm	Bond Impact Crushing Work Index (kWh/t_{SHORT})	Bond Impact Crushing Work Index (kWh/t_{METRIC})
1	63.80	2.51	12	4.8	16.3	0.26	4.7	5.2
2	63.43	2.50	20	8.0	27.1	0.43	7.9	8.7
3	62.39	2.46	16	6.5	21.7	0.35	6.4	7.1
4	63.28	2.49	16	6.4	21.7	0.34	6.3	7.0
5	64.23	2.53	12	4.7	16.3	0.25	4.7	5.1
6	63.33	2.49	16	6.4	21.7	0.34	6.3	7.0
7	63.10	2.48	12	4.8	16.3	0.26	4.7	5.2
8	64.05	2.52	8	3.2	10.8	0.17	3.1	3.4
9	63.38	2.50	16	6.4	21.7	0.34	6.3	7.0
						Average	5.6	6.2
						Max	7.9	8.7
						Min	3.1	3.4
						Sdev	1.4	1.6

APPENDIX IV

SMC Testwork

JK Tech Report

SMC TEST® REPORT

Ampella Mining

Tested by: ALS Metallurgy WA

Perth, West Australia

Prepared by: Matt Weier

JKTech Job No: 22001/P45
Testing Date: Mar to May '22



Contents

1 Executive Summary 5
1.1 SMC Results Summary 5
2 Introduction 10
3 The SMC Test® 11
3.1 Introduction 11
3.2 General Description and Test Background 11
3.3 The Test Procedure 12
3.3.1 Particle Selection Method 12
3.3.2 Cut Core Method 13
3.4 SMC Test® Results 14
4 References 25
5 Disclaimer 26

Appendices

APPENDIX A. **SAG Circuit Specific Energy (SCSE) 28**
APPENDIX B. **Background And Use Of The SMC Test® 32**

List Of Figures

*Figure 1 - Frequency Distribution of A*b in the JKTech Database*.....9

Figure 2 - Frequency Distribution of SCSE in the JKTech Database 9

*Figure 3 – Relationship between Particle Size and A*b*.....12

Figure 4 – A Typical Set of Particles for Breakage (Particle Selection Method).....13

Figure 5 – Orientations of Pieces for Breakage (Cut Core Method) 14

Figure 6 – Cumulative Distribution of DWi Values in SMCT Database.....21

Figure 7 - Cumulative Distribution of Mia, Mih and Mic Values in the SMCT Database.....21

*Figure 8 - Frequency Distribution of A*b in the JKTech Database*.....24

Figure 9 - Frequency Distribution of SCSE in the JKTech Database 24

List Of Tables

Table 1 - SMC Test® Results 5

Table 2 – Parameters derived from the SMC Test® Results 7

Table 3 - SMC Test® Results 15

Table 4 – Parameters derived from the SMC Test® Results 17

Table 5 – Crusher Simulation Model Specific Energy Matrix 19

*Table 6 – Derived Values for A*b, ta and SCSE* 22

1 Executive Summary

1.1 SMC Results Summary

Table 1 - SMC Test® Results

Sample Designation	*DWi* (kWh/m³)	*DWi* (%)	*Mi* Parameters (kWh/t)			SG
			Mia	Mih	Mic	
Atire Fresh 1	6.8	52.0	19.7	14.6	7.6	2.69
Atire Fresh 2	7.4	60.0	21.0	15.8	8.2	2.71
Atire Trans	2.3	6.0	8.6	5.1	2.7	2.57
Chegue Main Fresh 1	6.8	53.0	20.0	14.8	7.7	2.68
Chegue Main Fresh 2	6.4	46.0	18.8	13.8	7.1	2.67
Chegue Main Fresh 3	6.0	41.0	18.2	13.2	6.8	2.65
Chegue Main Fresh 4	5.8	38.0	17.4	12.5	6.4	2.68
Chegue Main Trans	0.5	<1	2.7	1.2	0.6	2.48
Chegue South Fresh 1	7.2	58.0	20.8	15.7	8.1	2.68
Chegue South Fresh 2	7.4	60.0	21.0	15.8	8.2	2.72
Chegue South Trans	3.3	12.0	11.5	7.4	3.8	2.56
Enioda Fresh 1	8.6	74.0	23.6	18.4	9.5	2.70
Enioda Fresh 2	6.9	53.0	19.7	14.6	7.6	2.73
Enioda Oxide 1	2.5	7.0	10.4	6.3	3.3	2.29
Han Fresh 1	5.8	38.0	17.5	12.5	6.5	2.67
Han Fresh 2	7.3	59.0	20.9	15.7	8.1	2.70

Sample Designation	*DWi* (kWh/m³)	*DWi* (%)	*Mi* Parameters (kWh/t)			SG
			Mia	Mih	Mic	
Han Fresh 3	5.7	38.0	17.2	12.4	6.4	2.69
Han Trans/Fresh	3.2	12.0	11.0	7.0	3.6	2.65
Kekeda Fresh 1	6.1	43.0	18.1	13.2	6.8	2.70
Kekeda Fresh 2	4.5	23.0	14.2	9.7	5.0	2.68
Kekeda Fresh 3	5.7	38.0	17.1	12.2	6.3	2.72
Kekeda Trans 1	1.5	3.0	6.3	3.4	1.8	2.58
Kekeda Trans 2	2.8	9.0	10.2	6.3	3.3	2.58
Kilosequi Fresh 1	4.8	27.0	15.7	10.8	5.6	2.57
Kilosequi Fresh 2	4.3	21.0	13.9	9.4	4.9	2.63
Kilosequi Fresh 3	5.1	30.0	15.8	11.0	5.7	2.68
Kilosequi Fresh 4	5.5	35.0	17.3	12.3	6.4	2.58
Kilosequi Trans 1	2.6	8.0	9.4	5.7	3.0	2.60
Nokpa Fresh 1	3.1	11.0	10.7	6.8	3.5	2.66
Nokpa Fresh 2	4.7	25.0	14.8	10.2	5.3	2.67
Nokpa Transition	3.1	11.0	11.0	7.0	3.6	2.58
Souwa Fresh 1	5.8	39.0	17.6	12.6	6.5	2.67
Souwa Fresh 2	6.8	51.0	19.7	14.6	7.6	2.69
Souwa Fresh 3	7.5	61.0	21.3	16.1	8.3	2.68
Souwa Oxide	0.8	1.0	4.0	1.9	1.0	2.32
Souwa Transition Saprolite	2.6	8.0	9.6	5.8	3.0	2.56

Table 2 – Parameters derived from the SMC Test® Results

Sample Designation	A	b	A*b	t_a	SCSE (kWh/t)
Atire Fresh 1	73.6	0.54	39.7	0.38	9.88
Atire Fresh 2	75.0	0.49	36.8	0.35	10.29
Atire Trans	68.8	1.64	112.8	1.14	6.57
Chegue Main Fresh 1	66.0	0.59	38.9	0.38	9.96
Chegue Main Fresh 2	66.4	0.63	41.8	0.41	9.62
Chegue Main Fresh 3	63.4	0.69	43.7	0.43	9.4
Chegue Main Fresh 4	65.4	0.71	46.4	0.45	9.2
Chegue Main Trans	77.1	6.23	480.3	5.02	4.88*
Chegue South Fresh 1	77.8	0.48	37.3	0.36	10.15
Chegue South Fresh 2	69.7	0.53	36.9	0.35	10.29
Chegue South Trans	61.8	1.28	79.1	0.80	7.38
Enioda Fresh 1	80.2	0.39	31.3	0.30	11.1
Enioda Fresh 2	69.7	0.57	39.7	0.38	9.96
Enioda Oxide 1	67.6	1.36	91.9	1.04	7.24
Han Fresh 1	75.0	0.62	46.5	0.45	9.18
Han Fresh 2	78.2	0.47	36.8	0.35	10.27
Han Fresh 3	73.4	0.64	47.0	0.45	9.17
Han Trans/Fresh	69.6	1.19	82.8	0.81	7.28
Kekeda Fresh 1	76.0	0.58	44.1	0.42	9.44
Kekeda Fresh 2	72.6	0.82	59.5	0.58	8.28

Sample Designation	A	b	A*b	t_a	SCSE (kWh/t)
Kekeda Fresh 3	69.9	0.68	47.5	0.45	9.17
Kekeda Trans 1	68.1	2.47	168.2	1.69	5.87
Kekeda Trans 2	69.9	1.31	91.6	0.92	7.02
Kilosequi Fresh 1	73.2	0.73	53.4	0.54	8.57
Kilosequi Fresh 2	77.5	0.79	61.2	0.60	8.15
Kilosequi Fresh 3	70.5	0.75	52.9	0.51	8.7
Kilosequi Fresh 4	70.9	0.66	46.8	0.47	9.06
Kilosequi Trans 1	73.4	1.37	100.6	1.00	6.81
Nokpa Fresh 1	60.0	1.42	85.2	0.83	7.22
Nokpa Fresh 2	69.3	0.82	56.8	0.55	8.43
Nokpa Transition	69.1	1.21	83.6	0.84	7.24
Souwa Fresh 1	76.4	0.60	45.8	0.44	9.24
Souwa Fresh 2	79.4	0.50	39.7	0.38	9.89
Souwa Fresh 3	84.6	0.43	36.4	0.35	10.28
Souwa Oxide	74.8	4.07	304.4	3.40	5.44
Souwa Transition Saprolite	65.9	1.51	99.5	1.01	6.84

*Sample parameters are outside the range of parameteres used when developing the SCSE model. As such SCSE values for flagged samples should be treated with caution.

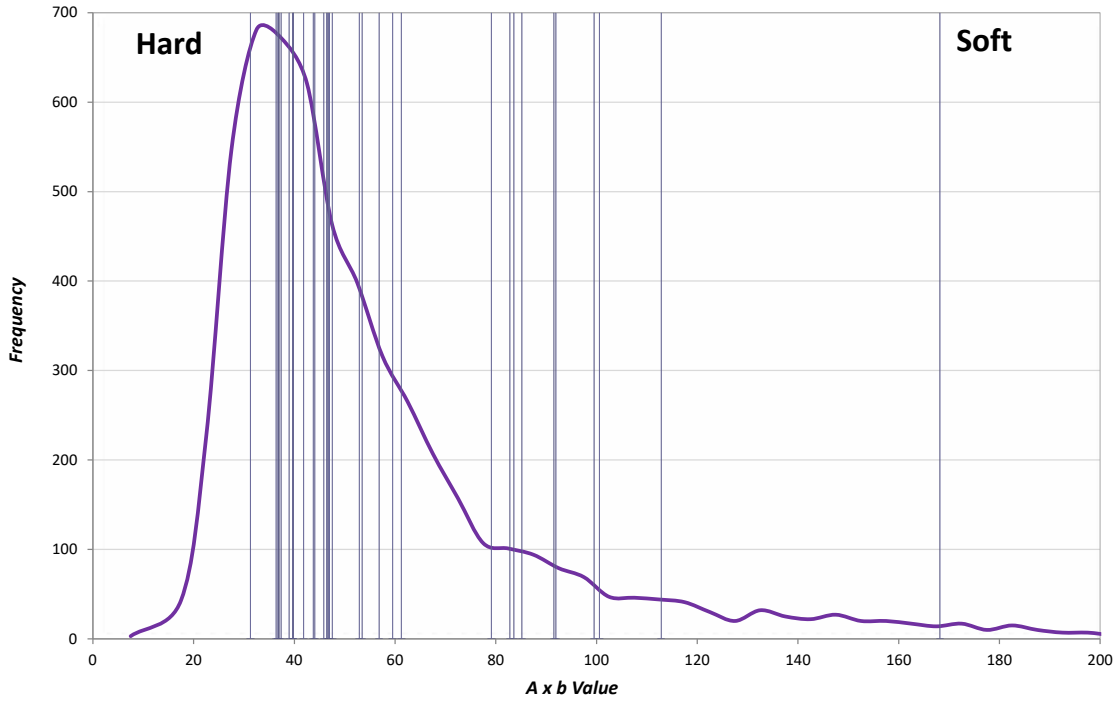


*Figure 1 - Frequency Distribution of A*b in the JKTech Database*

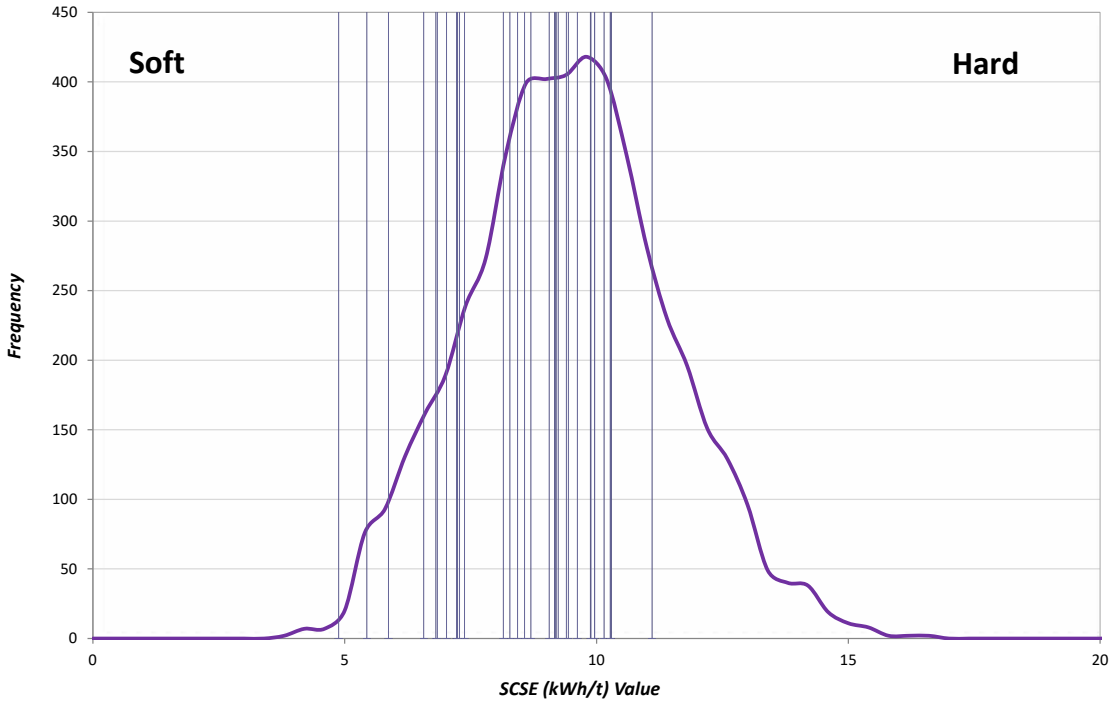


Figure 2 - Frequency Distribution of SCSE in the JKTech Database

2 Introduction

SMC data for thirty six samples from Doropo Project were received from ALS Metallurgy WA on May 30, 2022, by JKTech for SMC test analysis. The samples were identified as thirty six. The data were analysed to determine the JKSimMet and SMC Test comminution parameters. SMC Test results were forwarded to SMC Testing Pty Ltd for the analysis of the SMC Test data. Analysis and reporting were completed on June 01, 2022.

Some samples in this report have been previously reported as JKTech job 22001/P30 and 22001/P37, these have been included at ALS Metallurgy's request.

3 The SMC Test®

3.1 Introduction

The standard JK Drop-Weight test provides ore specific parameters for use in the JKSimMet Mineral Processing Simulator software. In JKSimMet, these parameters are combined with equipment details and operating conditions to analyse and/or predict SAG/autogenous mill performance. The same test procedure also provides ore type characterisation for the JKSimMet crusher model.

The SMC Test was developed by Steve Morrell of SMC Testing Pty Ltd (SMCT). The test provides a cost effective means of obtaining these parameters, in addition to a range of other power-based comminution parameters, from drill core or in situations where limited quantities of material are available. The ore specific parameters have been calculated from the test results and are supplied to Ampella Mining in this report as part of the standard procedure

3.2 General Description and Test Background

The SMC Test® was originally designed for the breakage characterisation of drill core and it generates a relationship between input energy (kWh/t) and the percent of broken product passing a specified sieve size. The results are used to determine the so-called JK Drop-Weight index (DWi), which is a measure of the strength of the rock when broken under impact conditions and has the units kWh/m^3. The DWi is directly related to the JK rock breakage parameters A and b and hence can be used to estimate the values of these parameters as well as being correlated with the JK abrasion parameter - t_a. For crusher modelling the t_{10}-E_{cs} matrix can also be derived. This is done by using the size-by-size $A*b$ values that are used in the SMC Test® data analysis (see below) to estimate the t_{10}-E_{cs} values for each of the relevant size fractions in the crusher model matrix.

For power-based calculations, (see APPENDIX B), the SMC Test® provides the comminution parameters M_{ia}, M_{ih} and M_{ic}. M_{ia} is the work index for the grinding of coarser particles (> 750 µm) in tumbling mills such as autogenous (AG), semi-autogenous (SAG), rod and ball mills. M_{ih} is the work index for the grinding in High Pressure Grinding Rolls (HPGR) and M_{ic} for size reduction in conventional crushers.

The SMC Test® is a precision test, which uses particles that are either cut from drill core using a diamond saw to achieve close size replication or else selected from crushed material so that particle mass variation is controlled within a prescribed range. The particles are then broken at a number of prescribed impact energies. The high degree of control imposed on both the size of particles and the breakage energies used, means that the test is largely free of the repeatability problems associated with tumbling-mill based tests. Such tests usually suffer from variations in feed size (which is not closely controlled) and energy input, often assumed to be constant when in reality it can be highly variable (Levin, 1989).

The relationship between the DWi and the JK rock breakage parameters makes use of the size-by-size nature of rock strength that is often apparent from the results of full JK Drop-Weight tests. The effect is illustrated in Figure 3, which plots the normalized values of A*b against particle size. This figure also shows how the gradient of these plots varies across the full range of rock types tested. In the case of a conventional JK Drop-Weight test, these values are effectively averaged and a mean value of A and b is reported. The SMC Test® uses a single size and makes use of relationships such as that shown in Figure 3 to predict the A and b of the particle size that has the same value as the mean for a JK full Drop-Weight test.

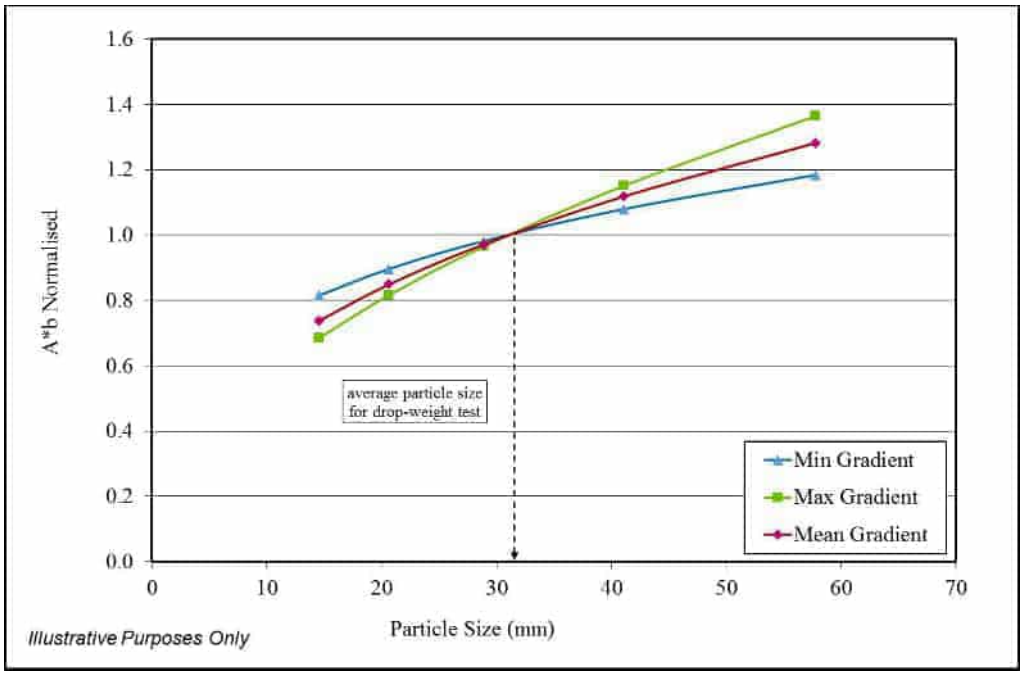


*Figure 3 – Relationship between Particle Size and A*b*

3.3 The Test Procedure

In the SMC Test®, five sets of 20 particles are broken, each set at a different specific energy level, using a JK Drop-Weight tester. The breakage products are screened at a sieve size selected to provide a direct measurement of the t_{10} value.

The test calls for a prescribed target average volume for the particles, with the target being chosen to be equivalent to the mean volume of particles in one of the standard JK Drop-Weight test size fractions.

The rest height of the drop-head (gap) is recorded after breakage of each particle to allow for a correction to the drop energy. After breaking all 20 particles in a set, the broken product is sieved at an aperture size, one tenth of the original particle size. Thus, the percent passing mass gives a direct reading of the t_{10} value for breakage at that energy level.

There are two alternative methods of preparing the particle sets for breakage testing: the particle selection method and the cut core method. The particle selection method is the most commonly used as it is generally less time consuming. The cut core method requires less material, so tends to be used as a fallback method, only when necessary to cope with restricted sample availability.

3.3.1 Particle Selection Method

For the particle selection method, the test is carried out on material in one of three alternative size fractions: -31.5+26.5, -22.4+19 or -16+13.2 mm. The largest size fraction is preferred but requires more material.

In the particle selection method, particles are chosen so that their individual masses lie within ±30% of the target mass and the mean mass for each set of 20 lies within ±10% of the target mass. A typical set of particles is shown in Figure 4.



Figure 4 – A Typical Set of Particles for Breakage (Particle Selection Method)

Before commencing breakage tests on the particles, the ore density is determined by first weighing a representative sample of particles in air and then in water.

3.3.2 Cut Core Method

The cut core method uses cut pieces of quartered (slivered) drill core. Whole core or half core can be used, but when received in this form it needs to be first quartered as a preliminary step in the procedure. Once quartered, any broken or tapered ends of the quartered lengths are cut, to square them off. Before the lengths of quartered core are cut to produce the pieces for testing, each one is weighed in air and then in water, to obtain a density measurement and a measure of its mass per unit length.

The size fraction targeted when the cut core method is used depends on the original core diameter. The target size fraction is selected to ensure that pieces of the correct volume will have “chunky” rather than “slabby” proportions.

Having measured the density of the core, the target volume can be translated into a target mass and with the average mass per unit length also known, an average cutting interval can be determined for the core.

Sufficient pieces of the quartered core are cut to generate 100 particles. These are then divided into the five sets of 20 and broken in the JK Drop-Weight tester at the five different energy levels. Within each set, the three possible orientations of the particles are equally represented (as far as possible, given that there are 20 particles). The orientations prescribed for testing are shown in Figure 5.



Figure 5 – Orientations of Pieces for Breakage (Cut Core Method)

The cut core method cannot be used for cores with diameters exceeding 70 mm, where the particle masses would be too large to achieve the highest prescribed energy level.

3.4 SMC Test® Results

The SMC Test® results for the thirty six samples from Doropo Project are given in Table 3. This table includes the average rock density and the DWi (Drop-Weight index) that is the direct result of the test procedure. The values determined for the M_{ia}, M_{ih} and M_{ic} parameters developed by SMCT are also presented in this table. The M_{ia} parameter represents the coarse particle component (down to 750 µm), of the overall comminution energy and can be used together with the M_{ib} (fine particle component) to estimate the total energy requirements of a conventional comminution circuit. The use of these parameters is explained further in APPENDIX B. The derived estimates of parameters *A*, *b* and t_a that are required for JKSimMet comminution modelling are given in Table 4.

Also included in the derived results are the SAG Circuit Specific Energy (SCSE) values. The SCSE value is derived from simulations of a "standard" circuit comprising a SAG mill in closed circuit with a pebble crusher. This allows *A*b* values to be described in a more meaningful form. SCSE is described in detail in APPENDIX A.

In the case of the thirty six samples from Doropo Project, the *A* and *b* estimates are based on a correlation using the database of all results so far accumulated by SMCT.

Table 3 - SMC Test® Results

Sample Designation	*DWi* (kWh/m³)	*DWi* (%)	*Mi* Parameters (kWh/t)			SG
			Mia	*Mih*	*Mic*	
Atire Fresh 1	6.78	52	19.7	14.6	7.6	2.69
Atire Fresh 2	7.40	60	21.0	15.8	8.2	2.71
Atire Trans	2.28	6	8.6	5.1	2.7	2.57
Chegue Main Fresh 1	6.84	53	20.0	14.8	7.7	2.68
Chegue Main Fresh 2	6.35	46	18.8	13.8	7.1	2.67
Chegue Main Fresh 3	6.01	41	18.2	13.2	6.8	2.65
Chegue Main Fresh 4	5.75	38	17.4	12.5	6.4	2.68
Chegue Main Trans	0.52	<1	2.7	1.2	0.6	2.48
Chegue South Fresh 1	7.24	58	20.8	15.7	8.1	2.68
Chegue South Fresh 2	7.40	60	21.0	15.8	8.2	2.72
Chegue South Trans	3.25	12	11.5	7.4	3.8	2.56
Enioda Fresh 1	8.55	74	23.6	18.4	9.5	2.70
Enioda Fresh 2	6.89	53	19.7	14.6	7.6	2.73
Enioda Oxide 1	2.49	7	10.4	6.3	3.3	2.29
Han Fresh 1	5.77	38	17.5	12.5	6.5	2.67
Han Fresh 2	7.32	59	20.9	15.7	8.1	2.70
Han Fresh 3	5.73	38	17.2	12.4	6.4	2.69
Han Trans/Fresh	3.21	12	11.0	7.0	3.6	2.65
Kekeda Fresh 1	6.13	43	18.1	13.2	6.8	2.70
Kekeda Fresh 2	4.47	23	14.2	9.7	5.0	2.68

Sample Designation	*DWi* (kWh/m^3)	*DWi* (%)	*Mi* Parameters (kWh/t)			SG
			Mia	*Mih*	*Mic*	
Kekeda Fresh 3	5.73	38	17.1	12.2	6.3	2.72
Kekeda Trans 1	1.54	3	6.3	3.4	1.8	2.58
Kekeda Trans 2	2.81	9	10.2	6.3	3.3	2.58
Kilosequi Fresh 1	4.81	27	15.7	10.8	5.6	2.57
Kilosequi Fresh 2	4.27	21	13.9	9.4	4.9	2.63
Kilosequi Fresh 3	5.10	30	15.8	11.0	5.7	2.68
Kilosequi Fresh 4	5.49	35	17.3	12.3	6.4	2.58
Kilosequi Trans 1	2.58	8	9.4	5.7	3.0	2.60
Nokpa Fresh 1	3.12	11	10.7	6.8	3.5	2.66
Nokpa Fresh 2	4.71	25	14.8	10.2	5.3	2.67
Nokpa Transition	3.09	11	11.0	7.0	3.6	2.58
Souwa Fresh 1	5.80	39	17.6	12.6	6.5	2.67
Souwa Fresh 2	6.76	51	19.7	14.6	7.6	2.69
Souwa Fresh 3	7.46	61	21.3	16.1	8.3	2.68
Souwa Oxide	0.76	1	4.0	1.9	1.0	2.32
Souwa Transition Saprolite	2.57	8	9.6	5.8	3.0	2.56

For more details on how the M_{ia}, M_{ih} and M_{ic} parameters are derived and used, see APPENDIX B or go to the SMC Testing website at http://www.smctesting.com/about.

Table 4 – Parameters derived from the SMC Test® Results

Sample Designation	*A*	*b*	t_a	*SCSE (kWh/t)*
Atire Fresh 1	73.6	0.54	0.38	9.88
Atire Fresh 2	75.0	0.49	0.35	10.29
Atire Trans	68.8	1.64	1.14	6.57
Chegue Main Fresh 1	66.0	0.59	0.38	9.96
Chegue Main Fresh 2	66.4	0.63	0.41	9.62
Chegue Main Fresh 3	63.4	0.69	0.43	9.4
Chegue Main Fresh 4	65.4	0.71	0.45	9.2
Chegue Main Trans	77.1	6.23	5.02	4.88*
Chegue South Fresh 1	77.8	0.48	0.36	10.15
Chegue South Fresh 2	69.7	0.53	0.35	10.29
Chegue South Trans	61.8	1.28	0.80	7.38
Enioda Fresh 1	80.2	0.39	0.30	11.1
Enioda Fresh 2	69.7	0.57	0.38	9.96
Enioda Oxide 1	67.6	1.36	1.04	7.24
Han Fresh 1	75.0	0.62	0.45	9.18
Han Fresh 2	78.2	0.47	0.35	10.27
Han Fresh 3	73.4	0.64	0.45	9.17
Han Trans/Fresh	69.6	1.19	0.81	7.28

Sample Designation	*A*	*b*	t_a	*SCSE (kWh/t)*
Kekeda Fresh 1	76.0	0.58	0.42	9.44
Kekeda Fresh 2	72.6	0.82	0.58	8.28
Kekeda Fresh 3	69.9	0.68	0.45	9.17
Kekeda Trans 1	68.1	2.47	1.69	5.87
Kekeda Trans 2	69.9	1.31	0.92	7.02
Kilosequi Fresh 1	73.2	0.73	0.54	8.57
Kilosequi Fresh 2	77.5	0.79	0.60	8.15
Kilosequi Fresh 3	70.5	0.75	0.51	8.7
Kilosequi Fresh 4	70.9	0.66	0.47	9.06
Kilosequi Trans 1	73.4	1.37	1.00	6.81
Nokpa Fresh 1	60.0	1.42	0.83	7.22
Nokpa Fresh 2	69.3	0.82	0.55	8.43
Nokpa Transition	69.1	1.21	0.84	7.24
Souwa Fresh 1	76.4	0.60	0.44	9.24
Souwa Fresh 2	79.4	0.50	0.38	9.89
Souwa Fresh 3	84.6	0.43	0.35	10.28
Souwa Oxide	74.8	4.07	3.40	5.44
Souwa Transition Saprolite	65.9	1.51	1.01	6.84

*Sample parameters are outside the range of parameteres used when developing the SCSE model. As such SCSE values for flagged samples should be treated with caution.

The influence of particle size on the specific comminution energy needed to achieve a particular t_{10} value can also be inferred from the SMC Test® results. The energy requirements for five particle sizes, each crushed to three different t_{10} values, are presented in Table 5.

Table 5 – Crusher Simulation Model Specific Energy Matrix

Sample Designation	Particle Size (mm)														
	14.5			20.6			28.9			41.1			57.8		
	t_{10} Values (%) for Given Specific Energies in kWh/t														
	10	20	30	10	20	30	10	20	30	10	20	30	10	20	30
Atire Fresh 1	0.35	0.77	1.26	0.31	0.67	1.10	0.27	0.58	0.96	0.23	0.50	0.83	0.20	0.44	0.73
Atire Fresh 2	0.38	0.83	1.36	0.33	0.72	1.18	0.29	0.63	1.03	0.25	0.54	0.89	0.22	0.47	0.78
Atire Trans	0.12	0.27	0.45	0.11	0.24	0.39	0.09	0.21	0.34	0.08	0.18	0.30	0.07	0.16	0.26
Chegue Main Fresh 1	0.36	0.79	1.33	0.31	0.69	1.16	0.27	0.60	1.01	0.24	0.52	0.87	0.21	0.46	0.76
Chegue Main Fresh 2	0.34	0.74	1.23	0.29	0.64	1.07	0.25	0.56	0.94	0.22	0.48	0.81	0.19	0.42	0.71
Chegue Main Fresh 3	0.32	0.71	1.20	0.28	0.62	1.04	0.24	0.54	0.91	0.21	0.47	0.79	0.18	0.41	0.69
Chegue Main Fresh 4	0.30	0.67	1.12	0.26	0.58	0.98	0.23	0.51	0.85	0.20	0.44	0.74	0.17	0.38	0.65
Chegue Main Trans	0.03	0.06	0.10	0.03	0.05	0.09	0.02	0.05	0.08	0.02	0.04	0.07	0.02	0.04	0.06
Chegue South Fresh 1	0.38	0.81	1.33	0.33	0.71	1.16	0.29	0.62	1.01	0.25	0.53	0.87	0.22	0.47	0.77
Chegue South Fresh 2	0.38	0.84	1.39	0.33	0.73	1.21	0.29	0.63	1.06	0.25	0.55	0.91	0.22	0.48	0.80
Chegue South Trans	0.18	0.40	0.68	0.16	0.35	0.59	0.14	0.30	0.51	0.12	0.26	0.44	0.10	0.23	0.39
Enioda Fresh 1	0.44	0.95	1.55	0.38	0.82	1.34	0.33	0.72	1.17	0.29	0.62	1.01	0.25	0.54	0.89
Enioda Fresh 2	0.35	0.77	1.29	0.31	0.67	1.12	0.27	0.59	0.98	0.23	0.51	0.84	0.20	0.44	0.74
Enioda Oxide 1	0.15	0.34	0.56	0.13	0.29	0.49	0.12	0.25	0.43	0.10	0.22	0.37	0.09	0.19	0.32
Han Fresh 1	0.30	0.65	1.08	0.26	0.57	0.94	0.23	0.50	0.82	0.20	0.43	0.71	0.17	0.38	0.62
Han Fresh 2	0.38	0.82	1.34	0.33	0.71	1.16	0.29	0.62	1.01	0.25	0.53	0.88	0.22	0.47	0.77
Han Fresh 3	0.30	0.65	1.07	0.26	0.56	0.93	0.23	0.49	0.81	0.20	0.42	0.70	0.17	0.37	0.62
Han Trans/Fresh	0.17	0.37	0.62	0.15	0.32	0.54	0.13	0.28	0.47	0.11	0.24	0.40	0.10	0.21	0.36
Kekeda Fresh 1	0.32	0.69	1.13	0.28	0.60	0.98	0.24	0.52	0.86	0.21	0.45	0.74	0.18	0.39	0.65
Kekeda Fresh 2	0.23	0.51	0.84	0.20	0.44	0.73	0.18	0.39	0.64	0.15	0.33	0.55	0.13	0.29	0.48

Sample Designation	Particle Size (mm)														
	14.5			20.6			28.9			41.1			57.8		
Kekeda Fresh 3	0.30	0.65	1.08	0.26	0.56	0.93	0.22	0.49	0.82	0.19	0.42	0.71	0.17	0.37	0.62
Kekeda Trans 1	0.08	0.18	0.31	0.07	0.16	0.27	0.06	0.14	0.23	0.05	0.12	0.20	0.05	0.11	0.18
Kekeda Trans 2	0.15	0.33	0.56	0.13	0.29	0.48	0.12	0.25	0.42	0.10	0.22	0.36	0.09	0.19	0.32
Kilosequi Fresh 1	0.26	0.57	0.94	0.23	0.49	0.82	0.20	0.43	0.71	0.17	0.37	0.62	0.15	0.33	0.54
Kilosequi Fresh 2	0.23	0.49	0.80	0.20	0.42	0.70	0.17	0.37	0.61	0.15	0.32	0.53	0.13	0.28	0.46
Kilosequi Fresh 3	0.27	0.58	0.97	0.23	0.51	0.84	0.20	0.44	0.73	0.18	0.38	0.63	0.15	0.34	0.56
Kilosequi Fresh 4	0.30	0.65	1.08	0.26	0.56	0.94	0.23	0.49	0.82	0.20	0.43	0.71	0.17	0.37	0.62
Kilosequi Trans 1	0.14	0.30	0.50	0.12	0.26	0.43	0.11	0.23	0.38	0.09	0.20	0.33	0.08	0.17	0.29
Nokpa Fresh 1	0.17	0.37	0.63	0.15	0.32	0.55	0.13	0.28	0.48	0.11	0.24	0.42	0.10	0.21	0.37
Nokpa Fresh 2	0.25	0.54	0.90	0.22	0.47	0.78	0.19	0.41	0.68	0.16	0.35	0.59	0.14	0.31	0.52
Nokpa Transition	0.17	0.37	0.61	0.15	0.32	0.53	0.13	0.28	0.47	0.11	0.24	0.40	0.10	0.21	0.35
Souwa Fresh 1	0.30	0.66	1.08	0.26	0.57	0.94	0.23	0.50	0.82	0.20	0.43	0.71	0.17	0.38	0.62
Souwa Fresh 2	0.35	0.75	1.23	0.30	0.66	1.07	0.27	0.57	0.94	0.23	0.49	0.81	0.20	0.43	0.71
Souwa Fresh 3	0.38	0.83	1.34	0.33	0.72	1.16	0.29	0.63	1.02	0.25	0.54	0.88	0.22	0.47	0.77
Souwa Oxide	0.05	0.10	0.16	0.04	0.09	0.14	0.03	0.08	0.12	0.03	0.07	0.11	0.03	0.06	0.09
Souwa Transition Saprolite	0.14	0.31	0.52	0.12	0.27	0.46	0.11	0.24	0.40	0.09	0.20	0.34	0.08	0.18	0.30

The SMC Test® database now contains over 40,000 test results on samples representing more than 1300 different deposits worldwide.

Around 99% of the DWi values lie in the range 0.5 to 14.0 kWh/m^3, with soft ores being at the low end of this range and hard ores at the high end.

A cumulative graph of DWi values from the SMC Test® Database is shown in Figure 6 below. This graph can be used to compare the DWi of the material from Doropo Project, with the entire population of ores in the SMCT database. The figures on the y-axis of the graph represent the percentages of all ores tested that are softer than the x-axis (DWi) value selected.

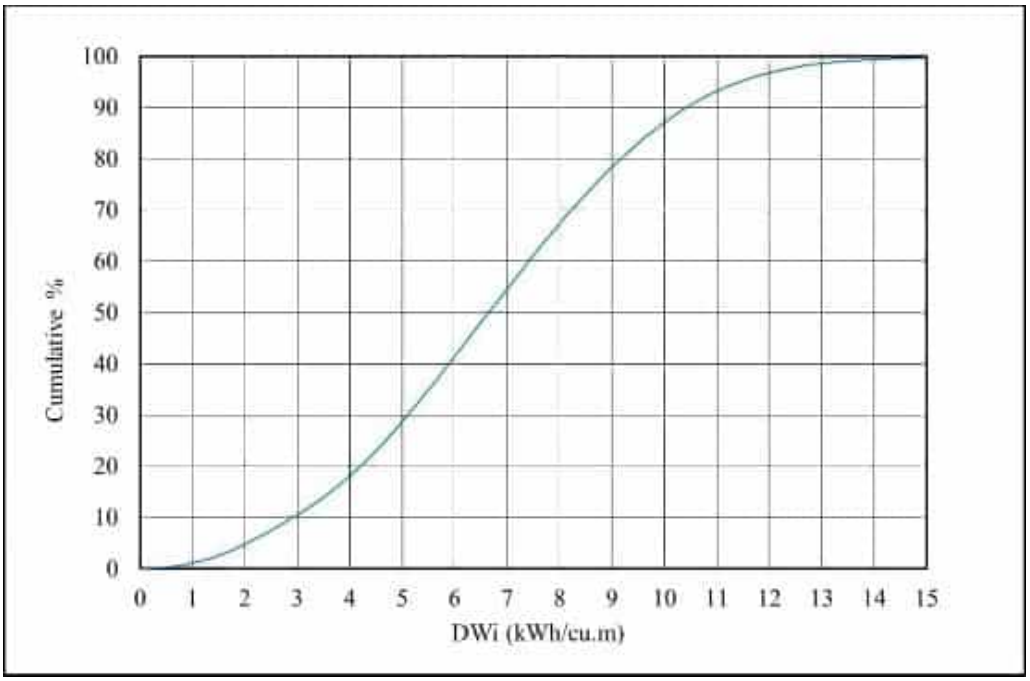


Figure 6 – Cumulative Distribution of DWi Values in SMCT Database

A further cumulative distribution graph is provided in Figure 7 to allow a comparison of the M_{ia}, M_{ih} and M_{ic} values obtained for the Doropo Project material, with the entire population of values for these parameters contained in the SMCT database.

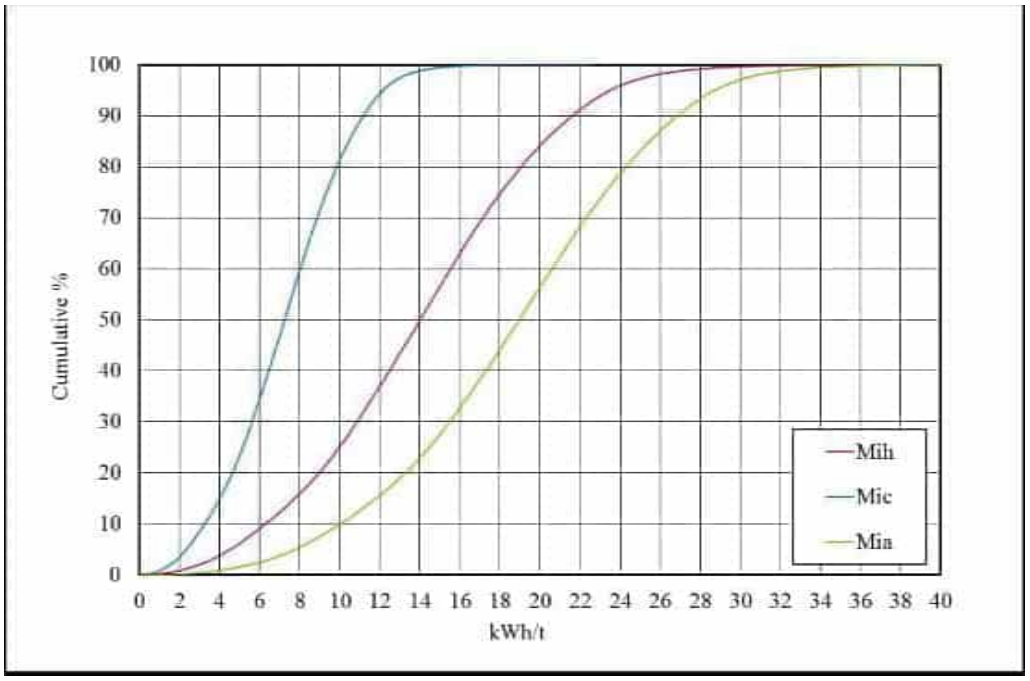


Figure 7 - Cumulative Distribution of Mia, Mih and Mic Values in the SMCT Database

The value of *A*b*, which is also a measure of resistance to impact breakage, is calculated and presented in Table 6, which also gives a comparison to the population of samples in the JKTech database, with the percent of samples present in the JKTech database that are softer. Note that in contrast to the DWi, a high value of *A*b* means that an ore is soft whilst a low value means that it is hard.

*Table 6 – Derived Values for A*b, ta and SCSE*

Sample Designation	*A*b*		*t_a*		*SCSE (kWh/t)*	
	Value	%	Value	%	Value	%
Atire Fresh 1	39.7	62.2	0.38	61.0	9.88	59.1
Atire Fresh 2	36.8	69.1	0.35	67.1	10.29	67.1
Atire Trans	112.8	9.0	1.14	9.9	6.57	7.8
Chegue Main Fresh 1	38.9	64.1	0.38	61.0	9.96	60.8
Chegue Main Fresh 2	41.8	57.8	0.41	55.3	9.62	53.7
Chegue Main Fresh 3	43.7	53.4	0.43	51.7	9.4	49.2
Chegue Main Fresh 4	46.4	48.4	0.45	48.4	9.2	45.4
Chegue Main Trans	480.3	0.4	5.02	0.2	4.88*	0.3
Chegue South Fresh 1	37.3	67.9	0.36	65.2	10.15	64.7
Chegue South Fresh 2	36.9	68.6	0.35	67.1	10.29	67.1
Chegue South Trans	79.1	17.4	0.80	19.1	7.38	15.4
Enioda Fresh 1	31.3	82.4	0.30	76.9	11.1	79.8
Enioda Fresh 2	39.7	62.3	0.38	61.0	9.96	60.8
Enioda Oxide 1	91.9	13.2	1.04	12.1	7.24	13.7
Han Fresh 1	46.5	48.3	0.45	48.4	9.18	45.2
Han Fresh 2	36.8	69.1	0.35	67.1	10.27	67.0
Han Fresh 3	47.0	47.4	0.45	48.4	9.17	45.0
Han Trans/Fresh	82.8	16.0	0.81	18.8	7.28	14.3
Kekeda Fresh 1	44.1	52.7	0.42	53.6	9.44	50.0
Kekeda Fresh 2	59.5	30.6	0.58	32.7	8.28	27.7

Sample Designation	*A*b*		t_a		*SCSE (kWh/t)*	
	Value	%	Value	%	Value	%
Kekeda Fresh 3	47.5	46.3	0.45	48.4	9.17	45.0
Kekeda Trans 1	168.2	4.0	1.69	4.5	5.87	3.2
Kekeda Trans 2	91.6	13.3	0.92	15.1	7.02	11.9
Kilosequi Fresh 1	53.4	37.9	0.54	36.6	8.57	33.1
Kilosequi Fresh 2	61.2	29.0	0.60	31.1	8.15	25.7
Kilosequi Fresh 3	52.9	38.6	0.51	40.0	8.7	35.7
Kilosequi Fresh 4	46.8	47.8	0.47	45.4	9.06	42.9
Kilosequi Trans 1	100.6	11.0	1.00	12.9	6.81	9.7
Nokpa Fresh 1	85.2	15.2	0.83	18.0	7.22	13.5
Nokpa Fresh 2	56.8	33.3	0.55	35.5	8.43	30.5
Nokpa Transition	83.6	15.6	0.84	17.5	7.24	13.7
Souwa Fresh 1	45.8	49.2	0.44	49.8	9.24	46.3
Souwa Fresh 2	39.7	62.3	0.38	61.0	9.89	59.4
Souwa Fresh 3	36.4	70.1	0.35	67.1	10.28	67.0
Souwa Oxide	304.4	1.0	3.40	0.7	5.44	1.4
Souwa Transition Saprolite	99.5	11.2	1.01	12.6	6.84	10.1

*Sample parameters are outside the range of parameteres used when developing the SCSE model. As such SCSE values for flagged samples should be treated with caution.

In Figure 8 and Figure 9 below, histogram style frequency distributions for the *A*b* values and for the SCSE values in the JKTech JKDW database are shown respectively.

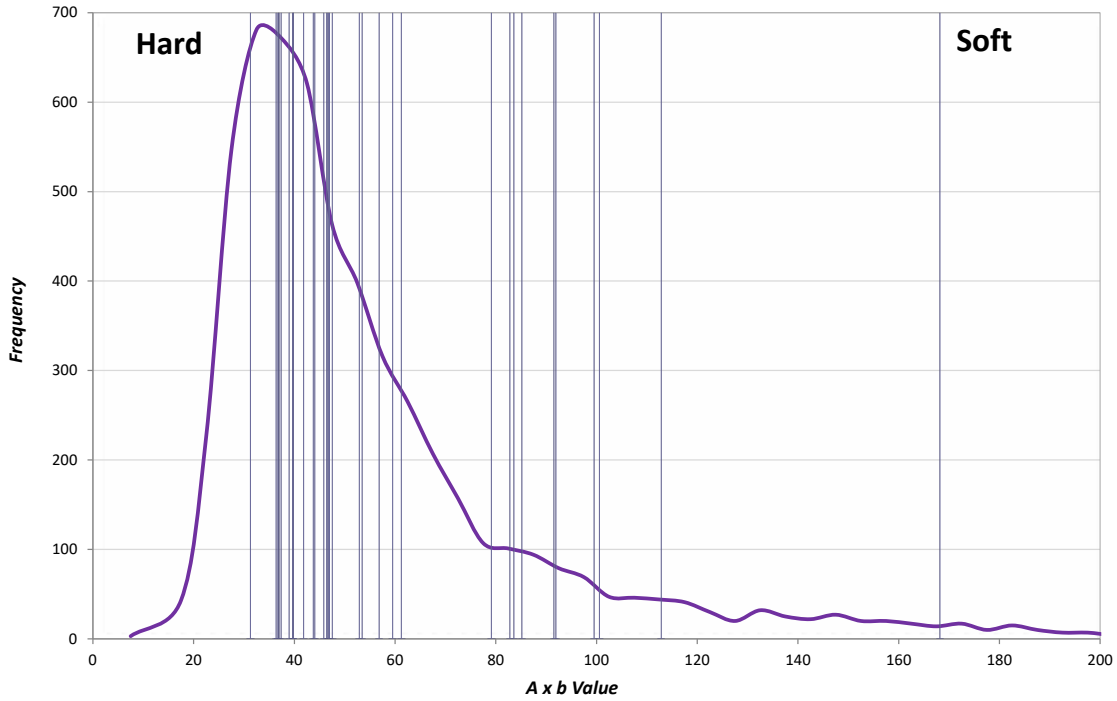


*Figure 8 - Frequency Distribution of A*b in the JKTech Database*

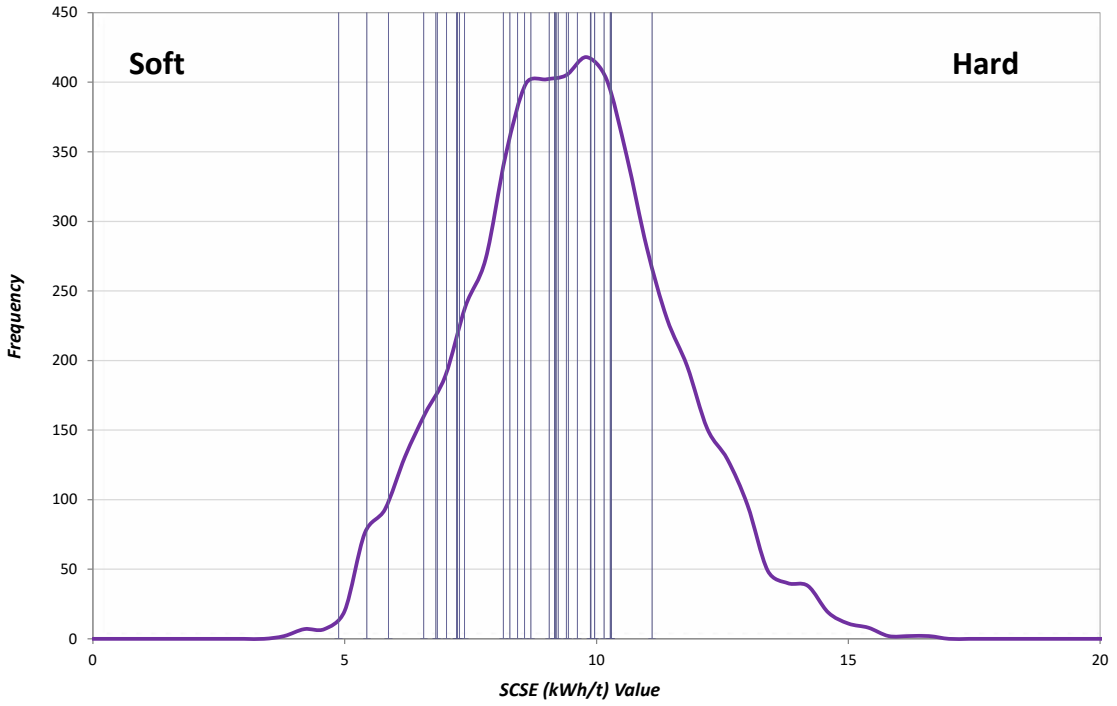


Figure 9 - Frequency Distribution of SCSE in the JKTech Database

4 References

Andersen, J. and Napier-Munn, T.J., 1988, “Power Prediction for Cone Crushers", Third Mill Operators' Conference, Aus.I.M.M (Cobar, NSW), May 1988, pp 103 - 106

Bailey, C., *et al*, 2009. “What Can Go Wrong in Comminution Circuit Design?”, Proceedings of the Tenth Mill Operators’ Conference, (Adelaide, SA), pp. 143–149

Bond, F.C., 1961. "Crushing and Grinding Calculations Parts I and II", British *Chemical Engineering*, Vol 6, Nos 6 and 8

Leung, K. 1987. "An Energy-Based Ore Specific Model for Autogenous and Semi-Autogenous Grinding Mills." Ph.D. Thesis. University of Queensland (unpublished)

Leung, K., Morrison, R.D. and Whiten, W.J., 1987. "An Energy Based Ore Specific Model for Autogenous and Semi-autogenous Grinding", Copper *87*, Vina del Mar, Vol. 2, pp 71 - 86

Levin, J., 1989. Observation on the bond standard grindability test, and a proposal for a standard grindability test for fine materials. SAIMM 89 (1), 13-21.

Morrell, S. 1996. "Power Draw of Wet Tumbling Mills and Its Relationship to Charge Dynamics - Parts I and II", *Transaction Inst. Min. Metall.* (Sect C: Mineral Process Extr. Metall.), 105, 1996, pp C43-C62

Morrell, S., 2004[a]. *Predicting the Specific Energy of Autogenous and Semi-autogenous Mills from Small Diameter Drill Core Samples*. Minerals Engineering, Vol 17/3 pp 447-451

Morrell, S., 2004[b]. *An Alternative Energy-Size Relationship To That Proposed By Bond For The Design and Optimisation Of Grinding Circuits*. International Journal of Mineral Processing, 74, 133-141.

Morrell, S., 2006. *Rock Characterisation for High Pressure Grinding Rolls Circuit Design*, Proc International Autogenous and Semi Autogenous Grinding Technology,Vancouver, vol IV pp 267-278.

Morrell,S., 2008, *A method for predicting the specific energy requirement of comminution circuits and assessing their energy utilisation efficiency*, *Minerals Engineering*, Vol. 21, No. 3.

Shi, F. and Kojovic, T., 2007. Validation of a model for impact breakage incorporating particle size effect. Int. Journal of Mineral Processing, 82, 156-163.

Veillette, G., and Parker, B., 2005. Boddington Expansion Project Comminution Circuit Features and Testwork, Randol Gold Forum Proceedings.

5 Disclaimer

Warranty by JKTech

a. JKTech will use its best endeavours to ensure that all documentation, data, recommendations, information, advice and reports ("Material"), provided by JKTech to the client ("Recipient"), is accurate at the time of providing it.

Extent of Warranty by JKTech

b. JKTech does not make any representations as to any matter, fact or thing that is not expressly provided for in the Material.

c. JKTech does not give any warranty, nor accept any liability in connection with the Material, except to the extent, if any, required by law or specifically provided in writing by JKTech to the Recipient.

d. JKTech will not be liable to the Recipient for any claims relating to Material in any language other than in English.

e. If, apart from this Disclaimer, any warranty would be implied whether by law, custom or otherwise, that warranty is to the full extent permitted by law excluded.

f. The Recipient will promptly advise JKTech in writing of any losses, damages, compensation, liabilities, amounts, monetary and non-monetary costs and expenses ("Losses"), incurred or likely to be incurred by the Recipient or JKTech in connection with the Material, and any claims, actions, suits, demands or proceedings ("Liabilities") which the Recipient or JKTech may become liable in connection with the Material.

Indemnity and Release by the Recipient

g. The Recipient indemnifies, releases, discharges and saves harmless, JKTech against any and all Losses and Liabilities, suffered or incurred by JKTech, whether under the law of contract, tort, statutory duty or otherwise as a result of:

   i) the Recipient relying on the Material;

   ii) any liability for infringement of a third party's trade secrets, proprietary or confidential information, patents, registered designs, trademarks or names, copyright or other protected rights; and

   iii) any act or omission of JKTech, any employee, agent or permitted sub-contractor of JKTech in connection with the Material.

Limit of Liability

h. JKTech's liability to the Recipient in connection with the Material, whether under the law of contract, tort, statutory duty or otherwise, will be limited to the lesser of:

   i) the total cost of the job; or

   ii) JKTech providing amended Material rectifying the defect.

Exclusion of Consequential Loss

i. JKTech is not liable to the Recipient for any consequential, special or indirect loss (loss of revenue, loss of profits, business interruption, loss of opportunity and legal costs and disbursements), in connection with the Material whether under the law of contract, tort, statutory duty or otherwise.

Defects

j. The Recipient must notify JKTech within seven days of becoming aware of a defect in the Material. To the extent that the defect is caused by JKTech's negligence or breach of contract, JKTech may, at its discretion, rectify the defect.

Duration of Liability

k. After the expiration of one year from the date of first providing the Material to the client, JKTech will be discharged from all liability in connection with the Material. The Recipient (and persons claiming through or under the Recipient) will not be entitled to commence any action, claim or proceeding of any kind whatsoever after that date, against JKTech (or any employee of JKTech) in connection with the Material.

Contribution

l. JKTech's liability to the Recipient for any loss or damage, whether under the law of contract, tort, statutory duty or otherwise will be reduced to the extent that an act or omission of the Recipient, its employees or agents, or a third party to whom the Recipient has disclosed the Material, contributed to the loss or damage.

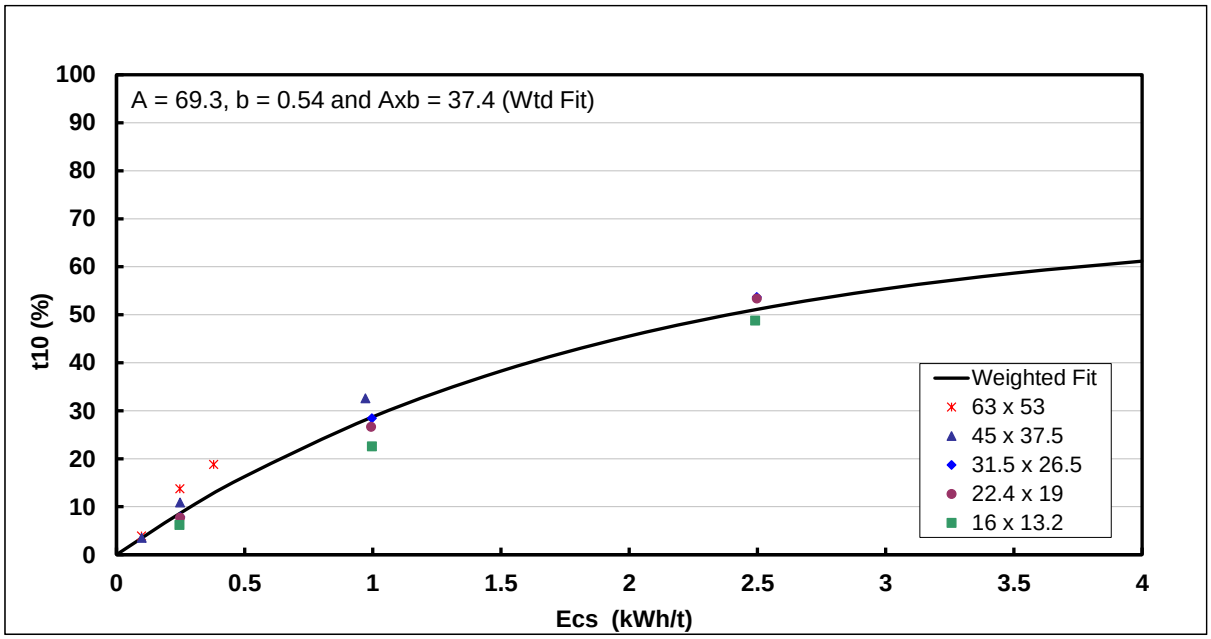
Severability

m. If any provision of this Disclaimer is illegal, void, invalid or unenforceable for any reason, all other provisions which are self-sustaining and capable of separate enforcement will, to the maximum extent permitted by law, be and continue to be valid and enforceable.

Appendices

APPENDIX A. SAG Circuit Specific Energy (SCSE)

For a little over 20 years, the results of JK Drop Weight tests and SMC tests have been reported in part as A, b and t_a parameters. A and b are parameters which describe the response of the ore under test to increasing levels of input energy in single impact breakage. A typical t_{10} v Ecs curve resulting from a Drop Weight test is shown in App Figure 1.



App Figure 1 – Typical t10 v Ecs curve

The curve shown in App Figure 1 is represented by an equation which is given in Equation 1.

$$t_{10} = A(1 - e^{-b.Ecs}) \qquad \text{Equation 1}$$

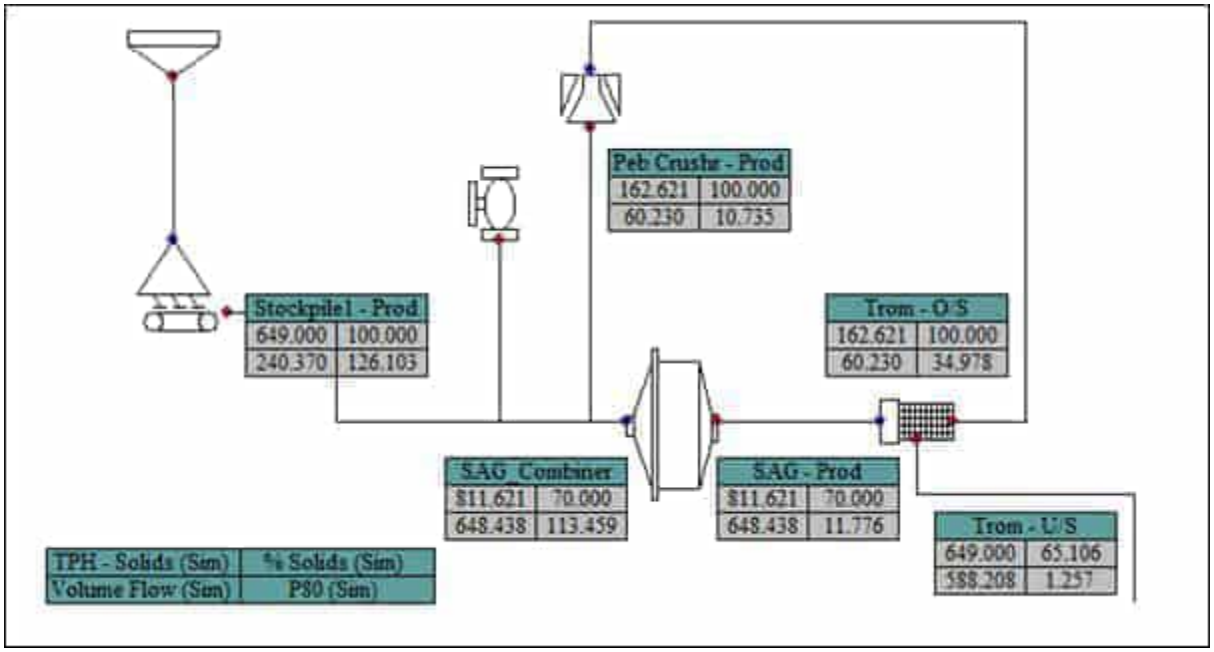
The parameters A and b are generated by least squares fitting Equation 1 to the JK Drop Weight test data. The parameter t_a is generated from a tumbling test.

Both A and b vary with ore type but having two parameters describing a single ore property makes comparison difficult. For that reason the product of A and b, referred to as A*b, which is related to the slope of the t_{10} – E_{cs} curve at the origin, has been universally accepted as the parameter which represents an ore's resistance to impact breakage.

The parameters A, b and t_a have no physical meaning in their own right. They are ore hardness parameters used by the AG/SAG mill model in JKSimMet which permits prediction of the product size distribution and the power draw of the AG/SAG mill for a given feed size distribution and feed rate. In a design situation, the dimensions of the mill are adjusted until the load in the mill reaches 25 % by volume when fed at the required feed rate. The model predicts the power draw under these conditions and from the power draw and throughput the specific energy is determined. The specific energy is mainly a function of the ore hardness (A and b values), the feed size and the dimensions of the mill (specifically the aspect ratio) as well as to a lesser extent the operating conditions such as ball load, mill speed, grate/pebble port size and pebble crusher activity.

There are two drawbacks to the approach of using A*b as the single parameter to describe the impact resistance of a particular ore. The first is that A*b is inversely related to impact resistance, which adds unnecessary complication. The second is that A*b is related to impact resistance in a non-linear manner. As mentioned earlier this relationship and how it affects comminution machine performance

can only be predicted via simulation modelling. Hence to give more meaning to the A and b values and to overcome these shortcomings, JKTech Pty Ltd and SMC Testing Pty Ltd have developed a "standard" simulation methodology to predict the specific energy required for a particular tested ore when treated in a "Standard" circuit comprising a SAG mill in closed circuit with a pebble crusher. The flowsheet is shown in App Figure 2 .



App Figure 2 – Flowsheet used for "Standard" AG/SAG circuit simulations

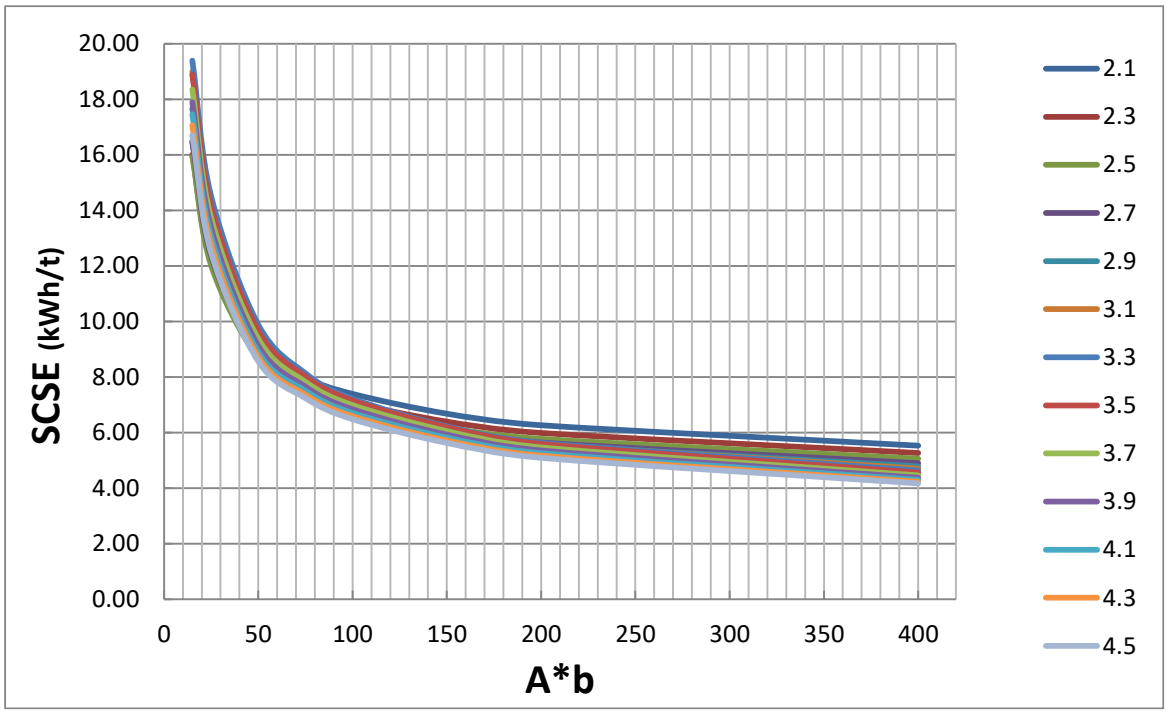
The specifications for the "standard" circuit are:

- SAG Mill
  - inside shell diameter to length ratio of 2:1 with 15 ° cone angles
  - ball charge of 15 %, 125 mm in diameter
  - total charge of 25 %
  - grate open area of 7 %
  - apertures in the grate are 100 % pebble ports with a nominal aperture of 56 mm
- Trommel
  - Cut Size of 12 mm
- Pebble Crusher
  - Closed Side Setting of 10 mm
- Feed Size Distribution
  - F_{80} from the t_a relationship given in Equation 2

The feed size distribution is taken from the JKTech library of typical feed size distributions and is adjusted to meet the ore specific 80 % passing size predicted using the Morrell and Morrison (1996) F_{80} – t_a relationship for primary crushers with a closed side setting of 150 mm given in Equation 2.

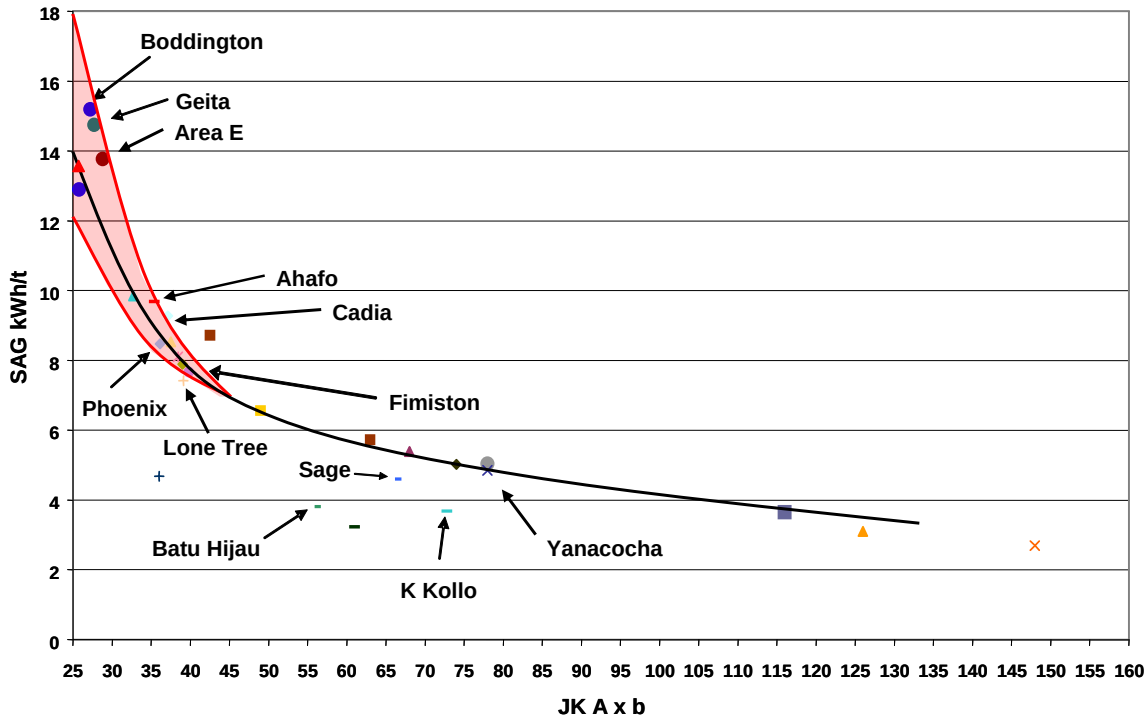
$$F_{80} = 71.3 - 28.4 * \ln(t_a) \qquad \text{Equation 2}$$

Simulations were conducted with A*b values ranging from 15 to 400, t_a values ranging from 0.145 to 3.866 and solids SG values ranging from 2.1 to 4.5. For each simulation, the feed rate was adjusted until the total load volume in the SAG mill was 25 %. The predicted mill power draw and crusher power draw were combined and divided by the feed rate to provide the specific energy consumption. The results are shown in App Figure 3.



*App Figure 3 – The relationship between A*b and specific energy at varying SG for the "Standard" circuit.*

It is of note that the family of curves representing the relationship between Specific energy and A*b for the "standard" circuit is very similar to the specific energy – A*b relationship for operating mills published in Veillette and Parker, 2005 and reproduced here in App Figure 4.



*App Figure 4 – A*b vs SAG kWh/t for operating AG/SAG mills (after Veillette and Parker, 2005).*

Of course, the SCSE quoted value will not necessarily match the specific energy required for an existing or a planned AG/SAG mill due to differences in the many operating and design variables such as feed size distribution, mill dimensions, ball load and size and grate, trommel and pebble crusher configuration. The SCSE is an effective tool to compare in a relative manner the expected behaviour of different ores in AG/SAG milling in exactly the same way as the Bond laboratory ball mill work index can be used to compare the relative grindability of different ores in ball milling (Bond, 1961 and Rowland and Kjos, 1980). However the originally reported A and b parameters which match the SCSE will be still be required in JKSimMet simulations of a proposed circuit to determine the AG/SAG mill specific energy required for that particular grinding task. Guidelines for the use of JKSimMet for such simulations were given in Bailey *et al*, 2009.

APPENDIX B. Background And Use Of The SMC Test®

B 1 Introduction

The SMC Test® was developed to provide a range of useful comminution parameters through highly controlled breakage of rock samples. Drill core, even quartered small diameter core is suitable. Only relatively small quantities of sample are required and can be re-used to conduct Bond ball work index tests.

The results from conducting the SMC Test® are used to determine the so-called drop-weight index (DW_i), which is a measure of the strength of the rock, as well as the comminution indices M_{ia}, M_{ih} and M_{ic} . The SMC Test® also estimates the JK rock breakage parameters *A*, *b* and t_a as well as the JK crusher model's *t10-Ecs* matrix, all of which are generated as part of the standard report output from the test.

In conjunction with the Bond ball mill work index the DW_i and the M_i suite of parameters can be used to accurately predict the overall specific energy requirements of circuits containing:

- AG and SAG mills.
- Ball mills
- Rod mills
- Crushers
- High Pressure Grinding Rolls (HPGR)

The JK rock breakage parameters can be used to simulate crushing and grinding circuits using JKTech's simulator – JKSimMet.

B 2 Simulation Modelling and Impact Comminution Theory

When a rock fragment is broken, the degree of breakage can be characterised by the "t_{10}" parameter. The t_{10} value is the percentage of the original rock mass that passes a screen aperture one tenth of the original rock fragment size. This parameter allows the degree of breakage to be compared across different starting sizes.

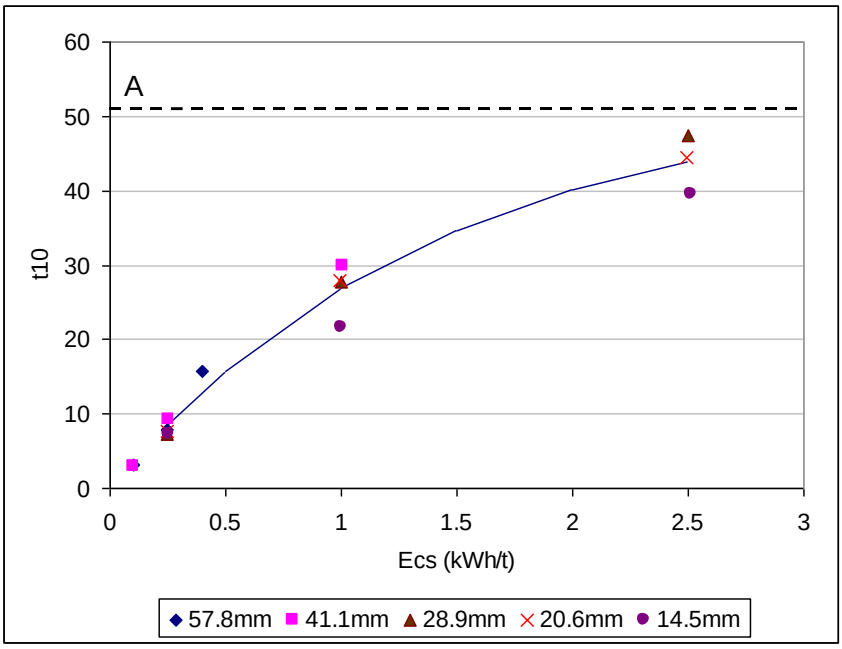
The specific comminution energy (*Ecs*) has the units kWh/t and is the energy applied during impact breakage. As the impact energy is varied, so does the t_{10} value vary in response. Higher impact energies produce higher values of t_{10}, which of course means products with finer size distributions.

The equation describing the relationship between the t_{10} and *Ecs* is given below.

$$t_{10} = A(1 - e^{-b.Ecs}) \qquad \text{Equation 1}$$

As can be seen from this equation, there are two rock breakage parameters *A* and *b* that relate the t_{10} (size distribution index) to the applied specific energy (*Ecs*). These parameters are ore specific and are normally determined from a full JK Drop-Weight test.

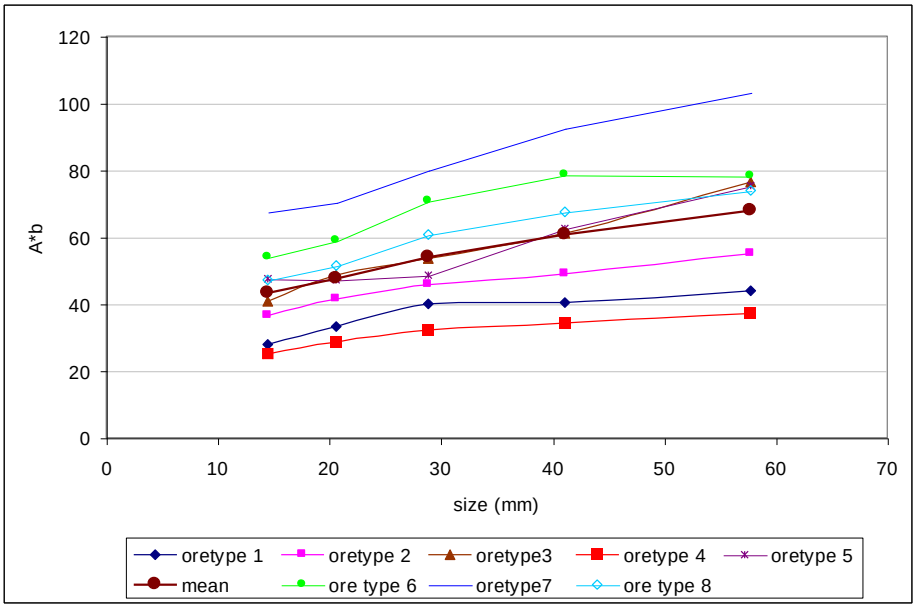
A typical plot of t_{10} vs *Ecs* from a JK Drop-Weight test is shown in App Figure 5. The relationship is characterised by the two-parameter equation above, where t_{10} is the dependent variable.



App Figure 5 - Typical t10 v Ecs Plot

The t_{10} can be thought of as a "fineness index" with larger values of t_{10} indicating a finer product size distribution. The value of parameter A is the limiting value of t_{10}. This limit indicates that at higher energies, little additional size reduction occurs as the *Ecs* is increased beyond a certain value. *A*b* is the slope of the curve at 'zero' input energy and is generally regarded as an indication of the strength of the rock, lower values indicating a higher strength.

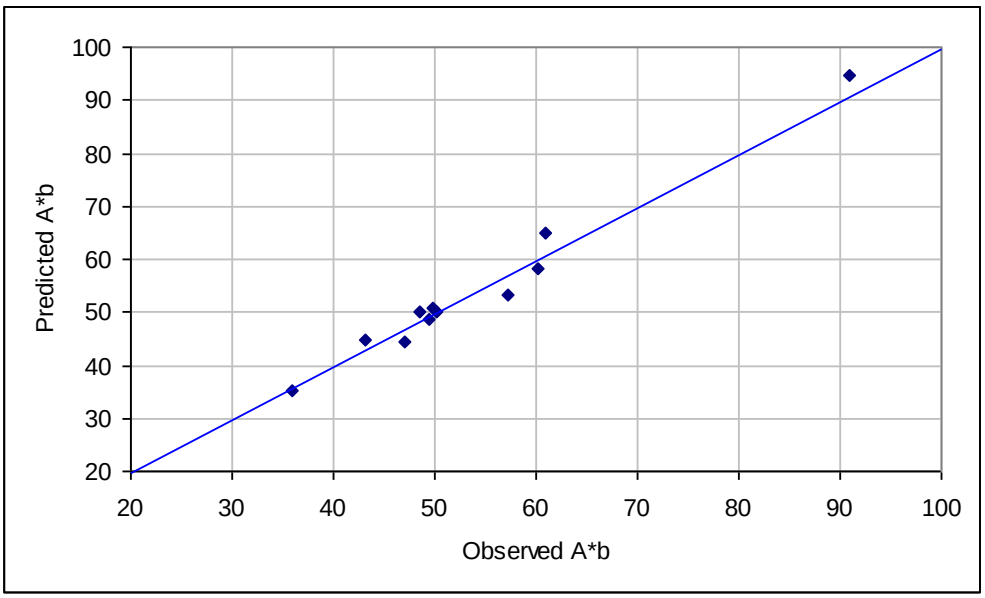
The SMC Test® is used to estimate the JK rock breakage parameters *A* and *b* by utilizing the fact that there is usually a pronounced (and ore specific) trend to decreasing rock strength with increasing particle size. This trend is illustrated in App Figure 6 which shows a plot of *A*b* versus particle size for a number of different rock types.



*App Figure 6 - Size Dependence of A*b for a Range of Ore Types*

In the case of a conventional JK Drop-Weight test these values are effectively averaged and a mean value of *A* and *b* is reported. The SMC Test® uses a single size and makes use of relationships such as that shown in App Figure 6 to predict the *A* and *b* of the particle size that has the same value as the mean for a full JK Drop-Weight test.

An example of this is illustrated in App Figure 7, where the observed values of the product *A*b* are plotted against those predicted using the DWi. Each of the data points in App Figure 7 is a result from a different ore type within an orebody.



*App Figure 7 - Predicted v Observed A*b*

The *A* and *b* parameters are used with Equation 1 and relationships such as illustrated in App Figure 6 to generate a matrix of *Ecs* values for a specific range of t_{10} values and particle sizes. This matrix is used in crusher modelling to predict the power requirement of the crusher given a feed and a product size specification (Napier-Munn et al (1996)).

The *A* and *b* parameters are also used in AG/SAG mill models, such as those in JKSimMet, for predicting how the rock will break inside the mill. From this description the models can predict what the throughput, power draw and product size distribution will be (Napier-Munn et al (1996)). Modelling also enables a detailed flowsheet to be built up of the comminution circuit response to changes in ore type. It also allows optimisation strategies to be developed to overcome any deleterious changes in circuit performance predicted from differences in ore type. These strategies can include both changes to how mills are operated (eg ball load, speed etc) and changes to feed size distribution through modification of blasting practices and primary crusher operation (mine-to-mill).

B 3 Power-Based Equations

B 3.1 General

The DW_i, M_{ia}, M_{ih} and M_{ic} parameters are used in so-called power-based equations which predict the specific energy of the associated comminution machines. The approach divides comminution equipment into three categories:

- Tumbling mills, eg AG, SAG, rod and ball mills
- Conventional reciprocating crushers, eg jaw, gyratory and cone
- HPGRs

Tumbling mills are described using 2 indices: M_{ia} and M_{ib}
Crushers have one index: M_{ic}
HPGRs have one index: M_{ih}

For tumbling mills the 2 indices relate to "coarse" and "fine" ore properties plus an efficiency factor which represents the influence of a pebble crusher in AG/SAG mill circuits. "Coarse" in this case is defined as spanning the size range from a P80 of 750 microns up to the P80 of the product of the last stage of crushing or HPGR size reduction prior to grinding. "Fine" covers the size range from a P80 of 750 microns down to P80 sizes typically reached by conventional ball milling, ie about 45 microns. The choice of 750 microns as the division between "coarse" and "fine" particle sizes was determined during the development of the technique and was found to give the best overall results across the range of plants in SMCT's data base. Implicit in the approach is that distributions are parallel and linear in log-log space.

The work index covering grinding in tumbling mills of coarse sizes is labelled M_{ia}. The work index covering grinding of fine particles is labelled Mib (Morrell, 2008). M_{ia} values are provided as a standard output from a SMC Test® (Morrell, 2004a) whilst M_{ib} values can be determined using the data generated by a conventional Bond ball mill work index test (M_{ib} is NOT the Bond ball work index). M_{ic} and M_{ih} values are also provided as a standard output from a SMC Test® (Morrell, 2009).

The general size reduction equation is as follows (Morrell, 2004b):

$$W_i = M_i . 4(x_2{}^{f(x_2)} - x_1{}^{f(x_1)}) \qquad \text{Equation 3}$$

where
M_i = Work index related to the breakage property of an ore (kWh/tonne); for grinding from the product of the final stage of crushing to a P80 of 750 microns (coarse particles) the index is labelled Mia and for size reduction from 750 microns to the final product P80 normally reached by conventional ball mills (fine particles) it is labelled M_{ib}. For conventional crushing M_{ic} is used and for HPGRs Mih is used.
Wi = Specific comminution (kWh/tonne)
x_2 = 80% passing size for the product (microns)
x_1 = 80% passing size for the feed (microns)
$f(x_j)$ = $-(0.295 + x_j/1000000)$ (Morrell, 2006) Equation 4

For tumbling mills the specific comminution energy (Wi) relates to the power at the pinion or for gearless drives - the motor output. For HPGRs it is the energy inputted to the rolls, whilst for conventional crushers Wi relates to the specific energy as determined using the motor input power less the no-load power.

B 3.2 Specific Energy Determination for Comminution Circuits

The total specific energy (W_T) to reduce primary crusher product to final product size is given by:

$$W_T = W_a + W_b + W_c + W_h + W_s \qquad \text{Equation 5}$$

where
W_a = specific energy to grind coarser particles in tumbling mills
W_b = specific energy to grind finer particles in tumbling mills
W_c = specific energy for conventional crushing

W_h = specific energy for HPGRs
W_s = specific energy correction for size distribution

Clearly only the *W* values associated with the relevant equipment in the circuit being studied are included in Equation 5.

B 3.2.1 Tumbling mills

For coarse particle grinding in tumbling mills Equation 3 is written as:

$$W_a = K_1 M_{ia} . 4(x_2{}^{f(x_2)} - x_1{}^{f(x_1)}) \quad \text{Equation 6}$$

where
K_1 = 1.0 for all circuits that do not contain a recycle pebble crusher and 0.95 where circuits do have a pebble crusher
x_1 = P_{80} in microns of the product of the last stage of crushing before grinding
x_2 = 750 microns
M_{ia} = Coarse ore work index and is provided directly by SMC Test®

For fine particle grinding Equation 3 is written as:

$$W_b = M_{ib} . 4(x_3{}^{f(x_3)} - x_2{}^{f(x_2)}) \quad \text{Equation 7}$$

where
x_2 = 750 microns
x_3 = P_{80} of final grind in microns
M_{ib} = Provided by data from the standard Bond ball work index test using the following equation (Morrell, 2006):

$$M_{ib} = {}^{18.18}\Big/_{P_1{}^{0.295}(Gbp)(p_{80}{}^{f(p_{80})} - f_{80}{}^{f(f_{80})})} \quad \text{Equation 8}$$

where
Mib = fine ore work index (kWh/tonne)
P_1 = closing screen size in microns
Gbp = net grams of screen undersize per mill revolution
p_{80} = 80% passing size of the product in microns
f_{80} = 80% passing size of the feed in microns

Note that the Bond ball work index test should be carried out with a closing screen size which gives a final product P80 similar to that intended for the full scale circuit.

B 3.2.2 Conventional Crushers and HPGR

Equation 3 for conventional crushers is written as:

$$W_c = S_c K_2 M_{ic} . 4(x_2{}^{f(x_2)} - x_1{}^{f(x_1)}) \quad \text{Equation 9}$$

where
S_c = coarse ore hardness parameter which is used in primary and secondary crushing situations. It is defined by Equation 10 with K_s set to 55.
K_2 = 1.0 for all crushers operating in closed circuit with a classifying screen. If the crusher is in open circuit, eg pebble crusher in a AG/SAG circuit, K_2 takes the value of 1.19.
x_1 = P_{80} in microns of the circuit feed
x_2 = P_{80} in microns of the circuit product

M_{ic} = Crushing ore work index and is provided directly by SMC Test®

The coarse ore hardness parameter (S) makes allowance for the decrease in ore hardness that becomes significant in relatively coarse crushing applications such as primary and secondary cone/gyratory circuits. In tertiary and pebble crushing circuits it is normally not necessary and takes the value of unity. In full scale HPGR circuits where feed sizes tend to be higher than used in laboratory and pilot scale machines the parameter has also been found to improve predictive accuracy. The parameter is defined by Equation 10.

$$S = K_s(x_1.x_2)^{-0.2} \qquad \text{Equation 10}$$

where

K_s = machine-specific constant that takes the value of 55 for conventional crushers and 35 in the case of HPGRs

x_1 = P_{80} in microns of the circuit feed

x_2 = P_{80} in microns of the circuit product

Equation 3 for HPGR's crushers is written as:

$$W_h = S_h K_3 M_{ih}.4({x_2}^{f(x_2)} - {x_1}^{f(x_1)}) \qquad \text{Equation 11}$$

where

S_h = coarse ore harness parameter as defined by Equation 10 and with K_s set to 35

K_3 = 1.0 for all HPGRs operating in closed circuit with a classifying screen. If the HPGR is in open circuit, K3 takes the value of 1.19.

x_1 = P_{80} in microns of the circuit feed

x_2 = P_{80} in microns of the circuit product

M_{ih} = HPGR ore work index and is provided directly by SMC Test®

B 3.2.3 Specific Energy Correction for Size Distribution (Ws)

Implicit in the approach described in this appendix is that the feed and product size distributions are parallel and linear in log-log space. Where they are not, allowances (corrections) need to be made. By and large, such corrections are most likely to be necessary (or are large enough to be warranted) when evaluating circuits in which closed circuit secondary/tertiary crushing is followed by ball milling. This is because such crushing circuits tend to produce a product size distribution which is relatively steep when compared to the ball mill circuit cyclone overflow. This is illustrated in App Figure 8, which shows measured distributions from an open and closed crusher circuit as well as a ball mill cyclone overflow. The closed circuit crusher distribution can be seen to be relatively steep compared with the open circuit crusher distribution and ball mill cyclone overflow. Also the open circuit distribution more closely follows the gradient of the cyclone overflow. If a ball mill circuit were to be fed two distributions, each with same P80 but with the open and closed circuit gradients in App Figure 8, the closed circuit distribution would require more energy to grind to the final P80. How much more energy is required is difficult to determine. However, for the purposes of this approach it has been assumed that the additional specific energy for ball milling is the same as the difference in specific energy between open and closed crushing to reach the nominated ball mill feed size. This assumes that a crusher would provide this energy. However, in this situation the ball mill has to supply this energy and it has a different (higher) work index than the crusher (ie the ball mill is less energy efficient than a crusher and has to input more energy to do the same amount of size reduction). Hence from Equation 9, to crush to the ball mill circuit feed size (x_2) in open circuit requires specific energy equivalent to:

$$W_c = 1.19 * M_{ic}.4({x_2}^{f(x_2)} - {x_1}^{f(x_1)}) \qquad \text{Equation 12}$$

For closed circuit crushing the specific energy is:

$$W_c = 1 * M_{ic}.4({x_2}^{f(x_2)} - {x_1}^{f(x_1)})$$ Equation 13

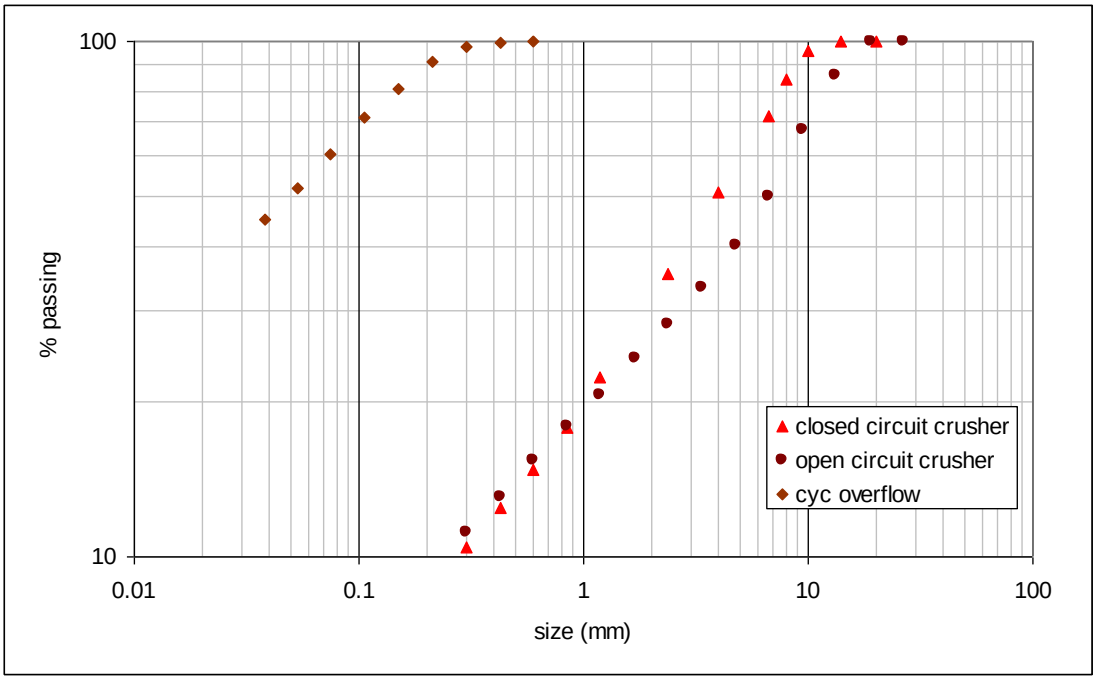
The difference between the two (Equation 12 and Equation 13) has to be provided by the milling circuit with an allowance for the fact that the ball mill, with its lower energy efficiency, has to provide it and not the crusher. This is what is referred to in Equation 5 as W_s and for the above example is therefore represented by:

$$W_s = 0.19 * M_{ia}.4({x_2}^{f(x_2)} - {x_1}^{f(x_1)})$$ Equation 14

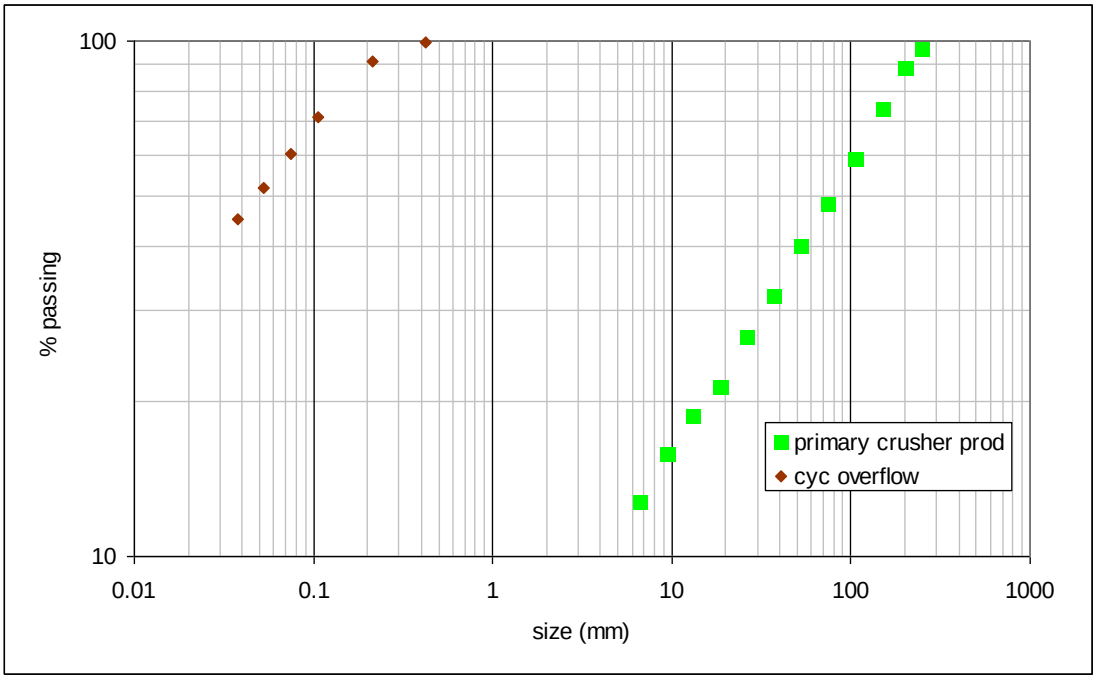
Note that in Equation 14 M_{ic} has been replaced with M_{ia}, the coarse particle tumbling mill grinding work index.

In AG/SAG based circuits the need for W_s appears to be unnecessary as App Figure 9 illustrates. Primary crusher feeds often have the shape shown in App Figure 9and this has a very similar gradient to typical ball mill cyclone overflows. A similar situation appears to apply with HPGR product size distributions, as illustrated in App Figure 10. Interestingly SMCT's data show that for HPGRs, closed circuit operation appears to require a lower specific energy to reach the same P80 as in open circuit, even though the distributions for open and closed circuit look to have almost identical gradients. Closer examination of the distributions in fact shows that in closed circuit the final product tends to have slightly less very fine material, which may account for the different energy requirements between the two modes of operation. It is also possible that recycled material in closed circuit is inherently weaker than new feed, as it has already passed through the HPGR previously and may have sustained micro-cracking. A reduction in the Bond ball mill work index as measured by testing HPGR products compared it to the Bond ball mill work index of HPGR feed has been noticed in many cases in the laboratory (see next section) and hence there is no reason to expect the same phenomenon would not affect the recycled HPGR screen oversize.

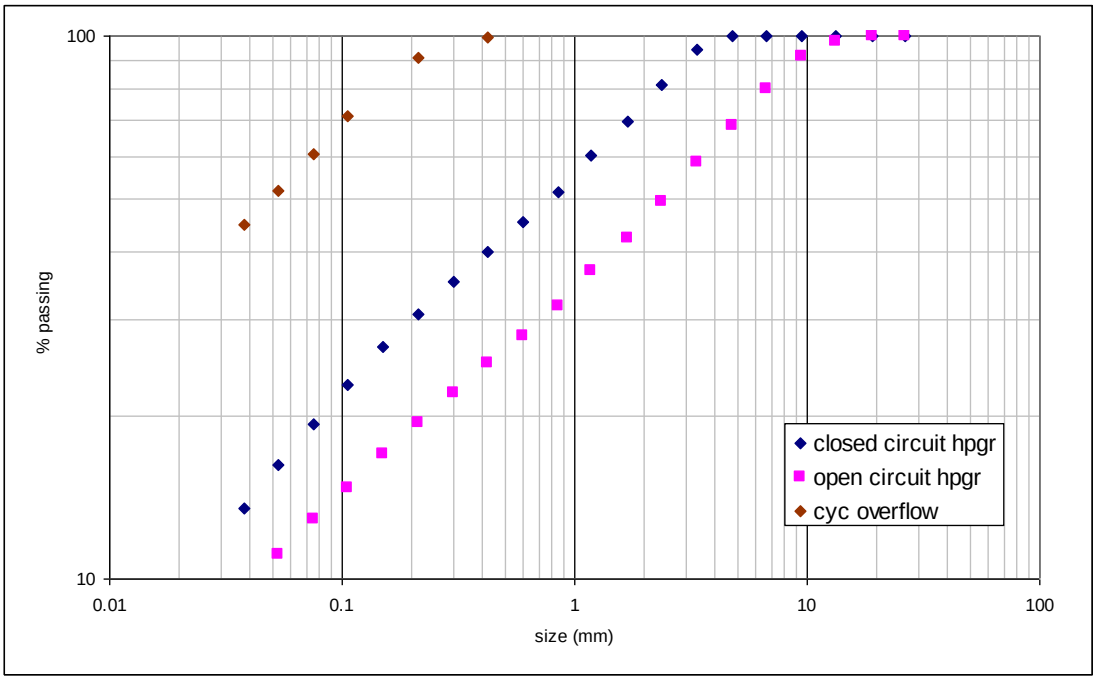
It follows from the above arguments that in HPGR circuits, which are typically fed with material from closed circuit secondary crushers, a similar feed size distribution correction should also be applied. However, as the secondary crushing circuit uses such a relatively small amount of energy compared to the rest of the circuit (as it crushes to a relatively coarse size) the magnitude of size distribution correction is very small indeed – much smaller than the error associated with the technique - and hence may be omitted in calculations.



App Figure 8 – Examples of Open and Closed Circuit Crushing Distributions Compared with a Typical Ball Mill Cyclone Overflow Distribution



App Figure 9 – Example of a Typical Primary Crusher (Open and Circuit) Product Distribution Compared with a Typical Ball Mill Cyclone Overflow Distribution



App Figure 10 – Examples of Open and Closed Circuit HPGR Distributions Compared with a Typical Ball Mill Cyclone Overflow Distribution

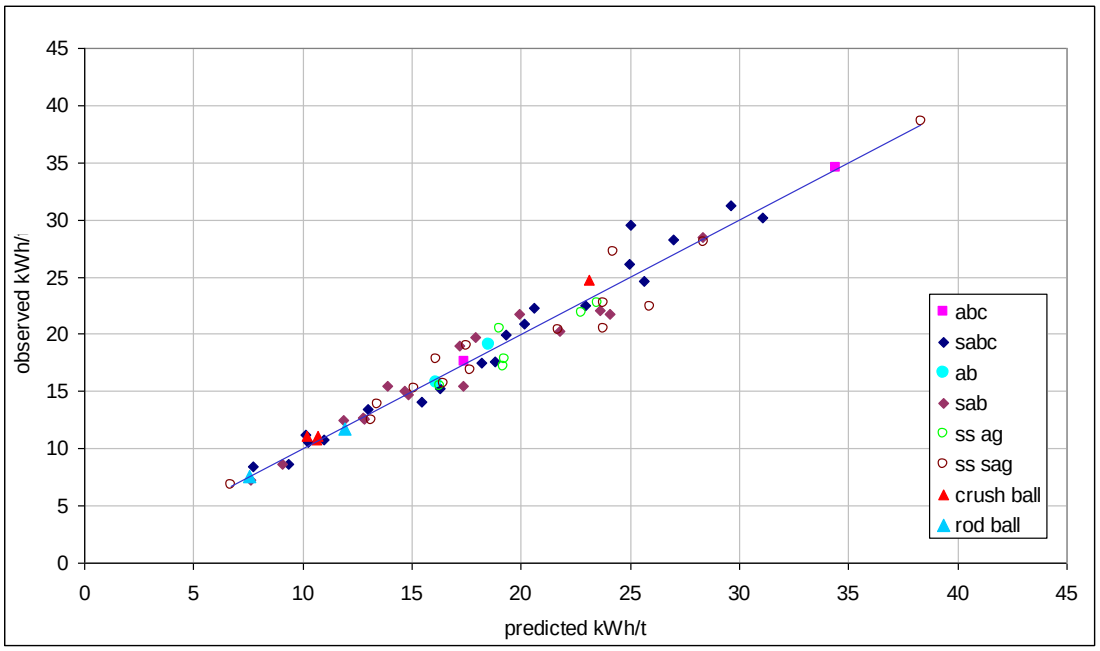
B 3.2.4 Weakening of HPGR Products

As mentioned in the previous section, laboratory experiments have been reported by various researchers in which the Bond ball work index of HPGR products is less than that of the feed. The amount of this reduction appears to vary with both material type and the pressing force used. Observed reductions in the Bond ball work index have typically been in the range 0-10%. In the approach described in this appendix no allowance has been made for such weakening. However, if HPGR products are available which can be used to conduct Bond ball work index tests on then M_{ib} values obtained from such tests can be used in Equation 7. Alternatively the M_{ib} values from Bond ball mill work index tests on HPGR feed material can be reduced by an amount that the user thinks is appropriate. Until more data become available from full scale HPGR/ball mill circuits it is suggested that, in the absence of Bond ball mill work index data on HPGR products, the M_{ib} results from HPGR feed material are reduced by no more than 5% to allow for the effects of micro-cracking.

B 3.3 Validation

B 3.3.1 Tumbling Mill Circuits

The approach described in the previous section was applied to over 120 industrial data sets. The results are shown in App Figure 11. In all cases, the specific energy relates to the tumbling mills contributing to size reduction from the product of the final stage of crushing to the final grind. Data are presented in terms of equivalent specific energy at the pinion. In determining what these values were on each of the plants in the data base it was assumed that power at the pinion was 93.5% of the measured gross (motor input) power, this figure being typical of what is normally accepted as being reasonable to represent losses across the motor and gearbox. For gearless drives (so-called wrap-around motors) a figure of 97% was used.



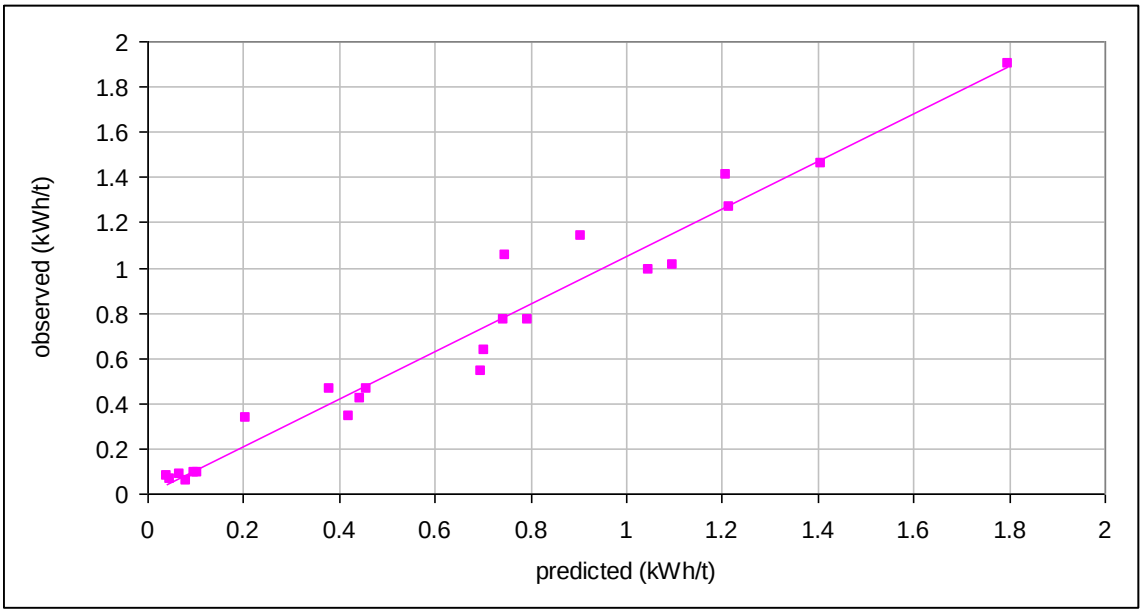
App Figure 11 – Observed vs Predicted Tumbling Mill Specific Energy

B 3.3.2 Conventional Crushers

Validation used 12 different crushing circuits (25 data sets), including secondary, tertiary and pebble crushers in AG/SAG circuits. Observed vs predicted specific energies are given in App Figure 12. The observed specific energies were calculated from the crusher throughput and the net power draw of the crusher as defined by:

Net Power = Motor Input Power – No Load Power Equation 15

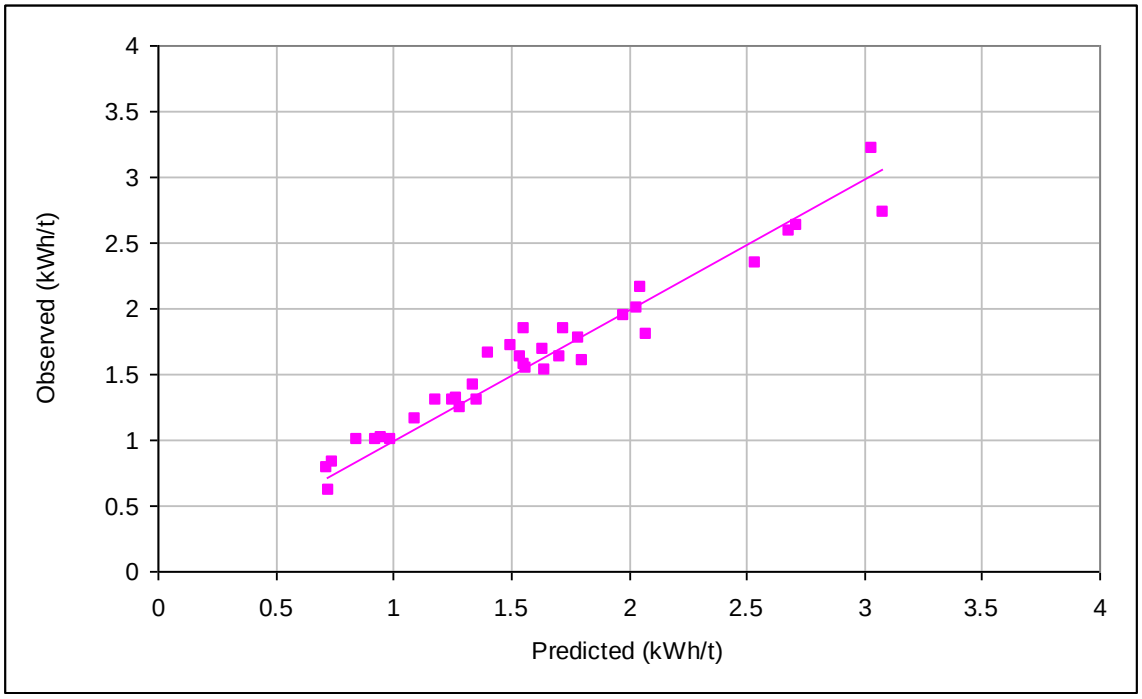
No-load power tends to be relatively high in conventional crushers and hence net power is significantly lower than the motor input power. From examination of the 25 crusher data sets the motor input power was found to be on average 20% higher than the net power.



App Figure 12 – Observed vs Predicted Conventional Crusher Specific Energy

B 3.3.3 HPGRs

Validation for HPGRs used data from 19 different circuits (36 data sets) including laboratory, pilot and industrial scale equipment. Observed vs predicted specific energies are given in App Figure 13. The data relate to HPGRs operating with specific grinding forces typically in the range 2.5-3.5 N/mm^2. The observed specific energies relate to power delivered by the roll drive shafts. Motor input power for full scale machines is expected to be 8-10% higher.



App Figure 13 – Observed vs Predicted HPGR Specific Energy

B 4 WORKED EXAMPLES

A SMC Test® and Bond ball work index test were carried out on a representative ore sample. The following results were obtained:

SMC Test®:
M_{ia} = 19.4 kWh/t
M_{ic} = 7.2 kWh/t
M_{ih} = 13.9 kWh/t
Bond test carried out with a 150 micron closing screen:
M_{ib} = 18.8 kWh/t

Three circuits are to be evaluated:

- SABC
- HPGR/ball mill
- Conventional crushing/ball mill

The overall specific grinding energy to reduce a primary crusher product with a P_{80} of 100 mm to a final product P_{80} of 106 µm needs to be estimated.

B 4.1 SABC Circuit

Coarse particle tumbling mill specific energy:

$$W_a = 0.95 * 19.4 * 4 * \left(750^{\,-(0.295+750/1000000)} - 100000^{\,-(0.295+100000/1000000)}\right)$$

= 9.6 kWh/t

Fine particle tumbling mill specific energy:

$$W_b = 18.8 * 4 * \left(106^{\ -(0.295+106/1000000)} - 750^{\ -(0.295+750/1000000)}\right)$$

= 8.4 kWh/t

Pebble crusher specific energy:

In this circuit, it is assumed that the pebble crusher feed P_{80} is 52.5mm. As a rule of thumb this value can be estimated by assuming that it is 0.75 of the nominal pebble port aperture (in this case the pebble port aperture is 70mm). The pebble crusher is set to give a product P_{80} of 12mm. The pebble crusher feed rate is expected to be 25% of new feed tph.

$$W_c = 1.19 * 7.2 * 4 * \left(12000^{\ -(0.295+12000/1000000)} - 52500^{\ -(0.295+52500/1000000)}\right)$$

= 1.12 kWh/t when expressed in terms of the crusher feed rate
= 1.12 * 0.25 kWh/t when expressed in terms of the SABC circuit new feed rate
= 0.3 kWh/t of SAG mill circuit new feed

Total net comminution specific energy:

W_T = 9.6 + 8.4 + 0.3 kWh/t
= 18.3 kWh/t

B 4.2 HPGR/Ball Milling Circuit

In this circuit primary crusher product is reduced to a HPGR circuit feed P_{80} of 35 mm by closed circuit secondary crushing. The HPGR is also in closed circuit and reduces the 35 mm feed to a circuit product P_{80} of 4 mm. This is then fed to a closed circuit ball mill which takes the grind down to a P_{80} of 106 µm.

Secondary crushing specific energy:

$$W_c = 1 * 55 * \left(35000\ * 100000\ \right)^{-0.2} * 7.2 * 4 * \left(35000^{\ -(0.295+35000/1000000)} - 100000^{\ -(0.295+100000/1000000)}\right)$$

= 0.4 kWh/t

HPGR specific energy:

$$W_h = 1 * 35 * \left(4000\ * 35000\ \right)^{-.2} * 13.9 * 4 * \left(4000^{\ -(0.295+4000/1000000)} - 35000^{\ -(0.295+35000/1000000)}\right)$$

= 2.4 kWh/t

Coarse particle tumbling mill specific energy:

$$W_a = 1 * 19.4 * 4 * \left(750^{\ -(0.295+750/1000000)} - 4000^{\ -(0.295+4000/1000000)}\right)$$

= 4.5 kWh/t

Fine particle tumbling mill specific energy:

$$W_b = 18.8 * 4 * \left(106^{\ -(0.295+106/1000000)} - 750^{\ -(0.295+750/1000000)}\right)$$

= 8.4 kWh/t

Total net comminution specific energy:

W_T = 4.5 + 8.4 + 0.4 + 2.4 kWh/t
= 15.7 kWh/t

B 4.3 Conventional Crushing/Ball Milling Circuit

In this circuit primary crusher product is reduced in size to P_{80} of 6.5 mm via a secondary/tertiary crushing circuit (closed). This is then fed to a closed circuit ball mill which grinds to a P80 of 106 µm.

Secondary/tertiary crushing specific energy:

$$W_c = 1 * 7.2 * 4 * \left(6500^{\,-(0.295+6500/1000000)} - 100000^{\,-(0.295+100000/1000000)}\right)$$

= 1.7 kWh/t

Coarse particle tumbling mill specific energy :

$$W_a = 1 * 19.4 * 4 * \left(750^{\,-(0.295+750/1000000)} - 6500^{\,-(0.295+6500/1000000)}\right)$$

= 5.5 kWh/t

Fine particle tumbling mill specific energy:

$$W_b = 18.8 * 4 * \left(106^{\,-(0.295+106/1000000)} - 750^{\,-(0.295+750/1000000)}\right)$$

= 8.4 kWh/t

Size distribution correction;

$$W_s = 0.19 * 19.4 * 4 * \left(6500^{\,-(0.295+6500/1000000)} - 100000^{\,-(0.295+100000/1000000)}\right)$$

= 0.9 kWh/t

Total net comminution specific energy:

W_T = 5.5 + 8.4 + 1.7 + 0.9 kWh/t
= 16.5 kWh/t

APPENDIX V

Bond Abrasion Index Determination

Details and Results

BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	NOKPA TRANSITION
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

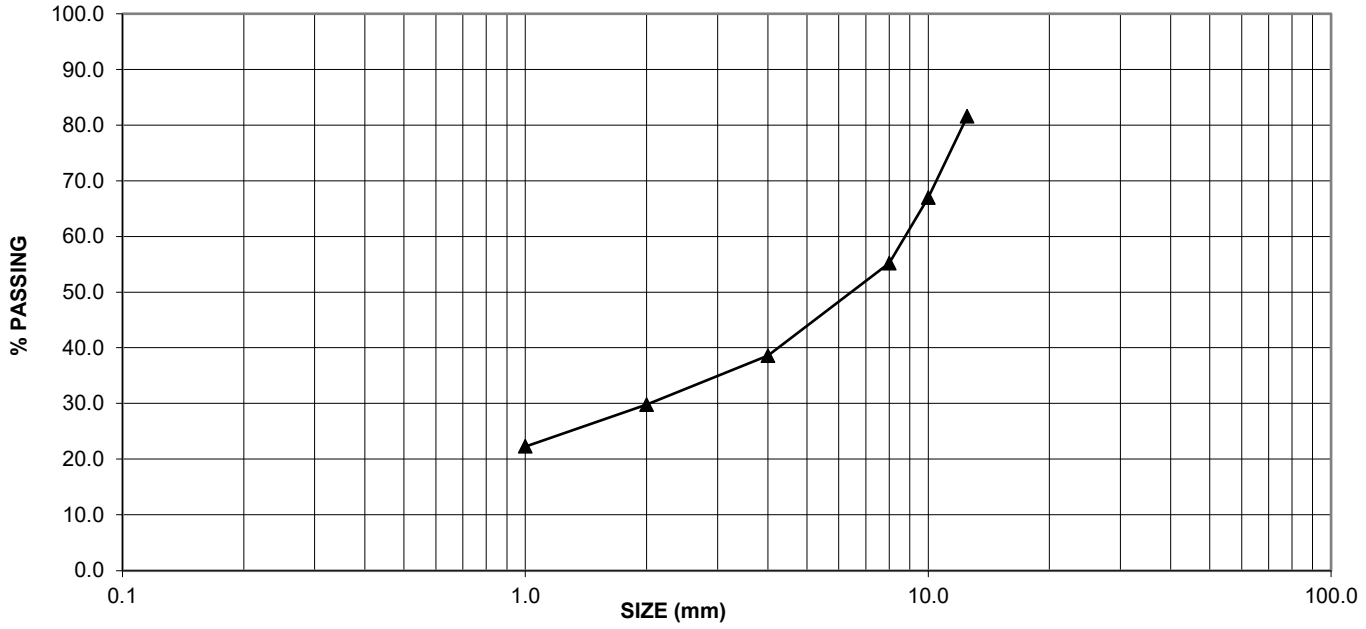
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	294.2	18.4	81.6
	10.0	234.0	14.6	67.0
	8.0	188.0	11.8	55.2
	4.0	265.4	16.6	38.6
	2.0	140.6	8.8	29.8
	1.0	119.9	7.5	22.3
	-1.0	356.8	22.3	
Total		1598.9	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.7282

PADDLE WEIGHT AFTER TEST (g) : 87.4024

BOND ABRASION INDEX (Ai) : *0.3258*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	NOKPA FRESH #1 (81 - 88 m)
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

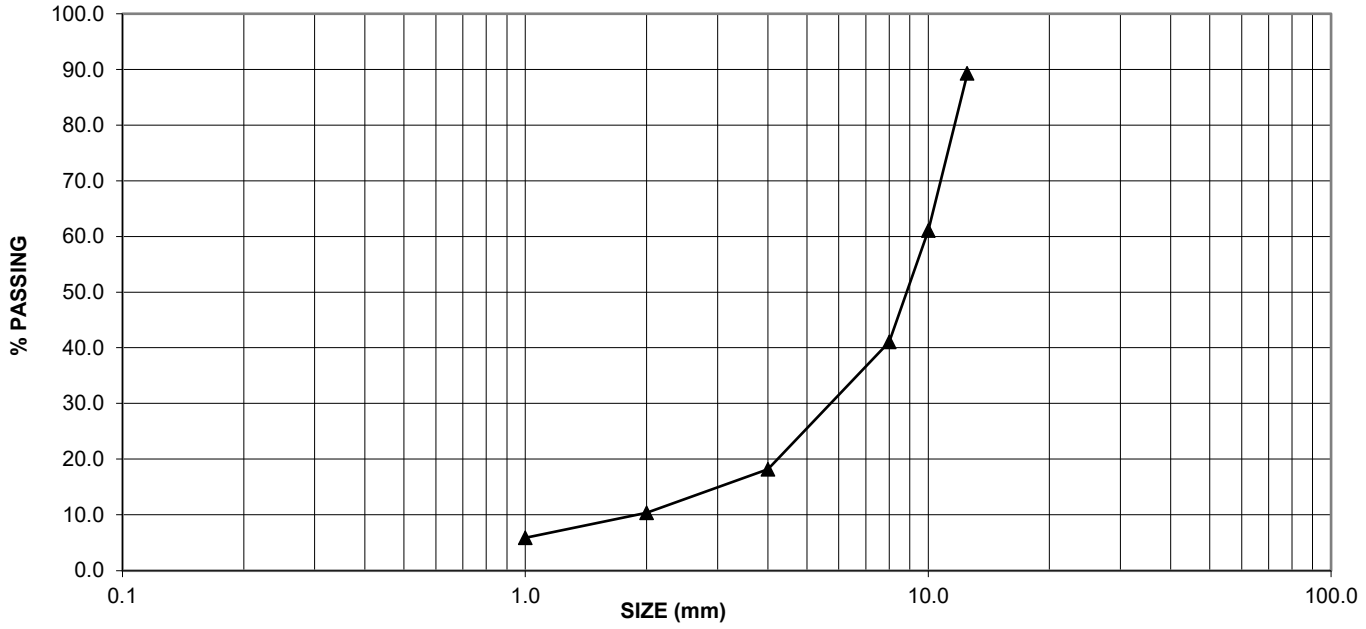
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	171.2	10.7	89.3
	10.0	451.6	28.2	61.1
	8.0	320.1	20.01	41.1
	4.0	366.3	22.90	18.2
	2.0	124.9	7.81	10.4
	1.0	71.6	4.48	5.9
	-1.0	94.1	5.9	
Total		1599.8	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.4769

PADDLE WEIGHT AFTER TEST (g) : 87.4589

BOND ABRASION INDEX (Ai) : *0.0180*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	NOKPA FRESH #2 (108 - 118 m)
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

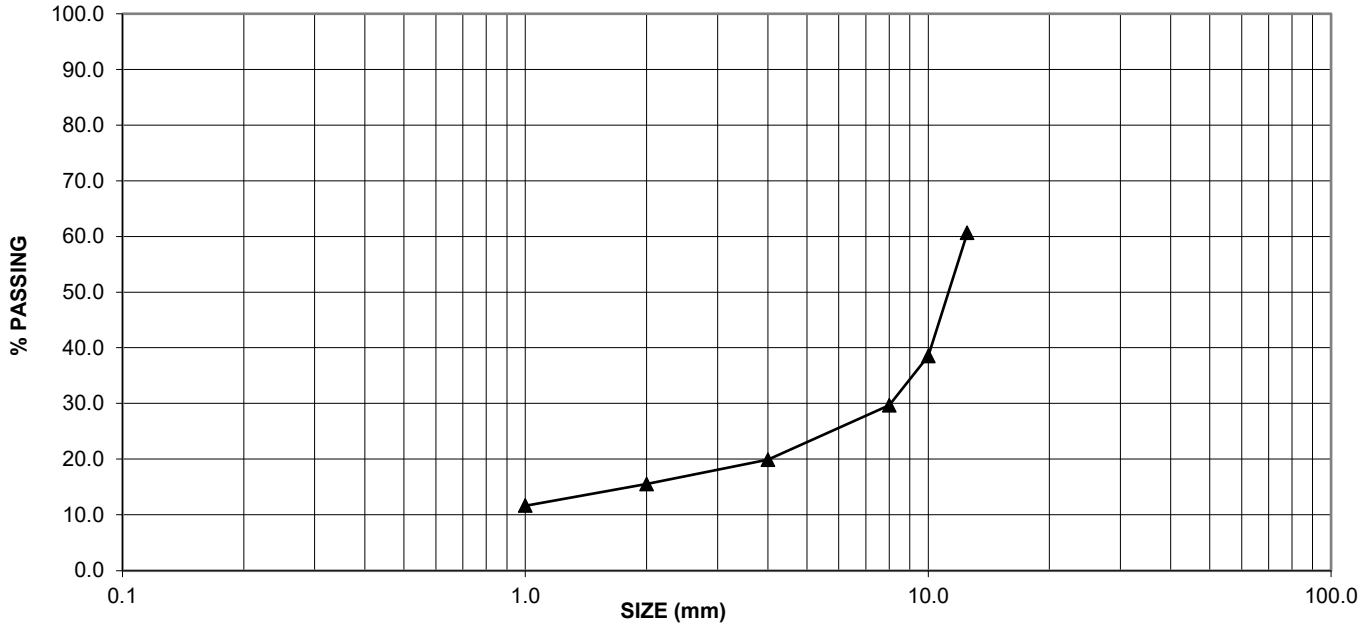
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	629.0	39.3	60.7
	10.0	354.4	22.2	38.5
	8.0	141.1	8.82	29.7
	4.0	156.3	9.77	19.9
	2.0	69.9	4.37	15.5
	1.0	61.8	3.86	11.7
	-1.0	186.8	11.7	
Total		1599.3	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 88.8674

PADDLE WEIGHT AFTER TEST (g) : 88.7450

BOND ABRASION INDEX (Ai) : *0.1224*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	SOUWA OXIDE 0 - 10 m
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

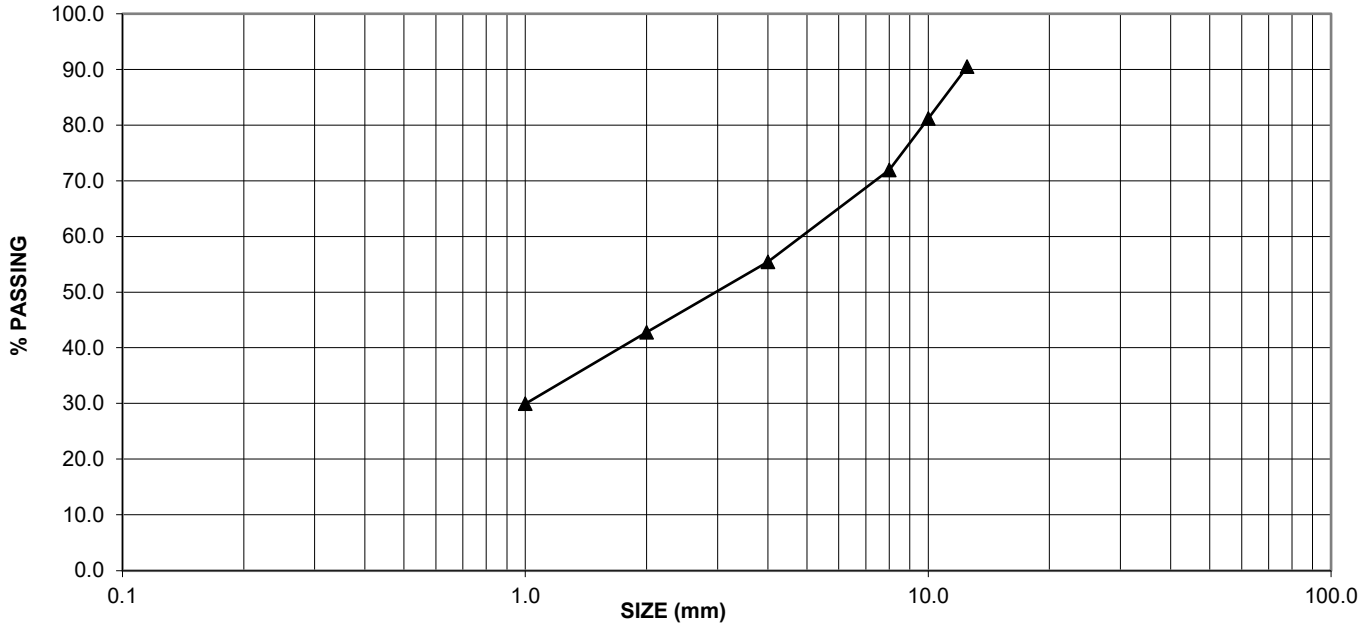
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	151.5	9.5	90.5
	10.0	149.1	9.3	81.2
	8.0	147.2	9.2	72.0
	4.0	264.0	16.5	55.4
	2.0	201.9	12.6	42.8
	1.0	204.6	12.8	30.0
	-1.0	478.6	30.0	
Total		1596.9	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 85.9121

PADDLE WEIGHT AFTER TEST (g) : 85.7759

BOND ABRASION INDEX (Ai) : *0.1362*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	SOUWA FRESH #1 (60-70 m)
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

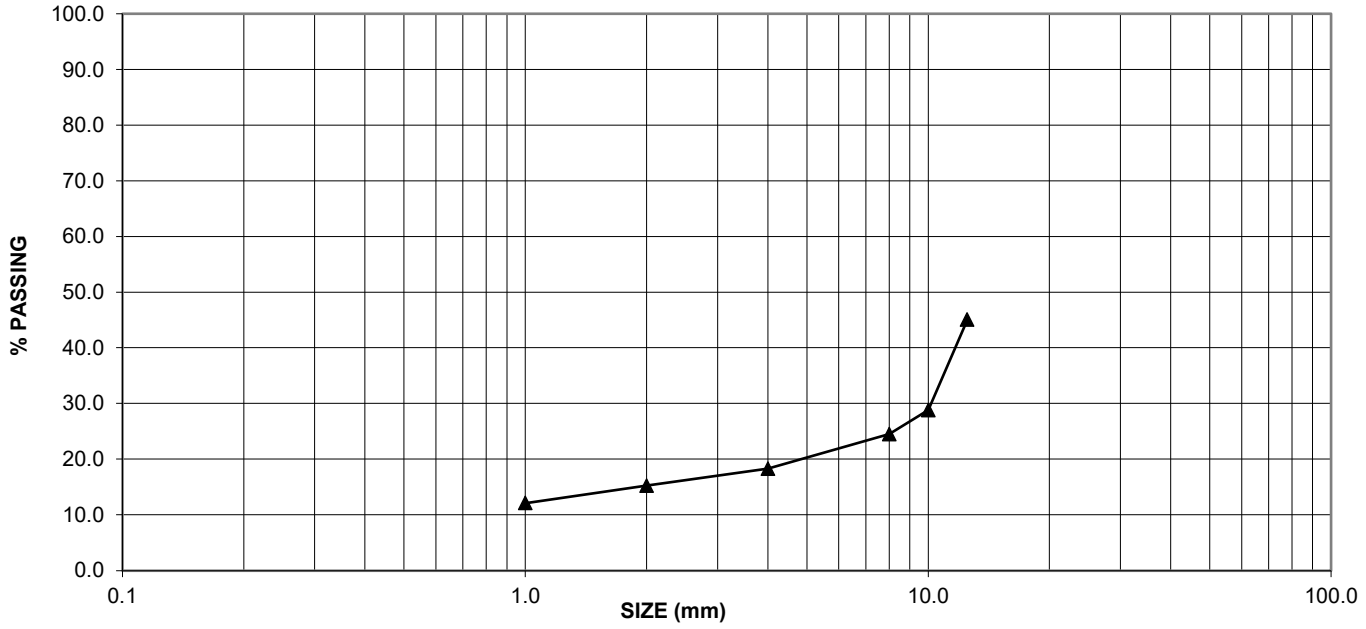
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	878.3	54.9	45.1
	10.0	260.1	16.3	28.8
	8.0	68.8	4.30	24.5
	4.0	99.1	6.20	18.3
	2.0	49.0	3.06	15.2
	1.0	49.6	3.10	12.1
	-1.0	194.1	12.1	
Total		1599.0	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.0752

PADDLE WEIGHT AFTER TEST (g) : 86.8525

BOND ABRASION INDEX (Ai) : *0.2227*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	SOUWA FRESH #2 (133-143 m)
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

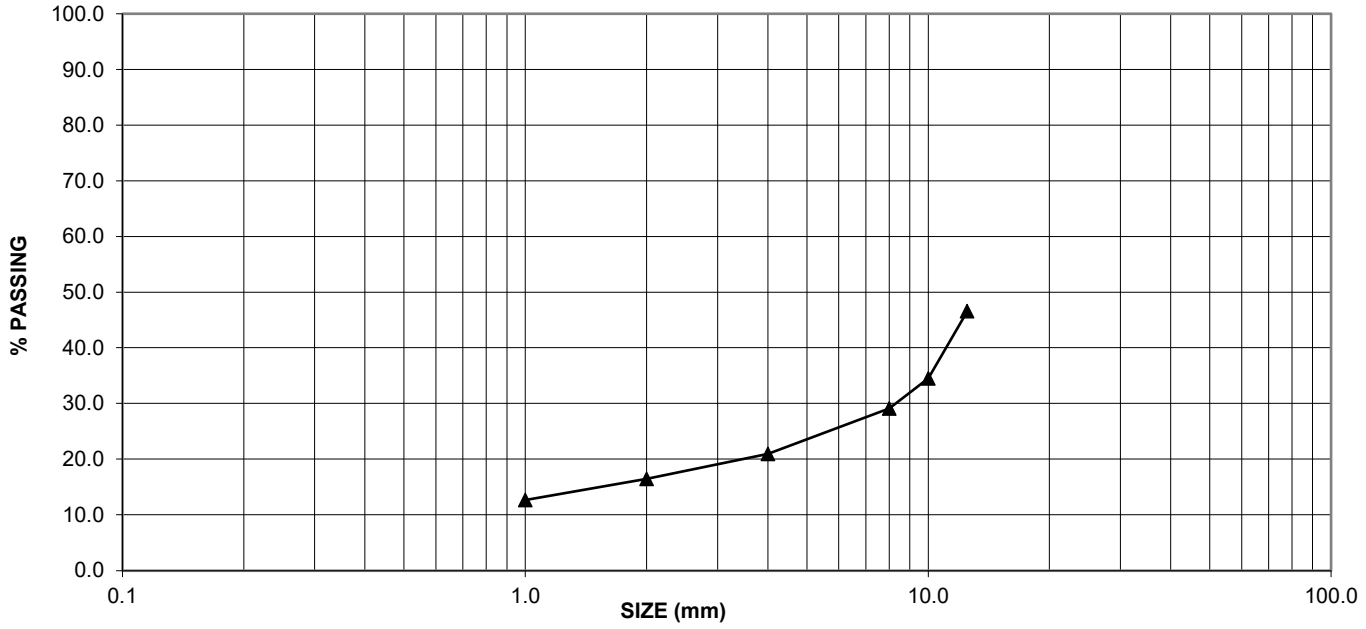
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	853.5	53.4	46.6
	10.0	192.9	12.1	34.5
	8.0	86.9	5.44	29.1
	4.0	130.0	8.14	20.9
	2.0	71.8	4.49	16.5
	1.0	60.4	3.78	12.7
	-1.0	202.5	12.7	
Total		1598.0	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.2929

PADDLE WEIGHT AFTER TEST (g) : 87.0261

BOND ABRASION INDEX (Ai) : *0.2668*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	SOUWA FRESH #3
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

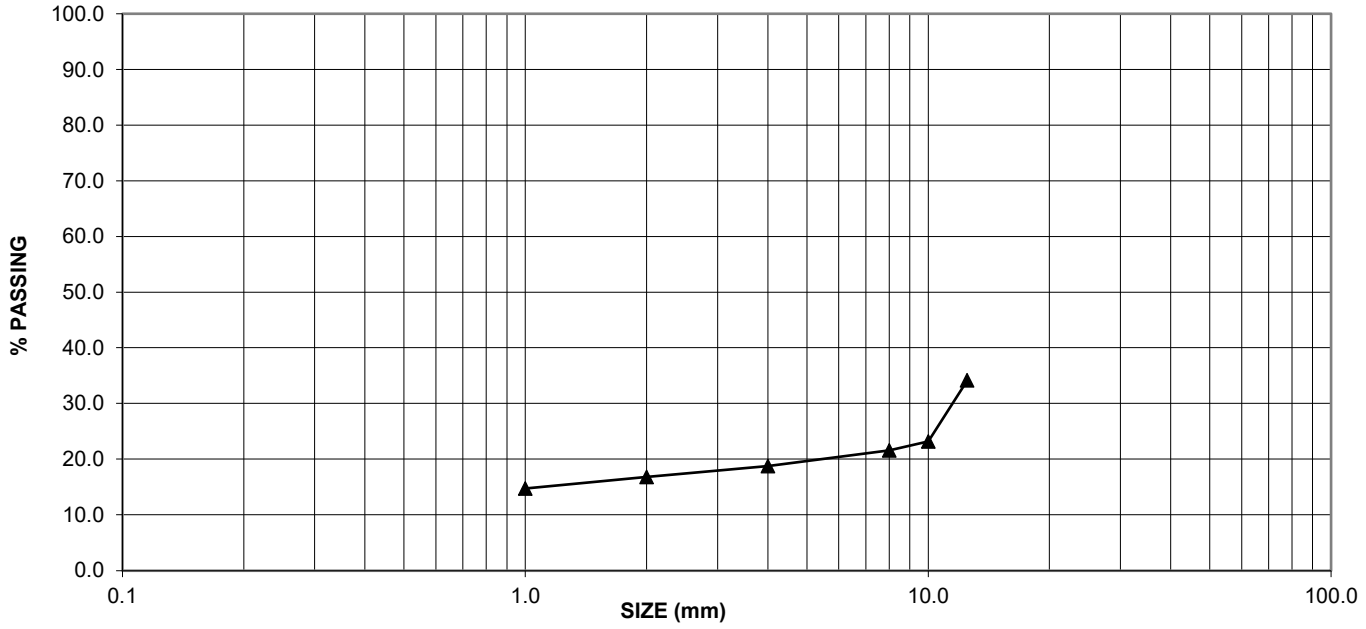
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	1053.0	65.8	34.2
	10.0	175.9	11.0	23.2
	8.0	25.8	1.61	21.6
	4.0	45.0	2.81	18.7
	2.0	31.3	1.96	16.8
	1.0	32.6	2.04	14.8
	-1.0	236.0	14.8	
Total		1599.6	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.3455

PADDLE WEIGHT AFTER TEST (g) : 87.0905

BOND ABRASION INDEX (Ai) : *0.2550*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	SOUWA TRANSITION SAPROLITE (25.5 - 32.5 m)
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

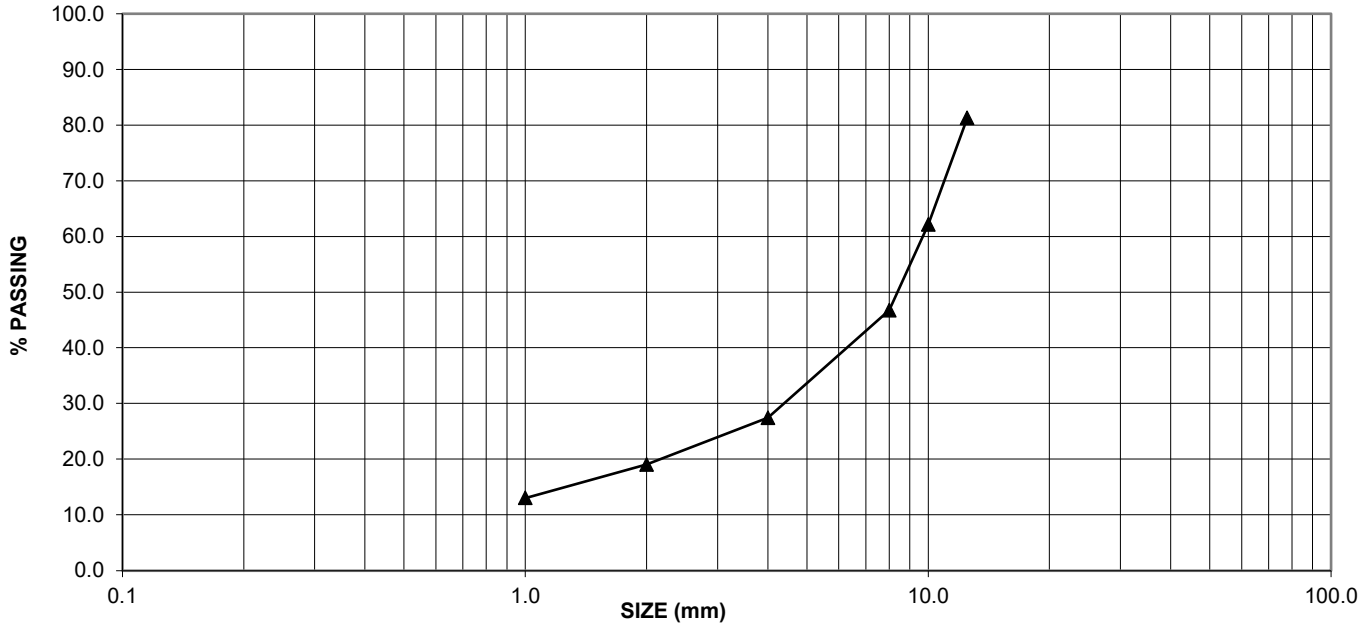
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	299.0	18.7	81.3
	10.0	306.8	19.2	62.1
	8.0	246.6	15.41	46.7
	4.0	308.8	19.30	27.4
	2.0	134.5	8.40	19.0
	1.0	95.6	5.97	13.1
	-1.0	209.0	13.1	
Total		1600.3	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.8688

PADDLE WEIGHT AFTER TEST (g) : 87.7212

BOND ABRASION INDEX (Ai) : *0.1476*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	CHEGUE MAIN FRESH #1 (75 - 80 m)
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

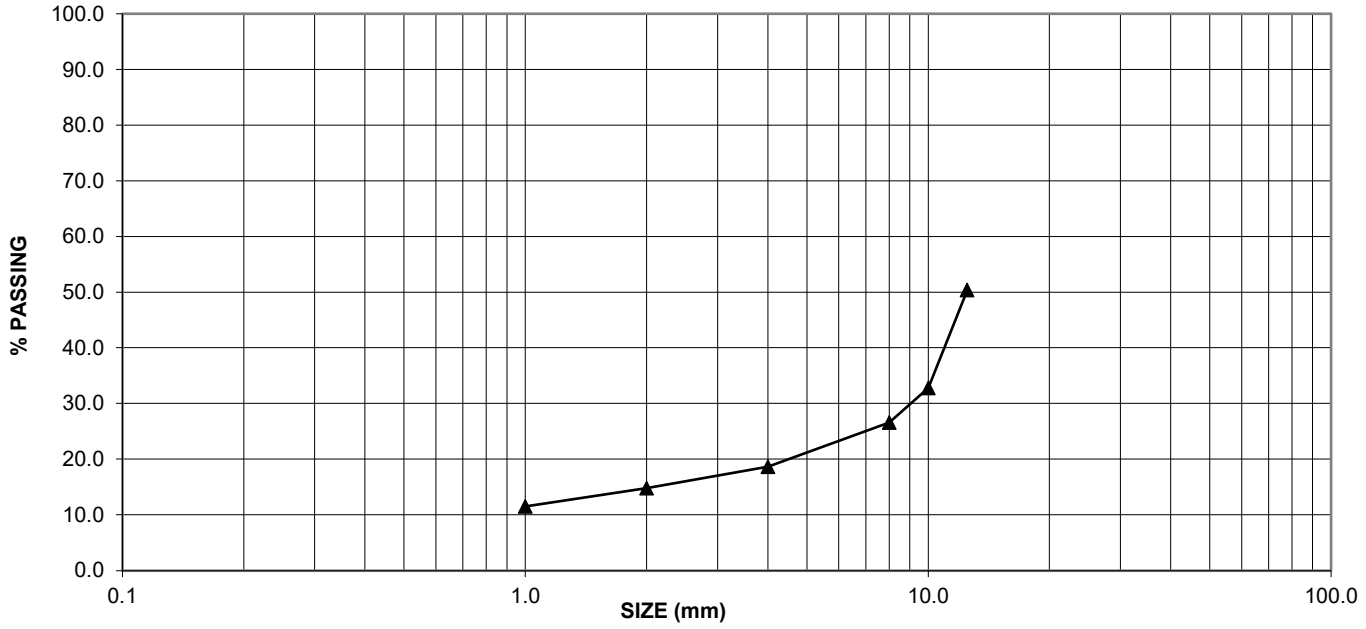
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	792.5	49.6	50.4
	10.0	281.2	17.6	32.8
	8.0	99.5	6.2	26.6
	4.0	126.3	7.9	18.7
	2.0	62.2	3.9	14.8
	1.0	51.7	3.2	11.5
	-1.0	184.1	11.5	
Total		1597.5	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 88.0222

PADDLE WEIGHT AFTER TEST (g) : 87.9022

BOND ABRASION INDEX (Ai) : *0.1200*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	CHEGUE MAIN FRESH #2 (52 - 57 m)
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

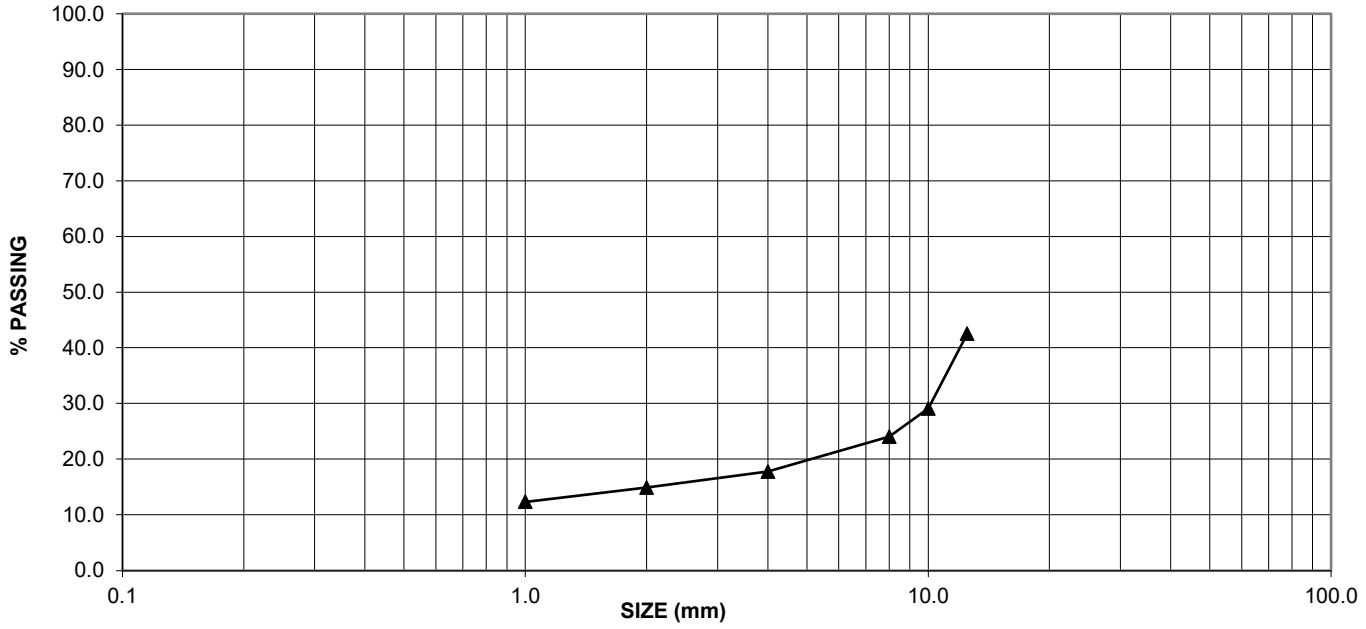
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	917.9	57.4	42.6
	10.0	215.4	13.5	29.1
	8.0	80.8	5.06	24.0
	4.0	99.5	6.23	17.8
	2.0	46.6	2.92	14.9
	1.0	40.3	2.52	12.4
	-1.0	197.5	12.4	
Total		1598.0	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.7169

PADDLE WEIGHT AFTER TEST (g) : 87.3701

BOND ABRASION INDEX (Ai) : *0.3468*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	CHEGUE MAIN FRESH #3 (78 - 83 m)
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

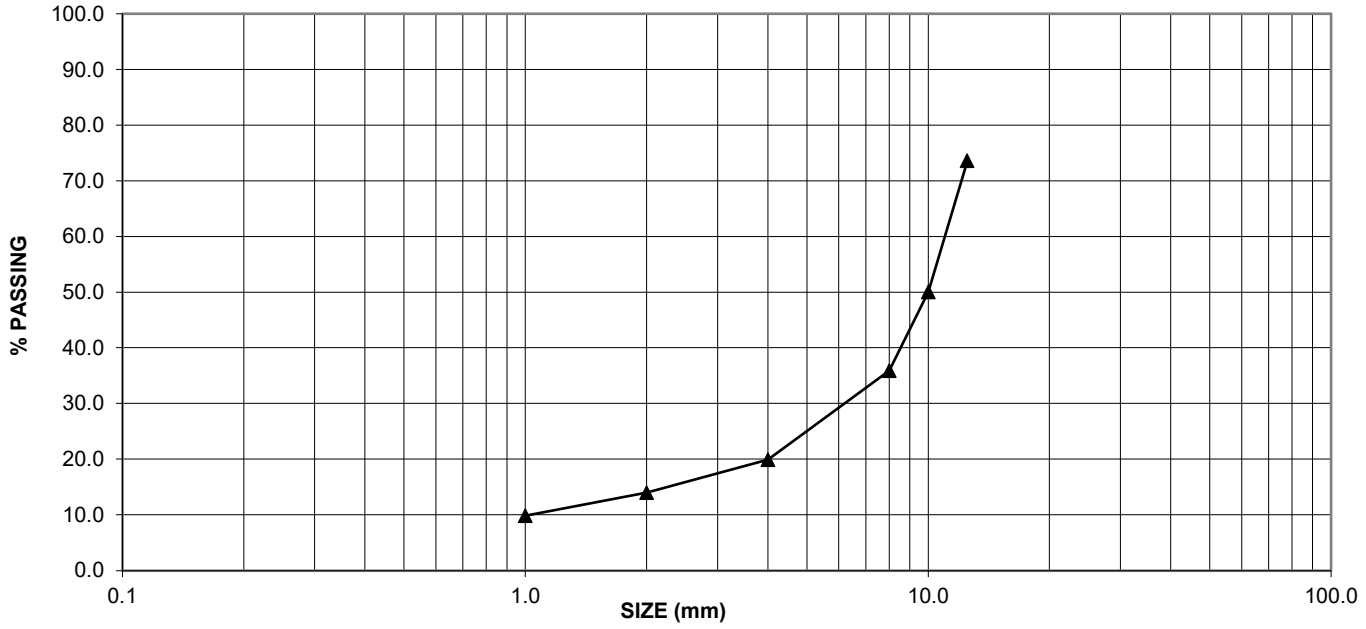
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	421.0	26.4	73.6
	10.0	375.5	23.5	50.1
	8.0	226.3	14.19	35.9
	4.0	254.5	15.96	19.9
	2.0	94.2	5.91	14.0
	1.0	65.8	4.13	9.9
	-1.0	157.4	9.9	
Total		1594.7	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 86.5514

PADDLE WEIGHT AFTER TEST (g) : 86.4263

BOND ABRASION INDEX (Ai) : *0.1251*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	CHEGUE MAIN FRESH #4 (65 - 70 m)
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

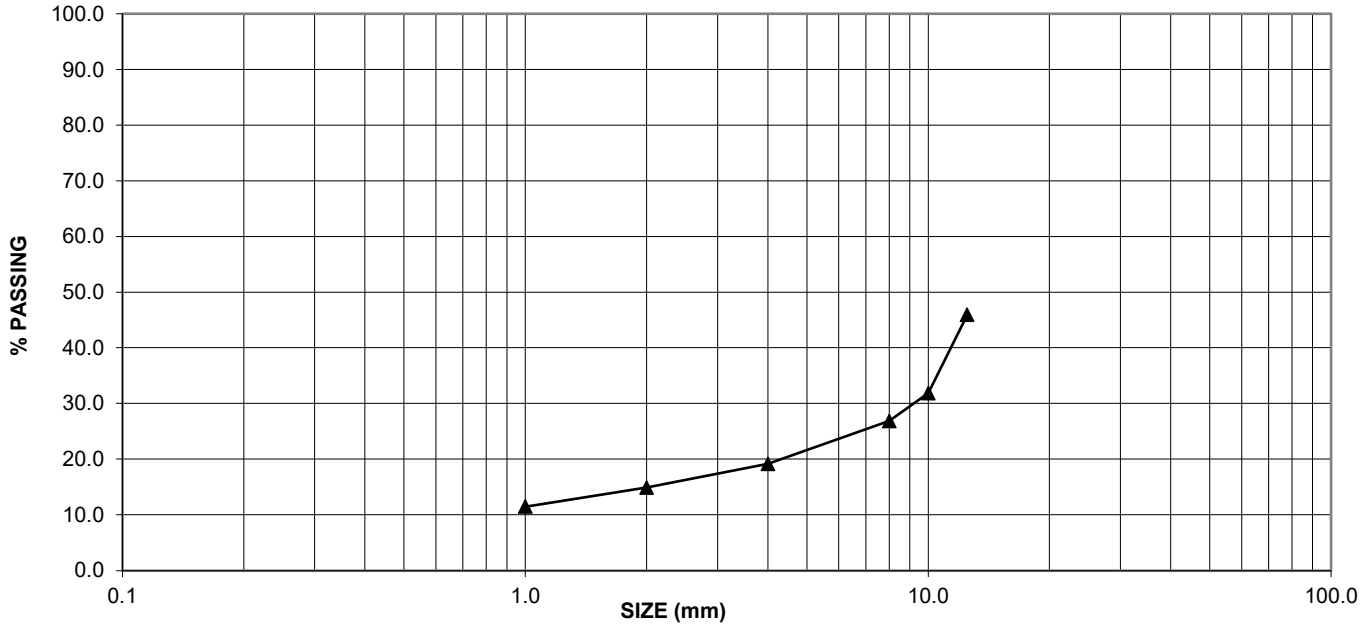
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	864.1	54.0	46.0
	10.0	225.1	14.1	31.9
	8.0	80.1	5.01	26.9
	4.0	123.6	7.73	19.2
	2.0	67.8	4.24	14.9
	1.0	54.5	3.41	11.5
	-1.0	184.0	11.5	
Total		1599.2	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.5920

PADDLE WEIGHT AFTER TEST (g) : 87.2124

BOND ABRASION INDEX (Ai) : *0.3796*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	CHEGUE MAIN TRANSITION (21 - 26 m)
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

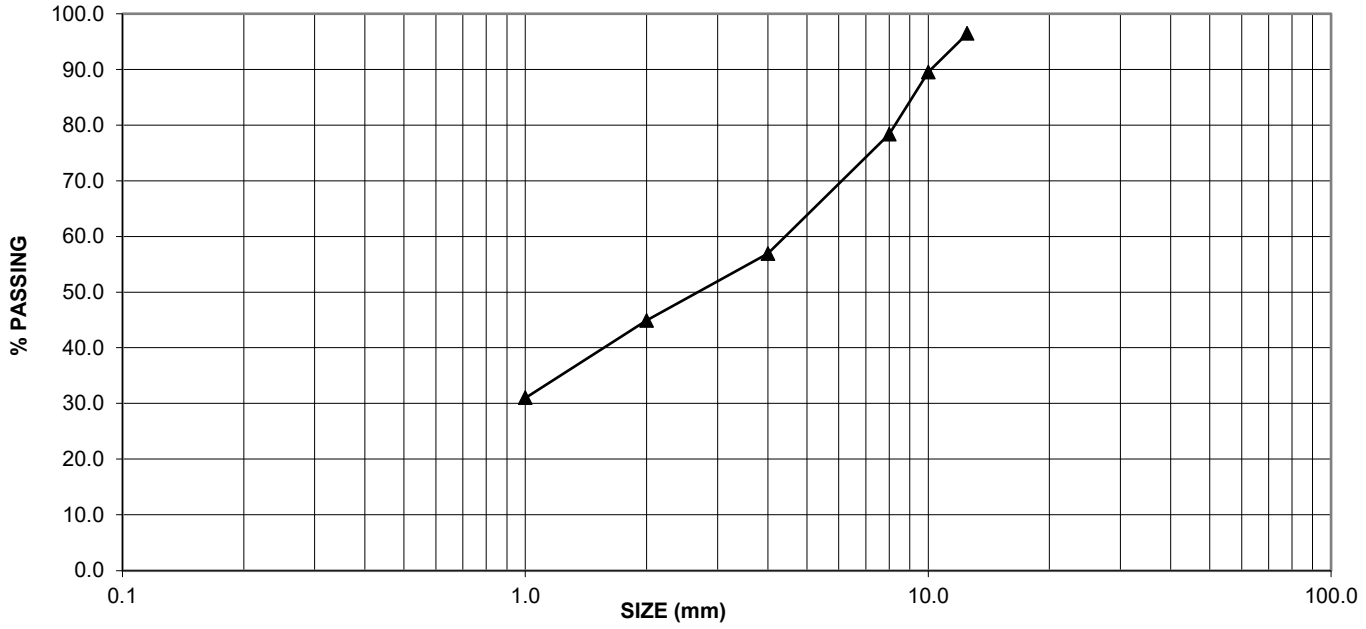
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	56.2	3.5	96.5
	10.0	111.2	7.0	89.5
	8.0	177.7	11.14	78.4
	4.0	342.0	21.43	56.9
	2.0	191.9	12.03	44.9
	1.0	221.6	13.89	31.0
	-1.0	495.2	31.0	
Total		1595.8	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 86.1469

PADDLE WEIGHT AFTER TEST (g) : 86.1015

BOND ABRASION INDEX (Ai) : *0.0454*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	CHEGUE SOUTH FRESH #1 (55 - 61 m)
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

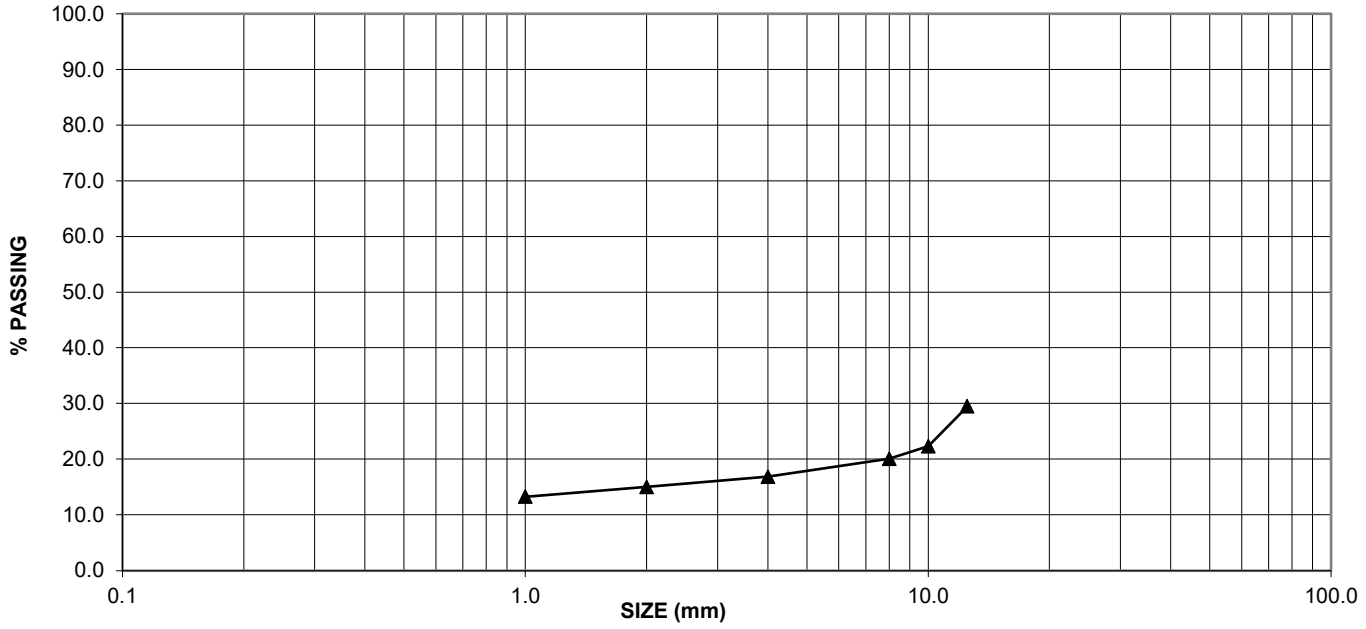
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	1126.1	70.5	29.5
	10.0	114.9	7.2	22.3
	8.0	35.8	2.24	20.1
	4.0	51.6	3.23	16.8
	2.0	28.7	1.80	15.0
	1.0	28.0	1.75	13.3
	-1.0	212.1	13.3	
Total		1597.2	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.8346

PADDLE WEIGHT AFTER TEST (g) : 87.5437

BOND ABRASION INDEX (Ai) : *0.2909*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	CHEGUE SOUTH FRESH #2 (82 - 90 m)
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

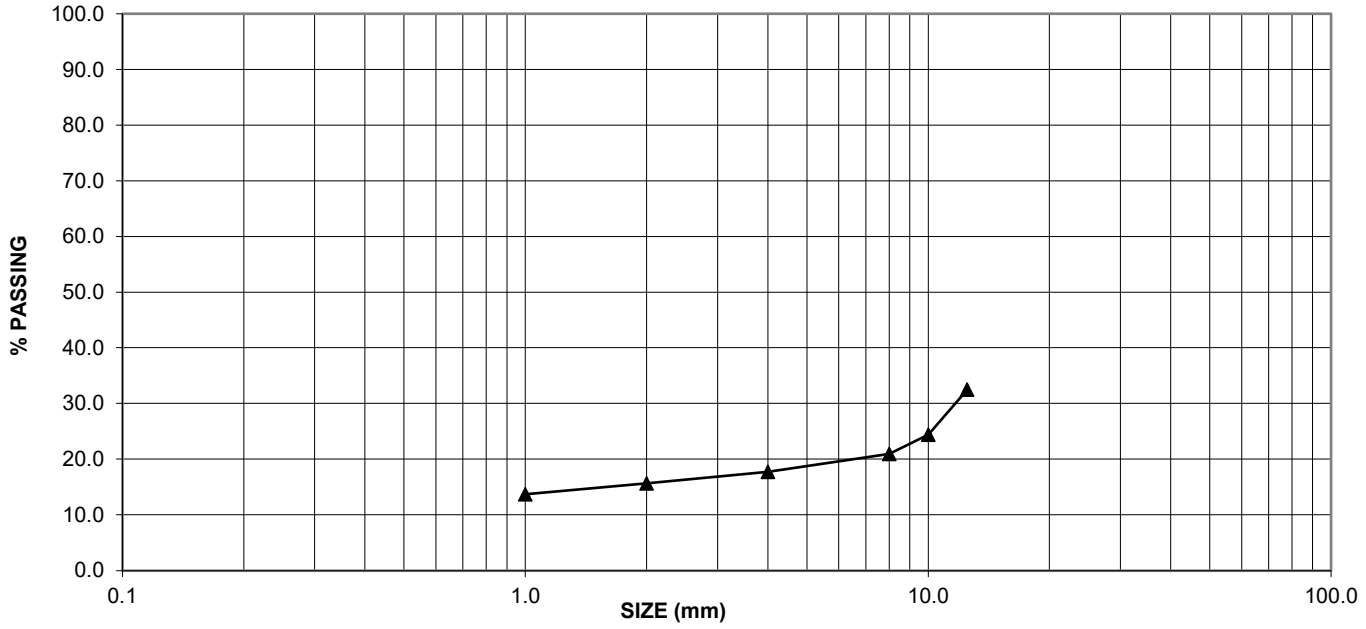
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	1078.7	67.5	32.5
	10.0	129.9	8.1	24.4
	8.0	55.1	3.45	20.9
	4.0	51.3	3.21	17.7
	2.0	33.1	2.07	15.6
	1.0	31.2	1.95	13.7
	-1.0	218.9	13.7	
Total		1598.2	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.2157

PADDLE WEIGHT AFTER TEST (g) : 87.0543

BOND ABRASION INDEX (Ai) : *0.1614*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	CHEGUE SOUTH TRANSITION (23 - 28 m)
DATE	Mar-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

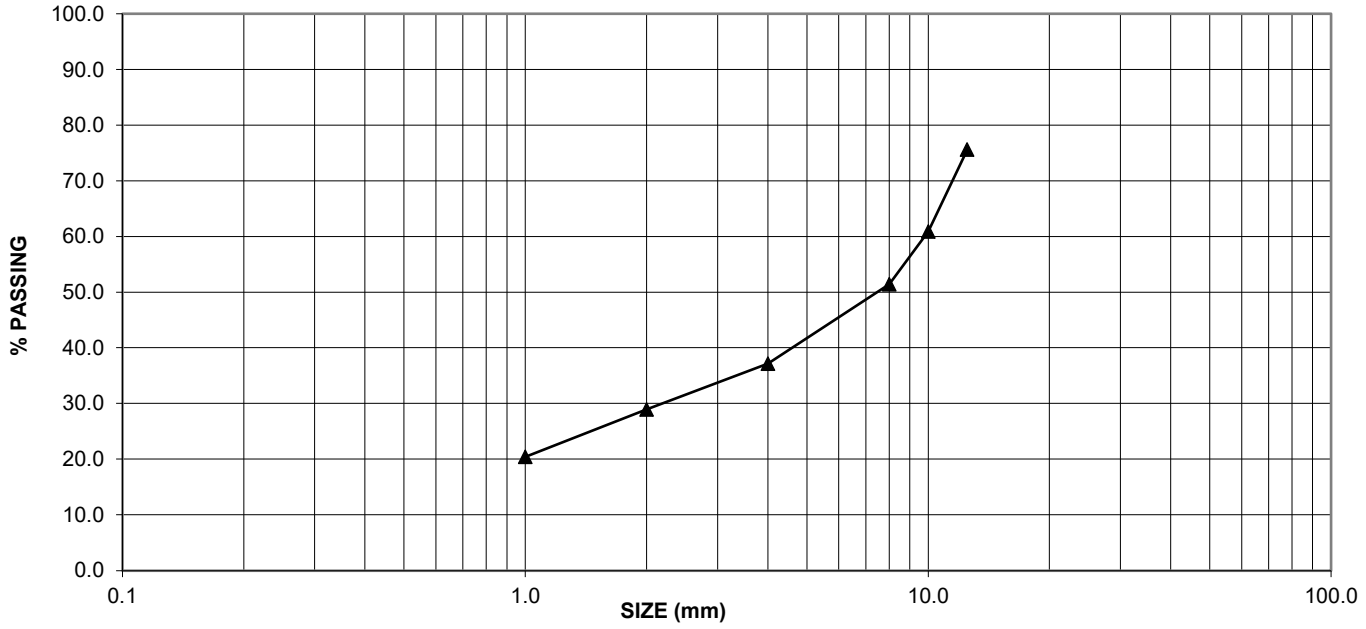
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	389.3	24.4	75.6
	10.0	235.6	14.7	60.9
	8.0	151.0	9.45	51.4
	4.0	228.0	14.27	37.2
	2.0	131.1	8.21	28.9
	1.0	136.1	8.52	20.4
	-1.0	326.2	20.4	
Total		1597.3	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.9134

PADDLE WEIGHT AFTER TEST (g) : 87.6995

BOND ABRASION INDEX (Ai) : *0.2139*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	KEKEDA FRESH#1
DATE	Apr-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

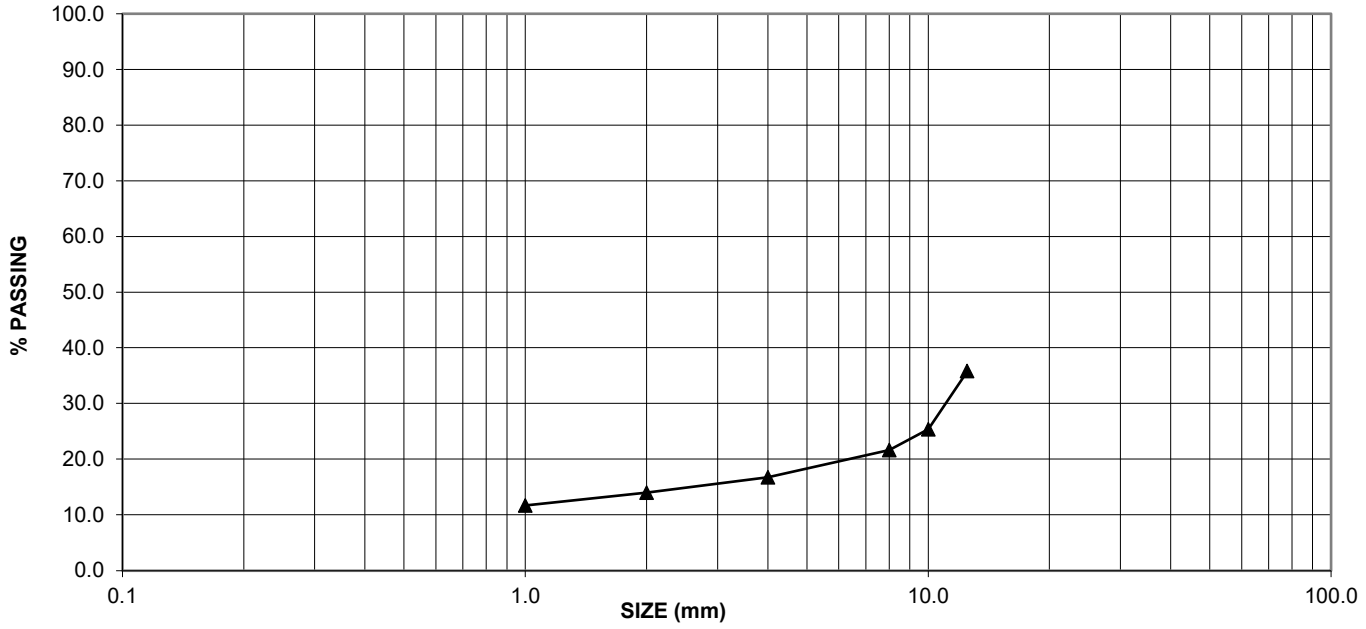
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	1024.7	64.2	35.8
	10.0	166.7	10.4	25.4
	8.0	59.7	3.7	21.6
	4.0	78.3	4.9	16.7
	2.0	43.2	2.7	14.0
	1.0	36.8	2.3	11.7
	-1.0	186.8	11.7	
Total		1596.2	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.2014

PADDLE WEIGHT AFTER TEST (g) : 86.9845

BOND ABRASION INDEX (Ai) : *0.2169*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	KEKEDA FRESH#2
DATE	Apr-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

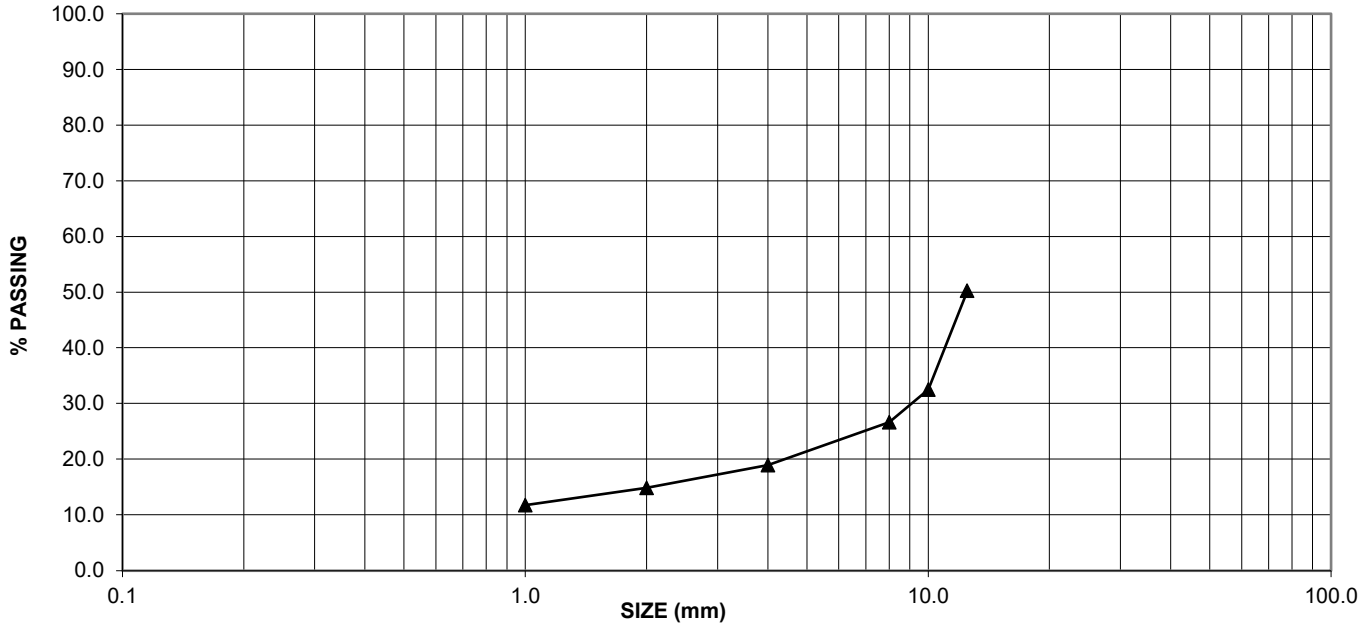
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	795.2	49.7	50.3
	10.0	283.4	17.7	32.5
	8.0	93.9	5.9	26.6
	4.0	123.8	7.7	18.9
	2.0	64.4	4.0	14.9
	1.0	49.8	3.1	11.8
	-1.0	187.9	11.8	
Total		1598.4	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.6898

PADDLE WEIGHT AFTER TEST (g) : 87.5278

BOND ABRASION INDEX (Ai) : *0.1620*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	KEKEDA FRESH#3
DATE	Apr-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

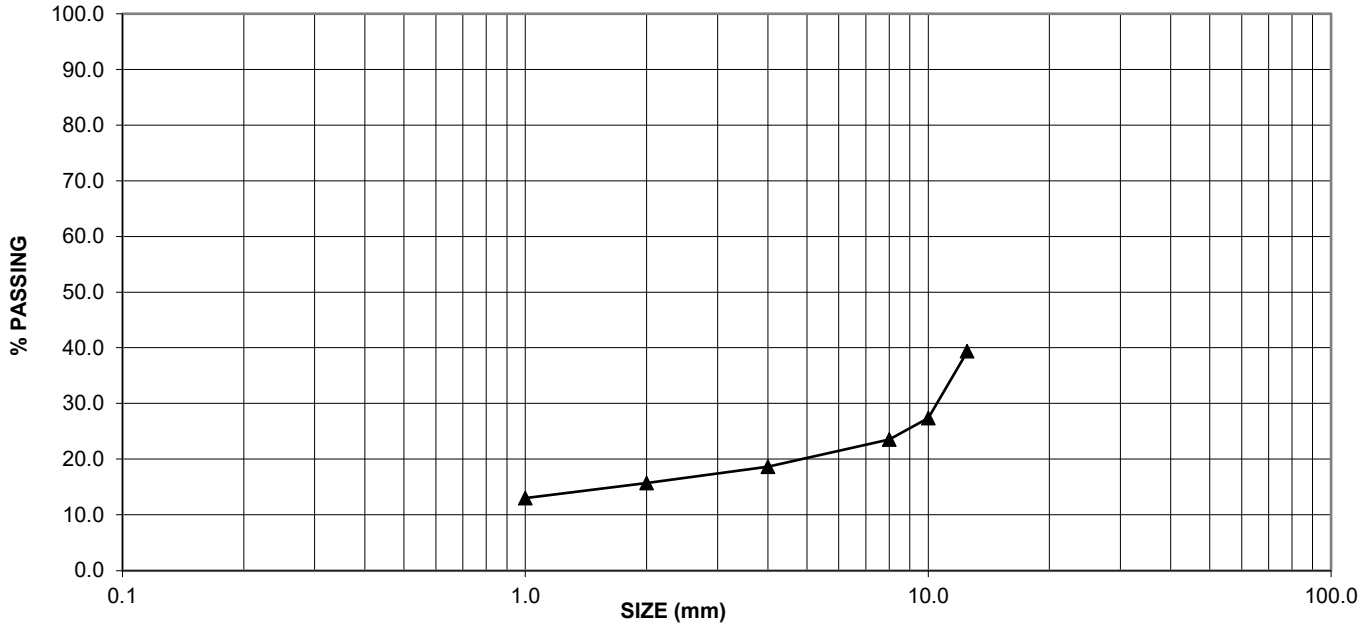
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	969.2	60.6	39.4
	10.0	191.8	12.0	27.4
	8.0	61.4	3.8	23.5
	4.0	78.3	4.9	18.6
	2.0	47.2	3.0	15.7
	1.0	42.4	2.7	13.0
	-1.0	208.3	13.0	
Total		1598.6	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.5656

PADDLE WEIGHT AFTER TEST (g) : 87.3941

BOND ABRASION INDEX (Ai) : *0.1715*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	KEKEDA TRANS#1
DATE	Apr-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

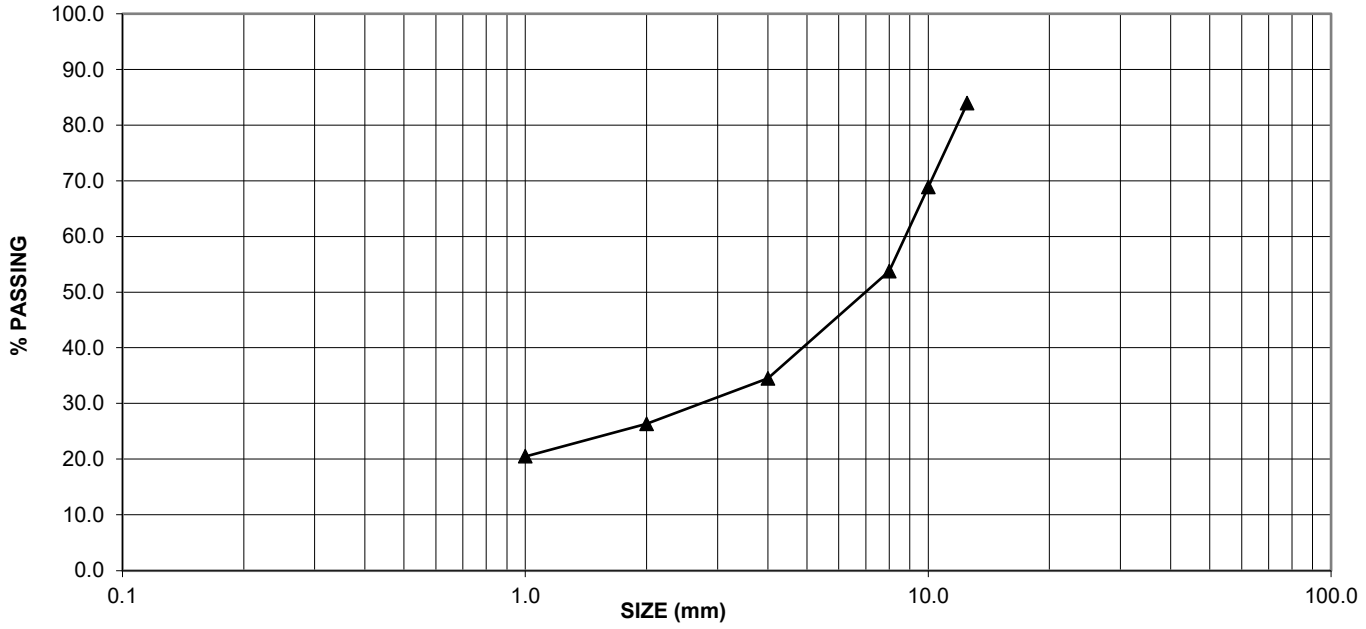
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	256.3	16.0	84.0
	10.0	241.1	15.1	68.9
	8.0	241.5	15.1	53.7
	4.0	307.5	19.3	34.5
	2.0	130.0	8.1	26.4
	1.0	93.2	5.8	20.5
	-1.0	327.8	20.5	
Total		1597.4	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 86.5719

PADDLE WEIGHT AFTER TEST (g) : 86.4369

BOND ABRASION INDEX (Ai) : *0.1350*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	KEKEDA TRANS#2
DATE	Apr-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

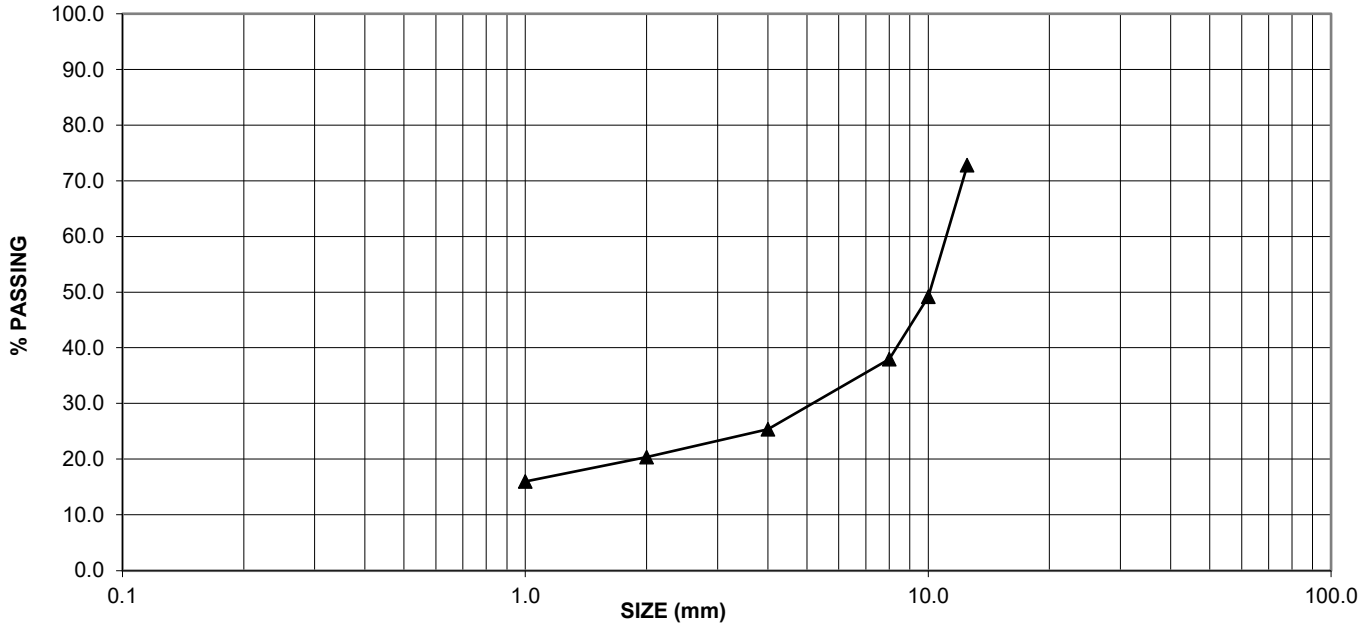
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	434.7	27.2	72.8
	10.0	377.6	23.6	49.2
	8.0	179.1	11.2	38.0
	4.0	201.4	12.6	25.4
	2.0	80.1	5.0	20.4
	1.0	70.0	4.4	16.0
	-1.0	255.7	16.0	
Total		1598.6	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.3293

PADDLE WEIGHT AFTER TEST (g) : 87.2106

BOND ABRASION INDEX (Ai) : *0.1187*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	HAN TRANS/FRESH
DATE	Apr-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

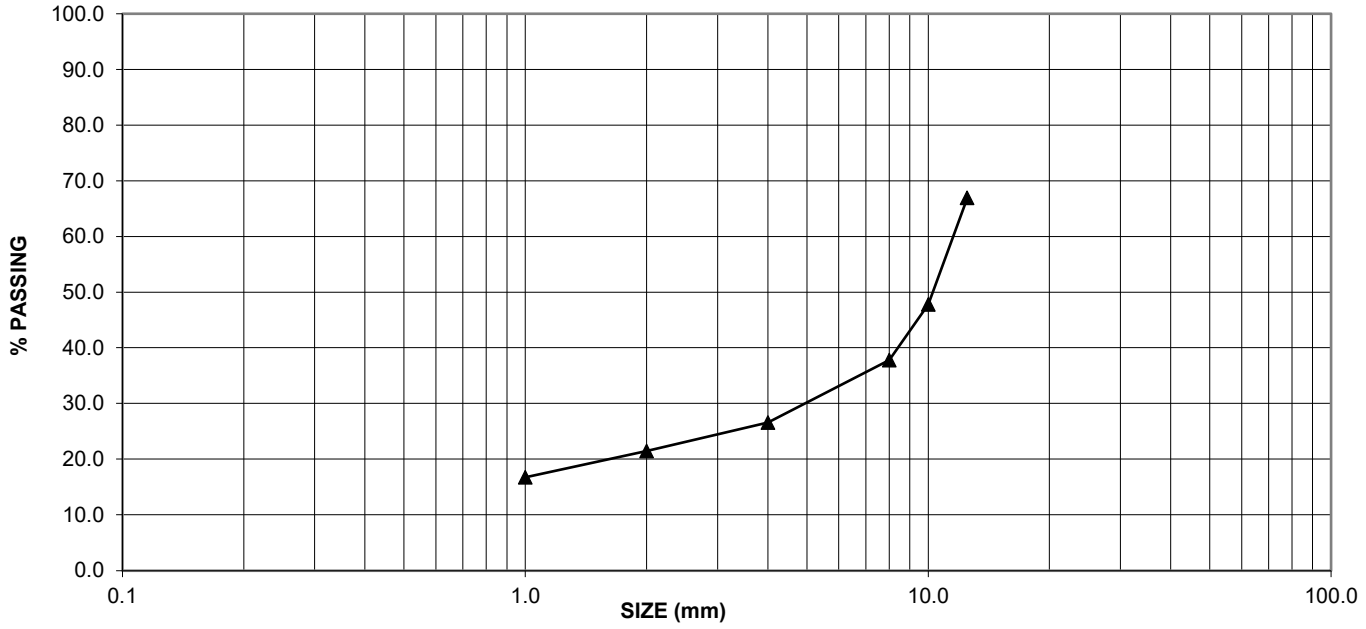
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	528.8	33.1	66.9
	10.0	306.1	19.1	47.8
	8.0	160.2	10.0	37.8
	4.0	179.7	11.2	26.5
	2.0	81.3	5.1	21.5
	1.0	75.3	4.7	16.8
	-1.0	268.0	16.8	
Total		1599.4	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.7088

PADDLE WEIGHT AFTER TEST (g) : 87.5408

BOND ABRASION INDEX (Ai) : *0.1680*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	HAN FRESH#1
DATE	Apr-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

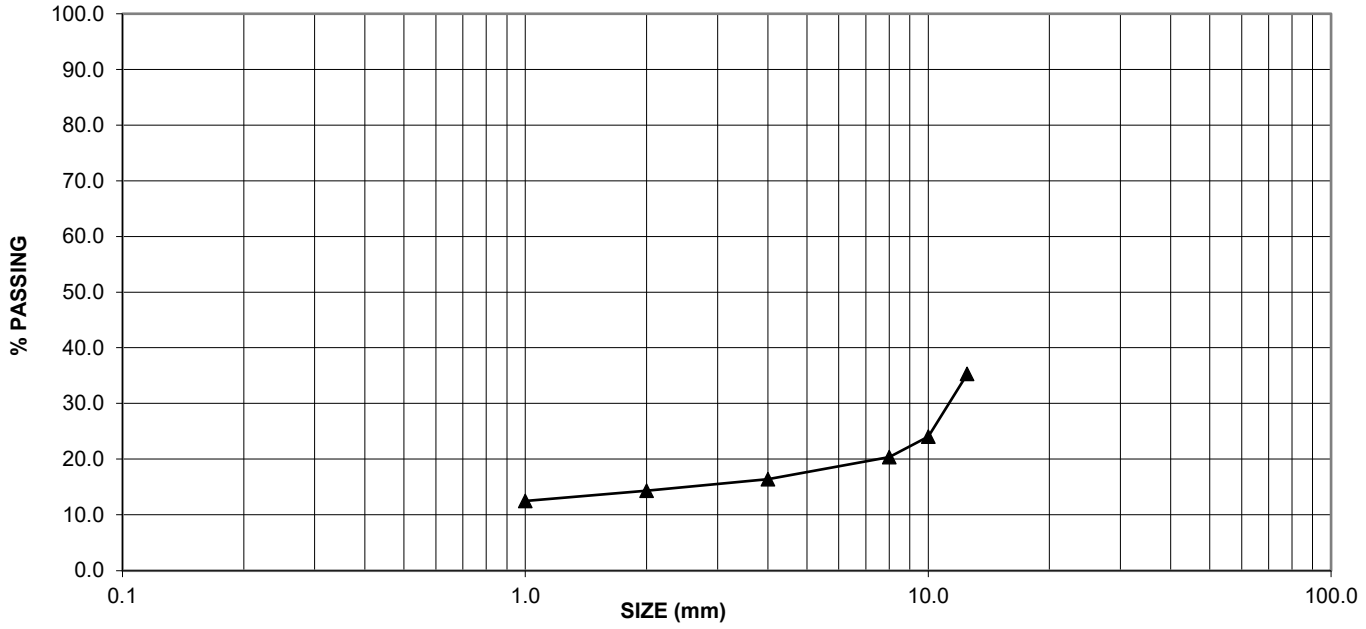
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	1034.1	64.7	35.3
	10.0	180.1	11.3	24.1
	8.0	58.9	3.7	20.4
	4.0	63.4	4.0	16.4
	2.0	33.5	2.1	14.3
	1.0	29.0	1.8	12.5
	-1.0	200.1	12.5	
Total		1599.1	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.2246

PADDLE WEIGHT AFTER TEST (g) : 86.9735

BOND ABRASION INDEX (Ai) : *0.2511*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	HAN FRESH#2
DATE	Apr-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

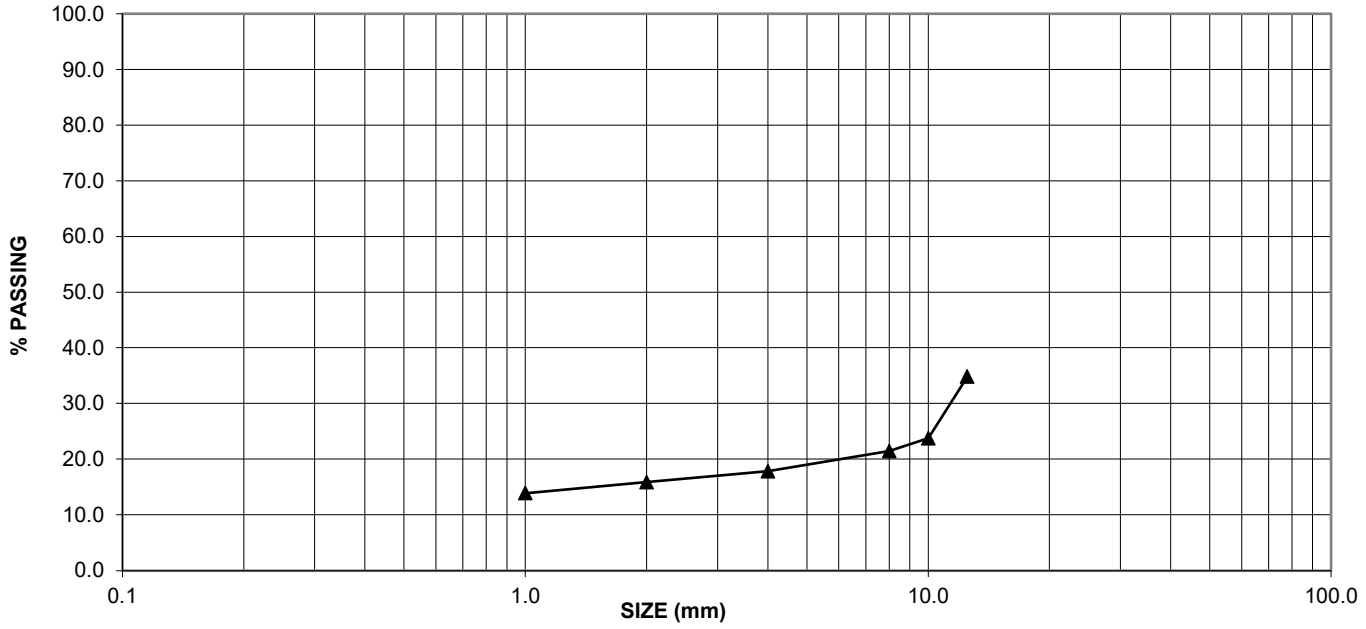
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	1041.9	65.2	34.8
	10.0	177.1	11.1	23.8
	8.0	36.6	2.3	21.5
	4.0	58.0	3.6	17.8
	2.0	31.5	2.0	15.9
	1.0	31.6	2.0	13.9
	-1.0	222.3	13.9	
Total		1599.0	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.0084

PADDLE WEIGHT AFTER TEST (g) : 86.7852

BOND ABRASION INDEX (Ai) : *0.2232*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	HAN FRESH#3
DATE	Apr-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

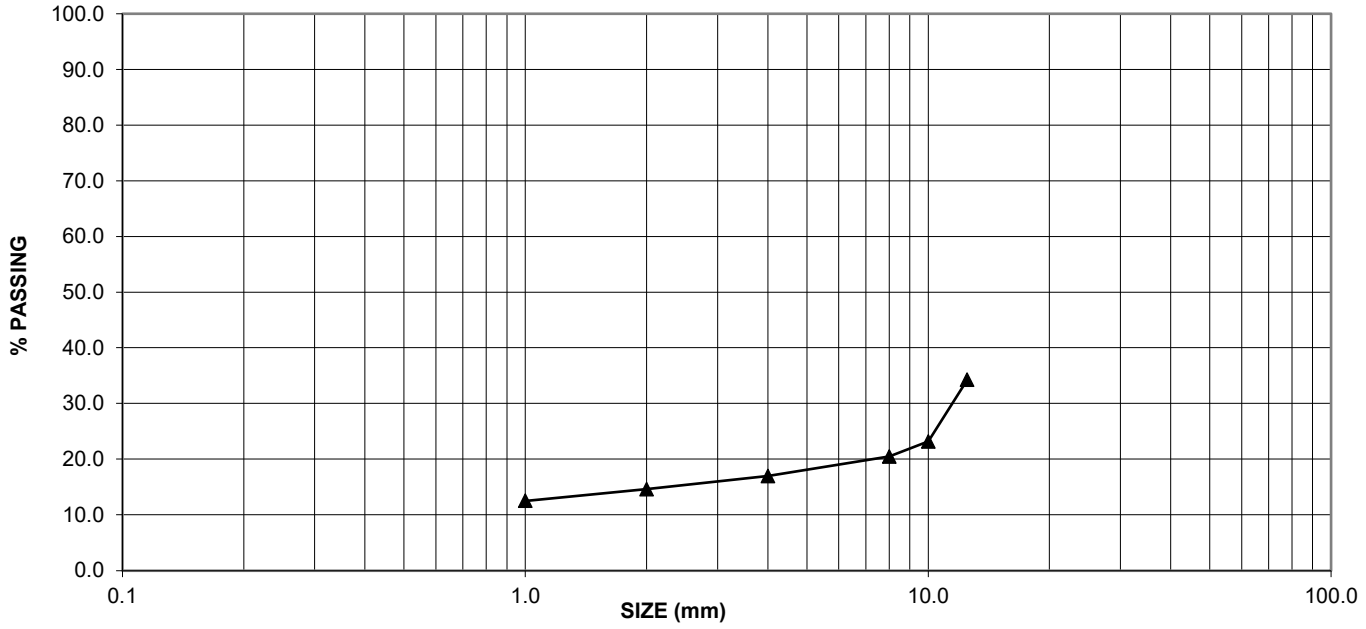
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	1050.9	65.7	34.3
	10.0	177.5	11.1	23.2
	8.0	43.9	2.7	20.5
	4.0	56.0	3.5	17.0
	2.0	37.6	2.4	14.6
	1.0	33.1	2.1	12.5
	-1.0	200.4	12.5	
Total		1599.4	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.5423

PADDLE WEIGHT AFTER TEST (g) : 87.2800

BOND ABRASION INDEX (Ai) : *0.2623*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	ENIODA FRESH#1
DATE	May-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

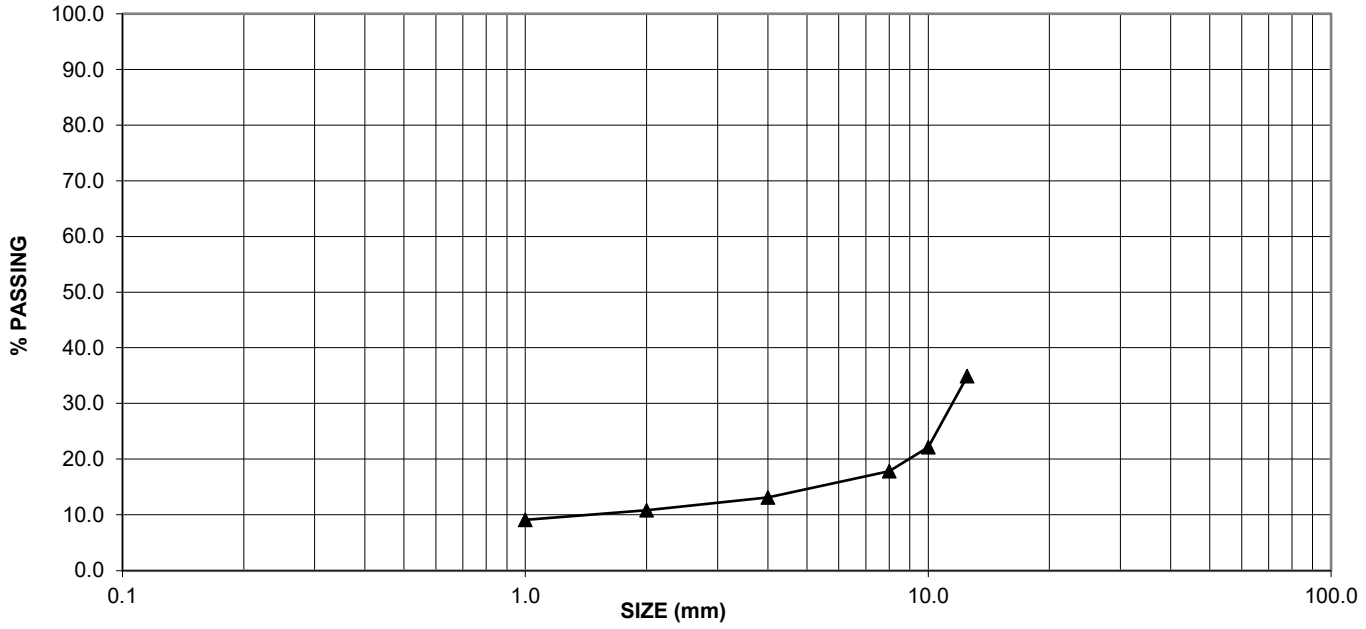
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	1040.4	65.1	34.9
	10.0	204.4	12.8	22.1
	8.0	68.3	4.3	17.8
	4.0	75.4	4.7	13.1
	2.0	36.8	2.3	10.8
	1.0	27.4	1.7	9.1
	-1.0	145.7	9.1	
Total		1598.4	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 86.8102

PADDLE WEIGHT AFTER TEST (g) : 86.5660

BOND ABRASION INDEX (Ai) : *0.2442*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	ENIODA FRESH#2
DATE	May-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

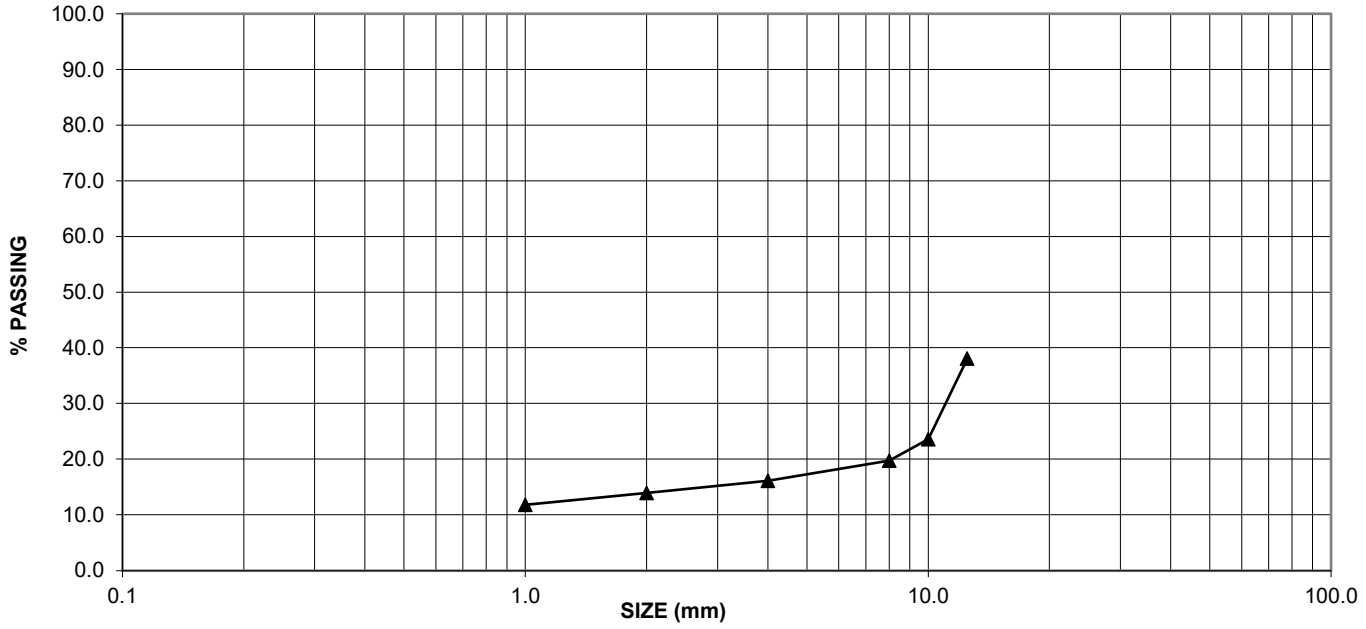
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	990.1	61.9	38.1
	10.0	231.7	14.5	23.6
	8.0	61.4	3.8	19.7
	4.0	58.0	3.6	16.1
	2.0	35.5	2.2	13.9
	1.0	33.2	2.1	11.8
	-1.0	189.0	11.8	
Total		1598.9	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.9661

PADDLE WEIGHT AFTER TEST (g) : 87.8110

BOND ABRASION INDEX (Ai) : *0.1551*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	ENIODA OXIDE#1
DATE	May-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

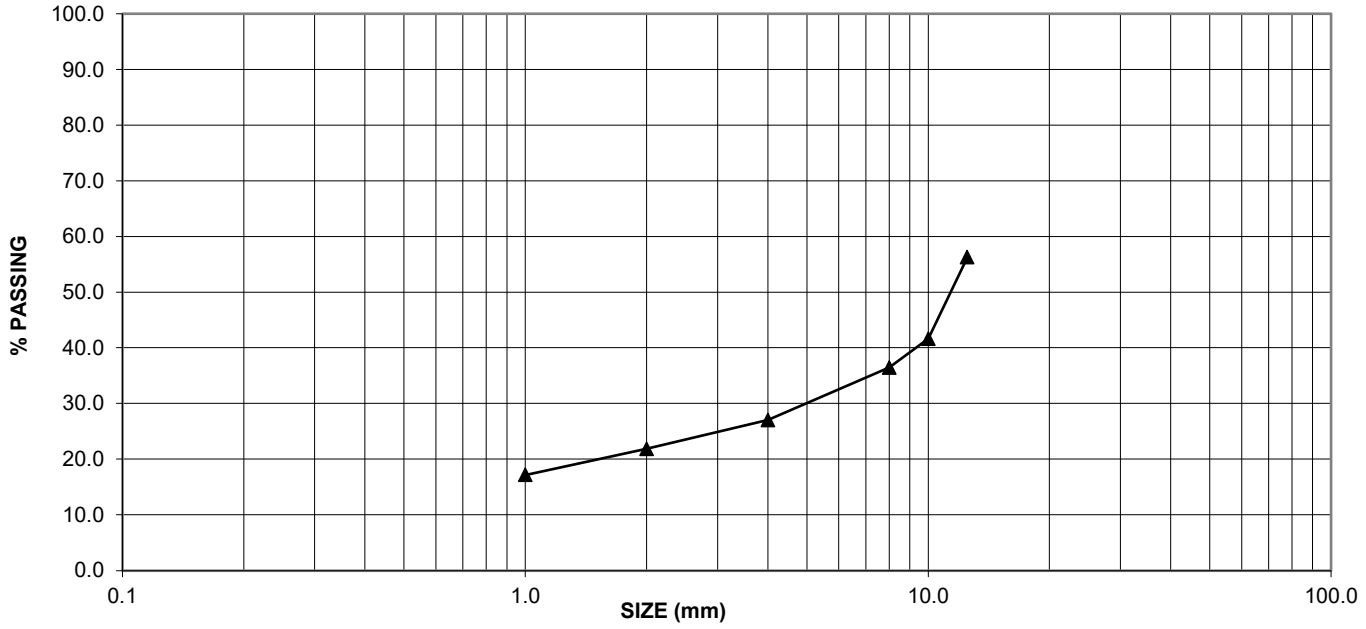
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	698.6	43.7	56.3
	10.0	233.6	14.6	41.7
	8.0	83.0	5.2	36.5
	4.0	150.4	9.4	27.1
	2.0	83.5	5.2	21.8
	1.0	74.3	4.6	17.2
	-1.0	274.6	17.2	
Total		1598.0	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 86.2978

PADDLE WEIGHT AFTER TEST (g) : 85.9381

BOND ABRASION INDEX (Ai) : *0.3597*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	ATIRRE FRESH#1
DATE	May-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

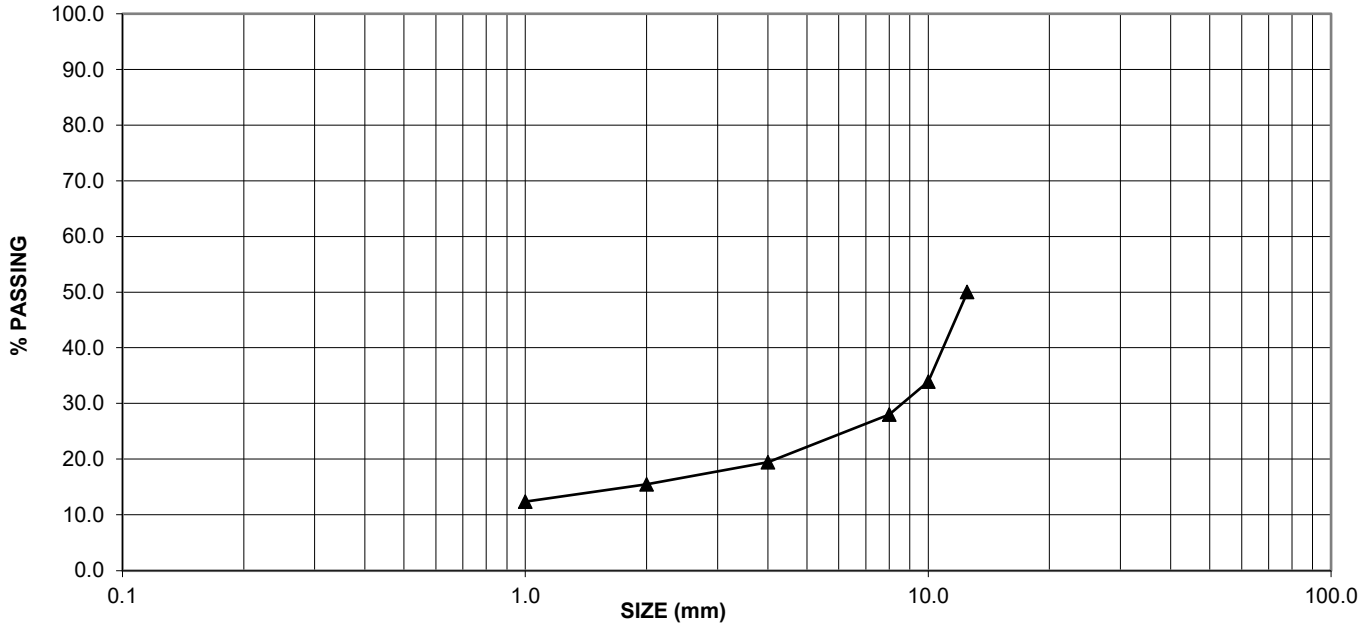
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	799.1	50.0	50.0
	10.0	257.2	16.1	33.9
	8.0	94.9	5.9	28.0
	4.0	136.7	8.5	19.5
	2.0	63.5	4.0	15.5
	1.0	49.6	3.1	12.4
	-1.0	198.1	12.4	
Total		1599.1	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.4798

PADDLE WEIGHT AFTER TEST (g) : 87.3577

BOND ABRASION INDEX (Ai) : *0.1221*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	ATIRRE FRESH#2
DATE	May-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

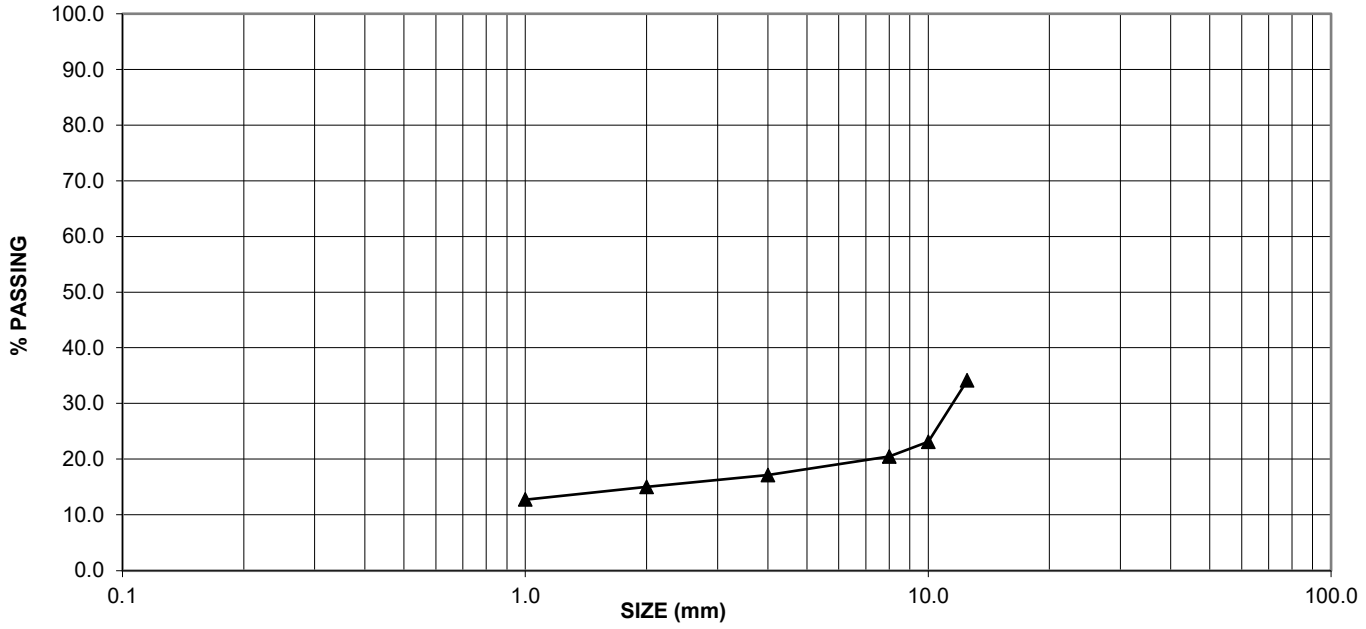
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	1052.4	65.8	34.2
	10.0	176.5	11.0	23.1
	8.0	42.7	2.7	20.5
	4.0	53.6	3.4	17.1
	2.0	33.9	2.1	15.0
	1.0	35.8	2.2	12.8
	-1.0	204.1	12.8	
Total		1599.0	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 88.7558

PADDLE WEIGHT AFTER TEST (g) : 88.6395

BOND ABRASION INDEX (Ai) : *0.1163*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	ATIRRE TRANS
DATE	May-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

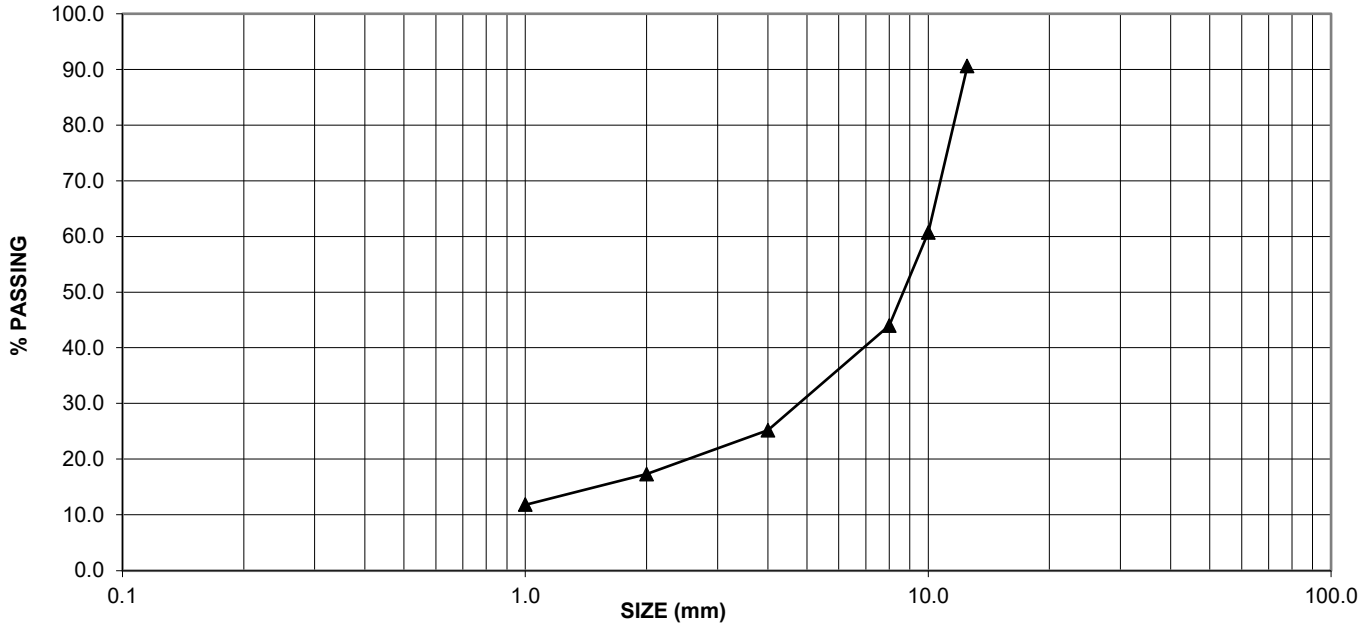
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	149.9	9.4	90.6
	10.0	478.0	29.9	60.7
	8.0	267.4	16.7	44.0
	4.0	300.0	18.8	25.2
	2.0	125.5	7.9	17.3
	1.0	87.9	5.5	11.8
	-1.0	189.1	11.8	
Total		1597.8	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.2577

PADDLE WEIGHT AFTER TEST (g) : 87.1859

BOND ABRASION INDEX (Ai) : *0.0718*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	KILOSEGUI FRESH #1
DATE	May-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

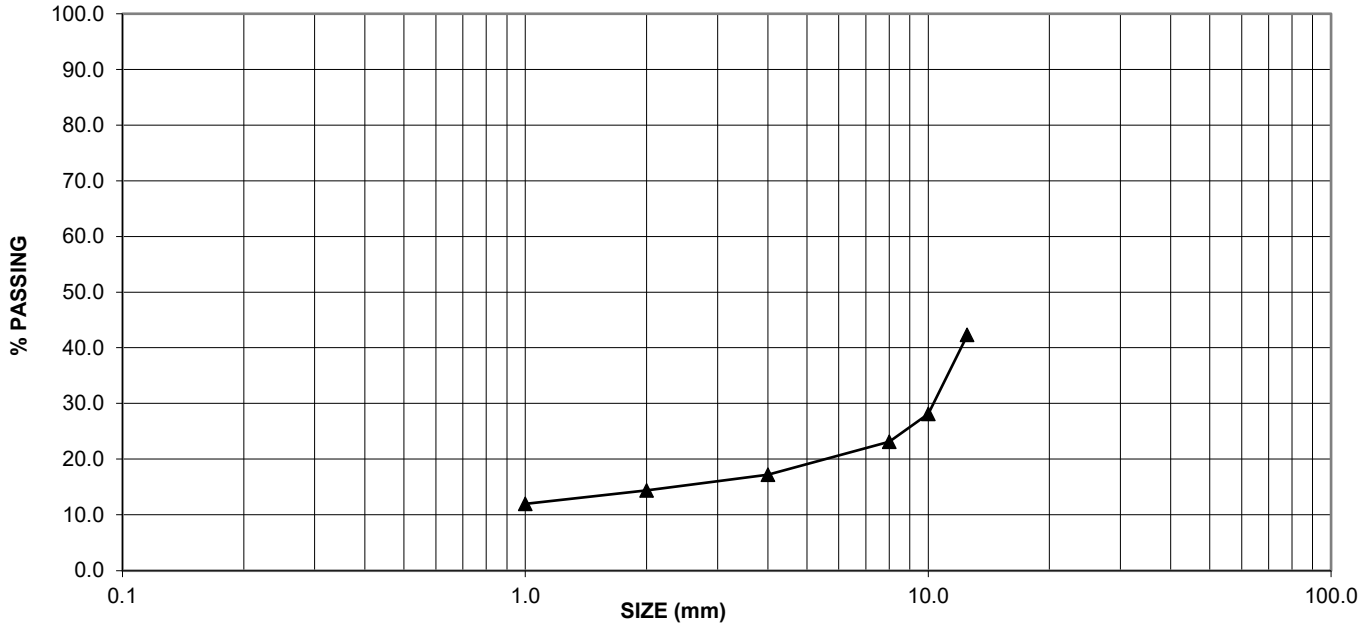
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	926.3	57.7	42.3
	10.0	228.0	14.2	28.1
	8.0	80.6	5.0	23.1
	4.0	95.1	5.9	17.2
	2.0	44.8	2.8	14.4
	1.0	38.5	2.4	12.0
	-1.0	192.5	12.0	
Total		1605.8	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.0566

PADDLE WEIGHT AFTER TEST (g) : 86.7414

BOND ABRASION INDEX (Ai) : *0.3152*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	KILOSEGUI FRESH #2
DATE	May-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

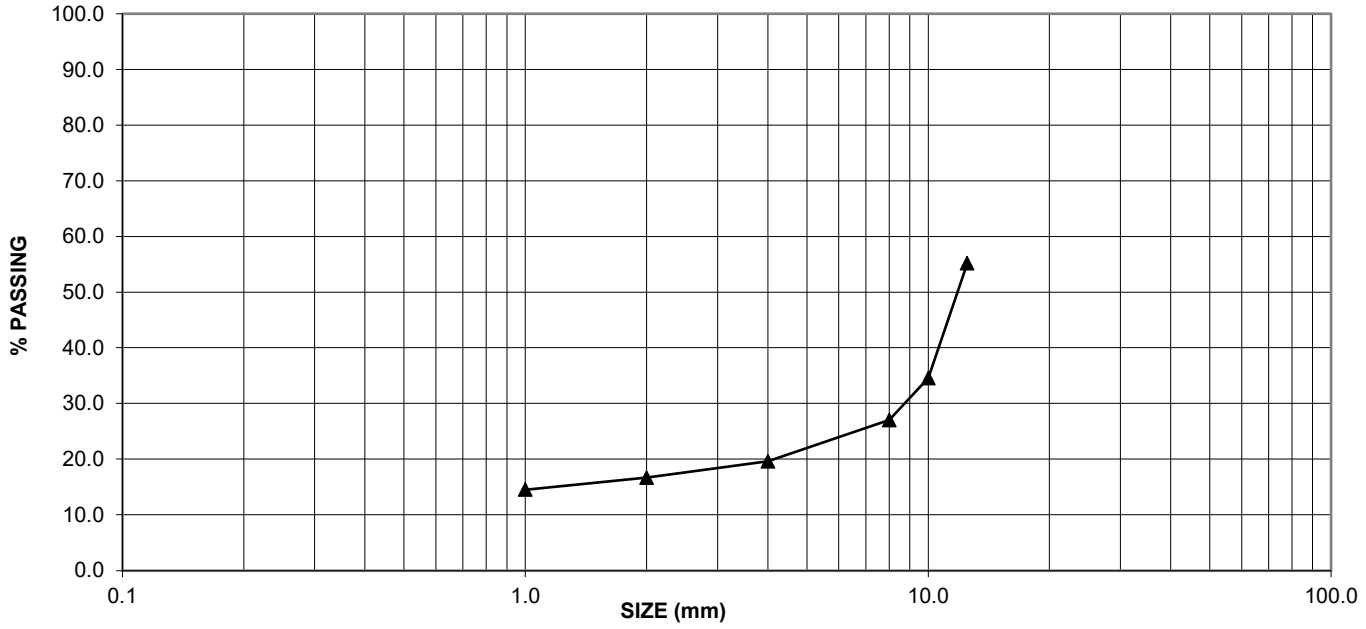
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	715.7	44.8	55.2
	10.0	330.4	20.7	34.6
	8.0	120.6	7.5	27.0
	4.0	118.6	7.4	19.6
	2.0	46.4	2.9	16.7
	1.0	34.4	2.2	14.5
	-1.0	232.6	14.5	
Total		1598.7	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.5904

PADDLE WEIGHT AFTER TEST (g) : 87.2811

BOND ABRASION INDEX (Ai) : *0.3093*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	KILOSEGUI FRESH #3
DATE	May-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

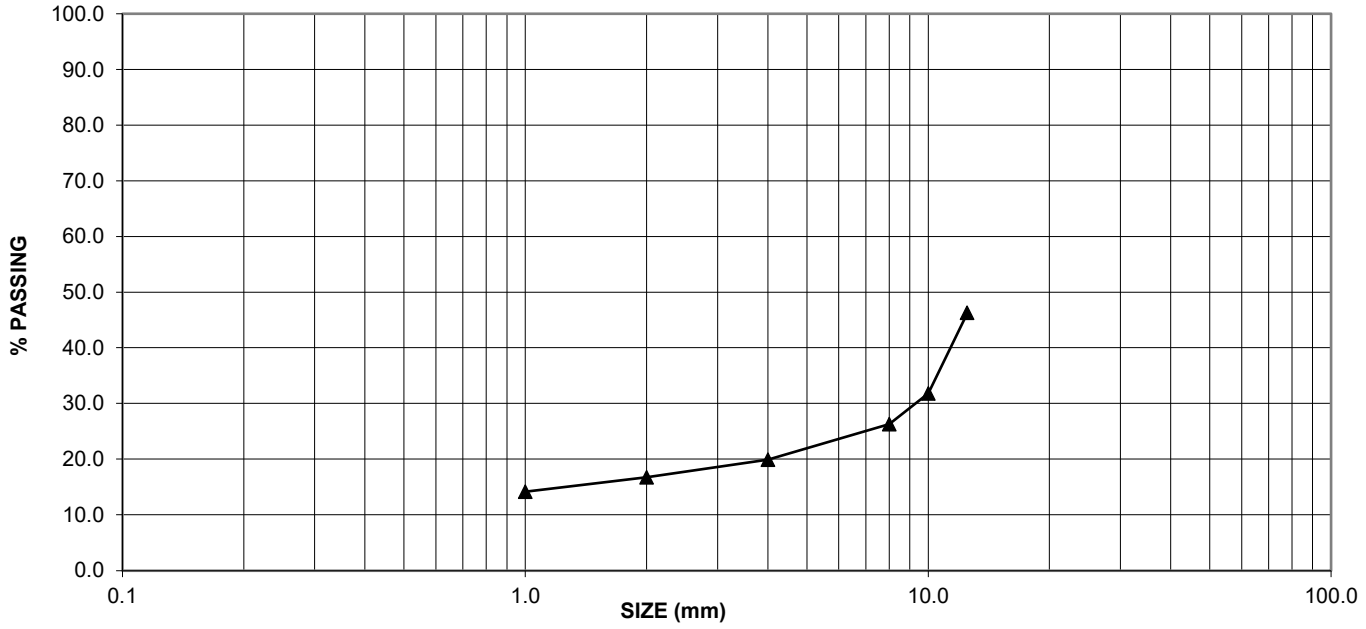
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	859.4	53.7	46.3
	10.0	231.8	14.5	31.8
	8.0	88.4	5.5	26.3
	4.0	101.8	6.4	19.9
	2.0	50.9	3.2	16.7
	1.0	40.9	2.6	14.2
	-1.0	226.7	14.2	
Total		1599.9	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 88.6344

PADDLE WEIGHT AFTER TEST (g) : 88.4514

BOND ABRASION INDEX (Ai) : *0.1830*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	KILOSEGUI FRESH #4
DATE	May-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

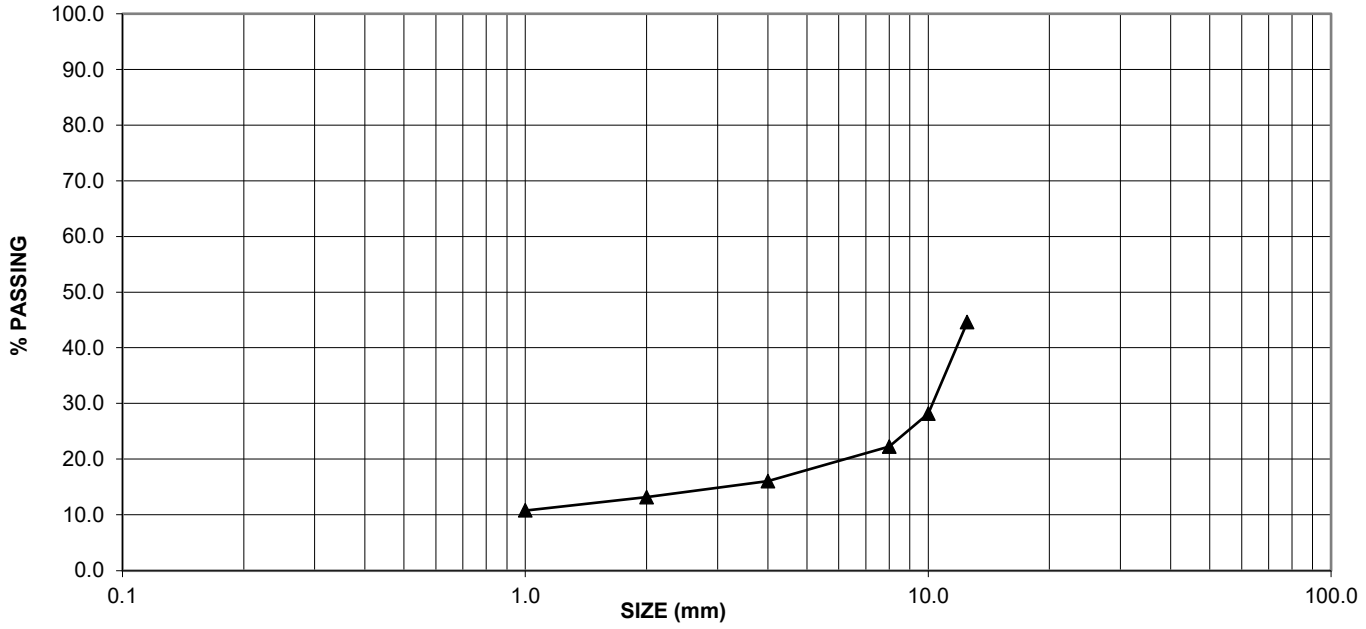
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	886.2	55.3	44.7
	10.0	263.7	16.5	28.2
	8.0	94.9	5.9	22.3
	4.0	99.6	6.2	16.0
	2.0	45.5	2.8	13.2
	1.0	38.4	2.4	10.8
	-1.0	172.9	10.8	
Total		1601.2	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.3899

PADDLE WEIGHT AFTER TEST (g) : 87.1972

BOND ABRASION INDEX (Ai) : *0.1927*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	KILOSEGUI TRANSITION #1
DATE	May-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

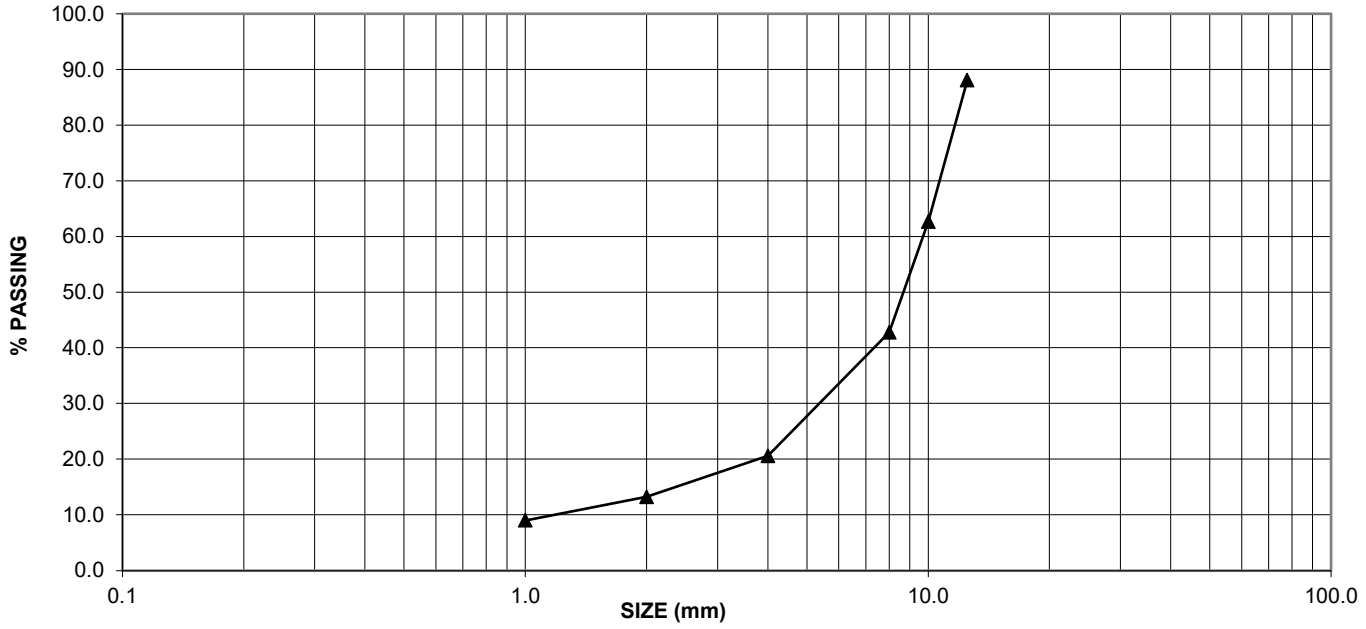
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	189.8	11.9	88.1
	10.0	406.0	25.4	62.7
	8.0	317.4	19.9	42.8
	4.0	353.3	22.1	20.6
	2.0	117.4	7.4	13.3
	1.0	67.8	4.2	9.0
	-1.0	143.8	9.0	
Total		1595.5	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.3176

PADDLE WEIGHT AFTER TEST (g) : 87.2554

BOND ABRASION INDEX (Ai) : *0.0622*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	KEKEDA FRESH #4
DATE	Dec-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

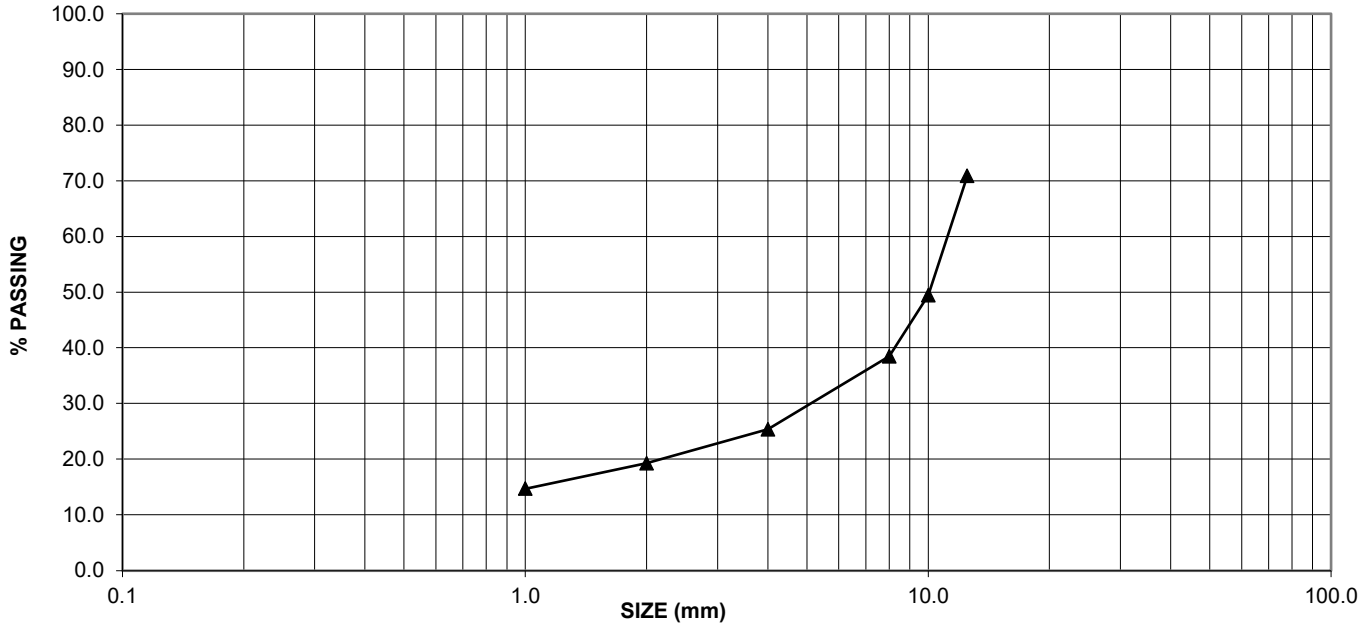
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	464.4	29.1	70.9
	10.0	343.1	21.5	49.5
	8.0	175.0	11.0	38.5
	4.0	209.4	13.1	25.4
	2.0	97.9	6.1	19.3
	1.0	72.5	4.5	14.7
	-1.0	235.2	14.7	
Total		1597.5	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 86.4880

PADDLE WEIGHT AFTER TEST (g) : 86.3252

BOND ABRASION INDEX (Ai) : *0.1628*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	NOKPA FRESH #3
DATE	Dec-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

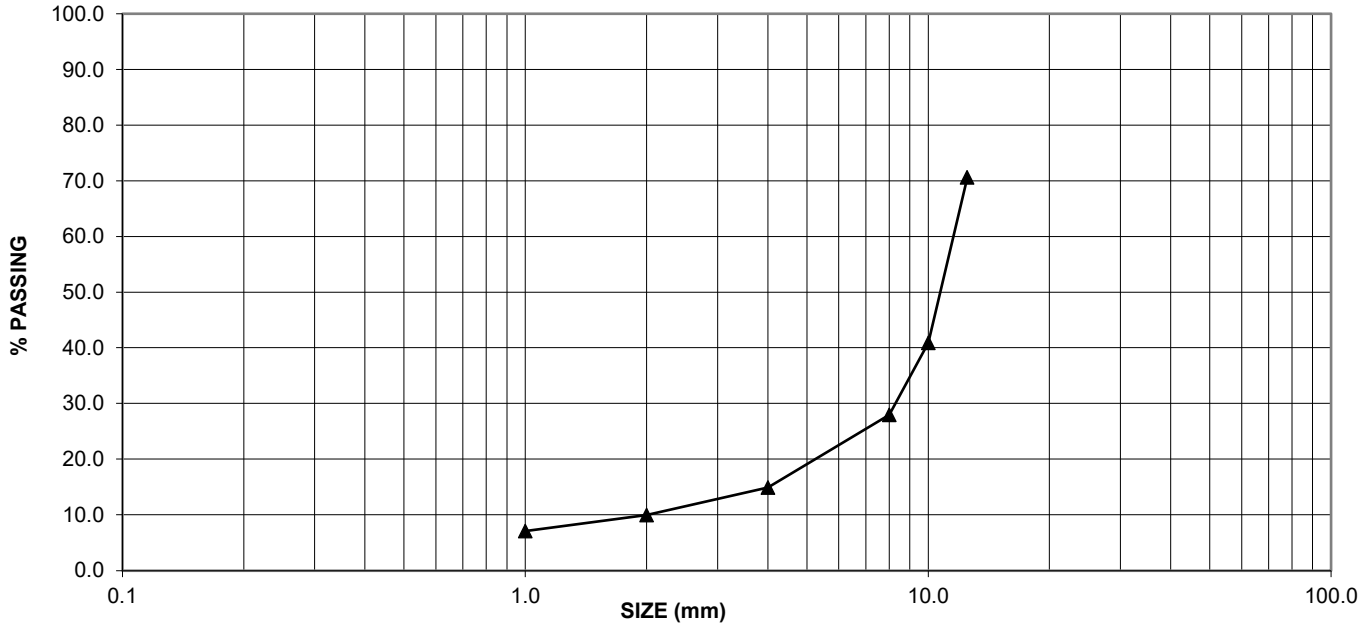
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	469.3	29.4	70.6
	10.0	475.1	29.7	40.9
	8.0	207.2	13.0	27.9
	4.0	208.4	13.0	14.9
	2.0	78.8	4.9	10.0
	1.0	45.7	2.9	7.1
	-1.0	113.3	7.1	
Total		1597.8	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 86.5219

PADDLE WEIGHT AFTER TEST (g) : 86.4092

BOND ABRASION INDEX (Ai) : *0.1127*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	CHEGUE MAIN FRESH #5
DATE	Apr-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

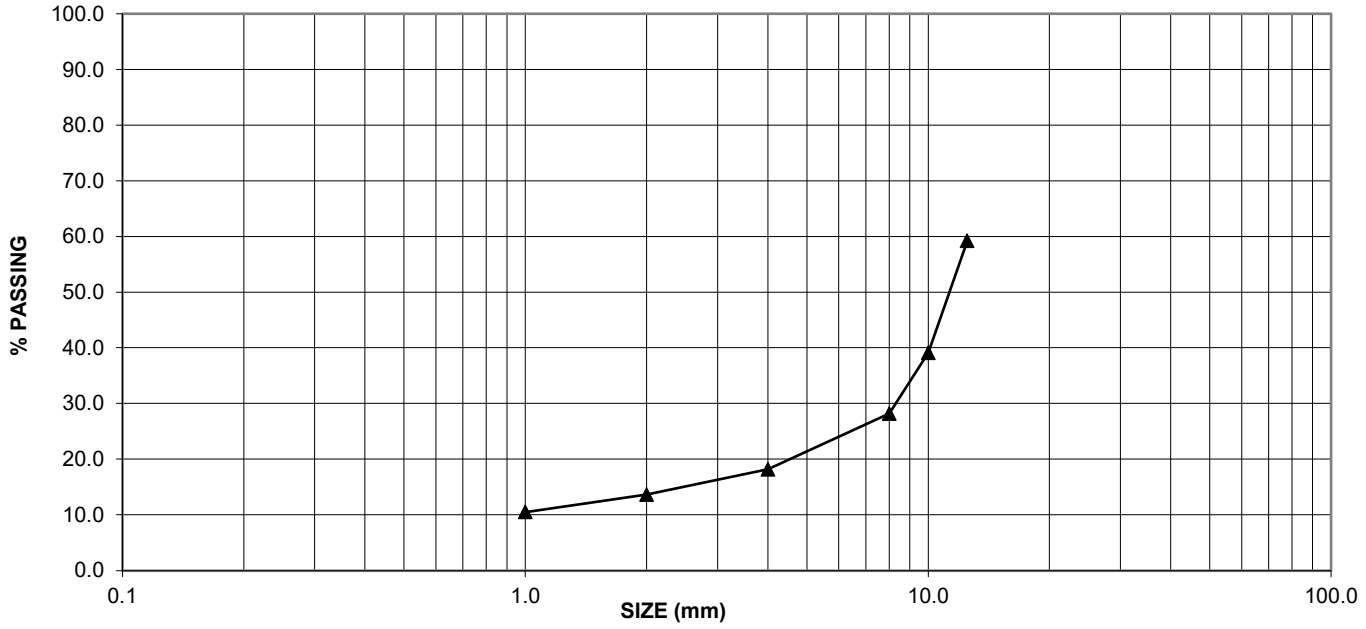
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	651.1	40.8	59.2
	10.0	321.8	20.1	39.1
	8.0	174.7	10.9	28.2
	4.0	159.1	10.0	18.2
	2.0	72.9	4.6	13.6
	1.0	49.7	3.1	10.5
	-1.0	168.2	10.5	
Total		1597.5	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.0132

PADDLE WEIGHT AFTER TEST (g) : 86.8218

BOND ABRASION INDEX (Ai) : *0.1914*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	SOUWA FRESH #4
DATE	Apr-22

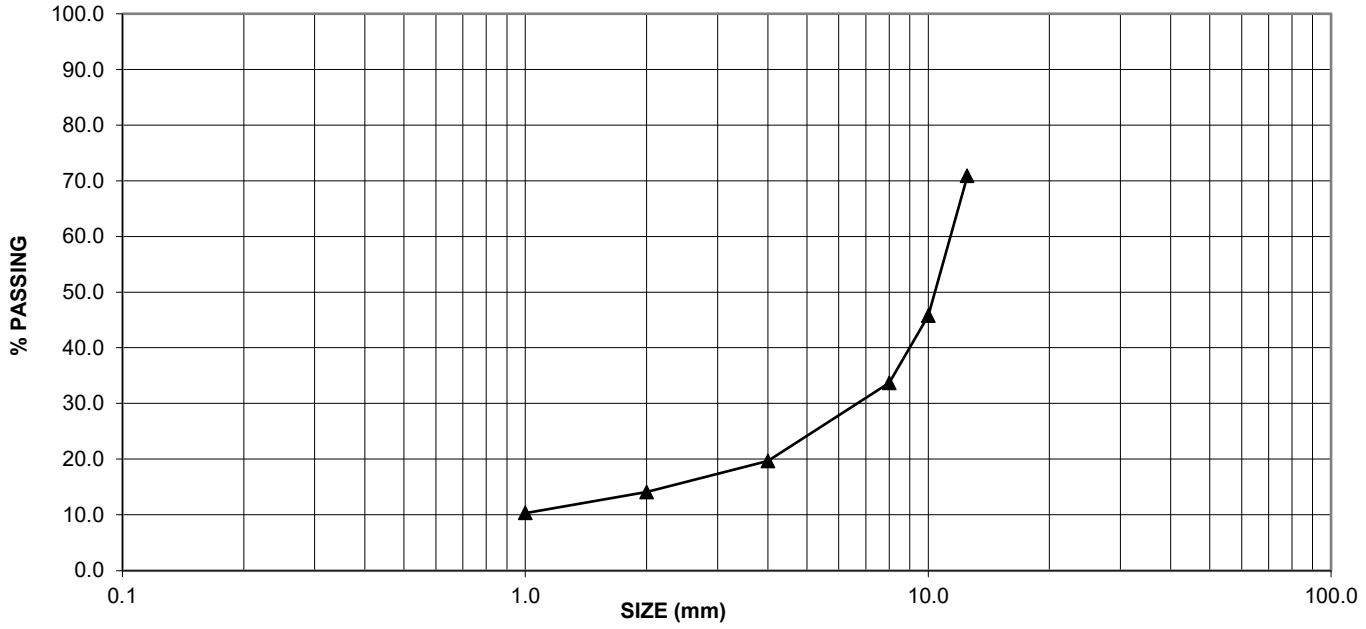
SIZE ANALYSIS : ABRASION INDEX PRODUCT

Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	465.2	29.1	70.9
	10.0	401.5	25.1	45.8
	8.0	192.3	12.0	33.7
	4.0	224.6	14.1	19.7
	2.0	88.8	5.6	14.1
	1.0	60.1	3.8	10.4
	-1.0	165.4	10.4	
Total		1597.9	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.3923
PADDLE WEIGHT AFTER TEST (g) : 87.2235

BOND ABRASION INDEX (Ai) : *0.1688*

BOND ABRASION PRODUCT SIZE ANALYSIS



BOND ABRASION INDEX DETERMINATION

PROJECT	A23136
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	SOUWA FRESH #5
DATE	Dec-22

SIZE ANALYSIS : ABRASION INDEX PRODUCT

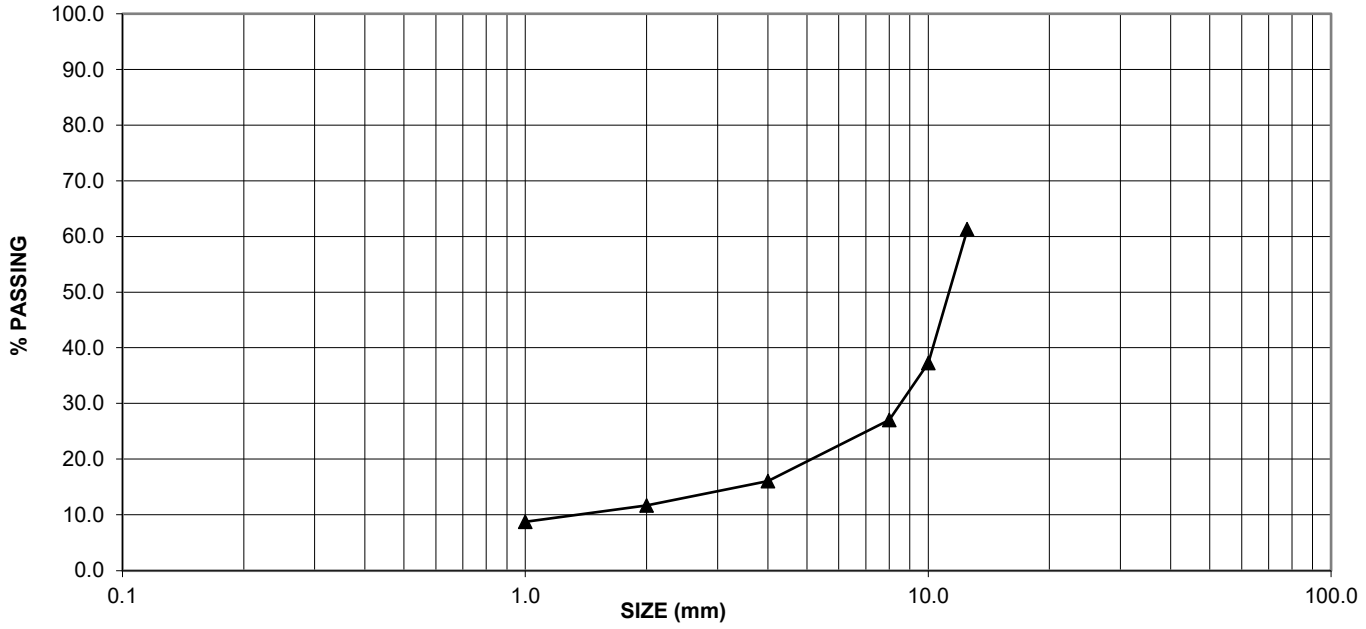
Operation	Size (mm)	Weight (g)	Weight (%)	Weight % <
Screening	12.5	618.5	38.7	61.3
	10.0	383.9	24.0	37.3
	8.0	163.5	10.2	27.0
	4.0	175.3	11.0	16.0
	2.0	70.0	4.4	11.7
	1.0	46.6	2.9	8.8
	-1.0	139.8	8.8	
Total		1597.6	100.0	

PADDLE WEIGHT BEFORE TEST (g) : 87.0351

PADDLE WEIGHT AFTER TEST (g) : 86.8903

BOND ABRASION INDEX (Ai) : *0.1448*

BOND ABRASION PRODUCT SIZE ANALYSIS



APPENDIX VI

Bond Rod Mill Work Index Determination

Details and Results

BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	NOKPA FRESH #1 (81 - 88 m)
DATE	Mar-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	2108.5	2108.5	784.1	1324.4	1076.8	7.179	59.2	1324.4	155.5
2	125	2108.5	1324.4	989.7	1118.8	963.3	7.706	88.5	1118.8	131.4
3	120	2108.5	1118.8	998.2	1110.3	978.9	8.158	89.9	1110.3	130.4
4	113	2108.5	1110.3	1054.3	1054.2	923.8	8.176	100.0	1054.2	123.8
5	114	2108.5	1054.2	1054.3	1054.2	930.4	8.162	100.0	1054.2	123.8

PRODUCT IN THE FEED	11.74	(%)
BULK DENSITY	1.6868	(t/m^3)
IDEAL POTENTIAL PRODUCT	1054.3	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	8.169	(g/rev)
80 % PASSING FEED SIZE	10134	(µm)
80 % PASSING PRODUCT SIZE	920	(µm)

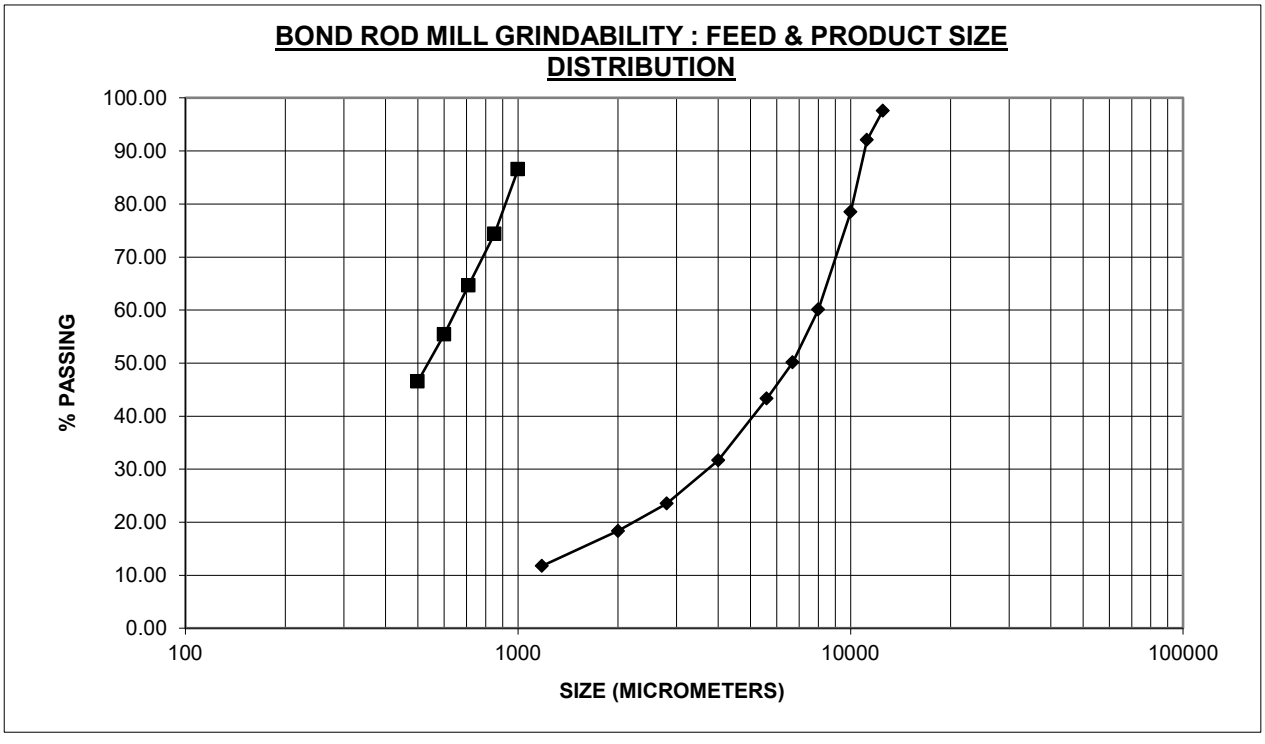
BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 15.7

BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

NOKPA FRESH #1 (81 - 88 m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	20.2	2.44	97.56
11.200	45.6	5.50	92.06
10.000	112.5	13.58	78.48
8.000	152.3	18.38	60.11
6.700	82.6	9.97	50.14
5.600	56.7	6.84	43.30
4.000	96.5	11.64	31.65
2.800	67.4	8.13	23.52
2.000	42.8	5.16	18.35
1.180	54.8	6.61	11.74
-1.180	97.3	11.74	
TOTAL	828.7	100.00	
F 80 (µm) :	10134		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	142.0	13.47	86.53
0.850	128.5	12.19	74.34
0.710	102.5	9.72	64.62
0.600	97.3	9.23	55.39
0.500	93.4	8.86	46.53
-0.500	490.6	46.53	
TOTAL	1054.3	100.00	
P 80 (µm) :	920		



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	NOKPA FRESH #2 (108 - 118 m)
DATE	Mar-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2090.0	2090.0	629.5	1460.5	1238.6	6.193	43.1	1460.5	155.1
2	144	2090.0	1460.5	907.6	1182.4	1027.3	7.134	76.8	1182.4	125.5
3	129	2090.0	1182.4	929.1	1160.9	1035.4	8.026	80.0	1160.9	123.2
4	115	2090.0	1160.9	1045.0	1045.0	921.8	8.015	100.0	1045.0	110.9
5	117	2090.0	1045.0	1045.0	1045.0	934.1	7.983	100.0	1045.0	110.9

PRODUCT IN THE FEED	10.62	(%)
BULK DENSITY	1.6720	(t/m^3)
IDEAL POTENTIAL PRODUCT	1045.0	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	7.999	(g/rev)
80 % PASSING FEED SIZE	10260	(µm)
80 % PASSING PRODUCT SIZE	936	(µm)

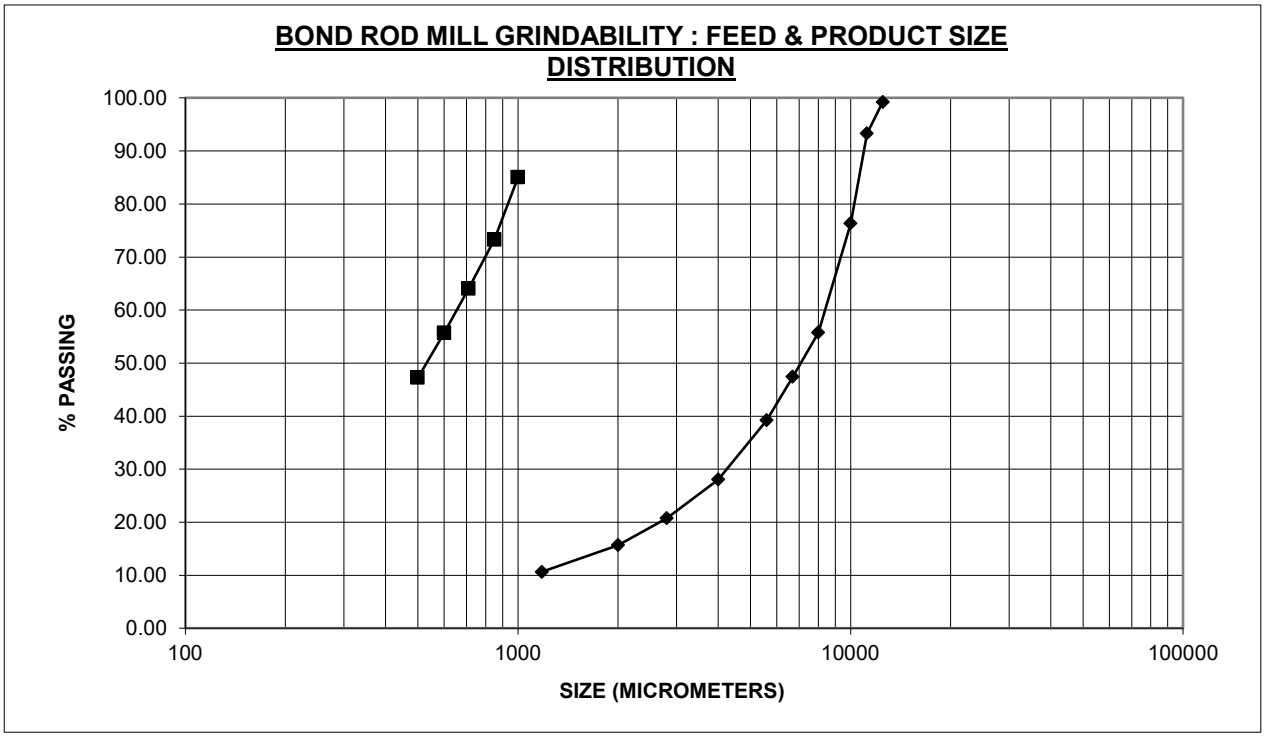
BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.0

BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

NOKPA FRESH #2 (108 - 118 m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	7.9	0.77	99.23
11.200	60.6	5.93	93.30
10.000	173.4	16.97	76.33
8.000	210.3	20.58	55.75
6.700	85.2	8.34	47.42
5.600	83.6	8.18	39.24
4.000	114.4	11.19	28.04
2.800	74.6	7.30	20.74
2.000	51.7	5.06	15.68
1.180	51.8	5.07	10.62
-1.180	108.5	10.62	
TOTAL	1022.0	100.00	
F 80 (µm) :	10260		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	156.4	14.97	85.03
0.850	122.9	11.76	73.27
0.710	96.9	9.27	64.00
0.600	87.0	8.33	55.67
0.500	88.3	8.45	47.22
-0.500	493.5	47.22	
TOTAL	1045.0	100.00	
P 80 (µm) :	936		



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	NOKPA TRANSITION (12.5 - 21.5 m)
DATE	Mar-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	1968.4	1968.4	594.3	1374.1	997.5	6.650	43.3	1374.1	262.9
2	108	1968.4	1374.1	889.2	1079.2	816.3	7.558	82.4	1079.2	206.5
3	103	1968.4	1079.2	960.2	1008.2	801.7	7.784	95.2	1008.2	192.9
4	102	1968.4	1008.2	984.2	984.2	791.3	7.758	100.0	984.2	188.3
5	103	1968.4	984.2	984.2	984.2	795.9	7.727	100.0	984.2	188.3

PRODUCT IN THE FEED	19.13	(%)
BULK DENSITY	1.5747	(t/m^3)
IDEAL POTENTIAL PRODUCT	984.2	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	7.742	(g/rev)
80 % PASSING FEED SIZE	10493	(µm)
80 % PASSING PRODUCT SIZE	901	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 15.9

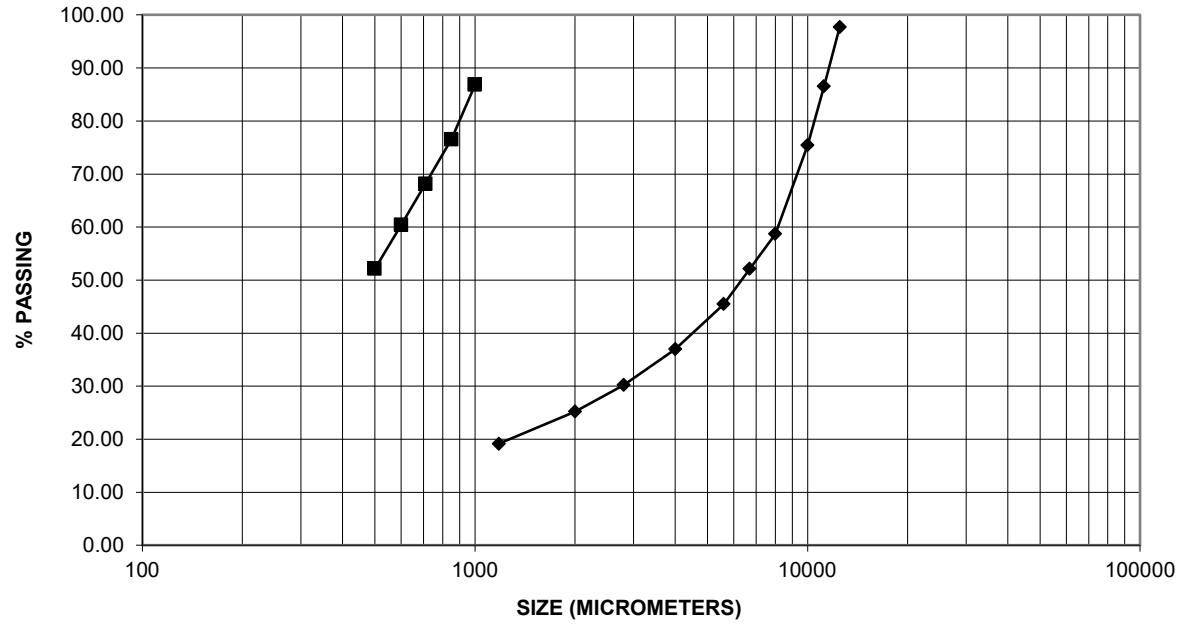
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

NOKPA TRANSITION (12.5 - 21.5 m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	18.5	2.28	97.72
11.200	91.0	11.20	86.52
10.000	89.9	11.07	75.45
8.000	136.1	16.76	58.69
6.700	53.3	6.56	52.13
5.600	54.0	6.65	45.48
4.000	69.3	8.53	36.95
2.800	54.7	6.73	30.21
2.000	40.5	4.99	25.23
1.180	49.5	6.09	19.13
-1.180	155.4	19.13	
TOTAL	812.2	100.00	
F 80 (µm) :	10493		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	129.7	13.18	86.82
0.850	101.3	10.29	76.53
0.710	82.5	8.38	68.15
0.600	76.3	7.75	60.39
0.500	81.5	8.28	52.11
-0.500	512.9	52.11	
TOTAL	984.2	100.00	
P 80 (µm) :	901		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	SOUWA FRESH #2 (133 - 143m)
DATE	Mar-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	2183.6	2183.6	1135.2	1048.4	819.1	5.460	108.3	1048.4	110.1
2	180	2183.6	1048.4	1010.1	1173.5	1063.4	5.908	86.1	1173.5	123.2
3	164	2183.6	1173.5	1042.0	1141.6	1018.4	6.209	91.3	1141.6	119.9
4	157	2183.6	1141.6	1091.8	1091.8	971.9	6.190	100.0	1091.8	114.7
5	158	2183.6	1091.8	1091.8	1091.8	977.1	6.184	100.0	1091.8	114.7

PRODUCT IN THE FEED	10.50	(%)
BULK DENSITY	1.7469	(t/m^3)
IDEAL POTENTIAL PRODUCT	1091.8	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	6.187	(g/rev)
80 % PASSING FEED SIZE	10824	(µm)
80 % PASSING PRODUCT SIZE	882	(µm)

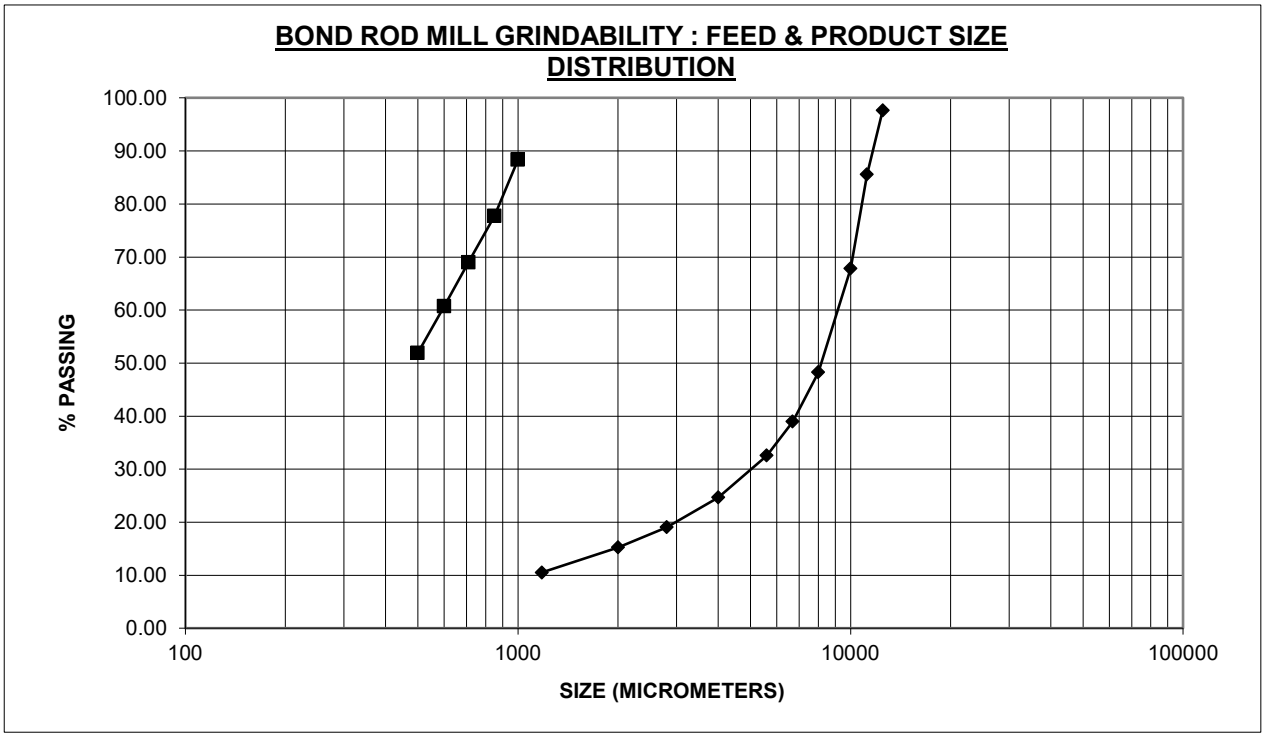
BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.9

BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

SOUWA FRESH #2 (133 - 143m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	24.4	2.34	97.66
11.200	125.9	12.10	85.56
10.000	184.4	17.72	67.84
8.000	203.8	19.58	48.26
6.700	96.8	9.30	38.95
5.600	66.6	6.40	32.56
4.000	82.4	7.92	24.64
2.800	58.3	5.60	19.04
2.000	39.4	3.79	15.25
1.180	49.4	4.75	10.50
-1.180	109.3	10.50	
TOTAL	1040.7	100.00	
F 80 (µm) :	10824		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	127.0	11.63	88.37
0.850	116.3	10.65	77.72
0.710	95.3	8.73	68.99
0.600	90.5	8.29	60.70
0.500	95.9	8.78	51.91
-0.500	566.8	51.91	
TOTAL	1091.8	100.00	
P 80 (µm) :	882		



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	SOUWA OXIDE (0 - 10m)
DATE	Mar-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	10	2022.8	2022.8	954.0	1068.8	199.5	19.952	89.3	1068.8	459.3
2	28	2022.8	1068.8	971.2	1051.6	592.3	21.153	92.4	1051.6	451.9
3	26	2022.8	1051.6	1059.1	963.7	511.8	19.684	109.9	963.7	414.1
4	30	2022.8	963.7	1011.4	1011.4	597.3	19.909	100.0	1011.4	434.6
5	29	2022.8	1011.4	1011.4	1011.4	576.8	19.888	100.0	1011.4	434.6

PRODUCT IN THE FEED	42.97	(%)
BULK DENSITY	1.6182	(t/m^3)
IDEAL POTENTIAL PRODUCT	1011.4	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	19.898	(g/rev)
80 % PASSING FEED SIZE	3794	(µm)
80 % PASSING PRODUCT SIZE	886	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 11.9

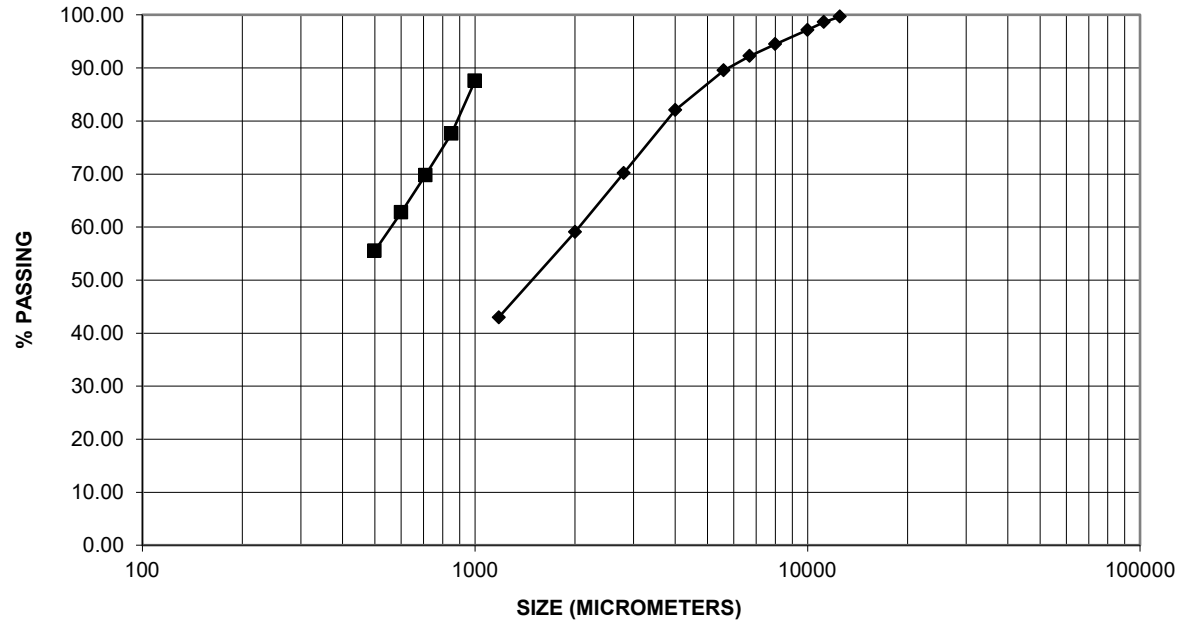
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

SOUWA OXIDE (0 - 10m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	3.5	0.33	99.67
11.200	10.9	1.01	98.66
10.000	15.9	1.48	97.18
8.000	28.9	2.69	94.49
6.700	23.9	2.22	92.27
5.600	29.4	2.74	89.53
4.000	80.5	7.49	82.04
2.800	127.4	11.86	70.18
2.000	119.5	11.12	59.06
1.180	172.9	16.09	42.97
-1.180	461.8	42.97	
TOTAL	1074.6	100.00	
F 80 (µm) :	3794		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	125.7	12.43	87.57
0.850	101.1	10.00	77.58
0.710	79.0	7.81	69.76
0.600	70.9	7.01	62.75
0.500	73.1	7.23	55.53
-0.500	561.6	55.53	
TOTAL	1011.4	100.00	
P 80 (µm) :	886		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	SOUWA TRANSITION SAPROLITE (22.5 - 32.5 m)
DATE	Mar-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	100	2148.9	2148.9	620.5	1528.4	989.7	9.897	40.6	1528.4	383.1
2	70	2148.9	1528.4	935.3	1213.6	830.5	11.864	77.1	1213.6	304.2
3	65	2148.9	1213.6	1069.5	1079.4	775.2	11.926	99.1	1079.4	270.6
4	67	2148.9	1079.4	1074.5	1074.4	803.8	11.997	100.0	1074.4	269.3
5	67	2148.9	1074.4	1074.5	1074.4	805.1	12.016	100.0	1074.4	269.3

PRODUCT IN THE FEED	25.07	(%)
BULK DENSITY	1.7191	(t/m^3)
IDEAL POTENTIAL PRODUCT	1074.5	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	12.007	(g/rev)
80 % PASSING FEED SIZE	8259	(µm)
80 % PASSING PRODUCT SIZE	902	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 12.7

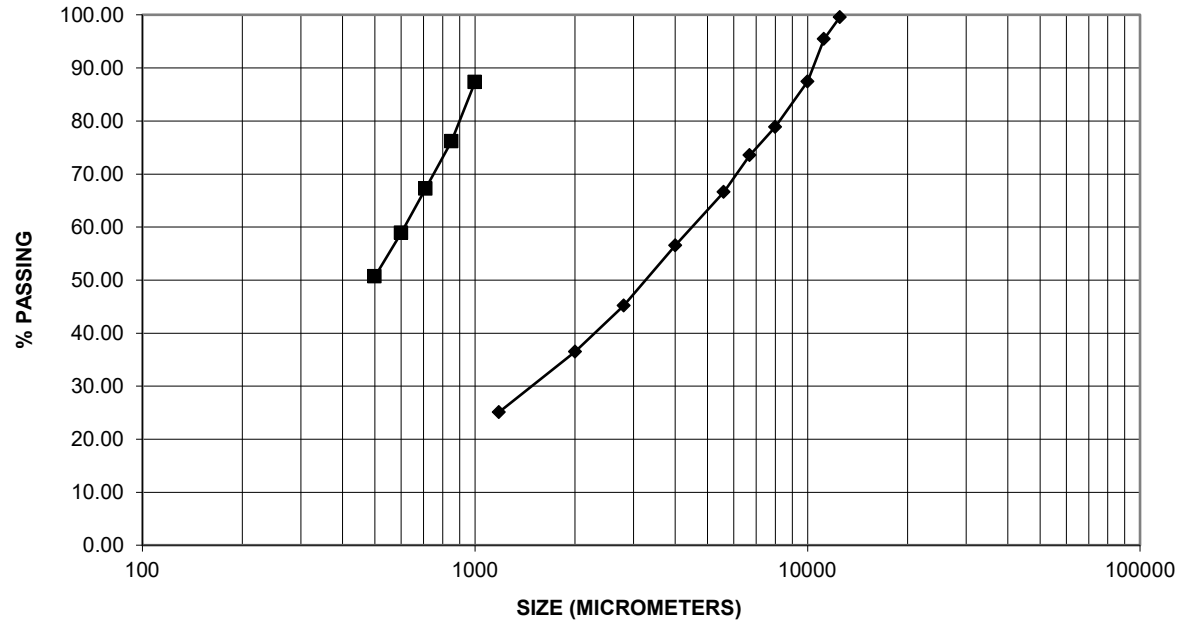
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

SOUWA TRANSITION SAPROLITE (22.5 - 32.5 m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	4.7	0.45	99.55
11.200	42.5	4.09	95.46
10.000	83.0	7.99	87.47
8.000	89.1	8.58	78.89
6.700	55.3	5.32	73.57
5.600	72.5	6.98	66.59
4.000	104.4	10.05	56.54
2.800	117.9	11.35	45.19
2.000	90.5	8.71	36.47
1.180	118.5	11.41	25.07
-1.180	260.4	25.07	
TOTAL	1038.8	100.00	
F 80 (µm) :	8259		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	136.0	12.66	87.34
0.850	120.3	11.20	76.15
0.710	96.0	8.93	67.21
0.600	89.6	8.34	58.87
0.500	88.3	8.22	50.65
-0.500	544.3	50.65	
TOTAL	1074.5	100.00	
P 80 (µm) :	902		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	SOUWA FRESH #1 (60 - 70 m)
DATE	Mar-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	2154.4	2154.4	1108.8	1045.6	825.1	5.500	106.0	1045.6	107.0
2	176	2154.4	1045.6	968.3	1186.1	1079.1	6.131	81.6	1186.1	121.4
3	156	2154.4	1186.1	1031.4	1123.0	1001.6	6.420	91.8	1123.0	115.0
4	150	2154.4	1123.0	1005.7	1148.7	1033.7	6.892	87.6	1148.7	117.6
5	139	2154.4	1148.7	1077.2	1077.2	959.6	6.904	100.0	1077.2	110.3
6	140	2154.4	1077.2	1077.2	1077.2	966.9	6.907	100.0	1077.2	110.3

PRODUCT IN THE FEED	10.24	(%)
BULK DENSITY	1.7235	(t/m^3)
IDEAL POTENTIAL PRODUCT	1077.2	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	6.905	(g/rev)
80 % PASSING FEED SIZE	10970	(µm)
80 % PASSING PRODUCT SIZE	878	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.6

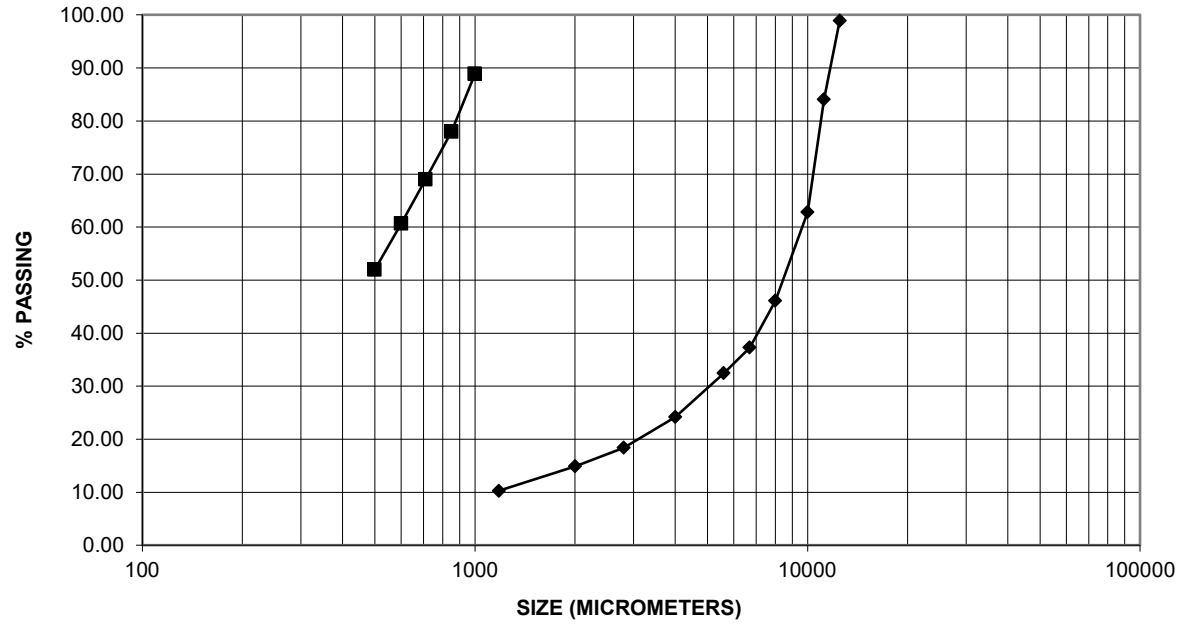
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

SOUWA FRESH #1 (60 - 70 m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	10.8	1.06	98.94
11.200	151.1	14.86	84.08
10.000	216.1	21.25	62.83
8.000	170.3	16.75	46.08
6.700	89.5	8.80	37.28
5.600	49.3	4.85	32.43
4.000	83.7	8.23	24.20
2.800	59.3	5.83	18.37
2.000	35.5	3.49	14.88
1.180	47.2	4.64	10.24
-1.180	104.1	10.24	
TOTAL	1016.9	100.00	
F 80 (µm) :	**10970**		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	119.5	11.09	88.91
0.850	118.0	10.95	77.95
0.710	96.8	8.99	68.97
0.600	89.7	8.33	60.64
0.500	93.5	8.68	51.96
-0.500	559.7	51.96	
TOTAL	1077.2	100.00	
P 80 (µm) :	**878**		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	SOUWA FRESH #3 (96 - 103 m)
DATE	Mar-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	2223.8	2223.8	1250.0	973.8	719.3	4.795	128.4	973.8	111.4
2	209	2223.8	973.8	1096.0	1127.8	1016.4	4.863	97.2	1127.8	129.1
3	202	2223.8	1127.8	1053.7	1170.1	1041.0	5.154	90.1	1170.1	133.9
4	190	2223.8	1170.1	1111.9	1111.9	978.0	5.147	100.0	1111.9	127.2
5	191	2223.8	1111.9	1111.9	1111.9	984.7	5.155	100.0	1111.9	127.2

PRODUCT IN THE FEED	11.44	(%)
BULK DENSITY	1.7790	(t/m^3)
IDEAL POTENTIAL PRODUCT	1111.9	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	5.151	(g/rev)
80 % PASSING FEED SIZE	10986	(µm)
80 % PASSING PRODUCT SIZE	807	(µm)

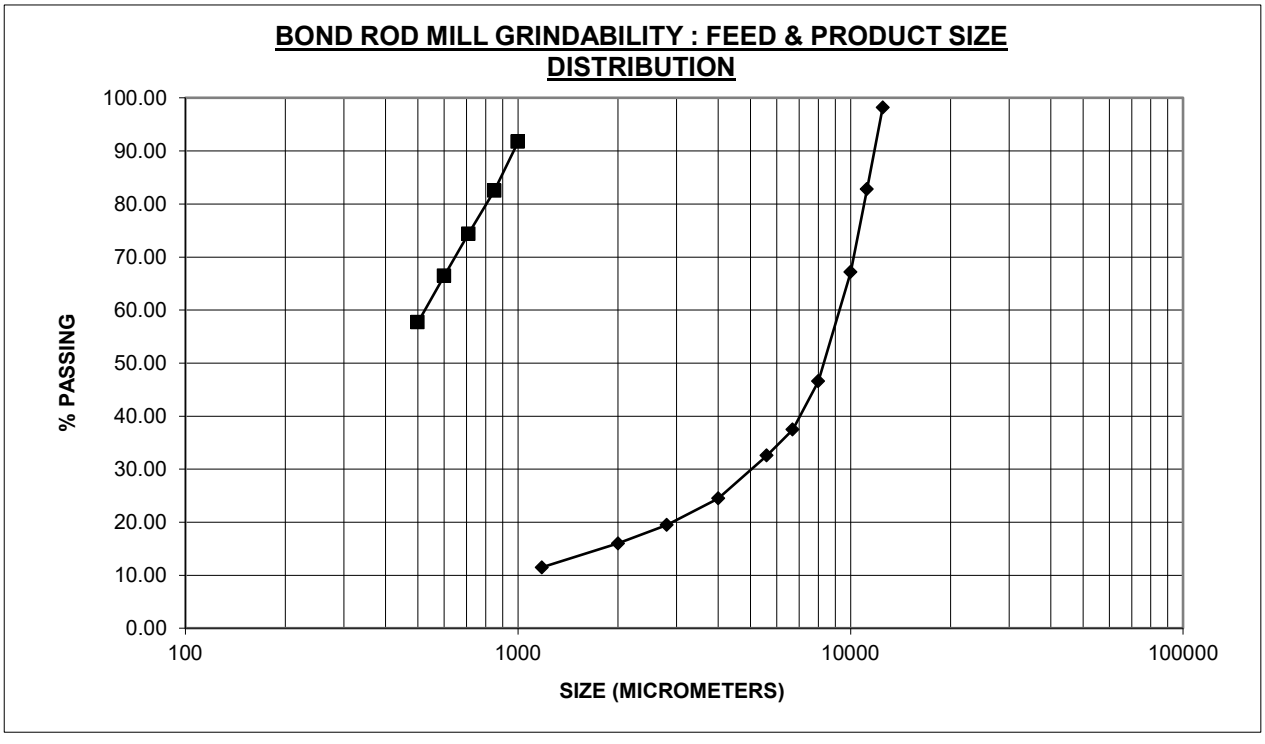
BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 18.8

BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

SOUWA FRESH #3 (96 - 103 m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	19.3	1.81	98.19
11.200	163.8	15.39	82.80
10.000	166.6	15.65	67.14
8.000	218.9	20.57	46.58
6.700	96.9	9.10	37.47
5.600	52.2	4.90	32.57
4.000	85.8	8.06	24.50
2.800	53.6	5.04	19.47
2.000	36.9	3.47	16.00
1.180	48.5	4.56	11.44
-1.180	121.8	11.44	
TOTAL	1064.3	100.00	
F 80 (µm) :	10986		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	92.2	8.29	91.71
0.850	102.3	9.20	82.51
0.710	90.6	8.15	74.36
0.600	88.3	7.94	66.42
0.500	97.4	8.76	57.66
-0.500	641.1	57.66	
TOTAL	1111.9	100.00	
P 80 (µm) :	807		



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE MAIN FRESH #1 (75 - 80 m)
DATE	Apr-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	250	2077.4	2077.4	742.0	1335.4	1153.2	4.613	55.6	1335.4	117.1
2	200	2077.4	1335.4	959.0	1118.4	1001.3	5.006	85.7	1118.4	98.1
3	188	2077.4	1118.4	938.8	1138.6	1040.5	5.535	82.5	1138.6	99.8
4	170	2077.4	1138.6	985.5	1091.9	992.1	5.836	90.3	1091.9	95.8
5	162	2077.4	1091.9	1038.7	1038.7	942.9	5.821	100.0	1038.7	91.1
6	163	2077.4	1038.7	1038.7	1038.7	947.6	5.814	100.0	1038.7	91.1

PRODUCT IN THE FEED	8.77	(%)
BULK DENSITY	1.6619	(t/m^3)
IDEAL POTENTIAL PRODUCT	1038.7	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	5.817	(g/rev)
80 % PASSING FEED SIZE	11463	(µm)
80 % PASSING PRODUCT SIZE	869	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 18.2

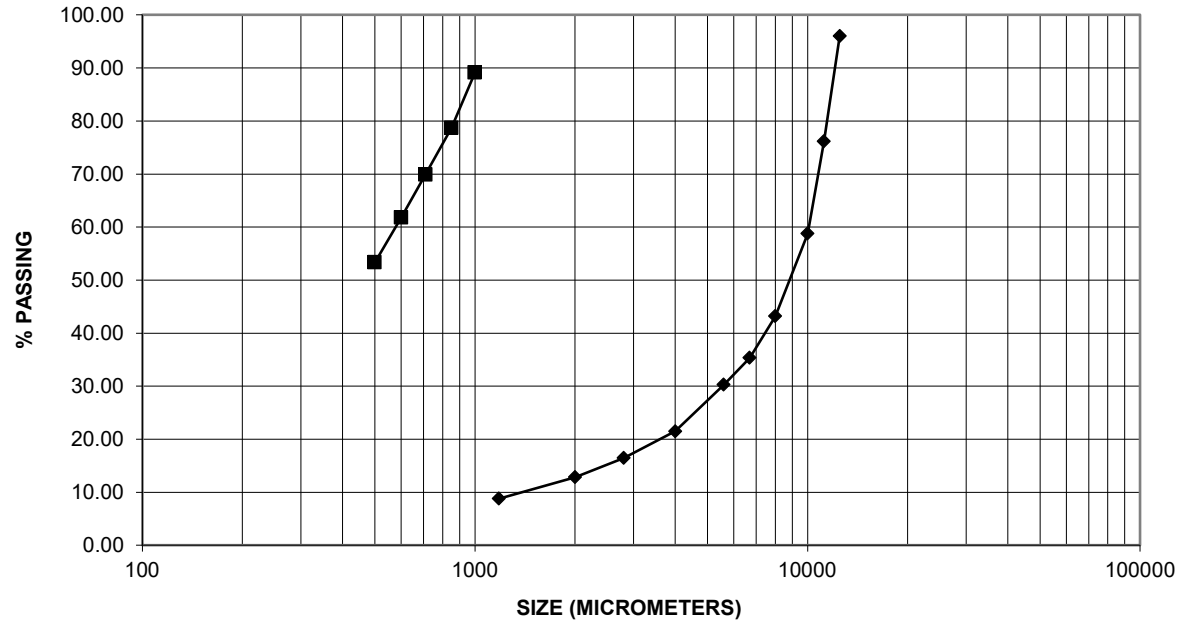
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

CHEGUE MAIN FRESH #1 (75 - 80 m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	33.3	3.98	96.02
11.200	166.1	19.84	76.18
10.000	145.9	17.43	58.75
8.000	130.2	15.56	43.19
6.700	65.6	7.84	35.35
5.600	42.4	5.07	30.29
4.000	73.6	8.79	21.49
2.800	42.2	5.04	16.45
2.000	30.3	3.62	12.83
1.180	34.0	4.06	8.77
-1.180	73.4	8.77	
TOTAL	837.0	100.00	
F 80 (µm) :	11463		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	112.9	10.87	89.13
0.850	108.6	10.46	78.68
0.710	91.2	8.78	69.90
0.600	84.3	8.12	61.78
0.500	88.0	8.47	53.31
-0.500	553.7	53.31	
TOTAL	1038.7	100.00	
P 80 (µm) :	869		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE MAIN FRESH #2 (52 - 57 m)
DATE	Mar-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2072.8	2072.8	724.0	1348.8	1147.0	5.735	53.7	1348.8	131.3
2	197	2072.8	1348.8	917.2	1155.6	1024.3	5.199	79.4	1155.6	112.5
3	178	2072.8	1155.6	929.2	1143.6	1031.1	5.793	81.3	1143.6	111.3
4	160	2072.8	1143.6	973.0	1099.8	988.5	6.178	88.5	1099.8	107.1
5	180	2072.8	1099.8	1106.5	966.3	859.2	4.774	114.5	966.3	94.1
6	165	2072.8	966.3	1036.4	1036.4	942.3	5.711	100.0	1036.4	100.9
7	164	2072.8	1036.4	1036.4	1036.4	935.5	5.704	100.0	1036.4	100.9

PRODUCT IN THE FEED	9.73	(%)
BULK DENSITY	1.6582	(t/m^3)
IDEAL POTENTIAL PRODUCT	1036.4	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	5.708	(g/rev)
80 % PASSING FEED SIZE	11128	(µm)
80 % PASSING PRODUCT SIZE	881	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 18.7

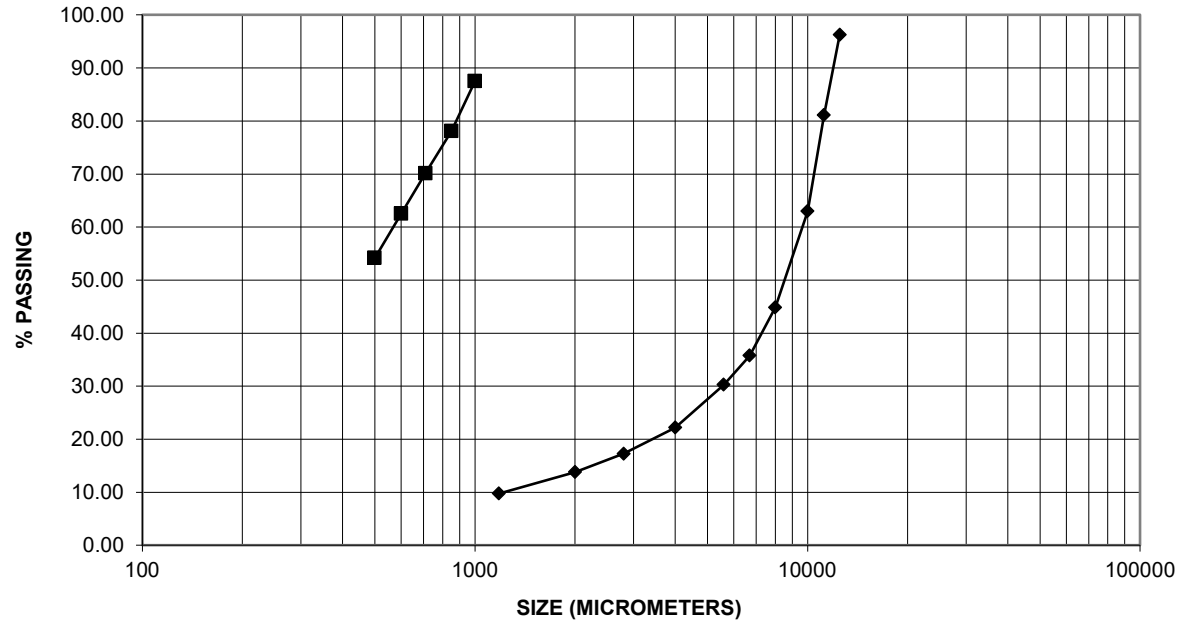
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

CHEGUE MAIN FRESH #2 (52 - 57 m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	30.1	3.75	96.25
11.200	121.9	15.17	81.08
10.000	145.2	18.08	63.00
8.000	145.8	18.15	44.85
6.700	72.9	9.08	35.78
5.600	44.3	5.51	30.26
4.000	65.0	8.09	22.17
2.800	39.4	4.90	17.27
2.000	28.0	3.49	13.78
1.180	32.5	4.05	9.73
-1.180	78.2	9.73	
TOTAL	803.3	100.00	
F 80 (µm) :	11128		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	129.4	12.49	87.51
0.850	97.8	9.44	78.08
0.710	82.3	7.94	70.14
0.600	79.3	7.65	62.49
0.500	86.3	8.33	54.16
-0.500	561.3	54.16	
TOTAL	1036.4	100.00	
P 80 (µm) :	881		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE MAIN FRESH #3 (78 - 83 m)
DATE	Mar-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	250	2057.2	2057.2	455.0	1602.2	1438.8	5.755	28.4	1602.2	127.2
2	155	2057.2	1602.2	837.6	1219.6	1092.4	7.048	68.7	1219.6	96.8
3	132	2057.2	1219.6	1052.2	1005.0	908.2	6.880	104.7	1005.0	79.8
4	138	2057.2	1005.0	1028.6	1028.6	948.8	6.875	100.0	1028.6	81.7
5	138	2057.2	1028.6	1028.6	1028.6	946.9	6.862	100.0	1028.6	81.7

PRODUCT IN THE FEED	7.94	(%)
BULK DENSITY	1.6458	(t/m^3)
IDEAL POTENTIAL PRODUCT	1028.6	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	6.869	(g/rev)
80 % PASSING FEED SIZE	11134	(µm)
80 % PASSING PRODUCT SIZE	925	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.2

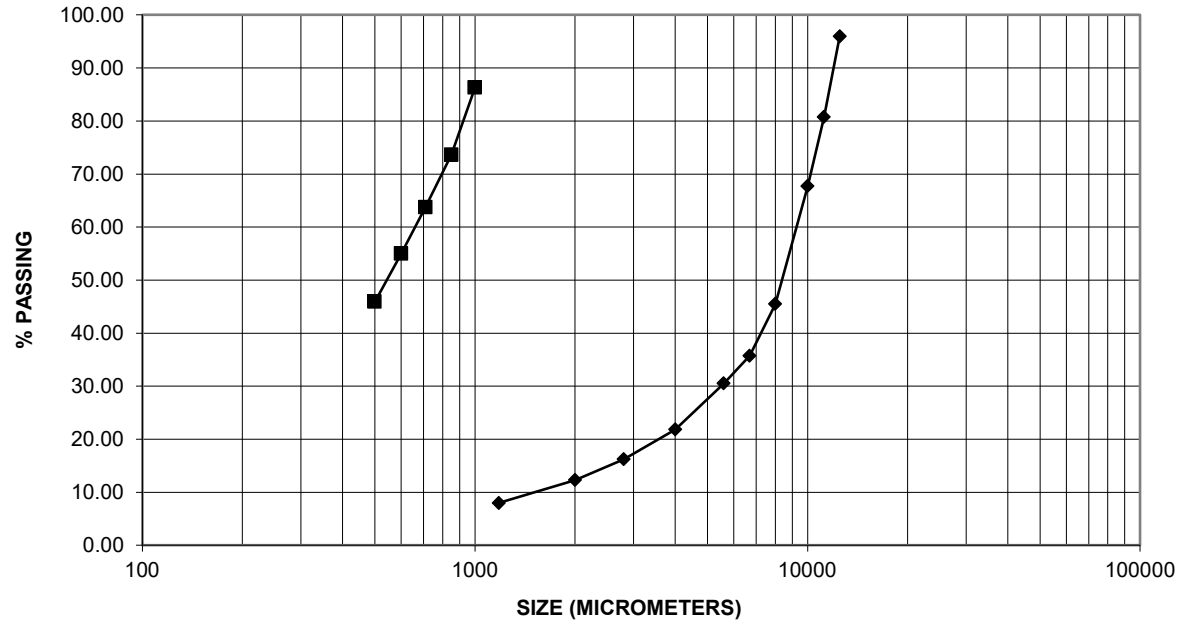
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

CHEGUE MAIN FRESH #3 (78 - 83 m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	31.7	4.03	95.97
11.200	119.8	15.25	80.72
10.000	102.4	13.03	67.69
8.000	174.6	22.22	45.47
6.700	76.5	9.74	35.73
5.600	40.9	5.20	30.53
4.000	68.6	8.73	21.80
2.800	43.8	5.57	16.23
2.000	30.8	3.92	12.31
1.180	34.3	4.36	7.94
-1.180	62.4	7.94	
TOTAL	785.8	100.00	
F 80 (µm) :	11134		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	141.0	13.71	86.29
0.850	130.2	12.66	73.63
0.710	101.7	9.89	63.75
0.600	90.5	8.80	54.95
0.500	93.0	9.04	45.91
-0.500	472.2	45.91	
TOTAL	1028.6	100.00	
P 80 (µm) :	925		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE MAIN FRESH #4 (65 - 70 m)
DATE	Mar-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	250	2088.7	2088.7	609.3	1479.4	1282.4	5.130	41.2	1479.4	139.5
2	176	2088.7	1479.4	962.2	1126.5	987.0	5.608	85.4	1126.5	106.2
3	167	2088.7	1126.5	983.2	1105.5	999.3	5.984	88.9	1105.5	104.2
4	157	2088.7	1105.5	1044.4	1044.3	940.1	5.988	100.0	1044.3	98.5
5	158	2088.7	1044.3	1044.4	1044.3	945.8	5.986	100.0	1044.3	98.5

PRODUCT IN THE FEED	9.43	(%)
BULK DENSITY	1.6710	(t/m^3)
IDEAL POTENTIAL PRODUCT	1044.4	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	5.987	(g/rev)
80 % PASSING FEED SIZE	11179	(µm)
80 % PASSING PRODUCT SIZE	830	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.4

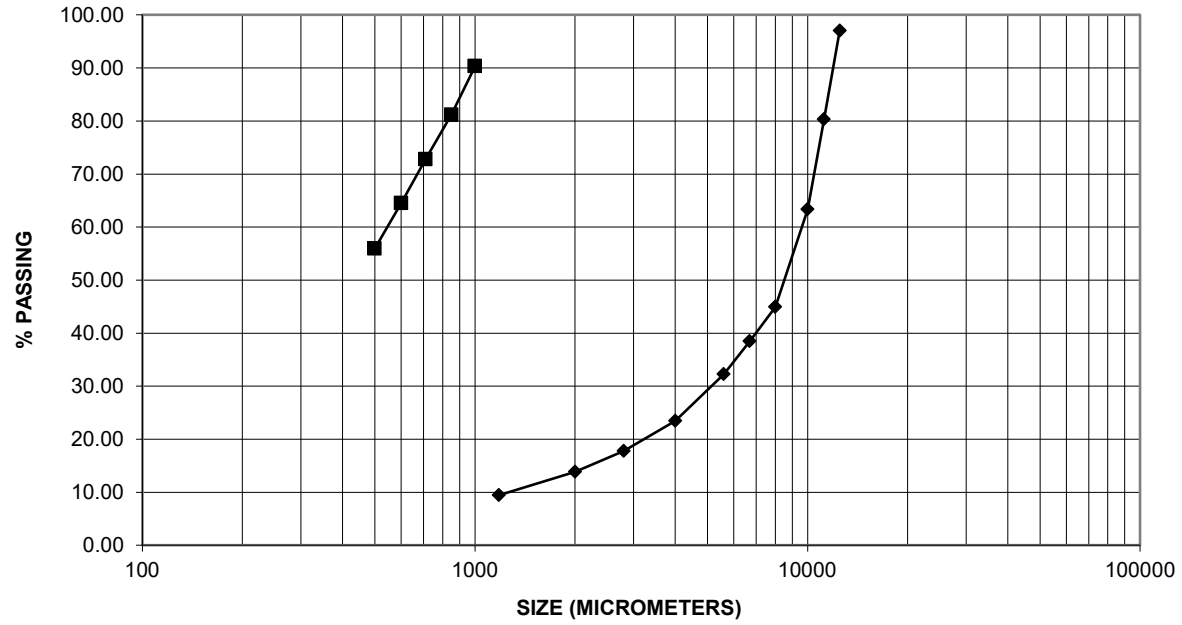
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

CHEGUE MAIN FRESH #4 (65 - 70 m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	23.9	2.94	97.06
11.200	136.2	16.77	80.29
10.000	137.5	16.93	63.36
8.000	149.8	18.44	44.92
6.700	52.4	6.45	38.47
5.600	50.5	6.22	32.25
4.000	71.6	8.81	23.44
2.800	45.9	5.65	17.79
2.000	32.0	3.94	13.85
1.180	35.9	4.42	9.43
-1.180	76.6	9.43	
TOTAL	812.3	100.00	
F 80 (µm) :	11179		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	101.0	9.67	90.33
0.850	95.6	9.15	81.17
0.710	88.0	8.43	72.75
0.600	86.2	8.25	64.49
0.500	89.4	8.56	55.93
-0.500	584.2	55.93	
TOTAL	1044.4	100.00	
P 80 (µm) :	830		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE SOUTH FRESH #1 (55 - 61 m)
DATE	Mar-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2131.4	2131.4	945.6	1185.8	943.3	4.716	79.7	1185.8	134.9
2	197	2131.4	1185.8	996.3	1135.1	1000.2	5.077	87.8	1135.1	129.2
3	184	2131.4	1135.1	1050.1	1081.3	952.1	5.175	97.1	1081.3	123.0
4	182	2131.4	1081.3	982.5	1148.9	1025.9	5.637	85.5	1148.9	130.7
5	166	2131.4	1148.9	1009.2	1122.2	991.5	5.973	89.9	1122.2	127.7
6	167	2131.4	1122.2	1065.7	1065.7	938.0	5.617	100.0	1065.7	121.3
7	158	2131.4	1065.7	1065.7	1065.7	944.4	5.977	100.0	1065.7	121.3

PRODUCT IN THE FEED	11.38	(%)
BULK DENSITY	1.7051	(t/m^3)
IDEAL POTENTIAL PRODUCT	1065.7	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	5.797	(g/rev)
80 % PASSING FEED SIZE	11325	(µm)
80 % PASSING PRODUCT SIZE	844	(µm)

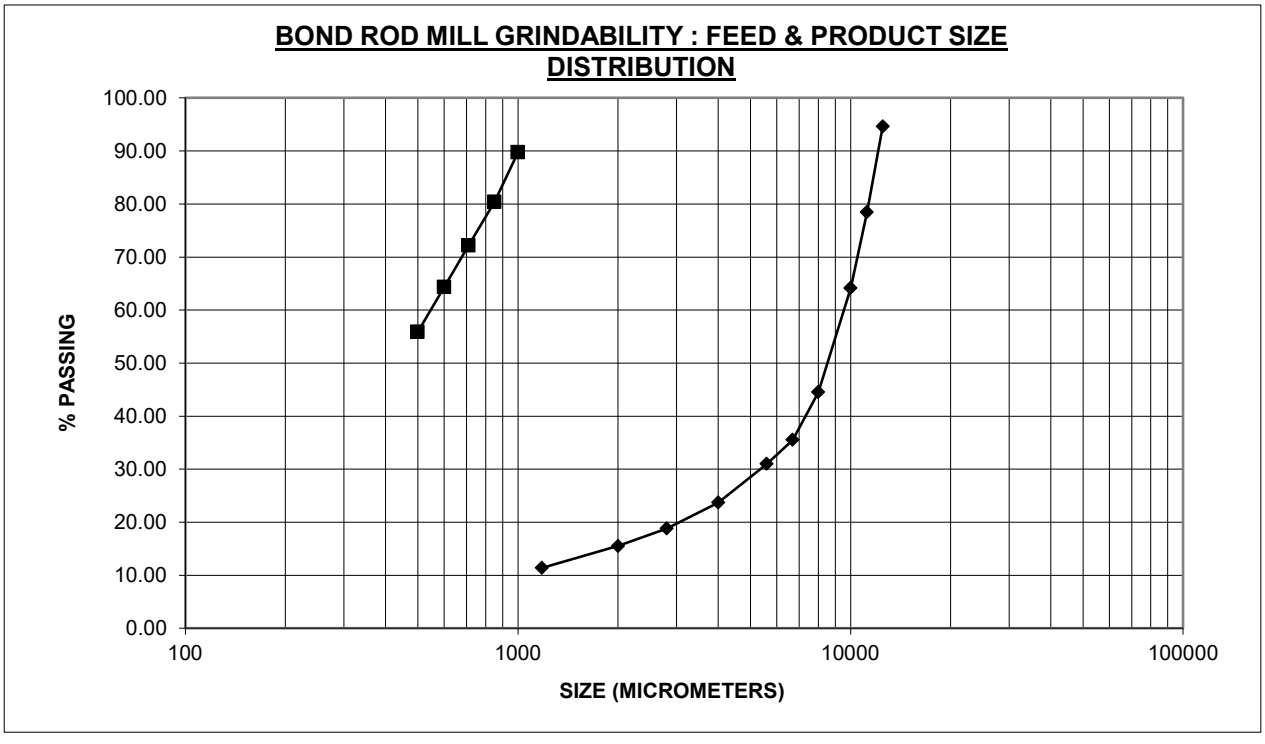
BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.9

BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

CHEGUE SOUTH FRESH #1 (55 - 61 m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	45.9	5.36	94.64
11.200	138.6	16.19	78.45
10.000	122.4	14.30	64.15
8.000	168.2	19.65	44.50
6.700	77.0	9.00	35.50
5.600	38.4	4.49	31.02
4.000	62.7	7.32	23.69
2.800	41.6	4.86	18.83
2.000	28.4	3.32	15.51
1.180	35.4	4.14	11.38
-1.180	97.4	11.38	
TOTAL	856.0	100.00	
F 80 (µm) :	11325		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	109.3	10.26	89.74
0.850	100.1	9.39	80.35
0.710	87.3	8.19	72.16
0.600	83.6	7.84	64.31
0.500	89.7	8.42	55.90
-0.500	595.7	55.90	
TOTAL	1065.7	100.00	
P 80 (µm) :	844		



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE SOUTH FRESH #2 (82 - 90 m)
DATE	Mar-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2111.3	2111.3	960.4	1150.9	902.4	4.512	83.4	1150.9	135.5
2	204	2111.3	1150.9	978.6	1132.7	997.2	4.888	86.4	1132.7	133.3
3	189	2111.3	1132.7	994.8	1116.5	983.2	5.202	89.1	1116.5	131.4
4	178	2111.3	1116.5	1055.7	1055.6	924.2	5.192	100.0	1055.6	124.2
5	179	2111.3	1055.6	1055.7	1055.6	931.4	5.203	100.0	1055.6	124.2

PRODUCT IN THE FEED	11.77	(%)
BULK DENSITY	1.6890	(t/m^3)
IDEAL POTENTIAL PRODUCT	1055.7	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	5.198	(g/rev)
80 % PASSING FEED SIZE	10971	(µm)
80 % PASSING PRODUCT SIZE	854	(µm)

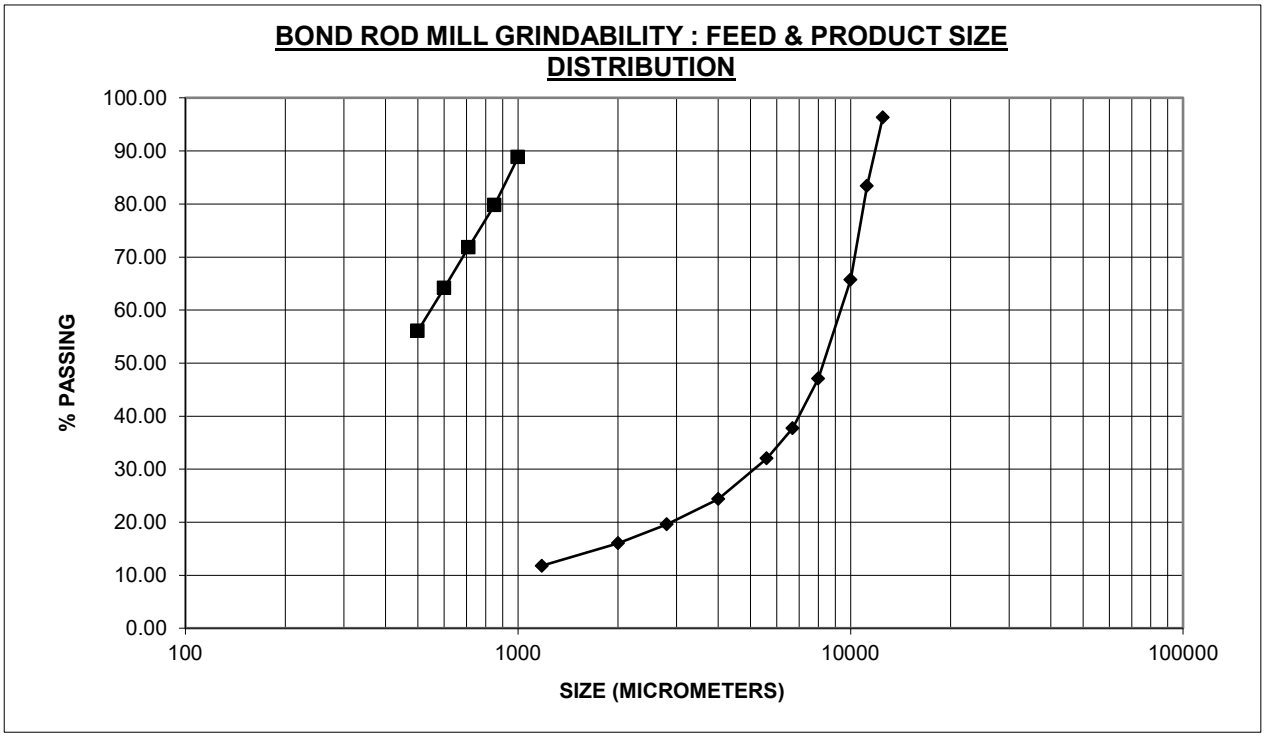
BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 19.4

BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

CHEGUE SOUTH FRESH #2 (82 - 90 m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	28.9	3.71	96.29
11.200	100.8	12.92	83.37
10.000	137.6	17.64	65.73
8.000	145.5	18.65	47.08
6.700	72.9	9.35	37.73
5.600	44.5	5.71	32.03
4.000	59.8	7.67	24.36
2.800	37.3	4.78	19.58
2.000	27.8	3.56	16.01
1.180	33.1	4.24	11.77
-1.180	91.8	11.77	
TOTAL	780.0	100.00	
F 80 (µm) :	10971		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	118.2	11.20	88.80
0.850	95.6	9.06	79.75
0.710	83.9	7.95	71.80
0.600	80.8	7.65	64.15
0.500	85.4	8.09	56.06
-0.500	591.8	56.06	
TOTAL	1055.7	100.00	
P 80 (µm) :	854		



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE MAIN TRANSITION (21 - 26 m)
DATE	Mar-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	25	2283.0	2283.0	457.9	1825.1	713.0	28.521	25.1	1825.1	889.0
2	9	2283.0	1825.1	1006.0	1277.0	388.0	43.107	78.8	1277.0	622.0
3	12	2283.0	1277.0	1134.6	1148.4	526.4	43.863	98.8	1148.4	559.4
4	13	2283.0	1148.4	1141.5	1141.5	582.1	44.777	100.0	1141.5	556.0
5	13	2283.0	1141.5	1141.5	1141.5	585.5	45.035	100.0	1141.5	556.0

PRODUCT IN THE FEED	48.71	(%)
BULK DENSITY	1.8264	(t/m^3)
IDEAL POTENTIAL PRODUCT	1141.5	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	44.906	(g/rev)
80 % PASSING FEED SIZE	4097	(µm)
80 % PASSING PRODUCT SIZE	928	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 7.2

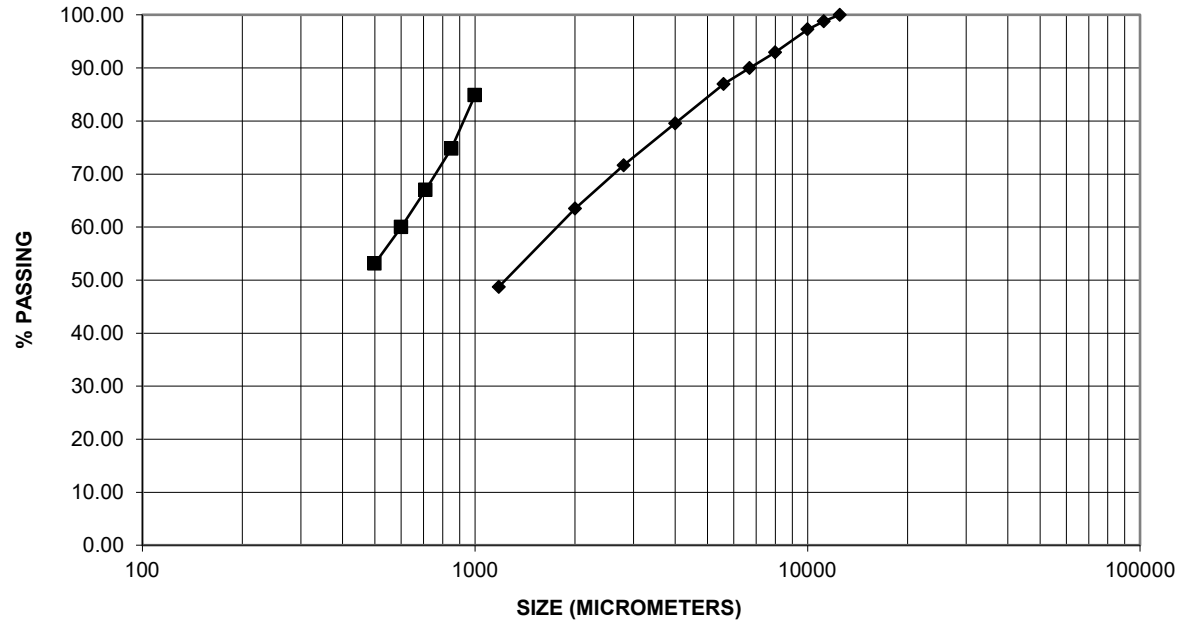
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

CHEGUE MAIN TRANSITION (21 - 26 m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	0.0	0.00	100.00
11.200	11.6	1.20	98.80
10.000	14.7	1.52	97.28
8.000	41.8	4.33	92.95
6.700	28.5	2.95	90.00
5.600	29.3	3.03	86.97
4.000	71.7	7.42	79.55
2.800	76.3	7.90	71.65
2.000	79.1	8.19	63.47
1.180	142.6	14.76	48.71
-1.180	470.7	48.71	
TOTAL	966.3	100.00	
F 80 (µm) :	**4097**		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	172.8	15.14	84.86
0.850	115.1	10.08	74.78
0.710	89.3	7.82	66.96
0.600	79.6	6.97	59.98
0.500	78.3	6.86	53.12
-0.500	606.4	53.12	
TOTAL	1141.5	100.00	
P 80 (µm) :	**928**		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE SOUTH TRANSITION (23 - 28 m)
DATE	Mar-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	25	2313.6	2313.6	867.3	1446.3	465.0	18.600	60.0	1446.3	613.4
2	29	2313.6	1446.3	1176.5	1137.1	523.7	18.057	103.5	1137.1	482.3
3	37	2313.6	1137.1	1218.7	1094.9	612.6	16.557	111.3	1094.9	464.4
4	42	2313.6	1094.9	1156.8	1156.8	692.4	16.486	100.0	1156.8	490.7
5	40	2313.6	1156.8	1156.8	1156.8	666.1	16.654	100.0	1156.8	490.7

PRODUCT IN THE FEED	42.41	(%)
BULK DENSITY	1.8509	(t/m^3)
IDEAL POTENTIAL PRODUCT	1156.8	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	16.570	(g/rev)
80 % PASSING FEED SIZE	5124	(µm)
80 % PASSING PRODUCT SIZE	890	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 11.9

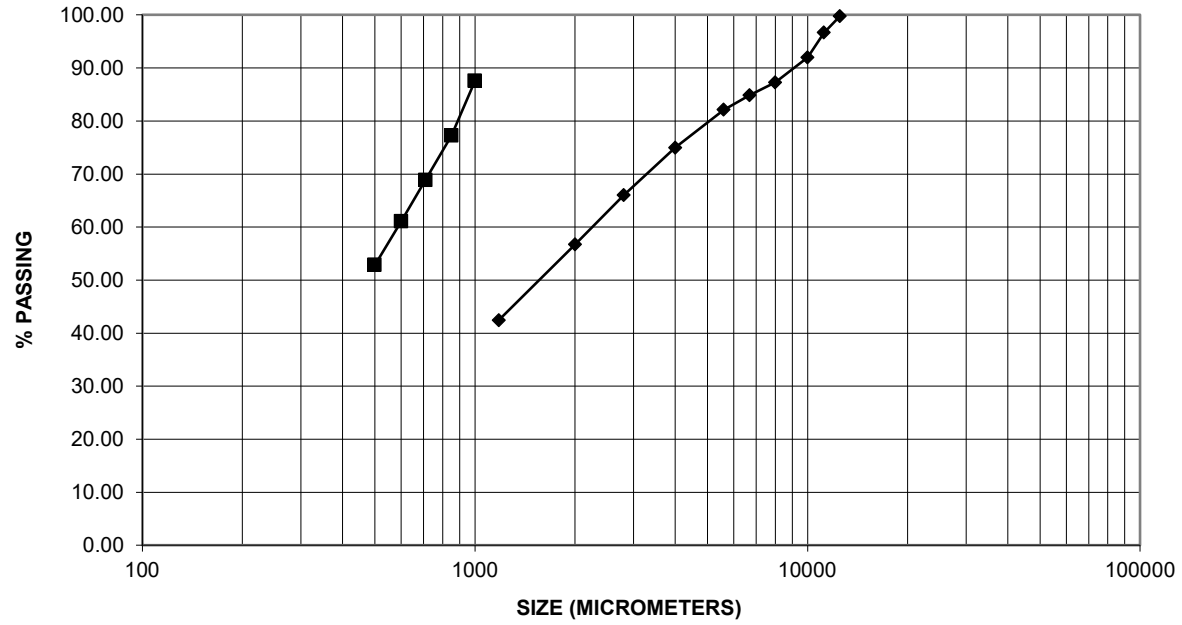
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

CHEGUE SOUTH TRANSITION (23 - 28 m)
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	2.8	0.26	99.74
11.200	32.9	3.07	96.67
10.000	50.2	4.68	91.99
8.000	50.5	4.71	87.27
6.700	25.9	2.42	84.86
5.600	29.2	2.72	82.13
4.000	76.9	7.17	74.96
2.800	95.8	8.94	66.02
2.000	99.9	9.32	56.70
1.180	153.1	14.28	42.41
-1.180	454.6	42.41	
TOTAL	1071.8	100.00	
F 80 (µm) :	5124		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	143.9	12.44	87.56
0.850	119.4	10.32	77.24
0.710	96.9	8.38	68.86
0.600	90.3	7.81	61.06
0.500	95.0	8.21	52.84
-0.500	611.3	52.84	
TOTAL	1156.8	100.00	
P 80 (µm) :	890		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KEKEDA FRESH #1
DATE	Apr-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2090.5	2090.5	752.8	1337.7	1032.9	5.164	56.3	1337.7	195.1
2	165	2090.5	1337.7	916.9	1173.6	978.5	5.931	78.1	1173.6	171.1
3	147	2090.5	1173.6	1033.7	1056.8	885.7	6.025	97.8	1056.8	154.1
4	148	2090.5	1056.8	1045.3	1045.2	891.1	6.021	100.0	1045.2	152.4
5	148	2090.5	1045.2	1045.3	1045.2	892.8	6.032	100.0	1045.2	152.4

PRODUCT IN THE FEED	14.58	(%)
BULK DENSITY	1.6724	(t/m^3)
IDEAL POTENTIAL PRODUCT	1045.3	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	6.027	(g/rev)
80 % PASSING FEED SIZE	10330	(µm)
80 % PASSING PRODUCT SIZE	869	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 18.1

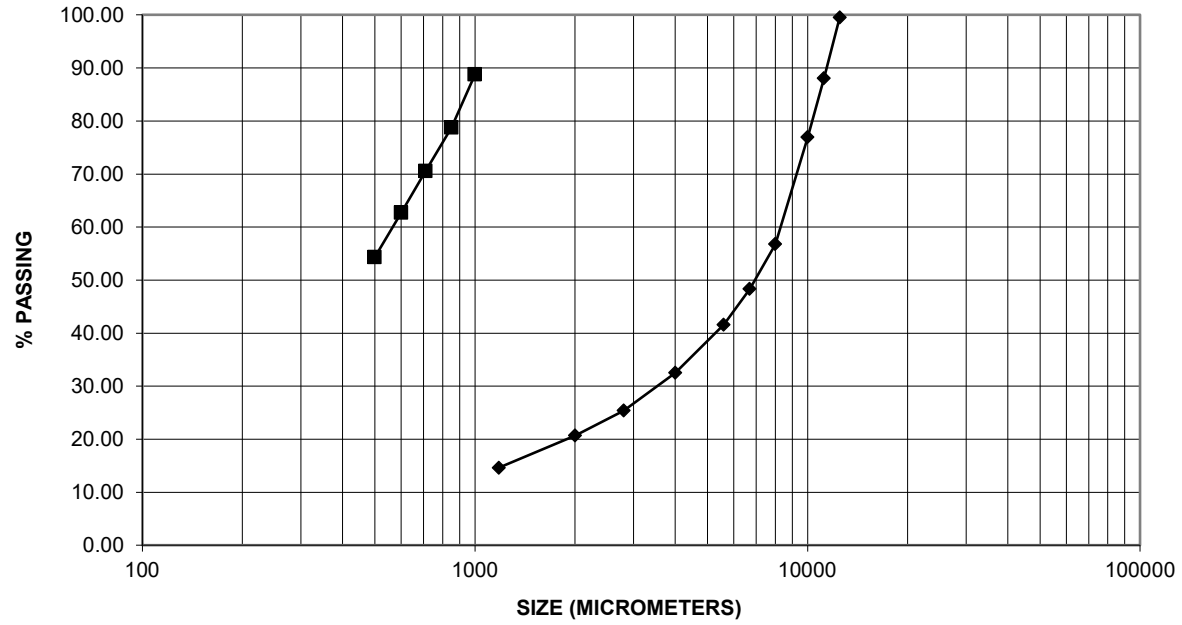
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

KEKEDA FRESH #1
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	4.4	0.46	99.54
11.200	110.1	11.48	88.07
10.000	106.7	11.12	76.94
8.000	193.5	20.17	56.78
6.700	81.2	8.46	48.31
5.600	64.5	6.72	41.59
4.000	87.2	9.09	32.50
2.800	68.5	7.14	25.36
2.000	45.0	4.69	20.67
1.180	58.4	6.09	14.58
-1.180	139.9	14.58	
TOTAL	959.4	100.00	
F 80 (µm) :	10330		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	117.4	11.23	88.77
0.850	104.7	10.02	78.75
0.710	86.1	8.24	70.51
0.600	81.8	7.83	62.69
0.500	87.4	8.36	54.33
-0.500	567.9	54.33	
TOTAL	1045.3	100.00	
P 80 (µm) :	869		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KEKEDA FRESH #2
DATE	May-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2235.5	2235.5	500.8	1734.7	1413.5	7.068	28.9	1734.7	249.2
2	123	2235.5	1734.7	990.5	1245.0	995.8	8.096	79.6	1245.0	178.9
3	116	2235.5	1245.0	1067.4	1168.1	989.2	8.528	91.4	1168.1	167.8
4	111	2235.5	1168.1	1057.1	1178.4	1010.6	9.104	89.7	1178.4	169.3
5	104	2235.5	1178.4	1117.8	1117.7	948.4	9.119	100.0	1117.7	160.6
6	105	2235.5	1117.7	1117.8	1117.7	957.1	9.116	100.0	1117.7	160.6

PRODUCT IN THE FEED	14.37	(%)
BULK DENSITY	1.7884	(t/m^3)
IDEAL POTENTIAL PRODUCT	1117.8	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	9.117	(g/rev)
80 % PASSING FEED SIZE	10472	(µm)
80 % PASSING PRODUCT SIZE	894	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 14.3

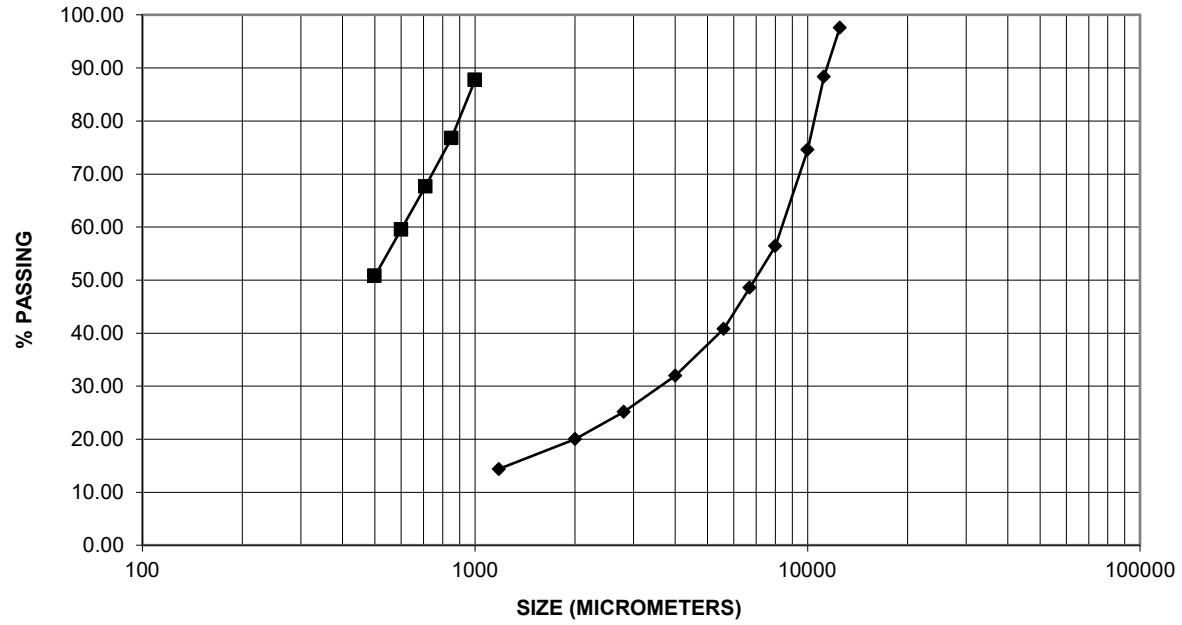
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

KEKEDA FRESH #2
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	25.6	2.44	97.56
11.200	96.2	9.18	88.37
10.000	144.5	13.79	74.58
8.000	190.5	18.18	56.40
6.700	82.0	7.83	48.57
5.600	81.4	7.77	40.80
4.000	92.4	8.82	31.98
2.800	71.4	6.82	25.16
2.000	54.1	5.16	20.00
1.180	59.0	5.63	14.37
-1.180	150.5	14.37	
TOTAL	1047.6	100.00	
F 80 (µm) :	**10472**		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	137.2	12.27	87.73
0.850	122.7	10.98	76.75
0.710	101.5	9.08	67.67
0.600	91.1	8.15	59.52
0.500	97.5	8.72	50.79
-0.500	567.8	50.79	
TOTAL	1117.8	100.00	
P 80 (µm) :	**894**		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KEKEDA FRESH#3
DATE	Apr-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2230.7	2230.7	920.8	1309.9	1019.3	5.097	70.3	1309.9	170.6
2	185	2230.7	1309.9	1035.3	1195.4	1024.8	5.539	86.6	1195.4	155.7
3	173	2230.7	1195.4	975.0	1255.7	1100.0	6.358	77.6	1255.7	163.6
4	150	2230.7	1255.7	1076.0	1154.7	991.1	6.608	93.2	1154.7	150.4
5	146	2230.7	1154.7	1115.4	1115.3	964.9	6.609	100.0	1115.3	145.3
6	147	2230.7	1115.3	1115.4	1115.3	970.0	6.599	100.0	1115.3	145.3

PRODUCT IN THE FEED	13.03	(%)
BULK DENSITY	1.7846	(t/m^3)
IDEAL POTENTIAL PRODUCT	1115.4	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	6.604	(g/rev)
80 % PASSING FEED SIZE	10278	(µm)
80 % PASSING PRODUCT SIZE	887	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.4

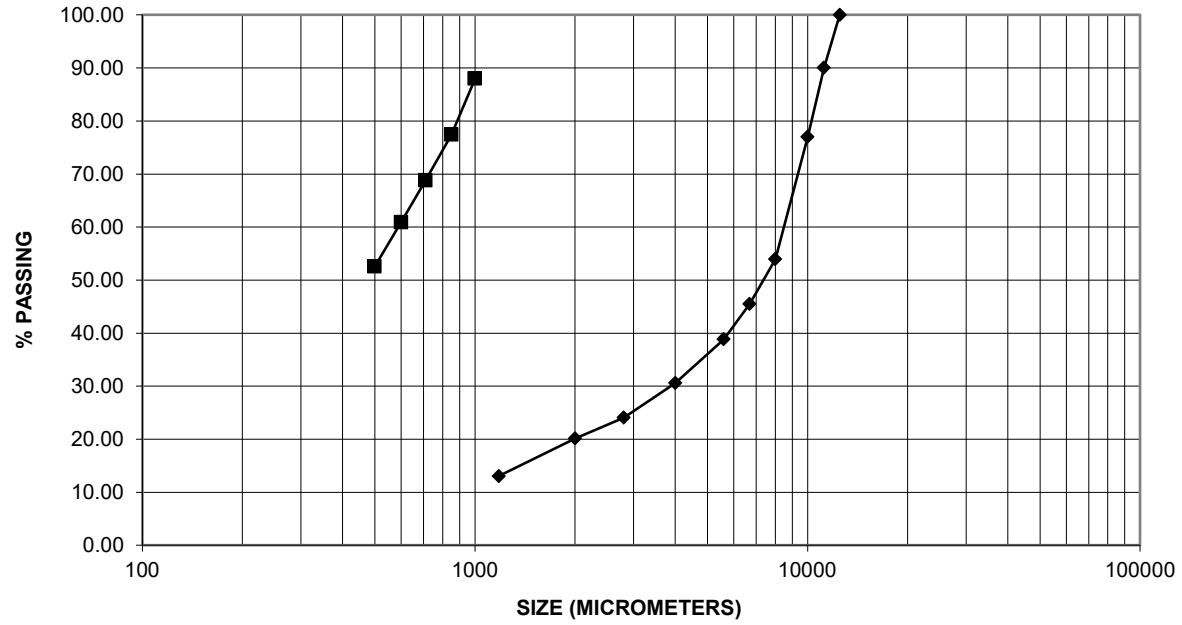
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

KEKEDA FRESH#3
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	0.0	0.00	100.00
11.200	97.5	9.97	90.03
10.000	127.7	13.06	76.98
8.000	225.5	23.05	53.92
6.700	82.3	8.41	45.51
5.600	65.1	6.66	38.85
4.000	80.9	8.27	30.58
2.800	63.8	6.52	24.06
2.000	38.2	3.91	20.15
1.180	69.7	7.13	13.03
-1.180	127.4	13.03	
TOTAL	978.1	100.00	
F 80 (µm) :	**10278**		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	134.3	12.04	87.96
0.850	117.5	10.53	77.42
0.710	96.3	8.63	68.79
0.600	88.0	7.89	60.90
0.500	92.9	8.33	52.57
-0.500	586.4	52.57	
TOTAL	1115.4	100.00	
P 80 (µm) :	**887**		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KEKEDA TRANS #1
DATE	Apr-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	1999.2	1999.2	109.0	1890.2	1519.9	10.133	5.8	1890.2	350.1
2	64	1999.2	1890.2	816.8	1182.4	832.3	13.005	69.1	1182.4	219.0
3	60	1999.2	1182.4	836.3	1162.9	943.9	15.732	71.9	1162.9	215.4
4	50	1999.2	1162.9	999.6	999.6	784.2	15.684	100.0	999.6	185.1
5	52	1999.2	999.6	999.6	999.6	814.5	15.663	100.0	999.6	185.1

PRODUCT IN THE FEED	18.52	(%)
BULK DENSITY	1.5994	(t/m^3)
IDEAL POTENTIAL PRODUCT	999.6	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	15.673	(g/rev)
80 % PASSING FEED SIZE	10247	(µm)
80 % PASSING PRODUCT SIZE	938	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 10.6

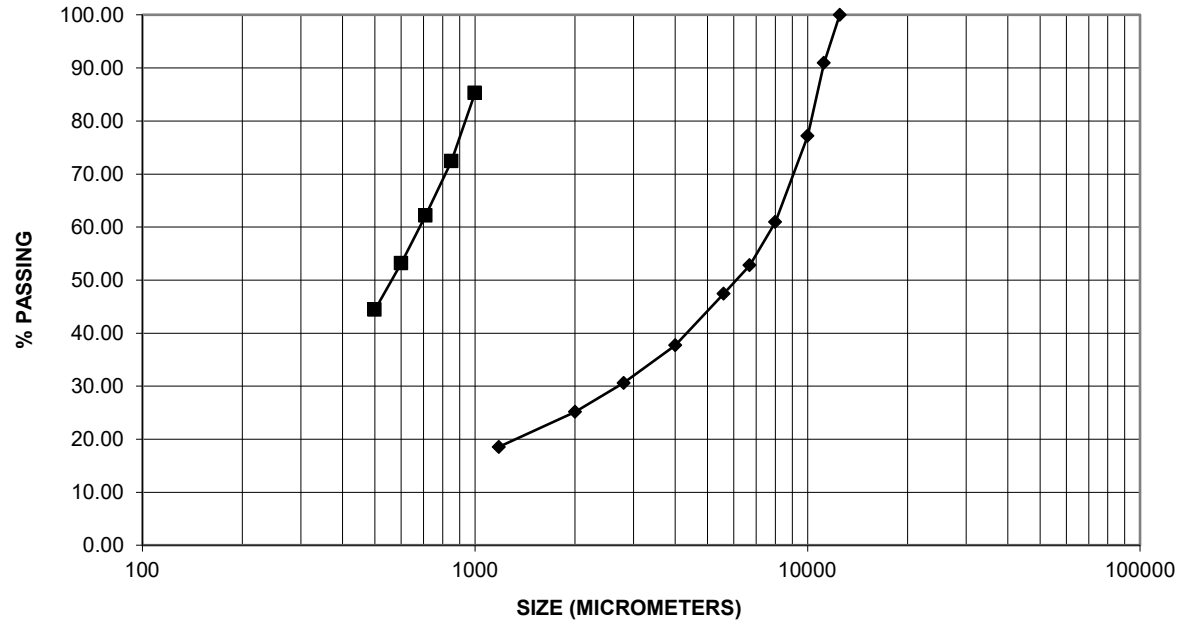
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

KEKEDA TRANS #1
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	0.0	0.00	100.00
11.200	89.7	9.08	90.92
10.000	135.8	13.74	77.18
8.000	160.6	16.26	60.92
6.700	80.3	8.13	52.79
5.600	52.9	5.35	47.44
4.000	96.2	9.74	37.70
2.800	70.1	7.10	30.61
2.000	54.2	5.49	25.12
1.180	65.2	6.60	18.52
-1.180	183.0	18.52	
TOTAL	988.0	100.00	
F 80 (µm) :	10247		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	147.0	14.71	85.29
0.850	129.0	12.91	72.39
0.710	102.6	10.26	62.12
0.600	89.6	8.96	53.16
0.500	87.7	8.77	44.39
-0.500	443.7	44.39	
TOTAL	999.6	100.00	
P 80 (µm) :	938		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KEKEDA TRANS#2
DATE	Apr-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1955.8	1955.8	100.0	1855.8	1594.3	7.972	5.4	1855.8	248.1
2	92	1955.8	1855.8	780.4	1175.4	927.3	10.079	66.4	1175.4	157.1
3	81	1955.8	1175.4	897.9	1057.9	900.8	11.121	84.9	1057.9	141.4
4	75	1955.8	1057.9	940.8	1015.0	873.6	11.648	92.7	1015.0	135.7
5	72	1955.8	1015.0	977.9	977.9	842.2	11.697	100.0	977.9	130.7
6	72	1955.8	977.9	977.9	977.9	847.2	11.766	100.0	977.9	130.7

PRODUCT IN THE FEED	13.37	(%)
BULK DENSITY	1.5646	(t/m^3)
IDEAL POTENTIAL PRODUCT	977.9	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	11.732	(g/rev)
80 % PASSING FEED SIZE	10656	(µm)
80 % PASSING PRODUCT SIZE	934	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 12.5

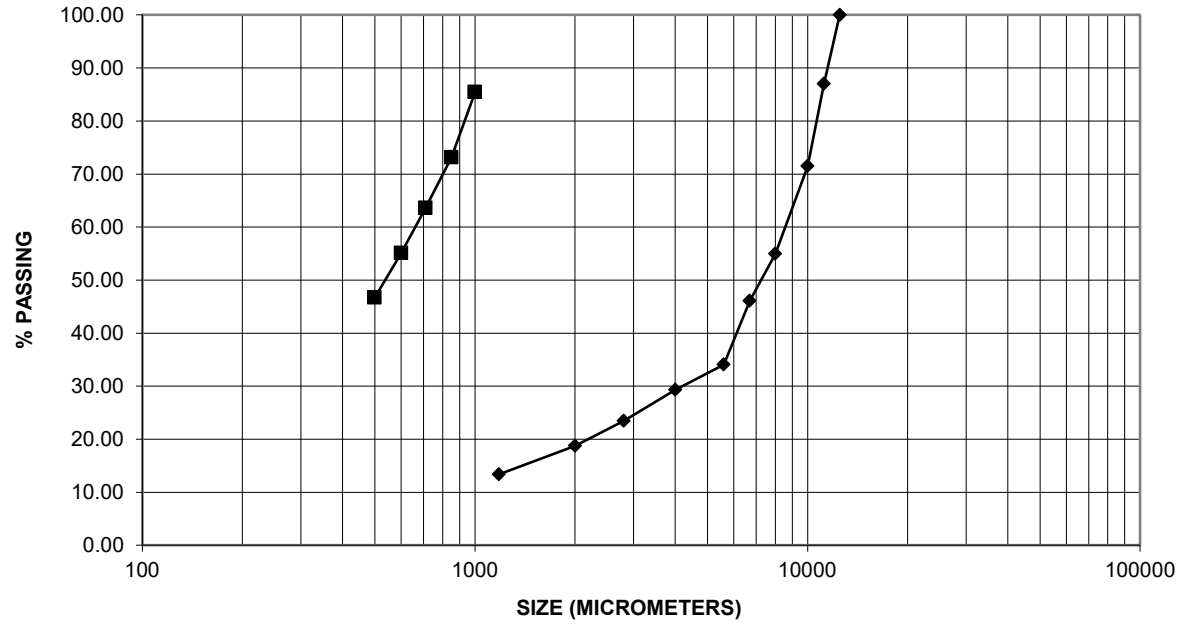
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

KEKEDA TRANS#2
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	0.0	0.00	100.00
11.200	131.1	12.95	87.05
10.000	157.4	15.55	71.49
8.000	167.5	16.55	54.95
6.700	89.7	8.86	46.08
5.600	121.4	11.99	34.09
4.000	48.2	4.76	29.33
2.800	59.6	5.89	23.44
2.000	47.3	4.67	18.76
1.180	54.6	5.39	13.37
-1.180	135.3	13.37	
TOTAL	1012.1	100.00	
F 80 (µm) :	**10656**		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	142.4	14.56	85.44
0.850	120.5	12.32	73.12
0.710	93.3	9.54	63.58
0.600	82.9	8.48	55.10
0.500	81.9	8.38	46.72
-0.500	456.9	46.72	
TOTAL	977.9	100.00	
P 80 (µm) :	**934**		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	HAN FRESH #1
DATE	Apr-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2211.1	2211.1	750.0	1461.1	1155.3	5.777	51.3	1461.1	202.0
2	156	2211.1	1461.1	991.6	1219.5	1017.5	6.522	81.3	1219.5	168.6
3	144	2211.1	1219.5	1002.2	1208.9	1040.3	7.224	82.9	1208.9	167.2
4	130	2211.1	1208.9	1105.6	1105.5	938.3	7.218	100.0	1105.5	152.9
5	132	2211.1	1105.5	1105.6	1105.5	952.6	7.217	100.0	1105.5	152.9

PRODUCT IN THE FEED	13.83	(%)
BULK DENSITY	1.7689	(t/m^3)
IDEAL POTENTIAL PRODUCT	1105.6	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	7.217	(g/rev)
80 % PASSING FEED SIZE	10468	(µm)
80 % PASSING PRODUCT SIZE	878	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.3

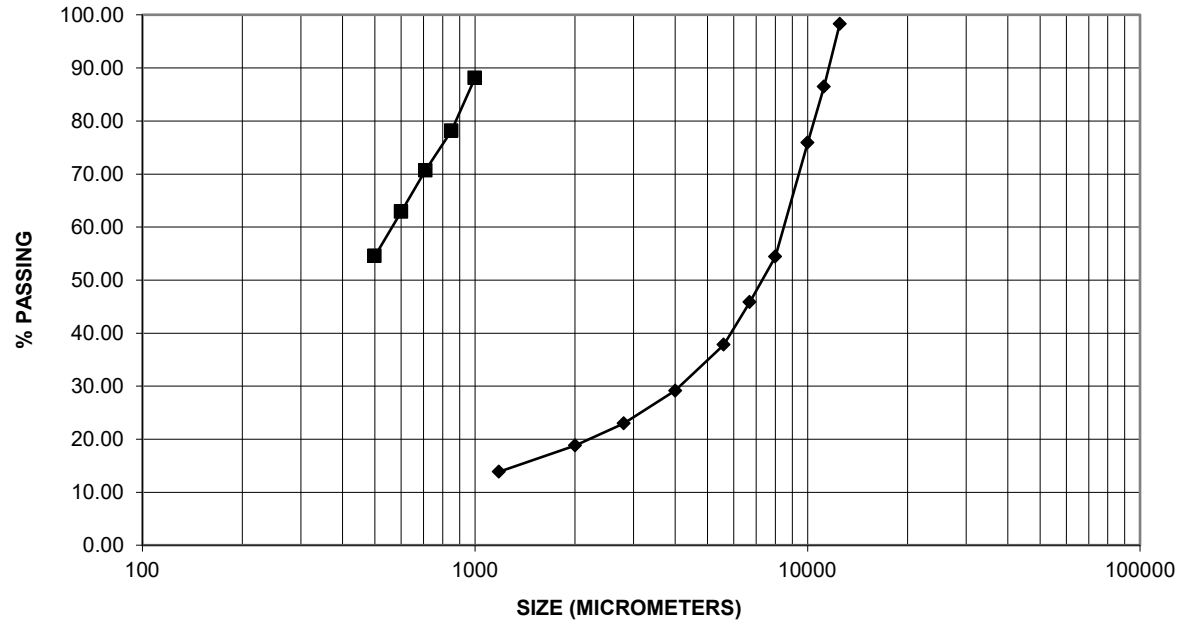
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

HAN FRESH #1
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	17.1	1.71	98.29
11.200	118.4	11.84	86.45
10.000	105.7	10.57	75.88
8.000	214.9	21.49	54.39
6.700	85.6	8.56	45.84
5.600	80.1	8.01	37.83
4.000	86.7	8.67	29.16
2.800	61.9	6.19	22.97
2.000	41.4	4.14	18.83
1.180	50.0	5.00	13.83
-1.180	138.3	13.83	
TOTAL	1000.1	100.00	
F 80 (µm) :	10468		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	131.3	11.88	88.12
0.850	110.4	9.99	78.14
0.710	82.4	7.45	70.68
0.600	86.6	7.83	62.85
0.500	92.0	8.32	54.53
-0.500	602.9	54.53	
TOTAL	1105.6	100.00	
P 80 (µm) :	878		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	HAN FRESH #2
DATE	Apr-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2179.2	2179.2	740.8	1438.4	1118.5	5.593	51.5	1438.4	211.1
2	157	2179.2	1438.4	1022.7	1156.5	945.4	6.021	88.4	1156.5	169.8
3	153	2179.2	1156.5	980.7	1198.5	1028.7	6.724	81.8	1198.5	175.9
4	136	2179.2	1198.5	1089.6	1089.6	913.7	6.718	100.0	1089.6	159.9
5	138	2179.2	1089.6	1089.6	1089.6	929.7	6.737	100.0	1089.6	159.9

PRODUCT IN THE FEED	14.68	(%)
BULK DENSITY	1.7434	(t/m^3)
IDEAL POTENTIAL PRODUCT	1089.6	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	6.727	(g/rev)
80 % PASSING FEED SIZE	10066	(µm)
80 % PASSING PRODUCT SIZE	895	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.4

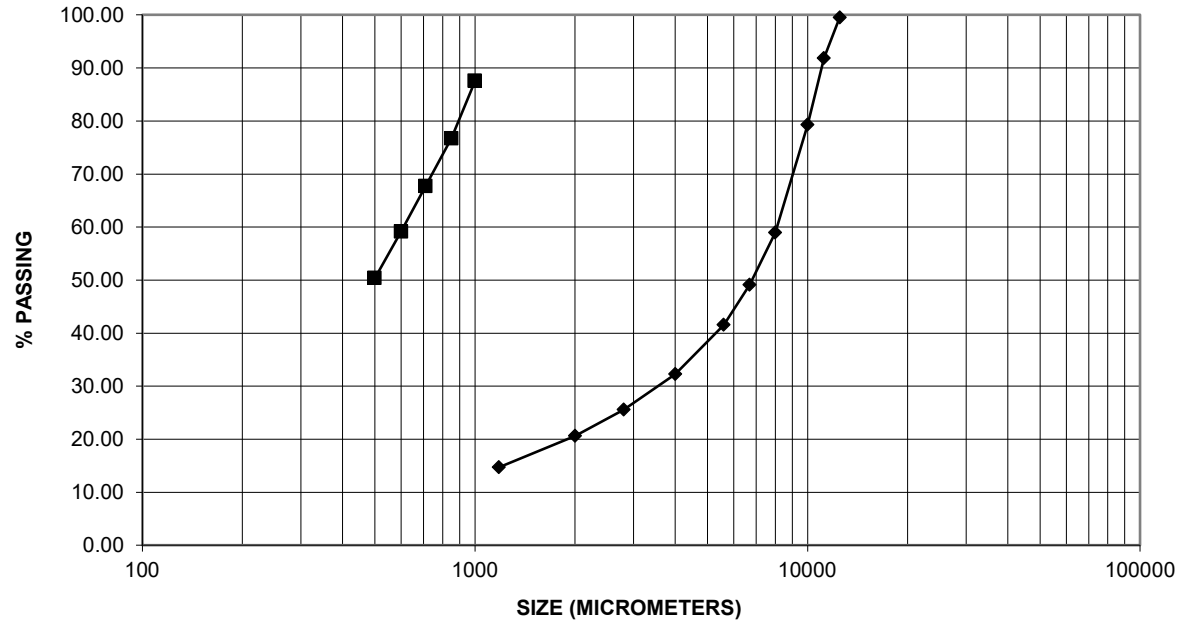
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

HAN FRESH #2
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	4.3	0.47	99.53
11.200	69.8	7.66	91.87
10.000	114.5	12.56	79.31
8.000	185.4	20.34	58.97
6.700	89.6	9.83	49.14
5.600	69.3	7.60	41.54
4.000	84.6	9.28	32.25
2.800	61.2	6.71	25.54
2.000	45.1	4.95	20.59
1.180	53.9	5.91	14.68
-1.180	133.8	14.68	
TOTAL	911.5	100.00	
F 80 (µm) :	**10066**		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	135.7	12.45	87.55
0.850	117.9	10.82	76.73
0.710	98.5	9.04	67.69
0.600	92.9	8.53	59.16
0.500	95.8	8.79	50.37
-0.500	548.8	50.37	
TOTAL	1089.6	100.00	
P 80 (µm) :	**895**		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	HAN FRESH #3
DATE	May-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	100	2209.6	2209.6	1233.9	975.7	639.5	6.395	126.5	975.7	148.5
2	150	2209.6	975.7	987.1	1222.5	1074.0	7.160	80.7	1222.5	186.0
3	128	2209.6	1222.5	1102.3	1107.3	921.3	7.198	99.5	1107.3	168.5
4	130	2209.6	1107.3	993.4	1216.2	1047.7	8.059	81.7	1216.2	185.1
5	114	2209.6	1216.2	1175.8	1033.8	848.7	7.445	113.7	1033.8	157.3
6	127	2209.6	1033.8	1012.2	1197.4	1040.1	8.190	84.5	1197.4	182.2
7	113	2209.6	1197.4	1061.3	1148.3	966.1	8.550	92.4	1148.3	174.7
8	109	2209.6	1148.3	1104.8	1104.8	930.1	8.533	100.0	1104.8	168.1
9	110	2209.6	1104.8	1104.8	1104.8	936.7	8.515	100.0	1104.8	168.1

PRODUCT IN THE FEED	15.22	(%)
BULK DENSITY	1.7677	(t/m^3)
IDEAL POTENTIAL PRODUCT	1104.8	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	8.524	(g/rev)
80 % PASSING FEED SIZE	10083	(µm)
80 % PASSING PRODUCT SIZE	919	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 15.3

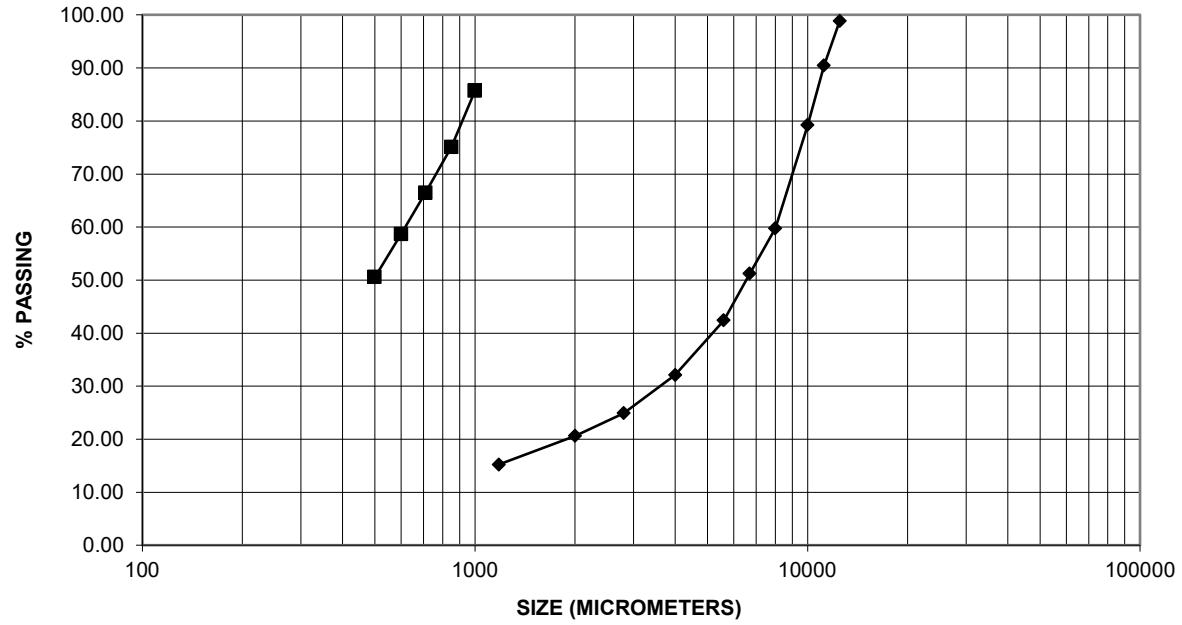
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

HAN FRESH #3
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	11.9	1.13	98.87
11.200	88.8	8.43	90.44
10.000	118.2	11.22	79.22
8.000	205.1	19.47	59.75
6.700	90.0	8.54	51.21
5.600	92.9	8.82	42.39
4.000	108.3	10.28	32.11
2.800	76.1	7.22	24.89
2.000	45.0	4.27	20.62
1.180	56.9	5.40	15.22
-1.180	160.3	15.22	
TOTAL	1053.5	100.00	
F 80 (µm) :	**10083**		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	158.0	14.30	85.70
0.850	117.2	10.61	75.09
0.710	95.4	8.64	66.46
0.600	86.0	7.78	58.67
0.500	89.7	8.12	50.55
-0.500	558.5	50.55	
TOTAL	1104.8	100.00	
P 80 (µm) :	**919**		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	HAN TRANS/FRESH
DATE	Apr-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	2189.3	2189.3	384.3	1805.0	1464.4	9.763	21.3	1805.0	280.8
2	83	2189.3	1805.0	921.7	1267.6	986.8	11.889	72.7	1267.6	197.2
3	75	2189.3	1267.6	1042.4	1146.9	949.7	12.662	90.9	1146.9	178.4
4	72	2189.3	1146.9	1045.2	1144.1	965.7	13.412	91.4	1144.1	178.0
5	68	2189.3	1144.1	1094.7	1094.6	916.6	13.479	100.0	1094.6	170.3
6	69	2189.3	1094.6	1094.7	1094.6	924.3	13.396	100.0	1094.6	170.3

PRODUCT IN THE FEED	15.56	(%)
BULK DENSITY	1.7514	(t/m^3)
IDEAL POTENTIAL PRODUCT	1094.7	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	13.437	(g/rev)
80 % PASSING FEED SIZE	10088	(µm)
80 % PASSING PRODUCT SIZE	955	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 11.8

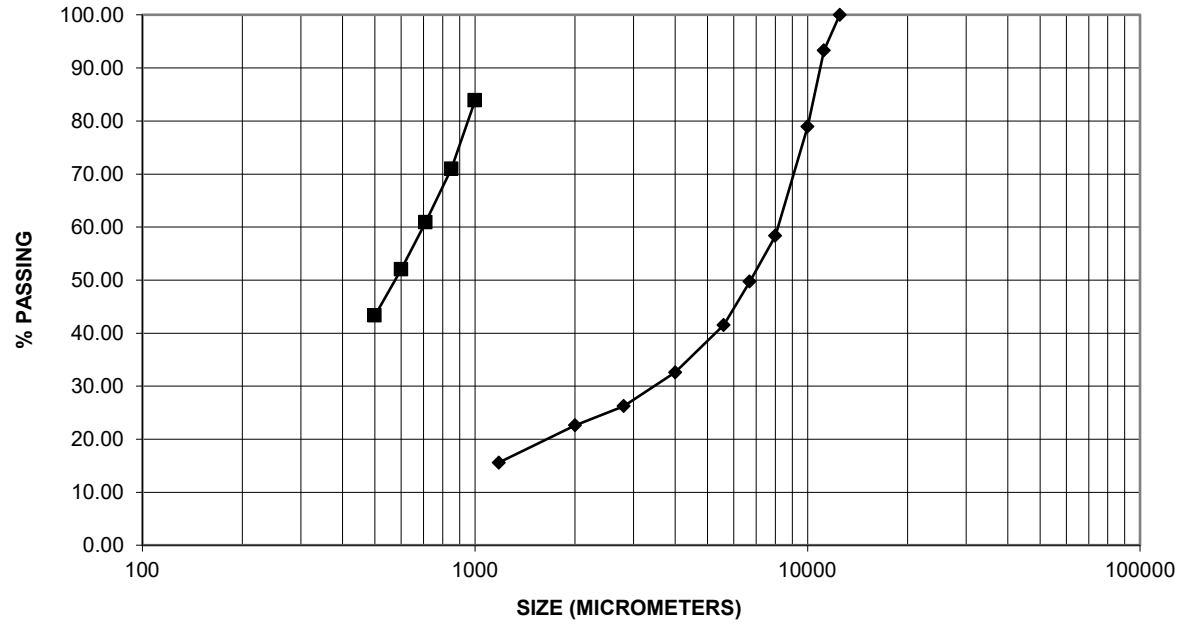
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

HAN TRANS/FRESH
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	0.0	0.00	100.00
11.200	66.4	6.70	93.30
10.000	142.2	14.35	78.95
8.000	204.4	20.62	58.33
6.700	85.5	8.63	49.70
5.600	81.0	8.17	41.53
4.000	88.5	8.93	32.60
2.800	62.9	6.35	26.25
2.000	36.4	3.67	22.58
1.180	69.6	7.02	15.56
-1.180	154.2	15.56	
TOTAL	991.1	100.00	
F 80 (µm) :	**10088**		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	176.8	16.15	83.85
0.850	140.9	12.87	70.98
0.710	110.6	10.10	60.87
0.600	97.2	8.88	51.99
0.500	95.1	8.69	43.31
-0.500	474.1	43.31	
TOTAL	1094.7	100.00	
P 80 (µm) :	**955**		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	ENIODA FRESH#1
DATE	Apr-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2074.6	2074.6	1124.7	949.9	741.2	3.706	118.4	949.9	95.6
2	254	2074.6	949.9	961.6	1113.0	1017.4	4.006	86.4	1113.0	112.0
3	231	2074.6	1113.0	1036.1	1038.5	926.5	4.011	99.8	1038.5	104.5
4	233	2074.6	1038.5	981.8	1092.8	988.3	4.242	89.8	1092.8	109.9
5	219	2074.6	1092.8	1037.3	1037.3	927.4	4.235	100.0	1037.3	104.4
6	220	2074.6	1037.3	1037.3	1037.3	932.9	4.241	100.0	1037.3	104.4

PRODUCT IN THE FEED	10.06	(%)
BULK DENSITY	1.6597	(t/m^3)
IDEAL POTENTIAL PRODUCT	1037.3	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	4.238	(g/rev)
80 % PASSING FEED SIZE	10577	(µm)
80 % PASSING PRODUCT SIZE	810	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 21.4

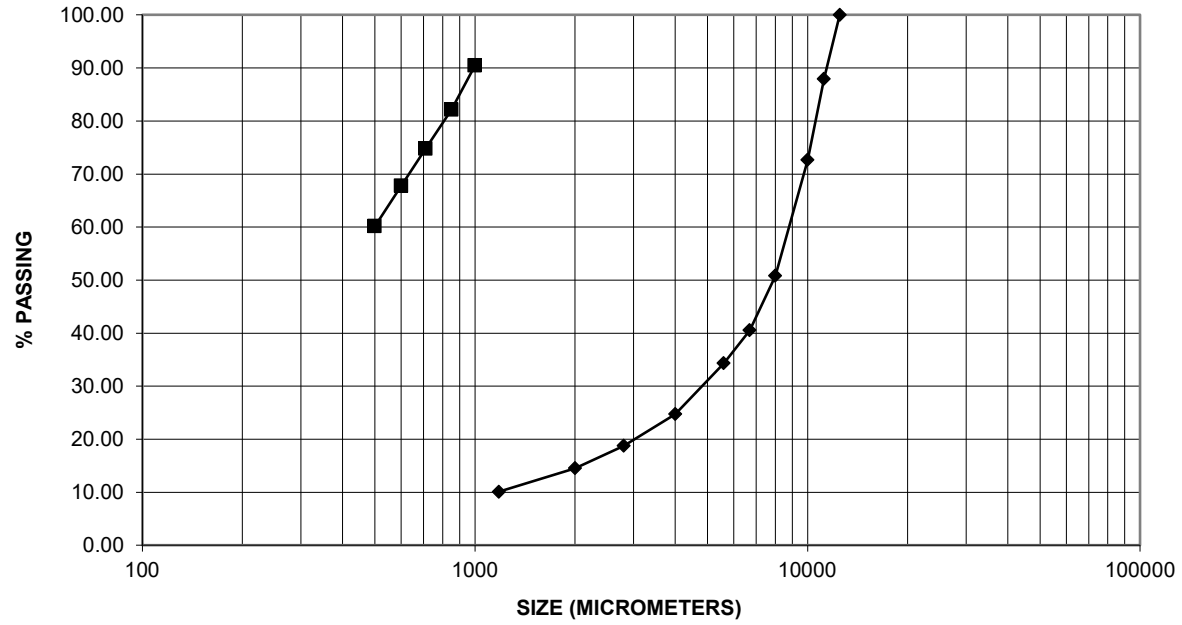
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

ENIODA FRESH#1
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	0.0	0.00	100.00
11.200	117.5	12.05	87.95
10.000	149.2	15.30	72.65
8.000	213.2	21.86	50.78
6.700	99.9	10.25	40.54
5.600	60.6	6.21	34.32
4.000	93.9	9.63	24.69
2.800	58.2	5.97	18.73
2.000	40.8	4.18	14.54
1.180	43.7	4.48	10.06
-1.180	98.1	10.06	
TOTAL	975.1	100.00	
F 80 (µm) :	**10577**		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	98.9	9.53	90.47
0.850	86.5	8.34	82.13
0.710	76.4	7.37	74.76
0.600	72.8	7.02	67.74
0.500	79.0	7.62	60.13
-0.500	623.7	60.13	
TOTAL	1037.3	100.00	
P 80 (µm) :	**810**		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	ENIODA FRESH#2
DATE	Apr-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2203.2	2203.2	764.0	1439.2	1119.8	5.599	53.1	1439.2	208.6
2	159	2203.2	1439.2	1069.7	1133.5	924.9	5.817	94.4	1133.5	164.3
3	161	2203.2	1133.5	1075.0	1128.2	963.9	5.987	95.3	1128.2	163.5
4	157	2203.2	1128.2	1067.6	1135.6	972.1	6.191	94.0	1135.6	164.6
5	151	2203.2	1135.6	1101.6	1101.6	937.0	6.205	100.0	1101.6	159.7
6	152	2203.2	1101.6	1101.6	1101.6	941.9	6.197	100.0	1101.6	159.7

PRODUCT IN THE FEED	14.50	(%)
BULK DENSITY	1.7626	(t/m^3)
IDEAL POTENTIAL PRODUCT	1101.6	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	6.201	(g/rev)
80 % PASSING FEED SIZE	10316	(µm)
80 % PASSING PRODUCT SIZE	866	(µm)

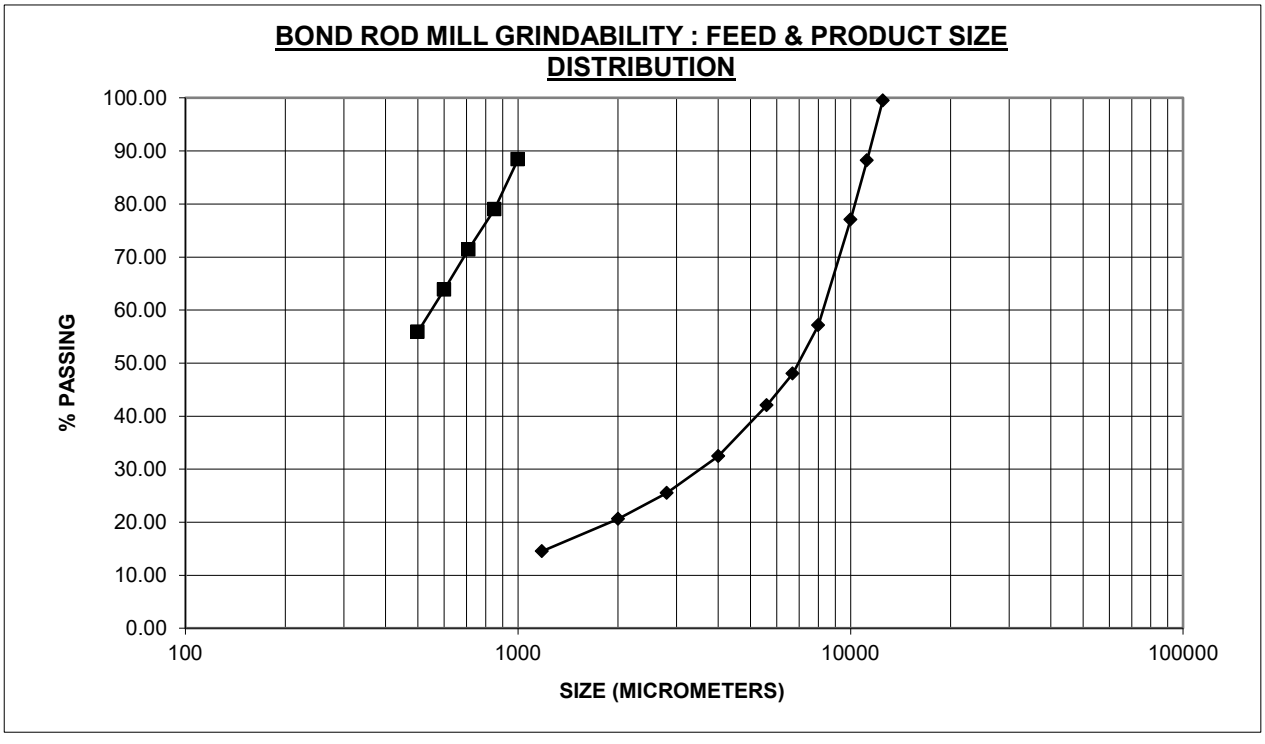
BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.8

BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

ENIODA FRESH#2
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	3.9	0.52	99.48
11.200	85.3	11.28	88.20
10.000	84.2	11.14	77.07
8.000	150.7	19.93	57.14
6.700	69.1	9.14	48.00
5.600	45.0	5.95	42.04
4.000	72.4	9.58	32.47
2.800	52.6	6.96	25.51
2.000	37.2	4.92	20.59
1.180	46.1	6.10	14.50
-1.180	109.6	14.50	
TOTAL	756.1	100.00	
F 80 (µm) :	10316		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	127.5	11.57	88.43
0.850	103.9	9.43	78.99
0.710	83.6	7.59	71.41
0.600	83.6	7.59	63.82
0.500	87.5	7.94	55.87
-0.500	615.5	55.87	
TOTAL	1101.6	100.00	
P 80 (µm) :	866		



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	ATIRRE FRESH # 1
DATE	May-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	2170.5	2170.5	1037.0	1133.5	806.8	5.378	91.5	1133.5	170.6
2	170	2170.5	1133.5	1028.0	1142.5	971.9	5.717	90.0	1142.5	172.0
3	160	2170.5	1142.5	996.7	1173.8	1001.8	6.261	84.9	1173.8	176.7
4	145	2170.5	1173.8	1085.3	1085.2	908.5	6.266	100.0	1085.2	163.4
5	147	2170.5	1085.2	1085.3	1085.2	921.8	6.271	100.0	1085.2	163.4

PRODUCT IN THE FEED	15.05	(%)
BULK DENSITY	1.7364	(t/m^3)
IDEAL POTENTIAL PRODUCT	1085.3	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	6.268	(g/rev)
80 % PASSING FEED SIZE	10278	(µm)
80 % PASSING PRODUCT SIZE	845	(µm)

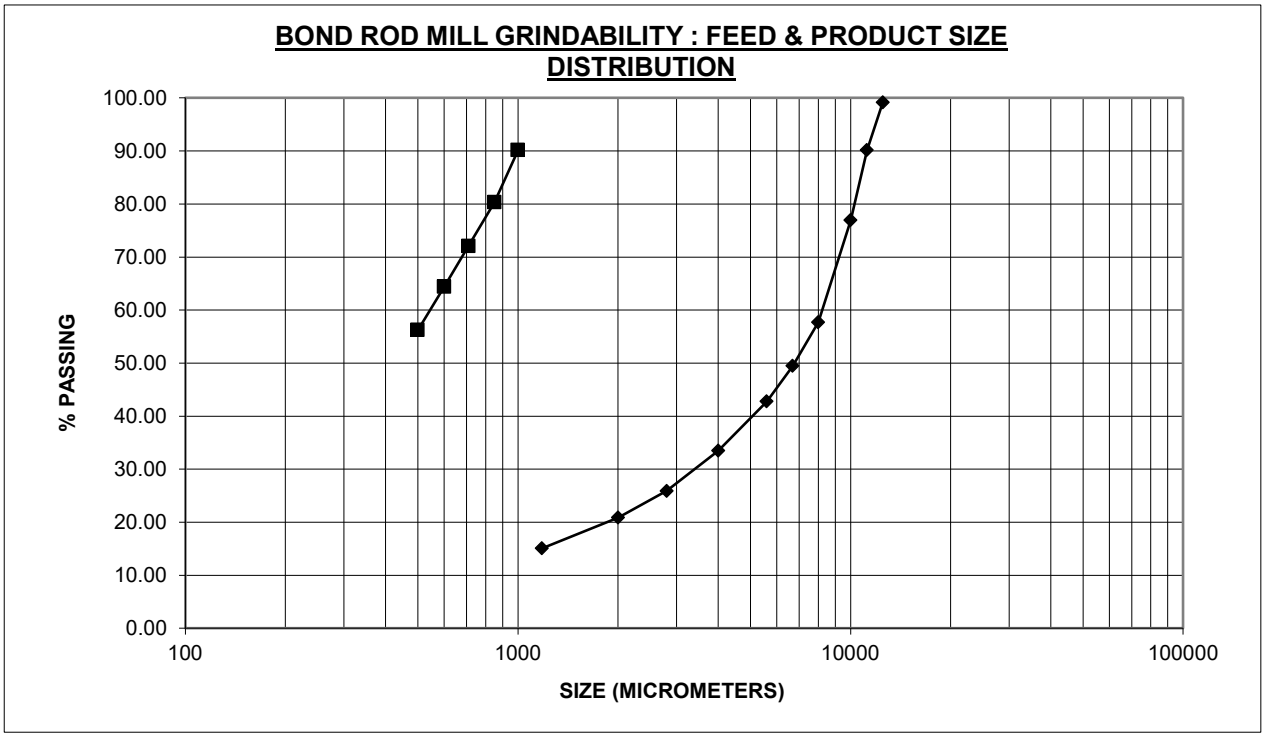
BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.4

BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

ATIRRE FRESH # 1
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	9.0	0.88	99.12
11.200	92.0	8.97	90.15
10.000	135.6	13.22	76.93
8.000	197.2	19.23	57.71
6.700	84.5	8.24	49.47
5.600	68.6	6.69	42.78
4.000	95.7	9.33	33.45
2.800	77.5	7.56	25.89
2.000	51.6	5.03	20.86
1.180	59.6	5.81	15.05
-1.180	154.4	15.05	
TOTAL	1025.7	100.00	
F 80 (µm) :	10278		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	107.0	9.86	90.14
0.850	106.6	9.82	80.32
0.710	89.6	8.26	72.06
0.600	83.4	7.68	64.38
0.500	88.6	8.16	56.21
-0.500	610.1	56.21	
TOTAL	1085.3	100.00	
P 80 (µm) :	845		



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	ATIRRE FRESH # 2
DATE	May-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2201.8	2201.8	885.5	1316.3	1019.8	5.099	67.3	1316.3	177.2
2	181	2201.8	1316.3	1109.0	1092.8	915.6	5.058	101.5	1092.8	147.1
3	189	2201.8	1092.8	985.5	1216.3	1069.2	5.657	81.0	1216.3	163.8
4	166	2201.8	1216.3	1100.9	1100.9	937.1	5.645	100.0	1100.9	148.2
5	169	2201.8	1100.9	1100.9	1100.9	952.7	5.637	100.0	1100.9	148.2

PRODUCT IN THE FEED	13.46	(%)
BULK DENSITY	1.7614	(t/m^3)
IDEAL POTENTIAL PRODUCT	1100.9	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	5.641	(g/rev)
80 % PASSING FEED SIZE	10565	(µm)
80 % PASSING PRODUCT SIZE	853	(µm)

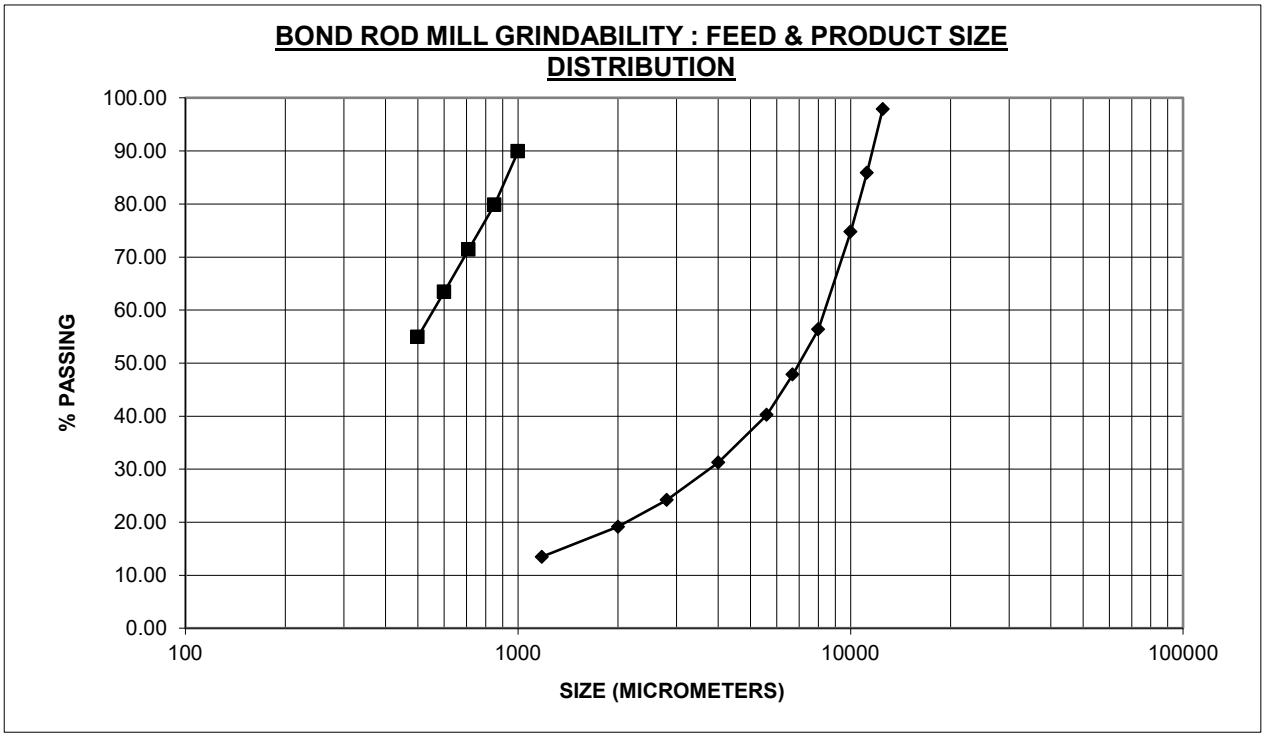
BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 18.6

BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

ATIRRE FRESH # 2
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	21.7	2.09	97.91
11.200	124.9	12.02	85.89
10.000	115.6	11.13	74.76
8.000	191.6	18.44	56.32
6.700	88.0	8.47	47.85
5.600	79.2	7.62	40.23
4.000	93.4	8.99	31.24
2.800	73.6	7.08	24.16
2.000	52.2	5.02	19.13
1.180	58.9	5.67	13.46
-1.180	139.9	13.46	
TOTAL	1039.0	100.00	
F 80 (µm) :	10565		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	111.2	10.10	89.90
0.850	110.9	10.07	79.83
0.710	93.0	8.45	71.38
0.600	87.8	7.98	63.40
0.500	93.3	8.47	54.93
-0.500	604.7	54.93	
TOTAL	1100.9	100.00	
P 80 (µm) :	853		



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	ATIRRE TRANS
DATE	May-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	2142.2	2142.2	359.2	1783.0	1437.8	9.585	20.1	1783.0	287.3
2	82	2142.2	1783.0	967.9	1174.3	887.0	10.817	82.4	1174.3	189.2
3	82	2142.2	1174.3	1006.0	1136.2	947.0	11.548	88.5	1136.2	183.1
4	77	2142.2	1136.2	1027.1	1115.1	932.0	12.104	92.1	1115.1	179.7
5	74	2142.2	1115.1	1071.1	1071.1	891.4	12.046	100.0	1071.1	172.6
6	75	2142.2	1071.1	1071.1	1071.1	898.5	11.980	100.0	1071.1	172.6

PRODUCT IN THE FEED	16.12	(%)
BULK DENSITY	1.7138	(t/m^3)
IDEAL POTENTIAL PRODUCT	1071.1	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	12.013	(g/rev)
80 % PASSING FEED SIZE	9956	(µm)
80 % PASSING PRODUCT SIZE	961	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 12.8

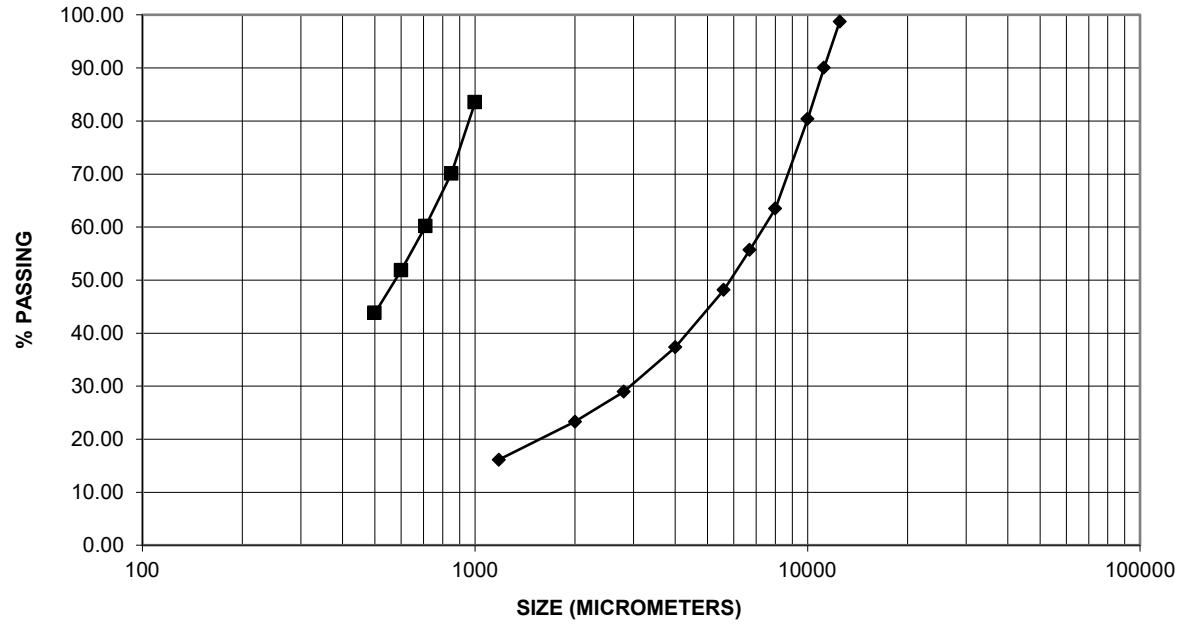
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

ATIRRE TRANS
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	13.0	1.26	98.74
11.200	89.5	8.70	90.03
10.000	99.3	9.66	80.37
8.000	174.0	16.92	63.45
6.700	79.9	7.77	55.68
5.600	77.7	7.56	48.12
4.000	110.9	10.79	37.34
2.800	86.1	8.37	28.96
2.000	58.2	5.66	23.30
1.180	73.9	7.19	16.12
-1.180	165.7	16.12	
TOTAL	1028.2	100.00	
F 80 (µm) :	**9956**		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	176.8	16.51	83.49
0.850	143.8	13.43	70.07
0.710	106.3	9.92	60.14
0.600	89.0	8.31	51.83
0.500	86.4	8.07	43.77
-0.500	468.8	43.77	
TOTAL	1071.1	100.00	
P 80 (µm) :	**961**		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KILOSEGUI FRESH #1
DATE	May-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2008.2	2008.2	628.1	1380.1	1106.7	5.533	45.5	1380.1	187.9
2	148	2008.2	1380.1	838.8	1169.4	981.5	6.632	71.7	1169.4	159.2
3	127	2008.2	1169.4	954.0	1054.2	895.0	7.047	90.5	1054.2	143.5
4	122	2008.2	1054.2	1004.1	1004.1	860.6	7.054	100.0	1004.1	136.7
5	123	2008.2	1004.1	1004.1	1004.1	867.4	7.052	100.0	1004.1	136.7

PRODUCT IN THE FEED	13.62	(%)
BULK DENSITY	1.6066	(t/m^3)
IDEAL POTENTIAL PRODUCT	1004.1	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	7.053	(g/rev)
80 % PASSING FEED SIZE	10360	(µm)
80 % PASSING PRODUCT SIZE	874	(µm)

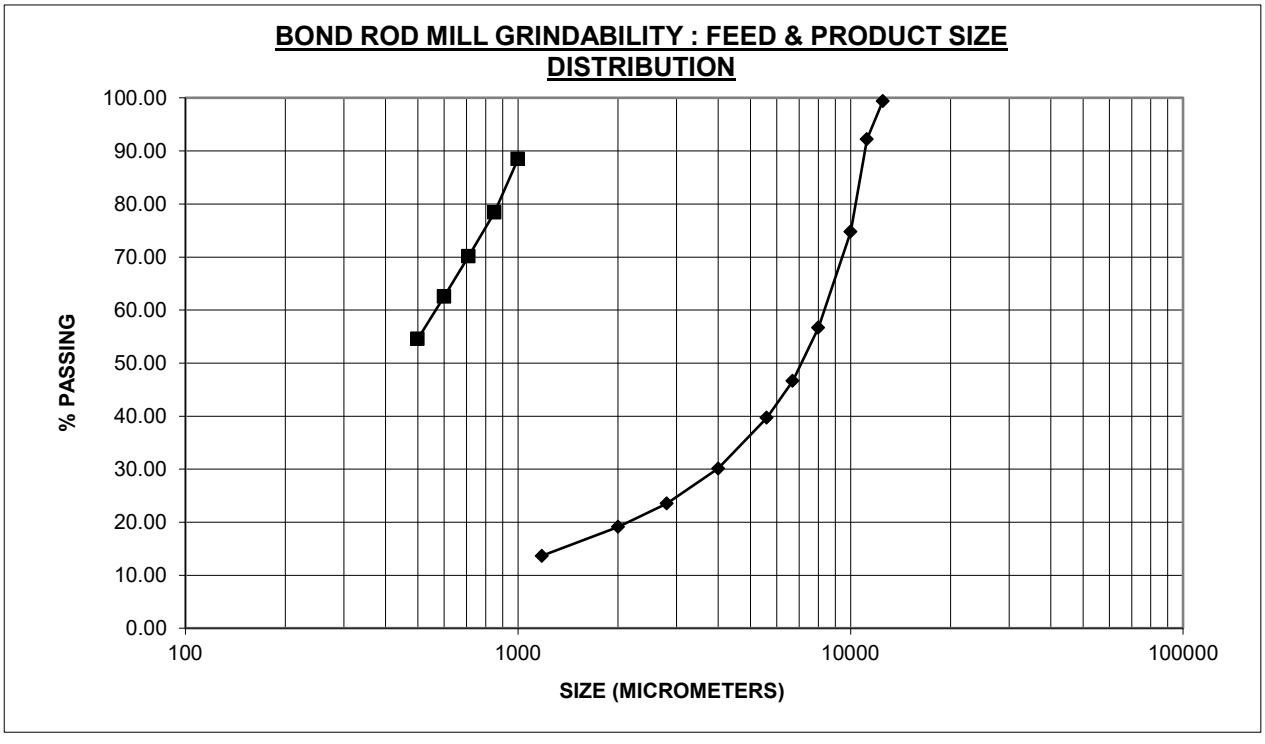
BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.5

BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

KILOSEGUI FRESH #1
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	4.5	0.62	99.38
11.200	52.3	7.16	92.23
10.000	127.7	17.47	74.75
8.000	132.3	18.10	56.65
6.700	73.4	10.04	46.61
5.600	50.6	6.92	39.68
4.000	69.9	9.56	30.12
2.800	48.1	6.58	23.54
2.000	32.3	4.42	19.12
1.180	40.2	5.50	13.62
-1.180	99.5	13.62	
TOTAL	730.8	100.00	
F 80 (µm) :	10360		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	115.7	11.52	88.48
0.850	101.4	10.10	78.38
0.710	83.0	8.27	70.11
0.600	76.2	7.59	62.52
0.500	80.0	7.97	54.56
-0.500	547.8	54.56	
TOTAL	1004.1	100.00	
P 80 (µm) :	874		



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KILOSEGUI FRESH #2
DATE	May-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2016.1	2016.1	87.3	1928.8	1633.6	8.168	4.5	1928.8	282.4
2	89	2016.1	1928.8	854.9	1161.2	878.8	9.874	73.6	1161.2	170.0
3	85	2016.1	1161.2	890.5	1125.6	955.6	11.242	79.1	1125.6	164.8
4	75	2016.1	1125.6	1008.1	1008.0	843.2	11.243	100.0	1008.0	147.6
5	77	2016.1	1008.0	1008.1	1008.0	860.4	11.174	100.0	1008.0	147.6

PRODUCT IN THE FEED	14.64	(%)
BULK DENSITY	1.6129	(t/m^3)
IDEAL POTENTIAL PRODUCT	1008.1	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	11.209	(g/rev)
80 % PASSING FEED SIZE	9530	(µm)
80 % PASSING PRODUCT SIZE	882	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 12.7

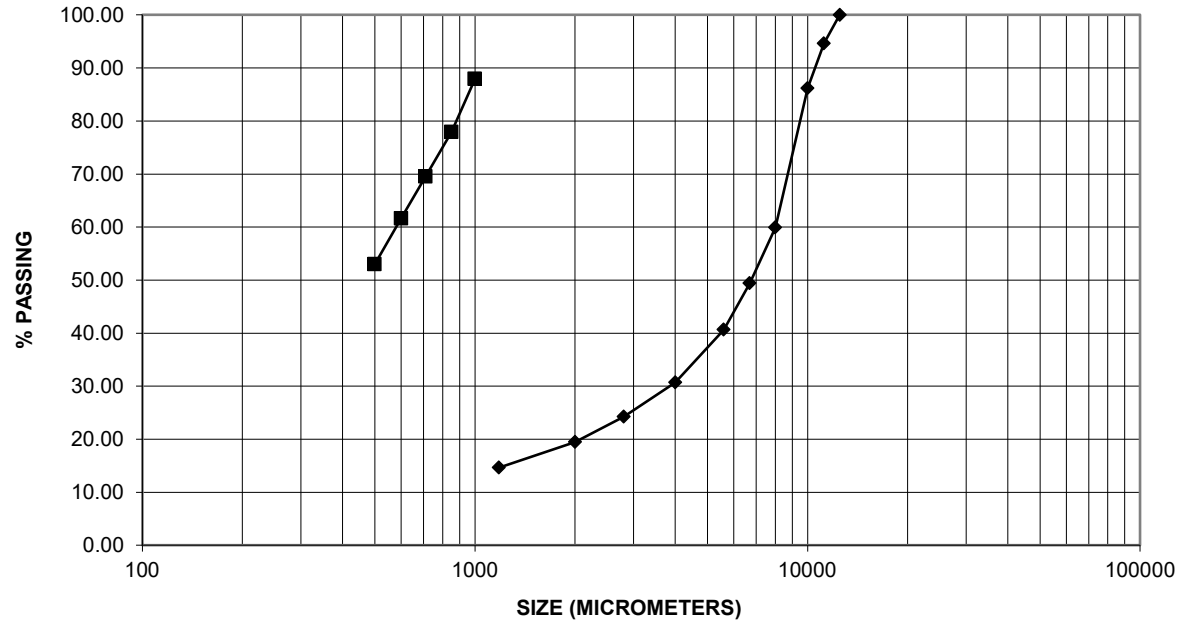
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

KILOSEGUI FRESH #2
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	0.0	0.00	100.00
11.200	48.1	5.35	94.65
10.000	76.1	8.47	86.18
8.000	236.3	26.29	59.90
6.700	94.3	10.49	49.40
5.600	78.5	8.73	40.67
4.000	89.9	10.00	30.67
2.800	58.0	6.45	24.22
2.000	42.5	4.73	19.49
1.180	43.6	4.85	14.64
-1.180	131.6	14.64	
TOTAL	898.9	100.00	
F 80 (µm) :	9530		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	121.6	12.06	87.94
0.850	101.4	10.06	77.88
0.710	84.3	8.36	69.52
0.600	79.5	7.89	61.63
0.500	87.0	8.63	53.00
-0.500	534.3	53.00	
TOTAL	1008.1	100.00	
P 80 (µm) :	882		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KILOSEGUI FRESH #3
DATE	May-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2059.7	2059.7	611.7	1448.0	1202.1	6.010	42.2	1448.0	172.9
2	143	2059.7	1448.0	929.3	1130.4	957.5	6.696	82.2	1130.4	135.0
3	134	2059.7	1130.4	948.6	1111.1	976.1	7.285	85.4	1111.1	132.7
4	123	2059.7	1111.1	1029.9	1029.8	897.1	7.294	100.0	1029.8	123.0
5	124	2059.7	1029.8	1029.9	1029.8	906.8	7.313	100.0	1029.8	123.0

PRODUCT IN THE FEED	11.94	(%)
BULK DENSITY	1.6478	(t/m^3)
IDEAL POTENTIAL PRODUCT	1029.9	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	7.304	(g/rev)
80 % PASSING FEED SIZE	10147	(µm)
80 % PASSING PRODUCT SIZE	885	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.4

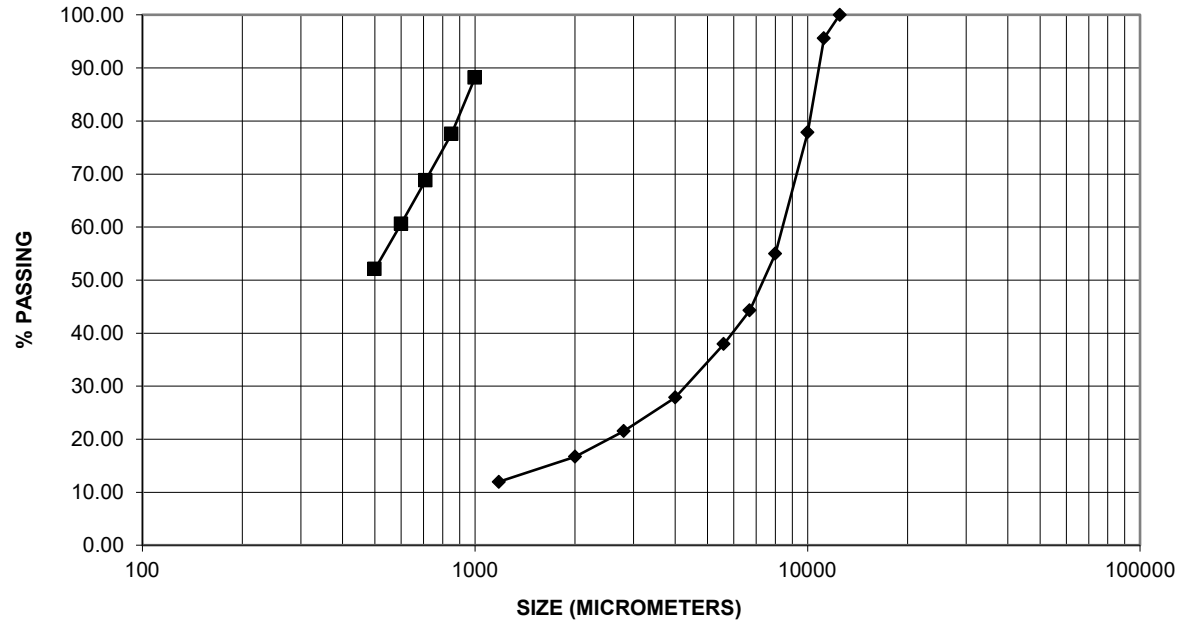
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

KILOSEGUI FRESH #3
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	0.0	0.00	100.00
11.200	36.8	4.39	95.61
10.000	149.2	17.80	77.81
8.000	191.8	22.88	54.94
6.700	89.4	10.66	44.27
5.600	53.0	6.32	37.95
4.000	84.8	10.11	27.84
2.800	53.0	6.32	21.52
2.000	40.4	4.82	16.70
1.180	39.9	4.76	11.94
-1.180	100.1	11.94	
TOTAL	838.4	100.00	
F 80 (µm) :	10147		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	121.6	11.81	88.19
0.850	109.7	10.65	77.54
0.710	90.3	8.77	68.77
0.600	84.2	8.18	60.60
0.500	88.1	8.55	52.04
-0.500	536.0	52.04	
TOTAL	1029.9	100.00	
P 80 (µm) :	885		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KILOSEGUI FRESH #4
DATE	May-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2079.4	2079.4	770.4	1309.0	1063.5	5.318	58.9	1309.0	154.5
2	166	2079.4	1309.0	903.0	1176.4	1021.9	6.156	76.8	1176.4	138.9
3	146	2079.4	1176.4	988.6	1090.8	951.9	6.520	90.6	1090.8	128.8
4	140	2079.4	1090.8	1039.7	1039.7	910.9	6.507	100.0	1039.7	122.7
5	141	2079.4	1039.7	1039.7	1039.7	917.0	6.503	100.0	1039.7	122.7

PRODUCT IN THE FEED	11.81	(%)
BULK DENSITY	1.6635	(t/m^3)
IDEAL POTENTIAL PRODUCT	1039.7	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	6.505	(g/rev)
80 % PASSING FEED SIZE	10206	(µm)
80 % PASSING PRODUCT SIZE	869	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.3

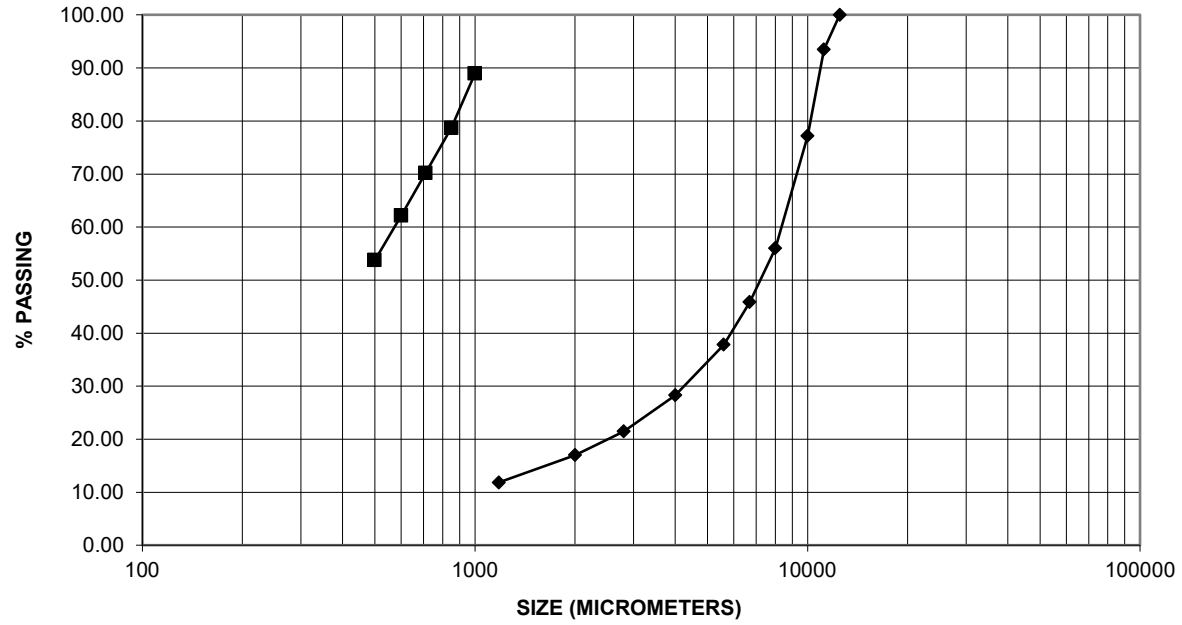
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

KILOSEGUI FRESH #4
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	0.0	0.00	100.00
11.200	51.6	6.49	93.51
10.000	129.5	16.30	77.21
8.000	168.6	21.22	55.98
6.700	80.5	10.13	45.85
5.600	63.8	8.03	37.82
4.000	76.0	9.57	28.26
2.800	54.2	6.82	21.43
2.000	35.1	4.42	17.02
1.180	41.4	5.21	11.81
-1.180	93.8	11.81	
TOTAL	794.5	100.00	
F 80 (µm) :	**10206**		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	114.7	11.03	88.97
0.850	106.6	10.25	78.72
0.710	89.0	8.56	70.15
0.600	83.3	8.01	62.14
0.500	87.4	8.41	53.74
-0.500	558.7	53.74	
TOTAL	1039.7	100.00	
P 80 (µm) :	**869**		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KILOSEGUI TRANSITION #1
DATE	May-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	100	1971.2	1971.2	667.4	1303.8	1046.3	10.463	51.2	1303.8	170.3
2	78	1971.2	1303.8	910.9	1060.3	890.0	11.410	85.9	1060.3	138.5
3	74	1971.2	1060.3	898.7	1072.5	934.0	12.622	83.8	1072.5	140.1
4	67	1971.2	1072.5	985.6	985.6	845.5	12.619	100.0	985.6	128.7
5	68	1971.2	985.6	985.6	985.6	856.9	12.601	100.0	985.6	128.7

PRODUCT IN THE FEED	13.06	(%)
BULK DENSITY	1.5770	(t/m^3)
IDEAL POTENTIAL PRODUCT	985.6	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	12.610	(g/rev)
80 % PASSING FEED SIZE	9239	(µm)
80 % PASSING PRODUCT SIZE	928	(µm)

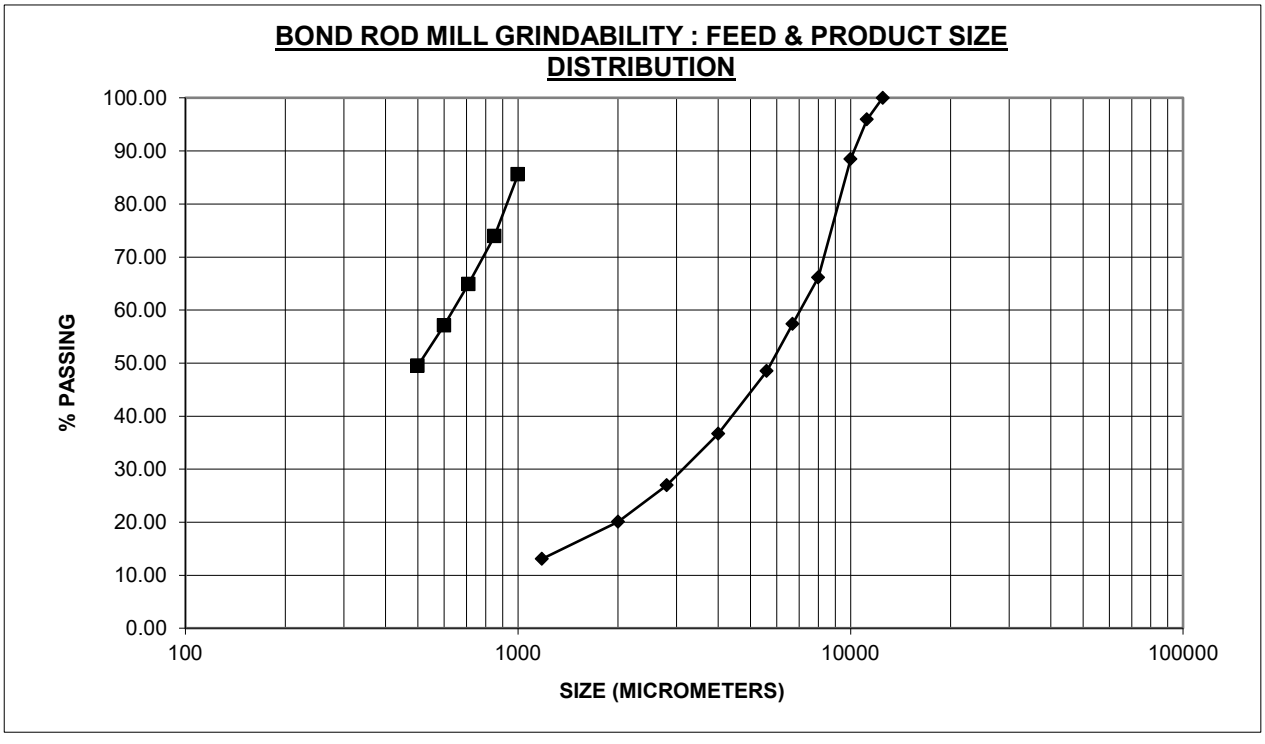
BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 12.3

BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

KILOSEGUI TRANSITION #1
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	0.0	0.00	100.00
11.200	33.0	4.05	95.95
10.000	60.8	7.46	88.50
8.000	182.1	22.34	66.16
6.700	71.4	8.76	57.40
5.600	72.7	8.92	48.49
4.000	96.2	11.80	36.69
2.800	79.2	9.71	26.97
2.000	56.3	6.91	20.07
1.180	57.1	7.00	13.06
-1.180	106.5	13.06	
TOTAL	815.3	100.00	
F 80 (µm) :	9239		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	142.3	14.44	85.56
0.850	114.8	11.65	73.91
0.710	89.0	9.03	64.88
0.600	76.7	7.78	57.10
0.500	75.1	7.62	49.48
-0.500	487.7	49.48	
TOTAL	985.6	100.00	
P 80 (µm) :	928		



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KEKEDA FRESH #4
DATE	Dec-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	2167.2	2167.2	557.9	1609.3	1216.1	8.108	34.7	1609.3	292.0
2	98	2167.2	1609.3	970.4	1196.8	904.8	9.233	81.1	1196.8	217.1
3	94	2167.2	1196.8	956.4	1210.8	993.7	10.571	79.0	1210.8	219.7
4	82	2167.2	1210.8	1083.6	1083.6	863.9	10.536	100.0	1083.6	196.6
5	84	2167.2	1083.6	1083.6	1083.6	887.0	10.560	100.0	1083.6	196.6

PRODUCT IN THE FEED	18.14	(%)
BULK DENSITY	1.7338	(t/m^3)
IDEAL POTENTIAL PRODUCT	1083.6	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	10.548	(g/rev)
80 % PASSING FEED SIZE	9770	(µm)
80 % PASSING PRODUCT SIZE	903	(µm)

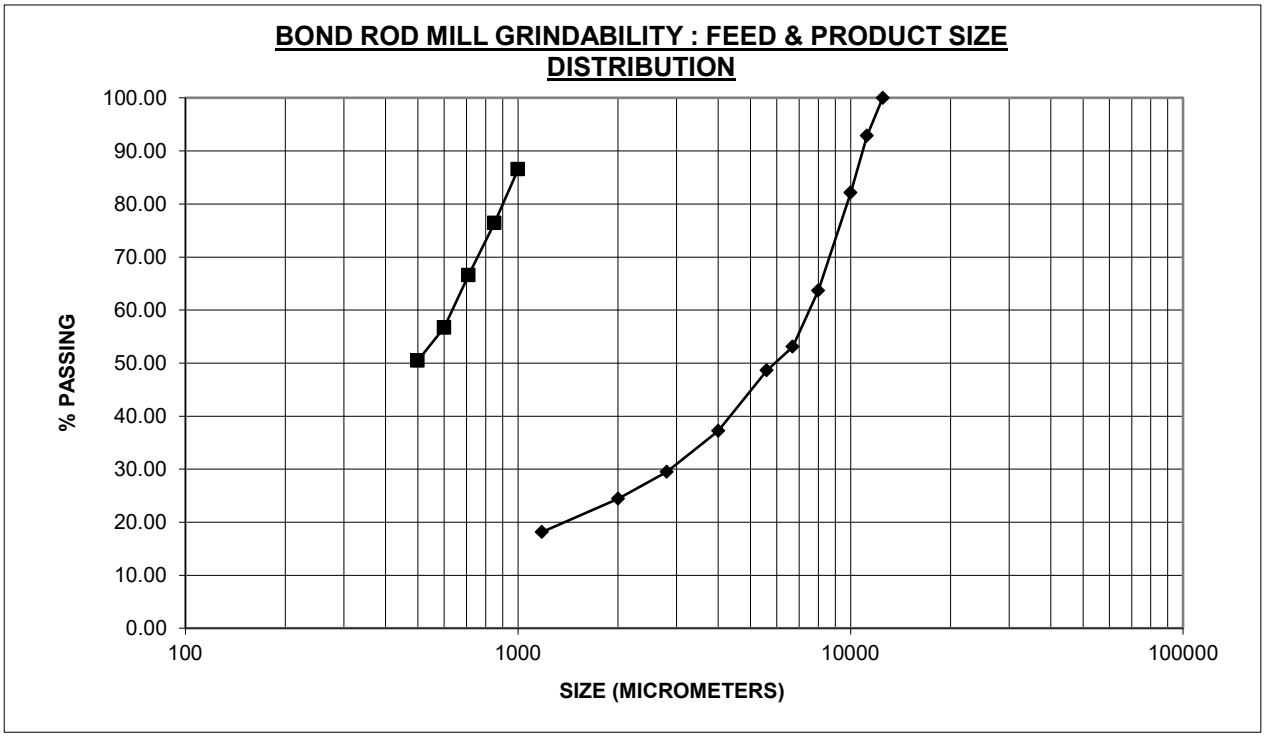
BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 13.3

BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

KEKEDA FRESH #4
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	0.0	0.00	100.00
11.200	74.7	7.14	92.86
10.000	112.3	10.73	82.13
8.000	193.0	18.45	63.68
6.700	110.7	10.58	53.10
5.600	46.6	4.45	48.64
4.000	119.7	11.44	37.20
2.800	80.7	7.71	29.49
2.000	52.9	5.06	24.43
1.180	65.8	6.29	18.14
-1.180	189.8	18.14	
TOTAL	1046.2	100.00	
F 80 (µm) :	**9770**		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	146.2	13.49	86.51
0.850	109.6	10.11	76.39
0.710	106.9	9.87	66.53
0.600	106.7	9.85	56.68
0.500	67.5	6.23	50.45
-0.500	546.7	50.45	
TOTAL	1083.6	100.00	
P 80 (µm) :	**903**		



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	NOKPA FRESH #3
DATE	Dec-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2185.3	2185.3	960.9	1224.4	961.1	4.806	78.5	1224.4	147.5
2	197	2185.3	1224.4	977.0	1208.3	1060.8	5.385	80.9	1208.3	145.6
3	176	2185.3	1208.3	978.0	1207.3	1061.7	6.032	81.0	1207.3	145.5
4	157	2185.3	1207.3	1021.2	1164.1	1018.6	6.488	87.7	1164.1	140.3
5	147	2185.3	1164.1	1092.7	1092.6	952.3	6.479	100.0	1092.6	131.6
6	148	2185.3	1092.6	1092.7	1092.6	961.0	6.493	100.0	1092.6	131.6

PRODUCT IN THE FEED	12.05	(%)
BULK DENSITY	1.7482	(t/m^3)
IDEAL POTENTIAL PRODUCT	1092.7	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	6.486	(g/rev)
80 % PASSING FEED SIZE	10274	(µm)
80 % PASSING PRODUCT SIZE	941	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 18.4

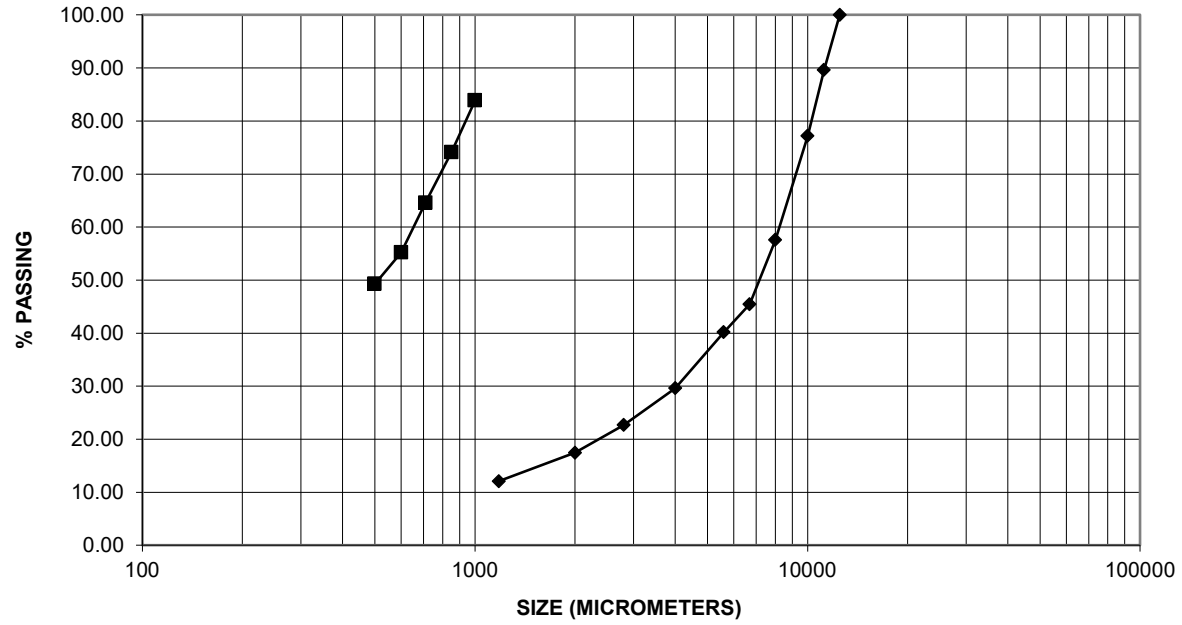
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

NOKPA FRESH #3
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	0.0	0.00	100.00
11.200	128.5	10.40	89.60
10.000	153.5	12.43	77.17
8.000	242.1	19.60	57.56
6.700	149.5	12.11	45.46
5.600	65.2	5.28	40.18
4.000	130.5	10.57	29.61
2.800	85.7	6.94	22.67
2.000	64.5	5.22	17.45
1.180	66.7	5.40	12.05
-1.180	148.8	12.05	
TOTAL	1235.0	100.00	
F 80 (µm) :	**10274**		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	176.4	16.14	83.86
0.850	106.7	9.77	74.09
0.710	103.9	9.51	64.58
0.600	102.5	9.38	55.20
0.500	64.8	5.93	49.27
-0.500	538.4	49.27	
TOTAL	1092.7	100.00	
P 80 (µm) :	**941**		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE MAIN FRESH #5
DATE	Dec-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2230.0	2230.0	808.5	1421.5	1088.3	5.441	56.9	1421.5	212.4
2	166	2230.0	1421.5	1050.0	1180.0	967.6	5.829	89.0	1180.0	176.3
3	161	2230.0	1180.0	1002.0	1228.0	1051.7	6.532	81.6	1228.0	183.5
4	143	2230.0	1228.0	1115.0	1115.0	931.5	6.514	100.0	1115.0	166.6
5	146	2230.0	1115.0	1115.0	1115.0	948.4	6.496	100.0	1115.0	166.6

PRODUCT IN THE FEED	14.94	(%)
BULK DENSITY	1.7840	(t/m^3)
IDEAL POTENTIAL PRODUCT	1115.0	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	6.505	(g/rev)
80 % PASSING FEED SIZE	10159	(µm)
80 % PASSING PRODUCT SIZE	862	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.3

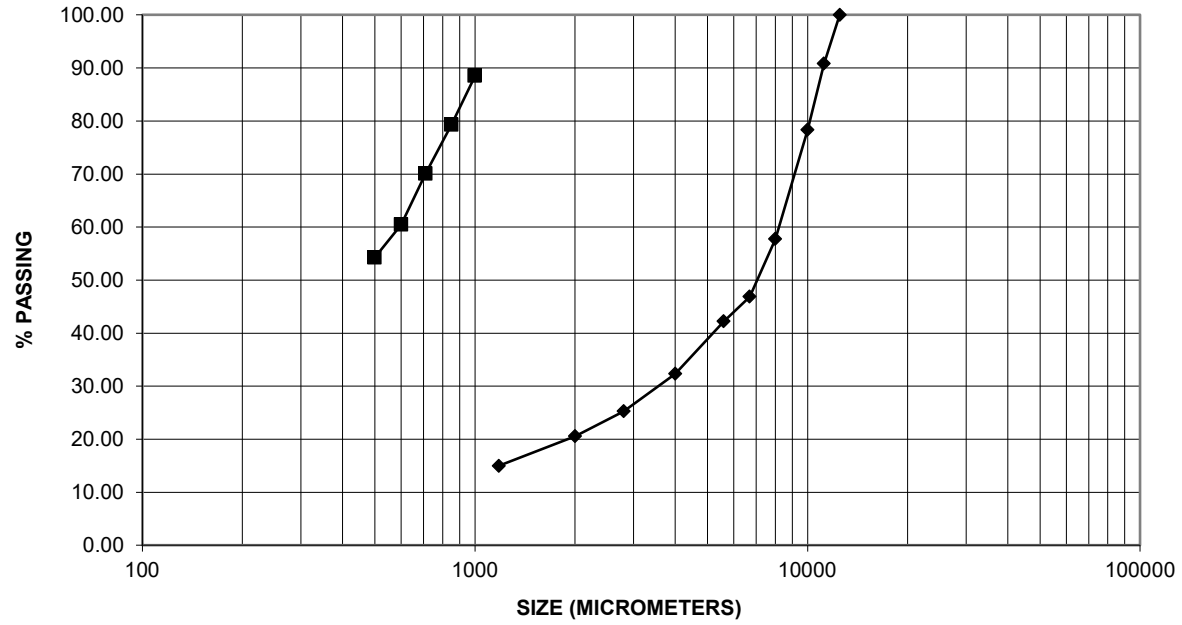
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

CHEGUE MAIN FRESH #5
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	0.0	0.00	100.00
11.200	115.5	9.21	90.79
10.000	156.2	12.45	78.35
8.000	258.4	20.59	57.75
6.700	136.5	10.88	46.87
5.600	58.6	4.67	42.20
4.000	123.8	9.87	32.33
2.800	89.0	7.09	25.24
2.000	58.5	4.66	20.58
1.180	70.7	5.63	14.94
-1.180	187.5	14.94	
TOTAL	1254.7	100.00	
F 80 (µm) :	10159		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	128.2	11.50	88.50
0.850	102.7	9.21	79.29
0.710	102.9	9.23	70.06
0.600	107.1	9.61	60.46
0.500	69.1	6.20	54.26
-0.500	605.0	54.26	
TOTAL	1115.0	100.00	
P 80 (µm) :	862		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	SOUWA FRESH #4
DATE	Dec-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2303.7	2303.7	753.7	1550.0	1211.0	6.055	48.6	1550.0	228.1
2	153	2303.7	1550.0	1053.2	1250.5	1022.4	6.682	84.2	1250.5	184.0
3	145	2303.7	1250.5	1079.3	1224.4	1040.4	7.175	88.1	1224.4	180.2
4	135	2303.7	1224.4	1091.2	1212.5	1032.3	7.647	90.0	1212.5	178.4
5	127	2303.7	1212.5	1151.9	1151.8	973.4	7.664	100.0	1151.8	169.5
6	128	2303.7	1151.8	1151.9	1151.8	982.3	7.674	100.0	1151.8	169.5

PRODUCT IN THE FEED	14.72	(%)
BULK DENSITY	1.8430	(t/m^3)
IDEAL POTENTIAL PRODUCT	1151.9	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	7.669	(g/rev)
80 % PASSING FEED SIZE	9841	(µm)
80 % PASSING PRODUCT SIZE	927	(µm)

BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.5

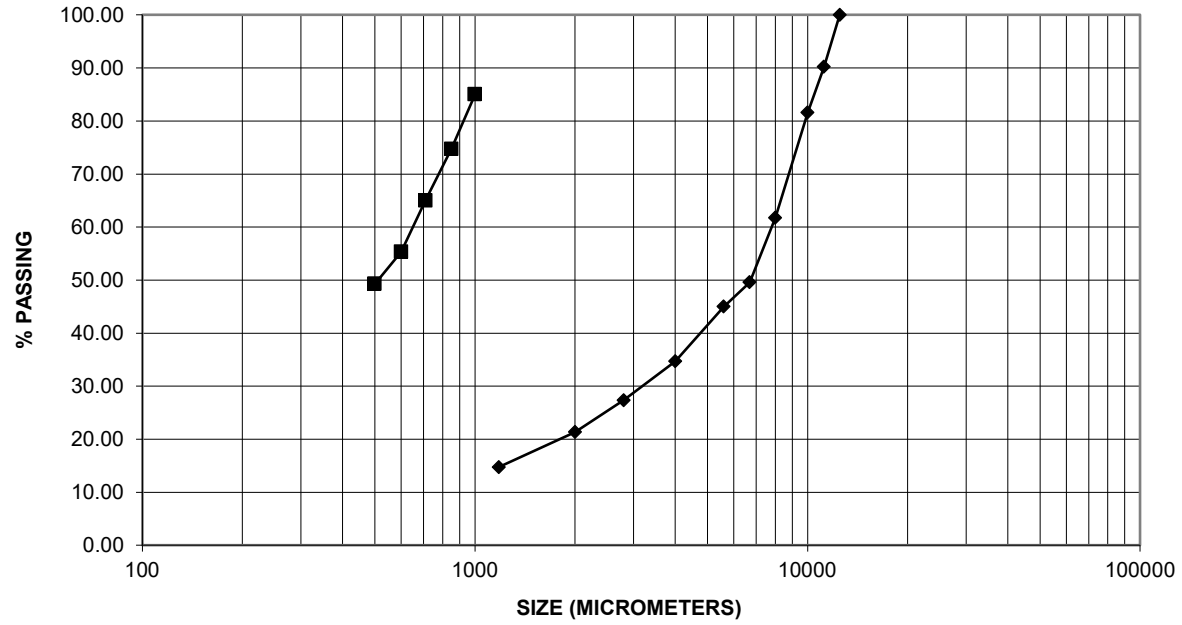
BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

SOUWA FRESH #4
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	0.0	0.00	100.00
11.200	122.1	9.79	90.21
10.000	107.7	8.64	81.57
8.000	247.3	19.83	61.74
6.700	151.8	12.17	49.57
5.600	56.7	4.55	45.02
4.000	129.2	10.36	34.66
2.800	91.2	7.31	27.35
2.000	74.8	6.00	21.35
1.180	82.7	6.63	14.72
-1.180	183.5	14.72	
TOTAL	1247.0	100.00	
F 80 (µm) :	**9841**		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	172.7	14.99	85.01
0.850	118.4	10.28	74.73
0.710	112.0	9.72	65.00
0.600	111.8	9.71	55.30
0.500	69.4	6.03	49.27
-0.500	567.6	49.27	
TOTAL	1151.9	100.00	
P 80 (µm) :	**927**		

BOND ROD MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND ROD MILL CLOSED CIRCUIT GRINDABILITY : 1180 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	SOUWA FRESH #5
DATE	Dec-22

PERIOD	REVS OF MILL	WT OF 1250 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	2228.2	2228.2	638.0	1590.2	1264.0	6.320	40.1	1590.2	232.8
2	139	2228.2	1590.2	968.4	1259.8	1027.0	7.389	76.9	1259.8	184.4
3	126	2228.2	1259.8	1051.8	1176.4	992.0	7.873	89.4	1176.4	172.2
4	120	2228.2	1176.4	1114.1	1114.1	941.9	7.849	100.0	1114.1	163.1
5	121	2228.2	1114.1	1114.1	1114.1	951.0	7.860	100.0	1114.1	163.1

PRODUCT IN THE FEED	14.64	(%)
BULK DENSITY	1.7826	(t/m^3)
IDEAL POTENTIAL PRODUCT	1114.1	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	100	(%)
AVERAGE PRODUCT	7.854	(g/rev)
80 % PASSING FEED SIZE	9647	(µm)
80 % PASSING PRODUCT SIZE	925	(µm)

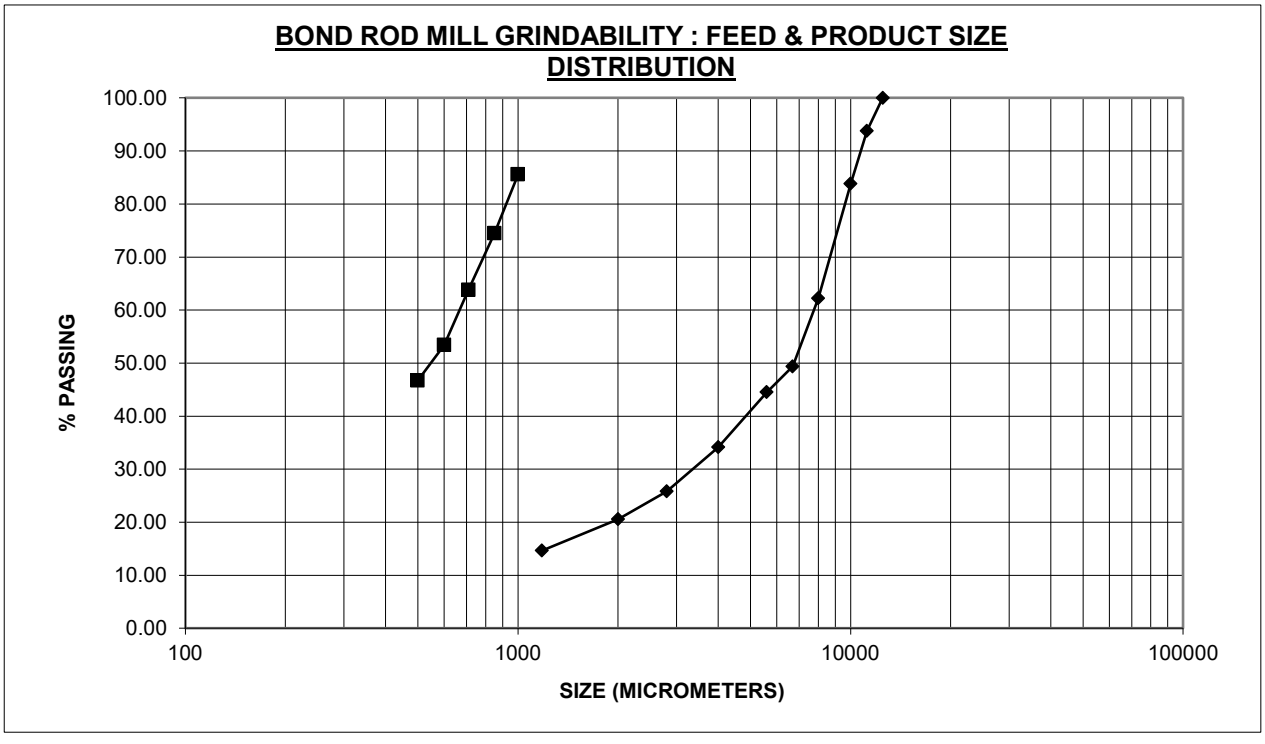
BOND ROD MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.3

BOND ROD MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

SOUWA FRESH #5
A23136 : DOROPO GOLD PROJECT

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
12.500	0.0	0.00	100.00
11.200	61.1	6.21	93.79
10.000	98.2	9.98	83.81
8.000	212.3	21.58	62.22
6.700	126.4	12.85	49.37
5.600	47.7	4.85	44.53
4.000	102.2	10.39	34.14
2.800	81.9	8.33	25.81
2.000	51.6	5.25	20.57
1.180	58.3	5.93	14.64
-1.180	144.0	14.64	
TOTAL	983.7	100.00	
F 80 (µm) :	**9647**		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
1.000	161.1	14.46	85.54
0.850	123.7	11.10	74.44
0.710	118.5	10.64	63.80
0.600	116.1	10.42	53.38
0.500	74.3	6.67	46.71
-0.500	520.4	46.71	
TOTAL	1114.1	100.00	
P 80 (µm) :	**925**		



APPENDIX VII

Bond Ball Mill Work Index Determination

Details and Results

BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	NOKPA FRESH #1 (81 - 88 m)
DATE	MARCH 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1239.7	1239.7	977.2	262.5	167.9	0.840	372.3	262.5	20.0
2	398	1239.7	262.5	851.6	388.1	368.1	0.925	219.4	388.1	29.6
3	351	1239.7	388.1	841.3	398.4	368.8	1.051	211.2	398.4	30.4
4	308	1239.7	398.4	885.5	354.2	323.8	1.051	250.0	354.2	27.0
5	311	1239.7	354.2	885.5	354.2	327.2	1.052	250.0	354.2	27.0

PRODUCT IN THE FEED	7.63	(%)
BULK DENSITY	1.7710	(t/m^3)
IDEAL POTENTIAL PRODUCT	354.2	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.052	(g/rev)
80 % PASSING FEED SIZE	2652	(µm)
80 % PASSING PRODUCT SIZE	87	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 18.3

ALS

Metallurgy

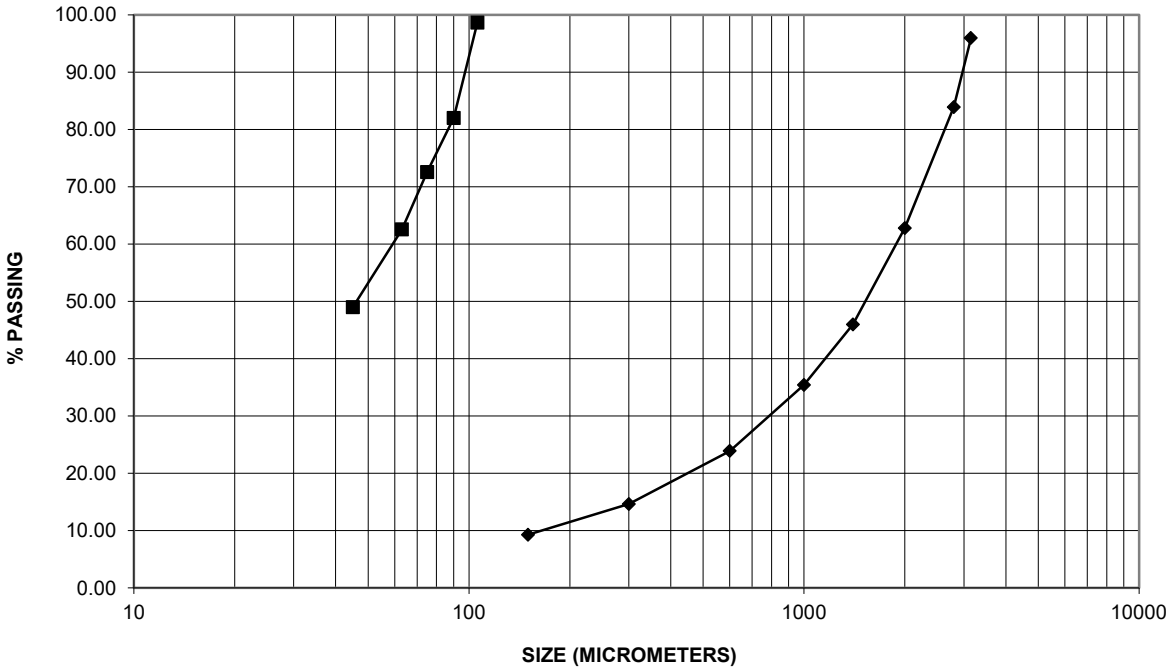
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	27.5	4.01	95.99
2.800	82.8	12.08	83.91
2.000	144.8	21.13	62.78
1.400	115.2	16.81	45.97
1.000	72.3	10.55	35.42
0.600	79.1	11.54	23.88
0.300	63.4	9.25	14.63
0.150	36.7	5.35	9.28
0.106	11.3	1.65	7.63
-0.106	52.3	7.63	
TOTAL	685.4	100.00	
F 80 (µm) :	2652		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.7	1.33	98.67
0.090	59.1	16.69	81.99
0.075	33.4	9.43	72.56
0.063	35.5	10.02	62.54
0.045	48.0	13.55	48.98
-0.045	173.5	48.98	
TOTAL	354.2	100.00	
P 80 (µm) :	87		

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	NOKPA FRESH #2 (108 - 118 m)
DATE	MARCH 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1249.5	1249.5	988.2	261.3	164.7	0.824	378.2	261.3	20.2
2	409	1249.5	261.3	863.8	385.7	365.5	0.894	224.0	385.7	29.8
3	366	1249.5	385.7	844.2	405.3	375.5	1.026	208.3	405.3	31.3
4	317	1249.5	405.3	869.9	379.6	348.3	1.099	229.2	379.6	29.3
5	298	1249.5	379.6	892.5	357.0	327.7	1.100	250.0	357.0	27.6
6	300	1249.5	357.0	892.5	357.0	329.4	1.098	250.0	357.0	27.6

PRODUCT IN THE FEED	7.73	(%)
BULK DENSITY	1.7850	(t/m^3)
IDEAL POTENTIAL PRODUCT	357.0	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.099	(g/rev)
80 % PASSING FEED SIZE	2779	(µm)
80 % PASSING PRODUCT SIZE	90	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.9

ALS

Metallurgy

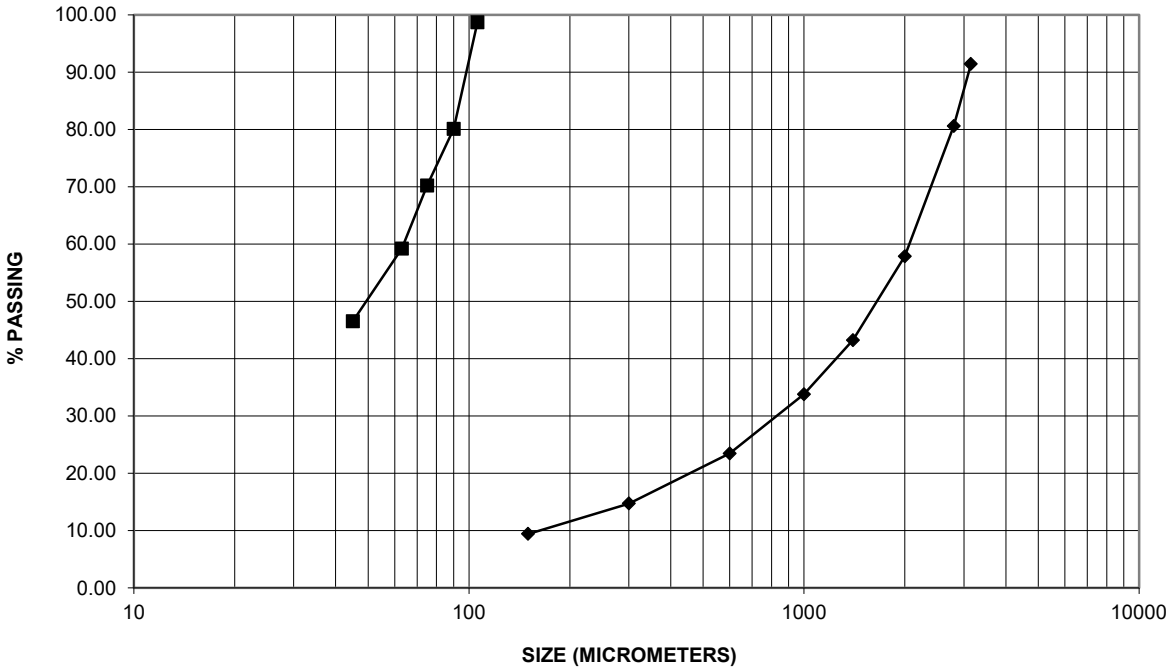
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	53.9	8.54	91.46
2.800	68.7	10.88	80.59
2.000	143.3	22.69	57.89
1.400	92.5	14.65	43.25
1.000	59.7	9.45	33.79
0.600	65.2	10.32	23.47
0.300	55.2	8.74	14.73
0.150	33.5	5.30	9.42
0.106	10.7	1.69	7.73
-0.106	48.8	7.73	
TOTAL	631.5	100.00	
F 80 (µm) :		2779	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.7	1.32	98.68
0.090	66.3	18.57	80.11
0.075	35.3	9.89	70.22
0.063	39.3	11.01	59.22
0.045	45.2	12.66	46.55
-0.045	166.2	46.55	
TOTAL	357.0	100.00	
P 80 (µm) :		90	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	NOKPA TRANSITION (12.5 - 21.5 m)
DATE	MARCH 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	100	1168.7	1168.7	899.5	269.2	88.9	0.889	334.1	269.2	41.5
2	329	1168.7	269.2	854.2	314.5	273.0	0.830	271.6	314.5	48.5
3	344	1168.7	314.5	798.4	370.3	321.8	0.935	215.6	370.3	57.1
4	296	1168.7	370.3	834.8	333.9	276.8	0.935	250.0	333.9	51.5
5	302	1168.7	333.9	834.8	333.9	282.4	0.935	250.0	333.9	51.5

PRODUCT IN THE FEED	15.43	(%)
BULK DENSITY	1.6696	(t/m^3)
IDEAL POTENTIAL PRODUCT	333.9	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	0.935	(g/rev)
80 % PASSING FEED SIZE	2423	(µm)
80 % PASSING PRODUCT SIZE	82	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 19.7

ALS

Metallurgy

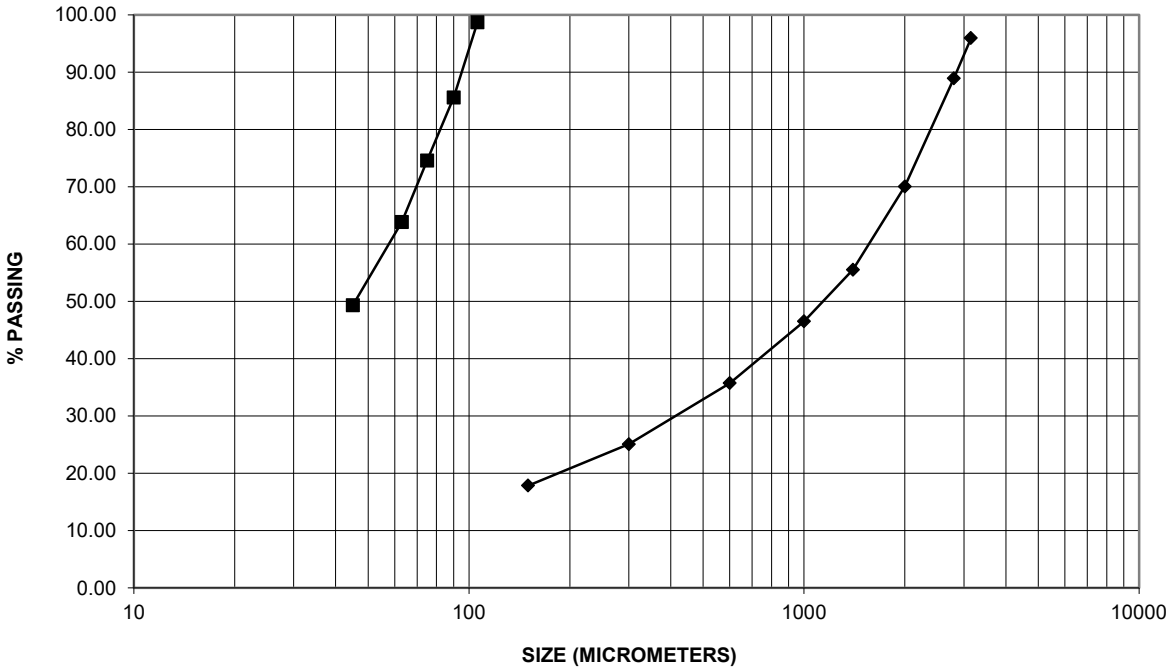
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	20.1	4.05	95.95
2.800	35.0	7.05	88.90
2.000	93.7	18.87	70.03
1.400	71.9	14.48	55.55
1.000	44.9	9.04	46.51
0.600	53.5	10.78	35.73
0.300	52.8	10.63	25.10
0.150	36.0	7.25	17.84
0.106	12.0	2.42	15.43
-0.106	76.6	15.43	
TOTAL	496.5	100.00	
F 80 (µm) :		2423	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.4	1.32	98.68
0.090	43.7	13.09	85.59
0.075	36.8	11.02	74.57
0.063	35.8	10.72	63.85
0.045	48.5	14.53	49.33
-0.045	164.7	49.33	
TOTAL	333.9	100.00	
P 80 (µm) :		82	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	SOUWA FRESH #1 (60 - 70 m)
DATE	MARCH 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1292.4	1292.4	987.1	305.3	181.8	0.909	323.3	305.3	29.2
2	374	1292.4	305.3	873.1	419.3	390.1	1.043	208.2	419.3	40.1
3	316	1292.4	419.3	890.0	402.4	362.3	1.147	221.2	402.4	38.4
4	289	1292.4	402.4	903.7	388.7	350.3	1.212	232.5	388.7	37.1
5	274	1292.4	388.7	923.1	369.3	332.2	1.212	250.0	369.3	35.3
6	275	1292.4	369.3	923.1	369.3	334.0	1.215	250.0	369.3	35.3

PRODUCT IN THE FEED	9.55	(%)
BULK DENSITY	1.8463	(t/m^3)
IDEAL POTENTIAL PRODUCT	369.3	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.213	(g/rev)
80 % PASSING FEED SIZE	2517	(µm)
80 % PASSING PRODUCT SIZE	82	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 15.9

ALS

Metallurgy

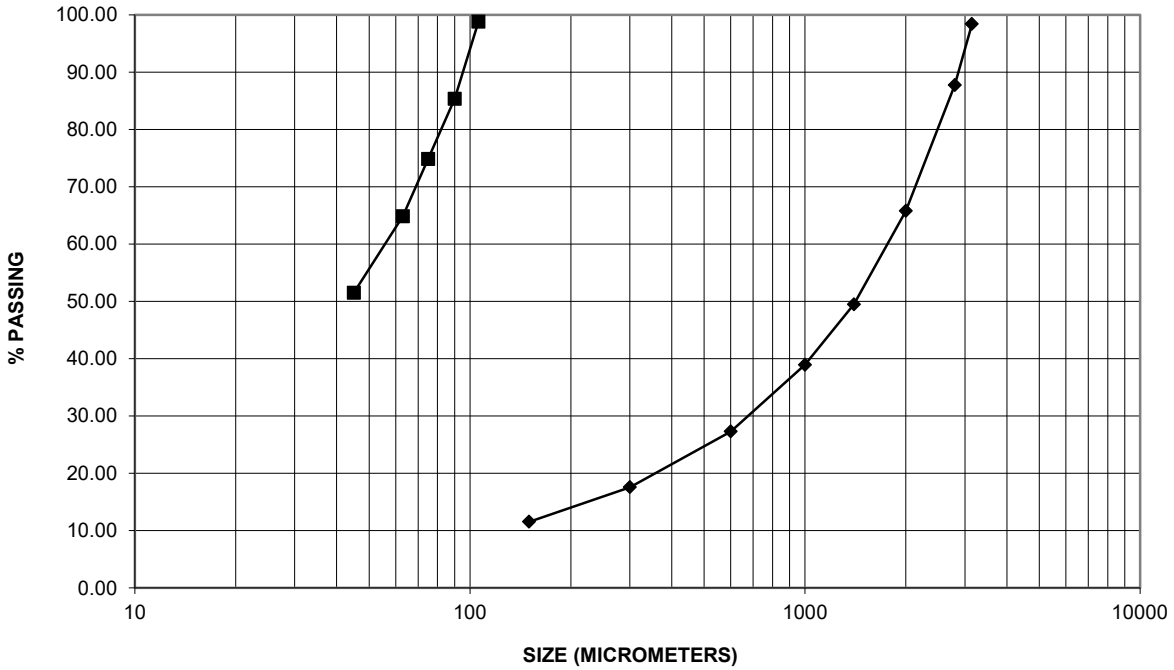
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	13.3	1.57	98.43
2.800	90.1	10.65	87.77
2.000	186.1	22.00	65.77
1.400	137.7	16.28	49.49
1.000	89.2	10.55	38.95
0.600	98.6	11.66	27.29
0.300	82.2	9.72	17.57
0.150	50.9	6.02	11.55
0.106	16.9	2.00	9.55
-0.106	80.8	9.55	
TOTAL	845.8	100.00	
F 80 (µm) :		2517	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.4	1.19	98.81
0.090	49.7	13.46	85.35
0.075	38.7	10.48	74.87
0.063	37.0	10.02	64.85
0.045	49.3	13.35	51.50
-0.045	190.2	51.50	
TOTAL	369.3	100.00	
P 80 (µm) :		82	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	SOUWA FRESH #2 (133 - 143 m)
DATE	MARCH 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1284.7	1284.7	987.2	297.5	177.1	0.886	331.8	297.5	27.9
2	383	1284.7	297.5	848.9	435.8	407.9	1.065	194.8	435.8	40.8
3	3306	1284.7	435.8	916.1	368.6	327.8	0.099	248.5	368.6	34.5
4	310	1284.7	368.6	917.6	367.1	332.6	1.073	250.0	367.1	34.4
5	310	1284.7	367.1	917.6	367.1	332.7	1.073	250.0	367.1	34.4

PRODUCT IN THE FEED	9.37	(%)
BULK DENSITY	1.8353	(t/m^3)
IDEAL POTENTIAL PRODUCT	367.1	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.073	(g/rev)
80 % PASSING FEED SIZE	2519	(µm)
80 % PASSING PRODUCT SIZE	84	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.8

Metallurgy

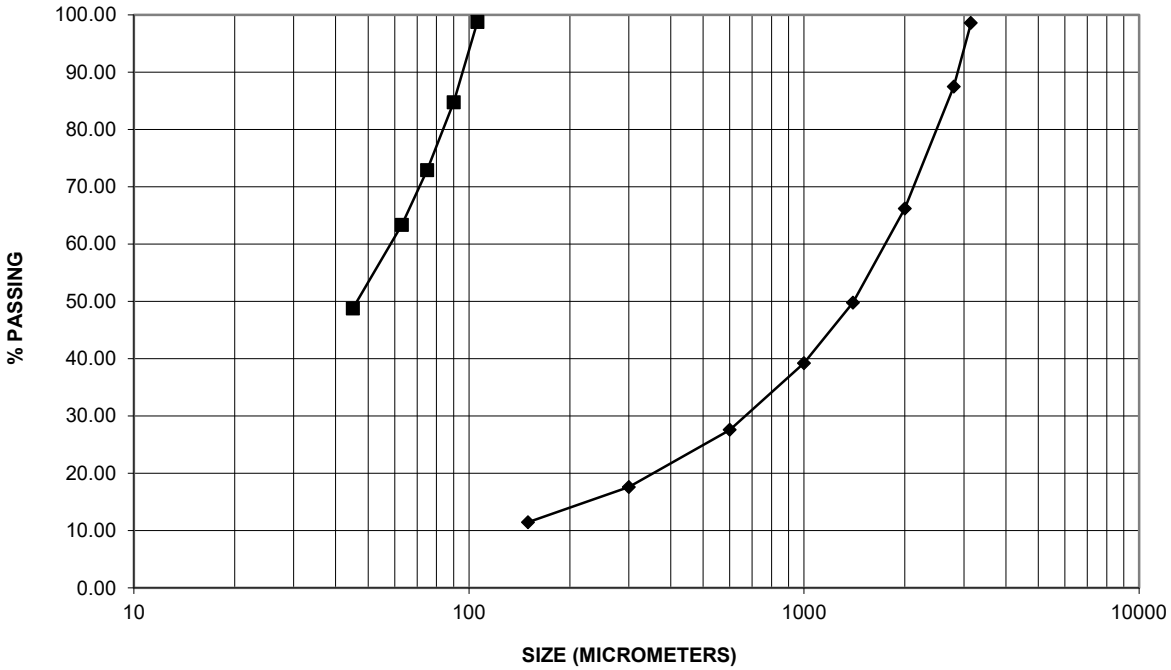
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	11.2	1.39	98.61
2.800	89.8	11.13	87.48
2.000	171.9	21.30	66.18
1.400	132.3	16.39	49.79
1.000	85.3	10.57	39.22
0.600	94.0	11.65	27.57
0.300	80.4	9.96	17.61
0.150	49.7	6.16	11.45
0.106	16.8	2.08	9.37
-0.106	75.6	9.37	
TOTAL	807.0	100.00	
F 80 (µm) :		2519	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.5	1.23	98.77
0.090	51.5	14.03	84.75
0.075	43.5	11.85	72.90
0.063	35.1	9.56	63.33
0.045	53.4	14.55	48.79
-0.045	179.1	48.79	
TOTAL	367.1	100.00	
P 80 (µm) :		84	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	SOUWA FRESH #3 (96 - 103 m)
DATE	MARCH 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1288.0	1288.0	992.5	295.5	166.9	0.835	335.9	295.5	29.5
2	406	1288.0	295.5	889.1	398.9	369.4	0.910	222.9	398.9	39.8
3	361	1288.0	398.9	904.7	383.3	343.5	0.951	236.0	383.3	38.3
4	347	1288.0	383.3	898.5	389.5	351.2	1.012	230.7	389.5	38.9
5	325	1288.0	389.5	902.7	385.3	346.4	1.066	234.3	385.3	38.5
6	309	1288.0	385.3	920.2	367.8	329.3	1.066	250.2	367.8	36.7
7	311	1288.0	367.8	920.2	367.8	331.1	1.065	250.2	367.8	36.7

PRODUCT IN THE FEED	9.98	(%)
BULK DENSITY	1.8400	(t/m^3)
IDEAL POTENTIAL PRODUCT	368.0	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.065	(g/rev)
80 % PASSING FEED SIZE	2528	(µm)
80 % PASSING PRODUCT SIZE	83	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.7

ALS

Metallurgy

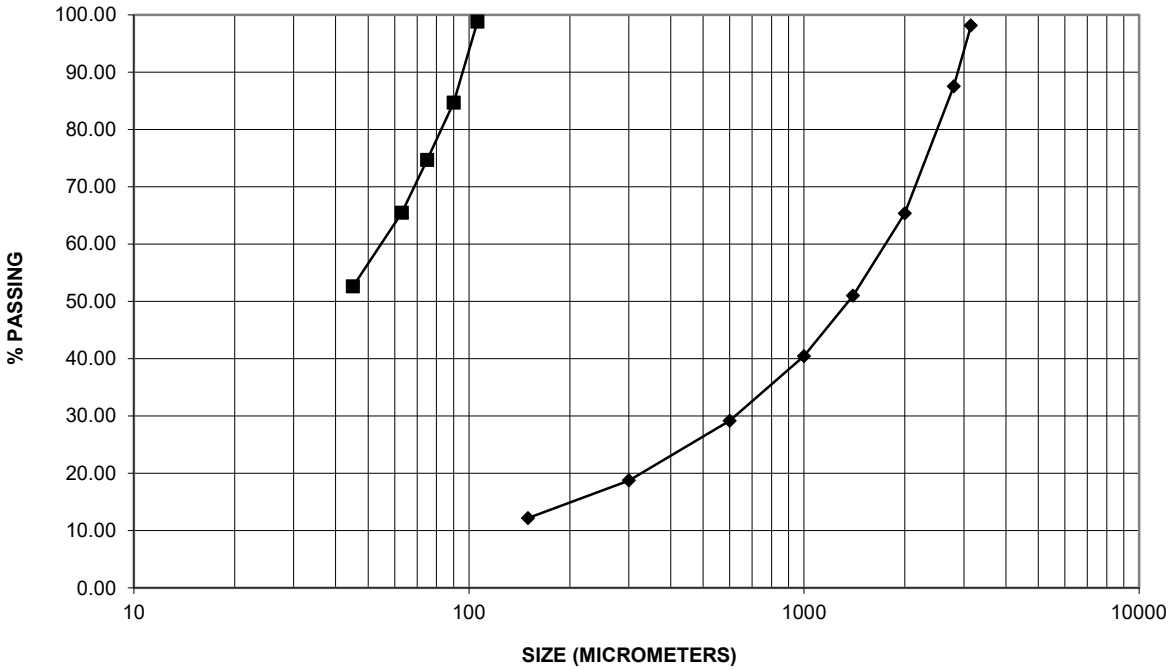
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	12.1	1.84	98.16
2.800	69.9	10.62	87.54
2.000	146.0	22.18	65.36
1.400	94.7	14.39	50.97
1.000	69.2	10.51	40.46
0.600	74.4	11.30	29.16
0.300	68.5	10.41	18.75
0.150	43.2	6.56	12.18
0.106	14.5	2.20	9.98
-0.106	65.7	9.98	
TOTAL	658.2	100.00	
F 80 (µm) :	2528		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.4	1.20	98.80
0.090	52.0	14.13	84.67
0.075	36.7	9.97	74.70
0.063	33.9	9.21	65.49
0.045	47.4	12.88	52.61
-0.045	193.6	52.61	
TOTAL	368.0	100.00	
P 80 (µm) :	83		

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	SOUWA OXIDE (0 - 10 m)
DATE	MARCH 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
	0	1120.3	1120.3	745.7	374.6	-22.0	-22.0	199.1	374.6	132.6
	0	1120.3	374.6	980.0	140.3	7.7	7.687	698.5	140.3	49.7
1	35	1120.3	140.3	999.2	121.1	71.4	2.041	825.1	121.1	42.9
2	136	1120.3	121.1	898.0	222.3	179.4	1.319	404.0	222.3	78.7
3	183	1120.3	222.3	890.1	280.2	201.5	1.101	317.7	280.2	99.2
4	201	1120.3	280.2	800.2	320.1	220.9	1.099	250.0	320.1	113.3
5	188	1120.3	320.1	800.2	320.1	206.8	1.100	250.0	320.1	113.3

PRODUCT IN THE FEED	35.40	(%)
BULK DENSITY	1.6004	(t/m^3)
IDEAL POTENTIAL PRODUCT	320.1	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.099	(g/rev)
80 % PASSING FEED SIZE	1798	(µm)
80 % PASSING PRODUCT SIZE	79	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.5

ALS

Metallurgy

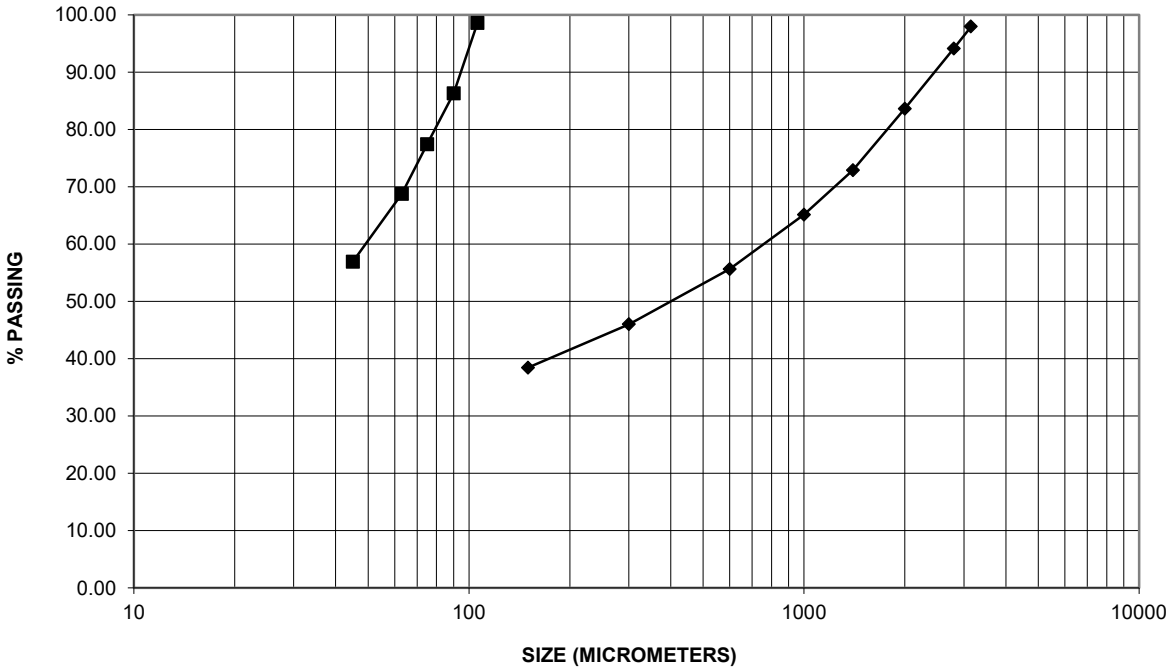
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	13.8	2.04	97.96
2.800	25.8	3.82	94.14
2.000	71.1	10.53	83.61
1.400	72.4	10.72	72.89
1.000	52.4	7.76	65.13
0.600	64.1	9.49	55.64
0.300	65.1	9.64	46.00
0.150	51.0	7.55	38.45
0.106	20.6	3.05	35.40
-0.106	239.1	35.40	
TOTAL	675.4	100.00	
F 80 (µm) :		1798	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.6	1.44	98.56
0.090	39.2	12.25	86.32
0.075	28.4	8.87	77.44
0.063	27.8	8.68	68.76
0.045	37.9	11.84	56.92
-0.045	182.2	56.92	
TOTAL	320.1	100.00	
P 80 (µm) :		79	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	SOUWA TRANSITION SAPROLITE (22.5 - 32.5 m)
DATE	MARCH 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	100	1217.2	1217.2	907.7	309.5	125.1	1.251	293.3	309.5	46.9
2	240	1217.2	309.5	844.0	373.2	326.3	1.360	226.2	373.2	56.5
3	241	1217.2	373.2	840.3	376.9	320.4	1.329	223.0	376.9	57.1
4	194	1217.2	376.9	869.4	347.8	290.7	1.499	250.0	347.8	52.7
5	197	1217.2	347.8	869.4	347.8	295.1	1.498	250.0	347.8	52.7

PRODUCT IN THE FEED	15.15	(%)
BULK DENSITY	1.7389	(t/m^3)
IDEAL POTENTIAL PRODUCT	347.8	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.498	(g/rev)
80 % PASSING FEED SIZE	2337	(µm)
80 % PASSING PRODUCT SIZE	84	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 13.6

Metallurgy

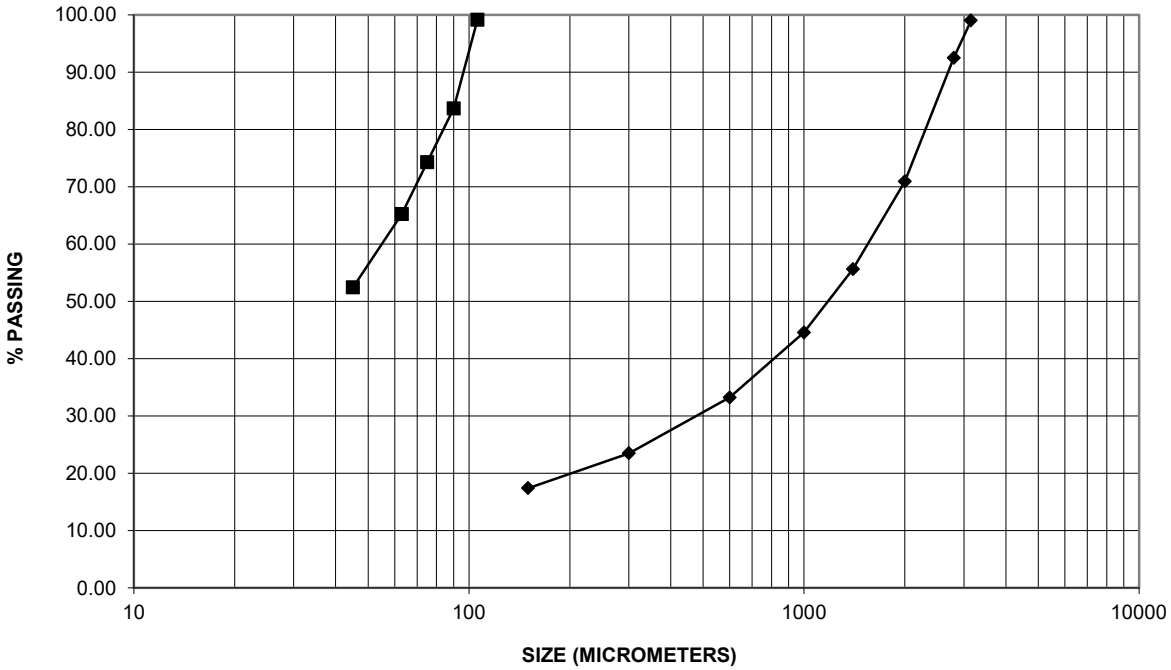
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	8.0	0.98	99.02
2.800	53.1	6.53	92.48
2.000	175.3	21.57	70.91
1.400	124.1	15.27	55.64
1.000	89.9	11.06	44.58
0.600	92.1	11.33	33.25
0.300	79.3	9.76	23.49
0.150	49.5	6.09	17.40
0.106	18.3	2.25	15.15
-0.106	123.1	15.15	
TOTAL	812.7	100.00	
F 80 (µm) :		2337	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	3.0	0.86	99.14
0.090	53.7	15.44	83.70
0.075	32.8	9.43	74.27
0.063	31.4	9.03	65.24
0.045	44.5	12.79	52.44
-0.045	182.4	52.44	
TOTAL	347.8	100.00	
P 80 (µm) :		84	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE MAIN FRESH #1 (75 - 80 m)
DATE	APRIL 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1260.6	1260.6	996.9	263.7	159.2	0.796	378.0	263.7	21.9
2	425	1260.6	263.7	837.9	422.7	400.8	0.943	198.2	422.7	35.0
3	345	1260.6	422.7	879.1	381.5	346.5	1.004	230.4	381.5	31.6
4	327	1260.6	381.5	871.5	389.1	357.5	1.093	224.0	389.1	32.3
5	300	1260.6	389.1	900.4	360.2	327.9	1.093	250.0	360.2	29.9
6	302	1260.6	360.2	900.4	360.2	330.3	1.094	250.0	360.2	29.9

PRODUCT IN THE FEED	8.29	(%)
BULK DENSITY	1.8009	(t/m^3)
IDEAL POTENTIAL PRODUCT	360.2	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.094	(g/rev)
80 % PASSING FEED SIZE	2824	(µm)
80 % PASSING PRODUCT SIZE	87	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.7

Metallurgy

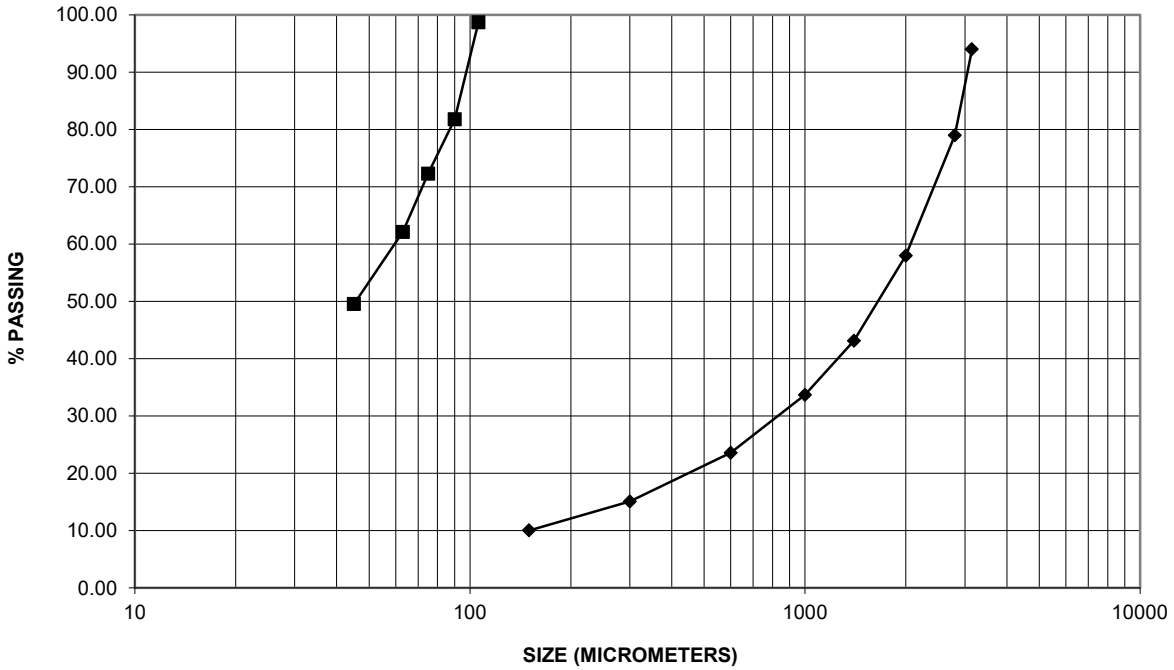
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	38.9	5.97	94.03
2.800	98.2	15.07	78.96
2.000	136.7	20.98	57.97
1.400	96.7	14.84	43.13
1.000	61.5	9.44	33.69
0.600	65.9	10.12	23.58
0.300	55.2	8.47	15.10
0.150	33.1	5.08	10.02
0.106	11.3	1.73	8.29
-0.106	54.0	8.29	
TOTAL	651.5	100.00	
F 80 (µm) :	2824		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.7	1.30	98.70
0.090	60.9	16.91	81.79
0.075	34.2	9.49	72.29
0.063	36.6	10.16	62.13
0.045	45.4	12.60	49.53
-0.045	178.4	49.53	
TOTAL	360.2	100.00	
P 80 (µm) :	87		

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE MAIN FRESH #2 (52 - 57 m)
DATE	MARCH 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1264.9	1264.9	982.0	282.9	171.6	0.858	347.1	282.9	24.9
2	392	1264.9	282.9	849.6	415.3	390.4	0.996	204.6	415.3	36.5
3	326	1264.9	415.3	846.6	418.3	381.8	1.171	202.4	418.3	36.8
4	277	1264.9	418.3	903.5	361.4	324.6	1.172	250.0	361.4	31.8
5	281	1264.9	361.4	903.5	361.4	329.6	1.173	250.0	361.4	31.8

PRODUCT IN THE FEED	8.80	(%)
BULK DENSITY	1.8070	(t/m^3)
IDEAL POTENTIAL PRODUCT	361.4	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.172	(g/rev)
80 % PASSING FEED SIZE	2803	(µm)
80 % PASSING PRODUCT SIZE	88	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.8

Metallurgy

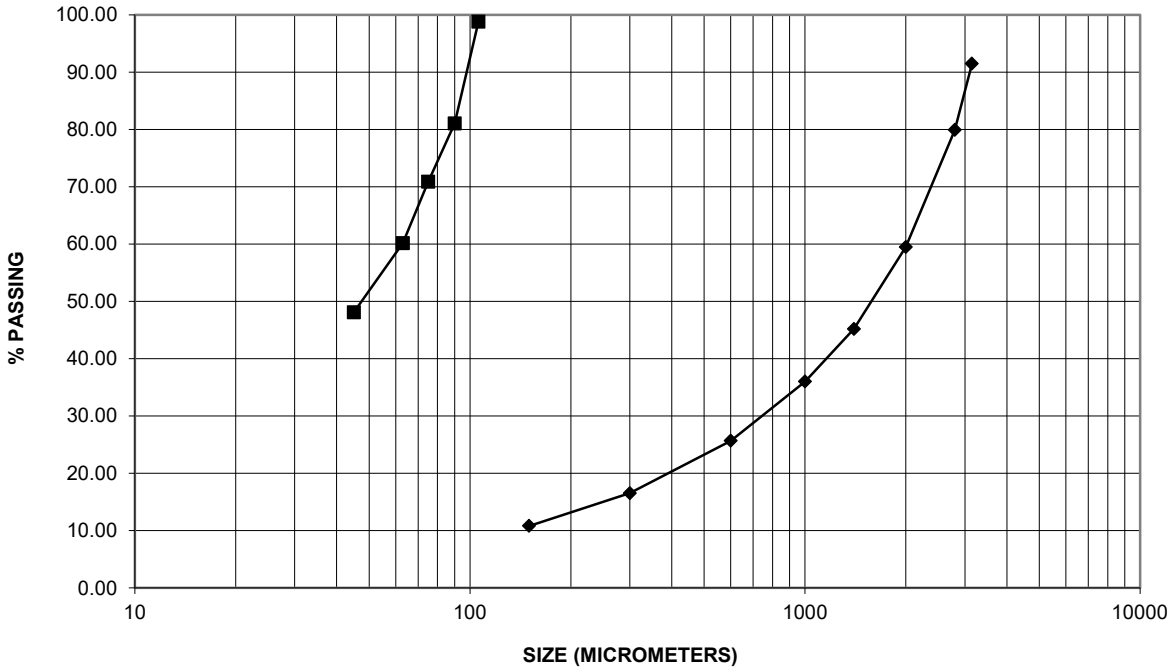
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	58.1	8.49	91.51
2.800	79.4	11.60	79.91
2.000	139.7	20.42	59.49
1.400	97.7	14.28	45.21
1.000	63.0	9.21	36.01
0.600	70.7	10.33	25.68
0.300	62.4	9.12	16.56
0.150	39.3	5.74	10.81
0.106	13.8	2.02	8.80
-0.106	60.2	8.80	
TOTAL	684.3	100.00	
F 80 (µm) :	2803		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.3	1.19	98.81
0.090	64.1	17.74	81.07
0.075	36.9	10.21	70.86
0.063	38.6	10.68	60.18
0.045	43.7	12.09	48.09
-0.045	173.8	48.09	
TOTAL	361.4	100.00	
P 80 (µm) :	88		

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE MAIN FRESH #3 (78 - 83 m)
DATE	APRIL 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1253.4	1253.4	984.1	269.3	167.8	0.839	365.4	269.3	21.8
2	401	1253.4	269.3	836.1	417.3	395.5	0.986	200.4	417.3	33.8
3	329	1253.4	417.3	848.8	404.6	370.8	1.127	209.8	404.6	32.8
4	289	1253.4	404.6	895.3	358.1	325.3	1.126	250.0	358.1	29.0
5	292	1253.4	358.1	895.3	358.1	329.1	1.127	250.0	358.1	29.0

PRODUCT IN THE FEED	8.10	(%)
BULK DENSITY	1.7906	(t/m^3)
IDEAL POTENTIAL PRODUCT	358.1	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.126	(g/rev)
80 % PASSING FEED SIZE	2754	(µm)
80 % PASSING PRODUCT SIZE	84	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.9

Metallurgy

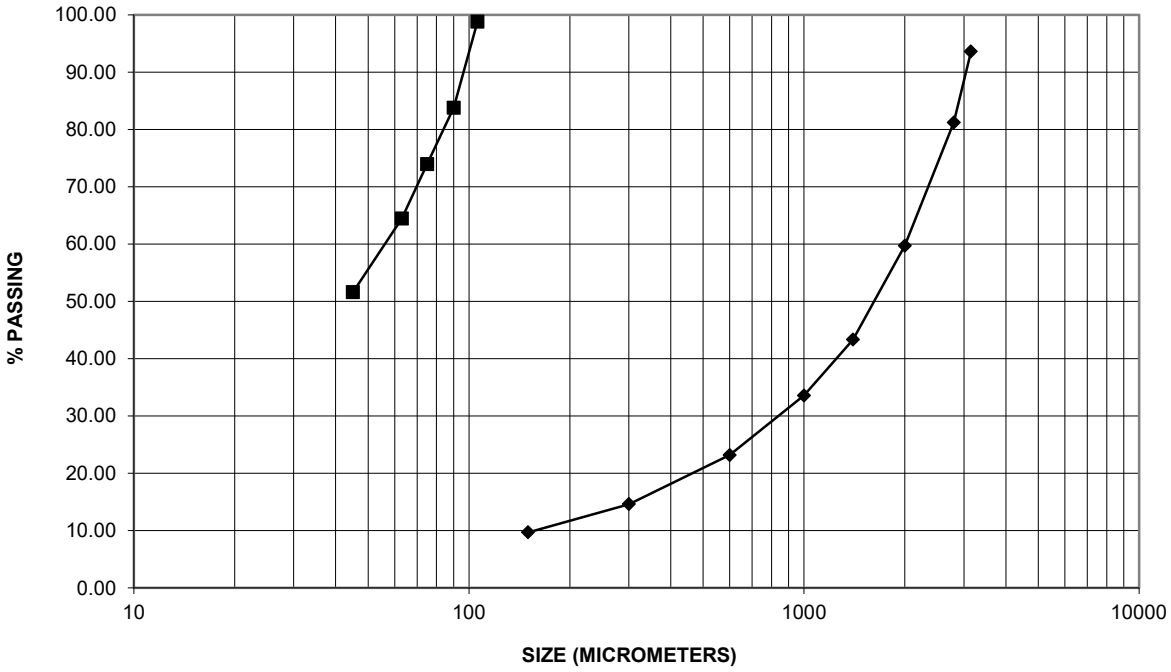
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	43.9	6.37	93.63
2.800	85.5	12.41	81.22
2.000	148.2	21.50	59.72
1.400	113.0	16.40	43.33
1.000	67.1	9.74	33.59
0.600	71.7	10.40	23.19
0.300	59.1	8.58	14.61
0.150	33.9	4.92	9.69
0.106	11.0	1.60	8.10
-0.106	55.8	8.10	
TOTAL	689.2	100.00	
F 80 (µm) :		2754	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.3	1.20	98.80
0.090	53.7	15.00	83.80
0.075	35.2	9.83	73.97
0.063	34.0	9.49	64.48
0.045	46.1	12.87	51.61
-0.045	184.8	51.61	
TOTAL	358.1	100.00	
P 80 (µm) :		84	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE MAIN FRESH #4 (65 - 70 m)
DATE	MARCH 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1262.5	1262.5	996.5	266.0	171.7	0.859	374.6	266.0	19.9
2	397	1262.5	266.0	840.4	422.1	402.2	1.013	199.1	422.1	31.5
3	325	1262.5	422.1	861.5	401.0	369.5	1.137	214.8	401.0	29.9
4	291	1262.5	401.0	901.8	360.7	330.8	1.137	250.0	360.7	26.9
5	294	1262.5	360.7	901.8	360.7	333.8	1.135	250.0	360.7	26.9

PRODUCT IN THE FEED	7.47	(%)
BULK DENSITY	1.8036	(t/m^3)
IDEAL POTENTIAL PRODUCT	360.7	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.136	(g/rev)
80 % PASSING FEED SIZE	2718	(µm)
80 % PASSING PRODUCT SIZE	91	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.7

Metallurgy

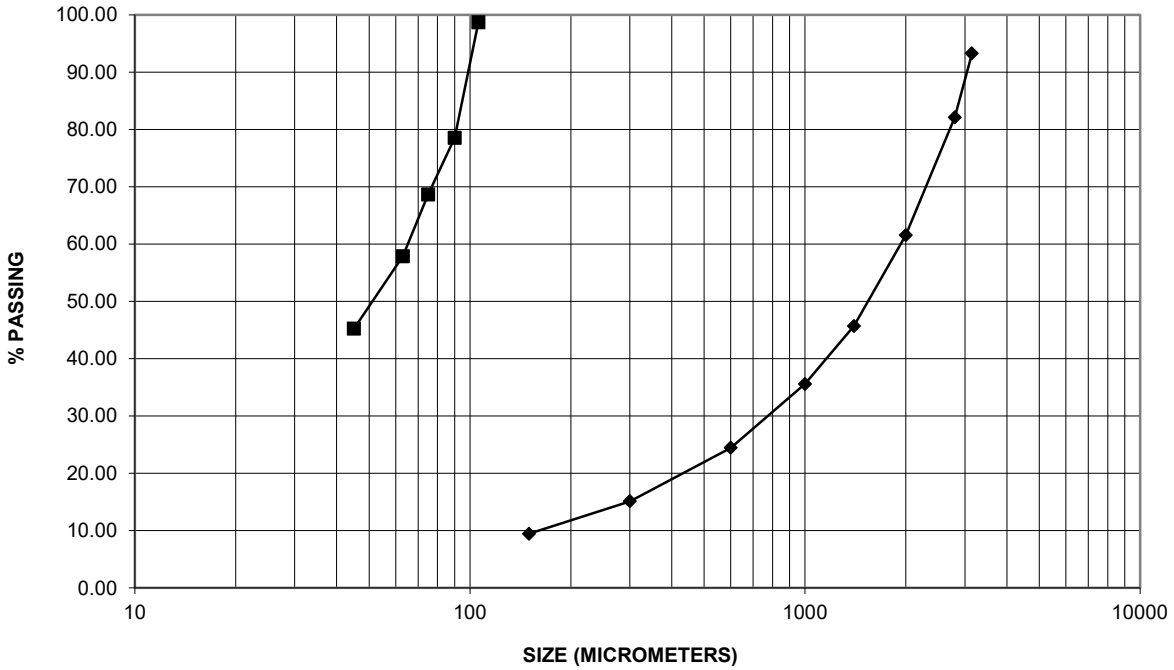
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	45.5	6.71	93.29
2.800	75.8	11.19	82.10
2.000	139.1	20.53	61.57
1.400	107.6	15.88	45.69
1.000	68.4	10.09	35.60
0.600	75.6	11.16	24.44
0.300	63.2	9.33	15.11
0.150	38.3	5.65	9.46
0.106	13.5	1.99	7.47
-0.106	50.6	7.47	
TOTAL	677.6	100.00	
F 80 (µm) :		2718	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.6	1.28	98.72
0.090	72.8	20.18	78.54
0.075	35.7	9.90	68.64
0.063	38.8	10.76	57.89
0.045	45.7	12.67	45.22
-0.045	163.1	45.22	
TOTAL	360.7	100.00	
P 80 (µm) :		91	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE MAIN TRRANSITION (21 - 26 m)
DATE	MARCH 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	50	1147.3	1147.3	806.1	341.2	60.0	1.200	236.3	341.2	83.6
2	203	1147.3	341.2	764.9	382.4	298.8	1.472	200.0	382.4	93.7
3	159	1147.3	382.4	793.6	353.7	260.0	1.635	224.4	353.7	86.7
4	147	1147.3	353.7	819.5	327.8	241.1	1.640	250.0	327.8	80.3
5	151	1147.3	327.8	819.5	327.8	247.5	1.639	250.0	327.8	80.3

PRODUCT IN THE FEED	24.51	(%)
BULK DENSITY	1.6390	(t/m^3)
IDEAL POTENTIAL PRODUCT	327.8	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.640	(g/rev)
80 % PASSING FEED SIZE	1733	(µm)
80 % PASSING PRODUCT SIZE	79	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 12.6

Metallurgy

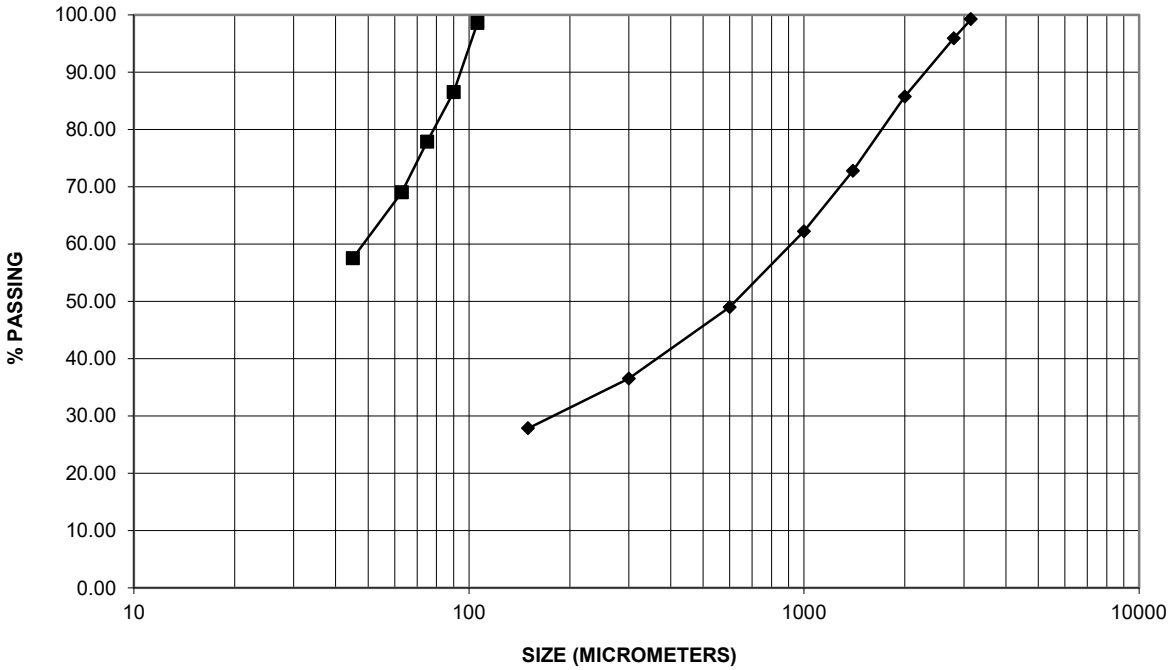
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	4.9	0.76	99.24
2.800	21.7	3.35	95.89
2.000	65.5	10.12	85.77
1.400	84.0	12.98	72.79
1.000	68.2	10.54	62.25
0.600	85.9	13.27	48.97
0.300	80.6	12.46	36.52
0.150	56.1	8.67	27.85
0.106	21.6	3.34	24.51
-0.106	158.6	24.51	
TOTAL	647.1	100.00	
F 80 (µm) :		1733	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.7	1.43	98.57
0.090	39.5	12.05	86.52
0.075	28.3	8.63	77.88
0.063	29.0	8.85	69.04
0.045	37.7	11.50	57.54
-0.045	188.6	57.54	
TOTAL	327.8	100.00	
P 80 (µm) :		79	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE SOUTH FRESH #1 (55 - 61 m)
DATE	MARCH 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1257.4	1257.4	1002.0	255.4	144.8	0.724	392.3	255.4	22.5
2	465	1257.4	255.4	830.8	426.6	404.1	0.869	194.7	426.6	37.5
3	370	1257.4	426.6	862.0	395.4	357.9	0.967	218.0	395.4	34.8
4	335	1257.4	395.4	898.1	359.3	324.5	0.969	250.0	359.3	31.6
5	338	1257.4	359.3	898.1	359.3	327.7	0.970	250.0	359.3	31.6

PRODUCT IN THE FEED	8.80	(%)
BULK DENSITY	1.7963	(t/m^3)
IDEAL POTENTIAL PRODUCT	359.3	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	0.969	(g/rev)
80 % PASSING FEED SIZE	2769	(µm)
80 % PASSING PRODUCT SIZE	86	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 19.4

Metallurgy

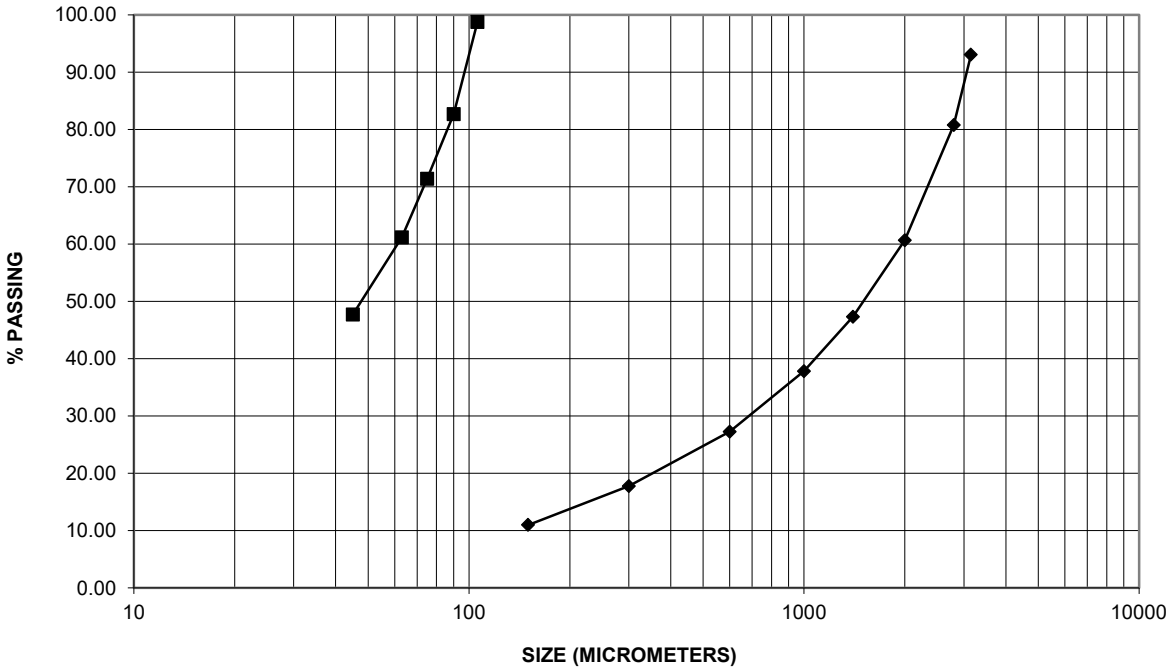
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	48.5	6.94	93.06
2.800	85.8	12.27	80.79
2.000	140.6	20.11	60.68
1.400	93.3	13.35	47.33
1.000	66.5	9.51	37.82
0.600	73.7	10.54	27.28
0.300	66.6	9.53	17.75
0.150	47.3	6.77	10.99
0.106	15.3	2.19	8.80
-0.106	61.5	8.80	
TOTAL	699.1	100.00	
F 80 (µm) :		2769	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.6	1.27	98.73
0.090	57.7	16.06	82.68
0.075	40.6	11.30	71.38
0.063	36.7	10.21	61.17
0.045	48.3	13.44	47.73
-0.045	171.5	47.73	
TOTAL	359.4	100.00	
P 80 (µm) :		86	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE SOUTH FRESH #2 (82 - 90 m)
DATE	APRRIL 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1277.5	1277.5	1005.9	271.6	177.5	0.887	370.4	271.6	20.0
2	389	1277.5	271.6	907.7	369.8	349.8	0.899	245.5	369.8	27.3
3	376	1277.5	369.8	893.3	384.2	356.9	0.949	232.5	384.2	28.3
4	355	1277.5	384.2	891.3	386.2	357.9	1.008	230.8	386.2	28.5
5	334	1277.5	386.2	912.5	365.0	336.5	1.008	250.0	365.0	26.9
6	336	1277.5	365.0	912.5	365.0	338.1	1.006	250.0	365.0	26.9

PRODUCT IN THE FEED	7.37	(%)
BULK DENSITY	1.8250	(t/m^3)
IDEAL POTENTIAL PRODUCT	365.0	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.007	(g/rev)
80 % PASSING FEED SIZE	2763	(µm)
80 % PASSING PRODUCT SIZE	84	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 18.5

Metallurgy

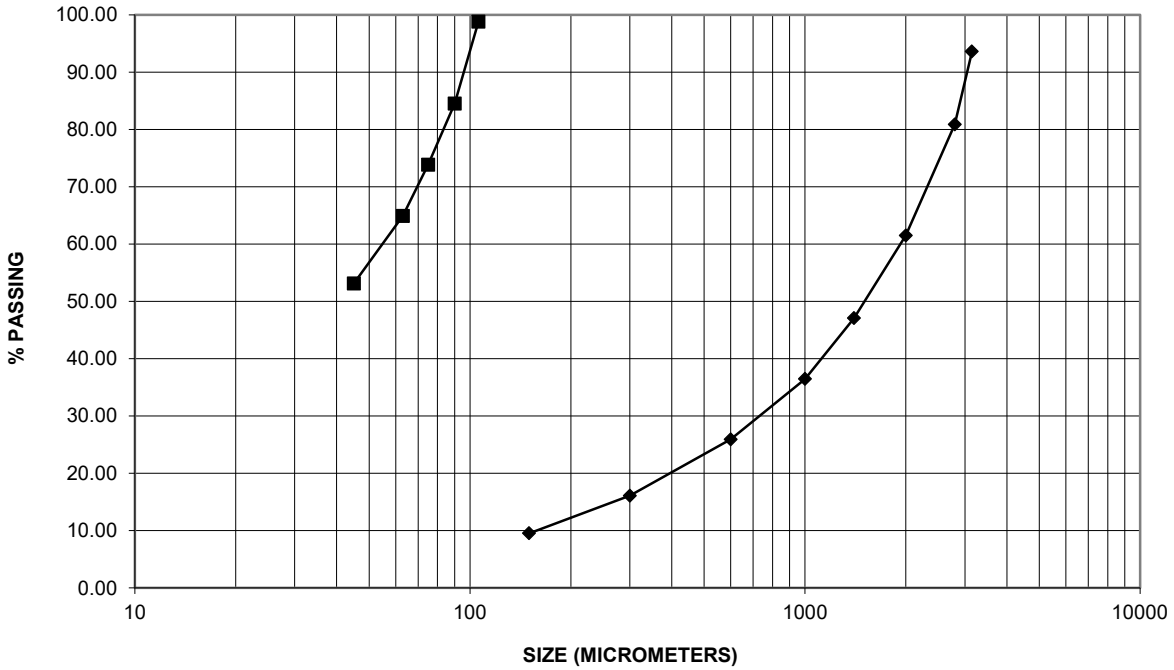
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	40.5	6.36	93.64
2.800	81.0	12.73	80.91
2.000	123.6	19.42	61.49
1.400	91.8	14.42	47.06
1.000	67.5	10.61	36.46
0.600	67.0	10.53	25.93
0.300	62.7	9.85	16.07
0.150	41.6	6.54	9.54
0.106	13.8	2.17	7.37
-0.106	46.9	7.37	
TOTAL	636.4	100.00	
F 80 (µm) :		2763	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.4	1.21	98.79
0.090	52.1	14.27	84.52
0.075	39.0	10.68	73.84
0.063	32.5	8.90	64.93
0.045	43.1	11.81	53.12
-0.045	193.9	53.12	
TOTAL	365.0	100.00	
P 80 (µm) :		84	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE SOUTH TRANSIITION (23 - 28 m)
DATE	MARCH 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	1182.6	1182.6	826.5	356.1	179.3	1.196	232.1	356.1	53.2
2	238	1182.6	356.1	826.3	356.3	303.1	1.273	231.9	356.3	53.3
3	224	1182.6	356.3	842.7	339.9	286.6	1.280	247.9	339.9	50.8
4	224	1182.6	339.9	844.7	337.9	287.1	1.282	250.0	337.9	50.5
5	224	1182.6	337.9	844.7	337.9	287.4	1.283	250.0	337.9	50.5

PRODUCT IN THE FEED	14.95	(%)
BULK DENSITY	1.6894	(t/m^3)
IDEAL POTENTIAL PRODUCT	337.9	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.282	(g/rev)
80 % PASSING FEED SIZE	2191	(µm)
80 % PASSING PRODUCT SIZE	88	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.1

Metallurgy

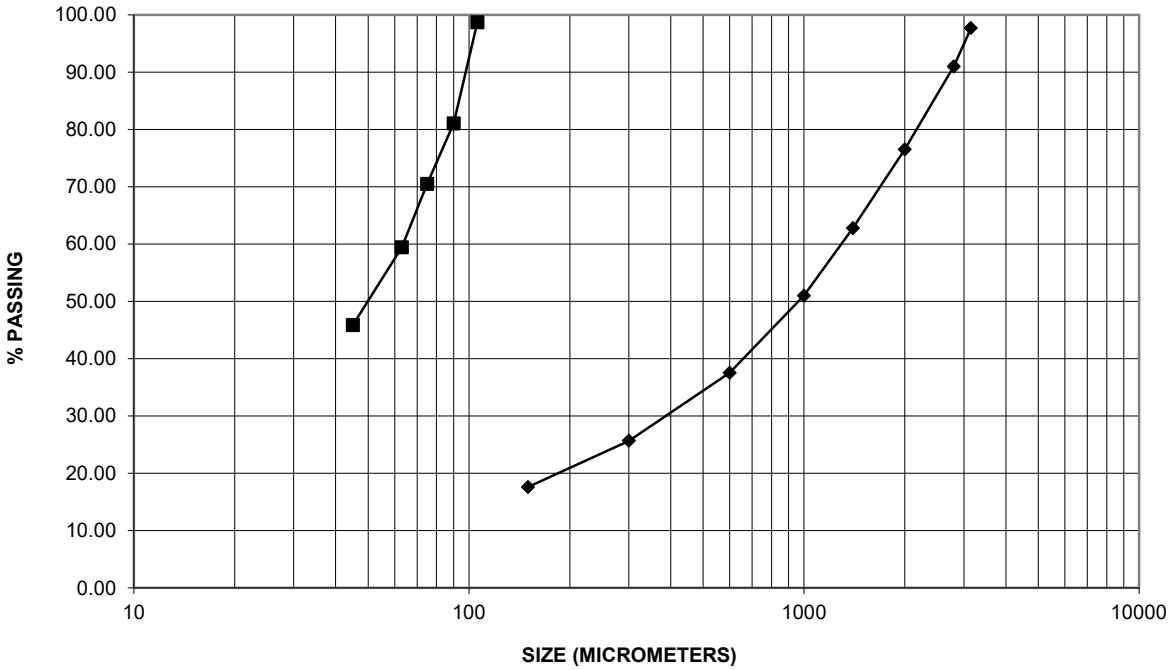
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	15.5	2.31	97.69
2.800	45.0	6.69	91.00
2.000	97.2	14.46	76.55
1.400	92.5	13.76	62.79
1.000	79.3	11.79	51.00
0.600	90.6	13.47	37.52
0.300	79.7	11.85	25.67
0.150	54.3	8.08	17.59
0.106	17.8	2.65	14.95
-0.106	100.5	14.95	
TOTAL	672.4	100.00	
F 80 (µm) :	2191		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.3	1.27	98.73
0.090	59.7	17.67	81.06
0.075	35.7	10.57	70.49
0.063	37.3	11.04	59.46
0.045	45.9	13.58	45.87
-0.045	155.0	45.87	
TOTAL	337.9	100.00	
P 80 (µm) :	88		

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE MAIN OXIDE (5 - 11 m) (MOD +106um)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	250	1002.5	1002.5	713.5	289.0	256.9	1.028	246.9	289.0	9.3
2	270	1002.5	289.0	695.5	307.0	297.7	1.103	226.5	307.0	9.8
3	251	1002.5	307.0	715.5	287.0	277.2	1.104	249.3	287.0	9.2
4	251	1002.5	287.0	716.1	286.4	277.2	1.104	250.0	286.4	9.2
5	251	1002.5	286.4	716.1	286.4	277.2	1.105	250.0	286.4	9.2

PRODUCT IN THE FEED	3.20	(%)
BULK DENSITY	1.4321	(t/m^3)
IDEAL POTENTIAL PRODUCT	286.4	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.104	(g/rev)
80 % PASSING FEED SIZE	1123	(µm)
80 % PASSING PRODUCT SIZE	86	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 19.8

Metallurgy

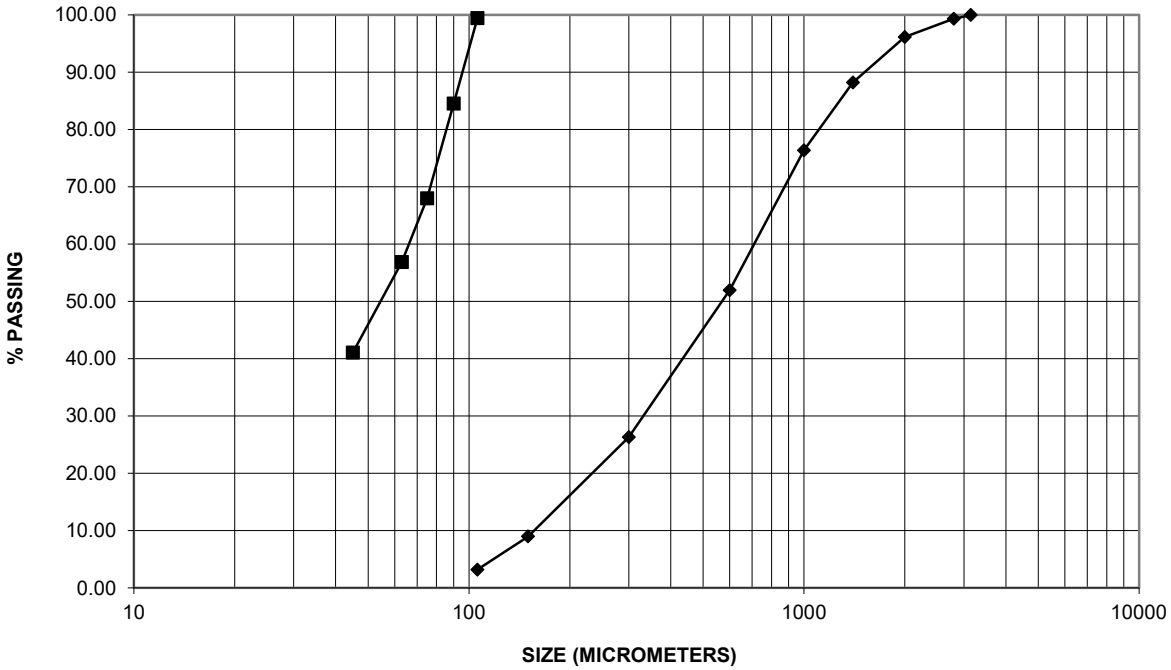
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	0.2	0.02	99.98
2.800	5.8	0.68	99.30
2.000	27.0	3.17	96.13
1.400	67.6	7.93	88.20
1.000	100.9	11.83	76.37
0.600	208.1	24.41	51.96
0.300	218.8	25.66	26.30
0.150	147.8	17.34	8.96
0.106	49.1	5.76	3.20
-0.106	27.3	3.20	
TOTAL	852.6	100.00	
F 80 (µm) :	1123		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	1.7	0.59	99.41
0.090	42.6	14.87	84.53
0.075	47.4	16.55	67.98
0.063	31.8	11.10	56.88
0.045	45.3	15.82	41.06
-0.045	117.6	41.06	
TOTAL	286.4	100.00	
P 80 (µm) :	86		

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	ENIODA FRESH #1 (79 - 86 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	100	1374.1	1374.1	1070.9	303.2	89.3	0.893	353.2	303.2	47.2
2	386	1374.1	303.2	971.0	403.1	355.9	0.922	240.9	403.1	62.7
3	358	1374.1	403.1	950.7	423.4	360.7	1.007	224.5	423.4	65.9
4	324	1374.1	423.4	938.2	435.9	370.0	1.142	215.2	435.9	67.8
5	284	1374.1	435.9	981.5	392.6	324.8	1.144	250.0	392.6	61.1
6	290	1374.1	392.6	981.5	392.6	331.5	1.143	250.0	392.6	61.1

PRODUCT IN THE FEED	15.56	(%)
BULK DENSITY	1.9630	(t/m^3)
IDEAL POTENTIAL PRODUCT	392.6	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.143	(g/rev)
80 % PASSING FEED SIZE	2334	(µm)
80 % PASSING PRODUCT SIZE	83	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.9

Metallurgy

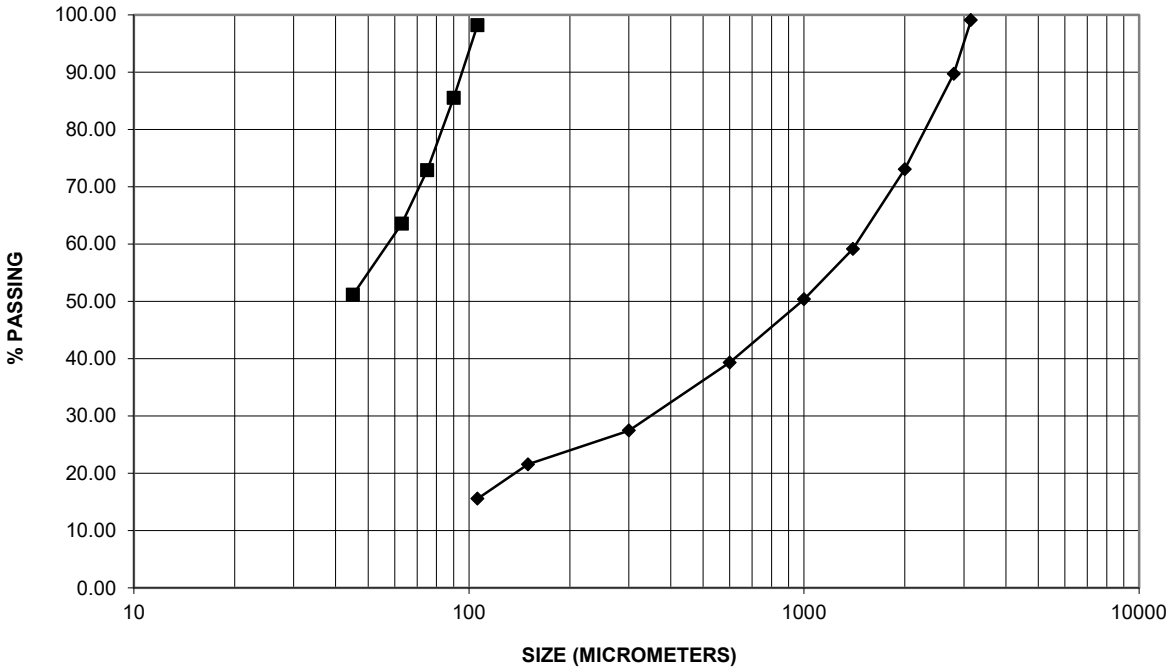
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	6.4	0.92	99.08
2.800	64.9	9.38	89.70
2.000	115.1	16.63	73.06
1.400	96.3	13.92	59.15
1.000	60.8	8.79	50.36
0.600	76.2	11.01	39.35
0.300	82.3	11.89	27.46
0.150	40.7	5.88	21.58
0.106	41.6	6.01	15.56
-0.106	107.7	15.56	
TOTAL	692.0	100.00	
F 80 (µm) :	2334		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	7.1	1.81	98.19
0.090	49.7	12.66	85.53
0.075	49.7	12.66	72.87
0.063	36.6	9.32	63.55
0.045	48.7	12.40	51.15
-0.045	200.8	51.15	
TOTAL	392.6	100.00	
P 80 (µm) :	83		

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	ENIODA FRESH #2 (78 - 85 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	100	1342.4	1342.4	997.3	345.1	112.6	1.126	289.0	345.1	59.8
2	287	1342.4	345.1	970.0	372.4	312.6	1.089	260.5	372.4	64.5
3	293	1342.4	372.4	943.2	399.2	334.7	1.142	236.3	399.2	69.1
4	275	1342.4	399.2	958.9	383.5	314.4	1.143	250.0	383.5	66.4
5	277	1342.4	383.5	958.9	383.5	317.1	1.145	250.0	383.5	66.4

PRODUCT IN THE FEED	17.32	(%)
BULK DENSITY	1.9177	(t/m^3)
IDEAL POTENTIAL PRODUCT	383.5	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.144	(g/rev)
80 % PASSING FEED SIZE	2080	(µm)
80 % PASSING PRODUCT SIZE	79	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.6

Metallurgy

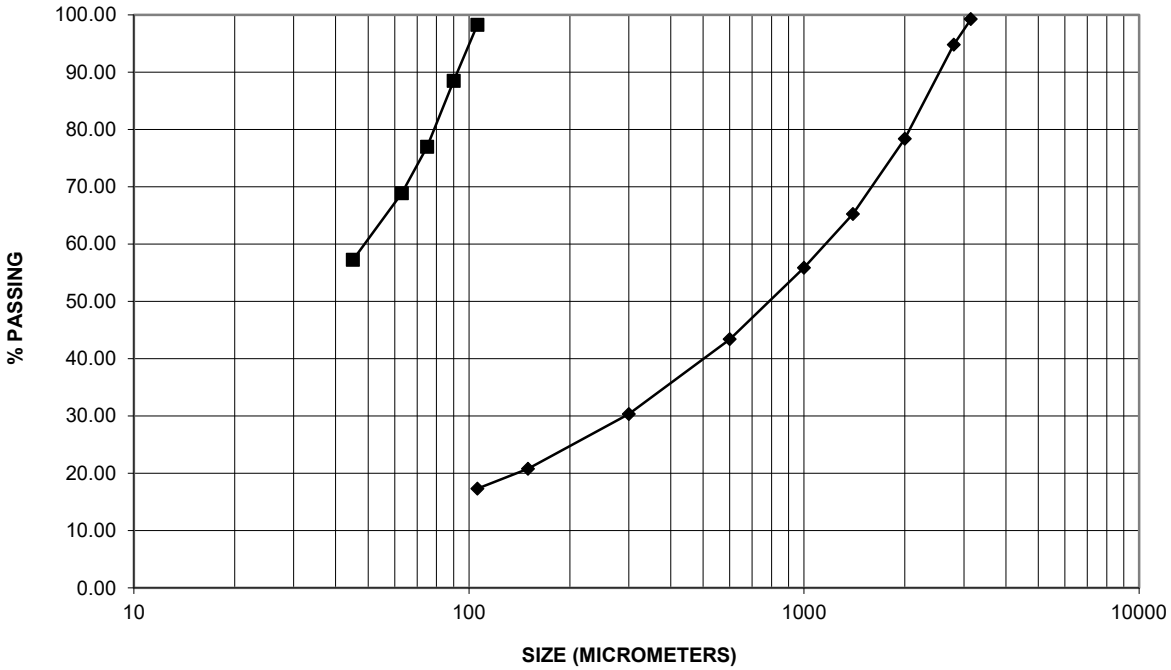
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	4.7	0.72	99.28
2.800	29.1	4.47	94.81
2.000	107.0	16.44	78.37
1.400	85.4	13.12	65.24
1.000	61.0	9.37	55.87
0.600	81.3	12.49	43.38
0.300	85.0	13.06	30.32
0.150	62.1	9.54	20.77
0.106	22.5	3.46	17.32
-0.106	112.7	17.32	
TOTAL	650.8	100.00	
F 80 (µm) :		2080	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	6.6	1.72	98.28
0.090	37.5	9.78	88.50
0.075	44.2	11.53	76.98
0.063	31.0	8.08	68.89
0.045	44.7	11.66	57.24
-0.045	219.5	57.24	
TOTAL	383.5	100.00	
P 80 (µm) :		79	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	ENIODA OXIDE #1 (20 - 27 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	50	1145.3	1145.3	813.5	331.8	42.2	0.843	245.2	331.8	83.9
2	289	1145.3	331.8	764.2	381.1	297.2	1.028	200.5	381.1	96.4
3	224	1145.3	381.1	810.8	334.5	238.1	1.063	242.4	334.5	84.6
4	228	1145.3	334.5	818.1	327.2	242.6	1.064	250.0	327.2	82.7
5	230	1145.3	327.2	818.1	327.2	244.5	1.063	250.0	327.2	82.7

PRODUCT IN THE FEED	25.29	(%)
BULK DENSITY	1.6361	(t/m^3)
IDEAL POTENTIAL PRODUCT	327.2	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.063	(g/rev)
80 % PASSING FEED SIZE	1864	(µm)
80 % PASSING PRODUCT SIZE	82	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 18.3

Metallurgy

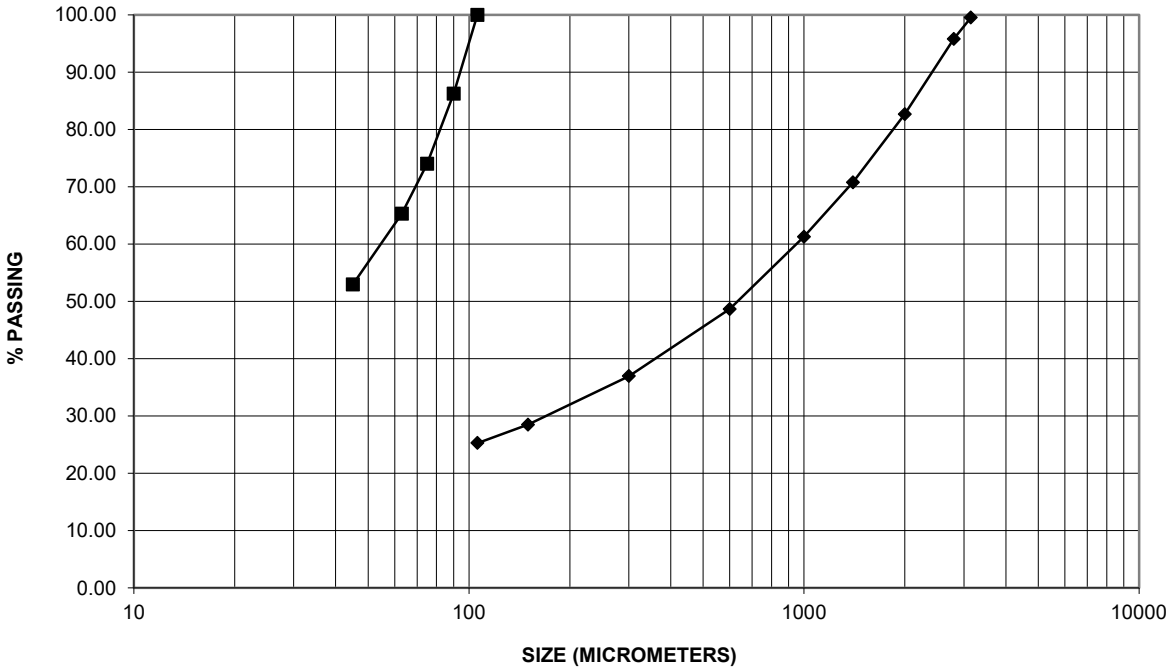
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	3.2	0.45	99.55
2.800	27.0	3.76	95.79
2.000	94.0	13.10	82.69
1.400	85.5	11.91	70.78
1.000	68.3	9.52	61.27
0.600	90.4	12.60	48.67
0.300	84.1	11.72	36.95
0.150	60.6	8.44	28.51
0.106	23.1	3.22	25.29
-0.106	181.5	25.29	
TOTAL	717.7	100.00	
F 80 (µm) :		1864	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	0.0	0.00	100.00
0.090	45.0	13.75	86.25
0.075	40.0	12.22	74.02
0.063	28.5	8.71	65.31
0.045	40.4	12.35	52.96
-0.045	173.3	52.96	
TOTAL	327.2	100.00	
P 80 (µm) :		82	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



ALS

Metallurgy

BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	ENIODA OXIDE #2 (10 - 20 m) (MOD +106um)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1018.4	1018.4	752.6	265.8	182.9	0.914	283.1	265.8	21.6
2	295	1018.4	265.8	694.1	324.3	302.7	1.026	214.0	324.3	26.4
3	288	1018.4	324.3	731.5	286.9	260.5	0.904	255.0	286.9	23.4
4	265	1018.4	286.9	727.4	291.0	267.6	1.010	250.0	291.0	23.7
5	265	1018.4	291.0	727.4	291.0	267.3	1.009	250.0	291.0	23.7

PRODUCT IN THE FEED	8.14	(%)
BULK DENSITY	1.4549	(t/m^3)
IDEAL POTENTIAL PRODUCT	291.0	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.009	(g/rev)
80 % PASSING FEED SIZE	959	(µm)
80 % PASSING PRODUCT SIZE	87	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 22.2

ALS

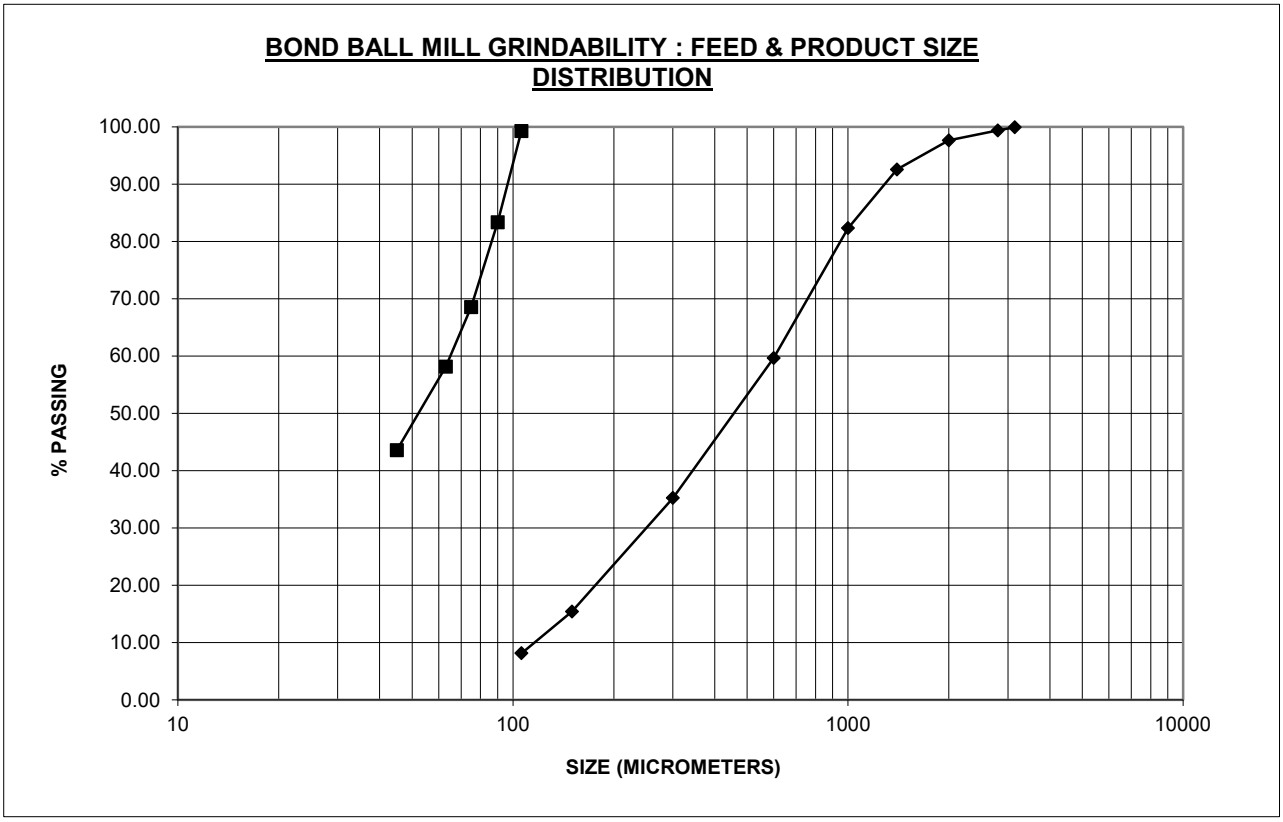
Metallurgy

BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	0.2	0.04	99.96
2.800	2.7	0.59	99.36
2.000	7.9	1.73	97.63
1.400	23.2	5.09	92.54
1.000	46.6	10.23	82.31
0.600	103.1	22.63	59.68
0.300	111.4	24.45	35.23
0.150	90.2	19.80	15.43
0.106	33.2	7.29	8.14
-0.106	37.1	8.14	
TOTAL	455.6	100.00	
F 80 (µm) :		959	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	2.1	0.72	99.28
0.090	46.4	15.95	83.33
0.075	43.1	14.81	68.52
0.063	30.2	10.38	58.14
0.045	42.4	14.57	43.57
-0.045	126.8	43.57	
TOTAL	291.0	100.00	
P 80 (µm) :		87	



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KEKEDA FRESH #1 (57 - 64 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	1328.8	1328.8	1012.0	316.8	142.8	0.952	319.4	316.8	41.5
2	365	1328.8	316.8	938.8	390.0	348.5	0.955	240.7	390.0	51.1
3	335	1328.8	390.0	915.3	413.5	362.4	1.082	221.4	413.5	54.1
4	301	1328.8	413.5	949.1	379.7	325.6	1.082	250.0	379.7	49.7
5	305	1328.8	379.7	901.8	427.0	377.3	1.237	211.2	427.0	55.9
6	262	1328.8	427.0	949.1	379.7	323.8	1.236	250.0	379.7	49.7
7	267	1328.8	379.7	949.1	379.7	330.0	1.236	250.0	379.7	49.7

PRODUCT IN THE FEED	13.09	(%)
BULK DENSITY	1.8983	(t/m^3)
IDEAL POTENTIAL PRODUCT	379.7	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.236	(g/rev)
80 % PASSING FEED SIZE	2114	(µm)
80 % PASSING PRODUCT SIZE	86	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.4

Metallurgy

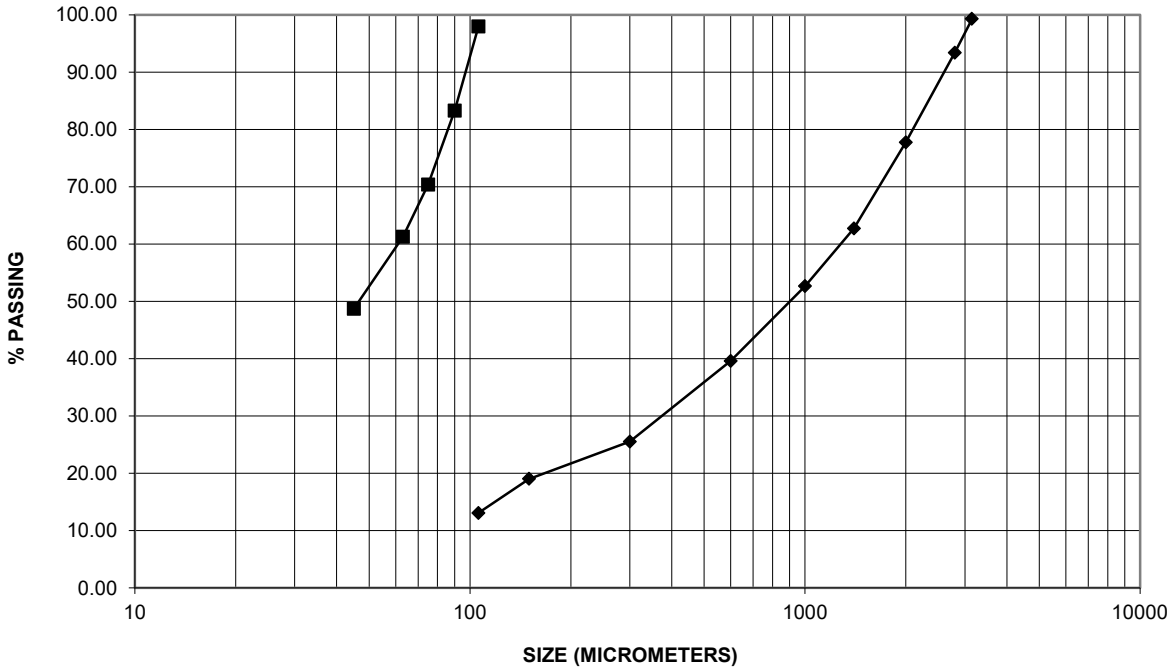
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	5.2	0.69	99.31
2.800	44.3	5.91	93.39
2.000	117.0	15.61	77.78
1.400	112.7	15.04	62.74
1.000	75.6	10.09	52.65
0.600	97.7	13.04	39.61
0.300	105.6	14.09	25.52
0.150	48.7	6.50	19.02
0.106	44.4	5.93	13.09
-0.106	98.1	13.09	
TOTAL	749.3	100.00	
F 80 (µm) :		2114	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	7.7	2.03	97.97
0.090	55.8	14.70	83.28
0.075	48.9	12.88	70.40
0.063	34.7	9.14	61.26
0.045	47.6	12.54	48.72
-0.045	185.0	48.72	
TOTAL	379.7	100.00	
P 80 (µm) :		86	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KEKEDA FRESH #2 (49 - 53 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1216.3	1216.3	968.0	248.3	176.3	0.882	389.9	248.3	14.7
2	378	1216.3	248.3	816.6	399.7	385.0	1.019	204.3	399.7	23.7
3	318	1216.3	399.7	832.0	384.3	360.6	1.134	216.5	384.3	22.7
4	286	1216.3	384.3	868.8	347.5	324.8	1.136	250.0	347.5	20.6
5	288	1216.3	347.5	868.8	347.5	326.9	1.135	250.0	347.5	20.6

PRODUCT IN THE FEED	5.92	(%)
BULK DENSITY	1.7376	(t/m^3)
IDEAL POTENTIAL PRODUCT	347.5	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.135	(g/rev)
80 % PASSING FEED SIZE	2579	(µm)
80 % PASSING PRODUCT SIZE	86	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.1

Metallurgy

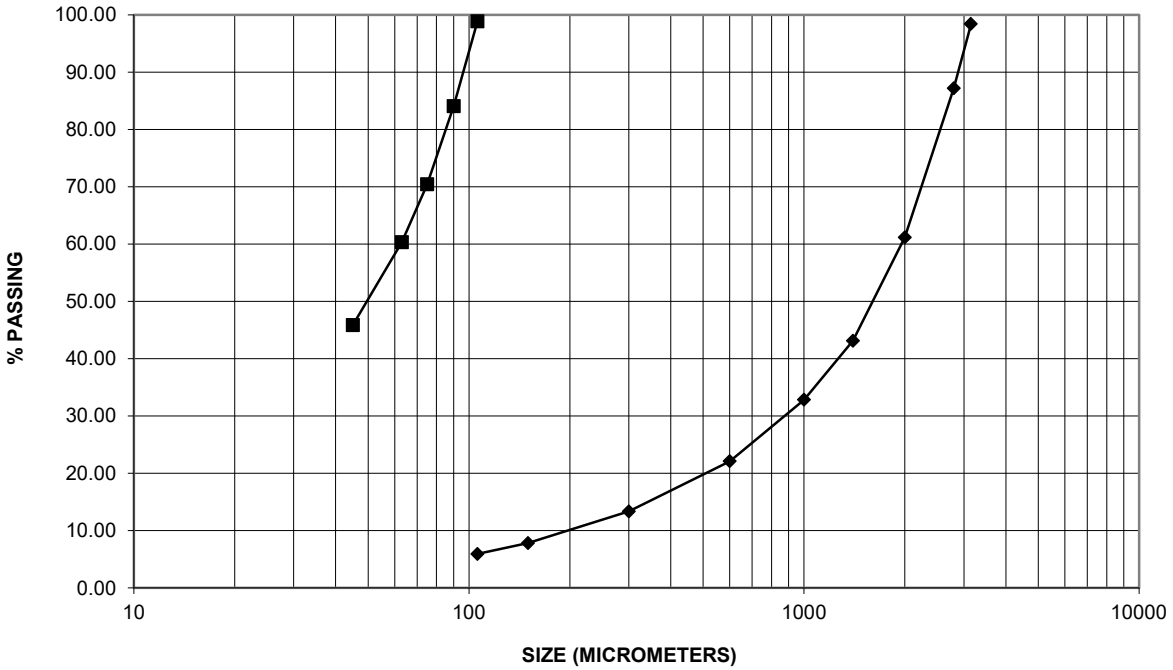
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	9.8	1.58	98.42
2.800	69.5	11.24	87.18
2.000	160.7	25.99	61.19
1.400	111.7	18.06	43.13
1.000	63.7	10.30	32.83
0.600	66.4	10.74	22.09
0.300	54.0	8.73	13.36
0.150	34.1	5.51	7.84
0.106	11.9	1.92	5.92
-0.106	36.6	5.92	
TOTAL	618.4	100.00	
F 80 (µm) :	2579		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.0	1.15	98.85
0.090	51.3	14.76	84.09
0.075	47.5	13.67	70.42
0.063	35.1	10.10	60.32
0.045	50.2	14.45	45.87
-0.045	159.4	45.87	
TOTAL	347.5	100.00	
P 80 (µm) :	86		

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



ALS

Metallurgy

BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KEKEDA FRESH #3 (68 - 73 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	1304.6	1304.6	1019.0	285.6	134.4	0.896	356.8	285.6	33.1
2	379	1304.6	285.6	927.9	376.7	343.6	0.907	246.3	376.7	43.7
3	363	1304.6	376.7	852.9	451.7	408.0	1.124	188.8	451.7	52.4
4	285	1304.6	451.7	931.9	372.7	320.3	1.124	250.0	372.7	43.2
5	293	1304.6	372.7	931.9	372.7	329.5	1.125	250.0	372.7	43.2

PRODUCT IN THE FEED	11.59	(%)
BULK DENSITY	1.8637	(t/m^3)
IDEAL POTENTIAL PRODUCT	372.7	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.124	(g/rev)
80 % PASSING FEED SIZE	2183	(µm)
80 % PASSING PRODUCT SIZE	83	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.3

Metallurgy

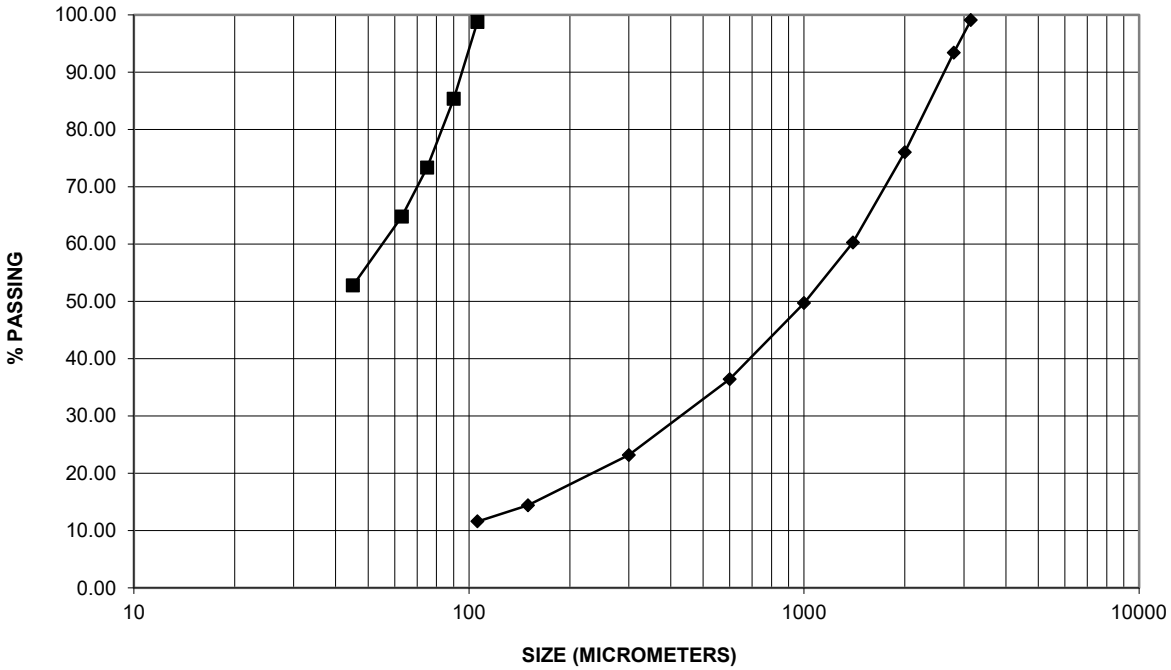
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	6.5	0.88	99.12
2.800	42.1	5.71	93.41
2.000	128.2	17.38	76.03
1.400	116.1	15.74	60.28
1.000	78.1	10.59	49.69
0.600	97.8	13.26	36.43
0.300	97.7	13.25	23.19
0.150	64.8	8.79	14.40
0.106	20.7	2.81	11.59
-0.106	85.5	11.59	
TOTAL	737.5	100.00	
F 80 (µm) :		2183	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.6	1.23	98.77
0.090	50.1	13.44	85.32
0.075	44.7	11.99	73.33
0.063	31.8	8.53	64.80
0.045	44.8	12.02	52.78
-0.045	196.7	52.78	
TOTAL	372.7	100.00	
P 80 (µm) :		83	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KEKEDA TRANSITION #1 (38 - 47 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	1175.9	1175.9	838.3	337.6	201.3	1.342	248.3	337.6	39.1
2	221	1175.9	337.6	846.1	329.8	290.7	1.315	256.5	329.8	38.2
3	226	1175.9	329.8	824.6	351.3	313.1	1.385	234.7	351.3	40.7
4	213	1175.9	351.3	839.9	336.0	295.3	1.386	250.0	336.0	38.9
5	214	1175.9	336.0	839.9	336.0	297.1	1.388	250.0	336.0	38.9

PRODUCT IN THE FEED	11.59	(%)
BULK DENSITY	1.6799	(t/m^3)
IDEAL POTENTIAL PRODUCT	336.0	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.387	(g/rev)
80 % PASSING FEED SIZE	2537	(µm)
80 % PASSING PRODUCT SIZE	81	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 14.0

Metallurgy

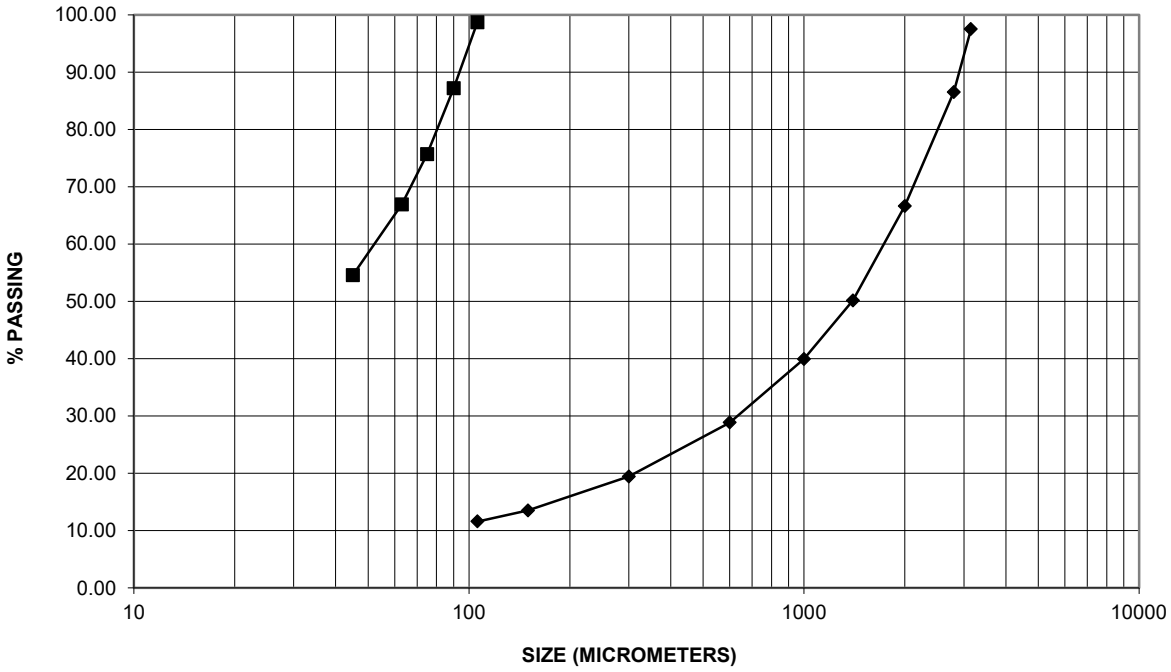
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	16.9	2.45	97.55
2.800	75.8	11.01	86.54
2.000	136.9	19.88	66.66
1.400	113.6	16.50	50.16
1.000	70.5	10.24	39.92
0.600	76.2	11.07	28.86
0.300	64.8	9.41	19.45
0.150	40.9	5.94	13.51
0.106	13.2	1.92	11.59
-0.106	79.8	11.59	
TOTAL	688.6	100.00	
F 80 (µm) :	2537		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.3	1.28	98.72
0.090	38.7	11.52	87.20
0.075	38.7	11.52	75.68
0.063	29.5	8.78	66.90
0.045	41.4	12.32	54.58
-0.045	183.4	54.58	
TOTAL	336.0	100.00	
P 80 (µm) :	81		

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KEKEDA TRANSITION #2 (39 - 46 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1185.6	1185.6	882.8	302.8	216.9	1.084	291.5	302.8	21.9
2	292	1185.6	302.8	825.8	359.8	337.9	1.157	229.5	359.8	26.1
3	270	1185.6	359.8	797.8	387.8	361.7	1.340	205.7	387.8	28.1
4	232	1185.6	387.8	846.9	338.7	310.6	1.339	250.0	338.7	24.5
5	235	1185.6	338.7	846.9	338.7	314.2	1.337	250.0	338.7	24.5

PRODUCT IN THE FEED	7.25	(%)
BULK DENSITY	1.6937	(t/m^3)
IDEAL POTENTIAL PRODUCT	338.7	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.338	(g/rev)
80 % PASSING FEED SIZE	2638	(µm)
80 % PASSING PRODUCT SIZE	88	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 15.2

Metallurgy

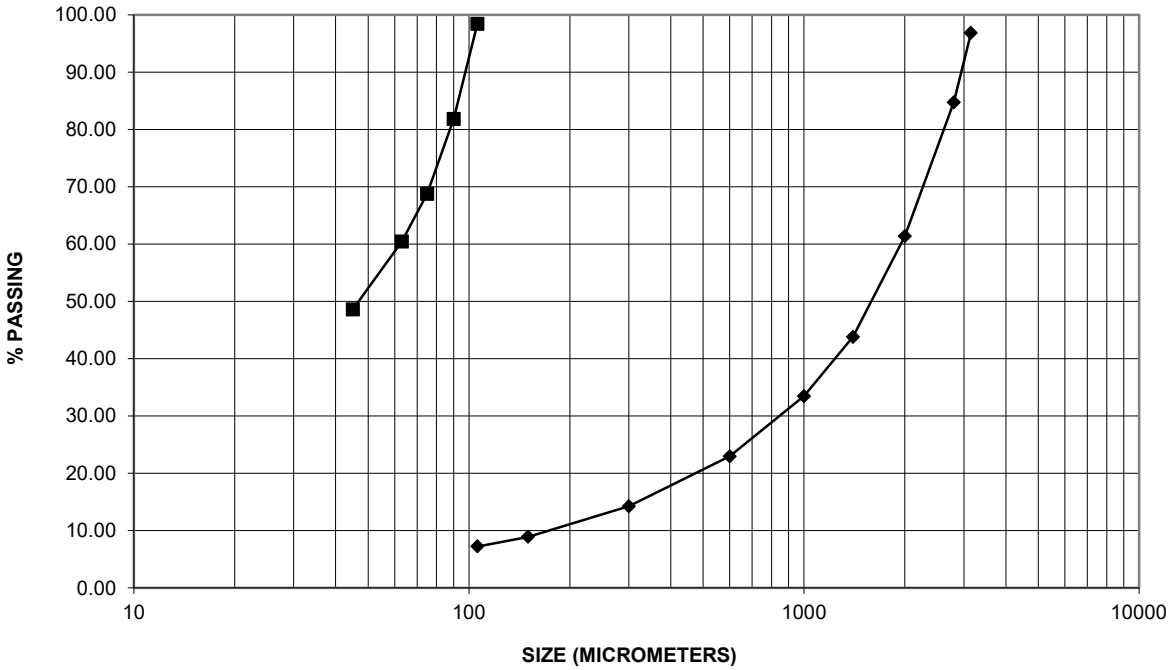
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	22.7	3.12	96.88
2.800	88.2	12.13	84.75
2.000	170.1	23.39	61.36
1.400	127.6	17.55	43.81
1.000	75.4	10.37	33.44
0.600	76.2	10.48	22.96
0.300	63.4	8.72	14.25
0.150	38.8	5.34	8.91
0.106	12.1	1.66	7.25
-0.106	52.7	7.25	
TOTAL	727.2	100.00	
F 80 (µm) :		2638	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	5.3	1.56	98.44
0.090	56.2	16.59	81.84
0.075	44.3	13.08	68.76
0.063	28.2	8.33	60.44
0.045	40.1	11.84	48.60
-0.045	164.6	48.60	
TOTAL	338.7	100.00	
P 80 (µm) :		88	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	HAN FRESH #1 (81 - 86 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	1322.7	1322.7	1006.9	315.8	127.2	0.848	318.8	315.8	45.0
2	393	1322.7	315.8	920.2	402.5	357.5	0.910	228.6	402.5	57.4
3	352	1322.7	402.5	891.1	431.6	374.2	1.063	206.5	431.6	61.6
4	298	1322.7	431.6	944.8	377.9	316.3	1.062	250.0	377.9	53.9
5	305	1322.7	377.9	944.8	377.9	324.0	1.062	250.0	377.9	53.9

PRODUCT IN THE FEED	14.26	(%)
BULK DENSITY	1.8896	(t/m^3)
IDEAL POTENTIAL PRODUCT	377.9	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.062	(g/rev)
80 % PASSING FEED SIZE	2137	(µm)
80 % PASSING PRODUCT SIZE	93	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 19.4

Metallurgy

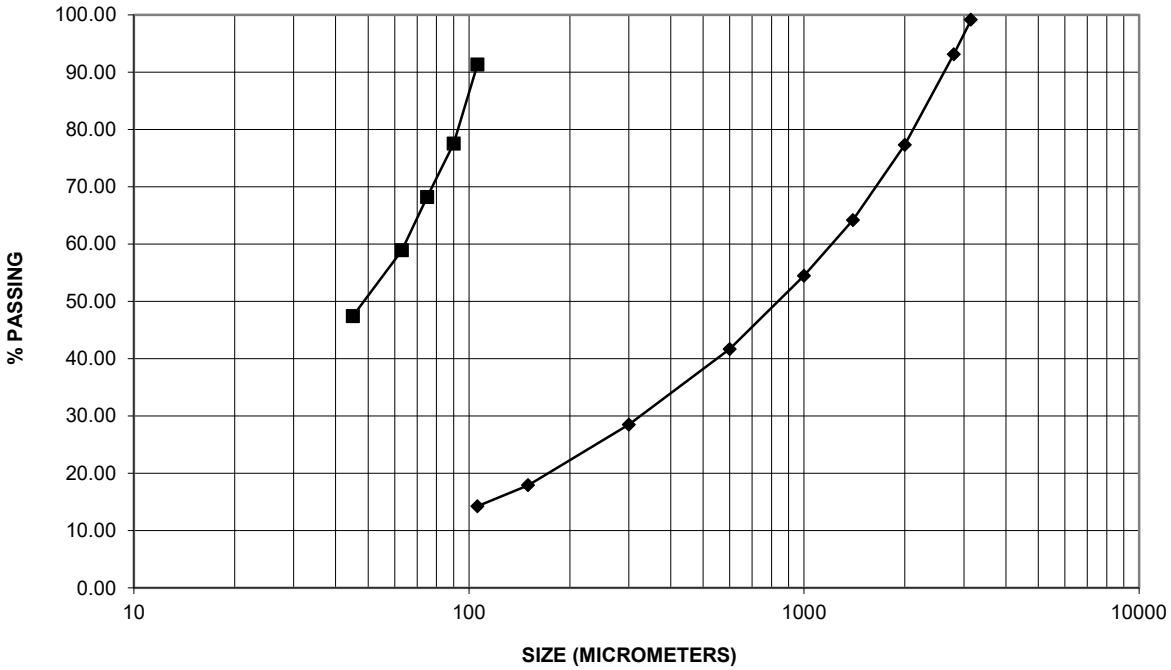
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	6.1	0.88	99.12
2.800	41.7	5.99	93.14
2.000	110.3	15.84	77.29
1.400	91.4	13.13	64.17
1.000	67.6	9.71	54.46
0.600	89.1	12.80	41.66
0.300	91.6	13.16	28.51
0.150	73.8	10.60	17.91
0.106	25.4	3.65	14.26
-0.106	99.3	14.26	
TOTAL	696.3	100.00	
F 80 (µm) :		2137	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	32.8	8.68	91.32
0.090	52.1	13.79	77.53
0.075	35.2	9.31	68.22
0.063	35.2	9.31	58.90
0.045	43.4	11.48	47.42
-0.045	179.2	47.42	
TOTAL	377.9	100.00	
P 80 (µm) :		93	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



Metallurgy

BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	HAN FRESH #2 (61 - 67 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	100	1344.6	1344.6	1042.7	301.9	95.9	0.959	345.4	301.9	46.2
2	352	1344.6	301.9	959.6	385.0	338.8	0.962	249.2	385.0	59.0
3	338	1344.6	385.0	929.6	415.0	356.0	1.053	224.0	415.0	63.6
4	304	1344.6	415.0	960.4	384.2	320.6	1.055	250.0	384.2	58.9
5	308	1344.6	384.2	960.4	384.2	325.3	1.056	250.0	384.2	58.9

PRODUCT IN THE FEED	15.32	(%)
BULK DENSITY	1.9209	(t/m^3)
IDEAL POTENTIAL PRODUCT	384.2	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.055	(g/rev)
80 % PASSING FEED SIZE	2131	(µm)
80 % PASSING PRODUCT SIZE	80	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.8

ALS

Metallurgy

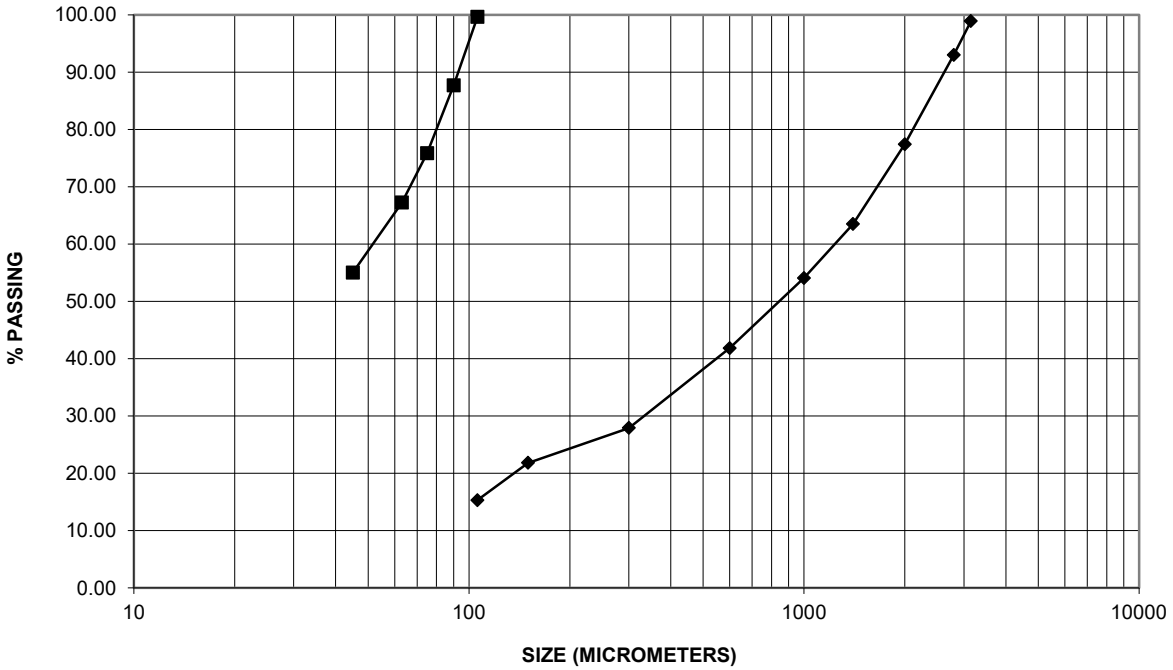
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	8.2	1.05	98.95
2.800	46.3	5.94	93.01
2.000	121.3	15.56	77.44
1.400	108.8	13.96	63.48
1.000	73.2	9.39	54.09
0.600	95.6	12.27	41.83
0.300	108.5	13.92	27.91
0.150	47.5	6.09	21.81
0.106	50.6	6.49	15.32
-0.106	119.4	15.32	
TOTAL	779.4	100.00	
F 80 (µm) :		2131	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	1.4	0.36	99.64
0.090	45.9	11.95	87.69
0.075	45.4	11.82	75.87
0.063	33.2	8.64	67.23
0.045	46.9	12.21	55.02
-0.045	211.4	55.02	
TOTAL	384.2	100.00	
P 80 (µm) :		80	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	HAN FRESH #3(48 - 54 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1244.7	1244.7	980.0	264.7	170.7	0.853	370.2	264.7	20.0
2	393	1244.7	264.7	850.0	394.7	374.7	0.953	215.4	394.7	29.8
3	342	1244.7	394.7	842.9	401.8	372.0	1.088	209.8	401.8	30.3
4	299	1244.7	401.8	889.1	355.6	325.3	1.088	250.0	355.6	26.9
5	302	1244.7	355.6	889.1	355.6	328.7	1.089	250.0	355.6	26.9

PRODUCT IN THE FEED	7.55	(%)
BULK DENSITY	1.7781	(t/m^3)
IDEAL POTENTIAL PRODUCT	355.6	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.088	(g/rev)
80 % PASSING FEED SIZE	2481	(µm)
80 % PASSING PRODUCT SIZE	81	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.2

Metallurgy

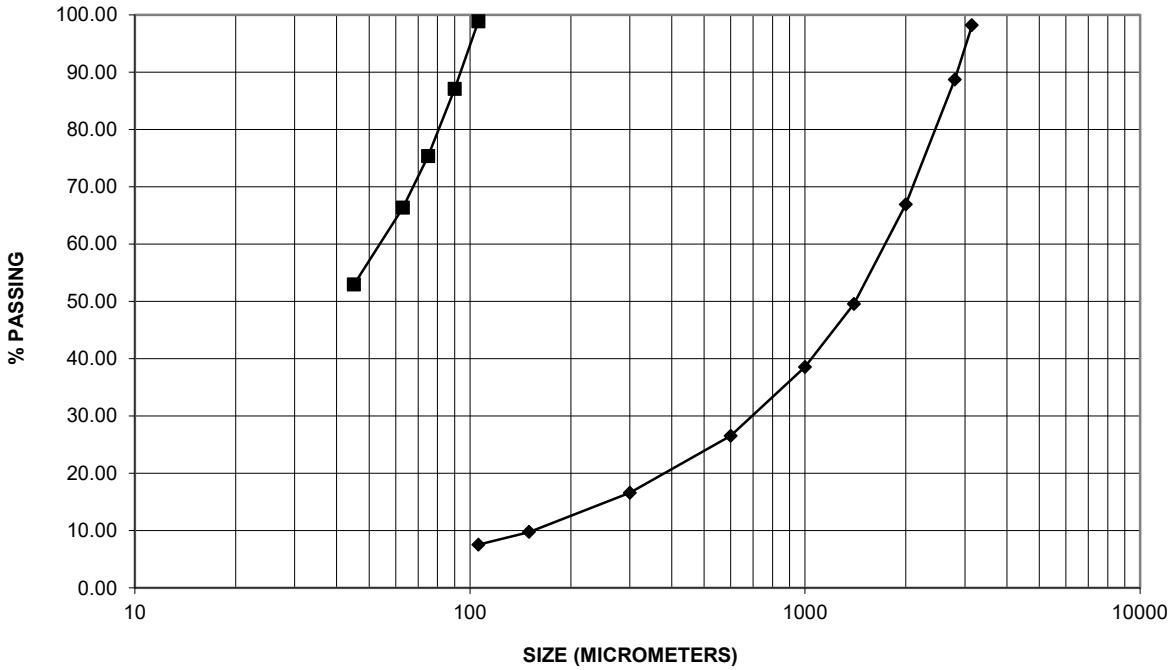
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	16.3	1.81	98.19
2.800	85.5	9.50	88.69
2.000	196.2	21.79	66.90
1.400	156.4	17.37	49.53
1.000	99.0	11.00	38.54
0.600	107.9	11.98	26.55
0.300	89.8	9.97	16.58
0.150	61.5	6.83	9.75
0.106	19.8	2.20	7.55
-0.106	68.0	7.55	
TOTAL	900.4	100.00	
F 80 (µm) :		2481	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.0	1.12	98.88
0.090	42.0	11.81	87.06
0.075	41.6	11.70	75.37
0.063	32.1	9.03	66.34
0.045	47.7	13.41	52.92
-0.045	188.2	52.92	
TOTAL	355.6	100.00	
P 80 (µm) :		81	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	HANS TRANSITION / FRESH (12 -17 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	150	1308.1	1308.1	1004.7	303.4	141.1	0.941	331.1	303.4	37.6
2	357	1308.1	303.4	908.6	399.5	361.9	1.014	227.4	399.5	49.6
3	319	1308.1	399.5	917.5	390.6	341.0	1.069	234.9	390.6	48.5
4	304	1308.1	390.6	900.8	407.3	358.8	1.180	221.2	407.3	50.5
5	274	1308.1	407.3	934.4	373.7	323.2	1.179	250.0	373.7	46.4
6	278	1308.1	373.7	934.4	373.7	327.3	1.177	250.0	373.7	46.4

PRODUCT IN THE FEED	12.41	(%)
BULK DENSITY	1.8687	(t/m^3)
IDEAL POTENTIAL PRODUCT	373.7	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.178	(g/rev)
80 % PASSING FEED SIZE	2027	(µm)
80 % PASSING PRODUCT SIZE	85	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.0

Metallurgy

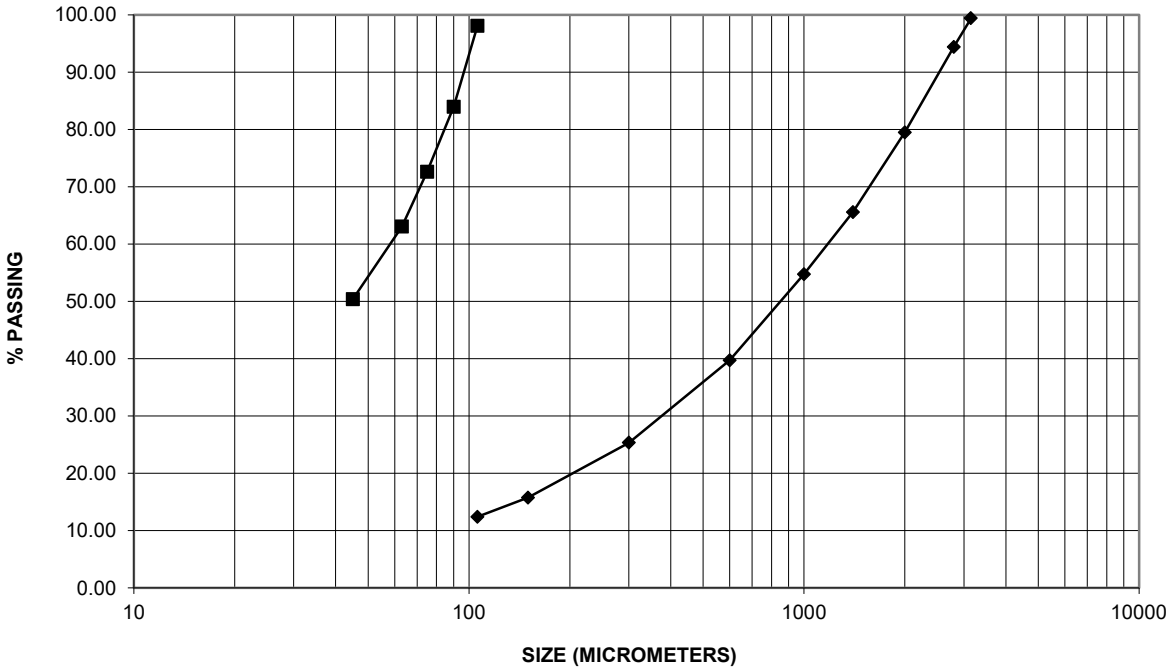
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	4.4	0.59	99.41
2.800	37.5	5.00	94.41
2.000	111.8	14.92	79.49
1.400	104.4	13.93	65.56
1.000	81.0	10.81	54.76
0.600	112.8	15.05	39.71
0.300	107.7	14.37	25.34
0.150	71.7	9.57	15.77
0.106	25.2	3.36	12.41
-0.106	93.0	12.41	
TOTAL	749.5	100.00	
F 80 (µm) :		2027	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	7.2	1.93	98.07
0.090	52.8	14.13	83.94
0.075	42.3	11.32	72.63
0.063	35.8	9.58	63.05
0.045	47.3	12.66	50.39
-0.045	188.3	50.39	
TOTAL	373.7	100.00	
P 80 (µm) :		85	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	ATIRRE FRESH #1 (55 - 60 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1200.2	1200.2	940.3	259.9	168.3	0.842	361.8	259.9	19.8
2	384	1200.2	259.9	838.5	361.7	341.9	0.890	231.8	361.7	27.6
3	354	1200.2	361.7	808.9	391.3	363.7	1.027	206.7	391.3	29.9
4	305	1200.2	391.3	840.1	360.1	330.2	1.083	233.3	360.1	27.5
5	291	1200.2	360.1	857.3	342.9	315.4	1.084	250.0	342.9	26.2
6	292	1200.2	342.9	857.3	342.9	316.7	1.085	250.0	342.9	26.2

PRODUCT IN THE FEED	7.63	(%)
BULK DENSITY	1.7146	(t/m^3)
IDEAL POTENTIAL PRODUCT	342.9	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.084	(g/rev)
80 % PASSING FEED SIZE	2534	(µm)
80 % PASSING PRODUCT SIZE	81	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.2

ALS

Metallurgy

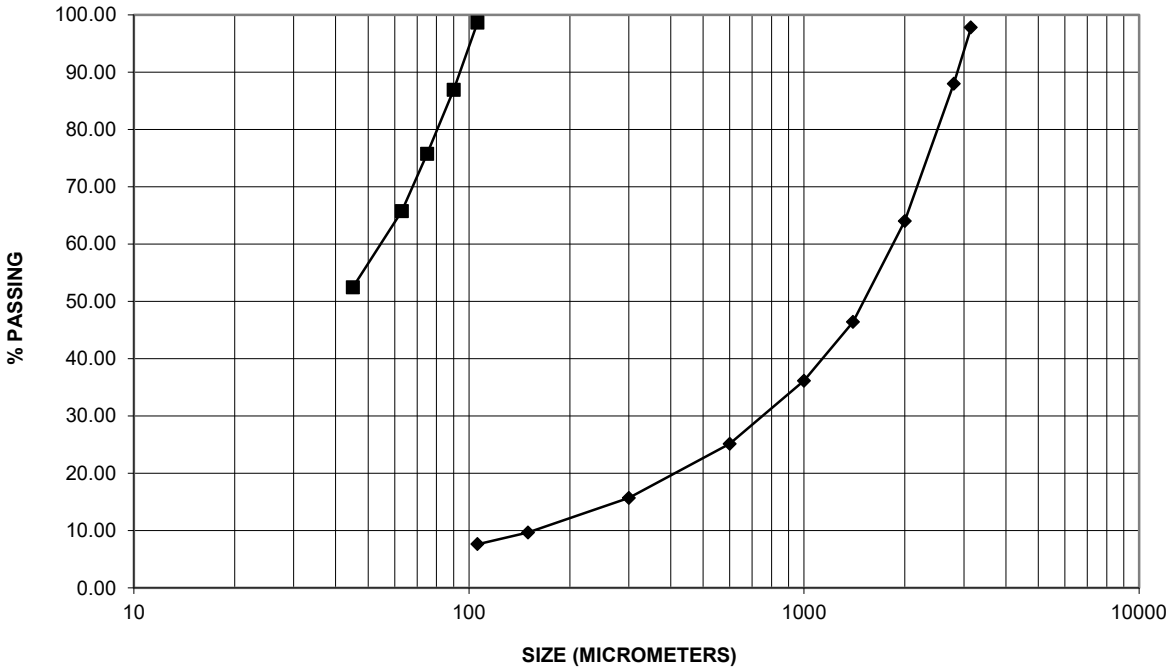
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	17.4	2.22	97.78
2.800	77.1	9.82	87.96
2.000	187.9	23.93	64.03
1.400	138.5	17.64	46.40
1.000	80.6	10.26	36.13
0.600	86.3	10.99	25.14
0.300	74.0	9.42	15.72
0.150	47.4	6.04	9.68
0.106	16.1	2.05	7.63
-0.106	59.9	7.63	
TOTAL	785.2	100.00	
F 80 (µm) :		2534	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.7	1.37	98.63
0.090	40.1	11.69	86.93
0.075	38.4	11.20	75.74
0.063	34.3	10.00	65.73
0.045	45.5	13.27	52.46
-0.045	179.9	52.46	
TOTAL	342.9	100.00	
P 80 (µm) :		81	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	ATIRRE FRESH #2 (73 - 81 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1225.9	1225.9	974.8	251.1	159.5	0.798	388.2	251.1	18.8
2	416	1225.9	251.1	840.5	385.4	366.6	0.881	218.1	385.4	28.8
3	365	1225.9	385.4	845.9	380.0	351.2	0.962	222.6	380.0	28.4
4	335	1225.9	380.0	875.6	350.3	321.9	0.961	250.0	350.3	26.2
5	337	1225.9	350.3	875.6	350.3	324.1	0.962	250.0	350.3	26.2

PRODUCT IN THE FEED	7.47	(%)
BULK DENSITY	1.7513	(t/m^3)
IDEAL POTENTIAL PRODUCT	350.3	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	0.961	(g/rev)
80 % PASSING FEED SIZE	2611	(µm)
80 % PASSING PRODUCT SIZE	79	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 18.7

ALS

Metallurgy

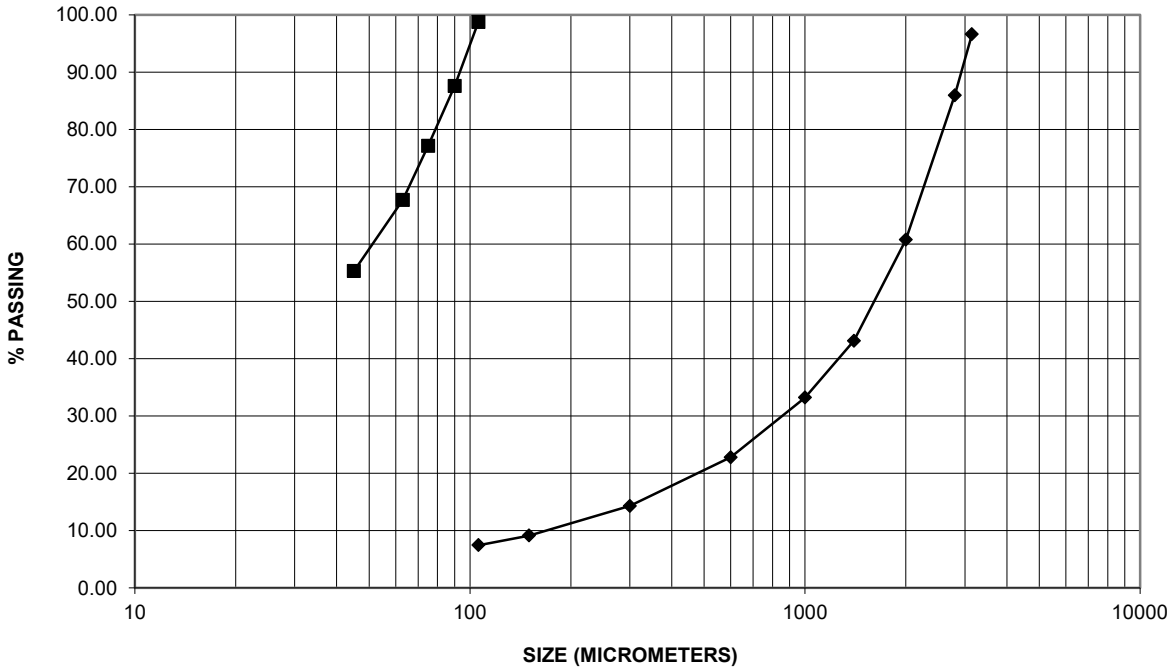
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	23.7	3.37	96.63
2.800	75.2	10.68	85.96
2.000	177.5	25.21	60.75
1.400	124.1	17.62	43.13
1.000	69.8	9.91	33.21
0.600	73.4	10.42	22.79
0.300	59.8	8.49	14.30
0.150	36.3	5.15	9.15
0.106	11.8	1.68	7.47
-0.106	52.6	7.47	
TOTAL	704.2	100.00	
F 80 (µm) :		2611	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.3	1.23	98.77
0.090	39.2	11.19	87.58
0.075	36.6	10.45	77.13
0.063	33.1	9.45	67.68
0.045	43.4	12.39	55.30
-0.045	193.7	55.30	
TOTAL	350.3	100.00	
P 80 (µm) :		79	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	ATIRRE TRANSITION (30 - 39 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1153.1	1153.1	872.2	280.9	177.6	0.888	310.5	280.9	25.2
2	343	1153.1	280.9	789.7	363.4	338.2	0.986	217.3	363.4	32.6
3	301	1153.1	363.4	780.9	372.2	339.6	1.128	209.8	372.2	33.3
4	262	1153.1	372.2	823.6	329.5	296.2	1.130	250.0	329.5	29.5
5	265	1153.1	329.5	823.6	329.5	300.0	1.132	250.0	329.5	29.5

PRODUCT IN THE FEED	8.96	(%)
BULK DENSITY	1.6473	(t/m^3)
IDEAL POTENTIAL PRODUCT	329.5	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.131	(g/rev)
80 % PASSING FEED SIZE	2627	(µm)
80 % PASSING PRODUCT SIZE	82	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.6

Metallurgy

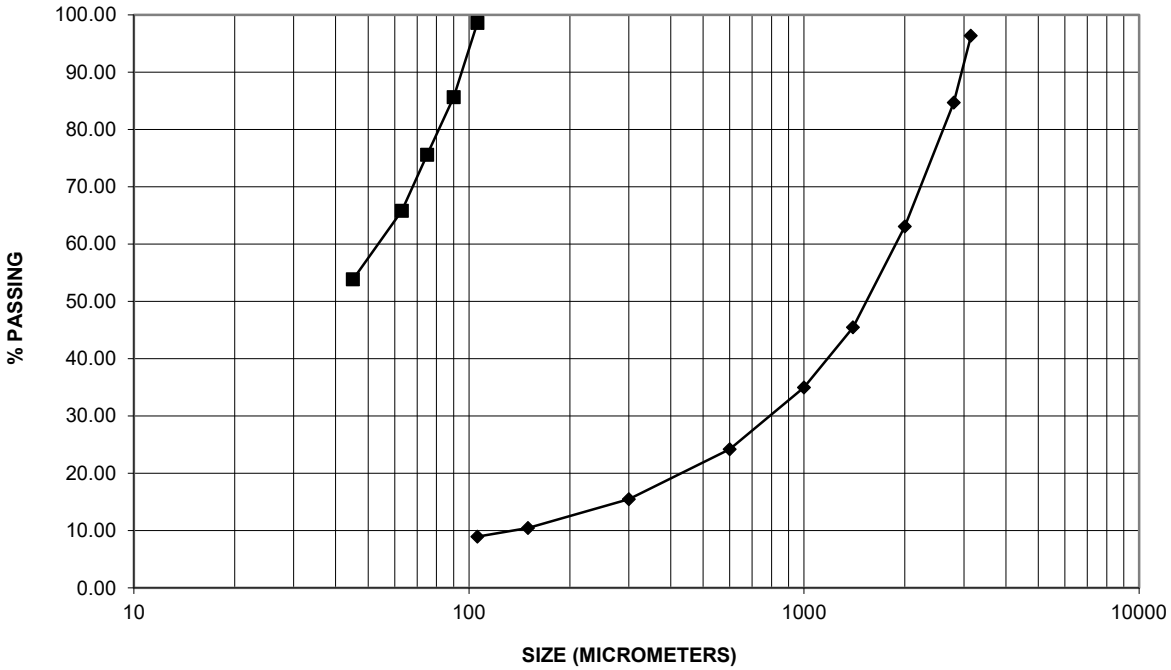
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	28.1	3.62	96.38
2.800	91.0	11.71	84.67
2.000	167.9	21.61	63.06
1.400	136.9	17.62	45.44
1.000	81.4	10.48	34.97
0.600	83.8	10.79	24.18
0.300	67.7	8.71	15.47
0.150	38.9	5.01	10.46
0.106	11.7	1.51	8.96
-0.106	69.6	8.96	
TOTAL	777.0	100.00	
F 80 (µm) :	2627		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.6	1.40	98.60
0.090	42.7	12.96	85.64
0.075	33.1	10.05	75.60
0.063	32.3	9.80	65.80
0.045	39.4	11.96	53.84
-0.045	177.4	53.84	
TOTAL	329.5	100.00	
P 80 (µm) :	82		

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KILOSEGUI FRESH #1 (37 - 42 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1185.8	1185.8	923.1	262.7	187.8	0.939	351.4	262.7	16.6
2	343	1185.8	262.7	817.4	368.4	351.8	1.026	221.9	368.4	23.3
3	308	1185.8	368.4	805.0	380.8	357.5	1.161	211.4	380.8	24.0
4	271	1185.8	380.8	847.0	338.8	314.8	1.161	250.0	338.8	21.4
5	273	1185.8	338.8	847.0	338.8	317.4	1.163	250.0	338.8	21.4

PRODUCT IN THE FEED	6.31	(%)
BULK DENSITY	1.6940	(t/m^3)
IDEAL POTENTIAL PRODUCT	338.8	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.162	(g/rev)
80 % PASSING FEED SIZE	2756	(µm)
80 % PASSING PRODUCT SIZE	84	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.5

Metallurgy

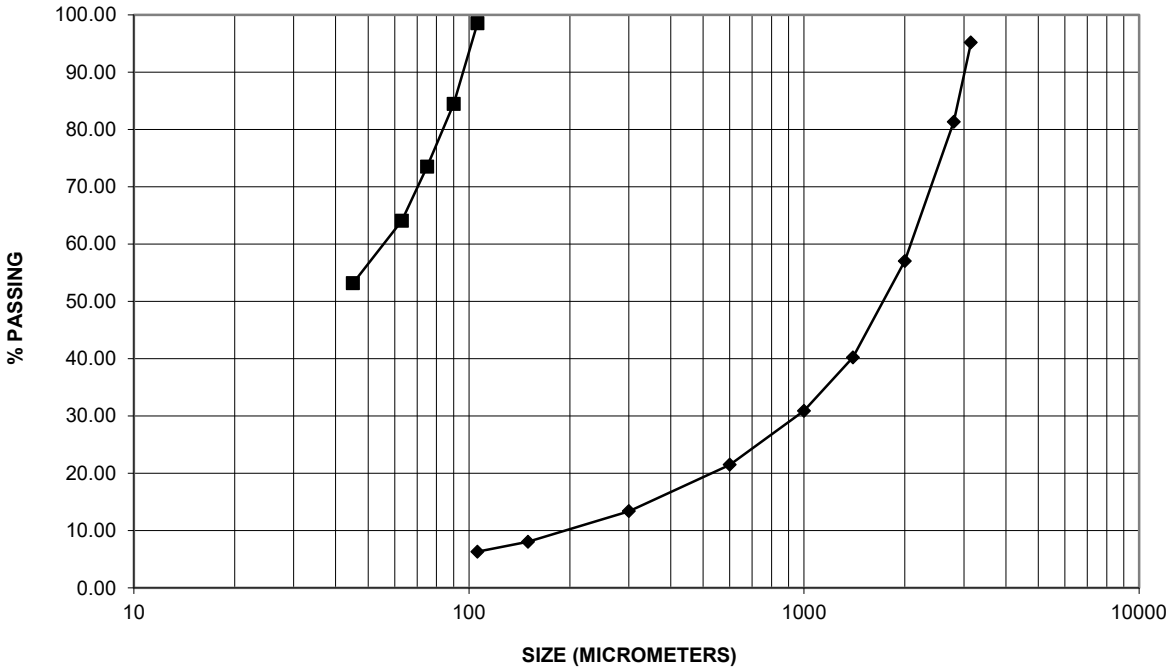
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	30.4	4.81	95.19
2.800	87.5	13.85	81.34
2.000	153.5	24.29	57.05
1.400	106.4	16.84	40.21
1.000	58.8	9.31	30.91
0.600	59.6	9.43	21.47
0.300	51.1	8.09	13.39
0.150	33.7	5.33	8.06
0.106	11.0	1.74	6.31
-0.106	39.9	6.31	
TOTAL	631.9	100.00	
F 80 (µm) :		2756	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	5.0	1.48	98.52
0.090	47.7	14.08	84.45
0.075	37.0	10.92	73.52
0.063	32.0	9.45	64.08
0.045	37.0	10.92	53.16
-0.045	180.1	53.16	
TOTAL	338.8	100.00	
P 80 (µm) :		84	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KILOSEGUI FRESH #2 (28 - 33 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1250.5	1250.5	960.3	290.2	206.0	1.030	330.9	290.2	19.5
2	328	1250.5	290.2	855.4	395.1	375.6	1.145	216.5	395.1	26.6
3	289	1250.5	395.1	874.3	376.2	349.6	1.210	232.4	376.2	25.3
4	274	1250.5	376.2	893.2	357.3	332.0	1.212	250.0	357.3	24.1
5	275	1250.5	357.3	893.2	357.3	333.2	1.212	250.0	357.3	24.1

PRODUCT IN THE FEED	6.73	(%)
BULK DENSITY	1.7864	(t/m^3)
IDEAL POTENTIAL PRODUCT	357.3	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.212	(g/rev)
80 % PASSING FEED SIZE	2629	(µm)
80 % PASSING PRODUCT SIZE	85	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.1

Metallurgy

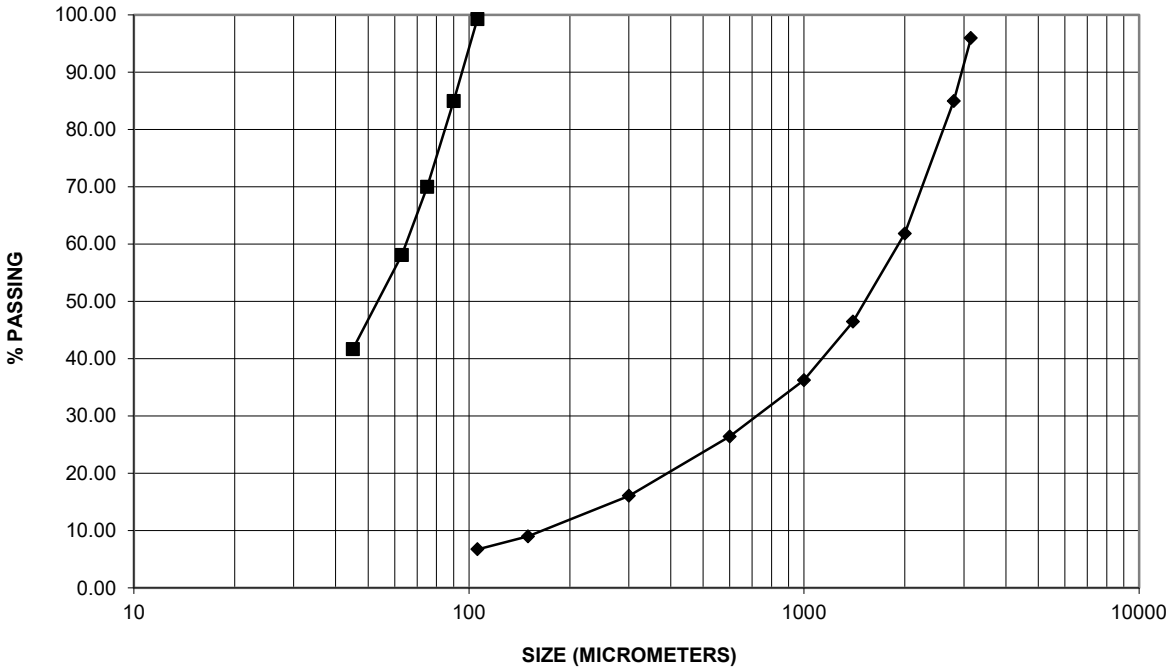
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	26.3	4.03	95.97
2.800	71.9	11.03	84.94
2.000	150.7	23.11	61.83
1.400	100.3	15.38	46.45
1.000	66.5	10.20	36.25
0.600	64.2	9.85	26.41
0.300	67.5	10.35	16.06
0.150	46.1	7.07	8.99
0.106	14.7	2.25	6.73
-0.106	43.9	6.73	
TOTAL	652.1	100.00	
F 80 (µm) :		2629	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	2.6	0.73	99.27
0.090	51.2	14.33	84.94
0.075	53.5	14.97	69.97
0.063	42.4	11.87	58.10
0.045	58.7	16.43	41.67
-0.045	148.9	41.67	
TOTAL	357.3	100.00	
P 80 (µm) :		85	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KILOSEGUI FRESH #3 (63 - 68 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	250	1142.8	1142.8	854.4	288.4	221.8	0.887	296.3	288.4	16.8
2	349	1142.8	288.4	733.4	409.4	392.6	1.125	179.1	409.4	23.9
3	269	1142.8	409.4	812.4	330.4	306.5	1.139	245.9	330.4	19.3
4	270	1142.8	330.4	816.3	326.5	307.2	1.138	250.0	326.5	19.0
5	270	1142.8	326.5	816.3	326.5	307.5	1.139	250.0	326.5	19.0

PRODUCT IN THE FEED	5.83	(%)
BULK DENSITY	1.6326	(t/m^3)
IDEAL POTENTIAL PRODUCT	326.5	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.138	(g/rev)
80 % PASSING FEED SIZE	2725	(µm)
80 % PASSING PRODUCT SIZE	84	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.7

Metallurgy

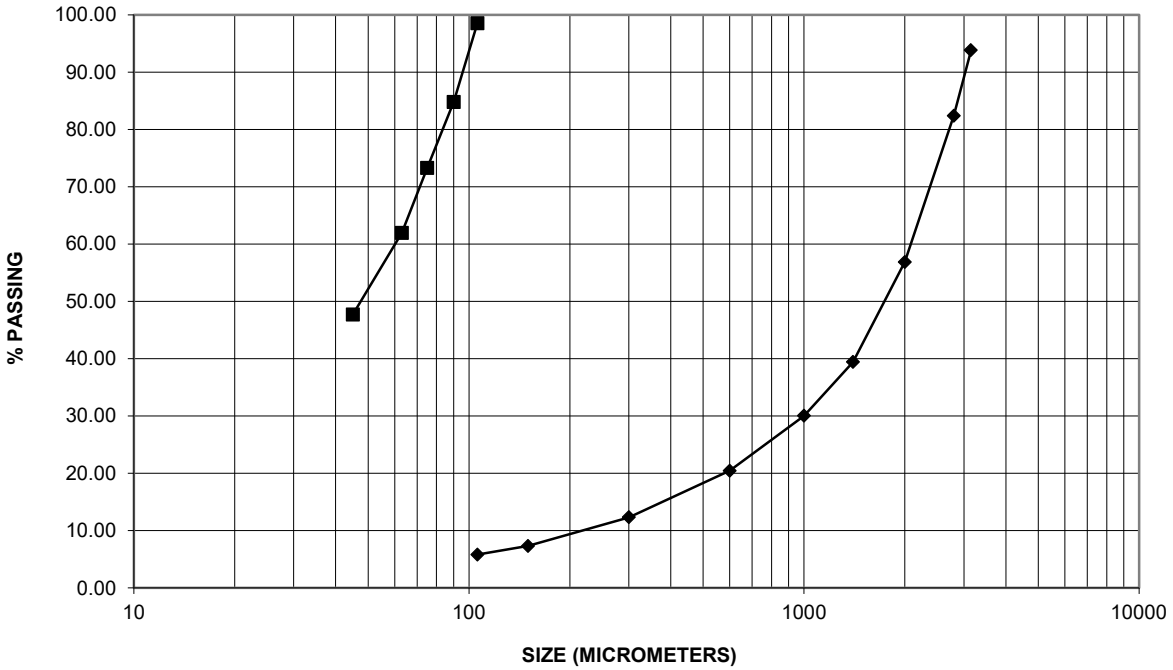
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	42.4	6.18	93.82
2.800	78.4	11.43	82.39
2.000	175.2	25.54	56.85
1.400	119.6	17.44	39.41
1.000	64.3	9.37	30.03
0.600	65.8	9.59	20.44
0.300	55.7	8.12	12.32
0.150	34.4	5.02	7.30
0.106	10.1	1.47	5.83
-0.106	40.0	5.83	
TOTAL	685.9	100.00	
F 80 (µm) :	2725		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	4.7	1.44	98.56
0.090	44.9	13.75	84.81
0.075	37.7	11.55	73.26
0.063	37.0	11.33	61.93
0.045	46.4	14.21	47.72
-0.045	155.8	47.72	
TOTAL	326.5	100.00	
P 80 (µm) :	84		

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



ALS

Metallurgy

BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KILOSEGUI FRESH #4 (91 - 96 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1167.4	1167.4	921.4	246.0	173.7	0.868	374.6	246.0	15.2
2	367	1167.4	246.0	800.6	366.8	351.6	0.958	218.3	366.8	22.7
3	324	1167.4	366.8	782.9	384.5	361.8	1.117	203.6	384.5	23.8
4	277	1167.4	384.5	833.9	333.5	309.7	1.118	250.0	333.5	20.7
5	280	1167.4	333.5	833.9	333.5	312.8	1.117	250.0	333.5	20.7

PRODUCT IN THE FEED	6.20	(%)
BULK DENSITY	1.6677	(t/m^3)
IDEAL POTENTIAL PRODUCT	333.5	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.118	(g/rev)
80 % PASSING FEED SIZE	2690	(µm)
80 % PASSING PRODUCT SIZE	81	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.7

ALS

Metallurgy

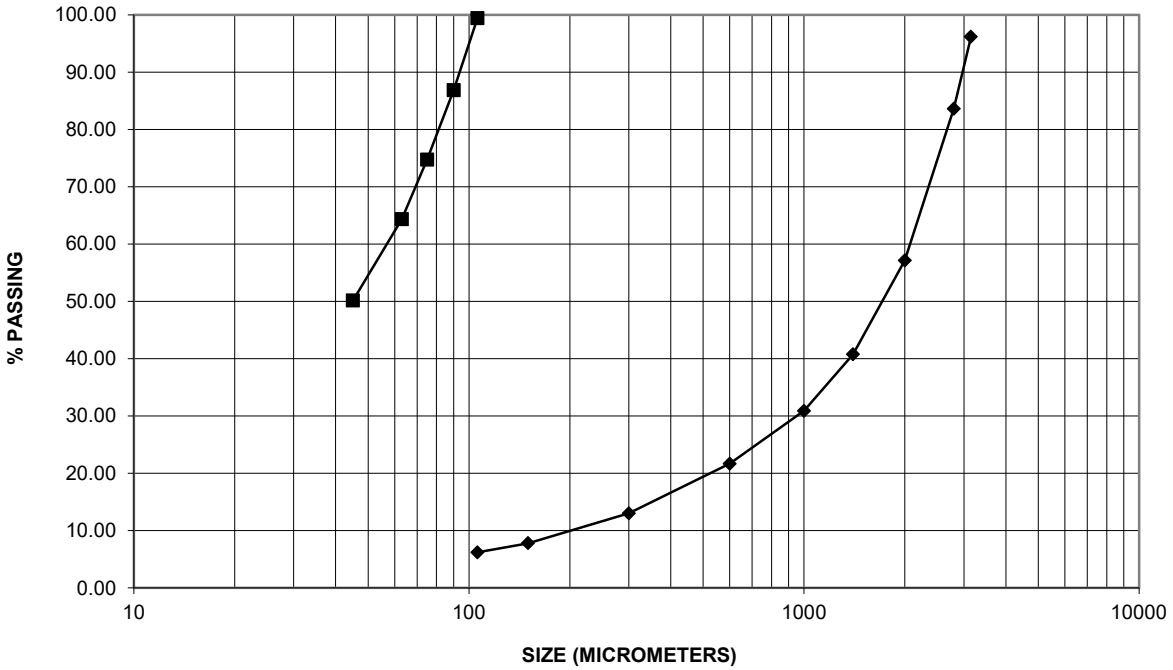
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	26.2	3.79	96.21
2.800	86.8	12.57	83.64
2.000	182.9	26.48	57.17
1.400	113.4	16.42	40.75
1.000	68.0	9.84	30.91
0.600	63.7	9.22	21.69
0.300	59.8	8.66	13.03
0.150	36.1	5.23	7.80
0.106	11.1	1.61	6.20
-0.106	42.8	6.20	
TOTAL	690.8	100.00	
F 80 (µm) :		**2690**	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	2.0	0.60	99.40
0.090	41.8	12.53	86.87
0.075	40.4	12.11	74.75
0.063	34.7	10.40	64.35
0.045	47.4	14.21	50.13
-0.045	167.2	50.13	
TOTAL	333.5	100.00	
P 80 (µm) :		**81**	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



ALS

Metallurgy

BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KILOSEGUI TRANSITION #1 (23 - 28 m)
DATE	MAY 2022

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1211.2	1211.2	787.1	424.1	309.8	1.549	185.6	424.1	40.0
2	198	1211.2	424.1	849.2	362.0	322.0	1.626	234.6	362.0	34.2
3	192	1211.2	362.0	827.5	383.7	349.5	1.821	215.7	383.7	36.2
4	170	1211.2	383.7	865.1	346.1	309.9	1.823	250.0	346.1	32.7
5	170	1211.2	346.1	865.1	346.1	313.4	1.844	250.0	346.1	32.7

PRODUCT IN THE FEED	9.44	(%)
BULK DENSITY	1.7303	(t/m^3)
IDEAL POTENTIAL PRODUCT	346.1	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.833	(g/rev)
80 % PASSING FEED SIZE	2807	(µm)
80 % PASSING PRODUCT SIZE	80	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 11.0

Metallurgy

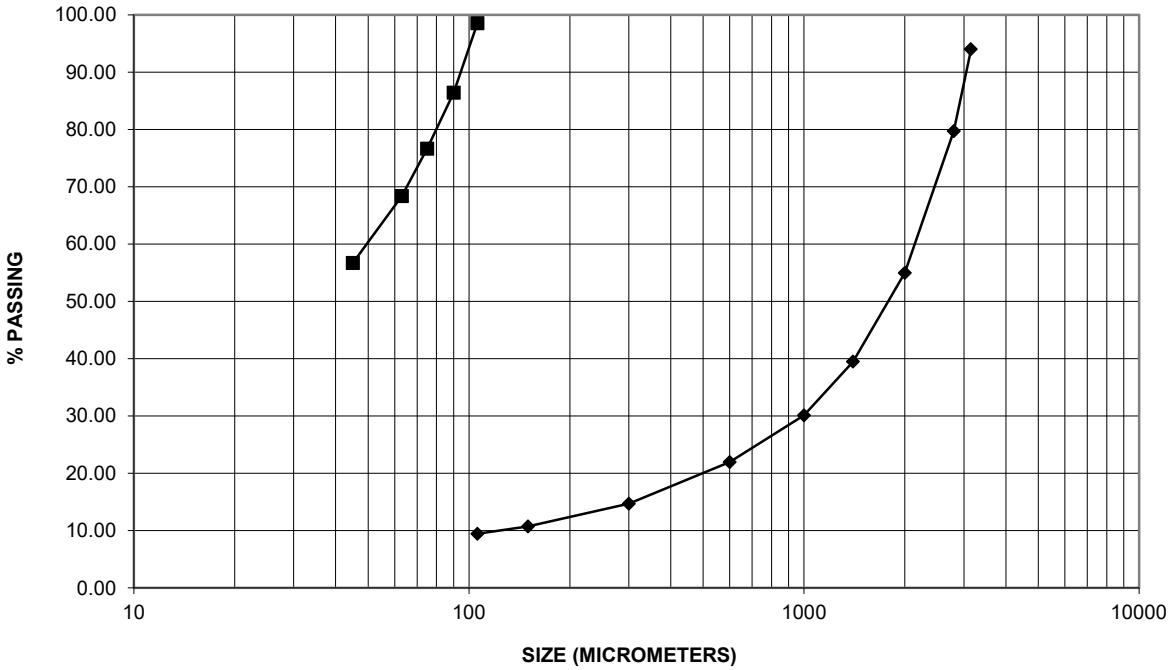
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	36.1	6.00	94.00
2.800	85.9	14.27	79.73
2.000	149.2	24.78	54.95
1.400	93.2	15.48	39.47
1.000	56.3	9.35	30.12
0.600	49.1	8.16	21.96
0.300	43.7	7.26	14.70
0.150	24.0	3.99	10.71
0.106	7.7	1.28	9.44
-0.106	56.8	9.44	
TOTAL	602.0	100.00	
F 80 (µm) :		2807	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	5.0	1.44	98.56
0.090	42.0	12.14	86.42
0.075	33.8	9.77	76.65
0.063	28.6	8.26	68.39
0.045	40.4	11.67	56.72
-0.045	196.3	56.72	
TOTAL	346.1	100.00	
P 80 (µm) :		80	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	KEKEDA FRESH #4
DATE	Dec-22

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1246.3	1246.3	937.5	308.8	194.3	0.971	303.6	308.8	28.4
2	337	1246.3	308.8	856.7	389.6	361.2	1.072	219.9	389.6	35.8
3	299	1246.3	389.6	854.6	391.7	355.9	1.190	218.2	391.7	36.0
4	269	1246.3	391.7	890.2	356.1	320.1	1.190	250.0	356.1	32.7
5	272	1246.3	356.1	890.2	356.1	323.4	1.189	250.0	356.1	32.7

PRODUCT IN THE FEED	9.19	(%)
BULK DENSITY	1.7804	(t/m^3)
IDEAL POTENTIAL PRODUCT	356.1	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.189	(g/rev)
80 % PASSING FEED SIZE	2333	(µm)
80 % PASSING PRODUCT SIZE	81	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.1

Metallurgy

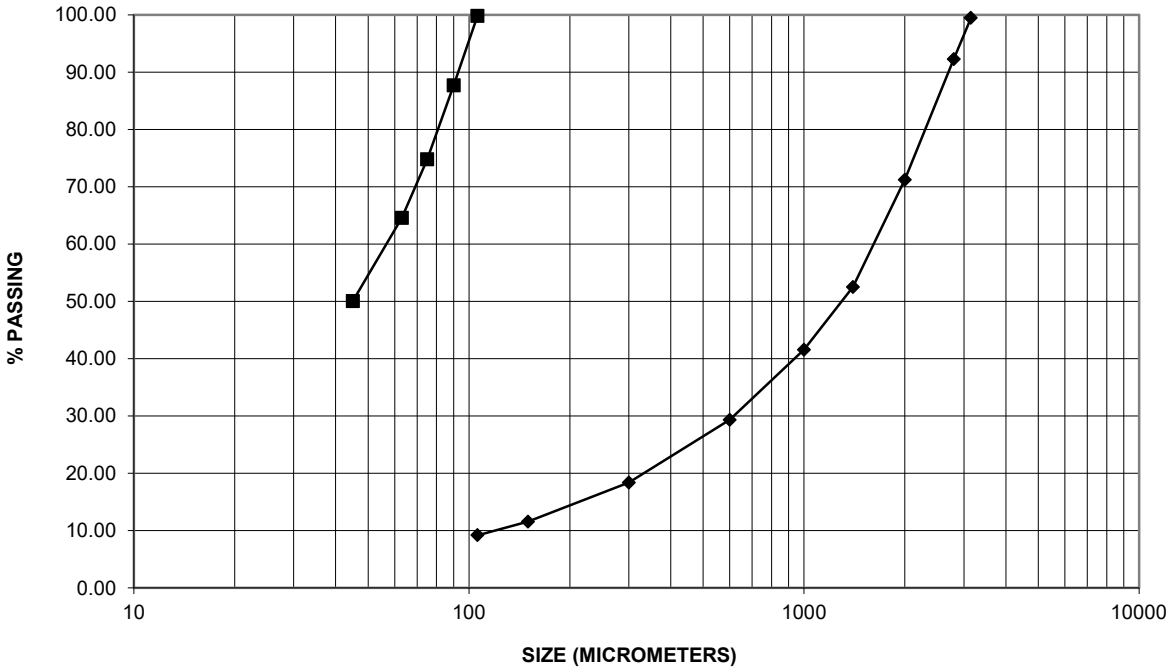
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	2.9	0.51	99.49
2.800	41.2	7.21	92.28
2.000	120.2	21.04	71.24
1.400	106.9	18.71	52.53
1.000	62.6	10.96	41.57
0.600	69.9	12.24	29.34
0.300	62.5	10.94	18.40
0.150	39.1	6.84	11.55
0.106	13.5	2.36	9.19
-0.106	52.5	9.19	
TOTAL	571.3	100.00	
F 80 (µm) :		2333	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	0.7	0.20	99.80
0.090	42.7	12.09	87.71
0.075	45.7	12.94	74.77
0.063	36.0	10.20	64.57
0.045	51.2	14.50	50.07
-0.045	176.8	50.07	
TOTAL	353.1	100.00	
P 80 (µm) :		81	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	NOKPA FRESH #3
DATE	Dec-22

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1261.9	1261.9	1021.7	240.2	147.6	0.738	425.4	240.2	17.6
2	465	1261.9	240.2	846.6	415.3	397.7	0.855	203.9	415.3	30.5
3	386	1261.9	415.3	858.7	403.2	372.7	0.966	213.0	403.2	29.6
4	343	1261.9	403.2	901.4	360.5	330.9	0.965	250.0	360.5	26.5
5	346	1261.9	360.5	901.4	360.5	334.0	0.965	250.0	360.5	26.5

PRODUCT IN THE FEED	7.34 (%)
BULK DENSITY	1.8027 (t/m^3)
IDEAL POTENTIAL PRODUCT	360.5 (g)
AVERAGE EQUILIBRIUM CIRC LOAD	250 (%)
AVERAGE PRODUCT	0.965 (g/rev)
80 % PASSING FEED SIZE	2478 (µm)
80 % PASSING PRODUCT SIZE	85 (µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 19.6

ALS

Metallurgy

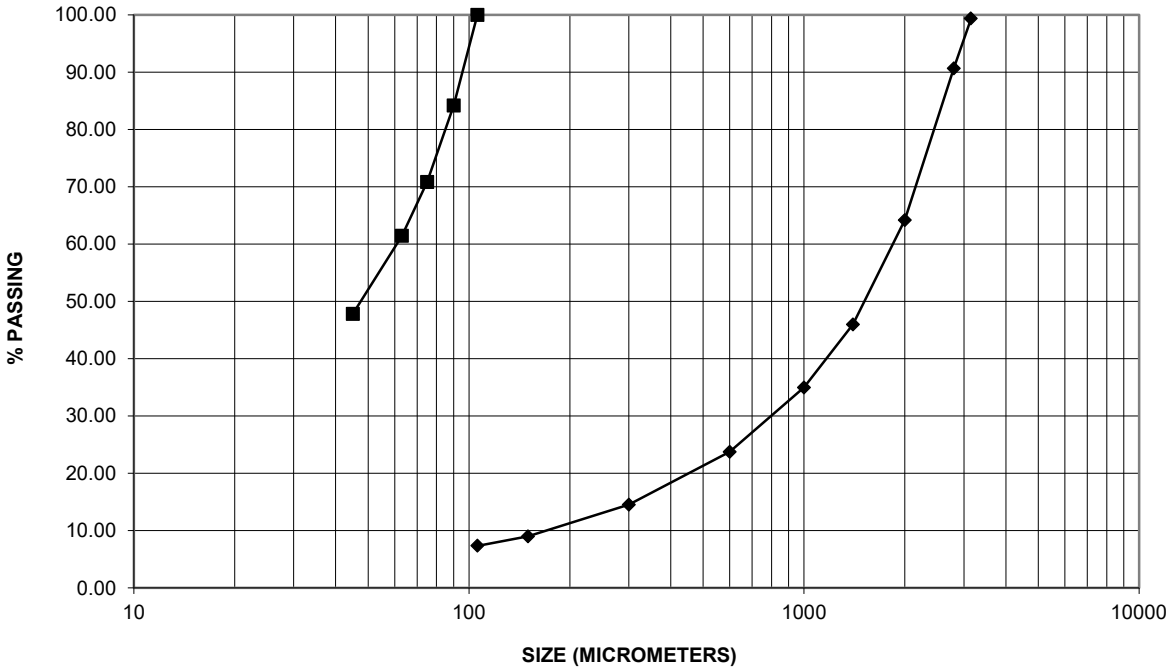
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	4.3	0.65	99.35
2.800	57.5	8.67	90.68
2.000	175.9	26.51	64.17
1.400	120.6	18.18	45.99
1.000	73.1	11.02	34.97
0.600	74.6	11.25	23.73
0.300	61.0	9.20	14.53
0.150	36.6	5.52	9.01
0.106	11.1	1.67	7.34
-0.106	48.7	7.34	
TOTAL	663.4	100.00	
F 80 (µm) :		2478	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	0.0	0.00	100.00
0.090	57.1	15.84	84.16
0.075	48.0	13.31	70.85
0.063	34.0	9.43	61.41
0.045	49.0	13.59	47.82
-0.045	172.4	47.82	
TOTAL	360.5	100.00	
P 80 (µm) :		85	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



ALS

Metallurgy

BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	CHEGUE MAIN FRESH #5
DATE	Dec-22

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1287.7	1287.7	1002.9	284.8	182.1	0.910	352.1	284.8	22.7
2	379	1287.7	284.8	889.5	398.2	375.5	0.991	223.4	398.2	31.8
3	339	1287.7	398.2	882.4	405.3	373.5	1.102	217.7	405.3	32.3
4	305	1287.7	405.3	919.8	367.9	335.6	1.100	250.0	367.9	29.4
5	308	1287.7	367.9	919.8	367.9	338.5	1.099	250.0	367.9	29.4

PRODUCT IN THE FEED	7.98 (%)
BULK DENSITY	1.8396 (t/m^3)
IDEAL POTENTIAL PRODUCT	367.9 (g)
AVERAGE EQUILIBRIUM CIRC LOAD	250 (%)
AVERAGE PRODUCT	1.100 (g/rev)
80 % PASSING FEED SIZE	2414 (µm)
80 % PASSING PRODUCT SIZE	86 (µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.8

Metallurgy

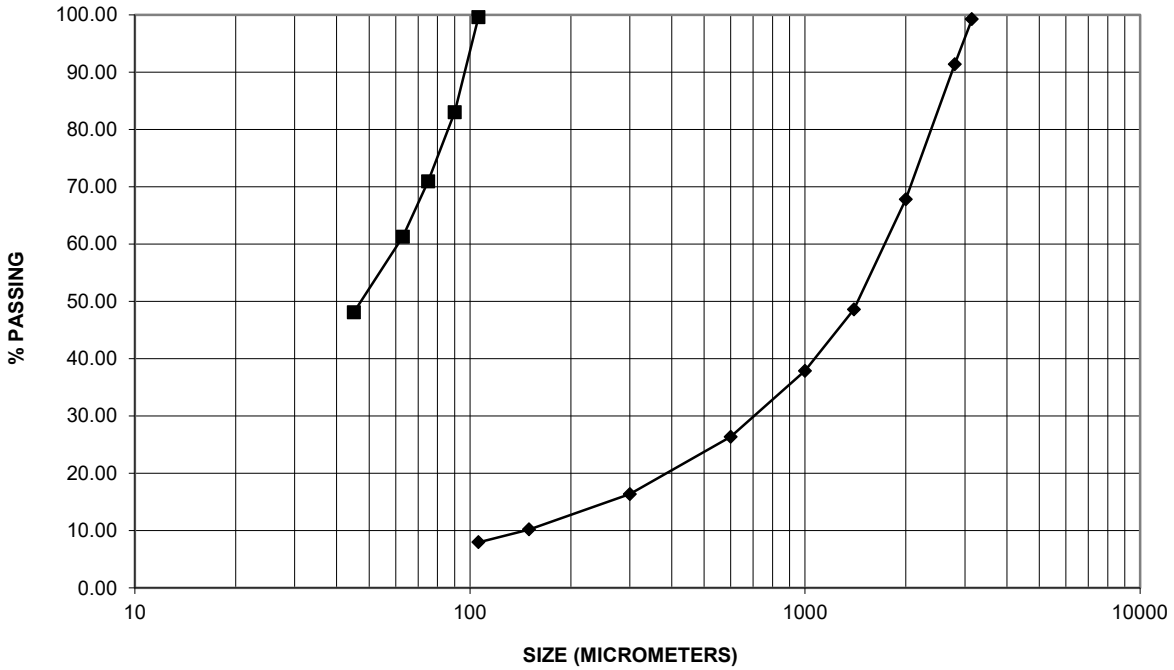
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	4.8	0.72	99.28
2.800	52.9	7.90	91.38
2.000	157.7	23.56	67.82
1.400	128.6	19.21	48.60
1.000	71.7	10.71	37.89
0.600	77.2	11.53	26.36
0.300	66.9	10.00	16.36
0.150	41.3	6.17	10.19
0.106	14.8	2.21	7.98
-0.106	53.4	7.98	
TOTAL	669.3	100.00	
F 80 (µm) :		2414	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	1.5	0.41	99.59
0.090	61.0	16.58	83.01
0.075	44.4	12.07	70.94
0.063	35.6	9.68	61.27
0.045	48.4	13.16	48.11
-0.045	177.0	48.11	
TOTAL	367.9	100.00	
P 80 (µm) :		86	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	SOUWA FRESH #4
DATE	Dec-22

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1294.1	1294.1	1016.6	277.5	168.3	0.842	366.3	277.5	23.4
2	412	1294.1	277.5	869.2	424.9	401.5	0.974	204.6	424.9	35.8
3	343	1294.1	424.9	888.8	405.3	369.5	1.077	219.3	405.3	34.2
4	312	1294.1	405.3	924.4	369.7	335.5	1.075	250.0	369.7	31.2
5	315	1294.1	369.7	893.5	400.6	369.4	1.173	223.0	400.6	33.8
6	286	1294.1	400.6	924.4	369.7	335.9	1.175	250.0	369.7	31.2
7	288	1294.1	369.7	924.4	369.7	338.5	1.175	250.0	369.7	31.2

PRODUCT IN THE FEED	8.44 (%)
BULK DENSITY	1.8487 (t/m^3)
IDEAL POTENTIAL PRODUCT	369.7 (g)
AVERAGE EQUILIBRIUM CIRC LOAD	250 (%)
AVERAGE PRODUCT	1.175 (g/rev)
80 % PASSING FEED SIZE	2444 (µm)
80 % PASSING PRODUCT SIZE	87 (µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 16.9

ALS

Metallurgy

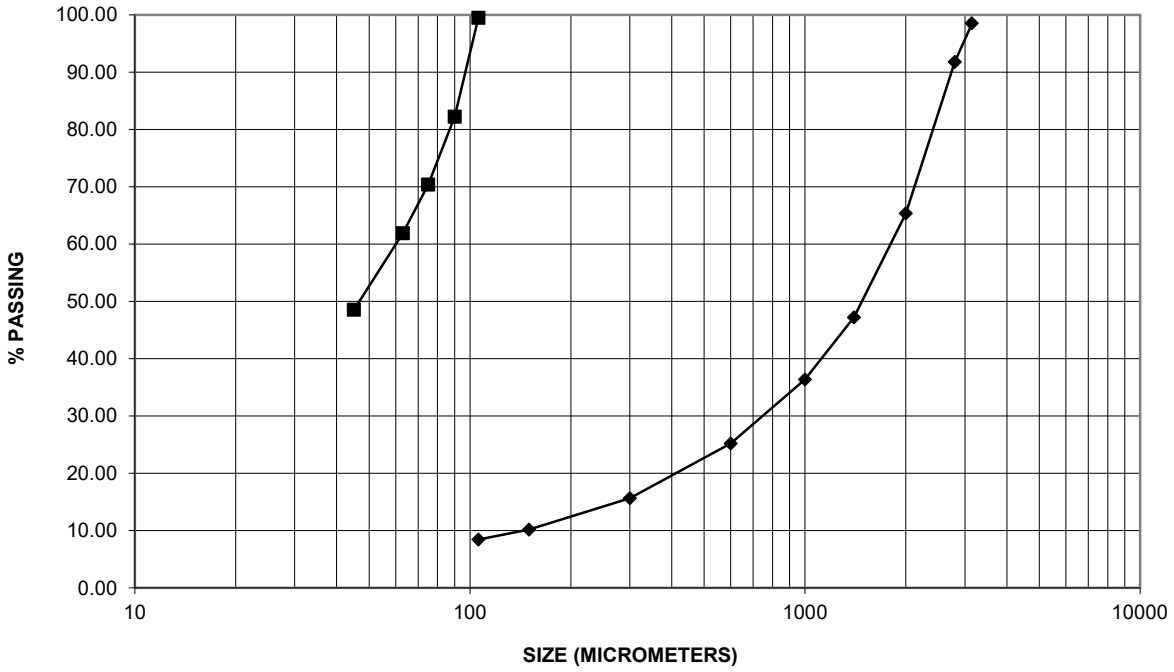
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	9.7	1.48	98.52
2.800	44.1	6.74	91.78
2.000	173.1	26.45	65.33
1.400	118.6	18.12	47.20
1.000	71.0	10.85	36.35
0.600	73.1	11.17	25.18
0.300	62.3	9.52	15.66
0.150	35.9	5.49	10.18
0.106	11.4	1.74	8.44
-0.106	55.2	8.44	
TOTAL	654.4	100.00	
F 80 (µm) :	2444		

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	1.9	0.51	99.49
0.090	63.8	17.26	82.23
0.075	43.9	11.87	70.35
0.063	31.2	8.44	61.92
0.045	49.5	13.39	48.53
-0.045	179.4	48.53	
TOTAL	369.7	100.00	
P 80 (µm) :	87		

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



BOND BALL MILL CLOSED CIRCUIT GRINDABILITY : 106 MICROMETERS

PROJECT No	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE IDENTITY	SOUWA FRESH #5
DATE	Dec-22

PERIOD	REVS OF MILL	WT OF 700 mls (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	200	1291.5	1291.5	978.8	312.7	201.6	1.008	313.0	312.7	26.9
2	339	1291.5	312.7	893.1	398.4	371.5	1.096	224.2	398.4	34.3
3	305	1291.5	398.4	891.8	399.7	365.4	1.198	223.1	399.7	34.4
4	279	1291.5	399.7	922.5	369.0	334.6	1.199	250.0	369.0	31.7
5	281	1291.5	369.0	922.5	369.0	337.3	1.200	250.0	369.0	31.7

PRODUCT IN THE FEED	8.60	(%)
BULK DENSITY	1.8450	(t/m^3)
IDEAL POTENTIAL PRODUCT	369.0	(g)
AVERAGE EQUILIBRIUM CIRC LOAD	250	(%)
AVERAGE PRODUCT	1.200	(g/rev)
80 % PASSING FEED SIZE	2437	(µm)
80 % PASSING PRODUCT SIZE	90	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours / dry tonne) : 17.0

Metallurgy

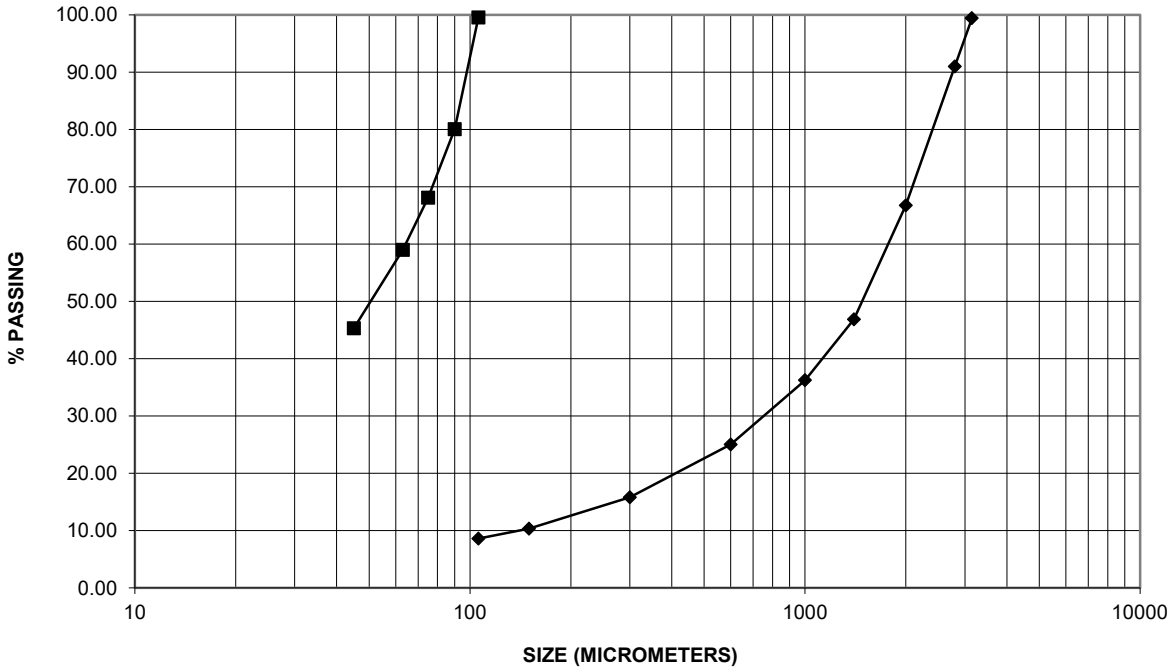
BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCT SIZINGS

A23136 : DOROPO GOLD PROJECT
AMPELLA MINING COTE D'IVOIRE

FEED TO PERIOD No. 1			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
3.150	3.6	0.56	99.44
2.800	53.8	8.44	90.99
2.000	154.4	24.23	66.76
1.400	126.8	19.90	46.86
1.000	67.8	10.64	36.22
0.600	71.2	11.17	25.05
0.300	58.9	9.24	15.80
0.150	34.9	5.48	10.33
0.106	11.0	1.73	8.60
-0.106	54.8	8.60	
TOTAL	637.2	100.00	
F 80 (µm) :		2437	

EQUILIBRIUM PRODUCTS			
Size (mm)	Weight (g)	Retained (%)	Passing (%)
0.106	1.6	0.43	99.57
0.090	72.0	19.51	80.05
0.075	44.1	11.95	68.10
0.063	33.6	9.11	59.00
0.045	50.5	13.69	45.31
-0.045	167.2	45.31	
TOTAL	369.0	100.00	
P 80 (µm) :		90	

BOND BALL MILL GRINDABILITY : FEED & PRODUCT SIZE DISTRIBUTION



APPENDIX VIII

Head Analysis

Details and Results

PROJECT	A23136 : DOROPO PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	HOLE INTERVALS TO MASTER COMPOSITES
DATE	22/04/2022

Head Assays - Fire Assay Results

Sample ID	Composite	Au_1 g/t	Au_2 g/t	Au_Av g/t
CIS339751	Souwa Oxide	0.16	0.12	0.14
CIS339757		0.04	0.30	0.17
CIS339768		0.70	0.71	0.71
CIS339780		0.08	0.07	0.08
CIS339781		0.33	0.31	0.32
CIS339782		6.59	6.82	6.71
CIS339783		0.70	0.73	0.72
CIS339787		0.77	0.68	0.73
CIS339788		1.33	1.82	1.58
CIS339789		0.37	0.33	0.35
CIS339752	Souwa Transitional	1.17	1.29	1.23
CIS339753		0.75	0.63	0.69
CIS339754		0.23	0.04	0.14
CIS339755		0.89	0.79	0.84
CIS339758		0.71	0.70	0.71
CIS339759		0.66	0.55	0.61
CIS339760		0.76	1.54	1.15
CIS339764		0.11	0.14	0.13
CIS339769		0.13	0.12	0.13
CIS339770		0.46	0.44	0.45
CIS339771		0.28	0.56	0.42
CIS339772		0.29	0.31	0.30
CIS339784		0.55	0.48	0.52
CIS339804	Chegue Main Trans	0.24	0.24	0.24
CIS339805		0.39	0.23	0.31
CIS339806		0.13	0.12	0.13
CIS339817		0.28	0.38	0.33
CIS339818		0.62	0.50	0.56
CIS339819		0.16	0.16	0.16
CIS339823		0.28	0.27	0.28
CIS339828		0.49	0.58	0.54
CIS339829		0.39	0.27	0.33
CIS339830		0.75	0.68	0.72
CIS339831		0.09	0.10	0.10
CIS339816	Chegue Main Oxide	0.35	0.36	0.36
CIS339826		1.26	1.70	1.48
CIS339827		2.45	0.99	1.72
CIS339838	Chegue South Trans	0.56	0.92	0.74
CIS339842		2.37	3.23	2.80
CIS339850		0.11	0.10	0.11
CIS339851		5.19	4.98	5.09

PROJECT	A23136 : DOROPO PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	ALL INTERVAL SAMPLES
DATE	8/06/2022

Head Assays - Au & Total S Results

Sample ID	PROSPECT	WEATHERING	Au_1 g/t	Au_2 g/t	Au_Av g/t	Total S %
CIS339751	Souwa	OXIDE	0.16	0.12	0.14	NA
CIS339752	Souwa	TRANSITION	1.17	1.29	1.23	NA
CIS339753	Souwa	TRANSITION	0.75	0.63	0.69	NA
CIS339754	Souwa	TRANSITION	0.23	0.04	0.14	NA
CIS339755	Souwa	TRANSITION	0.89	0.79	0.84	NA
CIS339756	Souwa	FRESH	0.15	0.15	0.15	0.28
CIS339757	Souwa	OXIDE	0.04	0.30	0.17	NA
CIS339758	Souwa	TRANSITION	0.71	0.70	0.71	NA
CIS339759	Souwa	TRANSITION	0.66	0.55	0.61	NA
CIS339760	Souwa	TRANSITION	0.76	1.54	1.15	NA
CIS339761	Souwa	FRESH	2.27	2.45	2.36	0.16
CIS339762	Souwa	FRESH	0.21	0.21	0.21	0.24
CIS339763	Souwa	FRESH	0.21	0.27	0.24	0.20
CIS339764	Souwa	TRANSITION	0.11	0.14	0.13	NA
CIS339765	Souwa	FRESH	0.46	0.44	0.45	0.56
CIS339766	Souwa	FRESH	0.42	0.39	0.41	0.62
CIS339767	Souwa	FRESH	0.28	0.28	0.28	0.58
CIS339768	Souwa	OXIDE	0.70	0.71	0.71	NA
CIS339769	Souwa	TRANSITION	0.13	0.12	0.13	NA
CIS339770	Souwa	TRANSITION	0.46	0.44	0.45	NA
CIS339771	Souwa	TRANSITION	0.28	0.56	0.42	NA
CIS339772	Souwa	TRANSITION	0.29	0.31	0.30	NA
CIS339773	Souwa	FRESH	0.24	0.24	0.24	0.38
CIS339774	Souwa	FRESH	0.45	0.55	0.50	0.40
CIS339775	Souwa	FRESH	0.45	0.35	0.40	0.22
CIS339776	Souwa	FRESH	0.24	0.20	0.22	0.58
CIS339777	Souwa	FRESH	0.17	0.16	0.17	0.14
CIS339778	Souwa	FRESH	4.16	4.43	4.30	0.48
~~CIS339779~~	~~Souwa~~	~~OXIDE~~	SNR			
CIS339780	Souwa	OXIDE	0.08	0.07	0.08	NA
CIS339781	Souwa	OXIDE	0.33	0.31	0.32	NA
CIS339782	Souwa	OXIDE	6.59	6.82	6.71	NA
CIS339783	Souwa	OXIDE	0.70	0.73	0.72	NA
CIS339784	Souwa	TRANSITION	0.55	0.48	0.52	NA
CIS339785	Souwa	FRESH	2.01	2.64	2.33	0.96
CIS339786	Souwa	FRESH	0.37	0.35	0.36	0.20
CIS339787	Souwa	OXIDE	0.77	0.68	0.73	NA
CIS339788	Souwa	OXIDE	1.33	1.82	1.58	NA
CIS339789	Souwa	OXIDE	0.37	0.33	0.35	NA
CIS339790	Souwa	FRESH	0.97	0.97	0.97	0.26
CIS339791	Souwa	FRESH	0.22	0.21	0.22	0.12
CIS339792	Nokpa	FRESH	0.73	0.66	0.70	0.26
CIS339793	Nokpa	FRESH	0.18	0.17	0.18	0.06
CIS339794	Nokpa	FRESH	7.15	6.27	6.71	0.18
CIS339795	Nokpa	FRESH	0.64	0.64	0.64	0.10
CIS339796	Nokpa	FRESH	0.92	0.85	0.89	0.18
CIS339797	Nokpa	FRESH	4.66	4.37	4.52	0.34
CIS339798	Nokpa	FRESH	0.98	1.12	1.05	0.28
CIS339799	Nokpa	FRESH	0.85	0.68	0.77	0.22

PROJECT	A23136 : DOROPO PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	ALL INTERVAL SAMPLES
DATE	8/06/2022

Head Assays - Au & Total S Results

Sample ID	PROSPECT	WEATHERING	Au_1 g/t	Au_2 g/t	Au_Av g/t	Total S %
CIS339800	Nokpa	FRESH	0.06	0.05	0.06	0.04
CIS339801	Nokpa	FRESH	0.67	0.62	0.65	0.22
CIS339802	Nokpa	TRANSITION	0.66	0.63	0.65	NA
CIS339803	Nokpa	FRESH	0.81	0.73	0.77	0.08
CIS339804	Chegue Main	TRANSITION	0.24	0.24	0.24	NA
CIS339805	Chegue Main	TRANSITION	0.39	0.23	0.31	NA
CIS339806	Chegue Main	TRANSITION	0.13	0.12	0.13	NA
CIS339807	Chegue Main	FRESH	0.84	0.79	0.82	0.64
CIS339808	Chegue Main	FRESH	0.49	0.47	0.48	0.50
CIS339809	Chegue Main	FRESH	0.72	0.70	0.71	0.30
CIS339810	Chegue Main	FRESH	0.77	0.88	0.83	0.46
CIS339811	Chegue Main	FRESH	0.20	0.15	0.18	0.12
CIS339812	Chegue Main	FRESH	0.24	0.26	0.25	0.16
CIS339813	Chegue Main	FRESH	0.38	0.42	0.40	0.26
CIS339814	Chegue Main	FRESH	2.02	1.70	1.86	0.72
CIS339815	Chegue Main	FRESH	0.76	0.81	0.79	0.20
CIS339816	Chegue Main	OXYDE	0.35	0.36	0.36	NA
CIS339817	Chegue Main	TRANSITION	0.28	0.38	0.33	NA
CIS339818	Chegue Main	TRANSITION	0.62	0.50	0.56	NA
CIS339819	Chegue Main	TRANSITION	0.16	0.16	0.16	NA
CIS339820	Chegue Main	FRESH	2.47	2.54	2.51	0.64
CIS339821	Chegue Main	FRESH	0.78	0.79	0.79	0.54
~~CIS339822~~	~~Chegue Main~~	~~FRESH~~	SNR			
CIS339823	Chegue Main	TRANSITION	0.28	0.27	0.28	NA
CIS339824	Chegue Main	FRESH	0.57	0.61	0.59	0.36
CIS339825	Chegue Main	FRESH	1.70	1.84	1.77	0.44
CIS339826	Chegue Main	OXYDE	1.26	1.70	1.48	NA
CIS339827	Chegue Main	OXYDE	2.45	0.99	1.72	NA
CIS339828	Chegue Main	TRANSITION	0.49	0.58	0.54	NA
CIS339829	Chegue Main	TRANSITION	0.39	0.27	0.33	NA
CIS339830	Chegue Main	TRANSITION	0.75	0.68	0.72	NA
CIS339831	Chegue Main	TRANSITION	0.09	0.10	0.10	NA
CIS339832	Chegue Main	FRESH	0.44	0.45	0.45	0.22
CIS339833	Chegue Main	FRESH	0.65	0.72	0.69	0.80
CIS339833 (BARREL 51)	Chegue Main	FRESH	0.82	1.22	1.02	0.66
CIS339833 (BARREL 50)	Chegue Main	FRESH	0.75	0.64	0.70	0.64
CIS339834	Chegue Main	FRESH	0.30	0.36	0.33	0.32
CIS339835	Chegue South	FRESH	0.28	0.28	0.28	0.24
CIS339836	Chegue South	FRESH	0.08	0.09	0.09	0.04
CIS339837	Chegue South	FRESH	3.25	2.54	2.90	0.20
CIS339838	Chegue South	TRANSITION	0.56	0.92	0.74	NA
CIS339839	Chegue South	FRESH	0.05	0.04	0.05	0.02
CIS339840	Chegue South	FRESH	0.10	0.10	0.10	0.06
CIS339841	Chegue South	FRESH	0.59	0.67	0.63	0.14
CIS339842	Chegue South	TRANSITION	2.37	3.23	2.80	NA
CIS339843	Chegue South	FRESH	1.14	1.13	1.14	0.14
CIS339844	Chegue South	FRESH	11.30	12.40	11.85	0.14
CIS339845	Chegue South	FRESH	0.27	0.30	0.29	0.08
CIS339846	Chegue South	FRESH	0.63	0.67	0.65	0.32

PROJECT	A23136 : DOROPO PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	ALL INTERVAL SAMPLES
DATE	8/06/2022

Head Assays - Au & Total S Results

Sample ID	PROSPECT	WEATHERING	Au_1 g/t	Au_2 g/t	Au_Av g/t	Total S %
CIS339847	Chegue South	FRESH	0.58	0.60	0.59	0.22
CIS339848	Chegue South	FRESH	1.36	1.35	1.36	0.24
CIS339849	Chegue South	OXYDE	0.05	0.04	0.05	NA
CIS339850	Chegue South	TRANSITION	0.11	0.10	0.11	NA
CIS339851	Chegue South	TRANSITION	5.19	4.98	5.09	NA
CIS339852	Chegue South	FRESH	0.13	0.19	0.16	0.08
CIS339853	Chegue South	FRESH	0.65	0.72	0.69	0.04
CIS339854	Chegue South	FRESH	0.29	0.45	0.37	0.06
CIS739201	KEKEDA	TRANSITION	0.69	0.52	0.61	NA
CIS739202	KEKEDA	TRANSITION	0.10	0.10	0.10	NA
CIS739203	KEKEDA	TRANSITION	0.42	0.39	0.41	NA
CIS739204	KEKEDA	FRESH	0.17	0.35	0.26	0.20
CIS739205	KEKEDA	FRESH	0.34	0.44	0.39	0.54
CIS739206	KEKEDA	TRANSITION	1.52	1.39	1.46	NA
CIS739207	KEKEDA	FRESH	0.26	0.26	0.26	0.18
CIS739208	KEKEDA	FRESH	4.13	3.76	3.95	0.38
CIS739209	KEKEDA	TRANSITION	0.38	0.35	0.37	NA
CIS739210	KEKEDA	FRESH	1.53	1.55	1.54	0.46
CIS739211	KEKEDA	FRESH	0.43	0.45	0.44	0.78
CIS739212	KEKEDA	FRESH	0.29	0.30	0.30	0.40
CIS739213	KEKEDA	TRANSITION	2.65	2.60	2.63	NA
CIS739214	KEKEDA	TRANSITION	0.59	0.58	0.59	NA
CIS739215	KEKEDA	TRANSITION	0.69	0.79	0.74	NA
CIS739216	KEKEDA	FRESH	0.70	0.67	0.69	0.46
CIS739217	KEKEDA	FRESH	0.25	0.26	0.26	0.28
CIS739218	KEKEDA	TRANSITION	0.88	0.89	0.89	NA
CIS739219	KEKEDA	TRANSITION	0.73	0.64	0.69	NA
CIS739220	KEKEDA	TRANSITION	0.58	0.59	0.59	NA
CIS739221	KEKEDA	TRANSITION	0.34	0.32	0.33	NA
CIS739222	HAN	FRESH	0.74	0.99	0.87	0.16
CIS739223	HAN	FRESH	0.07	0.06	0.07	0.10
CIS739224	HAN	FRESH	0.21	0.26	0.24	0.12
CIS739225	HAN	FRESH	0.57	0.58	0.58	0.32
CIS739226	HAN	FRESH	0.15	0.14	0.15	0.26
CIS739227	HAN	FRESH	0.11	0.12	0.12	0.10
CIS739228	HAN	FRESH	0.25	0.23	0.24	0.12
CIS739229	HAN	FRESH	2.42	2.30	2.36	0.34
CIS739230	HAN	TRANSITION	0.27	0.20	0.24	NA
CIS739231	HAN	TRANSITION	23.80	23.30	23.55	NA
CIS739232	HAN	TRANSITION	0.11	0.11	0.11	NA
CIS739233	HAN	FRESH	2.10	1.67	1.89	0.30
CIS739234	HAN	FRESH	0.36	0.34	0.35	0.26
CIS739235	HAN	FRESH	1.11	1.00	1.06	0.16
CIS739236	HAN	FRESH	0.13	0.12	0.13	0.08
CIS739237	HAN	FRESH	0.10	0.10	0.10	0.06
CIS739238	HAN	FRESH	0.28	0.27	0.28	0.06
CIS739239	HAN	TRANSITION	0.54	0.55	0.55	NA
CIS739240	ENIODA	TRANSITION	0.25	0.32	0.29	NA
CIS739241	ENIODA	FRESH	4.59	3.74	4.17	0.42

PROJECT	A23136 : DOROPO PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	ALL INTERVAL SAMPLES
DATE	8/06/2022

Head Assays - Au & Total S Results

Sample ID	PROSPECT	WEATHERING	Au_1 g/t	Au_2 g/t	Au_Av g/t	Total S %
CIS739242	ENIODA	FRESH	0.39	0.36	0.38	0.48
CIS739243	ENIODA	OXIDE	0.46	0.49	0.48	NA
CIS739244	ENIODA	OXIDE	0.24	0.18	0.21	NA
CIS739245	ENIODA	FRESH	12.50	19.80	16.15	0.18
CIS739246	ENIODA	FRESH	0.70	1.24	0.97	0.32
CIS739247	ENIODA	TRANSITION	0.45	0.38	0.42	NA
CIS739248	ENIODA	FRESH	0.03	0.03	0.03	0.04
CIS739249	ENIODA	OXIDE	0.44	0.45	0.45	NA
CIS739250	ENIODA	OXIDE	0.98	0.80	0.89	NA
CIS739251	ENIODA	TRANSITION	0.46	0.43	0.45	NA
CIS739252	ENIODA	OXIDE	0.26	0.27	0.27	NA
CIS739253	ENIODA	OXIDE	0.61	0.66	0.64	NA
CIS739254	ENIODA	OXIDE	2.09	1.04	1.57	NA
CIS739255	ENIODA	OXIDE	1.61	3.09	2.35	NA
CIS739256	ENIODA	FRESH	0.97	0.86	0.92	0.20
CIS739257	ENIODA	FRESH	0.18	0.18	0.18	0.12
CIS739258	ENIODA	OXIDE	0.10	0.09	0.10	NA
CIS739259	ENIODA	OXIDE	0.04	0.04	0.04	NA
CIS739260	ENIODA	OXIDE	6.67	6.10	6.39	NA
CIS739261	ATIRRE	FRESH	0.89	0.84	0.87	0.50
CIS739262	ATIRRE	TRANSITION	1.30	1.27	1.29	NA
CIS739263	ATIRRE	TRANSITION	0.28	0.29	0.29	NA
CIS739264	ATIRRE	FRESH	0.45	0.44	0.45	0.20
CIS739265	ATIRRE	FRESH	0.14	0.15	0.15	0.06
CIS739266	ATIRRE	FRESH	0.56	0.55	0.56	0.38
CIS739267	ATIRRE	TRANSITION	0.32	0.35	0.34	NA
CIS739268	ATIRRE	TRANSITION	1.73	1.76	1.75	NA
CIS739269	ATIRRE	TRANSITION	0.52	0.54	0.53	NA
CIS739270	ATIRRE	TRANSITION	0.08	0.07	0.08	NA
CIS739271	ATIRRE	TRANSITION	0.09	0.09	0.09	NA
CIS739272	ATIRRE	FRESH	0.08	0.09	0.09	0.10
CIS739273	ATIRRE	TRANSITION	7.36	7.47	7.42	NA
CIS739274	ATIRRE	TRANSITION	0.28	0.38	0.33	NA
CIS739275	ATIRRE	TRANSITION	3.75	3.34	3.55	NA
CIS734001	Kilosegui	FRESH	0.19	0.18	0.19	0.04
CIS734002	Kilosegui	FRESH	1.72	1.47	1.60	0.32
CIS734003	Kilosegui	FRESH	0.15	0.18	0.17	0.36
CIS734004	Kilosegui	FRESH	0.61	0.75	0.68	0.12
CIS734005	Kilosegui	FRESH	1.46	1.48	1.47	0.32
CIS734006	Kilosegui	FRESH	0.65	0.34	0.50	0.10
CIS734007	Kilosegui	FRESH	0.11	0.17	0.14	0.06
CIS734008	Kilosegui	FRESH	1.97	1.43	1.70	0.44
CIS734009	Kilosegui	FRESH	2.51	2.43	2.47	0.56
CIS734010	Kilosegui	FRESH	0.55	0.61	0.58	0.14
CIS734011	Kilosegui	FRESH	0.37	0.45	0.41	0.16
CIS734012	Kilosegui	FRESH	0.35	0.37	0.36	0.26
CIS734013	Kilosegui	FRESH	0.20	0.20	0.20	0.12
CIS734014	Kilosegui	TRANSITION	0.44	0.44	0.44	NA
CIS734015	Kilosegui	FRESH	0.50	0.55	0.53	0.28

PROJECT	A23136 : DOROPO PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	ALL INTERVAL SAMPLES
DATE	8/06/2022

Head Assays - Au & Total S Results

Sample ID	PROSPECT	WEATHERING	Au_1 g/t	Au_2 g/t	Au_Av g/t	Total S %
CIS734016	Kilosegui	FRESH	0.09	0.09	0.09	0.02
CIS734017	Kilosegui	FRESH	<0.02	<0.02	<0.02	<0.02
CIS734018	Kilosegui	FRESH	0.48	0.50	0.49	0.16
CIS734019	Kilosegui	FRESH	0.07	0.07	0.07	0.06
CIS734020	Kilosegui	FRESH	0.42	0.39	0.41	0.02
CIS734021	Kilosegui	FRESH	0.54	0.64	0.59	0.04
CIS734022	Kilosegui	FRESH	0.76	0.64	0.70	0.28
CIS734023	Kilosegui	FRESH	0.39	0.43	0.41	0.18
CIS734024	Kilosegui	FRESH	0.35	0.39	0.37	0.18
CIS734025	Kilosegui	FRESH	0.44	0.36	0.40	0.18
CIS734026	Kilosegui	FRESH	1.41	1.18	1.30	0.30
CIS734027	Kilosegui	TRANSITION	1.47	1.43	1.45	NA
CIS734028	Kilosegui	FRESH	1.16	1.21	1.19	0.36
CIS734029	Kilosegui	FRESH	0.27	0.28	0.28	0.08
CIS734030	Kilosegui	FRESH	1.19	0.98	1.09	0.22
CIS734031	Kilosegui	FRESH	0.16	0.17	0.17	0.02
CIS734032	Kilosegui	FRESH	0.28	0.51	0.40	0.02
CIS734033	Kilosegui	FRESH	1.18	1.15	1.17	0.42
CIS734034	Kilosegui	FRESH	0.95	1.61	1.28	0.38
CIS734035	Kilosegui	FRESH	0.74	0.87	0.81	0.32
CIS734036	Kilosegui	FRESH	0.17	0.14	0.16	0.12
CIS734037	Kilosegui	TRANSITION	1.65	1.27	1.46	NA
CIS734038	Kilosegui	TRANSITION	1.22	0.93	1.08	NA
CIS734039	Kilosegui	TRANSITION	2.01	2.04	2.03	NA
CIS734040	Kilosegui	FRESH	2.17	1.71	1.94	0.38
CIS734041	Kilosegui	FRESH	0.09	0.13	0.11	0.02
CIS734042	Kilosegui	FRESH	0.08	0.07	0.08	0.06
CIS734043	Kilosegui	FRESH	1.67	1.79	1.73	0.34
CIS734044	Kilosegui	FRESH	0.24	0.24	0.24	0.14
CIS734045	Kilosegui	FRESH	1.68	1.86	1.77	0.36
CIS734046	Kilosegui	FRESH	0.90	1.08	0.99	0.56
CIS734047	Kilosegui	FRESH	0.65	0.62	0.64	0.20
CIS734048	Kilosegui	TRANSITION	0.65	0.59	0.62	NA
CIS734049	Kilosegui	FRESH	0.93	0.69	0.81	0.14
CIS734050	Kilosegui	FRESH	0.12	0.16	0.14	<0.02
CIS734051	Kilosegui	FRESH	0.03	0.02	0.03	<0.02
CIS734052	Kilosegui	FRESH	0.22	0.23	0.23	0.10
CIS734053	Kilosegui	FRESH	0.79	0.75	0.77	0.24

PROJECT	A23136 : DOROPO PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	HOLE INTERVAL CHECK ASSAYS (NOV 2022 SHIPMENT)
DATE	7/12/2022

Head Assays - Fire Assay & Photon Assay Results

Sample ID	Prospect	Weathering	FA Au_A1 g/t	FA Au_A2 g/t	FA Au_B1 g/t	FA Au_B2 g/t	FA Au_Av g/t	PA Au_A1 g/t	PA Au_B1 g/t	PA Au_Av g/t	Overall Av g/t
CIS 790001	Souwa	Fresh	0.65	0.70	0.72	0.68	**0.69**	0.79	0.78	**0.79**	**0.72**
CIS 790003	Souwa	Fresh	0.83	0.79	1.04	1.19	**0.96**	0.87	1.22	**1.05**	**0.99**
CIS 790006	Souwa	Fresh	0.89	0.95	0.73	0.63	**0.80**	1.62	1.31	**1.47**	**1.02**
CIS 790009	Souwa	Fresh	0.88	2.56	1.80	1.80	**1.76**	0.67	1.11	**0.89**	**1.47**
CIS 790013	Chegue Main	Transition	0.72	0.90	0.76	0.96	**0.84**	1.41	0.95	**1.18**	**0.95**
CIS 790016	Chegue South	Transition	3.89	3.96	6.84	6.57	**5.32**	3.57	2.71	**3.14**	**4.59**
CIS 790020	Nokpa	Fresh	0.83	0.88	0.73	0.81	**0.81**	1.47	0.96	**1.22**	**0.95**
CIS 790022	Han	Fresh	0.82	0.80	0.72	0.77	**0.78**	1.00	1.21	**1.11**	**0.89**
CIS 790025	Kekeda	Fresh	1.03	1.05	0.95	0.92	**0.99**	0.93	1.10	**1.02**	**1.00**
CIS 790029	Kekeda	Fresh	0.45	0.42	0.43	0.46	**0.44**	0.59	0.47	**0.53**	**0.47**
CIS 790033	Enioda	Transition	1.53	1.32	1.65	1.67	**1.54**	1.51	1.59	**1.55**	**1.55**
CIS 790039	Nokpa	Transition	1.86	1.85	2.55	2.55	**2.20**	2.15	2.02	**2.09**	**2.16**
CIS 790042	Han	Fresh	17.7	12.6	16.2	16.0	**15.6**	14.8	17.6	**16.2**	**15.8**
CIS 790049	Chegue Main	Fresh	0.98	1.04	0.71	0.63	**0.84**	0.81	0.99	**0.90**	**0.86**
CIS 790052	Chegue Main	Fresh	2.27	2.01	1.50	1.49	**1.82**	1.68	1.70	**1.69**	**1.78**
CIS 790065	Kekeda	Fresh	3.16	3.38	3.78	3.64	**3.49**	4.63	3.68	**4.16**	**3.71**
CIS 790069	Kekeda	Fresh	4.95	4.58	4.99	4.59	**4.78**	5.32	5.61	**5.47**	**5.01**
CIS 790074	Han	Fresh	2.31	2.14	2.42	2.31	**2.30**	2.41	3.13	**2.77**	**2.45**
CIS 790078	Han	Fresh	0.81	0.96	1.17	0.79	**0.93**	1.27	1.08	**1.18**	**1.01**
CIS 790083	Han	Fresh	9.34	9.16	11.5	11.4	**10.4**	6.66	5.64	**6.15**	**9.0**
CIS 790088	Enioda	Fresh	0.93	1.59	1.04	2.46	**1.51**	1.09	1.27	**1.18**	**1.40**

PROJECT	A23136 : DOROPO PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	LEACH COMPOSITES (ex COMMINUTION)
DATE	8/06/2022

Head Assays

Composite ID	Sample ID	Au_1 g/t	Au_2 g/t	Au_Av g/t	Ag g/t	As ppm	Cu ppm	Total S %
SOUWA FRESH 1	CIS339766	0.38	-	0.38	<1	<5	15.0	0.56
SOUWA FRESH 2	CIS339778	5.07	-	5.07	<1	<5	15.0	0.56
SOUWA FRESH 3	CIS339791	0.24	-	0.24	<1	10.0	15.0	0.14
SOUWA TRANS SAPROLITE	CIS339759	0.65	-	0.65	<1	5.0	29.0	<0.02
SOUWA OXIDE	CIS339751	0.11	-	0.11	4.00	<5	36.0	<0.02
NOKPA FRESH 1	CIS339793	0.24	-	0.24	<1	<5	10.0	0.10
NOKPA FRESH 2	CIS339798	1.11	-	1.11	<1	<5	41.0	0.38
NOKPA TRANS	CIS339802	0.51	-	0.51	5.00	<5	70.0	<0.02
CHEGUE MAIN FRESH 1	CIS339807	0.91	-	0.91	<1	<5	13.0	0.70
CHEGUE MAIN FRESH 2	CIS339809	0.74	-	0.74	<1	<5	18.0	0.32
CHEGUE MAIN FRESH 3	CIS339812	0.24	-	0.24	<1	<5	12.0	0.18
CHEGUE MAIN FRESH 4	CIS339833	0.62	-	0.62	<1	<5	14.0	0.70
CHEGUE MAIN TRANS	CIS339829	0.42	-	0.42	<1	<5	10.0	<0.02
CHEGUE SOUTH FRESH 1	CIS339835	0.25	0.29	0.27	<1	<5	10.0	0.16
CHEGUE SOUTH FRESH 2	CIS339846	1.02	-	1.02	<1	<5	44.0	0.42
CHEGUE SOUTH TRANS	CIS339851	3.01	-	3.01	<1	<5	15.0	<0.02
CHEGUE MAIN OXIDE	CIS339827	1.82	-	1.82	<1	900	11.0	0.04
KEKEDA FRESH 1	CIS739205	0.36	-	0.36	<1	<5	19.0	0.56
KEKEDA FRESH 2	CIS739211	0.44	-	0.44	<1	<5	8.0	0.56
KEKEDA FRESH 3	CIS739217	0.26	-	0.26	<1	<5	16.0	0.32
KEKEDA TRANS 1	CIS739203	0.52	-	0.52	<1	<5	24.0	<0.02
KEKEDA TRANS 2	CIS739219	0.68	-	0.68	<1	<5	11.0	0.62
HAN FRESH 1	CIS739237	0.08	-	0.08	<1	<5	13.0	0.04
HAN FRESH 2	CIS739226	0.13	-	0.13	<1	<5	23.0	0.10
HAN FRESH 3	CIS739238	0.22	-	0.22	<1	<5	8.0	0.04
HAN TRANS/FRESH	CIS739230	0.24	-	0.24	<1	<5	34.0	0.18
ENIODA FRESH 1	CIS739242	0.59	0.38	0.49	<1	25.0	17.0	0.12
ENIODA FRESH 2	CIS739257	0.17	-	0.17	<1	15.0	55.0	0.10
ENIODA OXIDE 1	CIS739250	1.10	1.09	1.10	<1	<5	22.0	<0.02
ENIODA OXIDE 2	CIS739259	0.04	-	0.04	<1	15.0	38.0	<0.02
ATIRE FRESH 1	CIS739265	0.13	-	0.13	<1	35.0	11.0	0.04
ATIRE FRESH 2	CIS739261	1.25	-	1.25	<1	55.0	26.0	0.48
ATIRE TRANS	CIS739271	0.08	-	0.08	<1	65.0	14.0	<0.02
KILOSGUI FRESH 1	CIS734025	0.46	-	0.46	<1	10.0	8.0	0.18
KILOSGUI FRESH 2	CIS734031	0.17	-	0.17	<1	10.0	21.0	<0.02
KILOSGUI FRESH 3	CIS734035	0.66	-	0.66	<1	20.0	9.0	0.28
KILOSGUI FRESH 4	CIS734044	0.21	0.27	0.24	<1	5.0	10.0	0.34
KILOSGUI TRANS 1	CIS734038	1.82	-	1.82	<1	5.0	12.0	<0.02

PROJECT	A23136 : DOROPO PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	MASTER COMPOSITES
DATE	26/05/2022

Head Assays

Predicted Grade (Au g/t)			1.44	0.90	0.58	0.93	2.53
Analyte	**Method**	**Unit**	**MC1: SOUWA OXIDE (1)**	**MC2: SOUWA TRANS**	**MC3: CHEGUE MAIN OXIDE**	**MC4: CHEGUE MAIN TRANS**	**MC5: CHEGUE SOUTH TRANS**
Au_1	Fire Assay	g/t	0.26	0.55	0.67	0.37	1.49
Au_2	Fire Assay	g/t	0.26	0.80	1.93	0.71	1.37
Au_3	Fire Assay	g/t	0.29	0.83	1.03	0.34	1.51
Au_Av	**Fire Assay**	**g/t**	**0.27**	**0.73**	**1.21**	**0.47**	**1.46**
Au	Screen FA 75um	g/t	0.46	0.48	0.77	0.50	2.04
Ag	D3/ICP	g/t	<2	<2	<2	<2	<2
Al	D4/ICP	%	8.72	6.40	7.96	6.00	7.84
As	D3/ICP	ppm	<10	<10	<10	<10	<10
Ba	D4/ICP	ppm	600	600	300	500	500
Be	D3/ICP	ppm	<5	<5	<5	<5	<5
Bi	D3/ICP	ppm	<10	<10	<10	<10	<10
C Total	CS2000	%	<0.03	<0.03	<0.03	<0.03	0.06
C Organic	CS2000	%	<0.03	<0.03	<0.03	<0.03	0.03
Ca	D3/ICP	ppm	3000	5000	3000	2000	8000
Cd	D3/ICP	ppm	<5	<5	<5	<5	<5
Co	D3/ICP	ppm	10.0	10.0	<5	<5	5.00
Cr	D3/ICP	ppm	40.0	50.0	30.0	30.0	30.0
Cu	D3/ICP	ppm	38.0	24.0	44.0	12.0	16.0
Fe	D4/ICP	%	2.36	1.58	2.30	1.56	1.86
Hg	D1/ICP	ppm	0.10	<0.1	<0.1	<0.1	<0.1
K	D3/ICP	%	1.42	1.15	0.69	0.93	1.09
Li	D3/ICP	ppm	10.0	<5	5.00	<5	5.00
Mg	D3/ICP	ppm	2700	1580	960	1140	1900
Mn	D4/ICP	ppm	400	300	100	200	200
Mo	D3/ICP	ppm	<5	<5	15.0	10.0	<5
Na	D3/ICP	%	1.80	3.52	2.73	3.22	3.44
Ni	D3/ICP	ppm	15.0	10.0	10.0	5.00	5.00
P	D3/ICP	ppm	<100	300	<100	200	300
Pb	D3/ICP	ppm	125	60.0	15.0	15.0	<5
S Total	CS2000	%	<0.02	0.04	<0.02	<0.02	0.06
S Sulphide	CS2000	%	<0.02	0.02	<0.02	<0.02	0.06
Sb	D1/ICP	ppm	0.10	<0.1	0.10	0.30	<0.1
Se	D1/ICP	ppm	<5	<5	<5	<5	<5
Si	D4/ICP	%	33.6	33.8	29.7	25.0	29.3
Sr	D4/ICP	ppm	160	320	160	200	400
Te	D1/ICP	ppm	0.60	1.40	1.80	1.00	2.00
Th	D4/ICP	ppm	2.00	<2	2.00	<2	<2
Ti	D4/ICP	ppm	2200	1600	1400	1600	1800
U	D4/ICP	ppm	<2	<2	<2	<2	<2
V	D3/ICP	ppm	58.0	58.0	46.0	34.0	48.0
W	D4/ICP	ppm	<10	<10	10.0	10.0	<10
Y	D4/ICP	ppm	<100	<100	<100	<100	<100
Zn	D3/ICP	ppm	146	70.0	50.0	32.0	56.0
Zr	D3/ICP	ppm	60.0	45.0	55.0	35.0	40.0
SG	He Pyc.	kg/m3	2675	2706	2668	2698	2716

PROJECT	A23136 : DOROPO PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	MASTER COMPOSITES
DATE	13/01/2023

Head Assays

Predicted Grade (Au g/t)			1.12	1.35	1.69	3.11	1.00
Analyte	**Method**	**Unit**	**MC6: KEKEDA TRANS**	**MC7: KILOSEGUI FRESH**	**MC8: SOUWA OXIDE (2)**	**MC9: SOUWA OXIDE (3)**	**MC10: SOUWA TRANS**
Au_A1	Fire Assay	g/t	0.59	1.58	0.33	0.37	0.48
Au_A2	Fire Assay	g/t	0.58	1.71	0.31	0.41	0.49
Au_B1	Fire Assay	g/t	0.75	0.98	0.37	0.53	0.58
Au_B2	Fire Assay	g/t	0.84	1.04	0.30	0.37	0.53
Au_Av	**Fire Assay**	**g/t**	**0.69**	**1.33**	**0.33**	**0.42**	**0.52**
Au_A1	Photon Assay	g/t	1.04	1.21	0.43		
Au_A2	Photon Assay	g/t	1.06	1.44	0.66		
Au_B1	Photon Assay	g/t	1.07	1.35	0.38		
Au_B2	Photon Assay	g/t	1.01	1.49	0.46		
Au_Av	**Photon Assay**	**g/t**	**1.05**	**1.37**	**0.48**		
Au	Screen FA 75um	g/t	NA	NA			
Ag	D3/ICP	g/t	<2	<2			<2
Al	D4/ICP	%	6.36	7.20			6.36
As	D3/ICP	ppm	30.0	30.0			<10
Ba	D4/ICP	ppm	400	800			600
Be	D3/ICP	ppm	<5	<5			<5
Bi	D3/ICP	ppm	<10	<10			<10
C Total	CS2000	%	0.09	0.57			0.06
C Organic	CS2000	%	<0.03	<0.03			0.06
Ca	D3/ICP	ppm	4000	15000			4000
Cd	D3/ICP	ppm	<5	<5			<5
Co	D3/ICP	ppm	5.00	<5			10.0
Cr	D3/ICP	ppm	30.0	30.0			100
Cu	D3/ICP	ppm	16.0	8.00			18.0
Fe	D4/ICP	%	1.32	1.40			1.58
Hg	D1/ICP	ppm	<0.1	<0.1			0.10
K	D3/ICP	%	0.95	1.34			0.80
Li	D3/ICP	ppm	<5	<5			<5
Mg	D3/ICP	ppm	1600	2400			2400
Mn	D4/ICP	ppm	100	300			400
Mo	D3/ICP	ppm	10.0	10.0			<5
Na	D3/ICP	%	3.19	4.67			3.28
Ni	D3/ICP	ppm	25.0	15.0			10.0
P	D3/ICP	ppm	400	400			200
Pb	D3/ICP	ppm	40.0	<5			10.0
S Total	CS2000	%	0.42	0.30			0.04
S Sulphide	CS2000	%	0.18	0.24			0.02
Sb	D1/ICP	ppm	0.20	0.10			0.20
Se	D1/ICP	ppm	<5	<5			<5
Si	D4/ICP	%	33.0	31.7			35.5
Sr	D4/ICP	ppm	240	280			320
Te	D1/ICP	ppm	2.00	0.60			1.40
Th	D4/ICP	ppm	<2	4.00			2.00
Ti	D4/ICP	ppm	1400	1400			1600
U	D4/ICP	ppm	<2	<2			<2
V	D3/ICP	ppm	54.0	18.0			46.0
W	D4/ICP	ppm	10.0	10.0			<10
Y	D4/ICP	ppm	<100	<100			<100
Zn	D3/ICP	ppm	44.0	38.0			46.0
Zr	D3/ICP	ppm	35.0	110			40.0
SG	He Pyc.	kg/m3	2659	2638			2679

PROJECT	A23136 : DOROPO PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	MASTER COMPOSITES
DATE	13/01/2023

Head Assays

Predicted Grade (Au g/t)			2.23	4.06	1.45	1.57	2.00
Analyte	**Method**	**Unit**	**MC11: SOUWA FRESH**	**MC12: NOPKA TRANS**	**MC13: NOPKA FRESH**	**MC14: CHEGUE MAIN OXIDE**	**MC15: CHEGUE MAIN FRESH**
Au_A1	Fire Assay	g/t	2.10	2.06	1.60	1.67	1.94
Au_A2	Fire Assay	g/t	2.08	1.71	1.93	0.96	1.81
Au_B1	Fire Assay	g/t	2.60	2.23	1.64	1.17	2.66
Au_B2	Fire Assay	g/t	3.03	2.41	1.79	0.68	2.79
Au_Av	**Fire Assay**	**g/t**	**2.45**	**2.10**	**1.74**	**1.12**	**2.30**
Ag	D3/ICP	g/t	<2	<2	<2	4.0	<2
Al	D4/ICP	%	5.80	6.48	5.92	8.76	5.72
As	D3/ICP	ppm	<10	<10	<10	390	<10
Ba	D4/ICP	ppm	900	400	1100	400	700
Be	D3/ICP	ppm	<5	<5	<5	<5	<5
Bi	D3/ICP	ppm	<10	<10	<10	<10	<10
C Total	CS2000	%	0.75	0.06	0.51	0.03	0.75
C Organic	CS2000	%	<0.03	<0.03	<0.03	<0.03	0.03
Ca	D3/ICP	ppm	23000	4000	17000	1000	21000
Cd	D3/ICP	ppm	<5	<5	<5	<5	<5
Co	D3/ICP	ppm	<5	<5	<5	<5	<5
Cr	D3/ICP	ppm	90.0	70.0	100	70.0	130
Cu	D3/ICP	ppm	18.0	20.0	14.0	42.0	8.00
Fe	D4/ICP	%	1.46	1.40	1.32	3.04	1.26
Hg	D1/ICP	ppm	<0.1	<0.1	<0.1	<0.1	<0.1
K	D3/ICP	%	0.80	0.80	0.60	0.81	0.40
Li	D3/ICP	ppm	5.00	<5	5.00	5.00	<5
Mg	D3/ICP	ppm	3200	2400	3200	800	2000
Mn	D4/ICP	ppm	300	100	200	100	200
Mo	D3/ICP	ppm	<5	<5	<5	5.00	85.0
Na	D3/ICP	%	3.09	3.62	3.61	0.77	3.66
Ni	D3/ICP	ppm	5.00	10.0	5.00	15.0	5.00
P	D3/ICP	ppm	400	200	300	100	300
Pb	D3/ICP	ppm	25.0	<5	<5	<5	50.0
S Total	CS2000	%	0.58	0.04	0.32	<0.02	0.44
S Sulphide	CS2000	%	0.56	<0.02	0.30	<0.02	0.38
Sb	D1/ICP	ppm	0.10	<0.1	<0.1	0.30	0.10
Se	D1/ICP	ppm	<5	<5	<5	<5	<5
Si	D4/ICP	%	34.1	23.9	35.0	32.7	34.7
Sr	D4/ICP	ppm	400	280	280	46.0	320
Te	D1/ICP	ppm	3.40	3.80	2.60	1.80	4.00
Th	D4/ICP	ppm	4.00	2.00	2.00	2.00	4.00
Ti	D4/ICP	ppm	1400	1400	1200	2000	1200
U	D4/ICP	ppm	<2	<2	<2	<2	<2
V	D3/ICP	ppm	76.0	52.0	30.0	64.0	20.0
W	D4/ICP	ppm	<10	<10	<10	<10	<10
Y	D4/ICP	ppm	<100	<100	<100	<100	<100
Zn	D3/ICP	ppm	44.0	34.0	36.0	30.0	32.0
Zr	D3/ICP	ppm	40.0	40.0	35.0	50.0	30.0
SG	He Pyc.	kg/m3	2724	2680	2729	2732	2692

PROJECT	A23136 : DOROPO PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	MASTER COMPOSITES
DATE	13/01/2023

Head Assays

Predicted Grade (Au g/t)			2.89	3.04	2.86	11.45	2.95
Analyte	**Method**	**Unit**	**MC16: CHEGUE SOUTH TRANS**	**MC17: CHEGUE SOUTH FRESH**	**MC18: KEKEDA FRESH**	**MC19: HAN TRANS**	**MC20: HAN FRESH**
Au_A1	Fire Assay	g/t	1.43	2.99	4.08	14.3	4.42
Au_A2	Fire Assay	g/t	1.37	3.16	4.36	9.55	3.25
Au_B1	Fire Assay	g/t	1.64	5.31	3.00	14.7	3.23
Au_B2	Fire Assay	g/t	1.69	5.62	2.81	14.7	3.82
Au_Av	**Fire Assay**	**g/t**	**1.53**	**4.27**	**3.56**	**13.31**	**3.68**
Ag	D3/ICP	g/t	<2	<2	<2	<2	<2
Al	D4/ICP	%	7.32	7.56	4.92	5.08	6.16
As	D3/ICP	ppm	<10	10.0	<10	<10	<10
Ba	D4/ICP	ppm	500	600	300	500	500
Be	D3/ICP	ppm	<5	<5	<5	<5	<5
Bi	D3/ICP	ppm	<10	<10	<10	<10	<10
C Total	CS2000	%	0.15	0.51	0.51	0.03	0.75
C Organic	CS2000	%	0.06	<0.03	<0.03	<0.03	<0.03
Ca	D3/ICP	ppm	7000	21000	18000	3000	24000
Cd	D3/ICP	ppm	<5	<5	<5	<5	<5
Co	D3/ICP	ppm	5.00	5.00	<5	<5	5.00
Cr	D3/ICP	ppm	50.0	130	220	30.0	110
Cu	D3/ICP	ppm	12.0	10.0	24.0	20.0	24.0
Fe	D4/ICP	%	1.78	1.72	1.34	1.10	1.78
Hg	D1/ICP	ppm	<0.1	<0.1	<0.1	<0.1	<0.1
K	D3/ICP	%	1.40	1.00	0.40	1.40	1.00
Li	D3/ICP	ppm	5.00	10.0	<5	5.00	5.00
Mg	D3/ICP	ppm	2800	4000	3200	1200	4000
Mn	D4/ICP	ppm	200	300	200	40.0	300
Mo	D3/ICP	ppm	<5	<5	20.0	40.0	35.0
Na	D3/ICP	%	3.55	3.74	2.87	2.08	2.99
Ni	D3/ICP	ppm	10.0	5.00	10.0	10.0	5.00
P	D3/ICP	ppm	400	400	300	300	400
Pb	D3/ICP	ppm	<5	<5	65.0	220	140
S Total	CS2000	%	0.10	0.22	0.44	0.50	0.62
S Sulphide	CS2000	%	0.06	0.22	0.42	0.40	0.58
Sb	D1/ICP	ppm	0.70	<0.1	0.10	0.40	0.20
Se	D1/ICP	ppm	<5	<5	<5	<5	<5
Si	D4/ICP	%	33.9	31.5	29.5	36.4	24.0
Sr	D4/ICP	ppm	360	520	360	160	320
Te	D1/ICP	ppm	2.60	5.60	5.00	15.8	5.80
Th	D4/ICP	ppm	4.00	2.00	4.00	4.00	4.00
Ti	D4/ICP	ppm	1600	1800	1200	1200	1800
U	D4/ICP	ppm	<2	<2	<2	<2	<2
V	D3/ICP	ppm	52.0	48.0	38.0	64.0	62.0
W	D4/ICP	ppm	<10	<10	<10	<10	<10
Y	D4/ICP	ppm	<100	<100	<100	<100	<100
Zn	D3/ICP	ppm	44.0	50.0	70.0	34.0	56.0
Zr	D3/ICP	ppm	45.0	40.0	30.0	35.0	30.0
SG	He Pyc.	kg/m3	2729	2747	2710	2738	2758

PROJECT	A23136 : DOROPO PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
SAMPLE ID	MASTER COMPOSITES
DATE	22/03/2023

Head Assays

Predicted Grade (Au g/t) 2.74 1.55 2.28 0.75 1.50 2.35 2.33

Analyte	Method	Unit	MC21: ENIODA OXIDE	MC22: ENIODA TRANS	MC23: ATTIRE TRANS	MC24: ATIRE FRESH	MC25: KILOSEGUI TRANS	MC26: SOUWA OXIDE	MC27: ENIODA FRESH
Au_A1	Fire Assay	g/t	0.94	2.02	2.68	0.93	1.57	0.56	1.97
Au_A2	Fire Assay	g/t	0.85	2.69	2.42	0.87	1.42	0.57	1.33
Au_B1	Fire Assay	g/t	0.82	3.52	1.92	1.61	2.07	0.42	1.46
Au_B2	Fire Assay	g/t	1.75	1.88	1.93	1.75	2.09	0.44	17.10
Au_Av	**Fire Assay**	**g/t**	**1.09**	**2.53**	**2.24**	**1.29**	**1.79**	**0.50**	**5.47**
Ag	D3/ICP	g/t	2.0	<2	<2	<2	<2		<2
Al	D4/ICP	%	7.00	6.92	6.92	7.88	7.84		7.12
As	D3/ICP	ppm	<10	<10	<10	<10	<10		<10
Ba	D4/ICP	ppm	500	400	500	500	600		300
Be	D3/ICP	ppm	<5	<5	<5	<5	<5		<5
Bi	D3/ICP	ppm	<10	<10	<10	<10	<10		<10
C Total	CS2000	%	0.03	<0.03	0.03	0.96	0.06		1.02
C Organic	CS2000	%	<0.03	<0.03	<0.03	0.06	0.06		<0.03
Ca	D3/ICP	ppm	2000	4000	5000	30000	3000		3000
Cd	D3/ICP	ppm	<5	<5	<5	<5	<5		<5
Co	D3/ICP	ppm	10.0	15.0	<5	5.00	<5		10.0
Cr	D3/ICP	ppm	40.0	100	30.0	40.0	20.0		90.0
Cu	D3/ICP	ppm	48.0	46.0	12.0	18.0	10.0		28.0
Fe	D4/ICP	%	1.92	3.22	1.46	2.08	1.32		2.08
Hg	D1/ICP	ppm	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1
K	D3/ICP	%	1.40	1.00	1.20	1.40	1.40		0.80
Li	D3/ICP	ppm	5.00	<5	5.00	10.0	<5		5.00
Mg	D3/ICP	ppm	1600	3200	2000	5200	2000		4800
Mn	D4/ICP	ppm	300	400	200	400	200		400
Mo	D3/ICP	ppm	<5	<5	<5	<5	15.0		<5
Na	D3/ICP	%	1.07	2.73	3.08	3.52	4.94		4.31
Ni	D3/ICP	ppm	20.0	30.0	10.0	15.0	<5		20.0
P	D3/ICP	ppm	<100	400	200	400	<100		300
Pb	D3/ICP	ppm	30.0	65.0	<5	<5	<5		<5
S Total	CS2000	%	<0.02	0.06	0.04	0.52	0.06		0.44
S Sulphide	CS2000	%	<0.02	<0.02	<0.02	0.42	0.04		0.36
Sb	D1/ICP	ppm	0.20	<0.1	0.20	0.20	0.20		0.10
Se	D1/ICP	ppm	<5	<5	<5	<5	<5		<5
Si	D4/ICP	%	28.0	32.0	35.7	32.0	32.9		28.9
Sr	D4/ICP	ppm	120	200	320	440	240		320
Te	D1/ICP	ppm	1.20	4.00	2.00	1.60	0.60		1.60
Th	D4/ICP	ppm	2.00	<2	2.00	2.00	6.00		<2
Ti	D4/ICP	ppm	2000	3600	1600	2000	1200		2000
U	D4/ICP	ppm	<2	<2	<2	<2	2.00		<2
V	D3/ICP	ppm	50.0	120	42.0	62.0	16.0		48.0
W	D4/ICP	ppm	<10	20.0	<10	<10	<10		10.0
Y	D4/ICP	ppm	<100	<100	<100	<100	<100		<100
Zn	D3/ICP	ppm	40.0	52.0	32.0	44.0	26.0		36.0
Zr	D3/ICP	ppm	45.0	45.0	30.0	45.0	80.0		40.0
SG	He Pyc.	kg/m3	2710	2633	2724	2747	2733		2673

APPENDIX IX

Gravity/Carbon-in-Leach Testwork

Comminution Composites

Details and Results

PROJECT	**A23136 : DOROPO GOLD PROJECT**
CLIENT	**AMPELLA MINING COTE D'IVOIRE**
DATE	**19/07/2022**

SUMMARY

TEST No	SAMPLE ID	GRIND SIZE (P80, µm)	GRAVITY STAGE	% NaCN - START	% NaCN - MAINTAIN	AIR OR OXYGEN	% SOLIDS (w/w)	DCN or CIL	DURATION (hrs)	GRAVITY GOLD		GOLD GRADE (g/t)			GOLD EXTRACTION (%)		GRAVITY SILVER		SILVER GRADE (g/t)			SILVER EXTRACTION (%)		REAGENTS (kg/t)	
										g/t	% Dist.	Residue	Calc. Head	Assay Head	24 hrs	40 hrs	g/t	% Dist.	Residue	Calc. Head	Assay Head	24 hrs	40 hrs	NaCN	Lime
PW6371	SOUWA OXIDE	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.03	21.2	0.03	0.13	0.11	77.2	77.8	1.1	19.3	0.5	5.5	4.0	88.8	90.9	1.06	1.32
PW6372	SOUWA TRANSITION SAPROLITE	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.26	43.6	0.03	0.60	0.65	112.5	95.0	0.0	8.1	0.5	0.6	<1	17.9	18.3	0.94	0.43
PW6373	SOUWA FRESH 1	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.09	27.1	0.10	0.33	0.38	69.6	69.8	0.1	7.9	0.5	0.8	<1	33.6	33.7	0.80	0.20
PW6374	SOUWA FRESH 2	106	YES	0.050	0.025	OXYGEN	45	CIL	40	2.28	47.9	0.42	4.77	5.07	98.1	91.2	0.2	18.5	0.5	1.0	<1	49.1	49.3	0.61	0.19
PW6375	SOUWA FRESH 3	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.09	45.3	0.03	0.19	0.24	84.1	84.5	0.0	5.9	0.5	0.6	<1	16.0	16.1	0.64	0.20
PW6376	NOKPA TRANSITION	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.10	16.8	0.07	0.62	0.51	87.6	88.7	1.4	35.0	0.5	4.0	5.0	90.6	87.6	1.37	1.20
PW6377	NOKPA FRESH 1	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.04	14.9	0.04	0.24	0.24	131.8	83.3	0.0	5.9	0.5	0.6	<1	23.2	16.8	0.79	0.24
PW6378	NOKPA FRESH 2	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.46	40.2	0.12	1.16	1.11	89.0	89.6	0.1	13.5	0.5	0.8	<1	38.5	38.7	0.82	0.18
PW6379	CHEGUE MAIN FRESH 1	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.21	23.1	0.13	0.91	0.91	85.2	85.7	0.1	10.1	0.5	1.0	<1	49.3	49.6	0.79	0.25
PW6380	CHEGUE MAIN FRESH 2	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.35	33.4	0.12	1.04	0.74	87.9	88.8	0.0	4.5	0.5	0.6	<1	21.9	15.6	0.74	0.20
PW6381	CHEGUE MAIN FRESH 3	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.06	26.0	0.03	0.23	0.24	86.4	87.1	0.0	1.5	0.5	0.6	<1	12.1	12.2	0.62	0.19
PW6382	CHEGUE MAIN FRESH 4	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.48	55.7	0.08	0.86	0.62	104.8	90.7	0.0	6.7	0.5	0.6	<1	16.8	16.8	0.64	0.16
PW6383	CHEGUE MAIN TRANSITION	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.18	36.9	0.02	0.48	0.42	95.4	95.9	0.0	3.0	0.5	0.6	<1	20.9	13.9	0.70	0.20
PW6384	CHEGUE MAIN OXIDE	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.82	57.4	0.05	1.43	1.82	96.0	96.5	0.1	6.4	0.5	1.5	<1	82.1	66.2	0.74	0.33
PW6385	CHEGUE SOUTH FRESH 1	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.11	28.4	0.03	0.37	0.27	68.3	91.9	0.1	7.9	0.5	0.7	<1	34.3	31.0	0.66	0.15
PW6386	CHEGUE SOUTH FRESH 2	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.18	25.1	0.15	0.73	1.02	81.2	79.3	0.0	6.2	0.5	0.6	<1	22.7	22.2	0.67	0.18
PW6387	CHEGUE SOUTH TRANSITION	106	YES	0.050	0.025	OXYGEN	45	CIL	40	2.46	54.2	0.28	4.54	3.01	92.4	93.9	0.1	8.4	0.5	0.9	<1	43.2	42.3	0.88	0.23
PW6388	KEKEDA TRANSITION #1	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.11	19.6	0.03	0.54	0.52	74.4	94.4	0.1	9.1	0.5	0.8	<1	35.7	35.2	0.94	0.30
PW6389	KEKEDA TRANSITION #2	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.16	24.1	0.08	0.64	0.68	88.9	87.6	0.1	12.9	0.5	0.9	<1	55.0	45.9	0.69	0.17
PW6390	KEKEDA FRESH #1	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.10	24.1	0.06	0.42	0.36	59.5	85.9	0.1	9.5	0.5	0.9	<1	34.1	42.4	0.73	0.18
PW6391	KEKEDA FRESH #2	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.14	39.7	0.06	0.34	0.44	81.3	82.5	0.2	21.2	0.5	1.1	<1	55.3	56.3	0.55	0.33
PW6392	KEKEDA FRESH #3	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.05	26.8	0.05	0.18	0.26	71.4	72.0	0.1	7.4	0.5	0.8	<1	44.9	35.4	0.67	0.17
PW6393	HAN FRESH #1	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.02	18.6	0.02	0.12	0.08	82.1	83.1	0.0	1.5	0.5	0.6	<1	13.0	13.1	0.58	0.13
PW6394	HAN FRESH TRANSITION/FRESH	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.07	41.5	0.02	0.17	0.24	86.8	88.0	0.0	5.7	0.5	0.6	<1	22.4	22.8	0.94	0.17
PW6395	HAN FRESH #2	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.03	25.7	0.02	0.13	0.13	84.3	84.4	0.0	1.7	0.5	0.6	<1	12.3	12.3	0.73	0.15
PW6396	HAN FRESH #3	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.07	23.1	0.03	0.31	0.22	71.2	90.5	0.0	4.9	0.5	0.7	<1	32.5	32.7	0.60	0.13
PW6397	ENIODA OXIDE #1	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.72	56.2	0.05	1.28	1.10	100.3	96.1	0.2	14.1	0.5	1.2	<1	63.8	57.5	0.76	0.22
PW6398	ENIODA FRESH #1	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.33	61.8	0.13	0.54	0.49	75.8	75.8	0.0	5.9	0.5	0.6	<1	16.1	16.1	0.67	0.15
PW6399	ENIODA FRESH #2	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.06	33.4	0.03	0.17	0.17	81.0	82.7	0.0	1.6	0.5	0.6	<1	12.1	12.5	0.82	0.18
PW6400	ENIODA OXIDE #2	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.01	10.0	0.01	0.09	0.04	93.9	94.4	0.0	1.6	0.5	0.6	<1	12.2	12.2	0.85	0.35
PW6401	ATIRRE TRANSITION	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.02	19.8	0.01	0.11	0.08	95.0	95.3	0.0	2.6	0.5	0.6	<1	21.3	21.4	0.96	0.27
PW6402	ATIRRE FRESH #1	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.04	18.2	0.02	0.20	0.13	89.8	89.7	0.1	6.4	0.5	0.8	<1	30.5	39.5	0.70	0.19
PW6403	ATIRRE FRESH #2	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.49	43.6	0.24	1.13	1.25	79.4	78.8	0.0	6.2	0.5	0.6	<1	19.8	19.6	0.72	0.22
PW6404	KILOSEGUI FRESH #1	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.15	43.7	0.05	0.34	0.46	85.1	85.2	0.0	5.8	0.5	0.6	<1	16.0	16.0	0.67	0.17
PW6405	KILOSEGUI FRESH #2	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.07	34.8	0.05	0.19	0.17	73.7	74.2	0.0	1.6	0.5	0.6	<1	12.2	12.3	0.24	0.15
PW6406	KILOSEGUI FRESH #3	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.24	39.5	0.19	0.60	0.66	86.5	68.5	0.1	10.6	0.5	0.7	<1	26.5	26.7	0.60	0.20
PW6407	KILOSEGUI TRANSITION #1	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.38	37.0	0.09	1.03	1.82	79.6	91.2	0.1	7.1	0.5	0.7	<1	32.7	33.1	0.78	0.19
PW6408	KILOSEGUI FRESH #4	106	YES	0.050	0.025	OXYGEN	45	CIL	40	0.11	37.5	0.04	0.28	0.24	85.3	85.9	0.0	6.2	0.5	0.6	<1	16.3	16.4	0.57	0.18



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6371**
SAMPLE ID	**SOUWA OXIDE** MOISTURE CONTENT **1.48 %** **Gravity Tail**
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore	Water	NaCN	Lime	Activated Carbin in Slurry (g)	Oxygen	pH	NaCN	Au	Ag	As	Mass	Au	Ag	As	CIL			TOTAL		
	(g)	(mL)	(g)	(g)		(ppm)		(%)	(ppm)	(ppm)	(ppm)	(g)	(g/t)	(g/t)	(g/t)	Au	Ag	As	Au	Ag	As
	2955.6	3612.4					7.4														
0	2955.6	3612.4	1.81	2.92	142.48	6.9	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	21.2	19.3	1.5
2		3587.4	0.90	0.00	134.67	12.2	9.9	0.025	0.010	0.120	0.05	7.81	2	80	3	62.7	72.5	6.7	83.9	91.8	8.2
4		3562.4	0.00	0.97	127.67	14.1	9.7	0.040	0.003	0.020	0.05	7.00	2	102	3	55.9	88.5	6.7	77.2	107.8	8.2
8		3537.4	0.00	0.00	121.13	19.8	10.0	0.038	0.003	0.010	0.05	6.54	2	78	3	55.9	69.5	6.7	77.2	88.8	8.2
24		3512.4	1.16	0.00	114.74	14.8	10.1	0.018	0.003	0.010	0.05	6.39	2	78	3	55.9	69.5	6.7	77.2	88.8	8.2
40		3462.4	0.00	0.00	116.33	26.1	10.1	0.020	0.003	0.010	0.05		2	80	3	56.5	71.7	6.7	77.8	90.9	8.2
TOTAL			3.87	3.89																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay	Total	Distrib'n	Assay	Total	Distrib'n	Assay	Total	Distrib'n
		(ppm)	(µg)	(%)	(ppm)	(µg)	(%)	(ppm)	(µg)	(%)
Solids (g)	2955.6	0.03	89	22.2	0.50	1478	9.1	3	7389	91.8
Solution (mL)	3462.4	0.003	9	2.2	0.010	35	0.2	0.050	173	2.2
Subsamples (mL)	150.0	0.004	0.6	0.14	0.030	5	0.0	0.050	8	0.1
Intermed. Carbon (g)	27.7	2	42	10.4	2347	2347	14.4	69	69	0.9
Final Carbon (g)	116.3	2	174	43.8	80	9306	57.0	3	291	3.6
Gravity Gold*		0.03	85	21.2	1.06	3143	19.3		121	1.5
Total Extraction			**310**	**77.8**		**14836**	**90.9**		**662**	**8.2**
Total			399	100.0		16314	100.0		8051	100.0
Calculated Head		0.13			5.5			3		
Assayed Leach Feed Grade		0.11			4.0			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

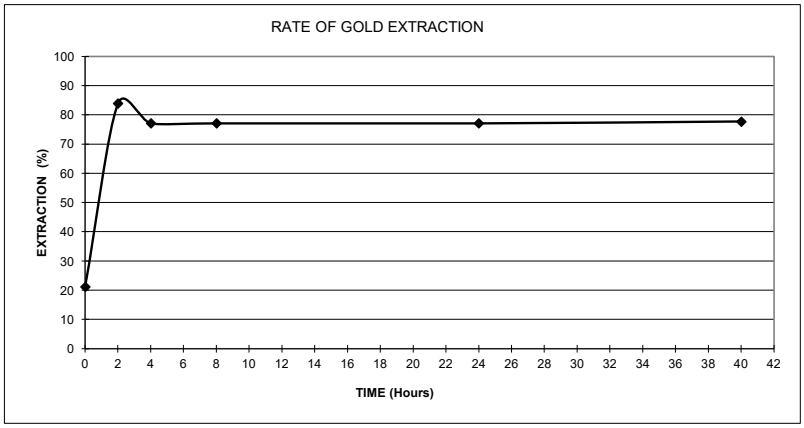
TEST NO:	**PW6333**
SOLIDS (g):	60.45
WATER (g):	241.8
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	0.4
Ag (mg/L):	13.0
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.03		0.5	2.5	31	<0.02

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3612.4	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.31	(kg/t)
12. NaCN consum'n (kg/t) :	1.06	(kg/t)
13. Lime consum'n (kg/t) :	1.32	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6372**
SAMPLE ID	**SOUWA TRANSITION SAPROLITE** MOISTURE CONTENT **0.62 %**
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS				Activated	SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
					Carbin in											CIL			TOTAL		
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Au	Ag	As	Au	Ag	As
	2981.4	3643.9					7.9														
0	2981.4	3643.9	1.82	1.04	143.72	8.4	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	43.6	8.1	1.5
2		3618.9	0.00	0.00	136.26	11.8	10.0	0.030	0.010	0.010	0.05	7.46	3	1	3	26.0	9.9	6.7	69.6	17.9	8.2
4		3593.9	0.00	0.25	130.10	18.0	9.8	0.028	0.003	0.010	0.05	6.16	6	1	3	47.2	9.9	6.7	90.8	17.9	8.2
8		3568.9	0.91	0.00	123.36	18.0	10.0	0.025	0.003	0.010	0.05	6.74	9	1	3	68.9	9.9	6.7	112.5	17.9	8.2
24		3543.9	0.91	0.00	115.97	19.6	10.2	0.025	0.003	0.010	0.05	7.39	9	1	3	68.9	9.9	6.7	112.5	17.9	8.2
40		3493.9	0.00	0.00	121.47	31.9	10.3	0.023	0.003	0.010	0.05		6	1	3	51.4	10.2	6.8	95.0	18.3	8.3
TOTAL			3.64	1.29																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2981.4	0.03	89	5.0	0.50	1491	81.7	3	7454	91.7
Solution (mL)	3493.9	0.003	9	0.5	0.010	35	1.9	0.050	175	2.1
Subsamples (mL)	150.0	0.004	0.6	0.03	0.010	2	0.1	0.050	8	0.1
Intermed. Carbon (g)	27.8	7	187	10.4	28	28	1.5	69	69	0.9
Final Carbon (g)	121.5	6	729	40.5	1	121	6.7	3	304	3.7
Gravity Gold*		0.26	785	43.6	0.05	147	8.1		123	1.5
Total Extraction			**1709**	**95.0**		**333**	**18.3**		**678**	**8.3**
Total			1799	100.0		1824	100.0		8131	100.0
Calculated Head		0.60			0.6			3		
Assayed Leach Feed Grade		0.65			<1			5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

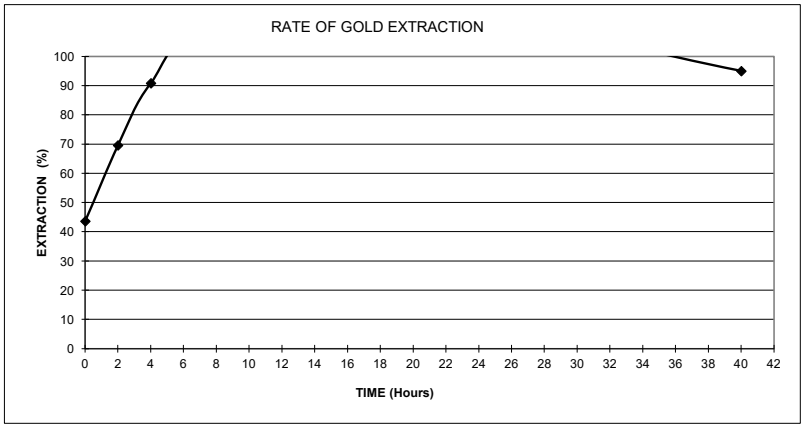
TEST NO:	**PW6334**
SOLIDS (g):	61.31
WATER (g):	245.24
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	3.2
Ag (mg/L):	0.6
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.03		0.5	2.5	38	0.02

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3643.9	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.94	(kg/t)
13. Lime consum'n (kg/t) :	0.43	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6373**
SAMPLE ID	**SOUWA FRESH 1** MOISTURE CONTENT **0.14 %** **Gravity Tail**
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS				Activated	SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore	Water	NaCN	Lime	Carbin in Slurry (g)	Oxygen	pH	NaCN	Au	Ag	As	Mass	Au	Ag	As	CIL			TOTAL		
	(g)	(mL)	(g)	(g)		(ppm)		(%)	(ppm)	(ppm)	(ppm)	(g)	(g/t)	(g/t)	(g/t)	Au	Ag	As	Au	Ag	As
	2995.8	3661.5					8.0														
0	2995.8	3661.5	1.83	0.61	144.41	7.5	10.2	0.050				0.00	0	0	0	0.0	0.0	0.0	27.1	7.9	1.8
2		3636.5	0.92	0.00	137.63	15.5	10.1	0.025	0.003	0.010	0.05	6.78	3	2	3	44.6	14.4	6.6	71.8	22.3	8.5
4		3611.5	0.00	0.00	130.67	14.0	10.1	0.043	0.003	0.010	0.05	6.96	2	1	3	23.8	8.3	6.6	50.9	16.2	8.5
8		3586.5	0.00	0.00	123.49	20.0	10.3	0.038	0.003	0.010	0.05	7.18	2	4	3	23.8	25.7	6.6	50.9	33.6	8.5
24		3561.5	0.92	0.00	115.78	18.6	10.5	0.025	0.003	0.010	0.05	7.71	3	4	3	42.5	25.7	6.6	69.6	33.6	8.5
40		3511.5	0.00	0.00	116.26	27.6	10.8	0.035	0.003	0.010	0.05		3	4	3	42.7	25.8	6.7	69.8	33.7	8.5
TOTAL			3.67	0.61																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay	Total	Distrib'n	Assay	Total	Distrib'n	Assay	Total	Distrib'n
		(ppm)	(µg)	(%)	(ppm)	(µg)	(%)	(ppm)	(µg)	(%)
Solids (g)	2995.8	0.10	300	30.2	0.50	1498	66.3	3	7490	91.5
Solution (mL)	3511.5	0.003	9	0.9	0.010	35	1.6	0.050	176	2.1
Subsamples (mL)	150.0	0.003	0.4	0.04	0.010	2	0.1	0.050	8	0.1
Intermed. Carbon (g)	28.6	2	65	6.5	80	80	3.5	72	72	0.9
Final Carbon (g)	116.3	3	349	35.2	4	465	20.6	3	291	3.6
Gravity Gold*		0.09	269	27.1	0.06	179	7.9		149	1.8
Total Extraction			**691**	**69.8**		**761**	**33.7**		**695**	**8.5**
Total			991	100.0		2259	100.0		8184	100.0
Calculated Head		0.33			0.8			3		
Assayed Leach Feed Grade		0.38			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

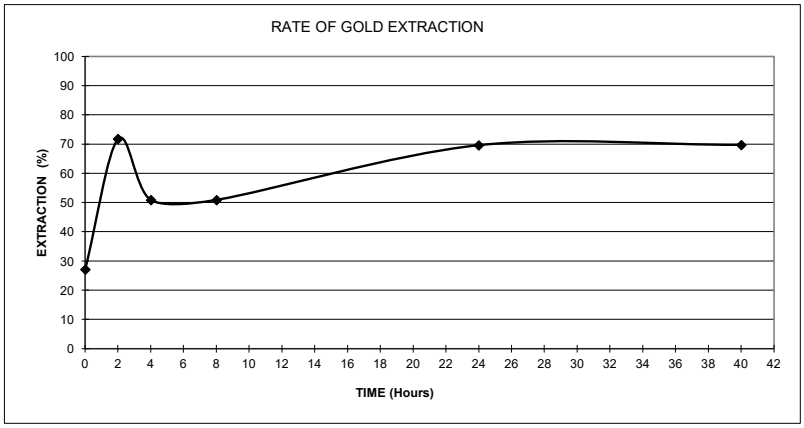
TEST NO:	**PW6335**
SOLIDS (g):	74.61
WATER (g):	298.44
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	0.9
Ag (mg/L):	0.6
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.10	0.10	0.5	2.5	34	0.66

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3661.5	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.23	(kg/t)
12. NaCN consum'n (kg/t) :	0.80	(kg/t)
13. Lime consum'n (kg/t) :	0.20	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6374**
SAMPLE ID	**SOUWA FRESH 2** MOISTURE CONTENT **0.06 %** **Gravity Tail**
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
					Activated											CIL			TOTAL		
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Au	Ag	As	Au	Ag	As
	2998.2	3664.5					8.0														
0	2998.2	3664.5	1.83	0.56	144.53	8.0	10.1	0.050				0.00	0	0	0	0.0	0.0	0.0	47.9	18.5	1.9
2		3639.5	0.00	0.00	138.31	11.9	10.2	0.038	0.035	0.010	0.05	6.22	36	6	3	37.3	30.6	6.6	85.2	49.1	8.5
4		3614.5	0.00	0.00	130.99	15.3	10.1	0.033	0.005	0.010	0.05	7.32	42	6	3	42.4	30.6	6.6	90.2	49.1	8.5
8		3589.5	0.00	0.00	123.49	19.5	10.2	0.028	0.003	0.010	0.05	7.50	45	6	3	45.0	30.6	6.6	92.9	49.1	8.5
24		3564.5	1.28	0.00	116.00	20.4	10.5	0.015	0.003	0.010	0.05	7.49	51	6	3	50.2	30.6	6.6	98.1	49.1	8.5
40		3514.5	0.00	0.00	117.35	25.1	10.8	0.035	0.003	0.010	0.05		42	6	3	43.3	30.8	6.7	91.2	49.3	8.5
TOTAL			3.11	0.56																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2998.2	0.42	1259	8.8	0.50	1499	50.7	3	7496	91.5
Solution (mL)	3514.5	0.003	9	0.1	0.010	35	1.2	0.050	176	2.1
Subsamples (mL)	150.0	0.008	1.3	0.01	0.010	2	0.1	0.050	8	0.1
Intermed. Carbon (g)	28.5	44	1251	8.8	171	171	5.8	71	71	0.9
Final Carbon (g)	117.4	42	4929	34.5	6	704	23.8	3	293	3.6
Gravity Gold*		2.28	6840	47.9	0.18	547	18.5		152	1.9
Total Extraction			**13030**	**91.2**		**1459**	**49.3**		**700**	**8.5**
Total			14289	100.0		2958	100.0		8195	100.0
Calculated Head		4.77			1.0			3		
Assayed Leach Feed Grade		5.07			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

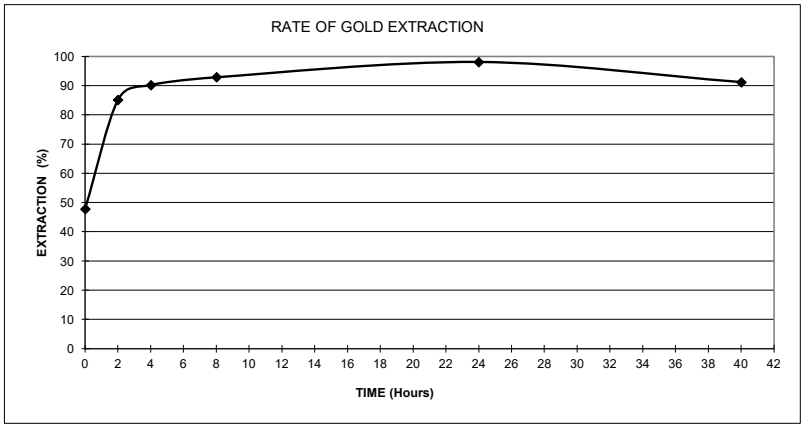
TEST NO:	**PW6336**
SOLIDS (g):	76
WATER (g):	304
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	22.5
Ag (mg/L):	1.8
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.42		0.5	2.5	49	0.54

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3664.5	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.04	(kg/t)
12. NaCN consum'n (kg/t) :	0.61	(kg/t)
13. Lime consum'n (kg/t) :	0.19	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6375**
SAMPLE ID	**SOUWA FRESH 3** MOISTURE CONTENT **0.14 %** **Gravity Tail**
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS				Activated	SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
					Carbin in											CIL			TOTAL		
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Au	Ag	As	Au	Ag	As
	2995.8	3661.5					8.0														
0	2995.8	3661.5	1.83	0.61	144.41	8.1	10.2	0.050				0.00	0	0	0	0.0	0.0	0.0	45.3	5.9	1.6
2		3636.5	0.00	0.00	137.14	11.5	10.1	0.035	0.003	0.010	0.05	7.27	2	1	3	38.9	10.1	6.7	84.1	16.0	8.3
4		3611.5	0.00	0.00	129.30	16.2	10.1	0.030	0.003	0.010	0.05	7.84	2	1	3	38.9	10.1	6.7	84.1	16.0	8.3
8		3586.5	0.00	0.00	122.04	20.1	10.2	0.028	0.003	0.010	0.05	7.26	2	1	3	38.9	10.1	6.7	84.1	16.0	8.3
24		3561.5	1.35	0.00	115.27	19.9	10.5	0.013	0.003	0.010	0.05	6.77	2	1	3	38.9	10.1	6.7	84.1	16.0	8.3
40		3511.5	0.00	0.00	116.80	27.2	10.9	0.035	0.003	0.010	0.05		2	1	3	39.3	10.2	6.7	84.5	16.1	8.3
TOTAL			3.18	0.61																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2995.8	0.03	90	15.5	0.50	1498	83.9	3	7490	91.7
Solution (mL)	3511.5	0.003	9	1.5	0.010	35	2.0	0.050	176	2.1
Subsamples (mL)	150.0	0.003	0.4	0.06	0.010	2	0.1	0.050	8	0.1
Intermed. Carbon (g)	29.1	2	44	7.5	29	29	1.6	73	73	0.9
Final Carbon (g)	116.8	2	175	30.2	1	117	6.5	3	292	3.6
Gravity Gold*		0.09	263	45.3	0.04	105	5.9		131	1.6
Total Extraction			**491**	**84.5**		**288**	**16.1**		**679**	**8.3**
Total			581	100.0		1786	100.0		8169	100.0
Calculated Head		0.19			0.6			3		
Assayed Leach Feed Grade		0.24			<1			10		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

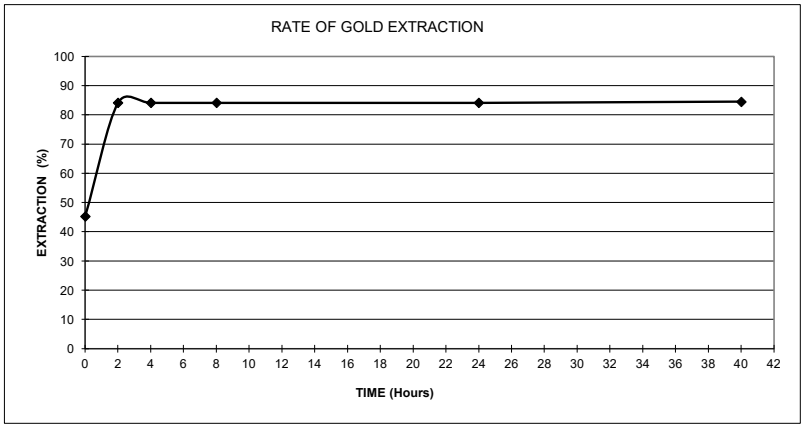
TEST NO:	**PW6337**
SOLIDS (g):	65.73
WATER (g):	262.92
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	1.0
Ag (mg/L):	0.4
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.03		0.5	2.5	29	0.14

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.025 (%)
3. Maintain pH (lime) : >9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3661.5 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.06 (kg/t)
12. NaCN consum'n (kg/t) : 0.64 (kg/t)
13. Lime consum'n (kg/t) : 0.20 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6376**
SAMPLE ID	**NOKPA TRANSITION** MOISTURE CONTENT **2.88 %** **Gravity Tail**
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jun-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS				Activated	SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
					Carbin in											CIL			TOTAL		
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Au	Ag	As	Au	Ag	As
	2913.6	3561.1					7.5														
0	2913.6	3561.1	1.78	2.36	140.45	3.7	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	16.8	35.0	1.7
2		3536.1	0.00	1.15	134.68	15.4	9.7	0.028	0.015	0.010	0.05	5.77	9	52	3	73.2	62.7	6.7	90.0	97.7	8.3
4		3511.1	1.07	0.00	127.58	21.7	10.0	0.020	0.003	0.010	0.05	7.10	9	48	3	70.8	58.1	6.7	87.6	93.1	8.3
8		3486.1	0.00	0.00	119.91	19.0	10.0	0.030	0.003	0.010	0.05	7.67	9	42	3	70.8	51.5	6.7	87.6	86.5	8.3
24		3461.1	1.50	0.00	112.48	21.4	9.9	0.008	0.003	0.010	0.05	7.43	9	46	3	70.8	55.6	6.7	87.6	90.6	8.3
40		3411.1	0.00	0.00	114.64	20.0	9.8	0.010	0.003	0.010	0.05		9	42	3	71.9	52.6	6.7	88.7	87.6	8.4
TOTAL			4.35	3.51																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2913.6	0.07	204	11.3	0.50	1457	12.4	3	7284	91.6
Solution (mL)	3411.1	0.003	9	0.5	0.010	34	0.3	0.050	171	2.1
Subsamples (mL)	150.0	0.005	0.7	0.04	0.010	2	0.0	0.050	8	0.1
Intermed. Carbon (g)	28.0	9	252	14.0	1305	1305	11.1	70	70	0.9
Final Carbon (g)	114.6	9	1032	57.4	42	4815	41.1	3	287	3.6
Gravity Gold*		0.10	302	16.8	1.41	4096	35.0		131	1.7
Total Extraction			**1595**	**88.7**		**10251**	**87.6**		**666**	**8.4**
Total			1799	100.0		11708	100.0		7950	100.0
Calculated Head		0.62			4.0			3		
Assayed Leach Feed Grade		0.51			5.0			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

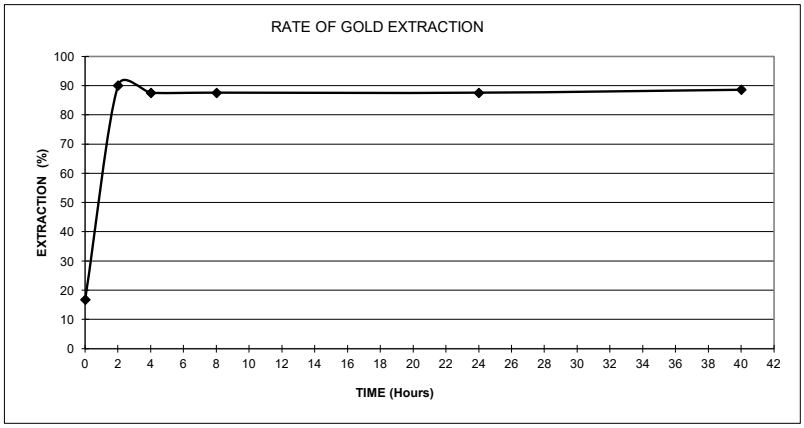
TEST NO:	**PW6338**
SOLIDS (g):	65.64
WATER (g):	262.56
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	1.15
Ag (mg/L):	15.6
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.07		0.5	2.5	67	<0.02

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3561.1	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.49	(kg/t)
12. NaCN consum'n (kg/t) :	1.37	(kg/t)
13. Lime consum'n (kg/t) :	1.20	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6377**
SAMPLE ID	**NOKPA FRESH 1** MOISTURE CONTENT **0.18 %**
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jun-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS				Activated	SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore	Water	NaCN	Lime	Carbin in Slurry (g)	Oxygen	pH	NaCN	Au	Ag	As	Mass	Au	Ag	As	CIL			TOTAL		
	(g)	(mL)	(g)	(g)		(ppm)		(%)	(ppm)	(ppm)	(ppm)	(g)	(g/t)	(g/t)	(g/t)	Au	Ag	As	Au	Ag	As
	2994.6	3660.1					8.1														
0	2994.6	3660.1	1.83	0.72	144.36	8.1	10.2	0.050				0.00	0	0	0	0.0	0.0	0.0	14.9	5.9	1.6
2		3635.1	0.00	0.00	138.80	16.8	10.1	0.035	0.003	0.010	0.05	5.56	3	2	3	61.6	18.1	6.7	76.5	24.0	8.3
4		3610.1	0.00	0.00	132.27	22.4	10.2	0.028	0.003	0.010	0.05	6.53	3	1	3	61.6	10.4	6.7	76.5	16.3	8.3
8		3585.1	0.99	0.00	124.52	24.8	10.4	0.023	0.003	0.010	0.05	7.75	6	1	3	116.9	10.4	6.7	131.8	16.3	8.3
24		3560.1	0.99	0.00	118.09	23.9	10.7	0.023	0.003	0.010	0.05	6.43	6	2	3	116.9	17.3	6.7	131.8	23.2	8.3
40		3510.1	0.00	0.00	120.24	20.4	10.7	0.040	0.003	0.010	0.05		3	1	3	68.4	10.8	6.7	83.3	16.8	8.4
TOTAL			3.81	0.72																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2994.6	0.04	120	16.7	0.50	1497	83.2			
Solution (mL)	3510.1	0.003	9	1.2	0.010	35	2.0			
Subsamples (mL)	150.0	0.003	0.4	0.05	0.010	2	0.1			
Intermed. Carbon (g)	26.3	5	121	16.9	38	38	2.1			
Final Carbon (g)	120.2	3	361	50.3	1	120	6.7			
Gravity Gold*		0.04	107	14.9	0.04	107	5.9			
Total Extraction			**598**	**83.3**		**302**	**16.8**			
Total			718	100.0		1799	100.0			
Calculated Head		0.24			0.6					
Assayed Leach Feed Grade		0.24			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

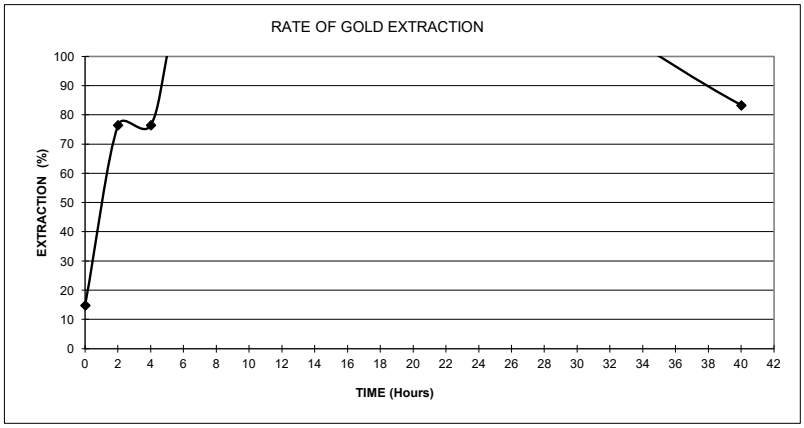
TEST NO:	**PW6339**
SOLIDS (g):	66.68
WATER (g):	266.72
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	0.4
Ag (mg/L):	0.4
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.04		0.5	2.5	69	0.10

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3660.1	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.27	(kg/t)
12. NaCN consum'n (kg/t) :	0.79	(kg/t)
13. Lime consum'n (kg/t) :	0.24	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6378**
SAMPLE ID	**NOKPA FRESH 2** MOISTURE CONTENT **0.12 %** **Gravity Tail**
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jun-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS				Activated	SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
					Carbin in											CIL			TOTAL		
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Au	Ag	As	Au	Ag	As
	2996.4	3662.3					8.0														
0	2996.4	3662.3	1.83	0.54	144.44	8.7	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	40.2	13.5	1.7
2		3637.3	0.00	0.00	135.11	19.9	10.2	0.033	0.005	0.010	0.05	9.33	9	2	3	38.1	13.3	6.7	78.2	26.8	8.3
4		3612.3	0.00	0.00	127.45	19.8	10.3	0.028	0.003	0.010	0.05	7.66	9	4	3	37.8	24.4	6.7	78.0	37.9	8.3
8		3587.3	0.92	0.00	120.20	24.7	10.4	0.025	0.003	0.010	0.05	7.25	12	6	3	48.9	34.8	6.7	89.0	48.3	8.3
24		3562.3	0.92	0.00	113.85	21.6	10.7	0.025	0.003	0.010	0.05	6.35	12	4	3	48.9	25.0	6.7	89.0	38.5	8.3
40		3512.3	0.00	0.00	115.54	20.2	10.9	0.033	0.003	0.010	0.05		12	4	3	49.4	25.2	6.7	89.6	38.7	8.4
TOTAL			3.67	0.54																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2996.4	0.12	360	10.4	0.50	1498	61.3	3	7491	91.6
Solution (mL)	3512.3	0.003	9	0.3	0.010	35	1.4	0.050	176	2.1
Subsamples (mL)	150.0	0.003	0.4	0.01	0.010	2	0.1	0.050	8	0.1
Intermed. Carbon (g)	30.6	10	316	9.1	118	118	4.8	76	76	0.9
Final Carbon (g)	115.5	12	1386	40.1	4	462	18.9	3	289	3.5
Gravity Gold*		0.46	1390	40.2	0.11	330	13.5		138	1.7
Total Extraction			**3102**	**89.6**		**947**	**38.7**		**686**	**8.4**
Total			3462	100.0		2446	100.0		8177	100.0
Calculated Head		1.16			0.8			3		
Assayed Leach Feed Grade		1.11			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

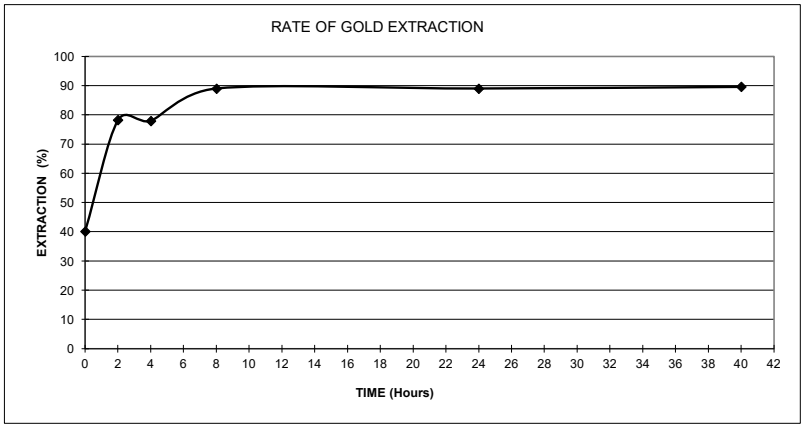
TEST NO:	**PW6340**
SOLIDS (g):	68.83
WATER (g):	275.32
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	5.1
Ag (mg/L):	1.2
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.12		0.5	2.5	40	0.34

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3662.3	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.82	(kg/t)
13. Lime consum'n (kg/t) :	0.18	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6379**
SAMPLE ID	**CHEGUE MAIN FRESH 1** MOISTURE CONTENT **0.10 %** **Gravity Tail**
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jun-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
					Activated											CIL			TOTAL		
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Au	Ag	As	Au	Ag	As
	2997.0	3663.0					8.0														
0	2997.0	3663.0	1.83	0.75	144.47	0.9	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	23.1	10.1	0.5
2		3638.0	1.10	0.00	138.34	16.7	10.0	0.020	0.010	0.010	0.05	6.13	6	4	3	33.2	20.7	1.8	56.4	30.7	2.3
4		3613.0	0.00	0.00	131.85	20.7	10.2	0.038	0.003	0.010	0.05	6.49	9	8	3	47.5	39.3	1.8	70.6	49.3	2.3
8		3588.0	0.00	0.00	124.76	24.2	10.4	0.030	0.003	0.010	0.05	7.09	12	8	3	62.0	39.3	1.8	85.2	49.3	2.3
24		3563.0	0.00	0.00	117.84	27.1	10.6	0.030	0.003	0.010	0.05	6.92	12	8	3	62.0	39.3	1.8	85.2	49.3	2.3
40		3513.0	0.00	0.00	118.94	23.4	10.6	0.015	0.003	0.010	0.05		12	8	3	62.5	39.6	1.8	85.7	49.6	2.3
TOTAL			2.93	0.75																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2997.0	0.13	390	14.3	0.50	1499	50.4	10	29970	97.7
Solution (mL)	3513.0	0.003	9	0.3	0.010	35	1.2	0.050	176	0.6
Subsamples (mL)	150.0	0.004	0.6	0.02	0.010	2	0.1	0.050	8	0.0
Intermed. Carbon (g)	26.6	10	263	9.7	189	189	6.3	67	67	0.2
Final Carbon (g)	118.9	12	1427	52.5	8	952	32.0	3	297	1.0
Gravity Gold*		0.21	629	23.1	0.10	300	10.1		150	0.5
Total Extraction			**2329**	**85.7**		**1476**	**49.6**		**697**	**2.3**
Total			2719	100.0		2975	100.0		30667	100.0
Calculated Head		0.91			1.0			10		
Assayed Leach Feed Grade		0.91			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

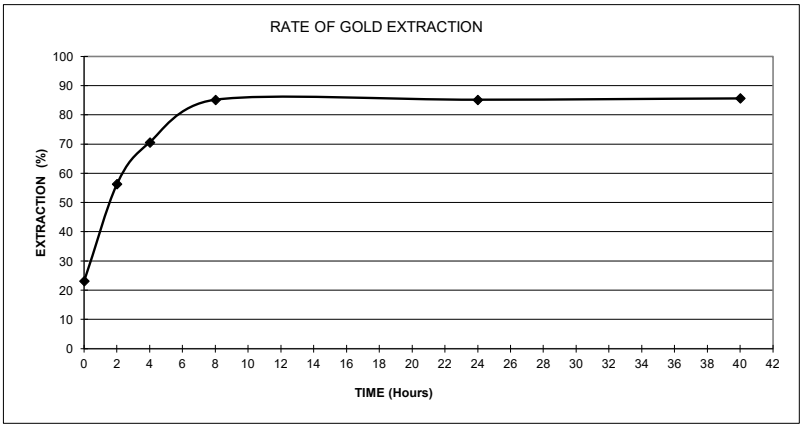
TEST NO:	**PW6341**
SOLIDS (g):	74.89
WATER (g):	299.56
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	2.1
Ag (mg/L):	1.0
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.13		0.5	10	51	0.68

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3663.0	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.98	(kg/t)
12. NaCN consum'n (kg/t) :	0.79	(kg/t)
13. Lime consum'n (kg/t) :	0.25	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6**
SAMPLE ID	**CHEGUE MAIN FRESH 2** MOISTURE CONTENT **0.06 %**
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jun-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore	Water	NaCN	Lime	Activated Carbin in Slurry (g)	Oxygen	pH	NaCN	Au	Ag	As	Mass	Au	Ag	As	CIL			TOTAL		
	(g)	(mL)	(g)	(g)		(ppm)		(%)	(ppm)	(ppm)	(ppm)	(g)	(g/t)	(g/t)	(g/t)	Au	Ag	As	Au	Ag	As
	2998.2	3664.5					8.0														
0	2998.2	3664.5	1.83	0.61	144.53	7.3	10.2	0.050				0.00	0	0	0	0.0	0.0	0.0	33.4	4.5	1.2
2		3639.5	0.00	0.00	136.43	15.9	10.1	0.033	0.005	0.010	0.05	8.10	9	1	3	42.5	10.2	6.7	75.8	14.7	7.9
4		3614.5	0.00	0.00	128.57	23.8	10.2	0.030	0.003	0.010	0.05	7.86	9	1	3	42.2	10.2	6.7	75.5	14.7	7.9
8		3589.5	0.92	0.00	121.60	19.5	10.4	0.025	0.003	0.010	0.05	6.97	12	2	3	54.6	17.4	6.7	87.9	21.9	7.9
24		3564.5	0.92	0.00	114.52	22.5	10.6	0.025	0.003	0.010	0.05	7.08	12	2	3	54.6	17.4	6.7	87.9	21.9	7.9
40		3514.5	0.00	0.00	116.77	16.6	10.8	0.040	0.003	0.010	0.05		12	1	3	55.5	11.1	6.8	88.8	15.6	8.0
TOTAL			3.67	0.61																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay	Total	Distrib'n	Assay	Total	Distrib'n	Assay	Total	Distrib'n
		(ppm)	(µg)	(%)	(ppm)	(µg)	(%)	(ppm)	(µg)	(%)
Solids (g)	2998.2	0.12	348	11.2	0.50	1499	84.4	3	7496	92.0
Solution (mL)	3514.5	0.003	9	0.3	0.010	35	2.0	0.050	176	2.2
Subsamples (mL)	150.0	0.003	0.4	0.01	0.010	2	0.1	0.050	8	0.1
Intermed. Carbon (g)	30.0	10	312	10.1	44	44	2.5	75	75	0.9
Final Carbon (g)	116.8	12	1401	45.1	1	117	6.6	3	292	3.6
Gravity Gold*		0.35	1036	33.4	0.03	80	4.5		100	1.2
Total Extraction			**2759**	**88.8**		**277**	**15.6**		**650**	**8.0**
Total			3107	100.0		1776	100.0		8145	100.0
Calculated Head		1.04			0.6			3		
Assayed Leach Feed Grade		0.74			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

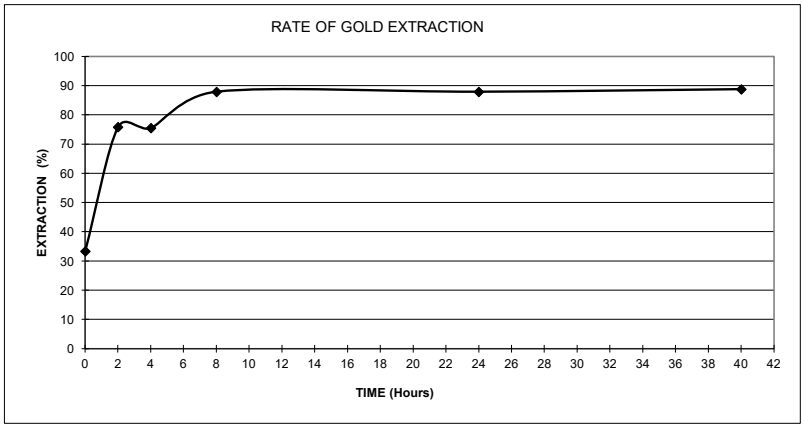
TEST NO:	**PW6342**
SOLIDS (g):	49.82
WATER (g):	199.28
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	5.2
Ag (mg/L):	0.4
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.11	0.12	0.5	2.5	138	0.34

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3664.5	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.74	(kg/t)
13. Lime consum'n (kg/t) :	0.20	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6381**
SAMPLE ID	**CHEGUE MAIN FRESH 3** MOISTURE CONTENT **0.14 %**
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jun-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS				Activated	SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore	Water	NaCN	Lime	Carbin in Slurry (g)	Oxygen	pH	NaCN	Au	Ag	As	Mass	Au	Ag	As	CIL			TOTAL		
	(g)	(mL)	(g)	(g)		(ppm)		(%)	(ppm)	(ppm)	(ppm)	(g)	(g/t)	(g/t)	(g/t)	Au	Ag	As	Au	Ag	As
	2995.8	3661.5					8.0														
0	2995.8	3661.5	1.83	0.56	144.41	8.2	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	26.0	1.5	0.3
2		3636.5	0.00	0.00	137.38	15.4	10.0	0.033	0.020	0.010	0.05	7.03	2	1	3	41.5	10.6	1.2	67.5	12.1	1.5
4		3611.5	0.00	0.00	130.22	17.2	10.0	0.030	0.020	0.010	0.05	7.16	2	1	3	41.5	10.6	1.2	67.5	12.1	1.5
8		3586.5	0.00	0.00	130.22	4hr power outage						0.00									
24		3561.5	1.10	0.00	123.12	19.6	10.4	0.020	0.003	0.010	0.05	7.10	3	1	3	60.4	10.6	1.2	86.4	12.1	1.5
40		3511.5	0.03	0.00	124.71	21.1	10.7	0.030	0.003	0.010	0.05		3	1	3	61.1	10.7	1.2	87.1	12.2	1.5
TOTAL			2.96	0.56																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay	Total	Distrib'n	Assay	Total	Distrib'n	Assay	Total	Distrib'n
		(ppm)	(µg)	(%)	(ppm)	(µg)	(%)	(ppm)	(µg)	(%)
Solids (g)	2995.8	0.03	90	12.9	0.50	1498	87.8	15	44937	98.5
Solution (mL)	3511.5	0.003	9	1.3	0.010	35	2.1	0.050	176	0.4
Subsamples (mL)	150.0	0.008	1.2	0.17	0.008	1	0.1	0.042	6	0.0
Intermed. Carbon (g)	21.3	2	43	6.1	21	21	1.2	53	53	0.1
Final Carbon (g)	124.7	3	374	53.6	1	125	7.3	3	312	0.7
Gravity Gold*		0.06	182	26.0	0.01	26	1.5		130	0.3
Total Extraction			**608**	**87.1**		**208**	**12.2**		**677**	**1.5**
Total			698	100.0		1706	100.0		45614	100.0
Calculated Head		0.23			0.6			15		
Assayed Leach Feed Grade		0.24			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

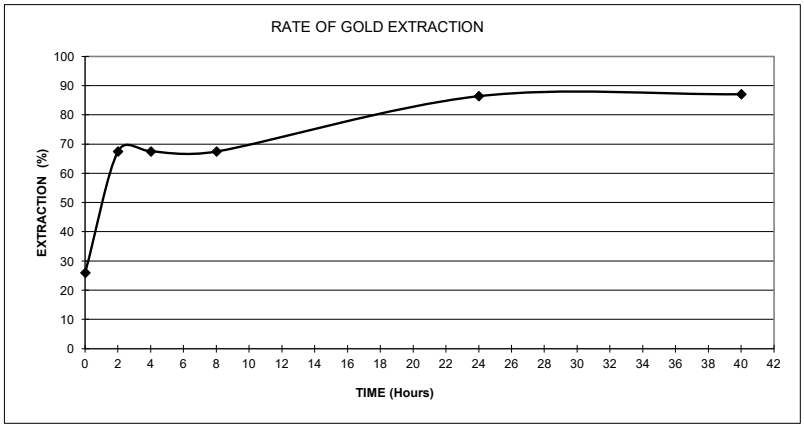
TEST NO:	**PW6343**
SOLIDS (g):	64.87
WATER (g):	259.48
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	0.7
Ag (mg/L):	0.1
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.03		0.5	15	23	0.18

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3661.5	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.99	(kg/t)
12. NaCN consum'n (kg/t) :	0.62	(kg/t)
13. Lime consum'n (kg/t) :	0.19	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6382**
SAMPLE ID	**CHEGUE MAIN FRESH 4** MOISTURE CONTENT **0.02 %** **Gravity Tail**
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jun-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS				Activated	SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
					Carbin in											CIL			TOTAL		
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Au	Ag	As	Au	Ag	As
	2999.4	3665.9					8.1														
0	2999.4	3665.9	1.83	0.49	144.59	8.0	10.1	0.050				0.00	0	0	0	0.0	0.0	0.0	55.7	6.7	1.8
2		3640.9	0.00	0.00	137.28	16.0	10.1	0.035	0.060	0.010	0.05	7.31	6	1	3	42.1	10.1	6.6	97.7	16.8	8.5
4		3615.9	0.00	0.00	130.49	21.1	10.1	0.033	0.050	0.010	0.05	6.79	6	1	3	40.7	10.1	6.6	96.3	16.8	8.5
8		3590.9	0.00	0.00	130.49	4hr power outage						0.00									
24		3565.9	1.10	0.00	124.23	26.9	10.5	0.020	0.003	0.010	0.05	6.26	9	1	3	49.2	10.0	6.6	104.8	16.8	8.5
40		3515.9	0.00	0.00	125.51	23.2	10.8	0.028	0.003	0.010	0.05		6	1	3	35.1	10.1	6.7	90.7	16.8	8.5
TOTAL			2.93	0.49																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2999.4	0.08	240	9.3	0.50	1500	83.2	3	7499	91.5
Solution (mL)	3515.9	0.003	9	0.3	0.010	35	1.9	0.050	176	2.1
Subsamples (mL)	150.0	0.020	2.9	0.11	0.008	1	0.1	0.042	6	0.1
Intermed. Carbon (g)	20.4	7	141	5.5	20	20	1.1	51	51	0.6
Final Carbon (g)	125.5	6	753	29.1	1	126	7.0	3	314	3.8
Gravity Gold*		0.48	1438	55.7	0.04	121	6.7		151	1.8
Total Extraction			**2344**	**90.7**		**303**	**16.8**		**698**	**8.5**
Total			2584	100.0		1803	100.0		8197	100.0
Calculated Head		0.86			0.6			3		
Assayed Leach Feed Grade		0.62			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

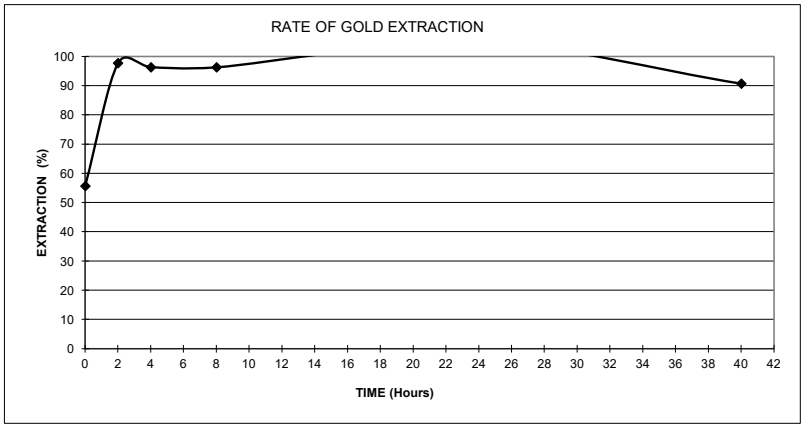
TEST NO:	**PW6344**
SOLIDS (g):	75.68
WATER (g):	302.72
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	4.8
Ag (mg/L):	0.4
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.08		0.5	2.5	27	0.68

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3665.9	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.98	(kg/t)
12. NaCN consum'n (kg/t) :	0.64	(kg/t)
13. Lime consum'n (kg/t) :	0.16	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6383**
SAMPLE ID	**CHEGUE MAIN TRANSITION** MOISTURE CONTENT **0.62 %**
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jun-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
					Activated											CIL			TOTAL		
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Au	Ag	As	Au	Ag	As
	2981.4	3643.9					8.0														
0	2981.4	3643.9	1.82	0.59	143.72	8.8	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	36.9	3.0	0.4
2		3618.9	0.00	0.00	136.72	16.4	10.0	0.035	0.050	0.010	0.05	7.00	2	1	3	27.6	10.4	1.8	64.5	13.4	2.2
4		3593.9	0.00	0.00	129.48	19.2	10.0	0.030	0.045	0.010	0.05	7.24	6	1	3	69.1	10.4	1.8	106.0	13.4	2.2
8		3568.9	0.00	0.00	129.48	4hr power outage						0.00									
24		3543.9	1.17	0.00	122.80	26.4	10.2	0.018	0.003	0.010	0.05	6.68	6	2	3	58.4	17.9	1.8	95.4	20.9	2.2
40		3493.9	0.00	0.00	124.01	22.0	10.5	0.025	0.003	0.010	0.05		6	1	3	59.0	10.9	1.8	95.9	13.9	2.2
TOTAL			2.99	0.59																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2981.4	0.02	60	4.1	0.50	1491	86.1	10	29814	97.8
Solution (mL)	3493.9	0.003	9	0.6	0.010	35	2.0	0.050	175	0.6
Subsamples (mL)	150.0	0.017	2.6	0.18	0.008	1	0.1	0.042	6	0.0
Intermed. Carbon (g)	20.9	4	94	6.5	28	28	1.6	52	52	0.2
Final Carbon (g)	124.0	6	744	51.6	1	124	7.2	3	310	1.0
Gravity Gold*		0.18	532	36.9	0.02	52	3.0		130	0.4
Total Extraction			**1381**	**95.9**		**240**	**13.9**		**673**	**2.2**
Total			1441	100.0		1730	100.0		30487	100.0
Calculated Head		0.48			0.6			10		
Assayed Leach Feed Grade		0.42			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

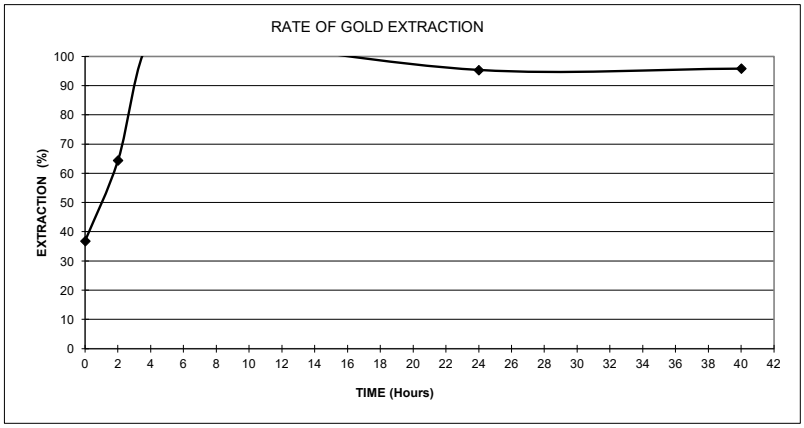
TEST NO:	**PW6345**
SOLIDS (g):	64.85
WATER (g):	259.4
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	2.1
Ag (mg/L):	0.2
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.02		0.5	10	18	<0.02

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.025 (%)
3. Maintain pH (lime) : >9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3643.9 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.00 (kg/t)
12. NaCN consum'n (kg/t) : 0.70 (kg/t)
13. Lime consum'n (kg/t) : 0.20 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6384**
SAMPLE ID	**CHEGUE MAIN OXIDE** MOISTURE CONTENT **1.20 %** **Gravity Tail**
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jun-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS				Activated	SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore	Water	NaCN	Lime	Carbin in Slurry (g)	Oxygen	pH	NaCN	Au	Ag	As	Mass	Au	Ag	As	CIL			TOTAL		
	(g)	(mL)	(g)	(g)		(ppm)		(%)	(ppm)	(ppm)	(ppm)	(g)	(g/t)	(g/t)	(g/t)	Au	Ag	As	Au	Ag	As
	2964.0	3622.7					8.0														
0	2964.0	3622.7	1.81	0.97	142.88	8.3	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	57.4	6.4	1.3
2		3597.7	0.00	0.00	135.39	11.9	10.0	0.030	0.075	0.140	0.20	7.49	6	14	3	26.6	57.2	0.0	84.0	63.6	1.3
4		3572.7	0.00	0.00	127.82	16.3	10.0	0.028	0.050	0.080	0.30	7.57	6	14	3	24.5	52.3	0.0	81.9	58.6	1.3
8		3547.7	0.00	0.00	127.82	4hr power outage						0.00									
24		3522.7	1.27	0.00	121.79	26.8	10.2	0.015	0.003	0.010	0.70	6.03	12	24	3	38.5	75.7	0.1	96.0	82.1	1.4
40		3472.7	0.00	0.00	123.71	31.0	10.5	0.025	0.003	0.010	1.90		12	18	10	39.1	59.8	0.3	96.5	66.2	1.6
TOTAL			3.08	0.97																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay	Total	Distrib'n	Assay	Total	Distrib'n	Assay	Total	Distrib'n
		(ppm)	(µg)	(%)	(ppm)	(µg)	(%)	(ppm)	(µg)	(%)
Solids (g)	2964.0	0.05	148	3.5	0.50	1482	33.8	1005	2978820	98.4
Solution (mL)	3472.7	0.003	9	0.2	0.010	35	0.8	1.900	6598	0.2
Subsamples (mL)	150.0	0.022	3.3	0.08	0.042	6	0.1	0.833	125	0.0
Intermed. Carbon (g)	21.1	8	163	3.8	356	356	8.1	53	53	0.0
Final Carbon (g)	123.7	12	1485	35.0	18	2227	50.8	10	1237	0.0
Gravity Gold*		0.82	2439	57.4	0.09	279	6.4		39021	1.3
Total Extraction			**4098**	**96.5**		**2902**	**66.2**		**47034**	**1.6**
Total			4246	100.0		4384	100.0		3025854	100.0
Calculated Head		1.43			1.5			1021		
Assayed Leach Feed Grade		1.82			<1			900		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

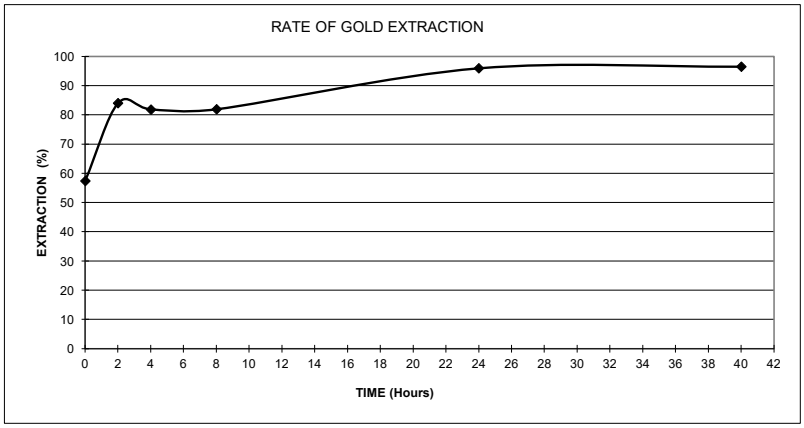
TEST NO:	**PW6346**
SOLIDS (g):	69.68
WATER (g):	278.72
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	8.8
Ag (mg/L):	1.0
As (mg/L):	140.0

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.05		0.5	1005	12	0.04

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3622.7	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.04	(kg/t)
12. NaCN consum'n (kg/t) :	0.74	(kg/t)
13. Lime consum'n (kg/t) :	0.33	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6385**
SAMPLE ID	**CHEGUE SOUTH FRESH 1** MOISTURE CONTENT **0.02 %**
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jun-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS				Activated Carbin in Slurry (g)	SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
																CIL			TOTAL		
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)		Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Au	Ag	As	Au	Ag	As
	2999.4	3665.9					8.4														
0	2999.4	3665.9	1.83	0.46	144.59	1.0	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	28.4	7.9	0.9
2		3640.9	0.00	0.00	137.30	16.8	10.0	0.028	0.020	0.020	0.05	7.29	3	1	3	45.6	10.0	1.8	74.0	18.0	2.7
4		3615.9	0.99	0.00	130.21	20.5	10.0	0.023	0.020	0.020	0.05	7.09	3	1	3	45.6	10.0	1.8	74.0	18.0	2.7
8		3615.9	0.00	0.00	130.21	4hr power outage						0.00									
24		3590.9	0.00	0.00	123.32	18.2	10.5	0.038	0.003	0.010	0.05	6.89	3	4	3	39.9	26.3	1.8	68.3	34.3	2.7
40		3540.9	0.00	0.00	105.39	26.1	10.7	0.023	0.003	0.010	0.05		6	4	3	63.5	23.0	1.6	91.9	31.0	2.6
TOTAL			2.82	0.46																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2999.4	0.03	90	8.1	0.50	1500	69.0	10	29994	97.4
Solution (mL)	3540.9	0.003	9	0.8	0.010	35	1.6	0.050	177	0.6
Subsamples (mL)	125.0	0.010	1.2	0.11	0.014	2	0.1	0.050	6	0.0
Intermed. Carbon (g)	21.3	3	64	5.7	42	42	1.9	53	53	0.2
Final Carbon (g)	105.4	6	632	56.8	4	422	19.4	3	263	0.9
Gravity Gold*		0.11	316	28.4	0.06	172	7.9		287	0.9
Total Extraction			**1022**	**91.9**		**673**	**31.0**		**787**	**2.6**
Total			1112	100.0		2173	100.0		30781	100.0
Calculated Head		0.37			0.7			10		
Assayed Leach Feed Grade		0.27			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

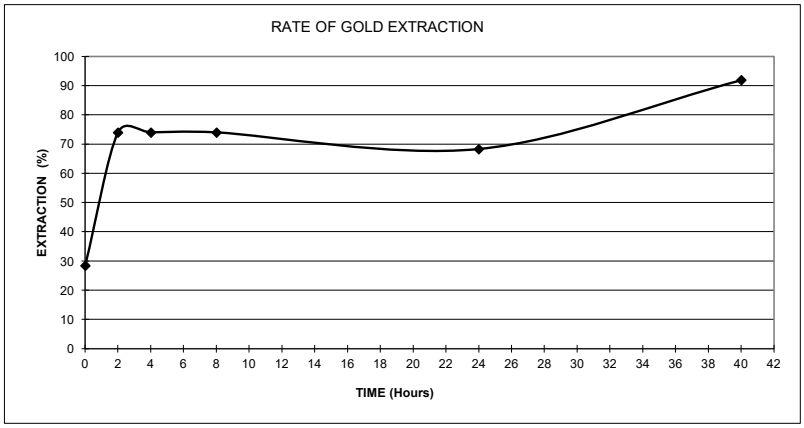
TEST NO:	**PW6347**
SOLIDS (g):	71.85
WATER (g):	287.4
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	1.1
Ag (mg/L):	0.6
As (mg/L):	1.0

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.03	0.03	0.5	10	24	0.14

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3665.9	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.94	(kg/t)
12. NaCN consum'n (kg/t) :	0.66	(kg/t)
13. Lime consum'n (kg/t) :	0.15	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6386**
SAMPLE ID	**CHEGUE SOUTH FRESH 2** MOISTURE CONTENT **0.04 %**
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jun-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
					Activated Carbin in Slurry (g)											CIL			TOTAL		
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)		Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Au	Ag	As	Au	Ag	As
	2998.8	3665.2					8.1														
0	2998.8	3665.2	1.83	0.54	144.56	7.5	10.2	0.050				0.00	0	0	0	0.0	0.0	0.0	25.1	6.2	1.8
2		3640.2	0.00	0.00	138.28	19.9	10.1	0.035	0.005	0.010	0.05	6.28	2	1	5	10.8	9.4	11.1	35.9	15.6	12.9
4		3615.2	0.00	0.00	132.50	20.6	10.1	0.033	0.003	0.010	0.05	5.78	6	2	3	39.0	16.6	6.8	64.1	22.7	8.6
8		3590.2	0.92	0.00	124.18	23.9	10.2	0.025	0.003	0.010	0.05	8.32	6	2	3	39.0	16.6	6.8	64.1	22.7	8.6
24		3565.2	0.00	0.00	118.49	25.1	10.7	0.035	0.003	0.010	0.05	5.69	9	2	3	56.1	16.6	6.8	81.2	22.7	8.6
40		3515.2	0.00	0.00	113.83	30.1	10.8	0.020	0.003	0.010	0.05		9	2	3	54.2	16.1	6.7	79.3	22.2	8.5
TOTAL			2.75	0.54																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2998.8	0.15	450	20.7	0.50	1499	77.8	3	7497	91.5
Solution (mL)	3515.2	0.003	9	0.4	0.010	35	1.8	0.050	176	2.1
Subsamples (mL)	150.0	0.003	0.4	0.02	0.010	2	0.1	0.050	8	0.1
Intermed. Carbon (g)	26.1	6	145	6.7	46	46	2.4	81	81	1.0
Final Carbon (g)	113.8	9	1024	47.1	2	228	11.8	3	285	3.5
Gravity Gold*		0.18	546	25.1	0.04	119	6.2		148	1.8
Total Extraction			**1725**	**79.3**		**429**	**22.2**		**697**	**8.5**
Total			2175	100.0		1928	100.0		8194	100.0
Calculated Head		0.73			0.6			3		
Assayed Leach Feed Grade		1.02			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

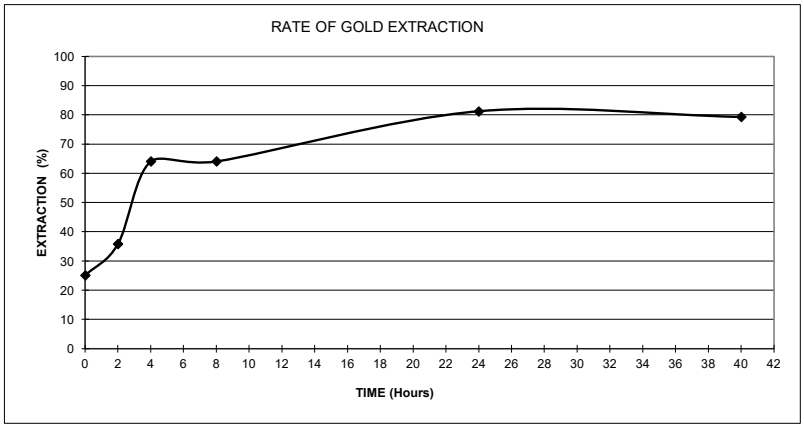
TEST NO:	**PW6348**
SOLIDS (g):	74.19
WATER (g):	296.76
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	1.8
Ag (mg/L):	0.4
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.15		0.5	2.5	22	0.40

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3665.2	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.92	(kg/t)
12. NaCN consum'n (kg/t) :	0.67	(kg/t)
13. Lime consum'n (kg/t) :	0.18	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6**
SAMPLE ID	**CHEGUE SOUTH TRANSITION** MOISTURE CONTENT **1.20 %** **Gravity Tail**
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jun-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS				Activated	SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore	Water	NaCN	Lime	Carbin in Slurry (g)	Oxygen	pH	NaCN	Au	Ag	As	Mass	Au	Ag	As	CIL			TOTAL		
	(g)	(mL)	(g)	(g)		(ppm)		(%)	(ppm)	(ppm)	(ppm)	(g)	(g/t)	(g/t)	(g/t)	Au	Ag	As	Au	Ag	As
	2964.0	3622.7					8.0														
0	2964.0	3622.7	1.81	0.67	142.88	7.8	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	54.2	8.4	1.7
2		3597.7	0.00	0.00	136.77	19.8	9.9	0.035	0.050	0.010	0.05	6.11	33	6	3	36.4	34.8	6.7	90.6	43.2	8.3
4		3572.7	0.00	0.00	131.28	18.4	9.9	0.030	0.005	0.010	0.05	5.49	36	6	3	38.2	34.8	6.7	92.5	43.2	8.3
8		3547.7	0.98	0.00	124.07	25.2	10.0	0.023	0.003	0.010	0.05	7.21	36	6	3	38.2	34.8	6.7	92.4	43.2	8.3
24		3522.7	0.91	0.00	117.63	25.7	10.4	0.025	0.003	0.010	0.05	6.44	36	6	3	38.2	34.8	6.7	92.4	43.2	8.3
40		3472.7	0.00	0.00	113.88	29.8	10.4	0.030	0.003	0.010	0.05		39	6	3	39.7	33.9	6.6	93.9	42.3	8.2
TOTAL			3.70	0.67																	

<LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay	Total	Distrib'n	Assay	Total	Distrib'n	Assay	Total	Distrib'n
		(ppm)	(µg)	(%)	(ppm)	(µg)	(%)	(ppm)	(µg)	(%)
Solids (g)	2964.0	0.28	815	6.1	0.50	1482	57.7	3	7410	91.8
Solution (mL)	3472.7	0.003	9	0.1	0.010	35	1.4	0.050	174	2.2
Subsamples (mL)	150.0	0.011	1.6	0.01	0.010	2	0.1	0.050	8	0.1
Intermed. Carbon (g)	25.3	35	891	6.6	152	152	5.9	63	63	0.8
Final Carbon (g)	113.9	39	4441	33.0	6	683	26.6	3	285	3.5
Gravity Gold*		2.46	7301	54.2	0.07	216	8.4		135	1.7
Total Extraction			**12643**	**93.9**		**1087**	**42.3**		**664**	**8.2**
Total			13458	100.0		2569	100.0		8074	100.0
Calculated Head		4.54			0.9			3		
Assayed Leach Feed Grade		3.01			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

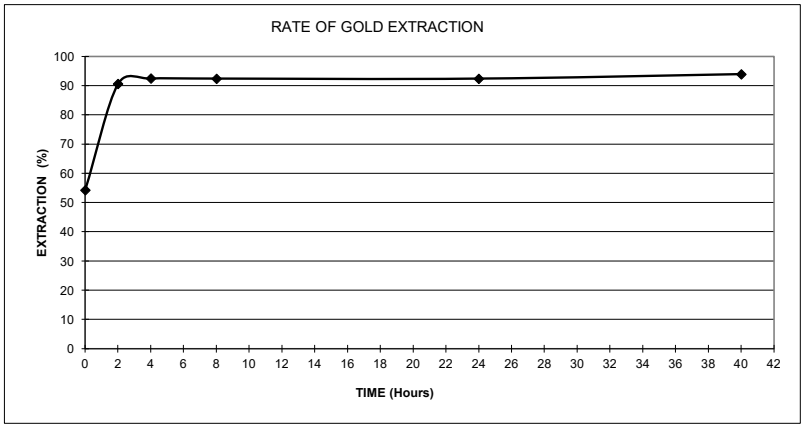
TEST NO:	**PW6349**
SOLIDS (g):	67.35
WATER (g):	269.4
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	27.1
Ag (mg/L):	0.8
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.28	0.27	0.5	2.5	17	<0.02

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3622.7	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.25	(kg/t)
12. NaCN consum'n (kg/t) :	0.88	(kg/t)
13. Lime consum'n (kg/t) :	0.23	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6388**
SAMPLE ID	**KEKEDA TRANSITION #1** MOISTURE CONTENT **0.58** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jun-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2982.6	3645.4					8.1														
0	2982.6	3645.4	1.82	0.88	143.78	8.3	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	19.6	9.1	0.4
2		3620.4	0.00	0.00	137.46	7.2	9.9	0.035	0.015	0.010	0.05	6.32	3	4	3	30.3	26.6	1.8	50.0	35.7	2.2
4		3595.4	0.00	0.00	131.02	19.2	9.9	0.030	0.003	0.010	0.05	6.44	6	4	3	53.3	26.6	1.8	72.9	35.7	2.2
8		3570.4	0.98	0.00	123.22	24.8	10.0	0.023	0.003	0.010	0.05	7.80	9	4	3	77.8	26.6	1.8	97.4	35.7	2.2
24		3545.4	0.91	0.00	116.26	19.2	10.4	0.025	0.003	0.010	0.05	6.96	6	4	3	54.7	26.6	1.8	74.4	35.7	2.2
40		3520.4	0.00	0.00	113.20	34.7	10.4	0.025	0.003	0.010	0.05		9	4	3	74.8	26.1	1.8	94.4	35.2	2.2
TOTAL			3.71	0.88																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2982.6	0.03	89	5.6	0.50	1491	64.8	10	29826	97.8
Solution (mL)	3520.4	0.003	9	0.5	0.010	35	1.5	0.050	176	0.6
Subsamples (mL)	125.0	0.005	0.6	0.04	0.010	1	0.1	0.050	6	0.0
Intermed. Carbon (g)	27.5	6	170	10.6	110	110	4.8	69	69	0.2
Final Carbon (g)	113.2	9	1019	63.6	4	453	19.7	3	283	0.9
Gravity Gold*		0.11	314	19.6	0.07	209	9.1		131	0.4
Total Extraction			**1512**	**94.4**		**809**	**35.2**		**665**	**2.2**
Total			1601	100.0		2300	100.0		30491	100.0
Calculated Head		0.54			0.8			10		
Assayed Leach Feed Grade		0.52			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

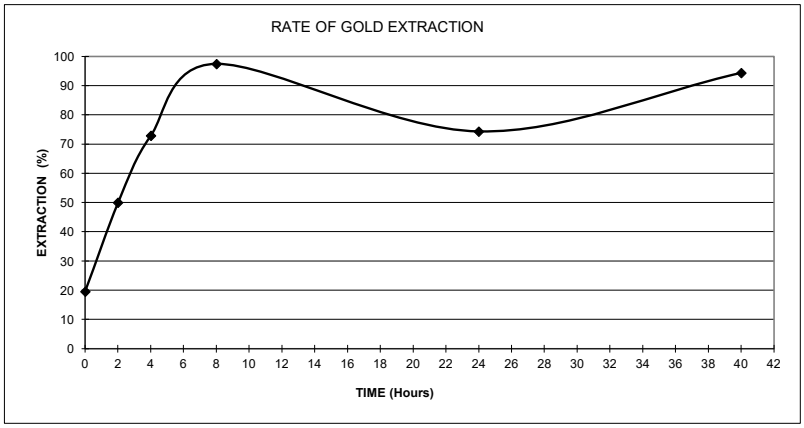
TEST NO:	**PW6350**
SOLIDS (g):	65.45
WATER (g):	261.8
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	1.2
Ag (mg/L):	0.8
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.03		0.5	10	32	<0.02

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3645.4	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.24	(kg/t)
12. NaCN consum'n (kg/t) :	0.94	(kg/t)
13. Lime consum'n (kg/t) :	0.30	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6389**
SAMPLE ID	**KEKEDA TRANSITION #2** MOISTURE CONTENT **0.14** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jun-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2995.8	3661.5					8.0														
0	2995.8	3661.5	1.83	0.52	144.41	7.6	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	24.1	12.9	1.8
2		3636.5	0.00	0.00	138.34	17.7	10.1	0.038	0.010	0.010	0.05	6.07	6	6	3	46.8	32.6	6.7	70.9	45.5	8.5
4		3611.5	0.00	0.00	132.12	20.1	10.1	0.030	0.003	0.010	0.05	6.22	6	6	3	45.4	32.6	6.7	69.5	45.5	8.5
8		3586.5	0.99	0.00	124.36	24.9	10.2	0.023	0.003	0.010	0.05	7.76	6	8	3	45.4	42.1	6.7	69.5	55.0	8.5
24		3561.5	0.00	0.00	117.46	22.6	10.5	0.028	0.003	0.010	0.05	6.90	9	8	3	64.8	42.1	6.7	88.9	55.0	8.5
40		3536.5	0.00	0.00	114.72	30.9	10.6	0.020	0.003	0.010	0.05		9	6	3	63.5	33.1	6.6	87.6	45.9	8.4
TOTAL			2.82	0.52																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2995.8	0.08	240	12.4	0.50	1498	54.1	3	7490	91.6
Solution (mL)	3536.5	0.003	9	0.5	0.010	35	1.3	0.050	177	2.2
Subsamples (mL)	125.0	0.004	0.5	0.03	0.010	1	0.0	0.050	6	0.1
Intermed. Carbon (g)	27.0	7	182	9.5	191	191	6.9	67	67	0.8
Final Carbon (g)	114.7	9	1032	53.5	6	688	24.8	3	287	3.5
Gravity Gold*		0.16	465	24.1	0.12	357	12.9		149	1.8
Total Extraction			**1689**	**87.6**		**1273**	**45.9**		**686**	**8.4**
Total			1929	100.0		2771	100.0		8176	100.0
Calculated Head		0.64			0.9			3		
Assayed Leach Feed Grade		0.68			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

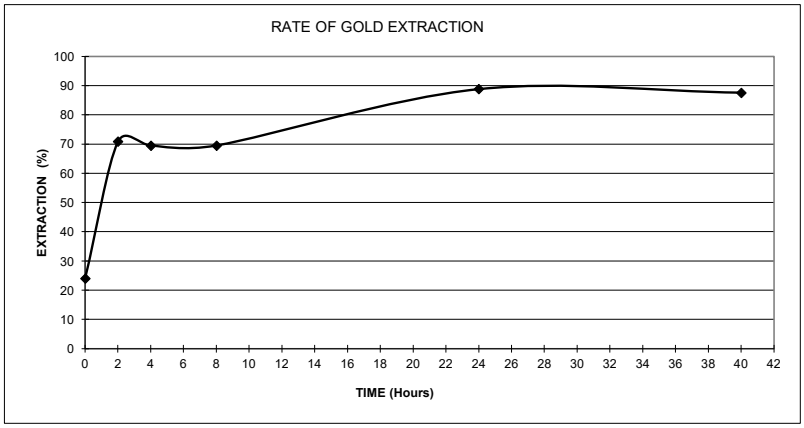
TEST NO:	**PW6351**
SOLIDS (g):	74.46
WATER (g):	297.84
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	1.6
Ag (mg/L):	1.2
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.08		0.5	2.5	31	0.62

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3661.5	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.94	(kg/t)
12. NaCN consum'n (kg/t) :	0.69	(kg/t)
13. Lime consum'n (kg/t) :	0.17	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6390**
SAMPLE ID	**KEKEDA FRESH #1** MOISTURE CONTENT **0.00** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jun-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	3000.0	3666.7					8.0														
0	3000.0	3666.7	1.83	0.53	144.62	7.4	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	24.1	9.5	1.9
2		3641.7	0.00	0.00	138.77	20.9	10.1	0.035	0.003	0.010	0.05	5.85	1.5	4	3	17.8	23.6	6.7	41.9	33.1	8.5
4		3616.7	0.00	0.00	133.50	25.1	10.2	0.033	0.003	0.010	0.05	5.27	1.5	6	3	17.8	34.3	6.7	41.9	43.8	8.5
8		3591.7	0.92	0.00	125.61	29.9	10.4	0.025	0.003	0.010	0.05	7.89	6	6	3	64.9	34.3	6.7	89.1	43.8	8.5
24		3566.7	0.00	0.00	119.55	20.8	10.8	0.033	0.003	0.010	0.05	6.06	3	4	3	35.3	24.6	6.7	59.5	34.1	8.5
40		3541.7	0.00	0.00	115.80	27.2	10.9	0.015	0.003	0.010	0.05		6	6	3	61.7	32.9	6.5	85.9	42.4	8.4
TOTAL			2.75	0.53																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	3000.0	0.06	180	14.1	0.50	1500	57.6	3	7500	91.6
Solution (mL)	3541.7	0.003	9	0.7	0.010	35	1.4	0.050	177	2.2
Subsamples (mL)	125.0	0.003	0.3	0.02	0.010	1	0.0	0.050	6	0.1
Intermed. Carbon (g)	25.1	3	82	6.5	127	127	4.9	63	63	0.8
Final Carbon (g)	115.8	6	695	54.6	6	695	26.7	3	290	3.5
Gravity Gold*		0.10	307	24.1	0.08	247	9.5		154	1.9
Total Extraction			**1094**	**85.9**		**1105**	**42.4**		**690**	**8.4**
Total			1274	100.0		2605	100.0		8190	100.0
Calculated Head		0.42			0.9			3		
Assayed Leach Feed Grade		0.36			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

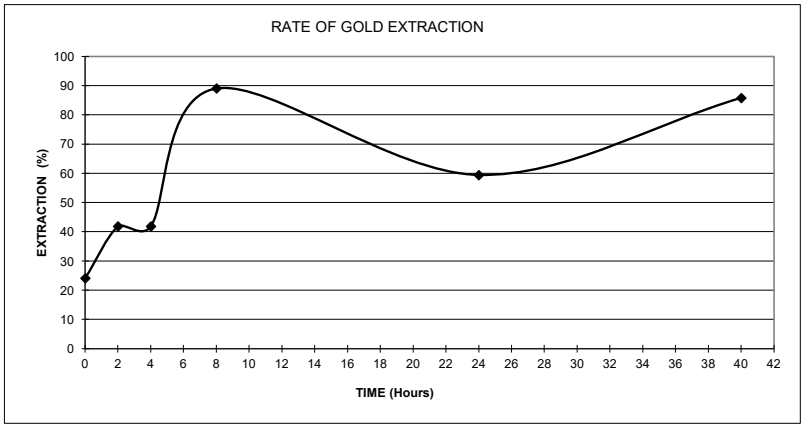
TEST NO:	**PW6352**
SOLIDS (g):	77.23
WATER (g):	308.92
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	1.0
Ag (mg/L):	0.8
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.06	0.06	0.5	2.5	25	0.60

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3666.7	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.92	(kg/t)
12. NaCN consum'n (kg/t) :	0.73	(kg/t)
13. Lime consum'n (kg/t) :	0.18	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6391**
SAMPLE ID	**KEKEDA FRESH #2** MOISTURE CONTENT **0.04** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2998.8	3665.2					8.5														
0	2998.8	3665.2	1.83	0.99	144.56	7.8	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	39.7	21.2	1.0
2		3640.2	0.00	0.00	134.28	23.0	10.4	0.040	0.003	0.010	0.05	10.28	2	6	3	22.0	26.4	3.5	61.7	47.5	4.4
4		3615.2	0.00	0.00	124.90	19.0	10.4	0.033	0.003	0.010	0.05	9.38	3	8	3	41.6	34.2	3.5	81.3	55.3	4.4
8		3590.2	0.00	0.00	115.98	24.5	10.5	0.028	0.003	0.010	0.05	8.92	3	8	3	41.6	34.2	3.5	81.3	55.3	4.4
24		3565.2	1.10	0.00	108.77	25.9	10.5	0.020	0.003	0.010	0.05	7.21	3	8	3	41.6	34.2	3.5	81.3	55.3	4.4
40		3540.2	0.00	0.00	112.76	16.3	10.9	0.035	0.003	0.010	0.05		3	8	3	42.8	35.1	3.5	82.5	56.3	4.5
TOTAL			2.93	0.99																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2998.8	0.06	180	17.5	0.50	1499	43.7	5	14994	95.5
Solution (mL)	3540.2	0.003	9	0.9	0.010	35	1.0	0.050	177	1.1
Subsamples (mL)	125.0	0.003	0.3	0.03	0.010	1	0.0	0.050	6	0.0
Intermed. Carbon (g)	35.8	3	92	9.0	266	266	7.7	89	89	0.6
Final Carbon (g)	112.8	3	338	32.9	8	902	26.3	3	282	1.8
Gravity Gold*		0.14	408	39.7	0.24	725	21.2		151	1.0
Total Extraction			**847**	**82.5**		**1930**	**56.3**		**706**	**4.5**
Total			1027	100.0		3429	100.0		15700	100.0
Calculated Head		0.34			1.1			5		
Assayed Leach Feed Grade		0.44			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

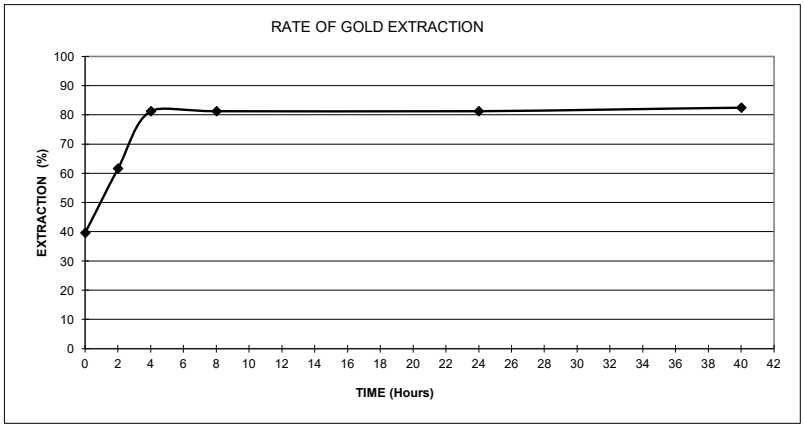
TEST NO:	**PW6353**
SOLIDS (g):	75.55
WATER (g):	302.2
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	1.4
Ag (mg/L):	2.4
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.06		0.5	5	24	0.66

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3665.2	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.98	(kg/t)
12. NaCN consum'n (kg/t) :	0.55	(kg/t)
13. Lime consum'n (kg/t) :	0.33	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6392**
SAMPLE ID	**KEKEDA FRESH #3** MOISTURE CONTENT **0.02** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2999.4	3665.9					8.4														
0	2999.4	3665.9	1.83	0.50	144.59	7.6	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	26.8	7.4	1.8
2		3640.9	0.00	0.00	135.88	21.0	10.3	0.038	0.003	0.010	0.05	8.71	2	4	3	42.2	26.5	6.6	69.0	33.9	8.4
4		3615.9	0.00	0.00	128.66	23.4	10.4	0.033	0.003	0.010	0.05	7.22	2	6	3	42.2	38.2	6.6	69.0	45.6	8.4
8		3590.9	0.00	0.00	120.21	24.1	10.5	0.028	0.003	0.010	0.05	8.45	3	4	3	78.2	27.1	6.6	105.1	34.5	8.4
24		3565.9	1.28	0.00	113.63	26.7	10.5	0.015	0.003	0.010	0.05	6.58	2	6	3	44.6	37.4	6.6	71.4	44.9	8.4
40		3540.9	0.00	0.00	115.74	22.2	10.8	0.030	0.003	0.010	0.05		2	4	3	45.2	28.0	6.7	72.0	35.4	8.5
TOTAL			3.11	0.5																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2999.4	0.05	150	28.0	0.50	1500	64.6	3	7499	91.5
Solution (mL)	3540.9	0.003	9	1.7	0.010	35	1.5	0.050	177	2.2
Subsamples (mL)	125.0	0.003	0.3	0.06	0.010	1	0.1	0.050	6	0.1
Intermed. Carbon (g)	31.0	2	59	11.0	151	151	6.5	77	77	0.9
Final Carbon (g)	115.7	2	174	32.4	4	463	19.9	3	289	3.5
Gravity Gold*		0.05	144	26.8	0.06	172	7.4		144	1.8
Total Extraction			**386**	**72.0**		**823**	**35.4**		**694**	**8.5**
Total			536	100.0		2323	100.0		8192	100.0
Calculated Head		0.18			0.8			3		
Assayed Leach Feed Grade		0.26			<1			10		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

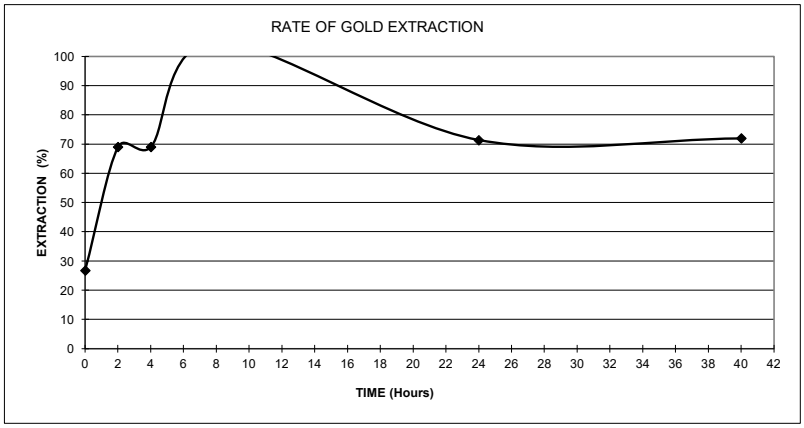
TEST NO:	**PW6354**
SOLIDS (g):	71.85
WATER (g):	287.4
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	0.5
Ag (mg/L):	0.6
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.05		0.5	2.5	20	0.30

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3665.9	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.04	(kg/t)
12. NaCN consum'n (kg/t) :	0.67	(kg/t)
13. Lime consum'n (kg/t) :	0.17	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6393**
SAMPLE ID	**HAN FRESH #1** MOISTURE CONTENT **0.02** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2999.4	3665.9					8.5														
0	2999.4	3665.9	1.83	0.38	144.59	7.8	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	18.6	1.5	1.6
2		3640.9	0.00	0.00	135.69	28.9	10.4	0.035	0.003	0.010	0.05	8.90	2	2	3	63.5	18.9	6.7	82.1	20.4	8.3
4		3615.9	0.00	0.00	128.03	27.6	10.4	0.033	0.003	0.010	0.05	7.66	2	2	3	63.5	18.9	6.7	82.1	20.4	8.3
8		3590.9	0.00	0.00	119.86	33.2	10.5	0.028	0.003	0.010	0.05	8.17	2	1	3	63.5	11.5	6.7	82.1	13.0	8.3
24		3565.9	1.28	0.00	112.77	23.2	10.5	0.015	0.003	0.010	0.05	7.09	2	1	3	63.5	11.5	6.7	82.1	13.0	8.3
40		3540.9	0.00	0.00	115.29	22.3	10.8	0.038	0.003	0.010	0.05		2	1	3	64.6	11.6	6.7	83.1	13.1	8.3
TOTAL			3.11	0.38																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2999.4	0.02	60	16.9	0.50	1500	86.9	3	7499	91.7
Solution (mL)	3540.9	0.003	9	2.5	0.010	35	2.1	0.050	177	2.2
Subsamples (mL)	125.0	0.003	0.3	0.09	0.010	1	0.1	0.050	6	0.1
Intermed. Carbon (g)	31.8	2	48	13.4	48	48	2.8	80	80	1.0
Final Carbon (g)	115.3	2	173	48.6	1	115	6.7	3	288	3.5
Gravity Gold*		0.02	66	18.6	0.01	26	1.5		132	1.6
Total Extraction			**296**	**83.1**		**227**	**13.1**		**683**	**8.3**
Total			356	100.0		1726	100.0		8182	100.0
Calculated Head		0.12			0.6			3		
Assayed Leach Feed Grade		0.08			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

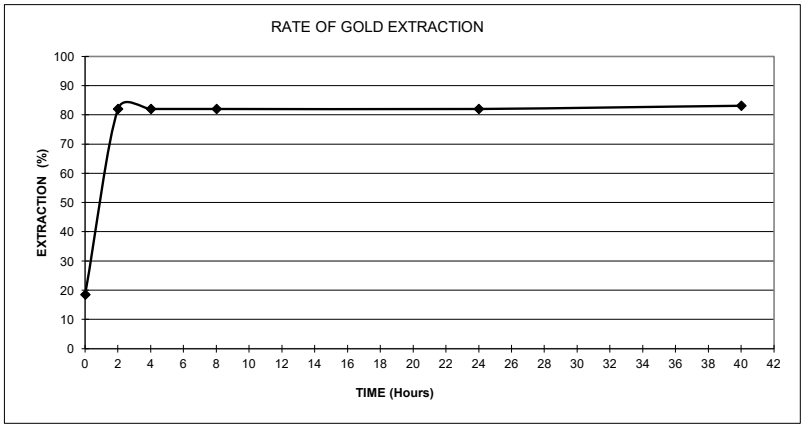
TEST NO:	**PW6355**
SOLIDS (g):	66.04
WATER (g):	264.16
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	0.3
Ag (mg/L):	0.1
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.02		0.5	2.5	17	0.06

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3665.9	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.04	(kg/t)
12. NaCN consum'n (kg/t) :	0.58	(kg/t)
13. Lime consum'n (kg/t) :	0.13	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6394**
SAMPLE ID	**HAN FRESH TRANSITION/FRESH** MOISTURE CONTENT **0.14** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2995.8	3661.5					8.3														
0	2995.8	3661.5	1.83	0.50	144.41	8.3	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	41.5	5.7	1.7
2		3636.5	0.00	0.00	134.98	21.5	10.3	0.035	0.003	0.010	0.05	9.43	2	2	3	45.3	16.8	6.7	86.8	22.4	8.3
4		3611.5	0.00	0.00	127.63	21.7	10.2	0.028	0.003	0.010	0.05	7.35	2	2	3	45.3	16.8	6.7	86.8	22.4	8.3
8		3586.5	0.92	0.00	121.14	22.8	10.4	0.025	0.003	0.010	0.05	6.49	2	2	3	45.3	16.8	6.7	86.8	22.4	8.3
24		3561.5	0.92	0.00	112.97	24.7	10.5	0.025	0.003	0.010	0.05	8.17	2	2	3	45.3	16.8	6.7	86.8	22.4	8.3
40		3536.5	0.00	0.00	116.87	29.4	10.7	0.023	0.003	0.010	0.05		2	2	3	46.5	17.2	6.8	88.0	22.8	8.5
TOTAL			3.67	0.5																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2995.8	0.02	60	12.0	0.50	1498	77.2	3	7490	91.5
Solution (mL)	3536.5	0.003	9	1.8	0.010	35	1.8	0.050	177	2.2
Subsamples (mL)	125.0	0.003	0.3	0.06	0.010	1	0.1	0.050	6	0.1
Intermed. Carbon (g)	31.4	2	47	9.5	63	63	3.2	79	79	1.0
Final Carbon (g)	116.9	2	175	35.2	2	234	12.0	3	292	3.6
Gravity Gold*		0.07	206	41.5	0.04	110	5.7		138	1.7
Total Extraction			**438**	**88.0**		**443**	**22.8**		**691**	**8.5**
Total			498	100.0		1941	100.0		8181	100.0
Calculated Head		0.17			0.6			3		
Assayed Leach Feed Grade		0.24			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

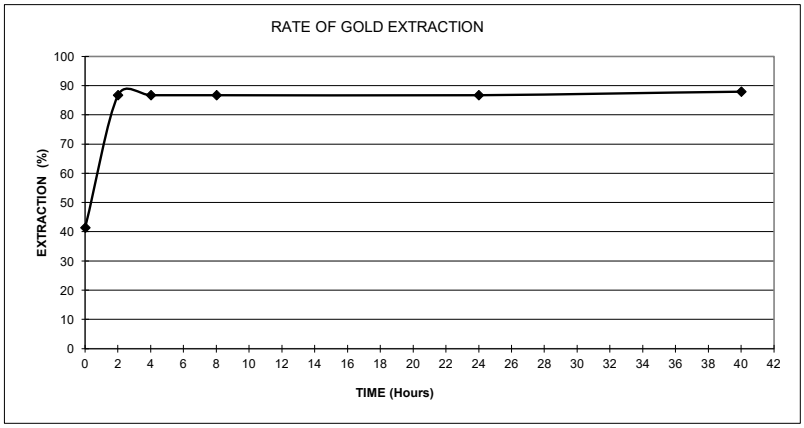
TEST NO:	**PW6356**
SOLIDS (g):	68.81
WATER (g):	275.24
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	0.8
Ag (mg/L):	0.4
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.02		0.5	2.5	30	0.18

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3661.5	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.23	(kg/t)
12. NaCN consum'n (kg/t) :	0.94	(kg/t)
13. Lime consum'n (kg/t) :	0.17	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6395**
SAMPLE ID	**HAN FRESH #2** MOISTURE CONTENT **0.14** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2995.8	3661.5					8.5														
0	2995.8	3661.5	1.83	0.44	144.41	1.4	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	25.7	1.7	1.7
2		3636.5	0.00	0.00	135.45	20.7	10.2	0.030	0.003	0.010	0.05	8.96	2	1	3	58.6	10.6	6.6	84.3	12.3	8.3
4		3611.5	0.92	0.00	128.58	20.5	10.2	0.025	0.003	0.010	0.05	6.87	2	1	3	58.6	10.6	6.6	84.3	12.3	8.3
8		3586.5	0.00	0.00	122.20	23.1	10.5	0.040	0.003	0.010	0.05	6.38	2	1	3	58.6	10.6	6.6	84.3	12.3	8.3
24		3561.5	0.00	0.00	114.87	23.3	10.6	0.028	0.003	0.010	0.05	7.33	2	1	10	58.6	10.6	17.7	84.3	12.3	19.5
40		3536.5	0.00	0.00	115.18	20.8	10.6	0.015	0.003	0.010	0.05		2	1	3	58.8	10.6	7.3	84.4	12.3	9.0
TOTAL			2.75	0.44																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2995.8	0.02	60	15.6	0.50	1498	87.7	3	7490	91.0
Solution (mL)	3536.5	0.003	9	2.3	0.010	35	2.1	0.050	177	2.1
Subsamples (mL)	125.0	0.003	0.3	0.08	0.010	1	0.1	0.050	6	0.1
Intermed. Carbon (g)	29.5	2	44	11.5	30	30	1.7	129	129	1.6
Final Carbon (g)	115.2	2	173	44.9	1	115	6.7	3	288	3.5
Gravity Gold*		0.03	99	25.7	0.01	28	1.7		141	1.7
Total Extraction			**325**	**84.4**		**210**	**12.3**		**741**	**9.0**
Total			385	100.0		1707	100.0		8231	100.0
Calculated Head		0.13			0.6			3		
Assayed Leach Feed Grade		0.13			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

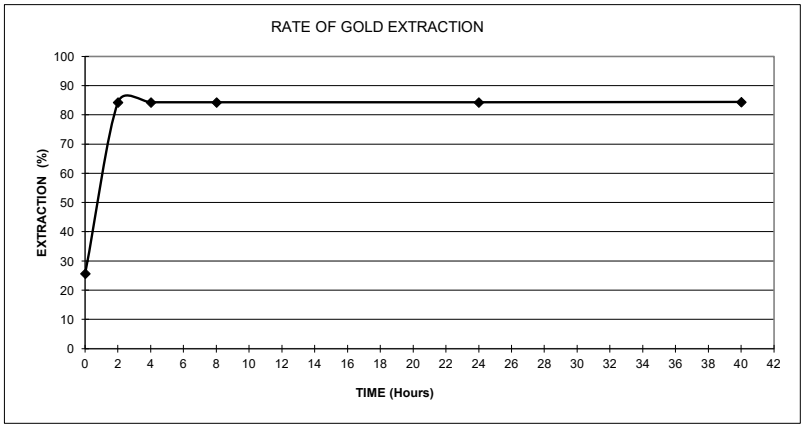
TEST NO:	**PW6357**
SOLIDS (g):	70.61
WATER (g):	282.44
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	0.4
Ag (mg/L):	0.1
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.02	0.02	0.5	2.5	27	0.08

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3661.5	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.92	(kg/t)
12. NaCN consum'n (kg/t) :	0.73	(kg/t)
13. Lime consum'n (kg/t) :	0.15	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6396**
SAMPLE ID	**HAN FRESH #3** MOISTURE CONTENT **0.08** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2997.6	3663.7					8.3														
0	2997.6	3663.7	1.83	0.40	144.50	8.6	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	23.1	4.9	1.7
2		3638.7	0.00	0.00	137.59	23.6	10.3	0.035	0.003	0.010	0.05	6.91	5	4	3	70.0	27.6	6.7	93.1	32.5	8.3
4		3613.7	0.00	0.00	130.81	12.8	10.3	0.035	0.003	0.010	0.05	6.78	3	4	3	48.1	27.6	6.7	71.2	32.5	8.3
8		3588.7	0.00	0.00	123.54	32.2	10.4	0.028	0.003	0.010	0.05	7.27	3	4	3	48.1	27.6	6.7	71.2	32.5	8.3
24		3563.7	1.17	0.00	117.28	21.4	10.5	0.018	0.003	0.010	0.05	6.26	3	4	3	48.1	27.6	6.7	71.2	32.5	8.3
40		3538.7	0.00	0.00	118.58	12.0	10.4	0.033	0.003	0.010	0.05		5	4	3	67.4	27.8	6.7	90.5	32.7	8.4
TOTAL			3.00	0.4																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2997.6	0.03	90	9.5	0.50	1499	67.3	3	7494	91.6
Solution (mL)	3538.7	0.003	9	0.9	0.010	35	1.6	0.050	177	2.2
Subsamples (mL)	125.0	0.003	0.3	0.03	0.010	1	0.1	0.050	6	0.1
Intermed. Carbon (g)	27.2	3	92	9.8	109	109	4.9	68	68	0.8
Final Carbon (g)	118.6	5	534	56.6	4	474	21.3	3	296	3.6
Gravity Gold*		0.07	218	23.1	0.04	109	4.9		136	1.7
Total Extraction			**852**	**90.5**		**729**	**32.7**		**684**	**8.4**
Total			942	100.0		2227	100.0		8178	100.0
Calculated Head		0.31			0.7			3		
Assayed Leach Feed Grade		0.22			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

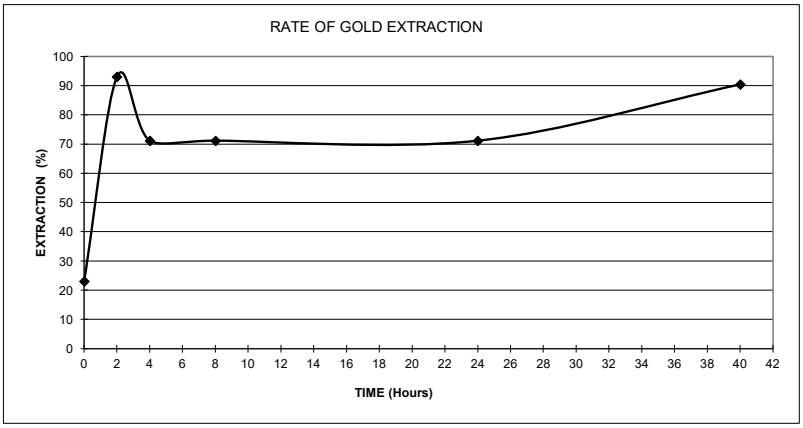
TEST NO:	**PW6358**
SOLIDS (g):	67.98
WATER (g):	271.92
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	0.8
Ag (mg/L):	0.4
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.03		0.5	2.5	14	0.06

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3663.7	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.00	(kg/t)
12. NaCN consum'n (kg/t) :	0.60	(kg/t)
13. Lime consum'n (kg/t) :	0.13	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6397**
SAMPLE ID	**ENIODA OXIDE #1** MOISTURE CONTENT **0.42** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2987.4	3651.3					8.1														
0	2987.4	3651.3	1.83	0.65	144.01	8.8	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	56.2	14.1	1.5
2		3626.3	0.00	0.00	137.43	20.9	10.1	0.035	0.015	0.010	0.05	6.58	9	12	3	35.3	50.2	6.7	91.5	64.2	8.2
4		3601.3	0.00	0.00	130.88	22.5	10.1	0.030	0.005	0.010	0.05	6.55	9	12	3	34.3	50.2	6.7	90.6	64.2	8.2
8		3576.3	0.99	0.00	123.56	28.1	10.2	0.023	0.003	0.010	0.05	7.32	11	10	3	39.2	42.7	6.7	95.5	56.8	8.2
24		3551.3	0.00	0.00	117.31	30.0	10.4	0.028	0.003	0.010	0.05	6.25	12	12	3	44.1	49.7	6.7	100.3	63.8	8.2
40		3526.3	0.00	0.00	118.74	24.0	10.0	0.015	0.003	0.010	0.05		11	10	3	39.9	43.5	6.7	96.1	57.5	8.2
TOTAL			2.82	0.65																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2987.4	0.05	149	3.9	0.50	1494	42.5	3	7469	91.8
Solution (mL)	3526.3	0.003	9	0.2	0.010	35	1.0	0.050	176	2.2
Subsamples (mL)	125.0	0.006	0.7	0.02	0.010	1	0.0	0.050	6	0.1
Intermed. Carbon (g)	26.7	10	270	7.1	306	306	8.7	67	67	0.8
Final Carbon (g)	118.7	11	1247	32.6	10	1187	33.8	3	297	3.6
Gravity Gold*		0.72	2152	56.2	0.17	495	14.1		124	1.5
Total Extraction			**3679**	**96.1**		**2024**	**57.5**		**670**	**8.2**
Total			3828	100.0		3518	100.0		8138	100.0
Calculated Head		1.28			1.2			3		
Assayed Leach Feed Grade		1.10			<1			<5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

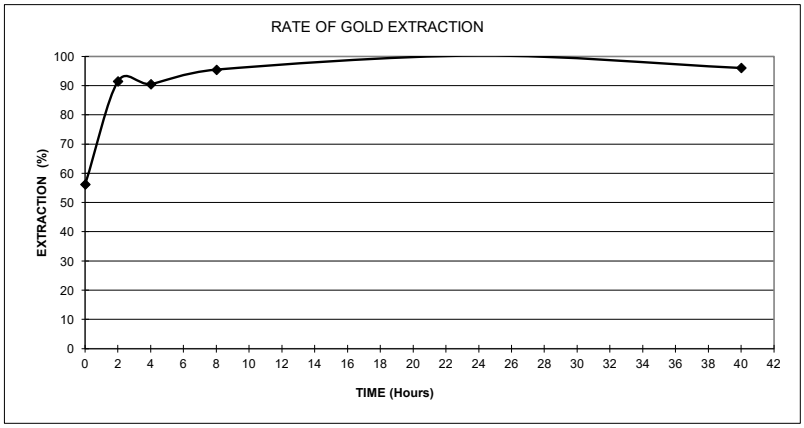
TEST NO:	**PW6359**
SOLIDS (g):	61.85
WATER (g):	247.4
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	8.7
Ag (mg/L):	2.0
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.05		0.5	2.5	27	<0.02

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3651.3	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.94	(kg/t)
12. NaCN consum'n (kg/t) :	0.76	(kg/t)
13. Lime consum'n (kg/t) :	0.22	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6398**
SAMPLE ID	**ENIODA FRESH #1** MOISTURE CONTENT **0.02** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2999.4	3665.9					8.4														
0	2999.4	3665.9	1.83	0.45	144.59	8.8	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	61.8	5.9	1.6
2		3640.9	0.00	0.00	137.38	24.1	10.3	0.035	0.003	0.010	0.05	7.21	2	1	3	14.0	10.1	6.7	75.8	16.1	8.3
4		3615.9	0.00	0.00	130.78	15.4	10.3	0.033	0.003	0.010	0.05	6.60	2	1	3	14.0	10.1	6.7	75.8	16.1	8.3
8		3590.9	0.00	0.00	123.61	28.8	10.4	0.028	0.003	0.010	0.05	7.17	2	1	3	14.0	10.1	6.7	75.8	16.1	8.3
24		3565.9	1.28	0.00	116.55	35.4	10.5	0.015	0.003	0.010	0.05	7.06	2	1	3	14.0	10.1	6.7	75.8	16.1	8.3
40		3540.9	0.00	0.00	117.42	15.6	10.3	0.030	0.003	0.010	0.05		2	1	3	14.1	10.2	6.7	75.8	16.1	8.3
TOTAL			3.11	0.45																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2999.4	0.13	390	24.2	0.50	1500	83.9	3	7499	91.7
Solution (mL)	3540.9	0.003	9	0.5	0.010	35	2.0	0.050	177	2.2
Subsamples (mL)	125.0	0.003	0.3	0.02	0.010	1	0.1	0.050	6	0.1
Intermed. Carbon (g)	28.0	2	42	2.6	28	28	1.6	70	70	0.9
Final Carbon (g)	117.4	2	176	10.9	1	117	6.6	3	294	3.6
Gravity Gold*		0.33	997	61.8	0.04	106	5.9		133	1.6
Total Extraction			**1224**	**75.8**		**288**	**16.1**		**680**	**8.3**
Total			1614	100.0		1788	100.0		8178	100.0
Calculated Head		0.54			0.6			3		
Assayed Leach Feed Grade		0.49			<1			25		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

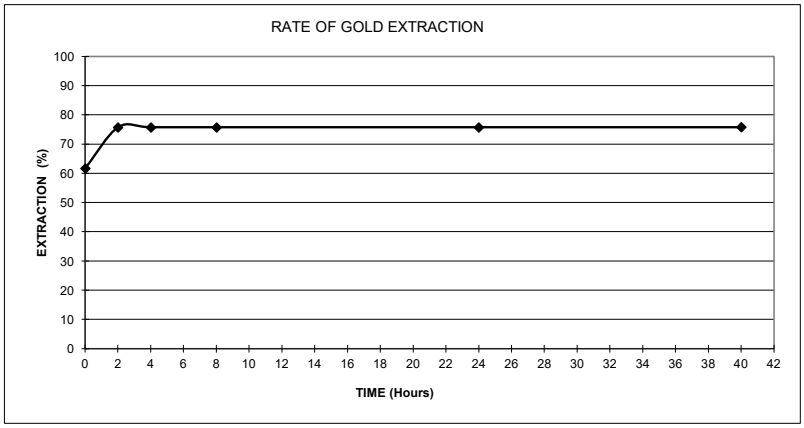
TEST NO:	**PW6360**
SOLIDS (g):	66.45
WATER (g):	265.8
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	3.8
Ag (mg/L):	0.4
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.13		0.5	2.5	24	0.12

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3665.9	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.04	(kg/t)
12. NaCN consum'n (kg/t) :	0.67	(kg/t)
13. Lime consum'n (kg/t) :	0.15	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6399**
SAMPLE ID	**ENIODA FRESH #2** MOISTURE CONTENT **0.08** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2997.6	3663.7					8.3														
0	2997.6	3663.7	1.83	0.53	144.50	8.8	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	33.4	1.6	1.6
2		3638.7	0.00	0.00	137.02	29.0	10.2	0.033	0.003	0.010	0.05	7.48	3	1	3	85.3	10.6	6.7	118.7	12.1	8.3
4		3613.7	0.00	0.00	130.35	21.5	10.1	0.028	0.003	0.010	0.05	6.67	3	1	3	85.3	10.6	6.7	118.7	12.1	8.3
8		3588.7	0.92	0.00	122.74	28.6	10.2	0.025	0.003	0.010	0.05	7.61	2	1	3	47.6	10.6	6.7	81.0	12.1	8.3
24		3563.7	0.92	0.00	115.68	35.1	10.5	0.025	0.003	0.010	0.05	7.06	2	1	3	47.6	10.6	6.7	81.0	12.1	8.3
40		3538.7	0.00	0.00	121.35	15.4	10.2	0.033	0.003	0.010	0.05		2	1	3	49.3	10.9	6.8	82.7	12.5	8.5
TOTAL			3.67	0.53																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2997.6	0.03	90	17.3	0.50	1499	87.5	3	7494	91.5
Solution (mL)	3538.7	0.003	9	1.7	0.010	35	2.1	0.050	177	2.2
Subsamples (mL)	125.0	0.003	0.3	0.06	0.010	1	0.1	0.050	6	0.1
Intermed. Carbon (g)	28.8	2	64	12.4	29	29	1.7	72	72	0.9
Final Carbon (g)	121.4	2	182	35.1	1	121	7.1	3	303	3.7
Gravity Gold*		0.06	173	33.4	0.01	27	1.6		133	1.6
Total Extraction			**429**	**82.7**		**213**	**12.5**		**692**	**8.5**
Total			519	100.0		1712	100.0		8186	100.0
Calculated Head		0.17			0.6			3		
Assayed Leach Feed Grade		0.17			<1			15		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

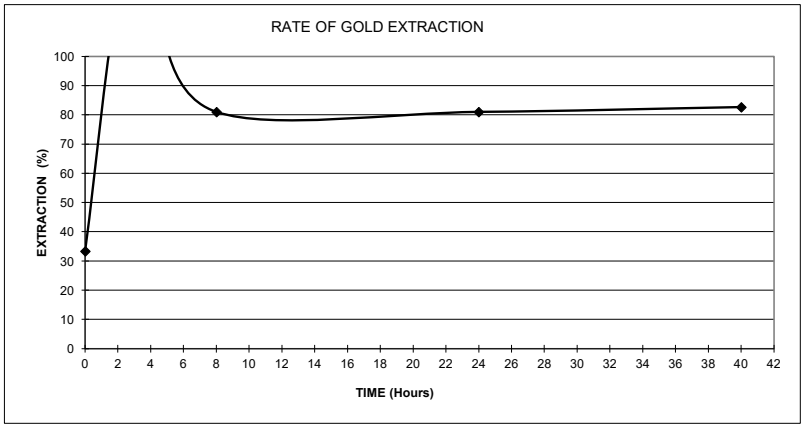
TEST NO:	**PW6361**
SOLIDS (g):	66.6
WATER (g):	266.4
NaCN (%):	3.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	0.7
Ag (mg/L):	0.1
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.03		0.5	2.5	54	0.16

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3663.7	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.82	(kg/t)
13. Lime consum'n (kg/t) :	0.18	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6400**
SAMPLE ID	**ENIODA OXIDE #2** MOISTURE CONTENT **0.42** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2987.4	3651.3					7.8														
0	2987.4	3651.3	1.83	1.05	144.01	9.8	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	10.0	1.6	1.6
2		3626.3	0.00	0.00	136.86	20.2	9.9	0.028	0.003	0.010	0.05	7.15	2	1	3	83.9	10.6	6.7	93.9	12.2	8.3
4		3601.3	0.91	0.00	130.10	21.9	9.9	0.025	0.003	0.010	0.05	6.76	2	1	3	83.9	10.6	6.7	93.9	12.2	8.3
8		3576.3	0.00	0.00	121.89	36.3	10.1	0.035	0.003	0.010	0.05	8.21	2	1	3	83.9	10.6	6.7	93.9	12.2	8.3
24		3551.3	0.99	0.00	114.82	10.7	10.2	0.023	0.003	0.010	0.05	7.07	2	1	3	83.9	10.6	6.7	93.9	12.2	8.3
40		3526.3	0.00	0.00	115.75	22.4	10.0	0.033	0.003	0.010	0.05		2	1	3	84.4	10.7	6.7	94.4	12.2	8.3
TOTAL			3.73	1.05																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2987.4	0.01	15	5.6	0.50	1494	87.8	3	7469	91.7
Solution (mL)	3526.3	0.003	9	3.3	0.010	35	2.1	0.050	176	2.2
Subsamples (mL)	125.0	0.003	0.3	0.12	0.010	1	0.1	0.050	6	0.1
Intermed. Carbon (g)	29.2	2	44	16.3	29	29	1.7	73	73	0.9
Final Carbon (g)	115.8	2	174	64.7	1	116	6.8	3	289	3.6
Gravity Gold*		0.01	27	10.0	0.01	27	1.6		134	1.6
Total Extraction			**253**	**94.4**		**208**	**12.2**		**679**	**8.3**
Total			268	100.0		1702	100.0		8148	100.0
Calculated Head		0.09			0.6			3		
Assayed Leach Feed Grade		0.04			<1			15		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

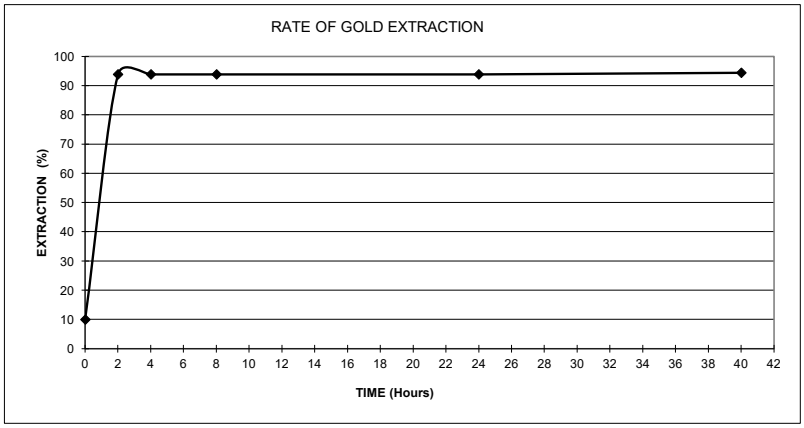
TEST NO:	**PW6362**
SOLIDS (g):	67.2
WATER (g):	268.8
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	0.1
Ag (mg/L):	0.1
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.01	0.01	0.5	2.5	33	<0.02

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3651.3	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.25	(kg/t)
12. NaCN consum'n (kg/t) :	0.85	(kg/t)
13. Lime consum'n (kg/t) :	0.35	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6401**
SAMPLE ID	**ATIRRE TRANSITION** MOISTURE CONTENT **0.06** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2998.2	3645.4					7.8														
0	2998.2	3645.4	1.82	0.81	143.78	9.4	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	19.8	2.6	0.8
2		3620.4	0.00	0.00	136.08	24.8	9.9	0.033	0.003	0.100	0.05	7.70	2	4	3	70.7	49.3	3.5	90.5	51.9	4.3
4		3595.4	0.98	0.00	128.71	24.3	9.8	0.023	0.003	0.010	0.05	7.37	2	4	3	70.7	32.2	3.5	90.5	34.8	4.3
8		3570.4	0.00	0.00	119.26	24.8	10.1	0.040	0.003	0.010	0.05	9.45	3	2	3	131.5	18.7	3.5	151.2	21.3	4.3
24		3545.4	0.98	0.00	110.87	24.8	10.1	0.023	0.003	0.010	0.05	8.39	2	2	3	75.2	18.7	3.5	95.0	21.3	4.3
40		3520.4	0.00	0.00	111.56	25.4	10.1	0.025	0.003	0.010	0.05		2	2	3	75.5	18.8	3.5	95.3	21.4	4.3
TOTAL			3.78	0.81																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2998.2	0.01	15	4.7	0.50	1499	78.6	5	14991	95.7
Solution (mL)	3520.4	0.003	9	2.8	0.010	35	1.8	0.050	176	1.1
Subsamples (mL)	125.0	0.003	0.3	0.10	0.028	4	0.2	0.050	6	0.0
Intermed. Carbon (g)	32.9	2	64	20.0	96	96	5.0	82	82	0.5
Final Carbon (g)	111.6	2	167	52.7	2	223	11.7	3	279	1.8
Gravity Gold*		0.02	63	19.8	0.02	50	2.6		126	0.8
Total Extraction			**303**	**95.3**		**408**	**21.4**		**669**	**4.3**
Total			318	100.0		1907	100.0		15660	100.0
Calculated Head		0.11			0.6			5		
Assayed Leach Feed Grade		0.08			<1			65		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

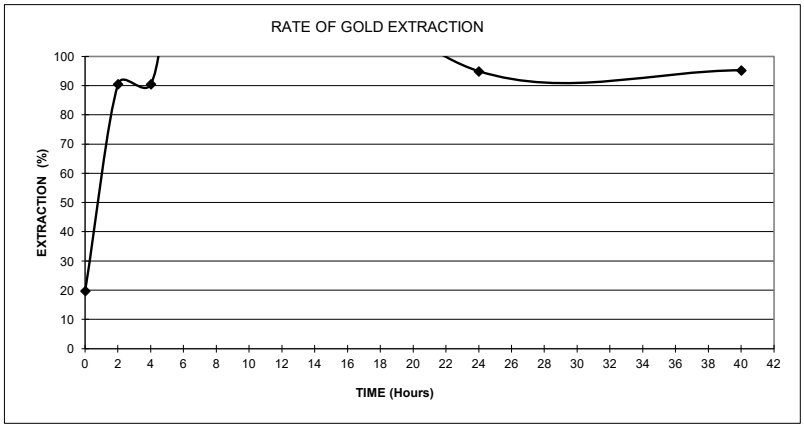
TEST NO:	**PW6363**
SOLIDS (g):	62.83
WATER (g):	251.32
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	0.3
Ag (mg/L):	0.2
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.005	0.005	0.5	5	21	<0.02

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.025 (%)
3. Maintain pH (lime) : >9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3645.4 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.26 (kg/t)
12. NaCN consum'n (kg/t) : 0.96 (kg/t)
13. Lime consum'n (kg/t) : 0.27 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6402**
SAMPLE ID	**ATIRRE FRESH #1** MOISTURE CONTENT **0.06** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2998.2	3664.5					8.2														
0	2998.2	3664.5	1.83	0.56	144.53	8.5	10.1	0.050				0.00	0	0	0	0.0	0.0	0.0	18.2	6.4	1.4
2		3639.5	0.00	0.00	135.91	24.0	10.2	0.038	0.003	0.010	0.50	8.62	2	2	3	38.6	13.1	22.3	56.9	19.6	23.7
4		3614.5	0.00	0.00	128.40	25.3	10.2	0.035	0.003	0.010	0.50	7.51	2	4	3	38.6	24.1	22.3	56.9	30.5	23.7
8		3589.5	0.00	0.00	119.39	26.4	10.1	0.028	0.003	0.010	0.50	9.01	3	4	3	71.6	24.1	22.3	89.8	30.5	23.7
24		3564.5	1.36	0.00	111.40	25.7	10.4	0.013	0.003	0.010	0.50	7.99	3	4	3	71.6	24.1	22.3	89.8	30.5	23.7
40		3539.5	0.00	0.00	111.30	26.4	10.6	0.030	0.003	0.010	0.50		3	6	3	71.5	33.1	22.3	89.7	39.5	23.7
TOTAL			3.19	0.56																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2998.2	0.02	60	10.3	0.50	1499	60.5	3	7496	76.3
Solution (mL)	3539.5	0.003	9	1.5	0.010	35	1.4	0.500	1770	18.0
Subsamples (mL)	125.0	0.003	0.3	0.05	0.010	1	0.1	0.500	63	0.6
Intermed. Carbon (g)	33.1	2	75	12.9	115	115	4.7	83	83	0.8
Final Carbon (g)	111.3	3	334	57.1	6	668	26.9	3	278	2.8
Gravity Gold*		0.04	106	18.2	0.05	160	6.4		133	1.4
Total Extraction			**525**	**89.7**		**979**	**39.5**		**2326**	**23.7**
Total			585	100.0		2478	100.0		9822	100.0
Calculated Head		0.20			0.8			3		
Assayed Leach Feed Grade		0.13			<1			35		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

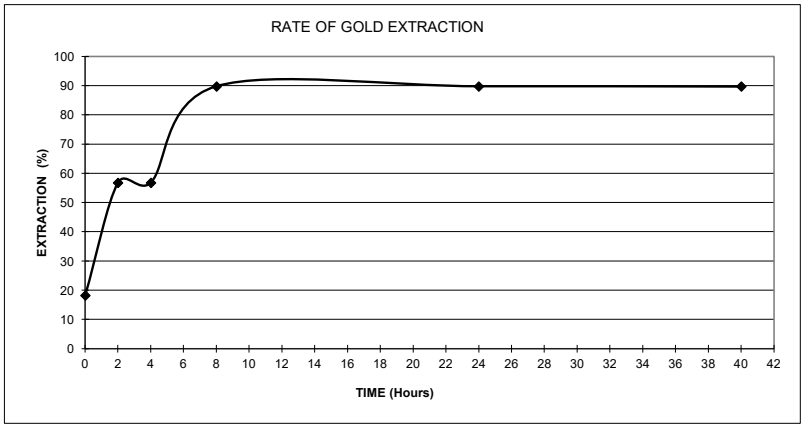
TEST NO:	**PW6364**
SOLIDS (g):	66.52
WATER (g):	266.08
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	0.4
Ag (mg/L):	0.6
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.02		0.5	2.5	24	0.06

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3664.5	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.06	(kg/t)
12. NaCN consum'n (kg/t) :	0.70	(kg/t)
13. Lime consum'n (kg/t) :	0.19	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6403**
SAMPLE ID	**ATIRRE FRESH #2** MOISTURE CONTENT **0.08** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2997.6	3663.7					8.2														
0	2997.6	3663.7	1.83	0.67	144.50	8.8	10.1	0.050				0.00	0	0	0	0.0	0.0	0.0	43.6	6.2	1.5
2		3638.7	0.00	0.00	135.90	21.7	10.3	0.040	0.015	0.010	0.50	8.60	3	2	3	14.4	13.6	22.3	58.0	19.8	23.8
4		3613.7	0.00	0.00	128.42	18.0	10.2	0.033	0.003	0.010	0.50	7.48	6	2	3	25.1	13.6	22.3	68.7	19.8	23.8
8		3588.7	0.00	0.00	121.13	28.1	10.2	0.030	0.003	0.010	0.50	7.29	6	2	3	25.1	13.6	22.3	68.7	19.8	23.8
24		3563.7	1.36	0.00	112.51	23.2	10.3	0.013	0.003	0.010	0.50	8.62	9	2	3	35.8	13.6	22.3	79.4	19.8	23.8
40		3538.7	0.00	0.00	110.23	24.4	10.5	0.028	0.003	0.010	0.50		9	2	3	35.2	13.4	22.3	78.8	19.6	23.7
TOTAL			3.19	0.67																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2997.6	0.24	719	21.2	0.50	1499	80.4	3	7494	76.3
Solution (mL)	3538.7	0.003	9	0.3	0.010	35	1.9	0.500	1769	18.0
Subsamples (mL)	125.0	0.005	0.6	0.02	0.010	1	0.1	0.500	63	0.6
Intermed. Carbon (g)	32.0	6	192	5.7	48	48	2.6	80	80	0.8
Final Carbon (g)	110.2	9	992	29.2	2	165	8.9	3	276	2.8
Gravity Gold*		0.49	1482	43.6	0.04	115	6.2		144	1.5
Total Extraction			**2675**	**78.8**		**365**	**19.6**		**2331**	**23.7**
Total			3395	100.0		1864	100.0		9825	100.0
Calculated Head		1.13			0.6			3		
Assayed Leach Feed Grade		1.25			<1			55		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

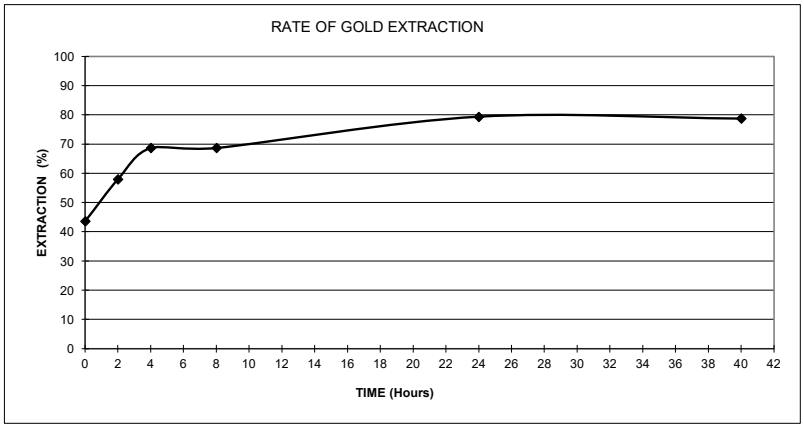
TEST NO:	**PW6365**
SOLIDS (g):	71.92
WATER (g):	287.68
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	5.2
Ag (mg/L):	0.4
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.24		0.5	2.5	28	0.62

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.025 (%)
3. Maintain pH (lime) : >9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3663.7 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.06 (kg/t)
12. NaCN consum'n (kg/t) : 0.72 (kg/t)
13. Lime consum'n (kg/t) : 0.22 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6404**
SAMPLE ID	**KILOSEGUI FRESH #1** MOISTURE CONTENT **0.02** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2999.4	3665.9					8.2														
0	2999.4	3665.9	1.83	0.50	144.59	9.3	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	43.7	5.8	0.3
2		3640.9	0.00	0.00	135.60	23.7	10.3	0.040	0.010	0.010	0.50	8.99	2	1	3	25.0	10.2	4.6	68.7	16.0	4.9
4		3615.9	0.00	0.00	128.79	22.5	10.2	0.030	0.003	0.010	0.50	6.81	2	1	3	22.3	10.2	4.6	66.0	16.0	4.9
8		3590.9	0.00	0.00	120.74	28.2	10.3	0.030	0.003	0.010	0.50	8.05	3	1	3	41.4	10.2	4.6	85.1	16.0	4.9
24		3565.9	1.28	0.00	112.81	26.1	10.4	0.015	0.003	0.010	0.50	7.93	3	1	3	41.4	10.2	4.6	85.1	16.0	4.9
40		3540.9	0.00	0.00	113.01	25.5	10.5	0.030	0.003	0.010	0.50		3	1	3	41.5	10.2	4.6	85.2	16.0	4.9
TOTAL			3.11	0.5																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2999.4	0.05	150	14.8	0.50	1500	84.0	15	44991	95.1
Solution (mL)	3540.9	0.003	9	0.9	0.010	35	2.0	0.500	1770	3.7
Subsamples (mL)	125.0	0.004	0.5	0.05	0.010	1	0.1	0.500	63	0.1
Intermed. Carbon (g)	31.8	2	72	7.1	32	32	1.8	79	79	0.2
Final Carbon (g)	113.0	3	339	33.5	1	113	6.3	3	283	0.6
Gravity Gold*		0.15	442	43.7	0.03	104	5.8		130	0.3
Total Extraction			**862**	**85.2**		**286**	**16.0**		**2325**	**4.9**
Total			1012	100.0		1785	100.0		47316	100.0
Calculated Head		0.34			0.6			16		
Assayed Leach Feed Grade		0.46			<1			10		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

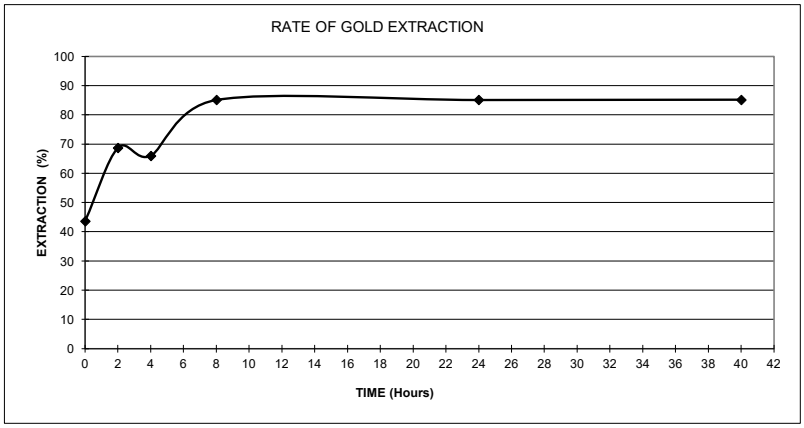
TEST NO:	**PW6366**
SOLIDS (g):	65.06
WATER (g):	260.24
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	1.7
Ag (mg/L):	0.4
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.05		0.5	15	18	0.54

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.025 (%)
3. Maintain pH (lime) : >9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3665.9 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.04 (kg/t)
12. NaCN consum'n (kg/t) : 0.67 (kg/t)
13. Lime consum'n (kg/t) : 0.17 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6405**
SAMPLE ID	**KILOSEGUI FRESH #2** MOISTURE CONTENT **0.06** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS				Activated	SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2998.2	3664.5					8.3														
0	2998.2	3664.5	1.83	0.45	144.53	8.1	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	34.8	1.6	0.3
2		3639.5	0.00	0.00	137.72	20.8	10.4	0.040	0.003	0.010	0.50	6.81	2	1	3	38.9	10.6	2.8	73.7	12.2	3.2
4		3614.5	0.00	0.00	129.87	25.2	10.3	0.033	0.003	0.010	0.50	7.85	2	1	3	38.9	10.6	2.8	73.7	12.2	3.2
8		3589.5	0.00	0.00	121.99	10.5	10.4	0.030	0.003	0.010	0.50	7.88	2	1	3	38.9	10.6	2.8	73.7	12.2	3.2
24		3564.5	0.00	0.00	113.10	26.9	10.4	0.013	0.003	0.010	0.50	8.89	2	1	3	38.9	10.6	2.8	73.7	12.2	3.2
40		3539.5	0.00	0.00	115.04	24.1	10.6	0.030	0.003	0.010	0.50		2	1	3	39.4	10.7	2.8	74.2	12.3	3.2
TOTAL			1.83	0.45																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2998.2	0.05	150	25.8	0.50	1499	87.7	25	74955	96.8
Solution (mL)	3539.5	0.003	9	1.5	0.010	35	2.1	0.500	1770	2.3
Subsamples (mL)	125.0	0.003	0.3	0.05	0.010	1	0.1	0.500	63	0.1
Intermed. Carbon (g)	31.4	2	47	8.1	31	31	1.8	79	79	0.1
Final Carbon (g)	115.0	2	173	29.7	1	115	6.7	3	288	0.4
Gravity Gold*		0.07	202	34.8	0.01	27	1.6		269	0.3
Total Extraction			**431**	**74.2**		**210**	**12.3**		**2468**	**3.2**
Total			581	100.0		1709	100.0		77423	100.0
Calculated Head		0.19			0.6			26		
Assayed Leach Feed Grade		0.17			<1			10		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

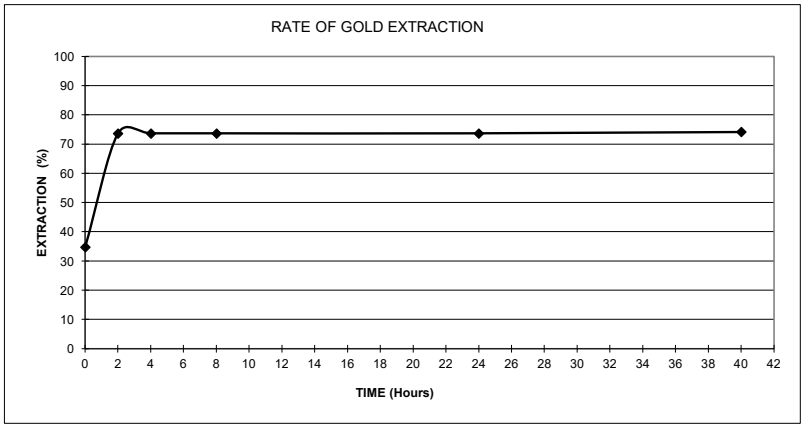
TEST NO:	**PW6367**
SOLIDS (g):	67.33
WATER (g):	269.32
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	0.8
Ag (mg/L):	0.1
As (mg/L):	1.0

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.05		0.5	25	19	0.04

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3664.5	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.61	(kg/t)
12. NaCN consum'n (kg/t) :	0.24	(kg/t)
13. Lime consum'n (kg/t) :	0.15	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6406**
SAMPLE ID	**KILOSEGUI FRESH #3** MOISTURE CONTENT **0.04** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2998.8	3665.2					8.2														
0	2998.8	3665.2	1.83	0.59	144.56	8.8	10.1	0.050				0.00	0	0	0	0.0	0.0	0.0	39.5	10.6	0.3
2		3640.2	0.00	0.00	135.87	26.9	10.3	0.040	0.010	0.010	0.05	8.69	3	2	3	26.0	15.9	0.6	65.5	26.5	0.9
4		3615.2	0.00	0.00	127.57	25.5	10.4	0.035	0.003	0.010	0.05	8.30	6	2	3	47.0	15.9	0.6	86.5	26.5	0.9
8		3590.2	0.00	0.00	119.44	25.3	10.4	0.033	0.003	0.010	0.05	8.13	6	2	3	47.0	15.9	0.6	86.5	26.5	0.9
24		3565.2	1.17	0.00	110.61	27.8	10.5	0.018	0.003	0.010	0.05	8.83	6	2	3	47.0	15.9	0.6	86.5	26.5	0.9
40		3540.2	0.00	0.00	112.65	26.1	10.8	0.033	0.003	0.010	0.05		3	2	3	29.0	16.1	0.6	68.5	26.7	0.9
TOTAL			3.00	0.59																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2998.8	0.19	570	31.5	0.50	1499	73.3	30	89964	99.1
Solution (mL)	3540.2	0.003	9	0.5	0.010	35	1.7	0.050	177	0.2
Subsamples (mL)	125.0	0.004	0.5	0.03	0.010	1	0.1	0.050	6	0.0
Intermed. Carbon (g)	34.0	5	178	9.8	68	68	3.3	85	85	0.1
Final Carbon (g)	112.7	3	338	18.7	2	225	11.0	3	282	0.3
Gravity Gold*		0.24	715	39.5	0.07	216	10.6		270	0.3
Total Extraction			**1240**	**68.5**		**546**	**26.7**		**820**	**0.9**
Total			1810	100.0		2045	100.0		90784	100.0
Calculated Head		0.60			0.7			30		
Assayed Leach Feed Grade		0.66			<1			20		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

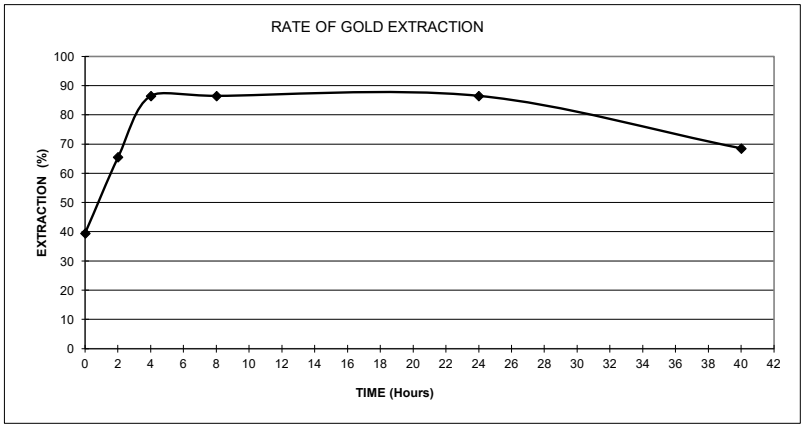
TEST NO:	**PW6368**
SOLIDS (g):	67.49
WATER (g):	269.96
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	2.7
Ag (mg/L):	0.8
As (mg/L):	1.0

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.19		0.5	30	15	0.34

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3665.2	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.00	(kg/t)
12. NaCN consum'n (kg/t) :	0.60	(kg/t)
13. Lime consum'n (kg/t) :	0.20	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6407**
SAMPLE ID	**KILOSEGUI TRANSITION #1** MOISTURE CONTENT **0.16** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2995.2	3660.8					8.4														
0	2995.2	3660.8	1.83	0.57	144.38	6.5	10.0	0.050				0.00	0	0	0	0.0	0.0	0.0	37.0	7.1	0.8
2		3635.8	0.00	0.00	136.95	19.6	10.1	0.038	0.035	0.010	0.05	7.43	6	1	3	32.3	8.1	3.1	69.3	15.2	3.8
4		3610.8	0.00	0.00	127.59	25.1	10.2	0.030	0.005	0.010	0.05	9.36	9	2	3	42.1	14.2	3.1	79.2	21.3	3.8
8		3585.8	0.00	0.00	120.05	29.3	10.2	0.028	0.003	0.010	0.05	7.54	12	4	3	54.3	25.6	3.1	91.3	32.7	3.8
24		3560.8	1.35	0.00	111.10	22.8	10.2	0.013	0.003	0.010	0.05	8.95	9	4	3	42.6	25.6	3.1	79.6	32.7	3.8
40		3535.8	0.00	0.00	113.18	23.2	10.4	0.023	0.003	0.010	0.05		12	4	20	54.2	26.0	14.3	91.2	33.1	15.1
TOTAL			3.18	0.57																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2995.2	0.09	270	8.8	0.50	1498	66.9	5	14976	84.9
Solution (mL)	3535.8	0.003	9	0.3	0.010	35	1.6	0.050	177	1.0
Subsamples (mL)	125.0	0.010	1.2	0.04	0.010	1	0.1	0.050	6	0.0
Intermed. Carbon (g)	33.3	9	300	9.7	92	92	4.1	83	83	0.5
Final Carbon (g)	113.2	12	1358	44.1	4	453	20.2	20	2264	12.8
Gravity Gold*		0.38	1139	37.0	0.05	159	7.1		132	0.8
Total Extraction			**2807**	**91.2**		**740**	**33.1**		**2662**	**15.1**
Total			3077	100.0		2238	100.0		17638	100.0
Calculated Head		1.03			0.7			6		
Assayed Leach Feed Grade		1.82			<1			5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

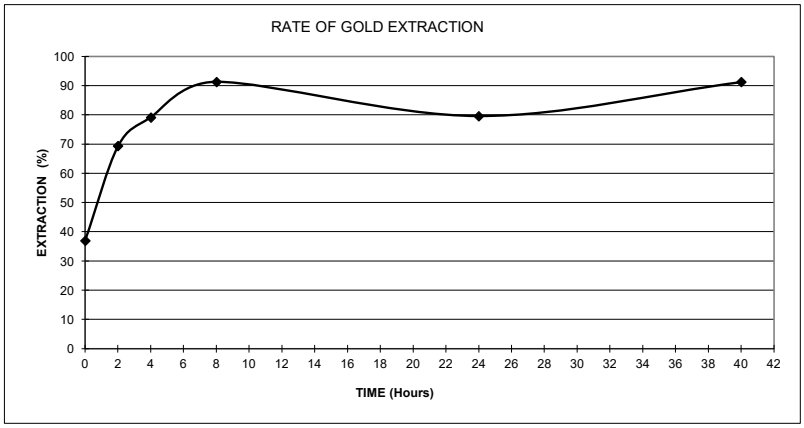
TEST NO:	**PW6369**
SOLIDS (g):	66.24
WATER (g):	264.96
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	4.3
Ag (mg/L):	0.6
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.09		0.5	5	16	0.22

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.025 (%)
3. Maintain pH (lime) : >9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3660.8 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.06 (kg/t)
12. NaCN consum'n (kg/t) : 0.78 (kg/t)
13. Lime consum'n (kg/t) : 0.19 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6408**
SAMPLE ID	**KILOSEGUI FRESH #4** MOISTURE CONTENT **0.16** %
	Gravity Tail
GRIND SIZE P_{80}:	**106 MICRON**
WATER TYPE:	Perth Tap Water
DATE:	Jul-22

CARBON-IN-LEACH TESTWORK - OXYGEN SPARGED

TIME	ADDITIONS					SOLUTION DATA						CARBON DATA				EXTRACTION (%)					
(Hours)	Ore (g)	Water (mL)	NaCN (g)	Lime (g)	Activated Carbin in Slurry (g)	Oxygen (ppm)	pH	NaCN (%)	Au (ppm)	Ag (ppm)	As (ppm)	Mass (g)	Au (g/t)	Ag (g/t)	As (g/t)	Liquor Au	Liquor Ag	Liquor As	Total Au	Total Ag	Total As
	2995.2	3664.5					8.1														
0	2995.2	3664.5	1.83	0.55	144.53	9.5	10.1	0.050				0.00	0	0	0	0.0	0.0	0.0	37.5	6.2	1.7
2		3639.5	0.00	0.00	137.43	18.5	10..27	0.043	0.003	0.010	0.05	7.10	2	1	10	26.6	10.1	19.7	64.1	16.3	21.3
4		3614.5	0.00	0.00	127.60	24.0	10.3	0.035	0.003	0.010	0.05	9.83	2	1	3	26.6	10.1	7.2	64.1	16.3	8.9
8		3589.5	0.00	0.00	119.94	28.7	10.4	0.030	0.003	0.010	0.05	7.66	2	1	10	26.6	10.1	18.8	64.1	16.3	20.4
24		3564.5	1.17	0.00	111.31	22.5	10.4	0.018	0.003	0.010	0.05	8.63	3	1	3	47.8	10.1	7.9	85.3	16.3	9.6
40		3539.5	0.00	0.00	113.08	24.1	10.7	0.035	0.003	0.010	0.05		3	1	3	48.4	10.2	8.0	85.9	16.4	9.6
TOTAL			3.00	0.55																	

Assay <LDL; 50% LDL applied

EXTRACTION CALCULATIONS

Product	Quantity	GOLD			SILVER			ARSENIC		
		Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)	Assay (ppm)	Total (µg)	Distrib'n (%)
Solids (g)	2995.2	0.04	120	14.1	0.50	1498	83.6	3	7488	90.4
Solution (mL)	3539.5	0.003	9	1.0	0.010	35	2.0	0.050	177	2.1
Subsamples (mL)	125.0	0.003	0.3	0.04	0.010	1	0.1	0.050	6	0.1
Intermed. Carbon (g)	33.2	2	63	7.4	33	33	1.9	194	194	2.3
Final Carbon (g)	113.1	3	339	40.0	1	113	6.3	3	283	3.4
Gravity Gold*		0.11	318	37.5	0.04	111	6.2		138	1.7
Total Extraction			**729**	**85.9**		**294**	**16.4**		**798**	**9.6**
Total			849	100.0		1791	100.0		8286	100.0
Calculated Head		0.28			0.6			3		
Assayed Leach Feed Grade		0.24			<1			5		

* : Gravity gold from Intensive Leach.

INTENSIVE CN ON GRAVITY CONC

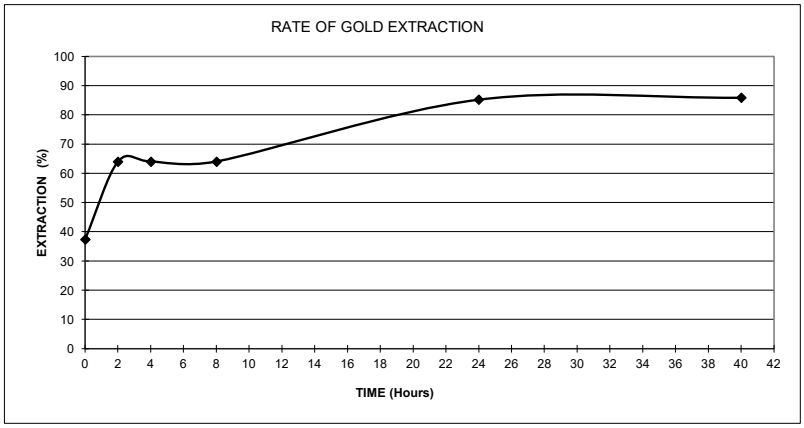
TEST NO:	**PW6370**
SOLIDS (g):	69.16
WATER (g):	276.64
NaCN (%):	5.0
NaOH (%)	0.7
LEACHWELL (%):	2.0
OXYGEN SPARGE:	<20
DURATION (hr):	24.0
Au (mg/L):	1.2
Ag (mg/L):	0.4
As (mg/L):	0.5

CIL RESIDUE ASSAYS (ppm)

Au_1	Au_2	Ag	As	Cu	S (%)
0.04		0.5	2.5	18	0.26

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.025	(%)
3. Maintain pH (lime) :	>9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3664.5	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.00	(kg/t)
12. NaCN consum'n (kg/t) :	0.57	(kg/t)
13. Lime consum'n (kg/t) :	0.18	(kg/t)



APPENDIX X

Gravity/Direct Leach Testwork

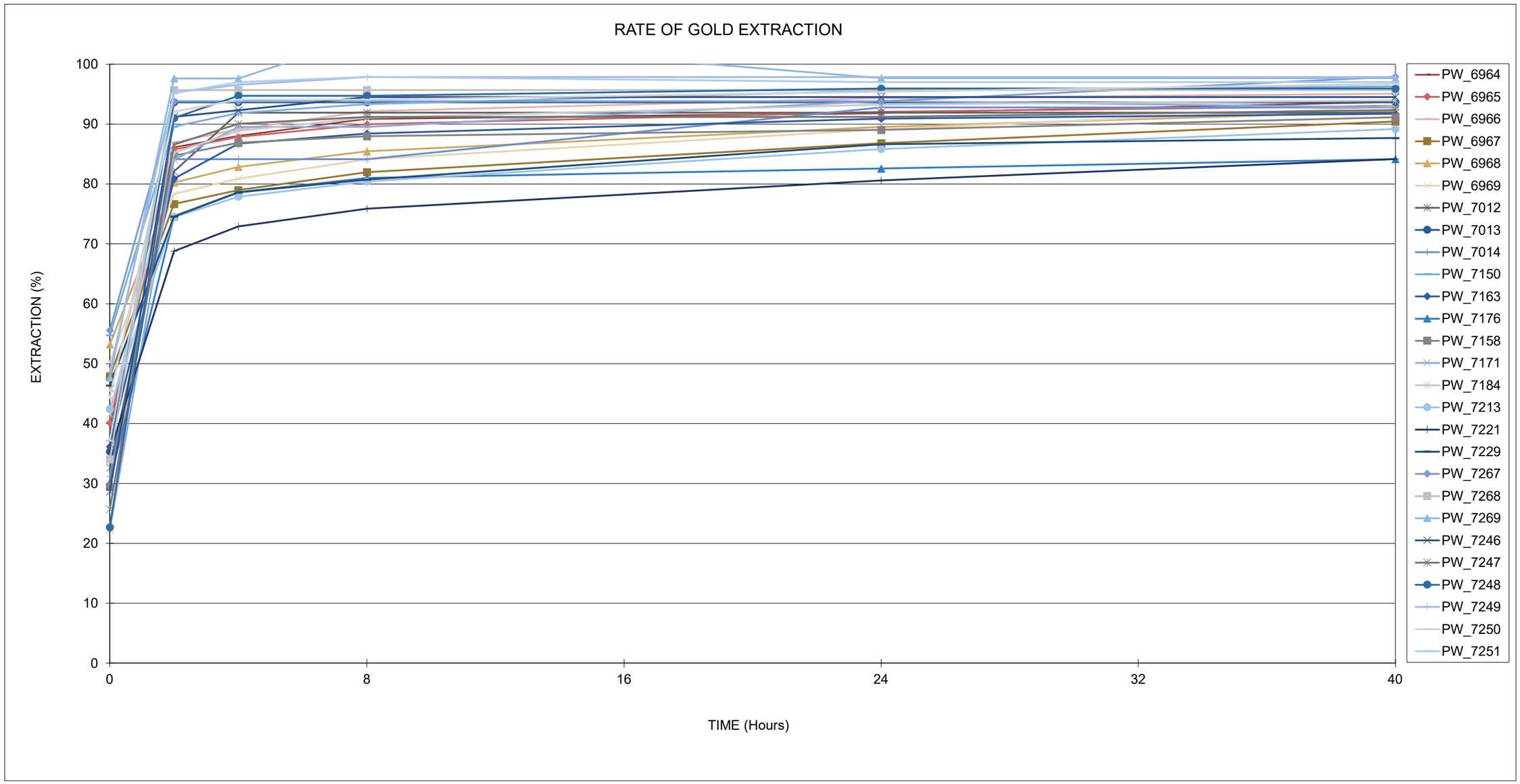
Master Composites

Details and Results

PROJECT	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
DATE	2/05/2023

SUMMARY

TEST No	SAMPLE ID	GRIND SIZE (P80, µm)	O2 / AIR SPARGE	% NaCN (Init / Mtn)	% Solids (w/w)	DCN OR CIL	GOLD HEAD GRADE (g/t)		GOLD DISTRIBUTION (g/t)			GOLD DISTRIBUTION (%)			TOTAL GOLD RECOVERY (%)	REAGENTS (kg/t)	
							Assayed	Calculated	Gravity	Leach	Residue	Gravity	Leach	Residue		NaCN	Lime
PW_6964	SOUWA TRANSITION MASTER COMPOSITE (MC-10)	125	O2	0.10 / 0.05	45	DCN	0.52	0.63	0.25	0.35	0.04	38.9	54.8	6.3	93.7	0.30	0.65
PW_6965	SOUWA TRANSITION MASTER COMPOSITE (MC-10)	106	O2	0.10 / 0.05	45	DCN	0.52	0.58	0.23	0.30	0.04	40.1	52.9	6.9	93.1	0.21	0.65
PW_6966	SOUWA TRANSITION MASTER COMPOSITE (MC-10)	75	O2	0.10 / 0.05	45	DCN	0.52	0.81	0.37	0.40	0.04	45.4	49.6	4.9	95.1	0.24	0.65
	AVERAGE CALCULATED HEAD GRADE							**0.67**									
PW_6967	SOUWA FRESH MASTER COMPOSITE (MC-11)	125	O2	0.10 / 0.05	45	DCN	2.45	2.61	1.25	1.11	0.25	47.9	42.6	9.6	90.4	0.14	0.30
PW_6968	SOUWA FRESH MASTER COMPOSITE (MC-11)	106	O2	0.10 / 0.05	45	DCN	2.45	2.78	1.48	1.08	0.22	53.2	38.9	7.9	92.1	0.14	0.31
PW_6969	SOUWA FRESH MASTER COMPOSITE (MC-11)	75	O2	0.10 / 0.05	45	DCN	2.45	2.63	1.32	1.12	0.19	50.2	42.8	7.0	93.0	0.14	0.36
	AVERAGE CALCULATED HEAD GRADE							**2.67**									
PW_7012	SOUWA TRANSITION MASTER COMPOSITE (MC-2)	125	O2	0.10 / 0.05	45	DCN	0.73	0.62	0.20	0.37	0.05	32.6	59.3	8.1	91.9	0.14	0.83
PW_7013	SOUWA TRANSITION MASTER COMPOSITE (MC-2)	106	O2	0.10 / 0.05	45	DCN	0.73	0.63	0.22	0.37	0.04	35.3	58.3	6.4	93.6	0.18	0.77
PW_7014	SOUWA TRANSITION MASTER COMPOSITE (MC-2)	75	O2	0.10 / 0.05	45	DCN	0.73	0.69	0.22	0.43	0.05	31.2	61.6	7.2	92.8	0.15	0.83
	AVERAGE CALCULATED HEAD GRADE							**0.65**									
PW_7267	SOUWA OXIDE MASTER COMPOSITE (MC-26)	125	O2	0.10 / 0.05	45	DCN	0.50	1.44	0.80	0.61	0.03	55.6	42.4	2.1	97.9	0.27	1.03
PW_7268	SOUWA OXIDE MASTER COMPOSITE (MC-26)	106	O2	0.10 / 0.05	45	DCN	0.50	0.69	0.24	0.43	0.03	34.0	61.7	4.3	95.7	0.36	0.77
PW_7269	SOUWA OXIDE MASTER COMPOSITE (MC-26)	75	O2	0.10 / 0.05	45	DCN	0.50	0.86	0.41	0.43	0.02	47.7	50.0	2.3	97.7	0.33	0.68
	AVERAGE CALCULATED HEAD GRADE							**1.00**									
PW_7246	SOUWA OXIDE MASTER COMPOSITE (MC-8)	125	O2	0.10 / 0.05	45	DCN	0.48	0.55	0.16	0.36	0.03	28.7	65.9	5.5	94.5	0.21	0.98
PW_7247	SOUWA OXIDE MASTER COMPOSITE (MC-8)	106	O2	0.10 / 0.05	45	DCN	0.48	0.52	0.13	0.35	0.04	25.7	66.6	7.7	92.3	0.21	0.82
PW_7248	SOUWA OXIDE MASTER COMPOSITE (MC-8)	75	O2	0.10 / 0.05	45	DCN	0.48	0.49	0.11	0.36	0.02	22.7	73.3	4.1	95.9	0.18	0.94
	AVERAGE CALCULATED HEAD GRADE							**0.52**									
PW_7249	SOUWA OXIDE MASTER COMPOSITE (MC-9)	125	O2	0.10 / 0.05	45	DCN	0.42	0.93	0.45	0.46	0.02	48.7	49.1	2.1	97.9	0.30	0.78
PW_7250	SOUWA OXIDE MASTER COMPOSITE (MC-9)	106	O2	0.10 / 0.05	45	DCN	0.42	0.91	0.40	0.48	0.03	44.2	52.5	3.3	96.7	0.30	0.83
PW_7251	SOUWA OXIDE MASTER COMPOSITE (MC-9)	75	O2	0.10 / 0.05	45	DCN	0.42	0.66	0.25	0.40	0.02	37.1	59.8	3.0	97.0	0.27	0.87
	AVERAGE CALCULATED HEAD GRADE							**0.83**									
PW_7150	SOUWA TRANSITION MASTER COMPOSITE (MC-10)	106	O2	0.07 / 0.04	45	DCN	0.52	0.81	0.44	0.34	0.03	54.7	41.6	3.7	96.3	0.15	0.79
PW_7163	SOUWA TRANSITION MASTER COMPOSITE (MC-10)	106	O2	0.05 / 0.03	45	DCN	0.52	0.72	0.26	0.40	0.06	36.2	55.6	8.3	91.7	0.12	0.77
PW_7176	SOUWA TRANSITION MASTER COMPOSITE (MC-10)	106	O2	0.03 / 0.02	45	DCN	0.52	0.76	0.23	0.41	0.12	30.2	54.0	15.9	84.1	0.08	0.66
	AVERAGE CALCULATED HEAD GRADE							**0.76**									
PW_7158	SOUWA TRANSITION MASTER COMPOSITE (MC-2)	106	O2	0.07 / 0.04	45	DCN	0.73	0.56	0.17	0.35	0.05	29.4	61.7	8.9	91.1	0.12	0.74
PW_7171	SOUWA TRANSITION MASTER COMPOSITE (MC-2)	106	O2	0.05 / 0.03	45	DCN	0.73	0.55	0.12	0.39	0.04	22.3	70.5	7.2	92.8	0.14	2.67
PW_7184	SOUWA TRANSITION MASTER COMPOSITE (MC-2)	106	O2	0.03 / 0.02	45	DCN	0.73	0.83	0.34	0.43	0.05	41.6	52.4	6.1	93.9	0.08	0.52
	AVERAGE CALCULATED HEAD GRADE							**0.65**									
PW_7213	SOUWA FRESH MASTER COMPOSITE (MC-11)	75	O2	0.07 / 0.04	45	DCN	2.45	2.86	1.21	1.34	0.31	42.4	46.7	10.8	89.2	0.09	0.35
PW_7221	SOUWA FRESH MASTER COMPOSITE (MC-11)	75	O2	0.05 / 0.03	45	DCN	2.45	2.65	0.93	1.30	0.42	35.2	49.0	15.8	84.2	0.08	0.35
PW_7229	SOUWA FRESH MASTER COMPOSITE (MC-11)	75	O2	0.03 / 0.02	45	DCN	2.45	2.84	1.32	1.17	0.35	46.3	41.3	12.3	87.7	0.06	0.31
	AVERAGE CALCULATED HEAD GRADE							**2.78**									
PW_7302	SOUWA OXIDE MASTER COMPOSITE (MC-26)	106	O2	0.07 / 0.04	45	DCN	0.50	0.60	0.22	0.37	0.02	35.9	60.8	3.3	96.7	0.18	1.12
PW_7303	SOUWA OXIDE MASTER COMPOSITE (MC-26)	106	O2	0.05 / 0.03	45	DCN	0.50	0.73	0.28	0.43	0.03	38.3	58.3	3.4	96.6	0.12	1.02
PW_7304	SOUWA OXIDE MASTER COMPOSITE (MC-26)	106	O2	0.03 / 0.02	45	DCN	0.50	0.52	0.14	0.37	0.02	26.4	69.8	3.8	96.2	0.08	0.92
	AVERAGE CALCULATED HEAD GRADE							**0.62**									
PW_7293	SOUWA OXIDE MASTER COMPOSITE (MC-8)	106	O2	0.07 / 0.04	45	DCN	0.48	0.42	0.09	0.31	0.02	21.6	73.6	4.8	95.2	0.18	0.74
PW_7295	SOUWA OXIDE MASTER COMPOSITE (MC-8)	106	O2	0.05 / 0.03	45	DCN	0.48	0.51	0.11	0.37	0.03	21.8	72.3	5.9	94.1	0.15	0.86
PW_7297	SOUWA OXIDE MASTER COMPOSITE (MC-8)	106	O2	0.03 / 0.02	45	DCN	0.48	0.52	0.13	0.37	0.03	24.1	70.2	5.8	94.2	0.15	0.77
	AVERAGE CALCULATED HEAD GRADE							**0.48**									
PW_7294	SOUWA OXIDE MASTER COMPOSITE (MC-9)	106	O2	0.07 / 0.04	45	DCN	0.42	0.74	0.29	0.43	0.02	39.5	57.8	2.7	97.3	0.21	0.74
PW_7296	SOUWA OXIDE MASTER COMPOSITE (MC-9)	106	O2	0.05 / 0.03	45	DCN	0.42	0.82	0.30	0.49	0.03	36.6	59.7	3.7	96.3	0.18	0.78
PW_7298	SOUWA OXIDE MASTER COMPOSITE (MC-9)	106	O2	0.03 / 0.02	45	DCN	0.42	0.86	0.41	0.43	0.02	48.0	49.6	2.3	97.7	0.21	0.97
	AVERAGE CALCULATED HEAD GRADE							**0.81**									


RATE OF GOLD EXTRACTION
EXTRACTION (%)
100
90
80
70
60
50
40
30
20
10
0
0
8
16
24
32
40
TIME (Hours)
PW_6964
PW_6965
PW_6966
PW_6967
PW_6968
PW_6969
PW_7012
PW_7013
PW_7014
PW_7150
PW_7163
PW_7176
PW_7158
PW_7171
PW_7184
PW_7213
PW_7221
PW_7229
PW_7267
PW_7268
PW_7269
PW_7246
PW_7247
PW_7248
PW_7249
PW_7250
PW_7251

PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6964**
SAMPLE ID	**SOUWA TRANSITION MASTER COMPOSITE (MC-10)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jan-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2977.8	3640.0			7.5	8.08										
0		3640.0	3.64	1.83	20.0	10.53	**0.100**		0.00	0.00	0.00		38.93	13.08	0.82	
2		3615.0	0.00	0.00	22.6	9.86	0.088		0.25	0.18	0.05		86.12	68.39	1.98	
4		3590.0	0.00	0.00	21.5	9.86	0.085		0.26	0.18	0.05		88.03	68.39	1.98	
8		3565.0	0.00	0.01	24.0	9.78	0.087		0.27	0.16	0.05		90.88	62.33	1.98	
24		3540.0	0.00	0.09	21.9	9.68	0.083		0.28	0.14	0.10		91.82	56.31	3.11	
40		3515.0	0.00	0.00	19.4	9.74	0.075		0.29	0.16	0.20		**93.70**	**62.29**	**5.36**	
TOTAL			3.64	1.93												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2977.8	0.04	119	6.30	0.2	447	37.71	5	14889	94.64
Solution (mL)	3515.0	0.285	1002	53.01	0.16	562	47.48	0.20	703	4.47
Solution Samples *			33	1.76		21	1.73		11	0.07
Gravity		0.2	**736**	**38.93**		**155**	**13.08**		**129**	**0.82**
Total Extraction				**93.70**			**62.29**			**5.36**
Total			1890	100.00		1184	100.00		15732	100.00
Calculated Head		0.63			0.4			5		
Assayed Head		**0.52**			**<2**			**<10**		

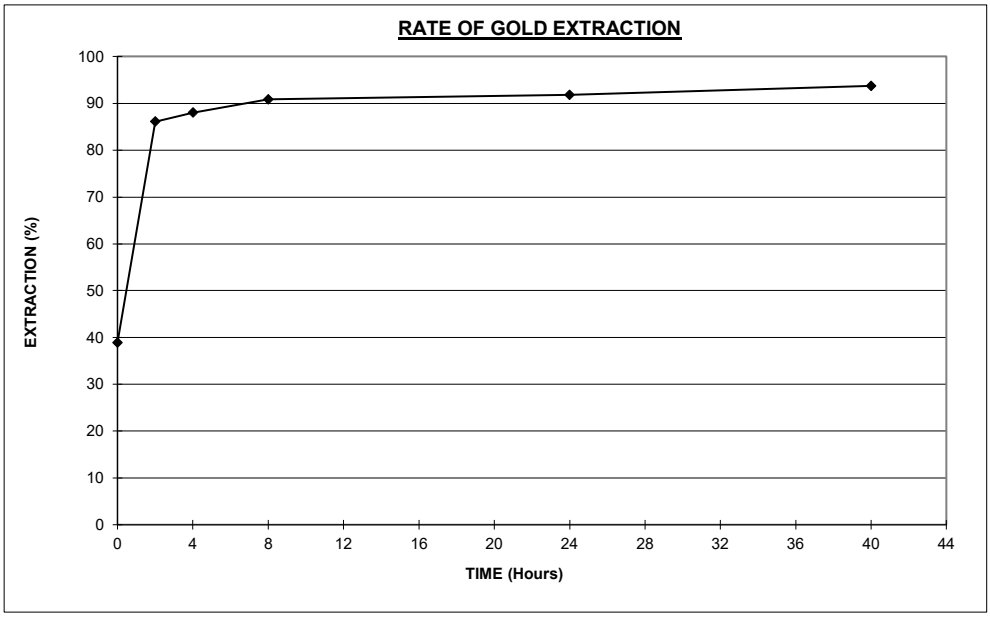
RESIDUE ASSAYS (ppm)

Au	0.04
Ag	0.15
As	5
S	0.08%
S2-	0.06%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3640.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.30 (kg/t)
13. Lime consum'n (kg/t) : 0.65 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6965**
SAMPLE ID	**SOUWA TRANSITION MASTER COMPOSITE (MC-10)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jan-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2977.8	3640.0			8.2	8.08										
0		3640.0	3.64	1.69	20.0	10.51	**0.100**		0.00	0.00	0.00		40.13	12.22	1.64	
2		3615.0	0.00	0.00	21.9	9.89	0.088		0.22	0.14	0.05		85.75	52.91	3.99	
4		3590.0	0.00	0.24	22.1	9.77	0.085		0.23	0.16	0.05		87.85	58.68	3.99	
8		3565.0	0.00	0.00	25.1	9.88	0.085		0.24	0.16	0.05		89.95	58.68	3.99	
24		3540.0	0.00	0.00	22.0	9.83	0.083		0.25	0.16	0.05		92.03	58.68	3.99	
40		3515.0	0.00	0.00	22.7	9.82	0.083		0.25	0.18	0.05		**93.06**	**64.33**	**3.99**	
TOTAL			3.64	1.93												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2977.8	0.04	119	6.94	0.2	447	35.67	3	7445	96.01
Solution (mL)	3515.0	0.250	879	51.22	0.18	633	50.52	0.05	176	2.27
Solution Samples *			29	1.70		20	1.60		6	0.08
Gravity		0.2	**689**	**40.13**		**153**	**12.22**		**128**	**1.64**
Total Extraction				**93.06**			**64.33**			**3.99**
Total			1716	100.00		1252	100.00		7754	100.00
Calculated Head		0.58			0.4			3		
Assayed Head		**0.52**			**<2**			**<10**		

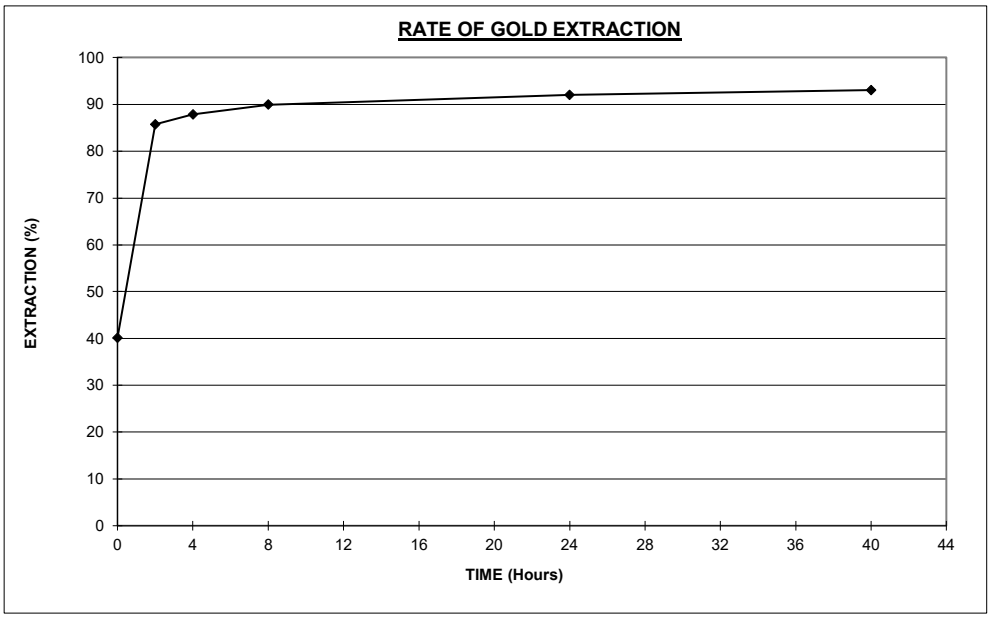
RESIDUE ASSAYS (ppm)

Au	0.04
Ag	0.15
As	2.5
S	0.06%
S2-	0.06%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3640.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.21 (kg/t)
13. Lime consum'n (kg/t) : 0.65 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6966**
SAMPLE ID	**SOUWA TRANSITION MASTER COMPOSITE (MC-10)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jan-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2977.8	3640.0			6.8	8.01										
0		3640.0	3.64	1.93	20.0	10.53	**0.100**		0.00	0.00	0.00		45.45	10.78	1.40	
2		3615.0	0.00	0.00	22.3	9.97	0.088		0.28	0.16	0.05		86.90	57.96	3.70	
4		3590.0	0.00	0.00	21.5	9.82	0.083		0.29	0.18	0.05		89.15	63.81	3.70	
8		3565.0	0.00	0.00	24.9	9.85	0.083		0.31	0.18	0.05		92.12	63.81	3.70	
24		3540.0	0.00	0.00	21.5	9.84	0.083		0.33	0.18	0.05		94.33	63.81	3.70	
40		3515.0	0.00	0.00	20.5	9.84	0.080		0.33	0.18	0.10		**95.07**	**63.81**	**5.94**	
TOTAL			3.64	1.93												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2977.8	0.04	119	4.93	0.2	447	36.19	3	7445	94.06
Solution (mL)	3515.0	0.330	1160	48.03	0.18	633	51.26	0.10	352	4.44
Solution Samples *			38	1.58		22	1.78		8	0.09
Gravity		0.4	**1098**	**45.45**		**133**	**10.78**		**111**	**1.40**
Total Extraction				**95.07**			**63.81**			**5.94**
Total			2415	100.00		1234	100.00		7914	100.00
Calculated Head		0.81			0.4			3		
Assayed Head		**0.52**			**<2**			**<10**		

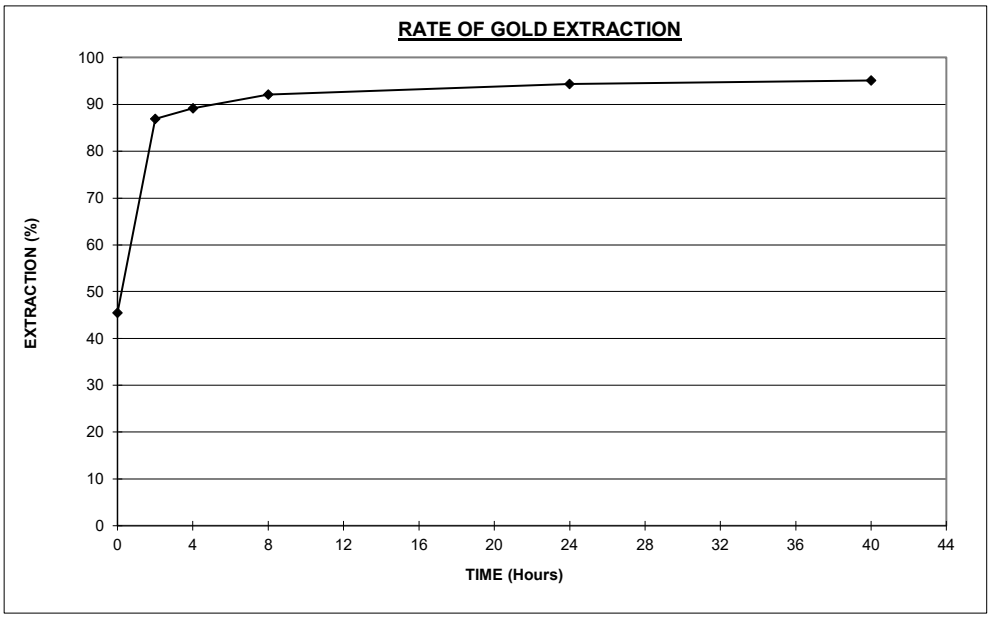
RESIDUE ASSAYS (ppm)

Au	0.04
Ag	0.15
As	2.5
S	0.08%
S2-	0.06%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3640.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.24 (kg/t)
13. Lime consum'n (kg/t) : 0.65 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6967**
SAMPLE ID	**SOUWA FRESH MASTER COMPOSITE (MC-11)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jan-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2998.2	3664.0			8.0	8.01										
0		3664.0	3.66	0.91	20.0	10.50	**0.100**		0.00	0.00	0.00		47.86	29.99	1.93	
2		3639.0	0.00	0.00	23.4	10.36	0.093		0.62	0.30	0.05		76.65	75.43	4.27	
4		3614.0	0.00	0.00	20.6	10.19	0.093		0.67	0.32	0.05		78.97	78.44	4.27	
8		3589.0	0.00	0.00	23.9	10.29	0.093		0.73	0.32	0.05		81.97	78.44	4.27	
24		3564.0	0.00	0.00	21.2	10.26	0.090		0.84	0.34	0.05		86.78	81.41	4.27	
40		3539.0	0.00	0.00	22.9	10.25	0.088		0.92	0.34	0.05		**90.43**	**81.41**	**4.27**	
TOTAL			3.66	0.91												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2998.2	0.25	750	9.57	0.2	450	18.59	3	7496	95.73
Solution (mL)	3539.0	0.915	3238	41.36	0.34	1203	49.75	0.05	177	2.26
Solution Samples *			94	1.20		41	1.67		6	0.08
Gravity		1.2	**3747**	**47.86**		**725**	**29.99**		**151**	**1.93**
Total Extraction				**90.43**			**81.41**			**4.27**
Total			7829	100.00		2419	100.00		7830	100.00
Calculated Head		2.61			0.8			3		
Assayed Head		**2.45**			**<2**			**<10**		

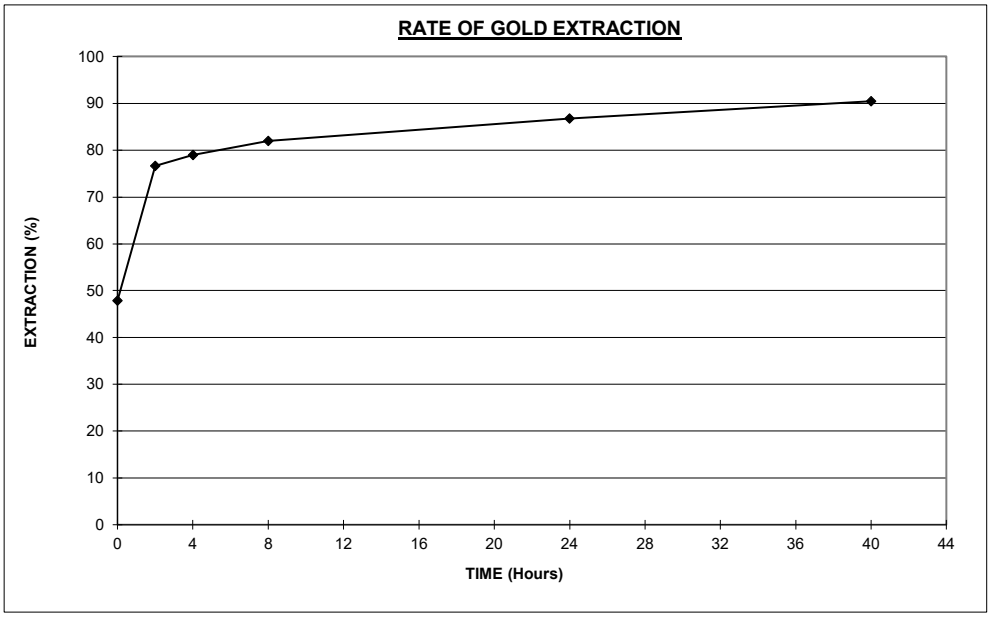
RESIDUE ASSAYS (ppm)

Au	0.25
Ag	0.15
As	2.5
S	0.52%
S2-	0.50%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	> 0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3664.0	(g)
8. Grind size P 80 :	125	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.14	(kg/t)
13. Lime consum'n (kg/t) :	0.30	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6968**
SAMPLE ID	**SOUWA FRESH MASTER COMPOSITE (MC-11)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jan-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2998.2	3664.0			7.6	8.00										
0		3664.0	3.66	0.92	20.0	10.53	**0.100**		0.00	0.00	0.00		53.20	30.90	0.98	
2		3639.0	0.00	0.00	21.7	10.35	0.095		0.62	0.30	0.05		80.22	77.78	2.18	
4		3614.0	0.00	0.00	21.7	10.17	0.090		0.68	0.28	0.05		82.84	74.67	2.18	
8		3589.0	0.00	0.00	25.5	10.26	0.088		0.74	0.32	0.05		85.44	80.84	2.18	
24		3564.0	0.00	0.00	22.0	10.20	0.088		0.83	0.30	0.05		89.53	77.78	2.18	
40		3539.0	0.00	0.00	20.5	10.21	0.088		0.89	0.32	0.05		**92.09**	**80.82**	**2.18**	
TOTAL			3.66	0.92												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2998.2	0.22	660	7.91	0.2	450	19.18	5	14991	97.82
Solution (mL)	3539.0	0.890	3150	37.77	0.32	1132	48.30	0.05	177	1.15
Solution Samples *			94	1.12		38	1.62		6	0.04
Gravity		1.5	**4437**	**53.20**		**724**	**30.90**		**151**	**0.98**
Total Extraction				**92.09**			**80.82**			**2.18**
Total			8340	100.00		2345	100.00		15325	100.00
Calculated Head		2.78			0.8			5		
Assayed Head		**2.45**			**<2**			**<10**		

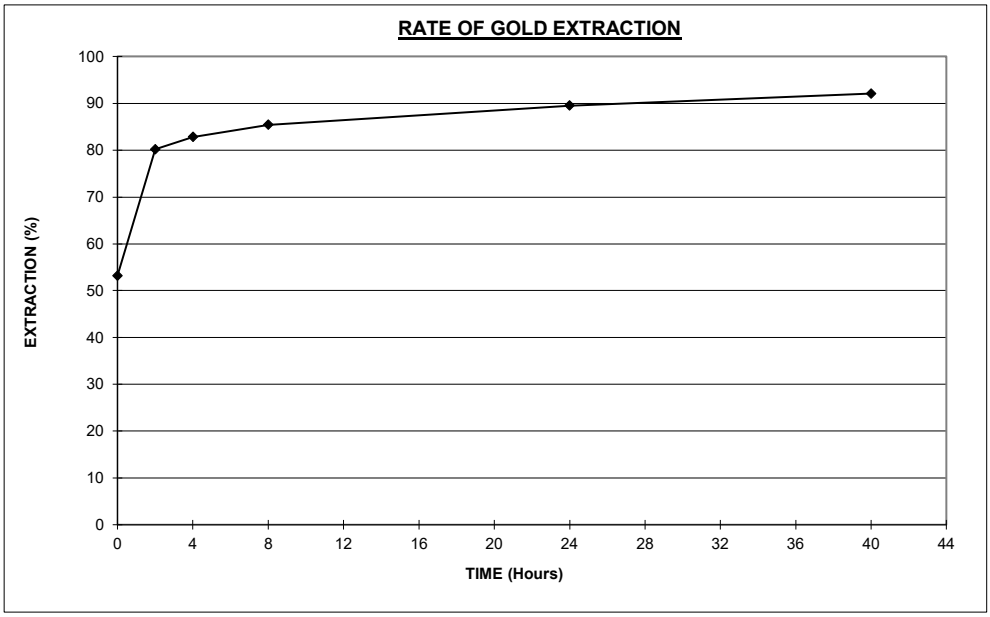
RESIDUE ASSAYS (ppm)

Au	0.22
Ag	0.15
As	5
S	0.50%
S2-	0.48%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3664.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.14 (kg/t)
13. Lime consum'n (kg/t) : 0.31 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6969**
SAMPLE ID	**SOUWA FRESH MASTER COMPOSITE (MC-11)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jan-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2998.2	3664.0			7.2	7.99										
0		3664.0	3.66	1.07	20.0	10.52	**0.100**		0.00	0.00	0.00		50.17	27.66	1.66	
2		3639.0	0.00	0.00	22.5	10.37	0.093		0.61	0.32	0.05		78.33	75.67	4.01	
4		3614.0	0.00	0.00	19.3	10.28	0.093		0.66	0.34	0.05		80.87	78.65	4.01	
8		3589.0	0.00	0.00	24.5	10.30	0.090		0.73	0.34	0.05		84.09	78.65	4.01	
24		3564.0	0.00	0.00	22.0	10.25	0.088		0.84	0.36	0.05		89.10	81.59	4.01	
40		3539.0	0.00	0.00	22.7	10.25	0.088		0.93	0.36	0.05		**92.95**	**81.59**	**4.01**	
TOTAL			3.66	1.07												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2998.2	0.19	555	7.05	0.2	450	18.41	3	7496	95.99
Solution (mL)	3539.0	0.925	3274	41.59	0.36	1274	52.17	0.05	177	2.27
Solution Samples *			94	1.19		43	1.76		6	0.08
Gravity		1.3	**3949**	**50.17**		**675**	**27.66**		**130**	**1.66**
Total Extraction				**92.95**			**81.59**			**4.01**
Total			7871	100.00		2442	100.00		7809	100.00
Calculated Head		2.63			0.8			3		
Assayed Head		**2.45**			**<2**			**<10**		

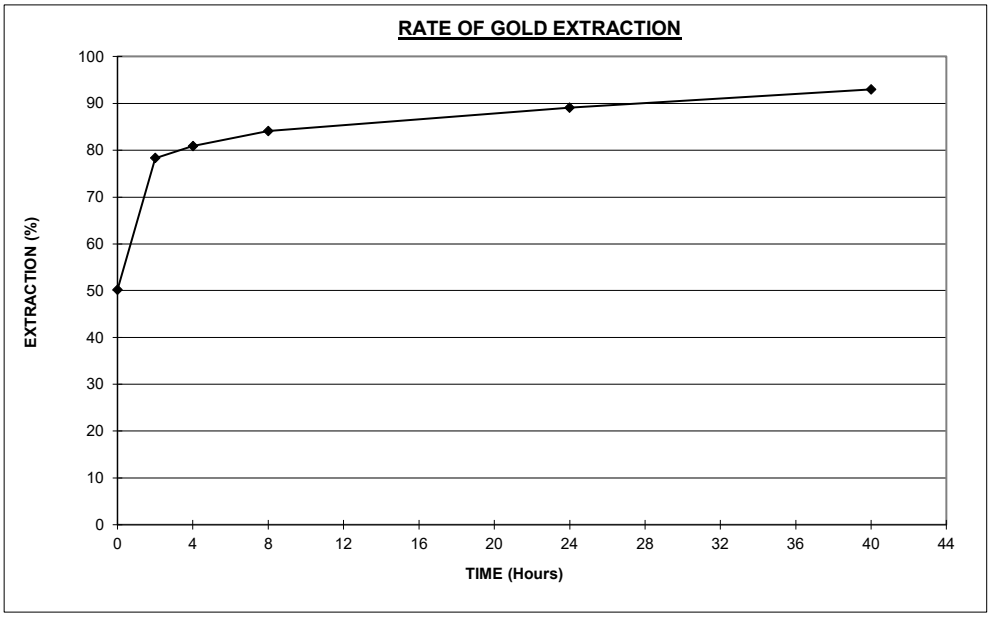
RESIDUE ASSAYS (ppm)

Au	0.19
Ag	0.15
As	2.5
S	0.50%
S2-	0.50%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3664.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.14 (kg/t)
13. Lime consum'n (kg/t) : 0.36 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7012**
SAMPLE ID	**SOUWA TRANSITION MASTER COMPOSITE (MC-2)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2980.8	3643.0			6.4	7.85										
0		3643.0	3.64	1.78	20.0	10.54	**0.100**		0.00	0.00	0.00		32.63	8.00	0.42	
2		3618.0	0.00	0.00	20.0	9.96	0.093		0.25	0.20	0.05		82.08	45.96	1.03	
4		3593.0	0.00	0.69	20.1	9.80	0.093		0.30	0.20	0.05		91.91	45.96	1.03	
8		3568.0	0.00	0.00	16.8	10.22	0.093		0.30	0.22	0.05		91.91	49.71	1.03	
24		3543.0	0.00	0.00	20.9	10.14	0.088		0.30	0.22	0.05		91.91	49.71	1.03	
40		3518.0	0.00	0.00	20.9	10.32	0.088		0.30	0.24	0.05		**91.91**	**53.40**	**1.03**	
TOTAL			3.64	2.47												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2980.8	0.05	149	8.09	0.3	894	46.60	10	29808	98.97
Solution (mL)	3518.0	0.300	1055	57.31	0.24	844	44.00	0.05	176	0.58
Solution Samples *			36	1.97		27	1.41		6	0.02
Gravity		0.2	**601**	**32.63**		**153**	**8.00**		**128**	**0.42**
Total Extraction				**91.91**			**53.40**			**1.03**
Total			1842	100.00		1919	100.00		30118	100.00
Calculated Head		0.62			0.6			10		
Assayed Head		**0.73**			**<2**			**<10**		

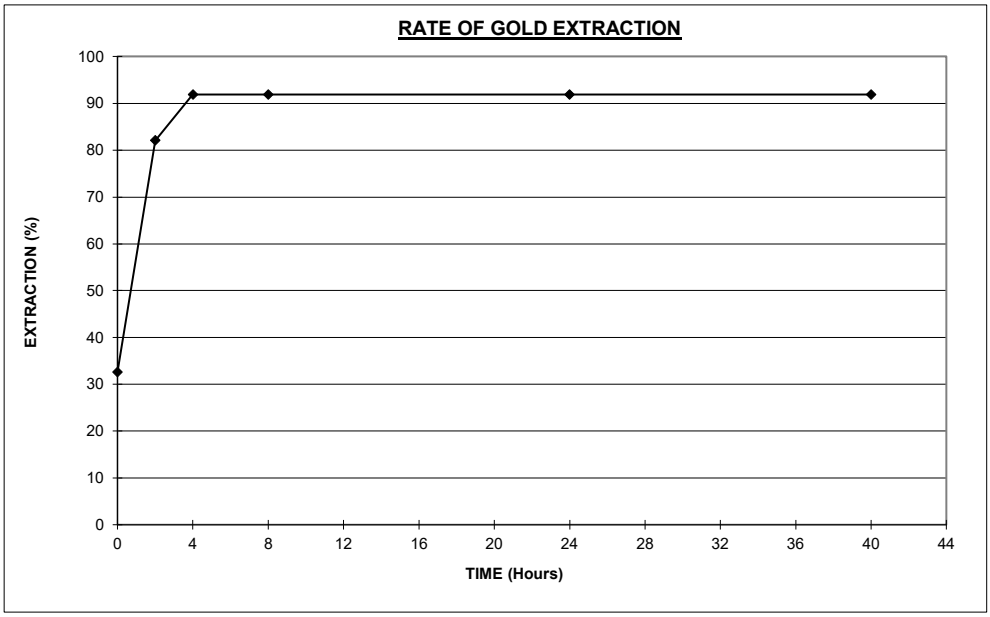
RESIDUE ASSAYS (ppm)

Au	0.05
Ag	0.3
As	10
S	0.06%
S2-	0.04%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3643.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.14 (kg/t)
13. Lime consum'n (kg/t) : 0.83 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7013**
SAMPLE ID	**SOUWA TRANSITION MASTER COMPOSITE (MC-2)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2980.8	3643.0			6.3	7.81										
0		3643.0	3.64	1.42	20.0	10.51	**0.100**		0.00	0.00	0.00		35.34	7.99	0.81	
2		3618.0	0.00	0.00	19.1	9.87	0.088		0.30	0.20	0.05		93.64	47.55	2.00	
4		3593.0	0.00	0.89	20.0	9.70	0.088		0.30	0.20	0.05		93.64	47.55	2.00	
8		3568.0	0.00	0.00	19.7	10.08	0.088		0.30	0.22	0.05		93.64	51.45	2.00	
24		3543.0	0.00	0.00	22.9	10.01	0.088		0.30	0.22	0.05		93.64	51.45	2.00	
40		3518.0	0.00	0.00	20.1	10.18	0.085		0.30	0.22	0.05		**93.64**	**51.45**	**2.00**	
TOTAL			3.64	2.31												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2980.8	0.04	119	6.36	0.3	894	48.55	5	14904	98.00
Solution (mL)	3518.0	0.300	1055	56.30	0.22	774	42.02	0.05	176	1.16
Solution Samples *			38	2.00		27	1.44		6	0.04
Gravity		0.2	**662**	**35.34**		**147**	**7.99**		**123**	**0.81**
Total Extraction				**93.64**			**51.45**			**2.00**
Total			1875	100.00		1842	100.00		15209	100.00
Calculated Head		0.63			0.6			5		
Assayed Head		**0.73**			**<2**			**<10**		

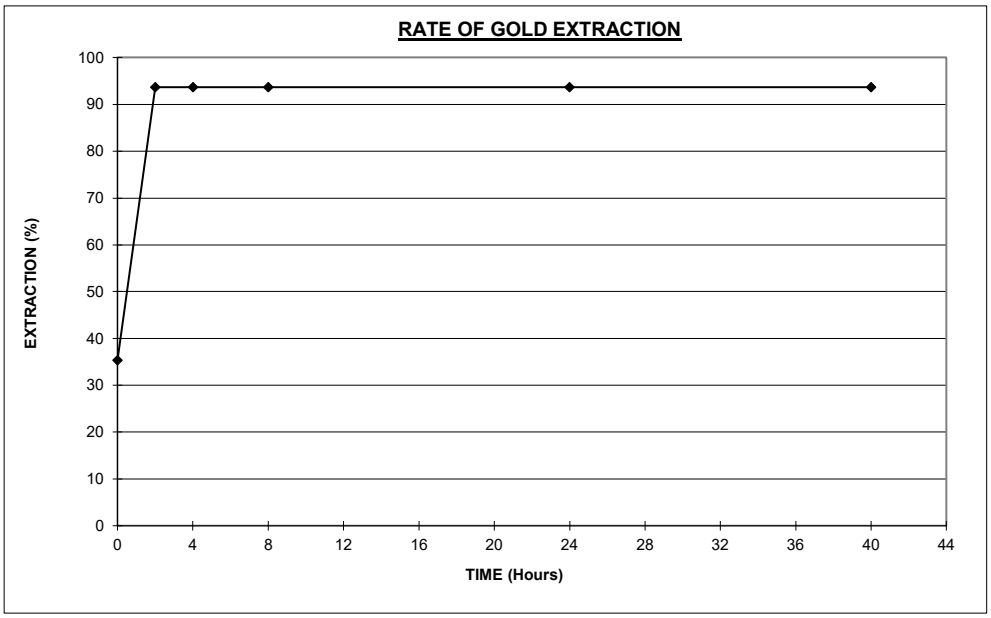
RESIDUE ASSAYS (ppm)

Au	0.04
Ag	0.3
As	5
S	0.06%
S2-	0.01%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3643.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 0.77 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7014**
SAMPLE ID	**SOUWA TRANSITION MASTER COMPOSITE (MC-2)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2980.8	3643.0			5.6	7.83										
0		3643.0	3.64	1.64	20.0	10.50	**0.100**		0.00	0.00	0.00		31.20	4.89	0.26	
2		3618.0	0.00	0.00	20.1	9.95	0.088		0.30	0.22	0.05		84.14	32.78	0.66	
4		3593.0	0.00	0.84	20.8	9.76	0.088		0.30	0.24	0.05		84.14	35.30	0.66	
8		3568.0	0.00	0.00	16.7	10.19	0.088		0.30	0.24	0.05		84.14	35.30	0.66	
24		3543.0	0.00	0.00	20.9	10.12	0.088		0.35	0.24	0.05		92.78	35.30	0.66	
40		3518.0	0.00	0.00	19.2	10.25	0.088		0.35	0.26	0.05		**92.78**	**37.76**	**0.66**	
TOTAL			3.64	2.48												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2980.8	0.05	149	7.22	0.6	1788	62.24	15	44712	99.34
Solution (mL)	3518.0	0.350	1231	59.64	0.26	915	31.83	0.05	176	0.39
Solution Samples *			40	1.94		30	1.04		6	0.01
Gravity		0.2	**644**	**31.20**		**141**	**4.89**		**117**	**0.26**
Total Extraction				**92.78**			**37.76**			**0.66**
Total			2064	100.00		2874	100.00		45011	100.00
Calculated Head		0.69			1.0			15		
Assayed Head		**0.73**			**<2**			**<10**		

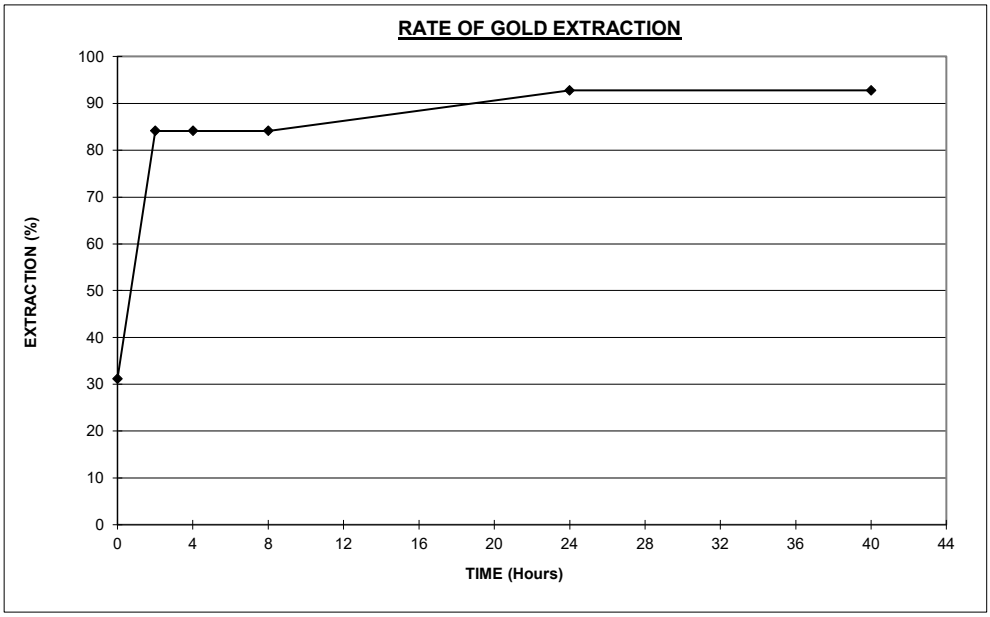
RESIDUE ASSAYS (ppm)

Au	0.05
Ag	0.6
As	15
S	0.06%
S2-	0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3643.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.15 (kg/t)
13. Lime consum'n (kg/t) : 0.83 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7150**
SAMPLE ID	**SOUWA TRANSITION MASTER COMPOSITE (MC-10)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2977.8	3640.0			9.2	7.87										
0		3640.0	2.55	1.95	20.0	10.50	**0.070**		0.00	0.00	0.00		54.73	15.94	1.57	
2		3615.0	0.00	0.14	18.8	9.62	0.063		0.23	0.14	0.05		89.57	57.63	3.92	
4		3590.0	0.00	0.14	19.1	9.73	0.060		0.25	0.14	0.05		91.83	57.63	3.92	
8		3565.0	0.00	0.13	22.2	9.76	0.060		0.26	0.14	0.05		93.32	57.63	3.92	
24		3540.0	0.00	0.00	19.5	9.95	0.058		0.27	0.16	0.05		95.55	63.46	3.92	
40		3515.0	0.00	0.00	22.5	9.82	0.058		0.28	0.16	0.05		**96.28**	**63.46**	**3.92**	
TOTAL			2.55	2.36												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2977.8	0.03	89	3.72	0.2	447	36.54	3	7445	96.08
Solution (mL)	3515.0	0.275	967	40.23	0.16	562	46.01	0.05	176	2.27
Solution Samples *			32	1.33		19	1.51		6	0.08
Gravity		0.4	**1315**	**54.73**		**195**	**15.94**		**122**	**1.57**
Total Extraction				**96.28**			**63.46**			**3.92**
Total			2403	100.00		1222	100.00		7748	100.00
Calculated Head		0.81			0.4			3		
Assayed Head		**0.52**			**<2**			**<10**		

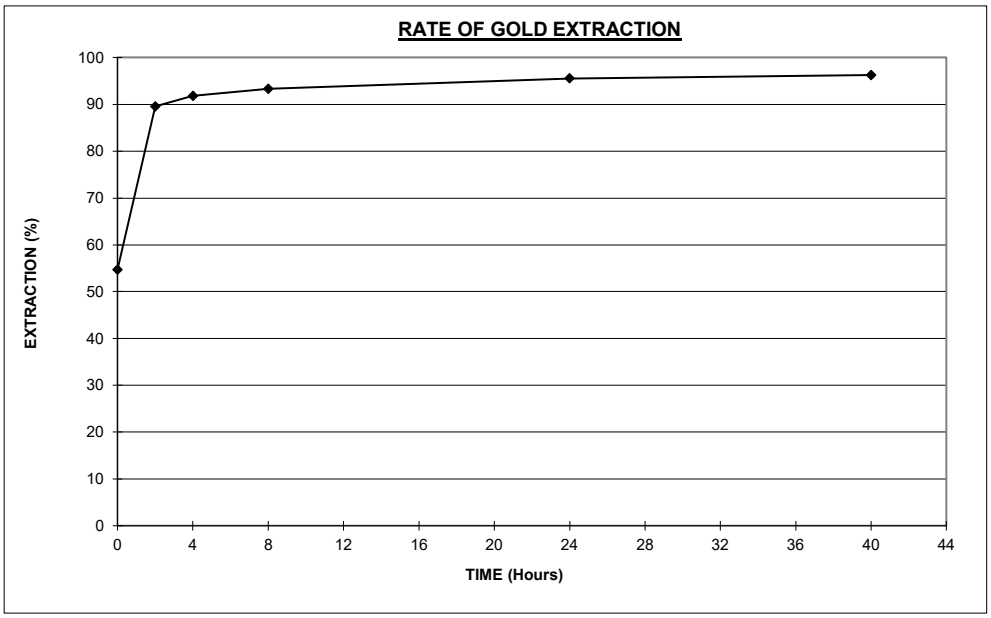
RESIDUE ASSAYS (ppm)

Au	0.03
Ag	0.15
As	2.5
S	0.06%
S2-	0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3640.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.86 (kg/t)
12. NaCN consum'n (kg/t) : 0.15 (kg/t)
13. Lime consum'n (kg/t) : 0.79 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7163**
SAMPLE ID	**SOUWA TRANSITION MASTER COMPOSITE (MC-10)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2977.8	3640.0			7.8	7.81										
0		3640.0	1.82	2.30	20.0	10.57	**0.050**		0.00	0.00	0.00		36.16	6.58	1.62	
2		3615.0	0.00	0.00	19.2	10.00	0.045		0.27	0.16	0.05		80.88	31.96	3.97	
4		3590.0	0.00	0.00	19.8	9.95	0.043		0.30	0.16	0.05		86.75	31.96	3.97	
8		3565.0	0.00	0.00	21.3	9.89	0.043		0.31	0.18	0.05		88.41	35.09	3.97	
24		3540.0	0.00	0.00	21.1	9.85	0.043		0.33	0.20	0.05		90.89	38.20	3.97	
40		3515.0	0.00	0.00	22.9	9.92	0.040		0.33	0.18	0.05		**91.72**	**35.11**	**3.97**	
TOTAL			1.82	2.30												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2977.8	0.06	179	8.28	0.5	1489	64.89	3	7445	96.03
Solution (mL)	3515.0	0.330	1160	53.79	0.18	633	27.57	0.05	176	2.27
Solution Samples *			38	1.77		22	0.96		6	0.08
Gravity		0.3	**780**	**36.16**		**151**	**6.58**		**126**	**1.62**
Total Extraction				**91.72**			**35.11**			**3.97**
Total			2157	100.00		2295	100.00		7752	100.00
Calculated Head		0.72			0.8			3		
Assayed Head		**0.52**			**<2**			**<10**		

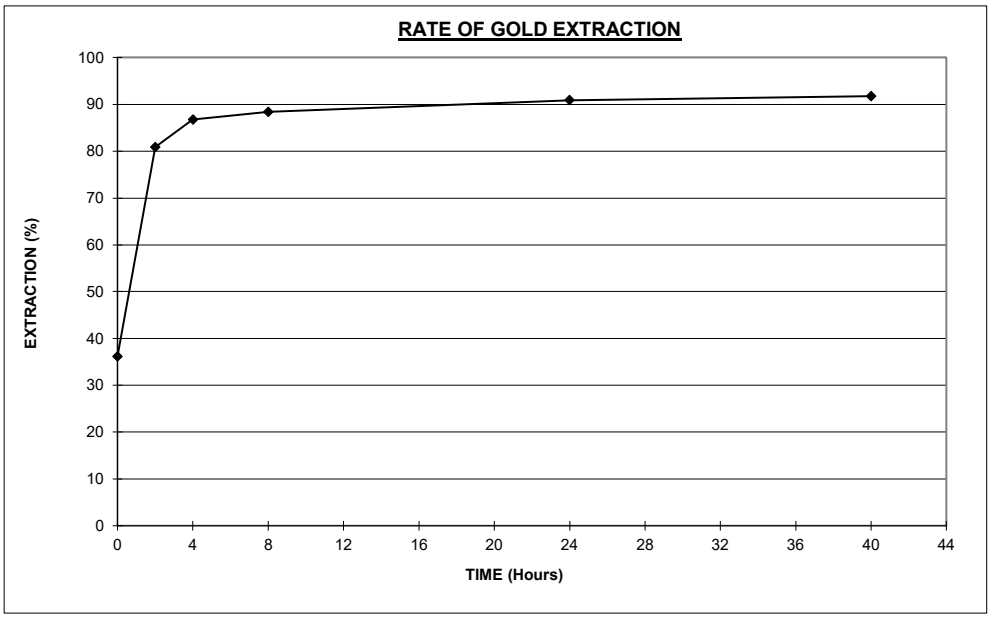
RESIDUE ASSAYS (ppm)

Au	0.06
Ag	0.5
As	2.5
S	0.04%
S2-	0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3640.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.77 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7176**
SAMPLE ID	**SOUWA TRANSITION MASTER COMPOSITE (MC-10)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2977.8	3640.0			7.8	7.75										
0		3640.0	1.09	1.82	20.0	10.50	**0.030**		0.00	0.00	0.00		30.20	12.30	0.85	
2		3615.0	0.00	0.04	20.1	9.76	0.025		0.28	0.14	0.05		74.60	52.97	2.04	
4		3590.0	0.00	0.00	20.1	9.82	0.025		0.30	0.14	0.05		78.61	52.97	2.04	
8		3565.0	0.00	0.00	22.2	9.80	0.025		0.32	0.16	0.05		81.00	58.70	2.04	
24		3540.0	0.00	0.10	23.1	9.65	0.025		0.33	0.16	0.05		82.58	58.70	2.04	
40		3515.0	0.00	0.00	21.1	9.75	0.023		0.34	0.18	0.05		**84.15**	**64.35**	**2.04**	
TOTAL			1.09	1.96												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2977.8	0.12	357	15.85	0.2	447	35.65	5	14889	97.96
Solution (mL)	3515.0	0.335	1178	52.23	0.18	633	50.49	0.05	176	1.16
Solution Samples *			39	1.72		20	1.56		6	0.04
Gravity		0.2	**681**	**30.20**		**154**	**12.30**		**128**	**0.85**
Total Extraction				**84.15**			**64.35**			**2.04**
Total			2254	100.00		1253	100.00		15199	100.00
Calculated Head		0.76			0.4			5		
Assayed Head		**0.52**			**<2**			**<10**		

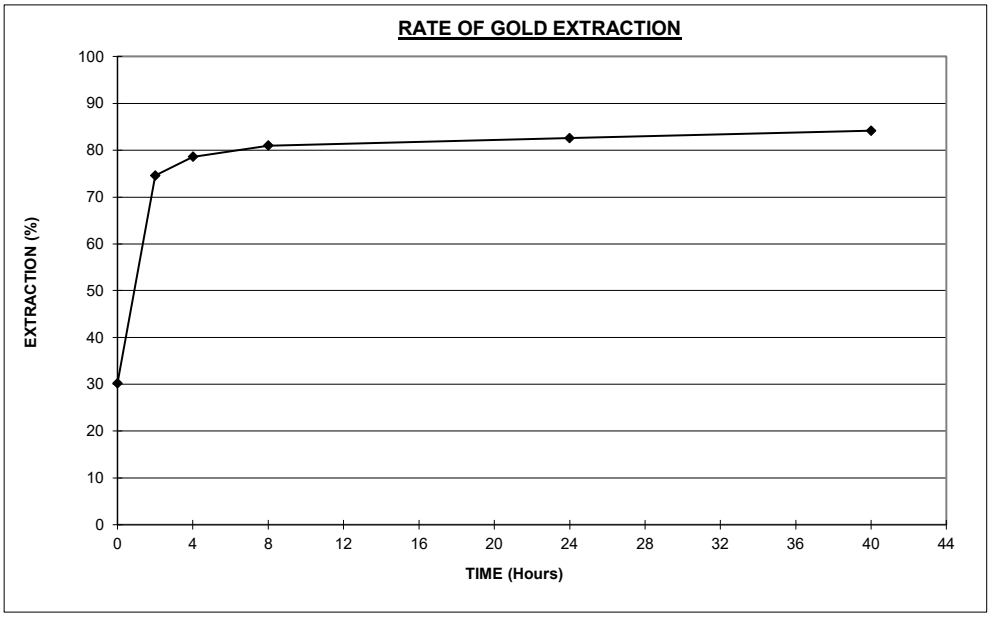
RESIDUE ASSAYS (ppm)

Au	0.12
Ag	0.15
As	5
S	0.04%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3640.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.08 (kg/t)
13. Lime consum'n (kg/t) : 0.66 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7158**
SAMPLE ID	**SOUWA TRANSITION MASTER COMPOSITE (MC-2)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2980.8	3643.0			8.3	8.07										
0		3643.0	2.55	1.78	20.0	10.50	**0.070**		0.00	0.00	0.00		29.42	4.58	1.25	
2		3618.0	0.00	0.00	26.7	9.81	0.063		0.26	0.20	0.50		84.73	28.25	20.65	
4		3593.0	0.00	0.07	22.2	9.76	0.060		0.27	0.20	0.50		86.88	28.25	20.65	
8		3568.0	0.00	0.08	20.9	9.73	0.060		0.27	0.40	0.50		87.95	51.59	20.65	
24		3543.0	0.00	0.27	20.6	9.62	0.060		0.28	0.40	0.50		89.02	51.59	20.65	
40		3518.0	0.00	0.00	22.7	9.96	0.060		0.29	0.40	0.50		**91.13**	**51.59**	**20.65**	
TOTAL			2.55	2.20												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2980.8	0.05	149	8.87	0.5	1490	48.41	3	7452	79.35
Solution (mL)	3518.0	0.285	1003	59.70	0.40	1407	45.71	0.50	1759	18.73
Solution Samples *			34	2.01		40	1.30		63	0.67
Gravity		0.2	**494**	**29.42**		**141**	**4.58**		**118**	**1.25**
Total Extraction				**91.13**			**51.59**			**20.65**
Total			1679	100.00		3079	100.00		9391	100.00
Calculated Head		0.56			1.0			3		
Assayed Head		**0.73**			**<2**			**<10**		

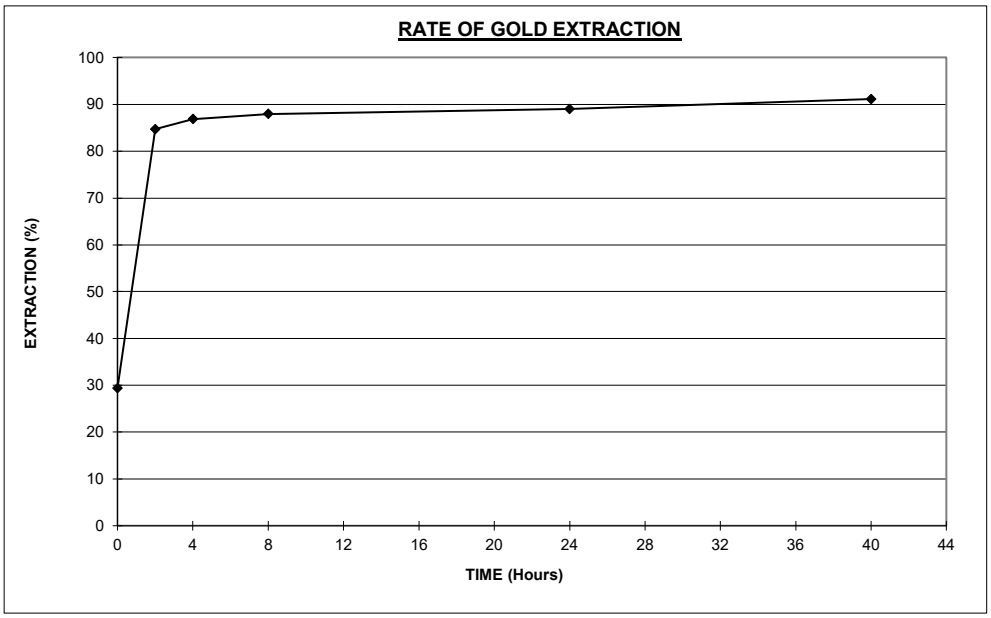
RESIDUE ASSAYS (ppm)

Au	0.05
Ag	0.5
As	2.5
S	0.06%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3643.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.86 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.74 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7171**
SAMPLE ID	**SOUWA TRANSITION MASTER COMPOSITE (MC-2)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2980.8	3643.0			7.9	7.90										
0		3643.0	1.82	1.84	20.0	10.50	**0.050**		0.00	0.00	0.00		22.27	10.24	1.53	
2		3618.0	0.00	0.00	26.8	9.94	0.048		0.28	0.20	0.05		84.05	62.64	3.88	
4		3593.0	0.00	0.00	24.1	9.88	0.040		0.31	0.20	0.05		89.53	62.64	3.88	
8		3568.0	0.00	0.00	22.0	9.83	0.040		0.31	0.22	0.05		89.53	67.81	3.88	
24		3543.0	0.00	6.12	24.7	9.73	0.038		0.33	0.24	0.05		93.85	72.94	3.88	
40		3518.0	0.00	0.00	26.0	9.72	0.038		0.32	0.22	0.05		**92.78**	**67.84**	**3.88**	
TOTAL			1.82	7.96												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2980.8	0.04	119	7.22	0.2	447	32.16	3	7452	96.12
Solution (mL)	3518.0	0.320	1126	68.18	0.22	774	55.66	0.05	176	2.27
Solution Samples *			38	2.32		27	1.94		6	0.08
Gravity		0.1	**368**	**22.27**		**142**	**10.24**		**119**	**1.53**
Total Extraction				**92.78**			**67.84**			**3.88**
Total			1651	100.00		1390	100.00		7753	100.00
Calculated Head		0.55			0.5			3		
Assayed Head		**0.73**			**<2**			**<10**		

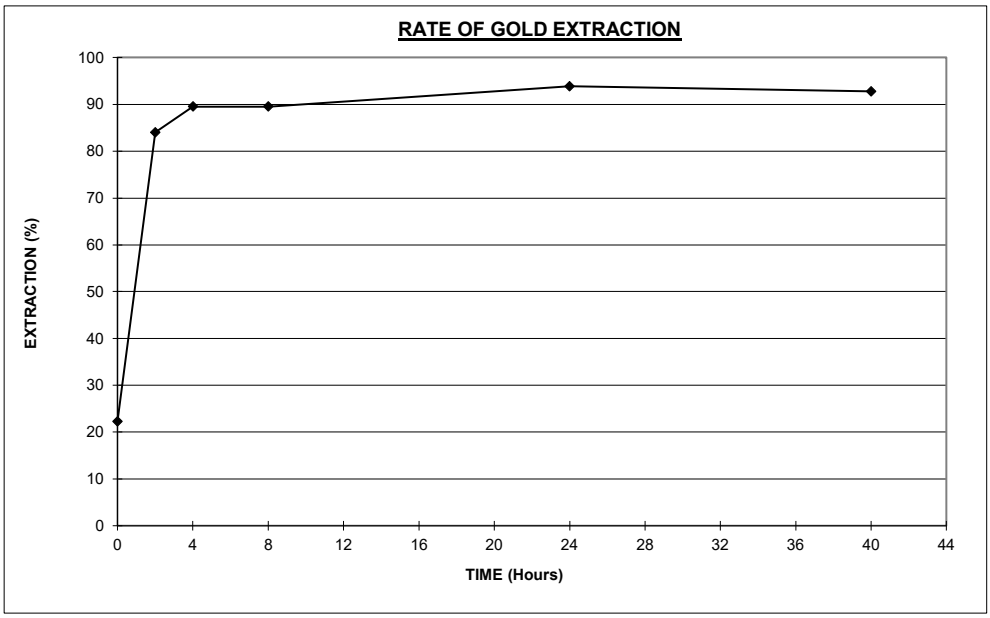
RESIDUE ASSAYS (ppm)

Au	0.04
Ag	0.15
As	2.5
S	0.06%
S2-	0.04%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3643.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.14 (kg/t)
13. Lime consum'n (kg/t) : 2.67 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7184**
SAMPLE ID	**SOUWA TRANSITION MASTER COMPOSITE (MC-2)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2980.8	3643.0			8.2	8.08										
0		3643.0	1.09	1.35	20.0	10.55	**0.030**		0.00	0.00	0.00		41.57	13.03	1.59	
2		3618.0	0.00	0.00	27.8	9.97	0.028		0.30	0.18	0.05		85.20	56.30	3.94	
4		3593.0	0.00	0.00	25.8	9.85	0.023		0.32	0.20	0.05		88.87	61.07	3.94	
8		3568.0	0.00	0.00	27.1	9.85	0.023		0.34	0.20	0.05		91.06	61.07	3.94	
24		3543.0	0.00	0.20	25.3	9.54	0.023		0.35	0.24	0.05		93.23	70.49	3.94	
40		3518.0	0.00	0.00	29.7	9.91	0.023		0.36	0.24	0.05		**93.95**	**70.49**	**3.94**	
TOTAL			1.09	1.55												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2980.8	0.05	149	6.05	0.2	447	29.51	3	7452	96.06
Solution (mL)	3518.0	0.355	1249	50.70	0.24	844	55.72	0.05	176	2.27
Solution Samples *			41	1.68		27	1.75		6	0.08
Gravity		0.3	**1024**	**41.57**		**197**	**13.03**		**123**	**1.59**
Total Extraction				**93.95**			**70.49**			**3.94**
Total			2463	100.00		1515	100.00		7758	100.00
Calculated Head		0.83			0.5			3		
Assayed Head		**0.73**			**<2**			**<10**		

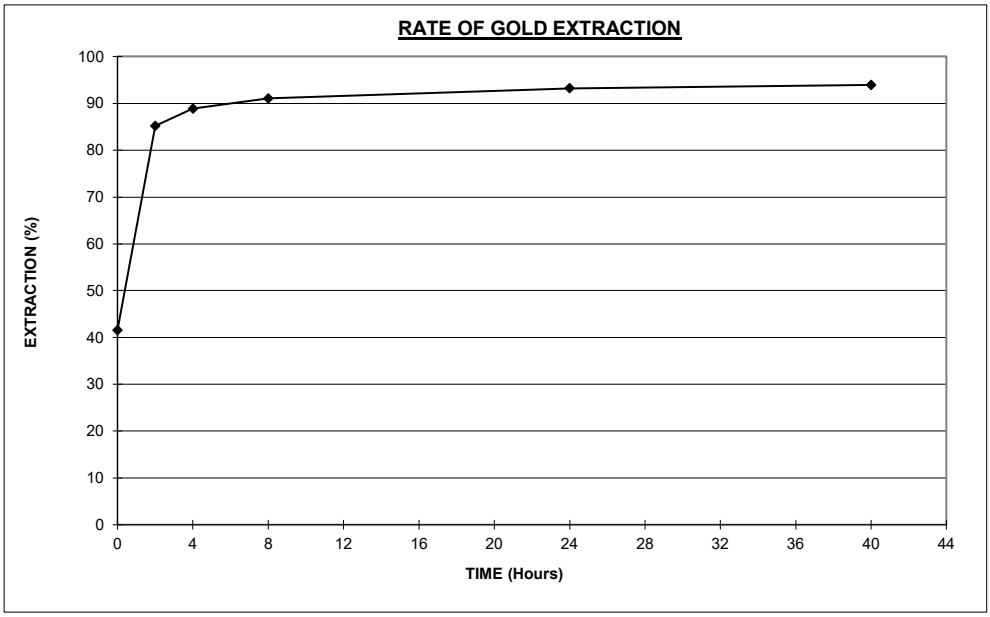
RESIDUE ASSAYS (ppm)

Au	0.05
Ag	0.15
As	2.5
S	0.04%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3643.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.08 (kg/t)
13. Lime consum'n (kg/t) : 0.52 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7213**
SAMPLE ID	**SOUWA FRESH MASTER COMPOSITE (MC-11)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2998.2	3664.0			8.0	7.81										
0		3664.0	2.57	1.06	20.0	10.54	**0.070**		0.00	0.00	0.00		42.43	24.20	1.62	
2		3639.0	0.00	0.00	25.5	10.27	0.068		0.75	0.34	0.05		74.47	70.09	3.97	
4		3614.0	0.00	0.00	26.4	10.24	0.068		0.83	0.38	0.05		77.87	75.45	3.97	
8		3589.0	0.00	0.00	28.4	10.26	0.065		0.89	0.44	0.05		80.40	83.44	3.97	
24		3564.0	0.00	0.00	27.2	10.24	0.063		1.02	0.44	0.05		85.84	83.44	3.97	
40		3539.0	0.00	0.00	23.9	10.23	0.063		1.10	0.44	0.05		**89.16**	**83.44**	**3.97**	
TOTAL			2.57	1.06												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2998.2	0.31	929	10.84	0.2	450	16.56	3	7496	96.03
Solution (mL)	3539.0	1.100	3893	45.39	0.44	1557	57.35	0.05	177	2.27
Solution Samples *			115	1.34		51	1.88		6	0.08
Gravity		1.2	**3639**	**42.43**		**657**	**24.20**		**126**	**1.62**
Total Extraction				**89.16**			**83.44**			**3.97**
Total			8576	100.00		2715	100.00		7805	100.00
Calculated Head		2.86			0.9			3		
Assayed Head		**2.45**			**<2**			**<10**		

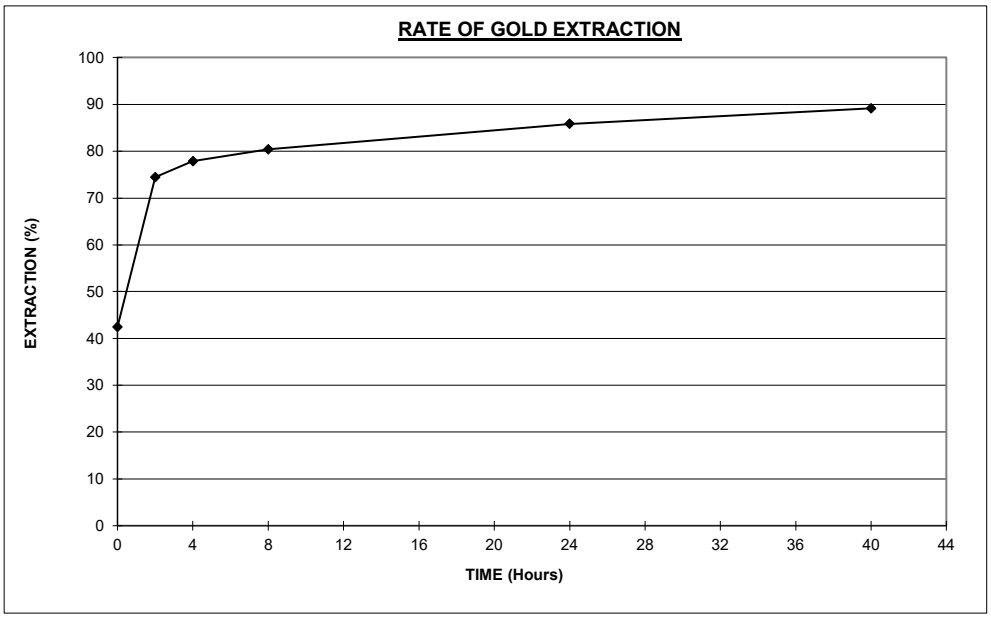
RESIDUE ASSAYS (ppm)

Au	0.31
Ag	0.15
As	2.5
S	0.60%
S2-	0.52%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3664.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.86 (kg/t)
12. NaCN consum'n (kg/t) : 0.09 (kg/t)
13. Lime consum'n (kg/t) : 0.35 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7221**
SAMPLE ID	**SOUWA FRESH MASTER COMPOSITE (MC-11)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2998.2	3664.0			6.8	7.80										
0		3664.0	1.83	1.05	20.0	10.55	**0.050**		0.00	0.00	0.00		35.18	22.46	1.65	
2		3639.0	0.00	0.00	19.3	10.30	0.048		0.73	0.30	0.05		68.79	62.50	3.99	
4		3614.0	0.00	0.00	18.0	10.28	0.048		0.82	0.38	0.05		72.91	73.10	3.99	
8		3589.0	0.00	0.00	25.6	10.28	0.045		0.89	0.42	0.05		75.86	78.37	3.99	
24		3564.0	0.00	0.00	27.1	10.26	0.045		0.99	0.48	0.05		80.59	86.21	3.99	
40		3539.0	0.00	0.00	26.4	10.39	0.043		1.07	0.46	0.05		**84.18**	**83.62**	**3.99**	
TOTAL			1.83	1.05												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2998.2	0.42	1259	15.82	0.2	450	16.38	3	7496	96.01
Solution (mL)	3539.0	1.070	3787	47.58	0.46	1628	59.30	0.05	177	2.27
Solution Samples *			112	1.41		51	1.86		6	0.08
Gravity		0.9	**2800**	**35.18**		**617**	**22.46**		**128**	**1.65**
Total Extraction				**84.18**			**83.62**			**3.99**
Total			7958	100.00		2745	100.00		7807	100.00
Calculated Head		2.65			0.9			3		
Assayed Head		**2.45**			**<2**			**<10**		

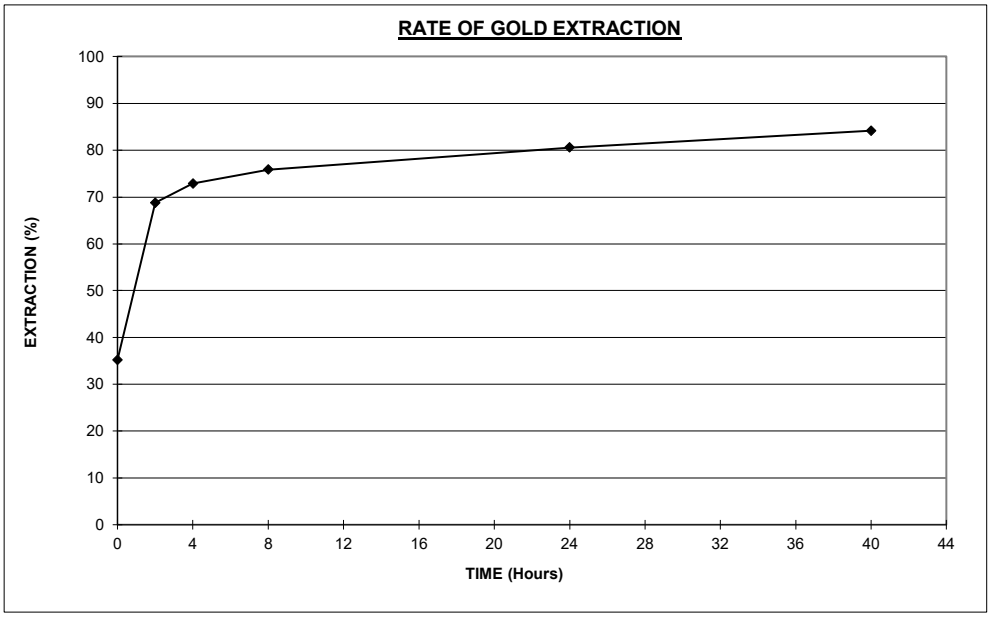
RESIDUE ASSAYS (ppm)

Au	0.42
Ag	0.15
As	2.5
S	0.54%
S2-	0.44%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.03	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3664.0	(g)
8. Grind size P 80 :	75	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.61	(kg/t)
12. NaCN consum'n (kg/t) :	0.08	(kg/t)
13. Lime consum'n (kg/t) :	0.35	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7229**
SAMPLE ID	**SOUWA FRESH MASTER COMPOSITE (MC-11)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2998.2	3664.0			8.3	7.83										
0		3664.0	1.10	0.92	20.0	10.52	**0.030**		0.00	0.00	0.00		46.34	25.28	1.59	
2		3639.0	0.00	0.00	27.6	10.15	0.030		0.66	0.28	0.05		74.54	60.13	3.94	
4		3614.0	0.00	0.00	24.1	10.05	0.028		0.75	0.38	0.05		78.60	72.49	3.94	
8		3589.0	0.00	0.00	23.7	10.03	0.028		0.80	0.44	0.05		80.72	79.86	3.94	
24		3564.0	0.00	0.00	25.4	10.11	0.025		0.94	0.46	0.05		86.62	82.30	3.94	
40		3539.0	0.00	0.00	25.3	10.03	0.025		0.97	0.48	0.05		**87.67**	**84.72**	**3.94**	
TOTAL			1.10	0.92												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2998.2	0.35	1049	12.33	0.2	450	15.28	3	7496	96.06
Solution (mL)	3539.0	0.965	3415	40.13	0.48	1699	57.71	0.05	177	2.27
Solution Samples *			103	1.21		51	1.73		6	0.08
Gravity		1.3	**3944**	**46.34**		**744**	**25.28**		**124**	**1.59**
Total Extraction				**87.67**			**84.72**			**3.94**
Total			8511	100.00		2944	100.00		7803	100.00
Calculated Head		2.84			1.0			3		
Assayed Head		**2.45**			**<2**			**<10**		

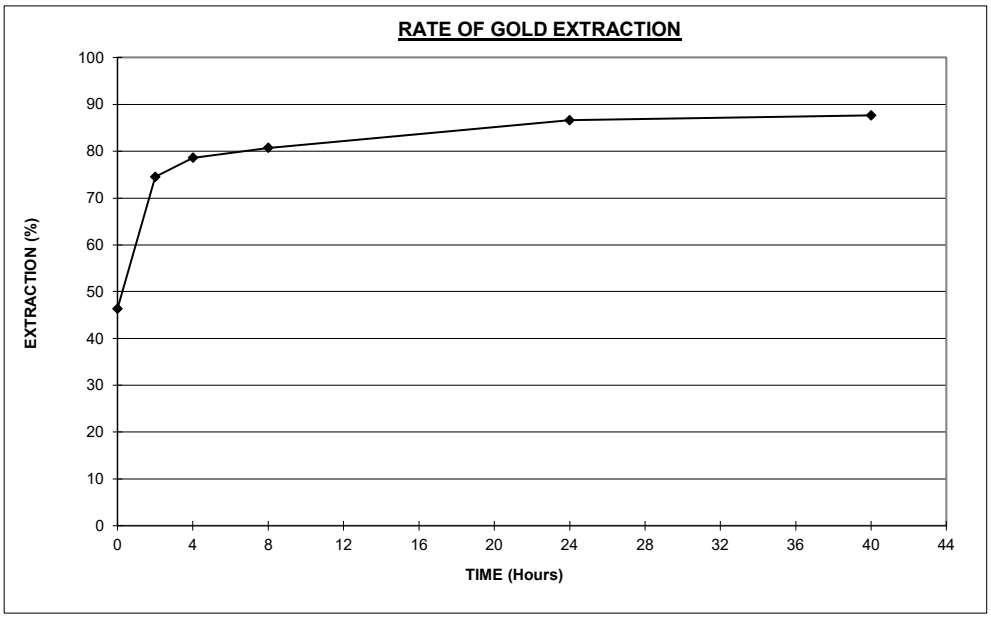
RESIDUE ASSAYS (ppm)

Au	0.35	
Ag	0.15	TBC
As	2.5	TBC
S		
S2-		

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3664.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.06 (kg/t)
13. Lime consum'n (kg/t) : 0.31 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7267**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-26)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2976.0	3637.3			6.6	7.68										
0		3637.3	3.64	3.06	20.0	10.50	**0.100**		0.00	0.00	0.00		55.56	12.14	1.34	
2		3612.3	0.00	0.00	21.9	10.19	0.085		0.45	2.60	0.50		93.79	83.39	20.72	
4		3587.3	0.00	0.00	19.8	10.07	0.085		0.45	2.60	0.50		93.79	83.39	20.72	
8		3562.3	0.00	0.00	20.7	10.04	0.083		0.45	2.80	0.50		93.79	88.79	20.72	
24		3537.3	0.00	0.00	23.8	9.96	0.083		0.45	2.80	0.50		93.79	88.79	20.72	
40		3512.3	0.00	0.00	28.4	10.04	0.078		0.50	2.80	0.50		**97.92**	**88.79**	**20.72**	
TOTAL			3.64	3.06												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2976.0	0.03	89	2.08	0.5	1488	11.21	3	7440	79.28
Solution (mL)	3512.3	0.500	1756	41.01	2.80	9835	74.09	0.50	1756	18.71
Solution Samples *			58	1.34		340	2.56		63	0.67
Gravity		0.8	**2380**	**55.56**		**1612**	**12.14**		**126**	**1.34**
Total Extraction				**97.92**			**88.79**			**20.72**
Total			4282	100.00		13274	100.00		9385	100.00
Calculated Head		1.44			4.5			3		
Assayed Head		**0.50**								

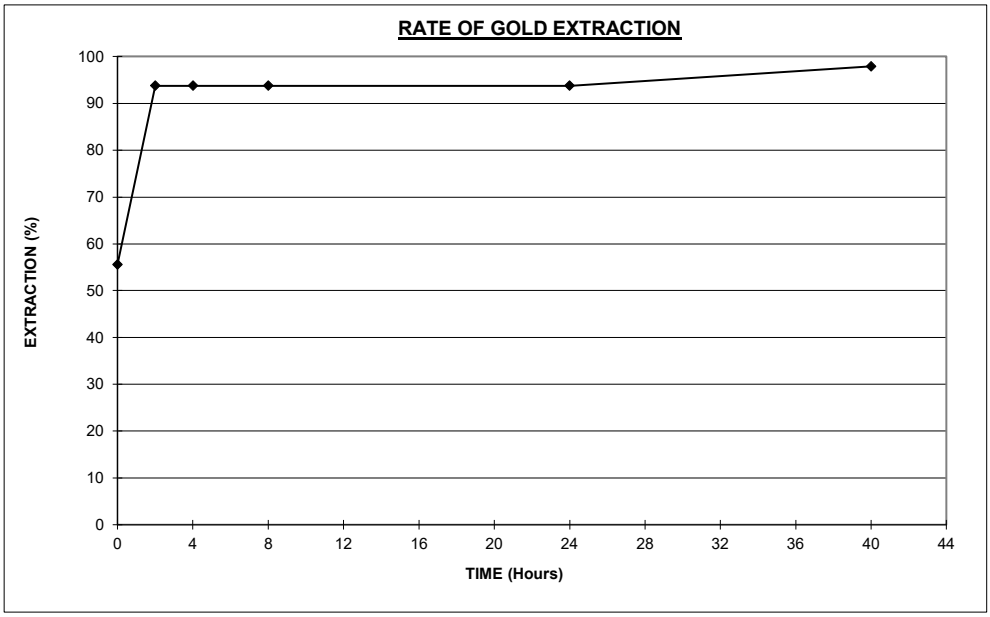
RESIDUE ASSAYS (ppm)

Au	0.03
Ag	0.5
As	2.5
S	<0.02
S2-	<0.02

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	>0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3637.3	(g)
8. Grind size P 80 :	125	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.27	(kg/t)
13. Lime consum'n (kg/t) :	1.03	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7268**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-26)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2976.0	3637.3			6.8	7.69										
0		3637.3	3.64	2.29	20.0	10.51	**0.100**		0.00	0.00	0.00		34.01	8.79	1.36	
2		3612.3	0.00	0.00	22.8	10.03	0.083		0.35	2.80	0.50		95.68	88.44	20.74	
4		3587.3	0.00	0.00	22.1	9.94	0.078		0.35	2.80	0.50		95.68	88.44	20.74	
8		3562.3	0.00	0.00	22.9	9.98	0.075		0.35	2.60	0.50		95.68	82.83	20.74	
24		3537.3	0.00	0.00	24.0	9.87	0.075		0.35	2.60	0.50		95.68	82.83	20.74	
40		3512.3	0.00	0.00	23.8	9.93	0.070		0.35	2.80	0.50		**95.68**	**88.36**	**20.74**	
TOTAL			3.64	2.29												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2976.0	0.03	89	4.32	0.5	1488	11.64	3	7440	79.26
Solution (mL)	3512.3	0.350	1229	59.54	2.80	9835	76.92	0.50	1756	18.71
Solution Samples *			44	2.12		340	2.66		63	0.67
Gravity		0.2	**702**	**34.01**		**1124**	**8.79**		**128**	**1.36**
Total Extraction				**95.68**			**88.36**			**20.74**
Total			2065	100.00		12786	100.00		9386	100.00
Calculated Head		0.69			4.3			3		
Assayed Head		**0.50**								

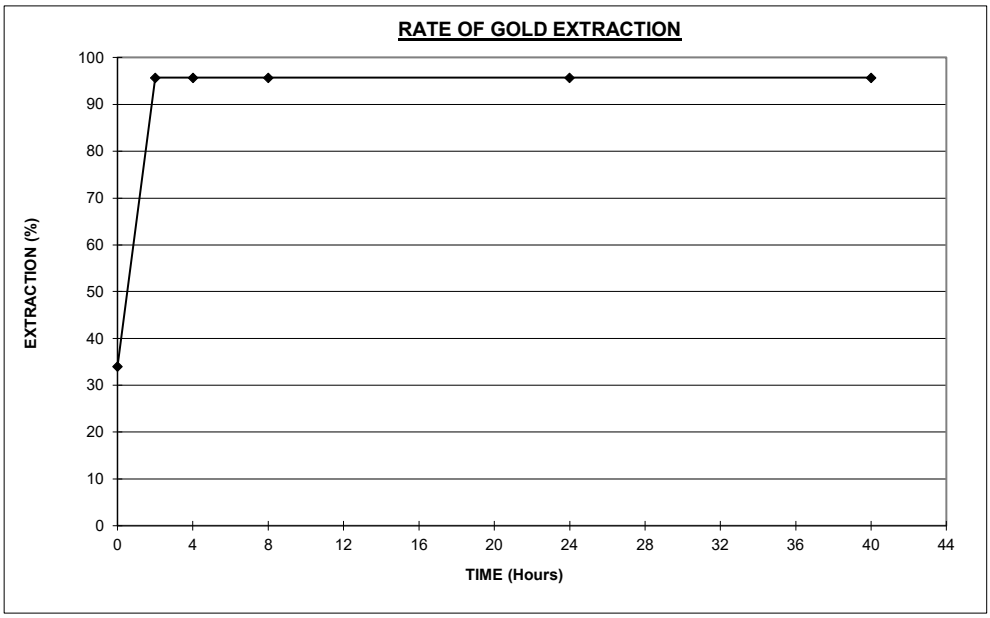
RESIDUE ASSAYS (ppm)

Au	0.03
Ag	0.5
As	2.5
S	<0.02
S2-	<0.02

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	>0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3637.3	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.36	(kg/t)
13. Lime consum'n (kg/t) :	0.77	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7269**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-26)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2976.0	3637.3			6.6	7.64										
0		3637.3	3.64	2.03	20.0	10.55	**0.100**		0.00	0.00	0.00		47.71	8.04	2.44	
2		3612.3	0.00	0.00	22.6	9.96	0.083		0.35	2.80	0.50		97.62	88.28	21.61	
4		3587.3	0.00	0.00	20.1	9.91	0.078		0.35	2.80	0.50		97.62	88.28	21.61	
8		3562.3	0.00	0.00	22.6	9.92	0.075		0.40	2.80	0.50		104.65	88.28	21.61	
24		3537.3	0.00	0.00	27.6	9.81	0.075		0.35	2.80	0.50		97.67	88.28	21.61	
40		3512.3	0.00	0.00	24.5	9.88	0.073		0.35	2.80	0.50		**97.67**	**88.28**	**21.61**	
TOTAL			3.64	2.03												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2976.0	0.02	60	2.33	0.5	1488	11.72	3	7440	78.39
Solution (mL)	3512.3	0.350	1229	48.19	2.80	9835	77.48	0.50	1756	18.50
Solution Samples *			45	1.76		350	2.76		63	0.66
Gravity		0.4	**1217**	**47.71**		**1020**	**8.04**		**232**	**2.44**
Total Extraction				**97.67**			**88.28**			**21.61**
Total			2551	100.00		12693	100.00		9491	100.00
Calculated Head		0.86			4.3			3		
Assayed Head		**0.50**								

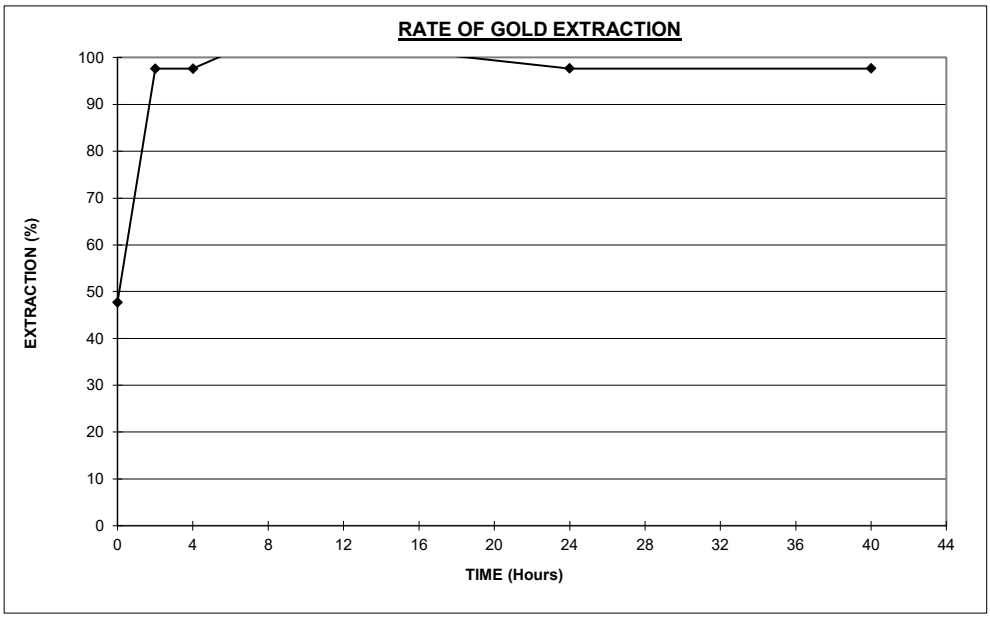
* : Intermediate solution samples removed during the test.

RESIDUE ASSAYS (ppm)

Au	0.02
Ag	0.5
As	2.5
S	<0.02
S2-	<0.02

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : >0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3637.3 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.33 (kg/t)
13. Lime consum'n (kg/t) : 0.68 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7246**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-8)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2991.9	3657.0			9.3	7.77										
0		3657.0	3.66	2.92	20.0	10.56	**0.100**		0.00	0.00	0.00		28.65	10.62	1.59	
2		3632.0	0.00	0.00	23.7	10.20	0.090		0.28	3.42	0.05		91.20	96.91	3.94	
4		3607.0	0.00	0.00	21.2	10.10	0.090		0.29	3.40	0.05		92.31	96.41	3.94	
8		3582.0	0.00	0.00	22.4	10.14	0.085		0.30	3.38	0.05		94.52	95.91	3.94	
24		3557.0	0.00	0.00	34.4	10.00	0.085		0.30	3.42	0.05		94.52	96.90	3.94	
40		3532.0	0.00	0.00	24.4	10.21	0.083		0.30	3.42	0.05		**94.52**	**96.90**	**3.94**	
TOTAL			3.66	2.92												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2991.9	0.03	90	5.48	0.2	449	3.10	3	7480	96.06
Solution (mL)	3532.0	0.295	1042	63.65	3.42	12079	83.35	0.05	177	2.27
Solution Samples *			36	2.21		426	2.94		6	0.08
Gravity		0.2	**469**	**28.65**		**1539**	**10.62**		**124**	**1.59**
Total Extraction				**94.52**			**96.90**			**3.94**
Total			1637	100.00		14493	100.00		7787	100.00
Calculated Head		0.55			4.8			3		
Assayed Head		**0.48**								

* : Intermediate solution samples removed during the test.

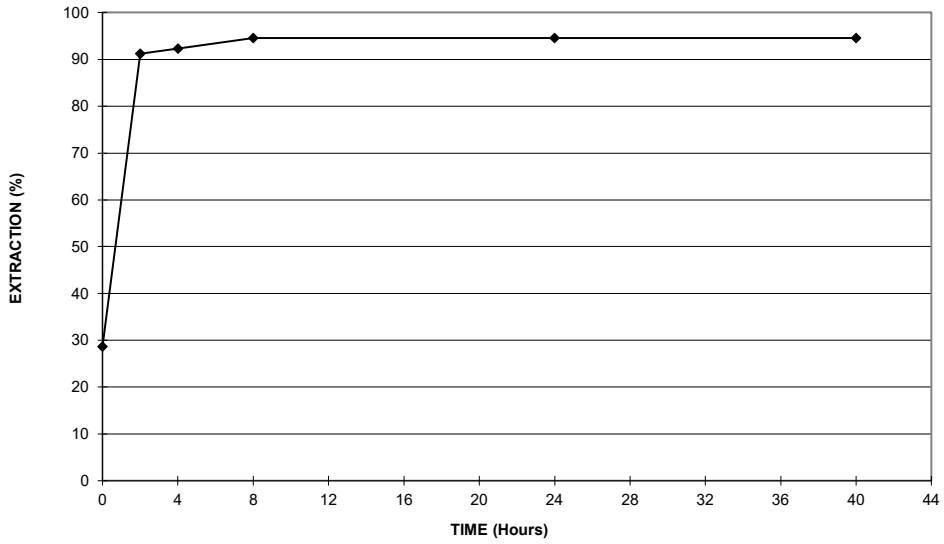
RESIDUE ASSAYS (ppm)

Au	0.03
Ag	0.15
As	2.5
S	<0.02%
S2-	<0.02%

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	>0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3657.0	(g)
8. Grind size P 80 :	125	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.21	(kg/t)
13. Lime consum'n (kg/t) :	0.98	(kg/t)

RATE OF GOLD EXTRACTION



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7247**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-8)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2991.9	3657.0			9.4	7.83										
0		3657.0	3.66	2.46	20.0	10.50	**0.100**		0.00	0.00	0.00		25.70	10.10	1.61	
2		3632.0	0.00	0.00	24.1	10.10	0.090		0.26	3.36	0.05		86.56	95.38	3.96	
4		3607.0	0.00	0.00	20.3	10.00	0.088		0.28	3.38	0.05		90.05	95.88	3.96	
8		3582.0	0.00	0.00	24.5	10.05	0.085		0.28	3.42	0.05		91.20	96.88	3.96	
24		3557.0	0.00	0.00	32.2	9.93	0.083		0.28	3.44	0.05		91.20	97.38	3.96	
40		3532.0	0.00	0.00	23.7	10.07	0.083		0.29	3.42	0.05		**92.34**	**96.89**	**3.96**	
TOTAL			3.66	2.46												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2991.9	0.04	120	7.66	0.2	449	3.11	3	7480	96.04
Solution (mL)	3532.0	0.285	1007	64.43	3.42	12079	83.83	0.05	177	2.27
Solution Samples *			35	2.21		426	2.95		6	0.08
Gravity		0.1	**402**	**25.70**		**1456**	**10.10**		**125**	**1.61**
Total Extraction				**92.34**			**96.89**			**3.96**
Total			1562	100.00		14409	100.00		7788	100.00
Calculated Head		0.52			4.8			3		
Assayed Head		**0.48**								

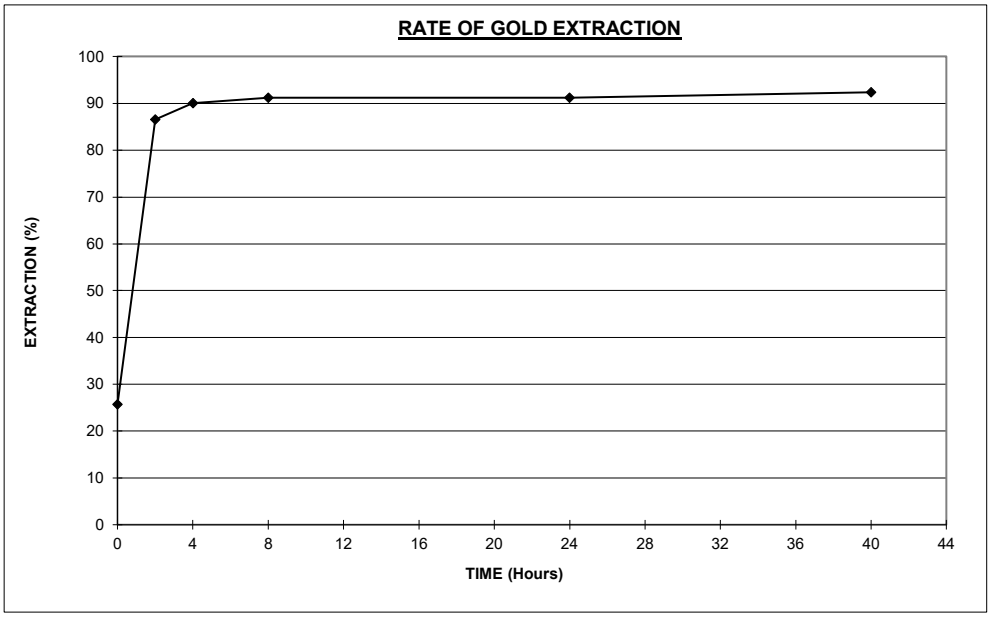
* : Intermediate solution samples removed during the test.

RESIDUE ASSAYS (ppm)

Au	0.04
Ag	0.15
As	2.5
S	<0.02%
S2-	<0.02%

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	>0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3657.0	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.21	(kg/t)
13. Lime consum'n (kg/t) :	0.82	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7248**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-8)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2991.9	3657.0			9.3	7.83										
0		3657.0	3.66	2.82	20.0	10.53	**0.100**		0.00	0.00	0.00		22.67	9.54	1.49	
2		3632.0	0.00	0.00	22.4	10.31	0.090		0.28	3.76	0.05		91.01	103.92	3.84	
4		3607.0	0.00	0.00	22.3	10.22	0.090		0.29	3.44	0.05		94.72	95.94	3.84	
8		3582.0	0.00	0.00	26.5	10.28	0.085		0.29	3.44	0.05		94.72	95.94	3.84	
24		3557.0	0.00	0.00	36.5	10.17	0.085		0.30	3.46	0.05		95.93	96.43	3.84	
40		3532.0	0.00	0.00	22.2	10.26	0.085		0.30	3.48	0.05		**95.93**	**96.92**	**3.84**	
TOTAL			3.66	2.82												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2991.9	0.02	60	4.07	0.2	449	3.08	3	7480	96.16
Solution (mL)	3532.0	0.295	1042	70.81	3.48	12291	84.37	0.05	177	2.27
Solution Samples *			36	2.46		440	3.02		6	0.08
Gravity		0.1	**334**	**22.67**		**1390**	**9.54**		**116**	**1.49**
Total Extraction				**95.93**			**96.92**			**3.84**
Total			1471	100.00		14569	100.00		7778	100.00
Calculated Head		0.49			4.9			3		
Assayed Head		**0.48**								

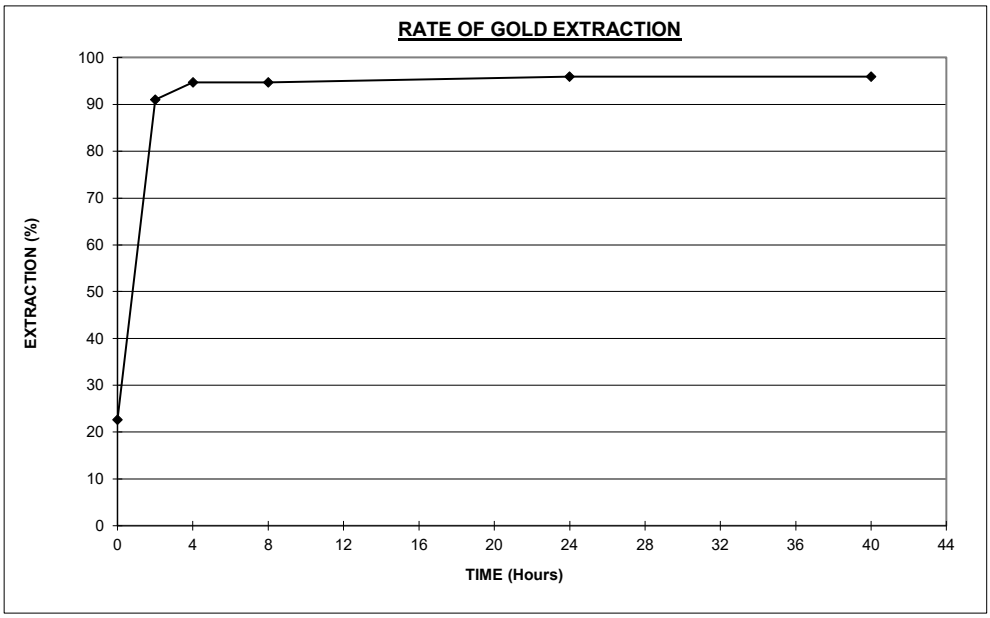
RESIDUE ASSAYS (ppm)

Au	0.02
Ag	0.15
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : >0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3657.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 0.94 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7249**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-9)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2973.0	3634.0			9.4	7.74										
0		3634.0	3.63	2.31	10.5	10.50	**0.100**		0.00	0.00	0.00		48.71	13.75	1.64	
2		3609.0	0.00	0.00	10.0	10.04	0.088		0.36	2.84	0.05		95.26	91.26	3.99	
4		3584.0	0.00	0.00	10.0	9.96	0.088		0.37	2.92	0.05		96.56	93.42	3.99	
8		3559.0	0.00	0.00	10.0	10.00	0.085		0.38	3.04	0.05		97.85	96.65	3.99	
24		3534.0	0.00	0.00	9.9	9.91	0.080		0.38	3.02	0.05		97.85	96.12	3.99	
40		3509.0	0.00	0.00	10.0	10.01	0.075		0.38	3.04	0.05		**97.85**	**96.65**	**3.99**	
TOTAL			3.63	2.31												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2973.0	0.02	59	2.15	0.2	446	3.35	3	7433	96.01
Solution (mL)	3509.0	0.375	1316	47.48	3.04	10667	80.12	0.05	175	2.27
Solution Samples *			46	1.66		372	2.79		6	0.08
Gravity		0.5	**1350**	**48.71**		**1830**	**13.75**		**127**	**1.64**
Total Extraction				**97.85**			**96.65**			**3.99**
Total			2771	100.00		13315	100.00		7741	100.00
Calculated Head		0.93			4.5			3		
Assayed Head		**0.42**								

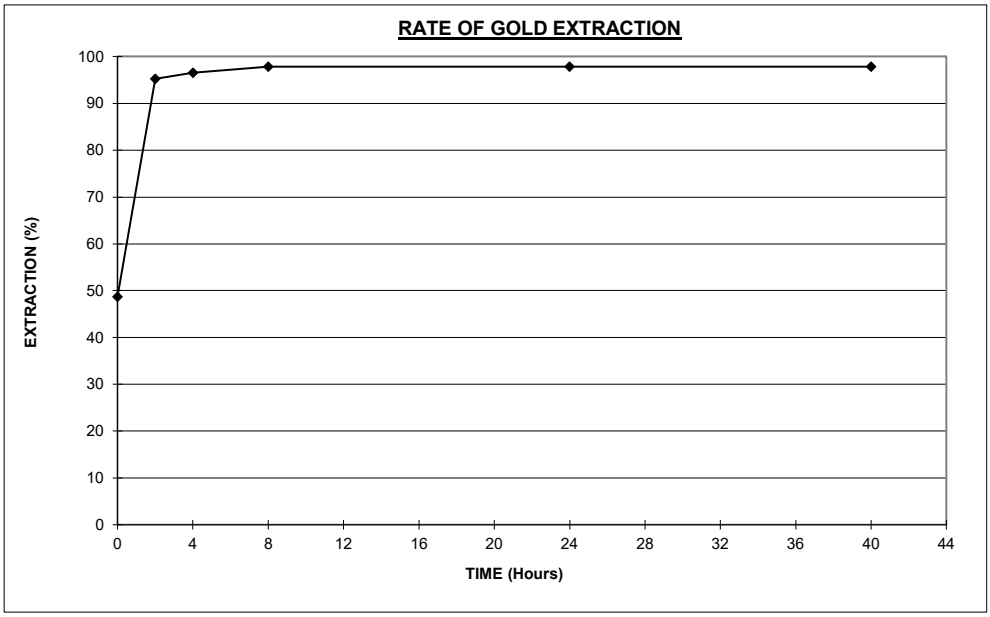
RESIDUE ASSAYS (ppm)

Au	0.02
Ag	0.15
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	>0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3634.0	(g)
8. Grind size P 80 :	125	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.30	(kg/t)
13. Lime consum'n (kg/t) :	0.78	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7250**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-9)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2973.0	3634.0			9.4	7.73										
0		3634.0	3.63	2.46	20.0	10.51	**0.100**		0.00	0.00	0.00		44.23	15.38	1.67	
2		3609.0	0.00	0.00	26.1	10.02	0.088		0.36	2.98	0.05		92.06	95.64	4.02	
4		3584.0	0.00	0.00	23.3	9.96	0.090		0.37	2.96	0.05		94.06	95.11	4.02	
8		3559.0	0.00	0.00	26.8	10.01	0.080		0.37	2.96	0.05		94.06	95.11	4.02	
24		3534.0	0.00	0.00	34.2	9.91	0.078		0.38	3.04	0.05		95.38	97.22	4.02	
40		3509.0	0.00	0.00	23.2	9.98	0.075		0.39	3.02	0.05		**96.69**	**96.69**	**4.02**	
TOTAL			3.63	2.46												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2973.0	0.03	89	3.31	0.2	446	3.31	3	7433	95.98
Solution (mL)	3509.0	0.390	1369	50.73	3.02	10597	78.54	0.05	175	2.27
Solution Samples *			47	1.73		374	2.77		6	0.08
Gravity		0.4	**1193**	**44.23**		**2075**	**15.38**		**130**	**1.67**
Total Extraction				**96.69**			**96.69**			**4.02**
Total			2698	100.00		13492	100.00		7744	100.00
Calculated Head		0.91			4.5			3		
Assayed Head		**0.42**								

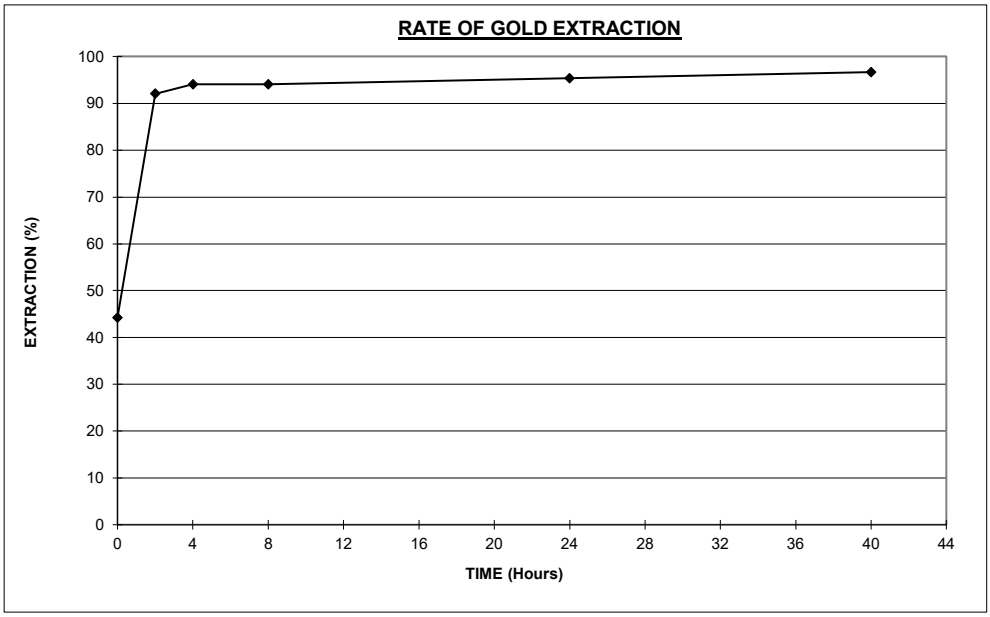
RESIDUE ASSAYS (ppm)

Au	0.03
Ag	0.15
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	>0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3634.0	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.30	(kg/t)
13. Lime consum'n (kg/t) :	0.83	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7251**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-9)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2973.0	3634.0			9.3	7.72										
0		3634.0	3.63	2.60	20.0	10.52	**0.100**		0.00	0.00	0.00		37.14	12.61	1.50	
2		3609.0	0.00	0.00	22.9	10.04	0.088		0.32	3.38	0.05		95.15	105.34	3.85	
4		3584.0	0.00	0.00	21.2	9.97	0.088		0.33	3.12	0.05		96.98	98.25	3.85	
8		3559.0	0.00	0.00	27.9	10.04	0.083		0.33	3.10	0.05		97.89	97.71	3.85	
24		3534.0	0.00	0.00	35.8	9.93	0.080		0.33	3.04	0.05		96.99	96.10	3.85	
40		3509.0	0.00	0.00	23.1	9.97	0.078		0.33	3.06	0.05		**96.99**	**96.63**	**3.85**	
TOTAL			3.63	2.60												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2973.0	0.02	59	3.01	0.2	446	3.37	3	7433	96.15
Solution (mL)	3509.0	0.325	1140	57.79	3.06	10738	81.06	0.05	175	2.27
Solution Samples *			41	2.05		393	2.96		6	0.08
Gravity		0.2	**733**	**37.14**		**1670**	**12.61**		**116**	**1.50**
Total Extraction				**96.99**			**96.63**			**3.85**
Total			1973	100.00		13246	100.00		7730	100.00
Calculated Head		0.66			4.5			3		
Assayed Head		**0.42**								

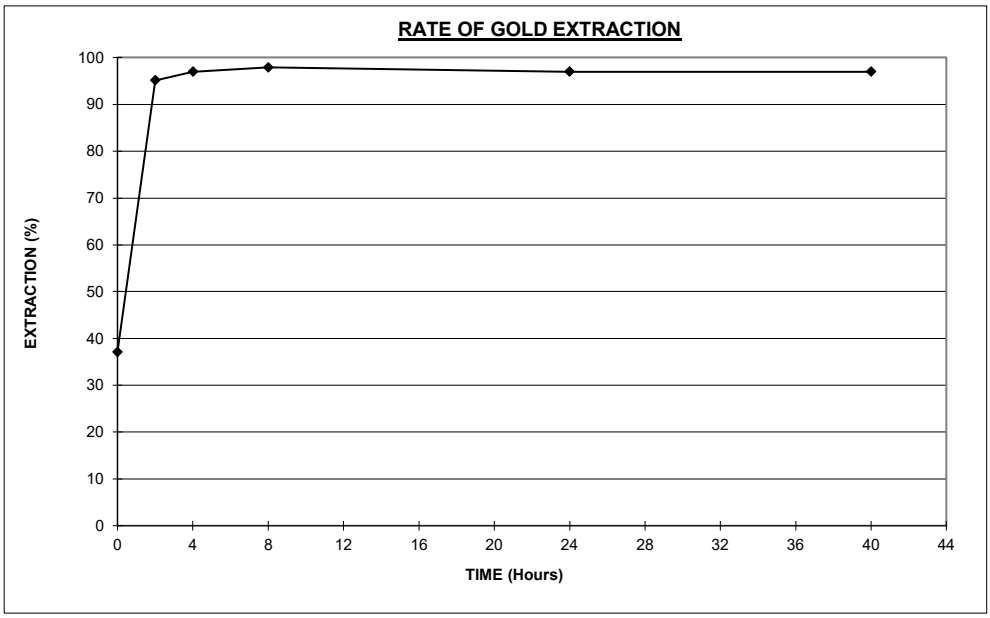
* : Intermediate solution samples removed during the test.

RESIDUE ASSAYS (ppm)

Au	0.02
Ag	0.15
As	2.5
S	<0.02%
S2-	<0.02%

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : >0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3634.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.27 (kg/t)
13. Lime consum'n (kg/t) : 0.87 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7302**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-26)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**May-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2976.0	3637.3			5.6	7.65										
0		3637.3	2.55	3.32	20.0	10.54	**0.070**		0.00	0.00	0.00		35.93	9.93	1.32	
2		3612.3	0.00	0.00	17.1	10.10	0.060		0.30	2.60	0.50		96.69	92.23	20.71	
4		3587.3	0.00	0.00	23.1	10.09	0.058		0.30	2.60	0.50		96.69	92.23	20.71	
8		3562.3	0.00	0.00	24.6	10.28	0.058		0.30	2.60	0.50		96.69	92.23	20.71	
24		3537.3	0.00	0.00	29.8	10.01	0.058		0.30	2.60	0.50		96.69	92.23	20.71	
40		3512.3	0.00	0.00	27.9	10.17	0.055		0.30	2.60	0.50		**96.69**	**92.23**	**20.71**	
TOTAL			2.55	3.32												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2976.0	0.02	60	3.31	0.3	893	7.77	3	7440	79.29
Solution (mL)	3512.3	0.300	1054	58.67	2.60	9132	79.47	0.50	1756	18.72
Solution Samples *			38	2.09		325	2.83		63	0.67
Gravity		0.2	**645**	**35.93**		**1142**	**9.93**		**124**	**1.32**
Total Extraction				**96.69**			**92.23**			**20.71**
Total			1796	100.00		11491	100.00		9383	100.00
Calculated Head		0.60			3.9			3		
Assayed Head		**0.50**								

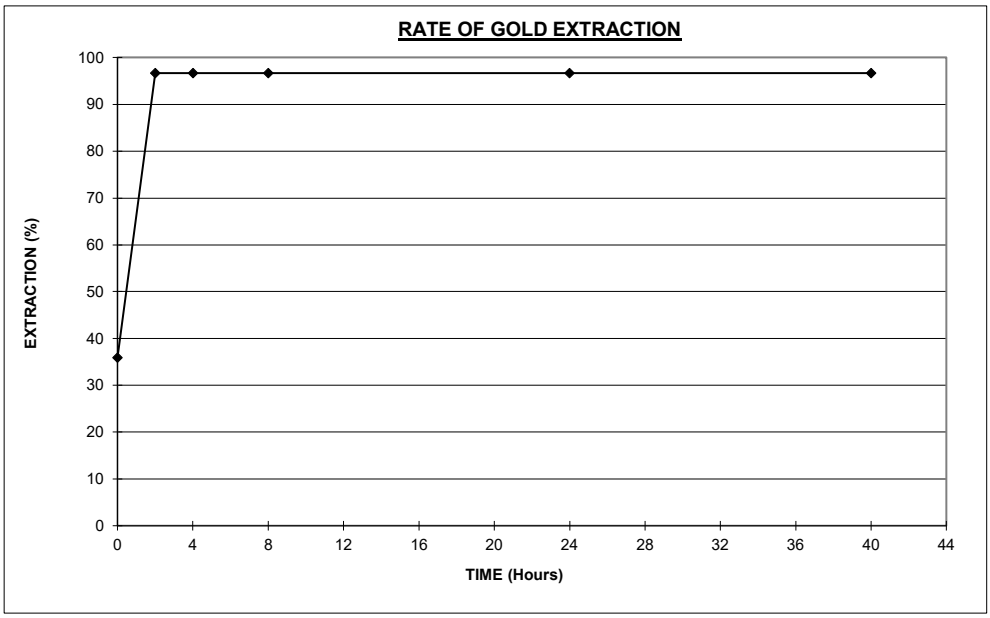
RESIDUE ASSAYS (ppm)

Au	0.02
Ag	0.3
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3637.3 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.86 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 1.12 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7303**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-26)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**May-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2976.0	3637.3			5.8	7.66										
0		3637.3	1.82	3.04	20.0	10.50	**0.050**		0.00	0.00	0.00		38.31	10.92	1.35	
2		3612.3	0.00	0.00	16.9	10.01	0.045		0.35	2.60	0.50		96.54	92.32	20.73	
4		3587.3	0.00	0.00	24.0	10.01	0.043		0.35	2.60	0.50		96.54	92.32	20.73	
8		3562.3	0.00	0.00	24.6	10.18	0.043		0.35	2.60	0.50		96.54	92.32	20.73	
24		3537.3	0.00	0.00	29.1	9.87	0.040		0.40	2.60	0.50		104.69	92.32	20.73	
40		3512.3	0.00	0.00	30.2	10.06	0.040		0.35	2.60	0.50		**96.60**	**92.32**	**20.73**	
TOTAL			1.82	3.04												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2976.0	0.03	74	3.40	0.3	893	7.68	3	7440	79.27
Solution (mL)	3512.3	0.350	1229	56.23	2.60	9132	78.60	0.50	1756	18.71
Solution Samples *			45	2.06		325	2.80		63	0.67
Gravity		0.3	**838**	**38.31**		**1269**	**10.92**		**127**	**1.35**
Total Extraction				**96.60**			**92.32**			**20.73**
Total			2186	100.00		11619	100.00		9386	100.00
Calculated Head		0.73			3.9			3		
Assayed Head		**0.50**								

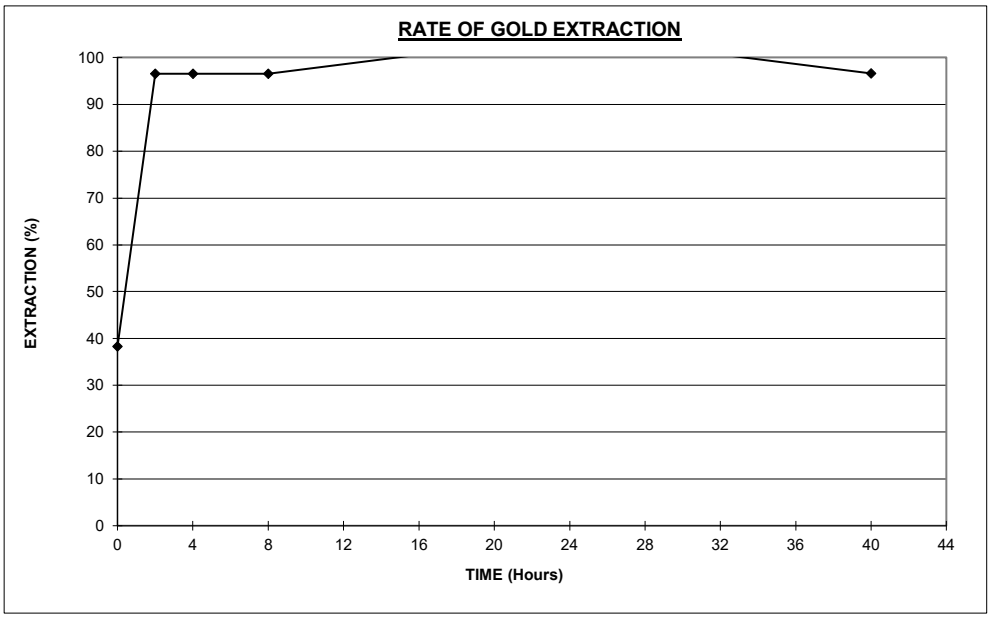
RESIDUE ASSAYS (ppm)

Au	0.03
Ag	0.3
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3637.3 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 1.02 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7304**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-26)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**May-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2976.0	3637.3			5.8	7.71										
0		3637.3	1.09	2.73	20.0	10.50	**0.030**		0.00	0.00	0.00		26.42	9.63	1.33	
2		3612.3	0.00	0.00	17.9	9.96	0.025		0.25	2.40	0.50		84.63	85.96	20.71	
4		3587.3	0.00	0.00	23.8	9.95	0.023		0.30	2.40	0.50		96.19	85.96	20.71	
8		3562.3	0.00	0.00	24.6	10.13	0.023		0.30	2.40	0.50		96.19	85.96	20.71	
24		3537.3	0.00	0.00	29.0	9.80	0.023		0.30	2.60	0.50		96.19	92.19	20.71	
40		3512.3	0.00	0.00	32.2	10.00	0.023		0.30	2.60	0.50		**96.19**	**92.19**	**20.71**	
TOTAL			1.09	2.73												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2976.0	0.02	60	3.81	0.3	893	7.81	3	7440	79.29
Solution (mL)	3512.3	0.300	1054	67.45	2.60	9132	79.86	0.50	1756	18.71
Solution Samples *			36	2.32		310	2.71		63	0.67
Gravity		0.1	**413**	**26.42**		**1101**	**9.63**		**125**	**1.33**
Total Extraction				**96.19**			**92.19**			**20.71**
Total			1562	100.00		11436	100.00		9384	100.00
Calculated Head		0.52			3.8			3		
Assayed Head		**0.50**								

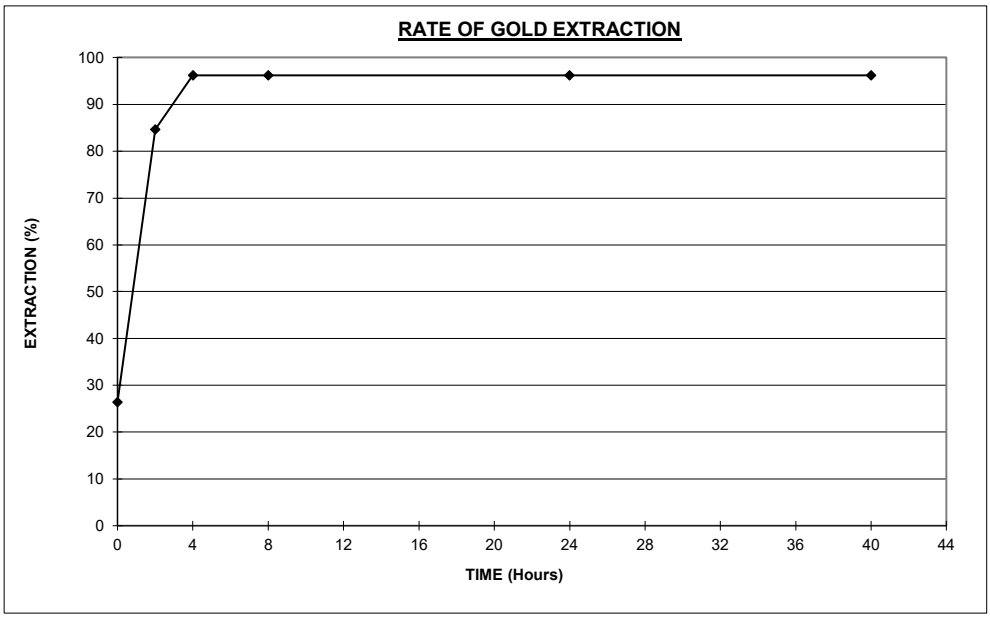
RESIDUE ASSAYS (ppm)

Au	0.02
Ag	0.3
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.030	(%)
2. Maintain % NaCN :	0.02	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3637.3	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.37	(kg/t)
12. NaCN consum'n (kg/t) :	0.08	(kg/t)
13. Lime consum'n (kg/t) :	0.92	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7293**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-8)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**May-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2991.9	3657.0			8.5	7.84										
0		3657.0	2.56	2.22	20.0	10.51	**0.070**		0.00	0.00	0.00		21.61	9.37	1.36	
2		3632.0	0.00	0.00	28.2	10.15	0.058		0.25	3.20	0.50		95.09	91.73	20.73	
4		3607.0	0.00	0.00	28.3	10.08	0.058		0.25	3.40	0.50		95.09	96.84	20.73	
8		3582.0	0.00	0.00	24.8	10.05	0.055		0.25	3.40	0.50		95.09	96.84	20.73	
24		3557.0	0.00	0.00	25.8	9.93	0.055		0.30	3.40	0.50		109.48	96.84	20.73	
40		3532.0	0.00	0.00	21.0	9.87	0.055		0.25	3.40	0.50		**95.19**	**96.84**	**20.73**	
TOTAL			2.56	2.22												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2991.9	0.02	60	4.81	0.2	449	3.16	3	7480	79.27
Solution (mL)	3532.0	0.250	883	70.97	3.40	12009	84.51	0.50	1766	18.71
Solution Samples *			33	2.61		420	2.96		63	0.66
Gravity		0.1	**269**	**21.61**		**1332**	**9.37**		**128**	**1.36**
Total Extraction				**95.19**			**96.84**			**20.73**
Total			1244	100.00		14209	100.00		9436	100.00
Calculated Head		0.42			4.7			3		
Assayed Head		**0.48**								

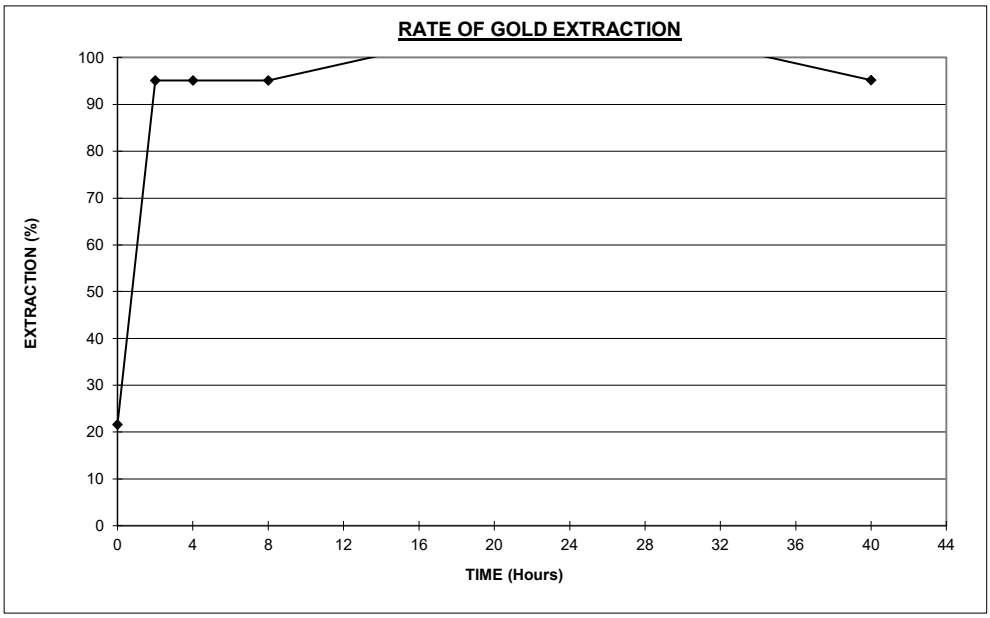
RESIDUE ASSAYS (ppm)

Au	0.02
Ag	0.15
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3657.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.86 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 0.74 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7295**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-8)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**May-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2991.9	3657.0			7.5	7.82										
0		3657.0	1.83	2.56	20.0	10.58	**0.050**		0.00	0.00	0.00		21.82	8.01	0.40	
2		3632.0	0.00	0.00	27.5	10.12	0.043		0.25	3.20	0.50		82.11	84.70	6.14	
4		3607.0	0.00	0.00	29.4	10.08	0.040		0.30	3.40	0.50		94.08	89.46	6.14	
8		3582.0	0.00	0.00	26.8	10.05	0.040		0.30	3.40	0.50		94.08	89.46	6.14	
24		3557.0	0.00	0.00	26.9	9.92	0.038		0.30	3.40	0.50		94.08	89.46	6.14	
40		3532.0	0.00	0.00	24.0	9.87	0.038		0.30	3.60	0.50		**94.08**	**94.12**	**6.14**	
TOTAL			1.83	2.56												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2991.9	0.03	90	5.92	0.3	898	5.88	10	29919	93.86
Solution (mL)	3532.0	0.300	1060	69.87	3.60	12715	83.33	0.50	1766	5.54
Solution Samples *			36	2.39		425	2.79		63	0.20
Gravity		0.1	**331**	**21.82**		**1222**	**8.01**		**127**	**0.40**
Total Extraction				**94.08**			**94.12**			**6.14**
Total			1516	100.00		15259	100.00		31875	100.00
Calculated Head		0.51			5.1			11		
Assayed Head		**0.48**								

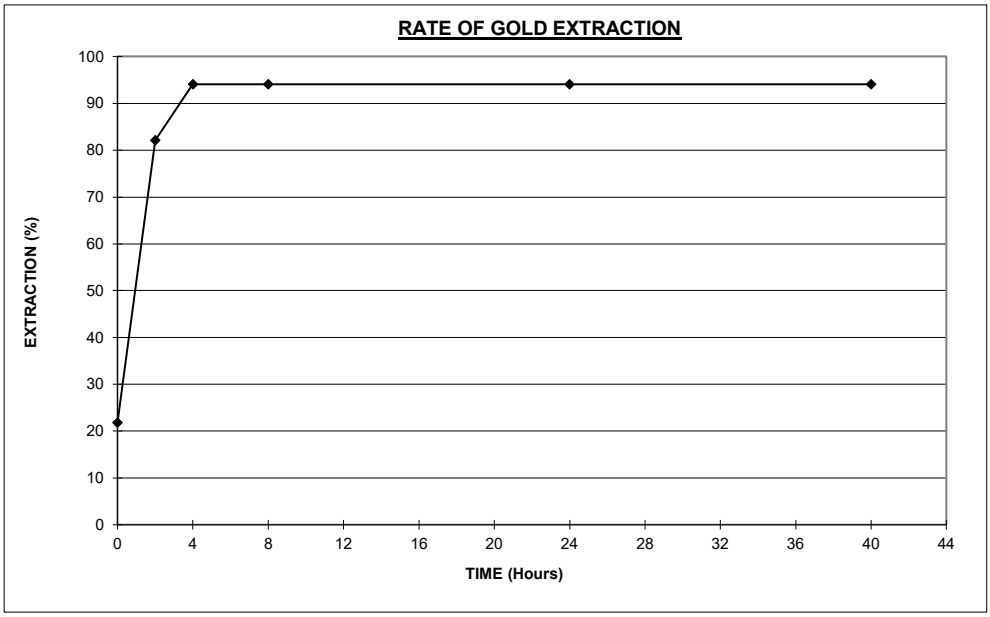
RESIDUE ASSAYS (ppm)

Au	0.03
Ag	0.3
As	10
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.03	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3657.0	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.61	(kg/t)
12. NaCN consum'n (kg/t) :	0.15	(kg/t)
13. Lime consum'n (kg/t) :	0.86	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7297**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-8)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**May-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As	Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]	[%]	[%]	[%]	
	2991.9	3657.0			7.8	7.76									
0		3657.0	1.83	2.31	20.0	10.50	**0.050**		0.00	0.00	0.00	24.05	8.19	9.99	
2		3632.0	0.00	0.00	26.6	10.07	0.043		0.25	3.40	0.50	82.74	93.82	27.67	
4		3607.0	0.00	0.00	29.9	10.02	0.040		0.25	3.40	0.50	82.74	93.82	27.67	
8		3582.0	0.00	0.00	29.6	9.97	0.038		0.25	3.40	0.50	82.74	93.82	27.67	
24		3557.0	0.00	0.00	32.9	9.87	0.038		0.30	3.40	0.50	94.24	93.82	27.67	
40		3532.0	0.00	0.00	29.3	9.82	0.038		0.30	3.40	0.50	**94.24**	**93.82**	**27.67**	
TOTAL			1.83	2.31											

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2991.9	0.03	90	5.76	0.3	898	6.18	3	7480	72.33
Solution (mL)	3532.0	0.300	1060	68.02	3.40	12009	82.71	0.50	1766	17.08
Solution Samples *			34	2.17		425	2.93		63	0.60
Gravity		0.1	**375**	**24.05**		**1189**	**8.19**		**1034**	**9.99**
Total Extraction				**94.24**			**93.82**			**27.67**
Total			1558	100.00		14520	100.00		10342	100.00
Calculated Head		0.52			4.9			3		
Assayed Head		**0.48**								

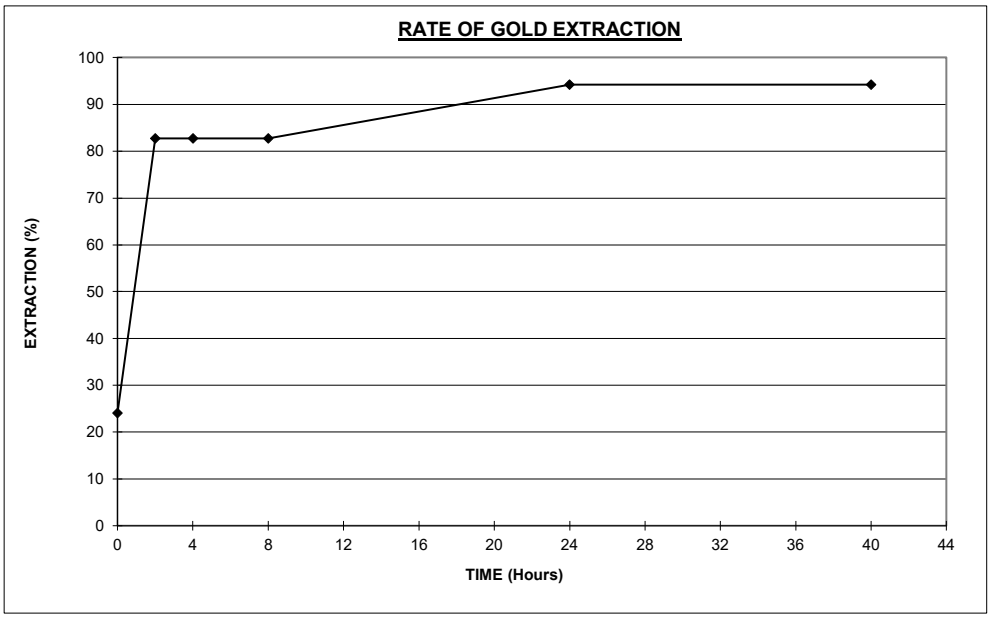
* : Intermediate solution samples removed during the test.

RESIDUE ASSAYS (ppm)

Au	0.03
Ag	0.3
As	2.5
S	<0.02%
S2-	<0.02%

COMMENTS

1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3657.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.15 (kg/t)
13. Lime consum'n (kg/t) : 0.77 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7294**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-9)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**May-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2973.0	3634.0			8.1	7.66										
0		3634.0	2.54	2.20	20.0	10.50	**0.070**		0.00	0.00	0.00		39.52	13.93	1.38	
2		3609.0	0.00	0.00	28.0	10.05	0.060		0.35	3.00	0.50		97.30	88.93	20.76	
4		3584.0	0.00	0.00	28.4	10.00	0.055		0.35	3.20	0.50		97.30	93.90	20.76	
8		3559.0	0.00	0.00	27.5	9.99	0.053		0.35	3.20	0.50		97.30	93.90	20.76	
24		3534.0	0.00	0.00	27.8	9.86	0.053		0.35	3.00	0.50		97.30	89.00	20.76	
40		3509.0	0.00	0.00	21.0	9.79	0.053		0.35	3.20	0.50		**97.30**	**93.86**	**20.76**	
TOTAL			2.54	2.20												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2973.0	0.02	59	2.70	0.3	892	6.14	3	7433	79.24
Solution (mL)	3509.0	0.350	1228	55.80	3.20	11229	77.25	0.50	1755	18.71
Solution Samples *			44	1.99		390	2.68		63	0.67
Gravity		0.3	**870**	**39.52**		**2025**	**13.93**		**130**	**1.38**
Total Extraction				**97.30**			**93.86**			**20.76**
Total			2201	100.00		14536	100.00		9379	100.00
Calculated Head		0.74			4.9			3		
Assayed Head		**0.42**								

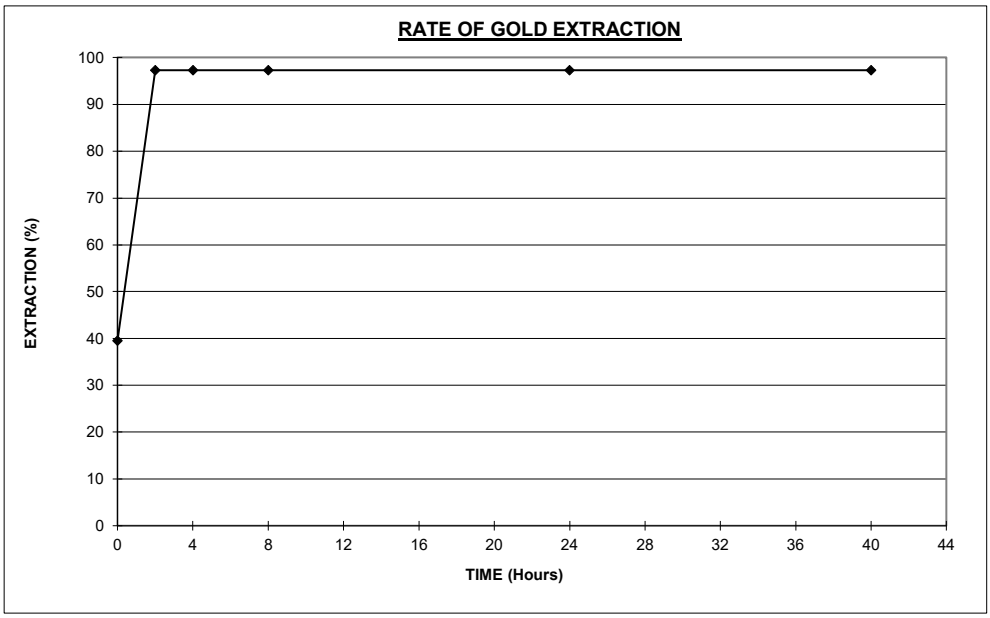
RESIDUE ASSAYS (ppm)

Au	0.02
Ag	0.3
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3634.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.85 (kg/t)
12. NaCN consum'n (kg/t) : 0.21 (kg/t)
13. Lime consum'n (kg/t) : 0.74 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7296**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-9)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**May-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2973.0	3634.0			8.1	7.61										
0		3634.0	1.82	2.31	20.0	10.51	**0.050**		0.00	0.00	0.00		36.60	14.64	1.39	
2		3609.0	0.00	0.00	28.4	10.04	0.040		0.35	3.00	0.50		88.95	89.08	20.76	
4		3584.0	0.00	0.00	33.2	9.99	0.040		0.35	3.00	0.50		88.95	89.08	20.76	
8		3559.0	0.00	0.00	31.5	9.94	0.040		0.40	3.00	0.50		96.33	89.08	20.76	
24		3534.0	0.00	0.00	34.5	9.83	0.038		0.40	3.00	0.50		96.33	89.08	20.76	
40		3509.0	0.00	0.00	25.7	9.81	0.035		0.40	3.20	0.50		**96.33**	**93.91**	**20.76**	
TOTAL			1.82	2.31												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2973.0	0.03	89	3.67	0.3	892	6.09	3	7433	79.24
Solution (mL)	3509.0	0.400	1404	57.78	3.20	11229	76.67	0.50	1755	18.70
Solution Samples *			48	1.96		380	2.59		63	0.67
Gravity		0.3	**889**	**36.60**		**2144**	**14.64**		**131**	**1.39**
Total Extraction				**96.33**			**93.91**			**20.76**
Total			2429	100.00		14645	100.00		9380	100.00
Calculated Head		0.82			4.9			3		
Assayed Head		**0.42**								

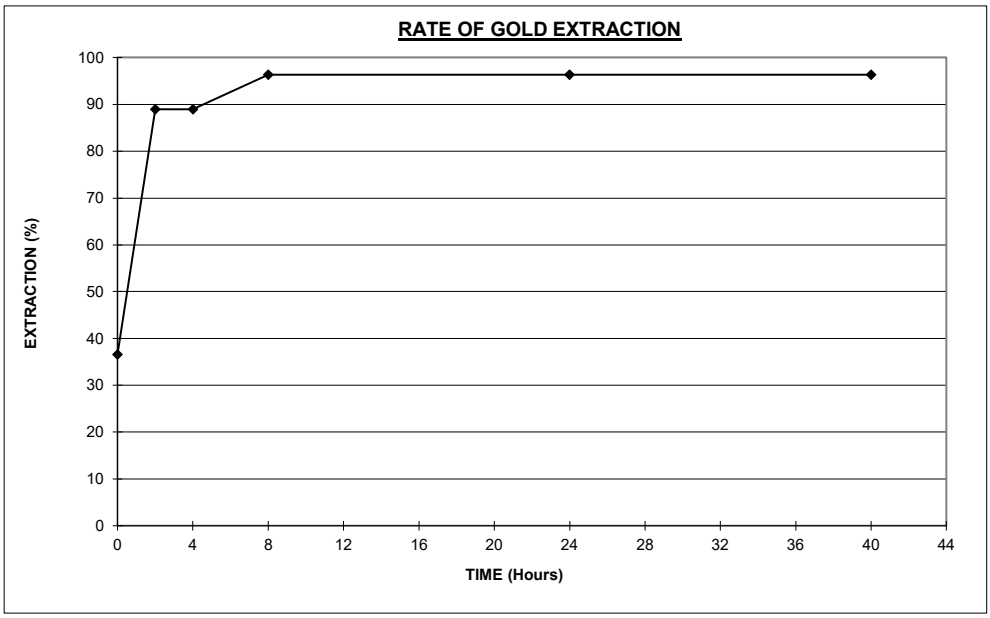
RESIDUE ASSAYS (ppm)

Au	0.03
Ag	0.3
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.050	(%)
2. Maintain % NaCN :	0.03	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3634.0	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.61	(kg/t)
12. NaCN consum'n (kg/t) :	0.18	(kg/t)
13. Lime consum'n (kg/t) :	0.78	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7298**
SAMPLE ID	**SOUWA OXIDE MASTER COMPOSITE (MC-9)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**May-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As	Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]	[%]	[%]	[%]	
	2973.0	3634.0			7.9	7.66									
0		3634.0	1.82	2.88	20.0	10.52	**0.050**		0.00	0.00	0.00	48.04	13.98	2.73	
2		3609.0	0.00	0.00	30.7	10.04	0.040		0.35	3.00	0.50	97.68	93.50	21.83	
4		3584.0	0.00	0.00	30.7	9.98	0.038		0.35	3.00	0.50	97.68	93.50	21.83	
8		3559.0	0.00	0.00	29.7	9.96	0.038		0.35	3.00	0.50	97.68	93.50	21.83	
24		3534.0	0.00	0.00	28.7	9.85	0.038		0.35	3.00	0.50	97.68	93.50	21.83	
40		3509.0	0.00	0.00	21.8	9.77	0.033		0.35	3.00	0.50	**97.68**	**93.50**	**21.83**	
TOTAL			1.82	2.88											

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2973.0	0.02	59	2.32	0.3	892	6.50	3	7433	78.17
Solution (mL)	3509.0	0.350	1228	47.93	3.00	10527	76.78	0.50	1755	18.45
Solution Samples *			44	1.71		375	2.73		63	0.66
Gravity		0.4	**1231**	**48.04**		**1917**	**13.98**		**259**	**2.73**
Total Extraction				**97.68**			**93.50**			**21.83**
Total			2562	100.00		13711	100.00		9509	100.00
Calculated Head		0.86			4.6			3		
Assayed Head		**0.42**								

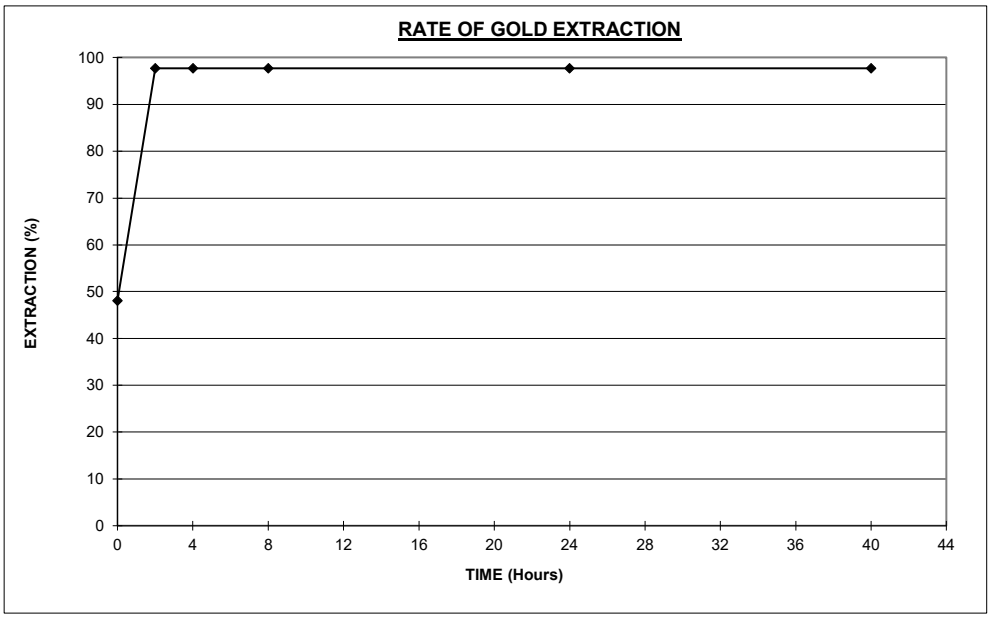
RESIDUE ASSAYS (ppm)

Au	0.02
Ag	0.3
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

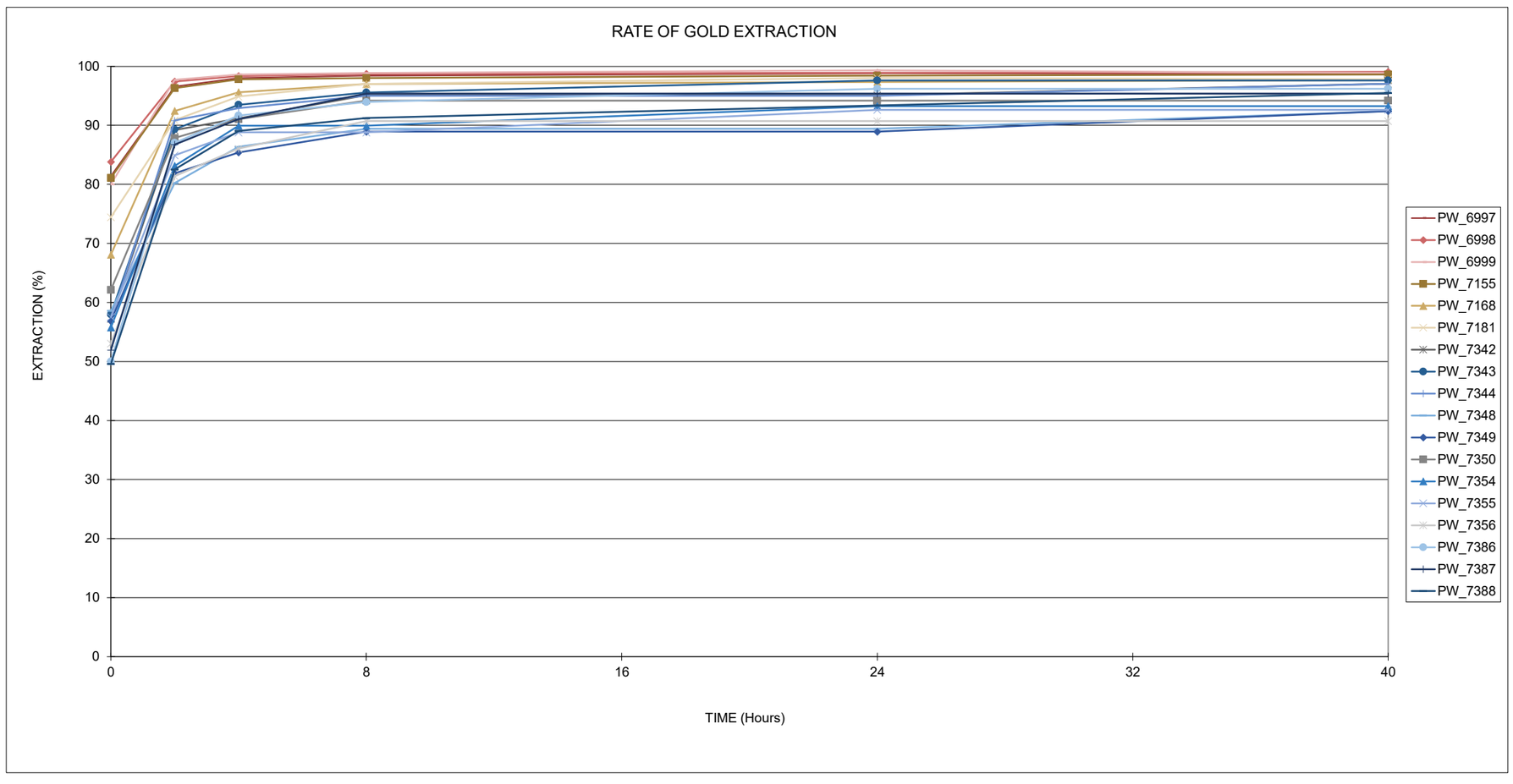
1. Start % NaCN :	0.030	(%)
2. Maintain % NaCN :	0.02	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3634.0	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.61	(kg/t)
12. NaCN consum'n (kg/t) :	0.21	(kg/t)
13. Lime consum'n (kg/t) :	0.97	(kg/t)



PROJECT	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
DATE	11/07/2023

SUMMARY

TEST No	SAMPLE ID	GRIND SIZE (P80, µm)	O2 / AIR SPARGE	% NaCN (Init / Mtn)	% Solids (w/w)	DCN OR CIL	GOLD HEAD GRADE (g/t)		GOLD DISTRIBUTION (g/t)			GOLD DISTRIBUTION (%)			TOTAL GOLD RECOVERY (%)	REAGENTS (kg/t)	
							Assayed	Calculated	Gravity	Leach	Residue	Gravity	Leach	Residue		NaCN	Lime
PW_6997	ENIODA OXIDE MASTER COMPOSITE (MC-21)	125	O2	0.10 / 0.05	45	DCN	1.09	2.94	2.39	0.51	0.04	81.4	17.2	1.4	98.6	0.30	0.78
PW_6998	ENIODA OXIDE MASTER COMPOSITE (MC-21)	106	O2	0.10 / 0.05	45	DCN	1.09	3.27	2.74	0.50	0.03	83.8	15.3	0.9	99.1	0.24	0.92
PW_6999	ENIODA OXIDE MASTER COMPOSITE (MC-21)	75	O2	0.10 / 0.05	45	DCN	1.09	2.63	2.10	0.49	0.03	80.0	18.8	1.1	98.9	0.21	0.99
	AVERAGE CALCULATED HEAD GRADE							**2.95**									
PW_7155	ENIODA OXIDE MASTER COMPOSITE (MC-21)	106	O2	0.07 / 0.04	45	DCN	1.09	2.89	2.35	0.51	0.04	81.1	17.5	1.4	98.6	0.15	1.48
PW_7168	ENIODA OXIDE MASTER COMPOSITE (MC-21)	106	O2	0.05 / 0.03	45	DCN	1.09	1.73	1.18	0.51	0.04	68.1	29.6	2.3	97.7	0.18	1.07
PW_7181	ENIODA OXIDE MASTER COMPOSITE (MC-21)	106	O2	0.03 / 0.02	45	DCN	1.09	2.27	1.69	0.53	0.05	74.4	23.4	2.2	97.8	0.12	0.77
	AVERAGE CALCULATED HEAD GRADE							**2.30**									
PW_7342	ENIODA TRANS MASTER COMPOSITE (MC-22)	125	O2	0.10 / 0.05	45	DCN	2.53	3.06	1.75	1.22	0.09	57.2	39.8	2.9	97.1	0.39	0.49
PW_7343	ENIODA TRANS MASTER COMPOSITE (MC-22)	106	O2	0.10 / 0.05	45	DCN	2.53	2.92	1.69	1.16	0.07	58.0	39.6	2.4	97.6	0.39	0.49
PW_7344	ENIODA TRANS MASTER COMPOSITE (MC-22)	75	O2	0.10 / 0.05	45	DCN	2.53	2.89	1.65	1.16	0.09	57.0	40.1	2.9	97.1	0.39	0.45
	AVERAGE CALCULATED HEAD GRADE							**2.96**									
PW_7348	ENIODA FRESH MASTER COMPOSITE (MC-27)	125	O2	0.10 / 0.05	45	DCN	5.47	1.98	1.16	0.67	0.15	58.6	33.8	7.6	92.4	0.27	0.17
PW_7349	ENIODA FRESH MASTER COMPOSITE (MC-27)	106	O2	0.10 / 0.05	45	DCN	5.47	1.71	0.97	0.61	0.13	56.9	35.5	7.6	92.4	0.30	0.17
PW_7350	ENIODA FRESH MASTER COMPOSITE (MC-27)	75	O2	0.10 / 0.05	45	DCN	5.47	1.90	1.18	0.61	0.11	62.1	32.1	5.8	94.2	0.24	0.19
	AVERAGE CALCULATED HEAD GRADE							**1.86**									
PW_7354	ENIODA FRESH MASTER COMPOSITE (MC-27)	75	O2	0.10 / 0.05	45	DCN	5.47	1.79	1.00	0.67	0.12	55.8	37.5	6.7	93.3	0.24	0.24
PW_7355	ENIODA FRESH MASTER COMPOSITE (MC-27)	75	O2	0.10 / 0.05	45	DCN	5.47	1.56	0.90	0.55	0.12	57.6	35.1	7.4	92.6	0.18	0.23
PW_7356	ENIODA FRESH MASTER COMPOSITE (MC-27)	75	O2	0.10 / 0.05	45	DCN	5.47	1.29	0.69	0.49	0.12	53.0	37.7	9.3	90.7	0.12	0.24
	AVERAGE CALCULATED HEAD GRADE							**1.55**									
PW_7386	ENIODA TRANS MASTER COMPOSITE (MC-22)	106	O2	0.10 / 0.05	45	DCN	2.53	2.64	1.32	1.22	0.10	50.0	46.2	3.8	96.2	0.24	0.64
PW_7387	ENIODA TRANS MASTER COMPOSITE (MC-22)	106	O2	0.10 / 0.05	45	DCN	2.53	2.81	1.46	1.22	0.13	51.9	43.4	4.6	95.4	0.18	0.64
PW_7388	ENIODA TRANS MASTER COMPOSITE (MC-22)	106	O2	0.10 / 0.05	45	DCN	2.53	2.78	1.38	1.28	0.13	49.6	45.9	4.5	95.5	0.12	0.66
	AVERAGE CALCULATED HEAD GRADE							**2.74**									



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6997**
SAMPLE ID	**ENIODA OXIDE MASTER COMPOSITE (MC-21)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2984.1	3647.0			8.6	7.62										
0		3647.0	3.65	2.09	20.0	10.56	**0.100**		0.00	0.00	0.00		81.40	19.71	1.73	
2		3622.0	0.00	0.00	20.5	9.82	0.085		0.37	1.48	0.05		96.58	82.62	4.08	
4		3597.0	0.00	0.11	21.3	9.67	0.083		0.40	1.44	0.05		98.02	80.93	4.08	
8		3572.0	0.00	0.00	26.3	9.80	0.083		0.41	1.52	0.05		98.43	84.28	4.08	
24		3547.0	0.00	0.12	24.7	9.68	0.078		0.42	1.46	0.05		98.84	81.78	4.08	
40		3522.0	0.00	0.00	23.8	9.83	0.075		0.42	1.48	0.05		**98.64**	**82.61**	**4.08**	
TOTAL			3.65	2.32												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2984.1	0.04	119	1.36	0.5	1492	17.39	3	7460	95.92
Solution (mL)	3522.0	0.415	1462	16.67	1.48	5213	60.75	0.05	176	2.26
Solution Samples *			50	0.57		185	2.15		6	0.08
Gravity		2.4	**7138**	**81.40**		**1692**	**19.71**		**135**	**1.73**
Total Extraction				**98.64**			**82.61**			**4.08**
Total			8769	100.00		8581	100.00		7777	100.00
Calculated Head		2.94			2.9			3		
Assayed Head		**1.09**			**2.0**			**<10**		

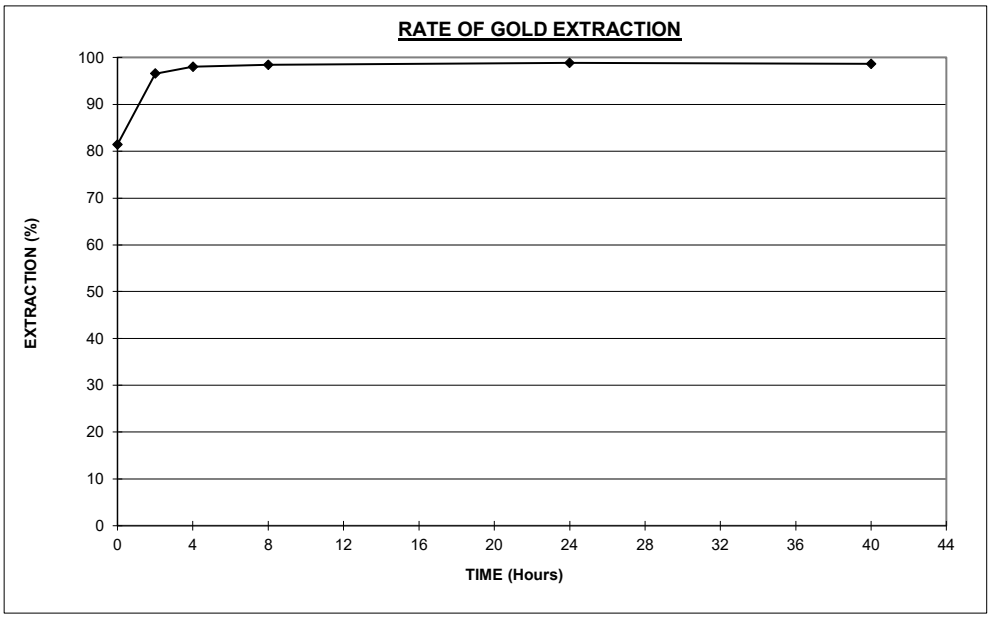
RESIDUE ASSAYS (ppm)

Au	0.04
Ag	0.5
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3647.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.30 (kg/t)
13. Lime consum'n (kg/t) : 0.78 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6998**
SAMPLE ID	**ENIODA OXIDE MASTER COMPOSITE (MC-21)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2984.1	3647.0			8.4	7.62										
0		3647.0	3.65	2.76	20.0	10.50	**0.100**		0.00	0.00	0.00		83.80	21.07	2.06	
2		3622.0	0.00	0.00	20.1	10.01	0.088		0.37	1.44	0.05		97.42	80.65	4.39	
4		3597.0	0.00	0.00	21.2	10.00	0.088		0.39	1.48	0.05		98.35	82.30	4.39	
8		3572.0	0.00	0.00	20.7	9.96	0.085		0.40	1.42	0.05		98.72	79.85	4.39	
24		3547.0	0.00	0.00	20.5	9.87	0.080		0.41	1.44	0.05		98.90	80.66	4.39	
40		3522.0	0.00	0.00	21.8	9.96	0.080		0.41	1.50	0.05		**99.08**	**83.07**	**4.39**	
TOTAL			3.65	2.76												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2984.1	0.03	90	0.92	0.5	1492	16.93	3	7460	95.61
Solution (mL)	3522.0	0.410	1444	14.78	1.50	5283	59.94	0.05	176	2.26
Solution Samples *			49	0.50		182	2.06		6	0.08
Gravity		2.7	**8187**	**83.80**		**1857**	**21.07**		**161**	**2.06**
Total Extraction				**99.08**			**83.07**			**4.39**
Total			9770	100.00		8814	100.00		7803	100.00
Calculated Head		3.27			3.0			3		
Assayed Head		**1.09**			**2.0**			**<10**		

RESIDUE ASSAYS (ppm)

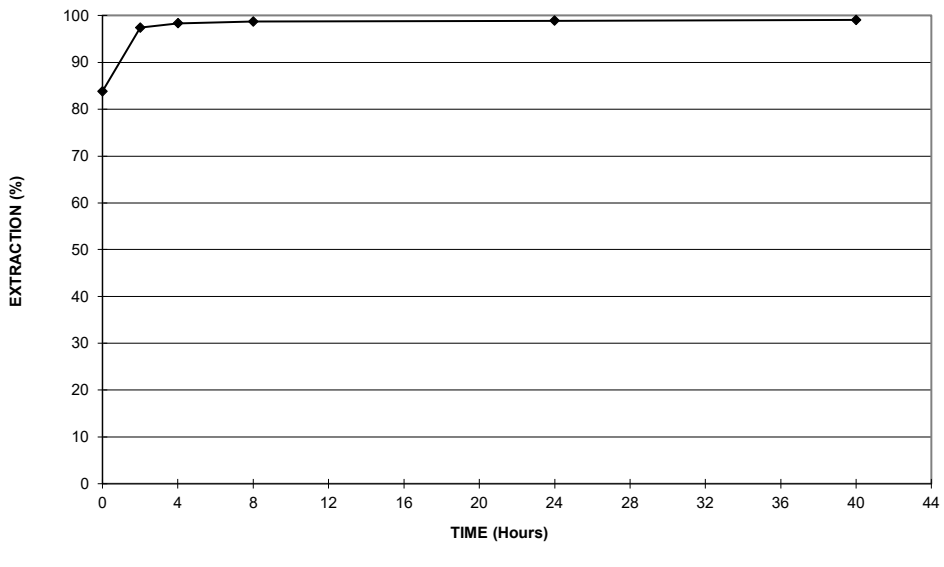
Au	0.03
Ag	0.5
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3647.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.24 (kg/t)
13. Lime consum'n (kg/t) : 0.92 (kg/t)

RATE OF GOLD EXTRACTION



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6999**
SAMPLE ID	**ENIODA OXIDE MASTER COMPOSITE (MC-21)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2984.1	3647.0			8.3	7.62										
0		3647.0	3.65	2.96	20.0	10.52	**0.100**		0.00	0.00	0.00		80.01	19.68	2.77	
2		3622.0	0.00	0.00	26.7	10.13	0.095		0.38	1.50	0.05		97.70	82.13	5.09	
4		3597.0	0.00	0.00	22.7	10.11	0.090		0.40	1.54	0.05		98.62	83.79	5.09	
8		3572.0	0.00	0.00	21.1	10.04	0.088		0.41	1.52	0.05		98.85	82.97	5.09	
24		3547.0	0.00	0.00	20.9	9.96	0.083		0.42	1.52	0.05		99.31	82.97	5.09	
40		3522.0	0.00	0.00	23.8	10.05	0.083		0.41	1.52	0.05		**98.86**	**82.97**	**5.09**	
TOTAL			3.65	2.96												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2984.1	0.03	90	1.14	0.5	1492	17.03	3	7460	94.91
Solution (mL)	3522.0	0.405	1426	18.20	1.52	5353	61.12	0.05	176	2.24
Solution Samples *			50	0.64		190	2.17		6	0.08
Gravity		2.1	**6270**	**80.01**		**1724**	**19.68**		**218**	**2.77**
Total Extraction				**98.86**			**82.97**			**5.09**
Total			7836	100.00		8759	100.00		7860	100.00
Calculated Head		2.63			2.9			3		
Assayed Head		**1.09**			**2.0**			**<10**		

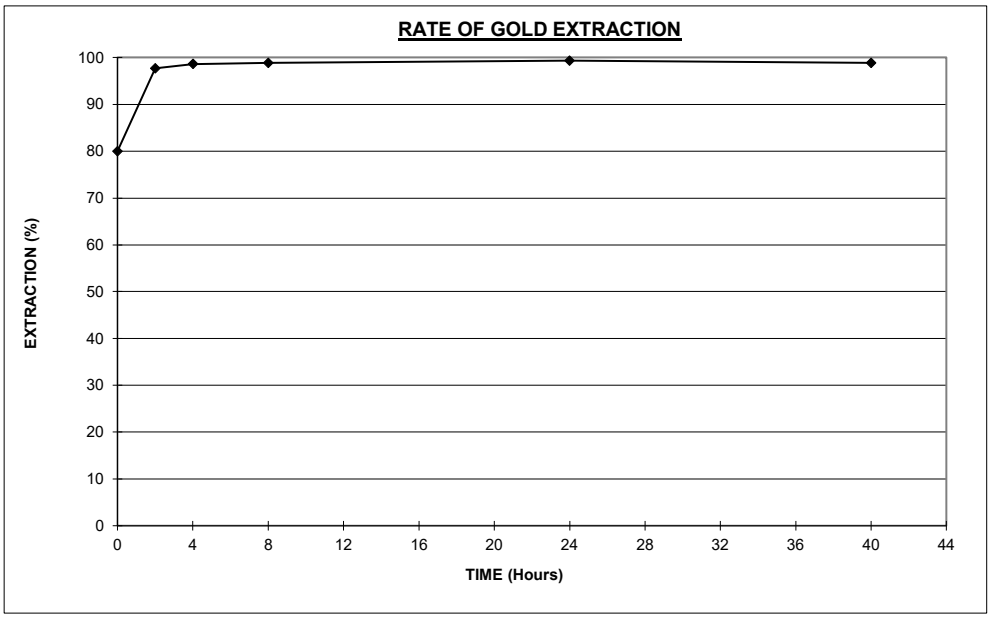
RESIDUE ASSAYS (ppm)

Au	0.03
Ag	0.5
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	> 0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3647.0	(g)
8. Grind size P 80 :	75	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.21	(kg/t)
13. Lime consum'n (kg/t) :	0.99	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7155**
SAMPLE ID	**ENIODA OXIDE MASTER COMPOSITE (MC-21)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2984.1	3647.0			8.4	7.91										
0		3647.0	2.55	4.41	20.0	10.54	**0.070**		0.00	0.00	0.00		81.11	17.33	1.31	
2		3622.0	0.00	0.00	21.9	10.04	0.060		0.36	1.40	0.50		96.32	75.01	20.70	
4		3597.0	0.00	0.00	20.8	10.00	0.060		0.40	1.60	0.50		97.79	83.20	20.70	
8		3572.0	0.00	0.00	20.6	9.89	0.060		0.40	1.40	0.50		98.00	75.07	20.70	
24		3547.0	0.00	0.00	19.0	9.80	0.058		0.41	1.60	0.50		98.41	83.14	20.70	
40		3522.0	0.00	0.00	24.8	10.02	0.058		0.42	1.60	0.50		**98.62**	**83.14**	**20.70**	
TOTAL			2.55	4.41												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2984.1	0.04	119	1.38	0.5	1492	16.86	3	7460	79.30
Solution (mL)	3522.0	0.415	1462	16.94	1.60	5635	63.67	0.50	1761	18.72
Solution Samples *			50	0.57		190	2.15		63	0.66
Gravity		2.3	**6999**	**81.11**		**1533**	**17.33**		**124**	**1.31**
Total Extraction				**98.62**			**83.14**			**20.70**
Total			8630	100.00		8851	100.00		9407	100.00
Calculated Head		2.89			3.0			3		
Assayed Head		**1.09**			**2.0**			**<10**		

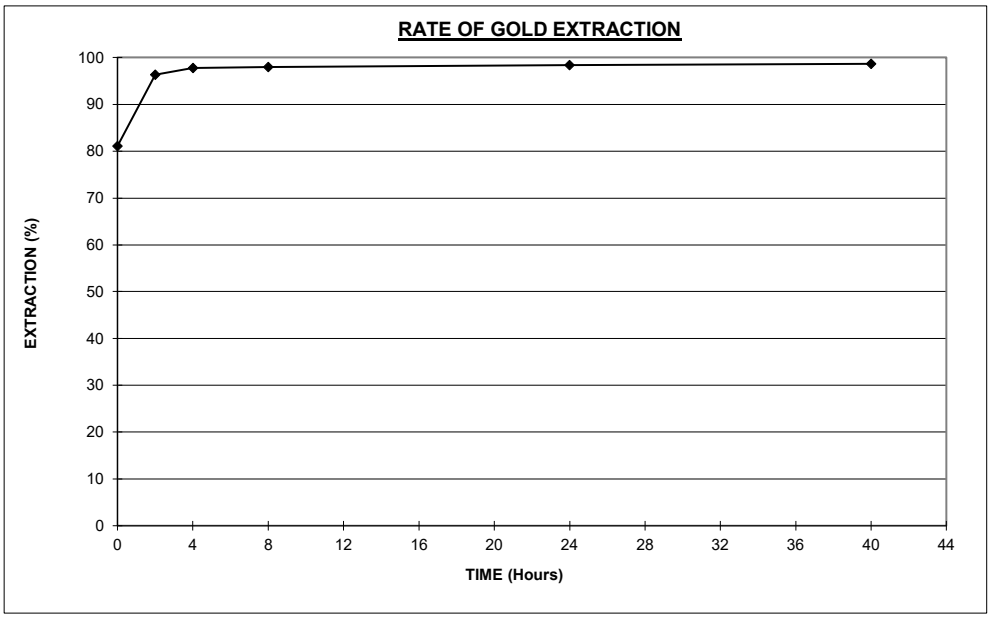
RESIDUE ASSAYS (ppm)

Au	0.04
Ag	0.5
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3647.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.85 (kg/t)
12. NaCN consum'n (kg/t) : 0.15 (kg/t)
13. Lime consum'n (kg/t) : 1.48 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7168**
SAMPLE ID	**ENIODA OXIDE MASTER COMPOSITE (MC-21)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2984.1	3647.0			7.8	7.62										
0		3647.0	1.82	3.20	20.0	10.50	**0.050**		0.00	0.00	0.00		68.10	19.67	1.65	
2		3622.0	0.00	0.00	21.7	9.94	0.045		0.35	1.60	0.05		92.45	91.78	4.00	
4		3597.0	0.00	0.00	23.4	9.91	0.040		0.39	1.60	0.05		95.61	91.78	4.00	
8		3572.0	0.00	0.00	22.6	9.90	0.040		0.41	1.70	0.05		97.00	96.22	4.00	
24		3547.0	0.00	0.00	21.9	9.82	0.038		0.42	1.70	0.05		97.35	96.22	4.00	
40		3522.0	0.00	0.00	23.9	9.75	0.035		0.42	1.66	0.05		**97.69**	**94.47**	**4.00**	
TOTAL			1.82	3.20												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2984.1	0.04	119	2.31	0.2	448	5.53	3	7460	96.00
Solution (mL)	3522.0	0.420	1479	28.64	1.66	5847	72.25	0.05	176	2.27
Solution Samples *			50	0.96		207	2.55		6	0.08
Gravity		1.2	**3518**	**68.10**		**1592**	**19.67**		**128**	**1.65**
Total Extraction				**97.69**			**94.47**			**4.00**
Total			5166	100.00		8093	100.00		7771	100.00
Calculated Head		1.73			2.7			3		
Assayed Head		**1.09**			**2.0**			**<10**		

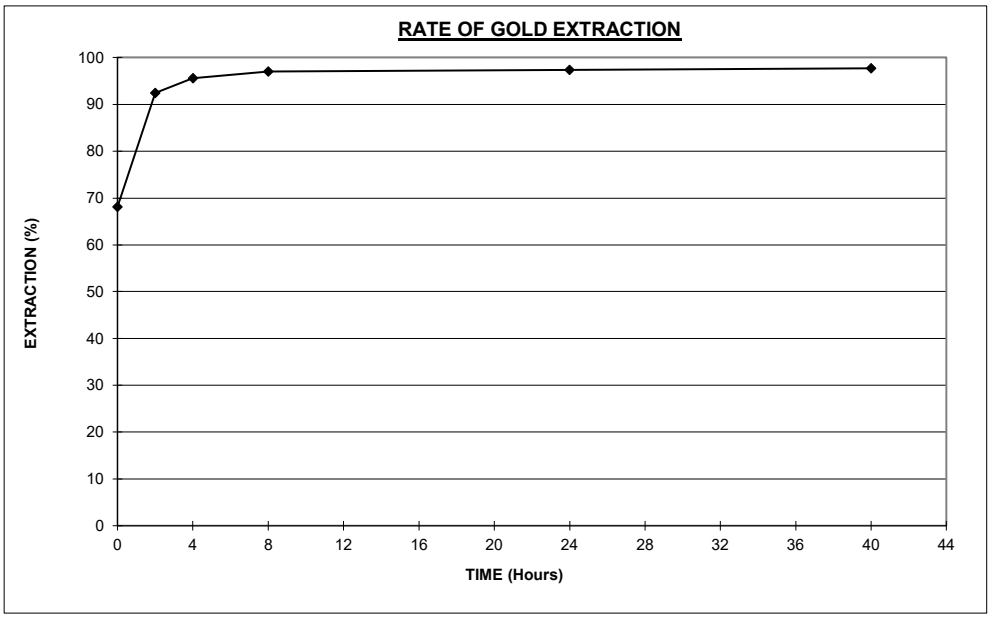
RESIDUE ASSAYS (ppm)

Au	0.04
Ag	0.15
As	2.5
S	<0.02
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3647.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 1.07 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW**
SAMPLE ID	**ENIODA OXIDE MASTER COMPOSITE (MC-21)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2984.1	3647.0			7.8	7.85										
0		3647.0	1.09	2.05	10.5	10.50	**0.030**		0.00	0.00	0.00		74.44	17.60	0.85	
2		3622.0	0.00	0.00	14.7	9.88	0.025		0.31	1.62	0.05		90.87	91.70	2.05	
4		3597.0	0.00	0.00	24.6	9.86	0.023		0.38	1.64	0.05		94.88	92.61	2.05	
8		3572.0	0.00	0.00	34.0	9.87	0.023		0.42	1.64	0.05		97.00	92.61	2.05	
24		3547.0	0.00	0.26	24.7	9.51	0.023		0.44	1.64	0.05		98.06	92.61	2.05	
40		3522.0	0.00	0.00	27.1	9.93	0.020		0.44	1.68	0.05		**97.80**	**94.39**	**2.05**	
TOTAL			1.09	2.31												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2984.1	0.05	149	2.20	0.2	448	5.61	5	14921	97.95
Solution (mL)	3522.0	0.435	1532	22.62	1.68	5917	74.21	0.05	176	1.16
Solution Samples *			50	0.73		206	2.58		6	0.04
Gravity		1.7	**5041**	**74.44**		**1403**	**17.60**		**130**	**0.85**
Total Extraction				**97.80**			**94.39**			**2.05**
Total			6772	100.00		7973	100.00		15233	100.00
Calculated Head		2.27			2.7			5		
Assayed Head		**1.09**			**2.0**			**<10**		

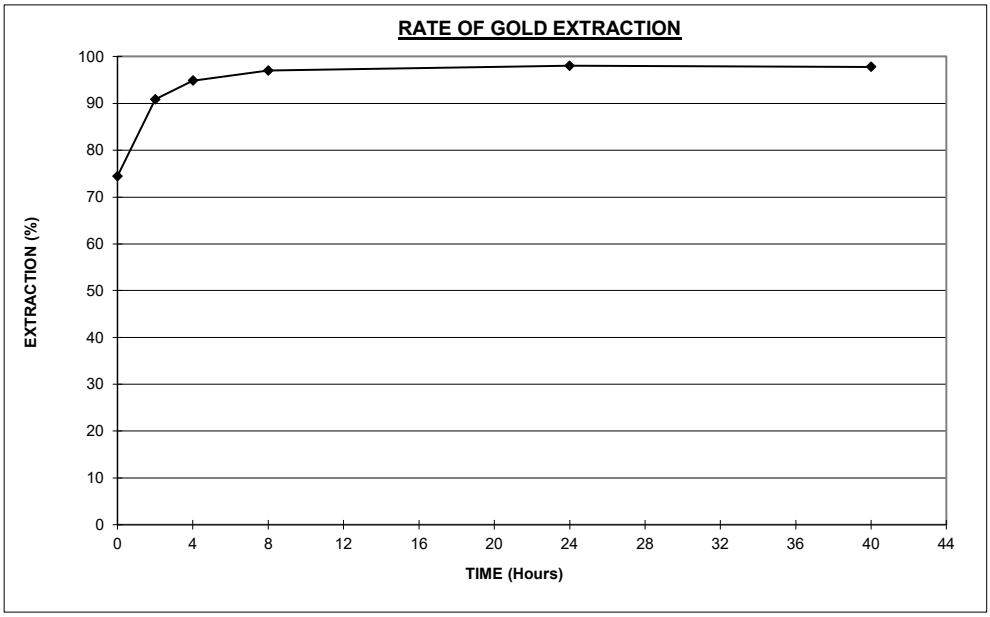
RESIDUE ASSAYS (ppm)

Au	0.05
Ag	0.15
As	5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3647.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.77 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7342**
SAMPLE ID	**ENIODA TRANS MASTER COMPOSITE (MC-22)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jun-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2977.2	3639.0			9.9	7.95										
0		3639.0	3.64	1.47	20.0	10.53	**0.100**		0.00	0.00	0.00		57.22	14.66	0.75	
2		3614.0	0.00	0.00	31.0	10.12	0.088		0.80	0.40	0.50		89.19	56.85	11.56	
4		3589.0	0.00	0.00	32.8	10.02	0.078		0.85	0.40	0.50		91.17	56.85	11.56	
8		3564.0	0.00	0.00	32.8	10.02	0.075		0.95	0.40	0.50		95.11	56.85	11.56	
24		3539.0	0.00	0.00	30.6	9.87	0.073		0.95	0.40	0.50		95.11	56.85	11.56	
40		3514.0	0.00	0.00	31.7	9.64	0.068		1.00	0.40	0.50		**97.06**	**56.85**	**11.56**	
TOTAL			3.64	1.47												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2977.2	0.09	268	2.94	0.5	1489	43.15	5	14886	88.44
Solution (mL)	3514.0	1.000	3514	38.59	0.40	1406	40.74	0.50	1757	10.44
Solution Samples *			114	1.25		50	1.45		63	0.37
Gravity		1.8	**5210**	**57.22**		**506**	**14.66**		**126**	**0.75**
Total Extraction				**97.06**			**56.85**			**11.56**
Total			9106	100.00		3450	100.00		16832	100.00
Calculated Head		3.06			1.2			6		
Assayed Head		**2.53**			**<2**			**<10**		

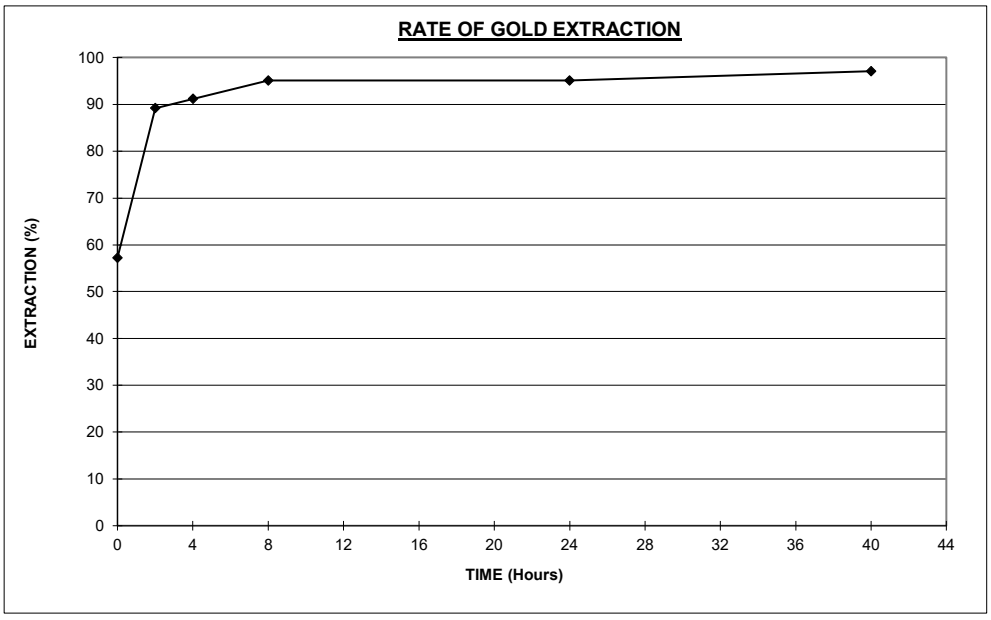
RESIDUE ASSAYS (ppm)

Au	0.09
Ag	0.5
As	5
S	0.06%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	> 0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3639.0	(g)
8. Grind size P 80 :	125	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.39	(kg/t)
13. Lime consum'n (kg/t) :	0.49	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7343**
SAMPLE ID	**ENIODA TRANS MASTER COMPOSITE (MC-22)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jun-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2977.2	3639.0			9.9	7.96										
0		3639.0	3.64	1.45	20.0	10.57	**0.100**		0.00	0.00	0.00		57.96	13.39	1.35	
2		3614.0	0.00	0.00	30.2	10.10	0.083		0.75	0.40	0.50		89.34	56.14	20.73	
4		3589.0	0.00	0.00	32.0	10.03	0.080		0.85	0.60	0.50		93.49	77.36	20.73	
8		3564.0	0.00	0.00	32.0	10.02	0.073		0.90	0.40	0.50		95.56	56.28	20.73	
24		3539.0	0.00	0.00	32.1	9.87	0.073		0.95	0.40	0.50		97.60	56.28	20.73	
40		3514.0	0.00	0.00	32.3	9.61	0.068		0.95	0.40	0.50		**97.60**	**56.28**	**20.73**	
TOTAL			3.64	1.45												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2977.2	0.07	208	2.40	0.5	1489	43.72	3	7443	79.27
Solution (mL)	3514.0	0.950	3338	38.38	0.40	1406	41.28	0.50	1757	18.71
Solution Samples *			110	1.26		55	1.62		63	0.67
Gravity		1.7	**5041**	**57.96**		**456**	**13.39**		**127**	**1.35**
Total Extraction				**97.60**			**56.28**			**20.73**
Total			8698	100.00		3405	100.00		9389	100.00
Calculated Head		2.92			1.1			3		
Assayed Head		**2.53**			**<2**			**<10**		

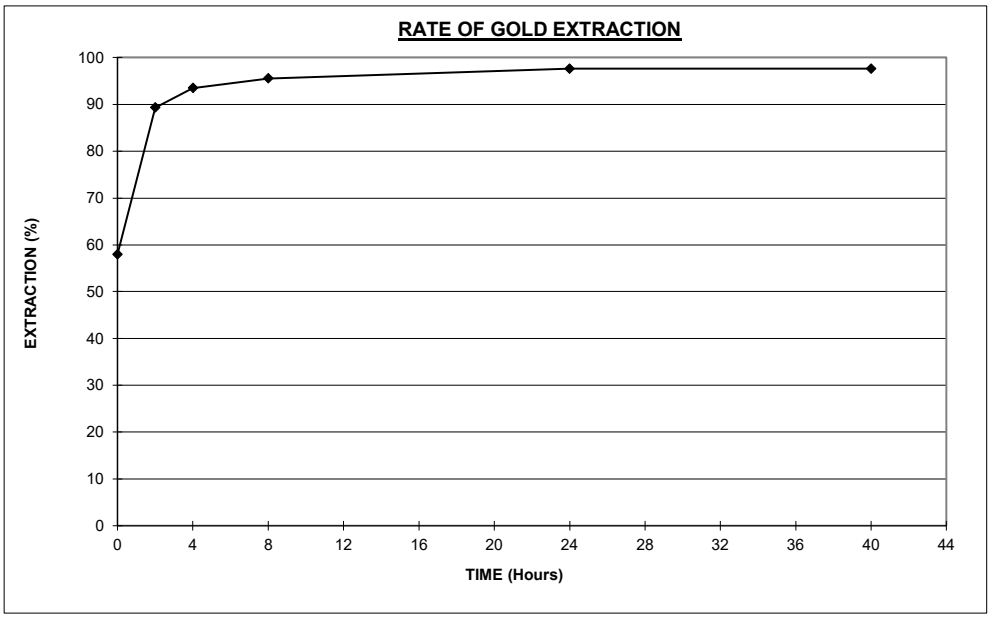
RESIDUE ASSAYS (ppm)

Au	0.07
Ag	0.5
As	2.5
S	0.06%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3639.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.39 (kg/t)
13. Lime consum'n (kg/t) : 0.49 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7344**
SAMPLE ID	**ENIODA TRANS MASTER COMPOSITE (MC-22)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jun-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2977.2	3639.0			9.9	8.02										
0		3639.0	3.64	1.33	20.0	10.51	**0.100**		0.00	0.00	0.00		56.99	13.60	1.23	
2		3614.0	0.00	0.00	35.5	10.09	0.078		0.80	0.40	0.50		90.82	56.39	20.63	
4		3589.0	0.00	0.00	34.6	10.03	0.078		0.85	0.20	0.50		92.92	35.14	20.63	
8		3564.0	0.00	0.00	33.0	10.01	0.073		0.90	0.40	0.50		95.00	56.24	20.63	
24		3539.0	0.00	0.00	32.2	9.88	0.068		0.90	0.40	0.50		95.00	56.24	20.63	
40		3514.0	0.00	0.00	29.9	9.58	0.068		0.95	0.40	0.50		**97.06**	**56.24**	**20.63**	
TOTAL			3.64	1.33												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2977.2	0.09	253	2.94	0.5	1489	43.76	3	7443	79.37
Solution (mL)	3514.0	0.950	3338	38.79	0.40	1406	41.32	0.50	1757	18.74
Solution Samples *			110	1.28		45	1.32		63	0.67
Gravity		1.6	**4904**	**56.99**		**463**	**13.60**		**116**	**1.23**
Total Extraction				**97.06**			**56.24**			**20.63**
Total			8605	100.00		3402	100.00		9378	100.00
Calculated Head		2.89			1.1			3		
Assayed Head		**2.53**			**<2**			**<10**		

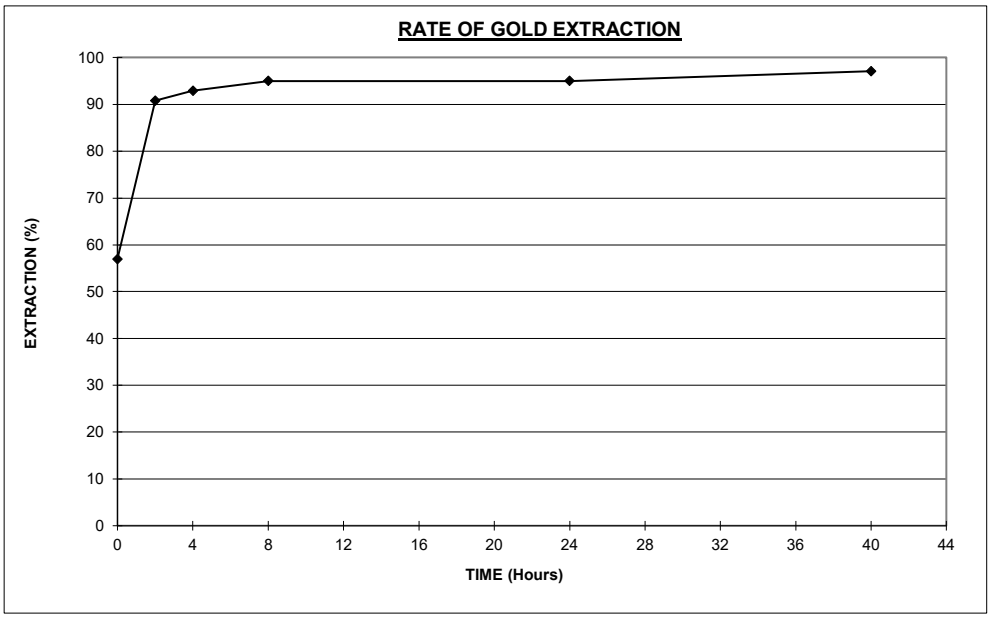
RESIDUE ASSAYS (ppm)

Au	0.09
Ag	0.5
As	2.5
S	0.06%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3639.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.39 (kg/t)
13. Lime consum'n (kg/t) : 0.45 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7348**
SAMPLE ID	**ENIODA FRESH MASTER COMPOSITE (MC-27)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jun-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	3000.0	3667.0			9.9	9.20										
0		3667.0	3.67	0.51	20.0	10.64	**0.100**		0.00	0.00	0.00		58.58	26.34	1.54	
2		3642.0	0.00	0.00	20.5	10.33	0.093		0.35	0.10	0.50		80.22	59.41	20.88	
4		3617.0	0.00	0.00	21.2	10.18	0.090		0.45	0.10	0.50		86.36	59.41	20.88	
8		3592.0	0.00	0.00	20.4	10.10	0.085		0.50	0.10	0.50		89.41	59.41	20.88	
24		3567.0	0.00	0.00	31.3	10.06	0.083		0.50	0.10	0.50		89.41	59.41	20.88	
40		3542.0	0.00	0.00	25.7	10.19	0.078		0.55	0.10	0.50		**92.41**	**59.41**	**20.88**	
TOTAL			3.67	0.51												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	3000.0	0.15	450	7.59	0.2	450	40.59	3	7500	79.12
Solution (mL)	3542.0	0.550	1948	32.84	0.10	354	31.95	0.50	1771	18.68
Solution Samples *			59	0.99		13	1.13		63	0.66
Gravity		1.2	**3475**	**58.58**		**292**	**26.34**		**146**	**1.54**
Total Extraction				**92.41**			**59.41**			**20.88**
Total			5932	100.00		1109	100.00		9480	100.00
Calculated Head		1.98			0.4			3		
Assayed Head		**5.47**			**<2**			**<10**		

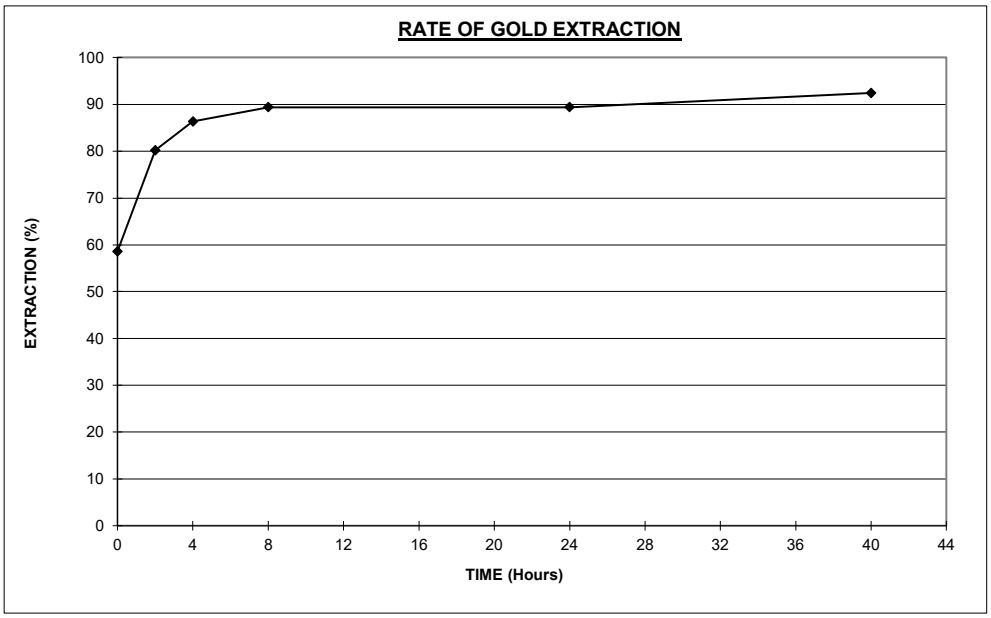
RESIDUE ASSAYS (ppm)

Au	0.15
Ag	0.15
As	2.5
S	0.46%
S2-	0.48%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3667.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.27 (kg/t)
13. Lime consum'n (kg/t) : 0.17 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7349**
SAMPLE ID	**ENIODA FRESH MASTER COMPOSITE (MC-27)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jun-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	3000.0	3667.0			9.9	9.13										
0		3667.0	3.67	0.50	20.0	10.56	**0.100**		0.00	0.00	0.00		56.86	25.57	1.48	
2		3642.0	0.00	0.00	28.5	10.34	0.095		0.35	0.10	0.50		81.86	58.99	20.83	
4		3617.0	0.00	0.00	28.8	10.21	0.093		0.40	0.10	0.50		85.41	58.99	20.83	
8		3592.0	0.00	0.00	26.3	10.18	0.088		0.45	0.10	0.50		88.93	58.99	20.83	
24		3567.0	0.00	0.00	32.9	10.09	0.080		0.45	0.10	0.50		88.93	58.99	20.83	
40		3542.0	0.00	0.00	30.2	10.20	0.075		0.50	0.10	0.50		**92.40**	**58.99**	**20.83**	
TOTAL			3.67	0.50												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	3000.0	0.13	390	7.60	0.2	450	41.01	3	7500	79.17
Solution (mL)	3542.0	0.500	1771	34.50	0.10	354	32.28	0.50	1771	18.69
Solution Samples *			54	1.05		13	1.14		63	0.66
Gravity		1.0	**2919**	**56.86**		**281**	**25.57**		**140**	**1.48**
Total Extraction				**92.40**			**58.99**			**20.83**
Total			5133	100.00		1097	100.00		9474	100.00
Calculated Head		1.71			0.4			3		
Assayed Head		**5.47**			**<2**			**<10**		

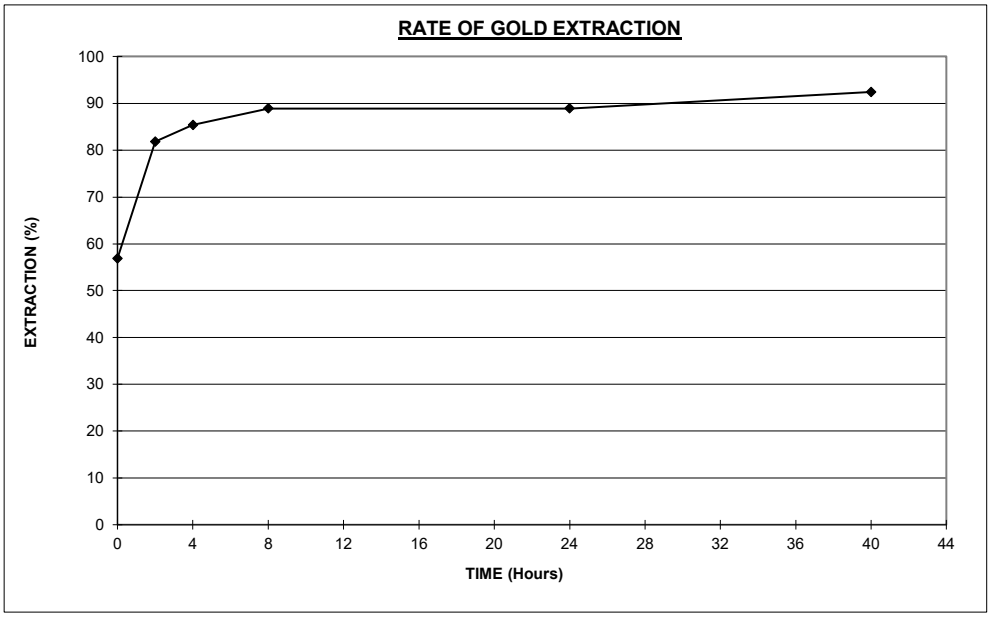
RESIDUE ASSAYS (ppm)

Au	0.13
Ag	0.15
As	2.5
S	0.44%
S2-	0.44%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3667.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.30 (kg/t)
13. Lime consum'n (kg/t) : 0.17 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7350**
SAMPLE ID	**ENIODA FRESH MASTER COMPOSITE (MC-27)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jun-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	3000.0	3667.0			9.9	9.06										
0		3667.0	3.67	0.56	20.0	10.53	**0.100**		0.00	0.00	0.00		62.13	29.23	1.27	
2		3642.0	0.00	0.00	28.4	10.36	0.095		0.40	0.10	0.50		87.85	61.01	20.67	
4		3617.0	0.00	0.00	30.2	10.21	0.090		0.45	0.10	0.50		91.04	61.01	20.67	
8		3592.0	0.00	0.00	28.4	10.20	0.850		0.50	0.10	0.50		94.21	61.01	20.67	
24		3567.0	0.00	0.00	30.6	10.05	0.080		0.50	0.10	0.50		94.21	61.01	20.67	
40		3542.0	0.00	0.00	30.1	10.15	0.075		0.50	0.10	0.50		**94.21**	**61.01**	**20.67**	
TOTAL			3.67	0.56												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	3000.0	0.11	330	5.79	0.2	450	38.99	3	7500	79.33
Solution (mL)	3542.0	0.500	1771	31.06	0.10	354	30.69	0.50	1771	18.73
Solution Samples *			59	1.03		13	1.08		63	0.66
Gravity		1.2	**3543**	**62.13**		**337**	**29.23**		**121**	**1.27**
Total Extraction				**94.21**			**61.01**			**20.67**
Total			5702	100.00		1154	100.00		9454	100.00
Calculated Head		1.90			0.4			3		
Assayed Head		**5.47**			**<2**			**<10**		

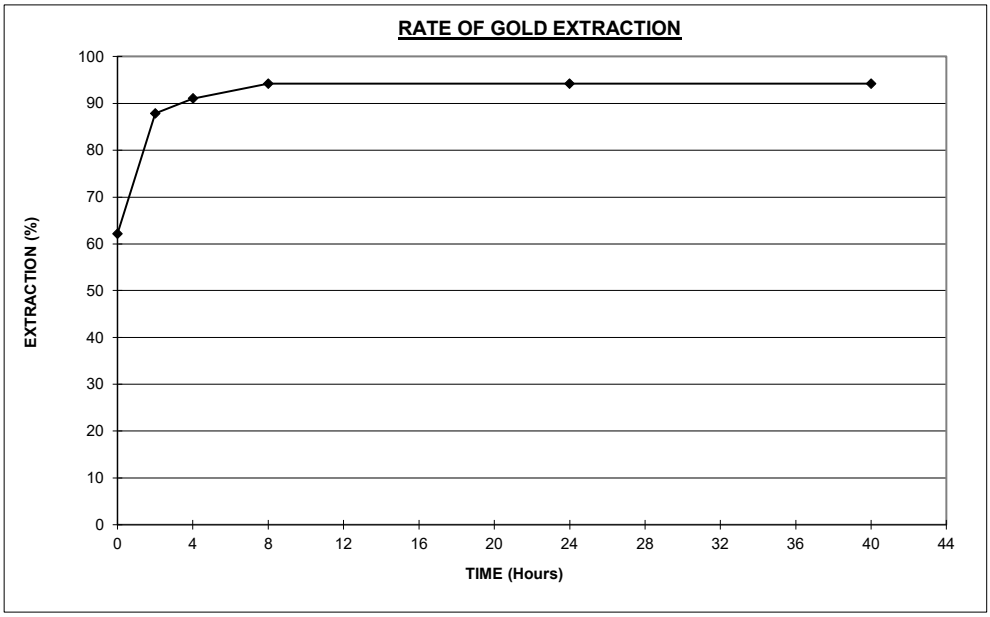
RESIDUE ASSAYS (ppm)

Au	0.11
Ag	0.15
As	2.5
S	0.42%
S2-	0.42%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	> 0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3667.0	(g)
8. Grind size P 80 :	75	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.24	(kg/t)
13. Lime consum'n (kg/t) :	0.19	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7354**
SAMPLE ID	**ENIODA FRESH MASTER COMPOSITE (MC-27)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jun-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	3000.0	3667.0			9.4	8.10										
0		3667.0	2.57	0.73	20.0	10.51	**0.070**		0.00	0.00	0.00		55.77	13.57	1.04	
2		3642.0	0.00	0.00	23.4	10.25	0.065		0.40	0.10	0.50		83.14	30.55	20.48	
4		3617.0	0.00	0.00	23.5	10.08	0.060		0.50	0.10	0.50		89.93	30.55	20.48	
8		3592.0	0.00	0.00	28.9	9.99	0.055		0.50	0.10	0.50		89.93	30.55	20.48	
24		3567.0	0.00	0.00	22.3	9.83	0.053		0.55	0.10	0.50		93.28	30.55	20.48	
40		3542.0	0.00	0.00	21.3	9.90	0.050		0.55	0.10	0.50		**93.28**	**30.55**	**20.48**	
TOTAL			2.57	0.73												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	3000.0	0.12	360	6.72	0.5	1500	69.45	3	7500	79.52
Solution (mL)	3542.0	0.550	1948	36.35	0.10	354	16.40	0.50	1771	18.78
Solution Samples *			63	1.17		13	0.58		63	0.66
Gravity		1.0	**2989**	**55.77**		**293**	**13.57**		**98**	**1.04**
Total Extraction				**93.28**			**30.55**			**20.48**
Total			5360	100.00		2160	100.00		9431	100.00
Calculated Head		1.79			0.7			3		
Assayed Head		**5.47**			**<2**			**<10**		

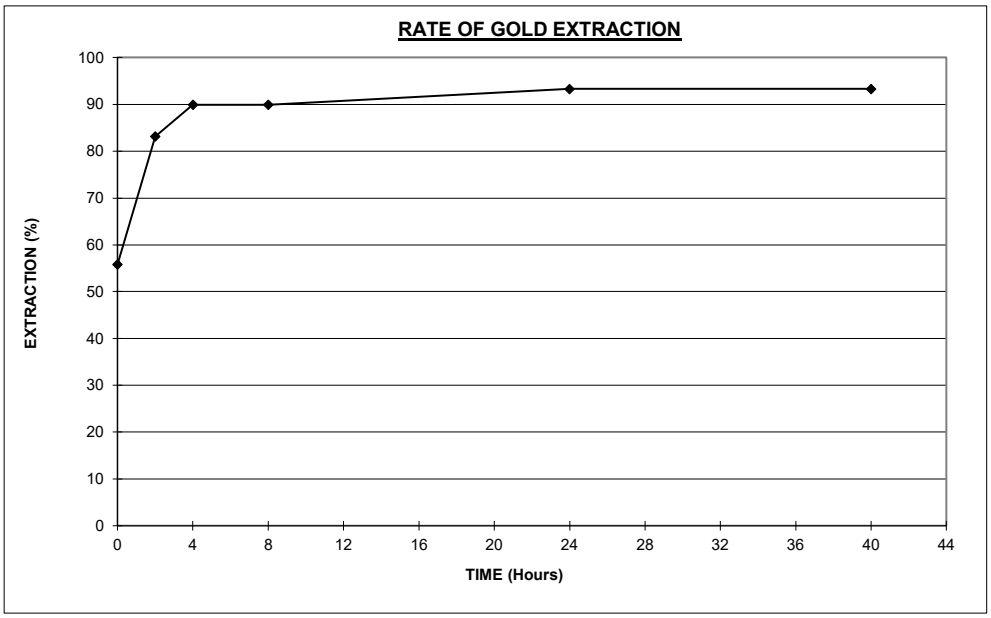
RESIDUE ASSAYS (ppm)

Au	0.12
Ag	0.5
As	2.5
S	0.42%
S2-	0.38%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3667.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.86 (kg/t)
12. NaCN consum'n (kg/t) : 0.24 (kg/t)
13. Lime consum'n (kg/t) : 0.24 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7355**
SAMPLE ID	**ENIODA FRESH MASTER COMPOSITE (MC-27)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jun-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	3000.0	3667.0			9.4	8.14										
0		3667.0	1.83	0.69	20.0	10.55	**0.050**		0.00	0.00	0.00		57.57	11.54	0.32	
2		3642.0	0.00	0.00	22.7	10.20	0.050		0.35	0.10	0.50		84.93	28.92	6.06	
4		3617.0	0.00	0.00	23.2	10.05	0.048		0.40	0.10	0.50		88.81	28.92	6.06	
8		3592.0	0.00	0.00	29.3	10.00	0.040		0.40	0.10	1.00		88.81	28.92	11.72	
24		3567.0	0.00	0.00	24.3	9.83	0.040		0.45	0.10	0.50		92.64	28.92	6.10	
40		3542.0	0.00	0.00	21.2	9.87	0.035		0.45	0.10	0.50		**92.64**	**28.92**	**6.10**	
TOTAL			1.83	0.69												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	3000.0	0.12	345	7.36	0.5	1500	71.08	10	30000	93.90
Solution (mL)	3542.0	0.450	1594	33.98	0.10	354	16.78	0.50	1771	5.54
Solution Samples *			51	1.09		13	0.59		75	0.23
Gravity		0.9	**2700**	**57.57**		**244**	**11.54**		**102**	**0.32**
Total Extraction				**92.64**			**28.92**			**6.10**
Total			4690	100.00		2110	100.00		31948	100.00
Calculated Head		1.56			0.7			11		
Assayed Head		**5.47**			**<2**			**<10**		

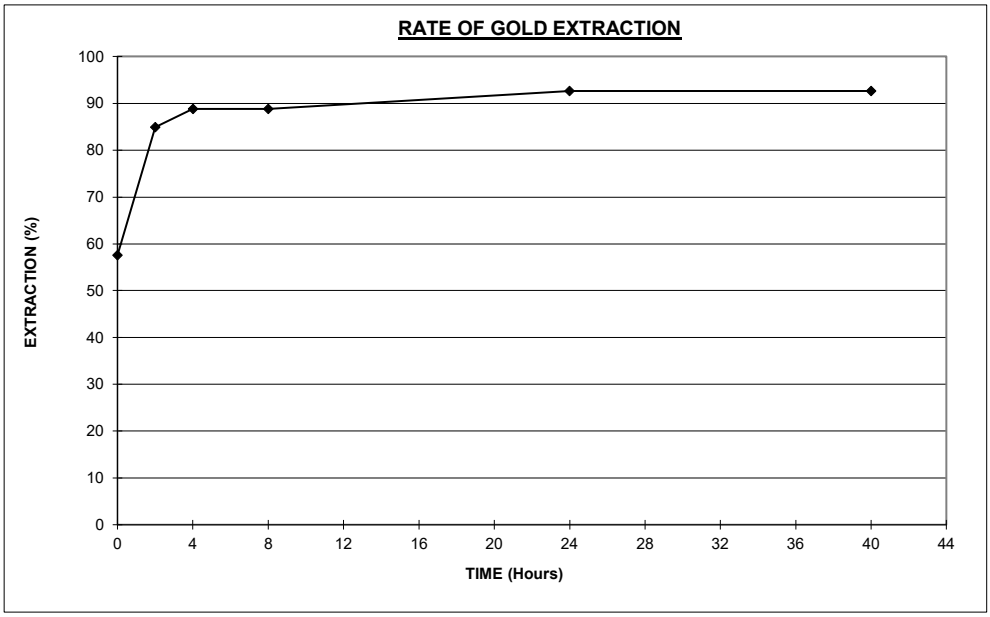
RESIDUE ASSAYS (ppm)

Au	0.12
Ag	0.5
As	10
S	0.40%
S2-	0.38%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3667.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 0.23 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7356**
SAMPLE ID	**ENIODA FRESH MASTER COMPOSITE (MC-27)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jun-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	3000.0	3667.0			9.3	8.15										
0		3667.0	1.10	0.64	20.0	10.50	**0.030**		0.00	0.00	0.00		53.03	12.05	1.35	
2		3642.0	0.00	0.00	23.2	10.10	0.030		0.30	0.10	0.50		81.37	29.33	20.73	
4		3617.0	0.00	0.00	24.2	10.00	0.028		0.35	0.10	0.50		86.07	29.33	20.73	
8		3592.0	0.00	0.00	29.9	9.95	0.023		0.40	0.10	0.50		90.73	29.33	20.73	
24		3567.0	0.00	0.07	23.1	9.73	0.023		0.40	0.10	0.50		90.73	29.33	20.73	
40		3542.0	0.00	0.00	21.9	9.81	0.020		0.40	0.10	0.50		**90.73**	**29.33**	**20.73**	
TOTAL			1.10	0.71												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	3000.0	0.12	360	9.27	0.5	1500	70.67	3	7500	79.27
Solution (mL)	3542.0	0.400	1417	36.50	0.10	354	16.69	0.50	1771	18.72
Solution Samples *			46	1.19		13	0.59		63	0.66
Gravity		0.7	**2059**	**53.03**		**256**	**12.05**		**128**	**1.35**
Total Extraction				**90.73**			**29.33**			**20.73**
Total			3882	100.00		2122	100.00		9461	100.00
Calculated Head		1.29			0.7			3		
Assayed Head		**5.47**			**<2**			**<10**		

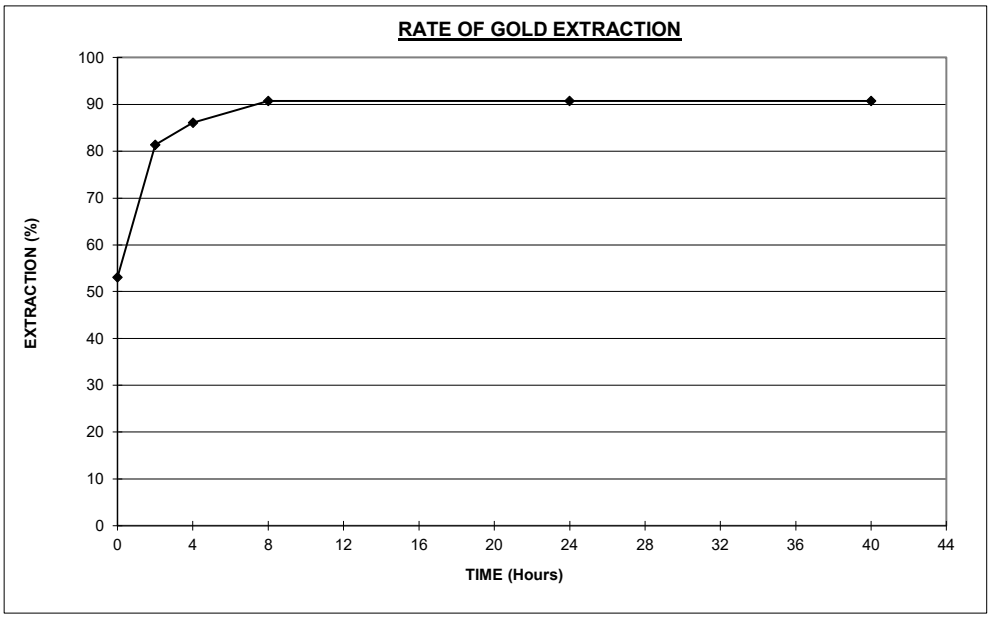
RESIDUE ASSAYS (ppm)

Au	0.12
Ag	0.5
As	2.5
S	0.40%
S2-	0.34%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3667.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.24 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7386**
SAMPLE ID	**ENIODA TRANS MASTER COMPOSITE (MC-22)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jun-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2977.2	3639.0			9.9	7.84										
0		3639.0	2.55	1.81	20.0	10.52	**0.070**		0.00	0.00	0.00		50.00	16.99	2.57	
2		3614.0	0.00	0.00	24.8	9.99	0.058		0.80	0.40	0.50		87.06	80.35	21.71	
4		3589.0	0.00	0.00	32.5	9.96	0.058		0.90	0.60	0.50		91.66	111.80	21.71	
8		3564.0	0.00	0.00	33.0	9.90	0.058		0.95	0.40	0.50		93.94	80.56	21.71	
24		3539.0	0.00	0.11	35.1	9.75	0.055		1.00	0.40	0.50		96.21	80.56	21.71	
40		3514.0	0.00	0.00	25.4	9.77	0.050		1.00	0.40	0.50		**96.21**	**80.56**	**21.71**	
TOTAL			2.55	1.92												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2977.2	0.10	298	3.79	0.2	447	19.44	3	7443	78.29
Solution (mL)	3514.0	1.000	3514	44.73	0.40	1406	61.18	0.50	1757	18.48
Solution Samples *			116	1.48		55	2.39		63	0.66
Gravity		1.3	**3928**	**50.00**		**390**	**16.99**		**244**	**2.57**
Total Extraction				**96.21**			**80.56**			**21.71**
Total			7856	100.00		2298	100.00		9507	100.00
Calculated Head		2.64			0.8			3		
Assayed Head		**2.53**			**<2**			**<10**		

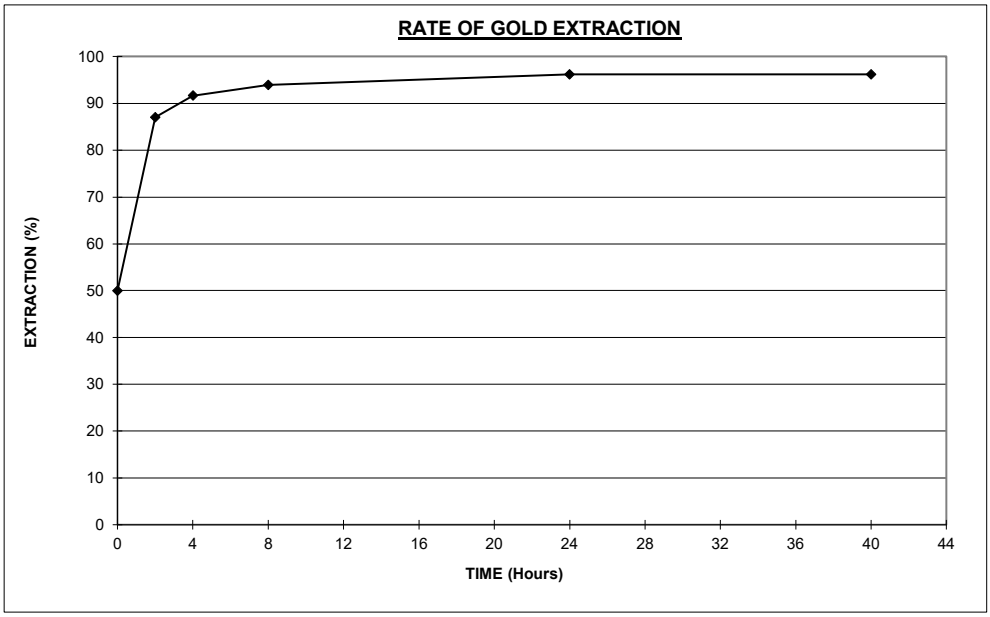
RESIDUE ASSAYS (ppm)

Au	0.10
Ag	0.15
As	2.5
S	0.04%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.070	(%)
2. Maintain % NaCN :	0.04	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3639.0	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.86	(kg/t)
12. NaCN consum'n (kg/t) :	0.24	(kg/t)
13. Lime consum'n (kg/t) :	0.64	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7387**
SAMPLE ID	**ENIODA TRANS MASTER COMPOSITE (MC-22)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jun-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2977.2	3639.0			9.9	7.82										
0		3639.0	1.82	1.78	20.0	10.57	**0.050**		0.00	0.00	0.00		51.92	8.91	2.62	
2		3614.0	0.00	0.00	27.4	9.98	0.043		0.80	0.80	0.50		86.75	73.94	21.75	
4		3589.0	0.00	0.00	32.8	9.93	0.043		0.90	0.90	0.50		91.08	82.01	21.75	
8		3564.0	0.00	0.00	28.2	9.90	0.040		1.00	1.00	0.50		95.37	90.03	21.75	
24		3539.0	0.00	0.12	25.8	9.72	0.038		1.00	1.00	0.50		95.37	90.03	21.75	
40		3514.0	0.00	0.00	23.5	9.68	0.035		1.00	1.00	0.50		**95.37**	**90.03**	**21.75**	
TOTAL			1.82	1.90												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2977.2	0.13	387	4.63	0.2	447	9.97	3	7443	78.25
Solution (mL)	3514.0	1.000	3514	42.04	1.00	3514	78.49	0.50	1757	18.47
Solution Samples *			118	1.41		118	2.62		63	0.66
Gravity		1.5	**4340**	**51.92**		**399**	**8.91**		**249**	**2.62**
Total Extraction				**95.37**			**90.03**			**21.75**
Total			8358	100.00		4477	100.00		9512	100.00
Calculated Head		2.81			1.5			3		
Assayed Head		**2.53**			**<2**			**<10**		

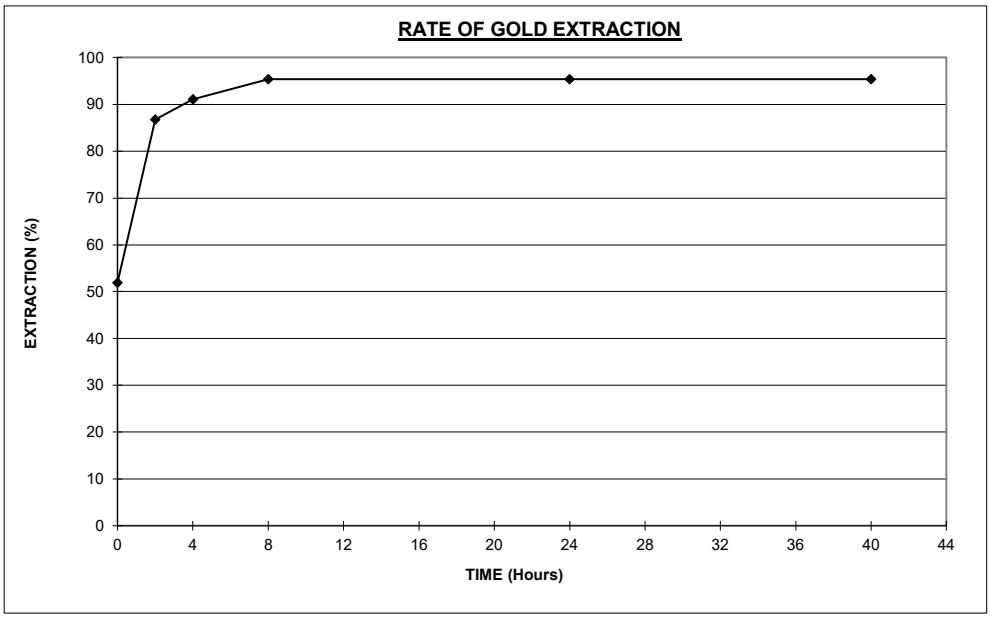
RESIDUE ASSAYS (ppm)

Au	0.13
Ag	0.15
As	2.5
S	0.04%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3639.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 0.64 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7388**
SAMPLE ID	**ENIODA TRANS MASTER COMPOSITE (MC-22)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Jun-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2977.2	3639.0			9.9	7.80										
0		3639.0	1.09	1.81	20.0	10.53	**0.030**		0.00	0.00	0.00		49.60	9.04	1.25	
2		3614.0	0.00	0.00	27.4	9.98	0.028		0.75	0.75	0.50		82.52	67.42	20.65	
4		3589.0	0.00	0.00	31.4	9.94	0.028		0.90	0.90	0.50		89.06	79.01	20.65	
8		3564.0	0.00	0.00	30.8	9.91	0.025		0.95	0.95	0.50		91.23	82.85	20.65	
24		3539.0	0.00	0.15	29.2	9.71	0.025		1.00	1.00	0.50		93.38	86.66	20.65	
40		3514.0	0.00	0.00	26.6	9.78	0.020		1.05	1.05	0.50		**95.51**	**90.45**	**20.65**	
TOTAL			1.09	1.96												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2977.2	0.13	372	4.49	0.2	447	9.55	3	7443	79.35
Solution (mL)	3514.0	1.050	3690	44.51	1.05	3690	78.92	0.50	1757	18.73
Solution Samples *			116	1.40		116	2.49		63	0.67
Gravity		1.4	**4111**	**49.60**		**423**	**9.04**		**117**	**1.25**
Total Extraction				**95.51**			**90.45**			**20.65**
Total			8289	100.00		4675	100.00		9380	100.00
Calculated Head		2.78			1.6			3		
Assayed Head		**2.53**			**<2**			**<10**		

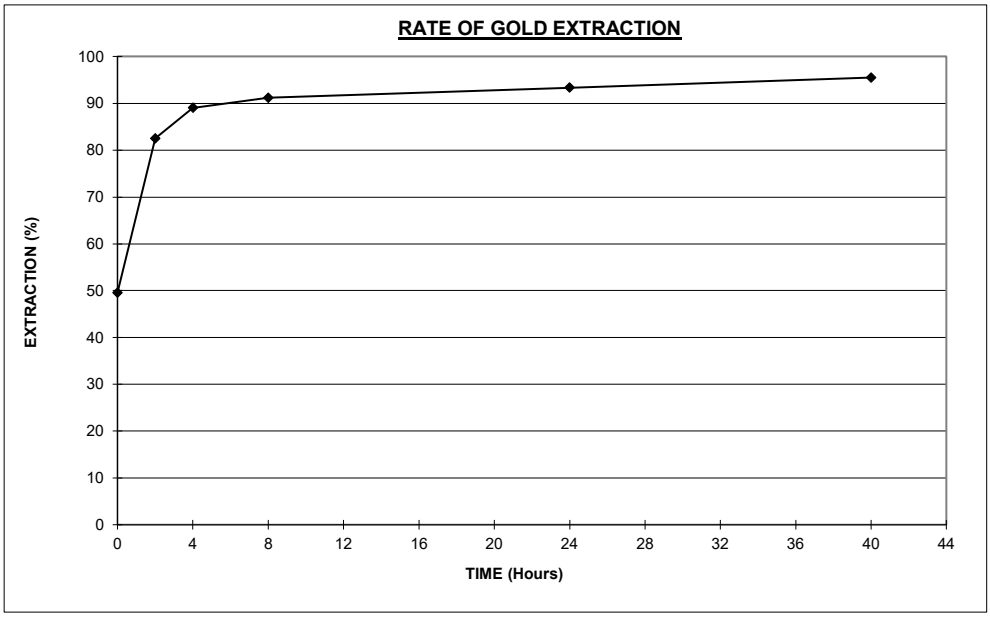
RESIDUE ASSAYS (ppm)

Au	0.13
Ag	0.15
As	2.5
S	0.04%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

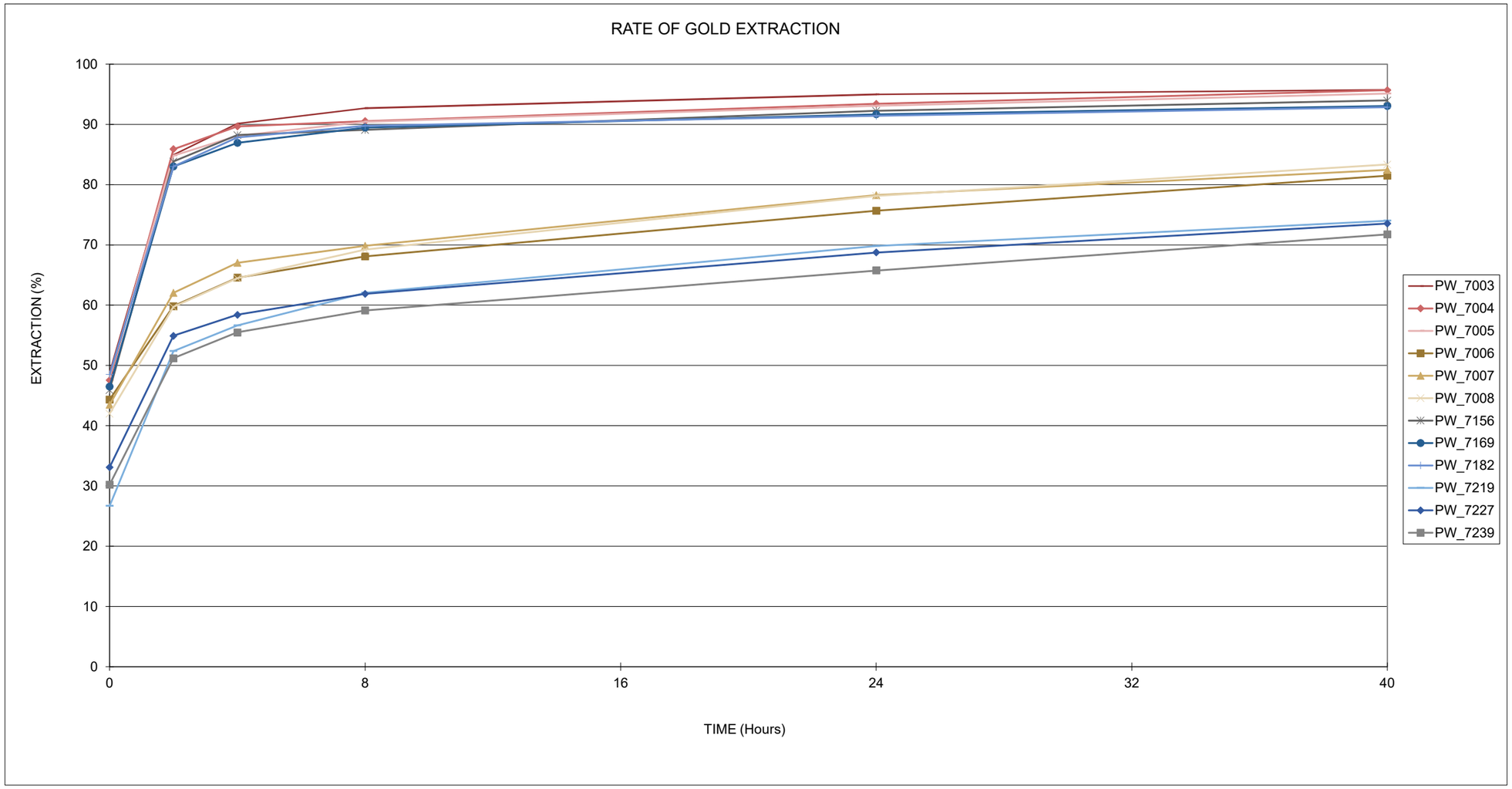
1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3639.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.66 (kg/t)



PROJECT	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
DATE	2/05/2023

SUMMARY

TEST No	SAMPLE ID	GRIND SIZE (P80, µm)	O2 / AIR SPARGE	% NaCN (Init / Mtn)	% Solids (w/w)	DCN OR CIL	GOLD HEAD GRADE (g/t)		GOLD DISTRIBUTION (g/t)			GOLD DISTRIBUTION (%)			TOTAL GOLD RECOVERY (%)	REAGENTS (kg/t)	
							Assayed	Calculated	Gravity	Leach	Residue	Gravity	Leach	Residue		NaCN	Lime
PW_7003	ATTIRE TRANS MASTER COMPOSITE (MC-23)	125	O2	0.10 / 0.05	45	DCN	2.24	2.35	1.15	1.10	0.10	48.8	46.9	4.3	95.7	0.25	0.59
PW_7004	ATTIRE TRANS MASTER COMPOSITE (MC-23)	106	O2	0.10 / 0.05	45	DCN	2.24	2.09	0.99	1.00	0.09	47.6	48.1	4.3	95.7	0.27	0.58
PW_7005	ATTIRE TRANS MASTER COMPOSITE (MC-23)	75	O2	0.10 / 0.05	45	DCN	2.24	2.05	0.99	0.96	0.10	48.1	47.0	4.9	95.1	0.27	0.52
	AVERAGE CALCULATED HEAD GRADE							**2.16**									
PW_7006	ATTIRE FRESH MASTER COMPOSITE (MC-24)	125	O2	0.10 / 0.05	45	DCN	1.29	1.03	0.45	0.38	0.19	44.3	37.1	18.5	81.5	0.12	0.46
PW_7007	ATTIRE FRESH MASTER COMPOSITE (MC-24)	106	O2	0.10 / 0.05	45	DCN	1.29	0.85	0.37	0.33	0.15	43.5	39.0	17.6	82.4	0.14	0.48
PW_7008	ATTIRE FRESH MASTER COMPOSITE (MC-24)	75	O2	0.10 / 0.05	45	DCN	1.29	1.14	0.48	0.47	0.19	42.0	41.3	16.6	83.4	0.12	0.52
	AVERAGE CALCULATED HEAD GRADE							**1.01**									
PW_7156	ATTIRE TRANS MASTER COMPOSITE (MC-23)	106	O2	0.07 / 0.04	45	DCN	2.24	2.08	0.95	1.00	0.13	45.9	48.1	6.0	94.0	0.12	1.17
PW_7169	ATTIRE TRANS MASTER COMPOSITE (MC-23)	106	O2	0.05 / 0.03	45	DCN	2.24	2.16	1.00	1.01	0.15	46.5	46.6	6.9	93.1	0.12	0.80
PW_7182	ATTIRE TRANS MASTER COMPOSITE (MC-23)	106	O2	0.03 / 0.02	45	DCN	2.24	2.52	1.22	1.11	0.18	48.5	44.3	7.2	92.8	0.08	0.58
	AVERAGE CALCULATED HEAD GRADE							**2.25**									
PW_7219	ATTIRE FRESH MASTER COMPOSITE (MC-24)	75	O2	0.07 / 0.04	45	DCN	1.29	1.00	0.27	0.47	0.26	26.7	47.3	26.0	74.0	0.24	0.38
PW_7227	ATTIRE FRESH MASTER COMPOSITE (MC-24)	75	O2	0.05 / 0.03	45	DCN	1.29	0.87	0.29	0.35	0.23	33.1	40.4	26.5	73.5	0.12	0.34
PW_7239	ATTIRE FRESH MASTER COMPOSITE (MC-24)	75	O2	0.03 / 0.02	45	DCN	1.29	0.99	0.30	0.41	0.28	30.2	41.5	28.2	71.8	0.12	0.28
	AVERAGE CALCULATED HEAD GRADE							**0.95**									



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7003**
SAMPLE ID	**ATTIRE TRANS MASTER COMPOSITE (MC-23)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2982.6	3645.0			9.6	7.91										
0		3645.0	3.65	1.59	20.0	10.50	**0.100**		0.00	0.00	0.00		48.82	20.35	1.69	
2		3620.0	0.00	0.00	23.5	9.85	0.085		0.70	0.14	0.05		84.96	59.81	4.04	
4		3595.0	0.00	0.00	21.2	9.84	0.085		0.80	0.16	0.05		90.13	65.41	4.04	
8		3570.0	0.00	0.02	21.6	9.73	0.080		0.85	0.16	0.05		92.69	65.41	4.04	
24		3545.0	0.00	0.15	25.0	9.67	0.080		0.89	0.16	0.05		94.99	65.41	4.04	
40		3520.0	0.00	0.00	26.2	9.86	0.080		0.91	0.16	0.05		**95.74**	**65.41**	**4.04**	
TOTAL			3.65	1.76												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2982.6	0.10	298	4.26	0.2	447	34.59	3	7457	95.96
Solution (mL)	3520.0	0.905	3186	45.45	0.16	563	43.55	0.05	176	2.27
Solution Samples *			103	1.47		20	1.51		6	0.08
Gravity		1.1	**3422**	**48.82**		**263**	**20.35**		**132**	**1.69**
Total Extraction				**95.74**			**65.41**			**4.04**
Total			7009	100.00		1293	100.00		7770	100.00
Calculated Head		2.35			0.4			3		
Assayed Head		**2.24**			**<2**			**<10**		

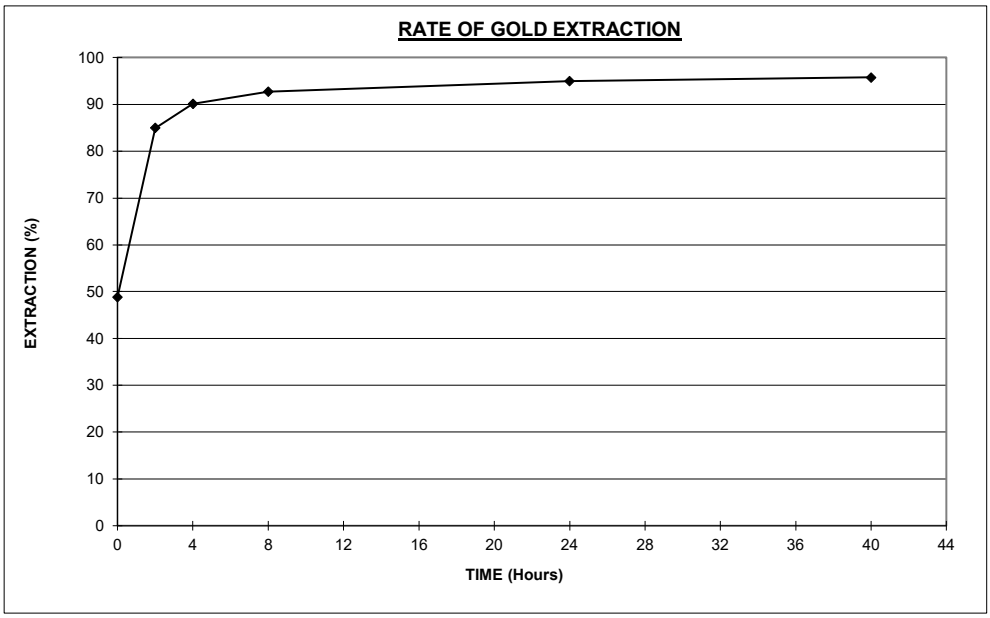
RESIDUE ASSAYS (ppm)

Au	0.10
Ag	0.15
As	2.5
S	0.06%
S2-	0.06%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3645.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.25 (kg/t)
13. Lime consum'n (kg/t) : 0.59 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7004**
SAMPLE ID	**ATTIRE TRANS MASTER COMPOSITE (MC-23)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2982.6	3645.0			9.2	7.82										
0		3645.0	3.65	1.47	20.0	10.54	**0.100**		0.00	0.00	0.00		47.55	16.20	1.60	
2		3620.0	0.00	0.00	24.7	9.89	0.085		0.66	0.14	0.05		85.90	57.73	3.95	
4		3595.0	0.00	0.00	26.7	9.83	0.083		0.72	0.14	0.05		89.68	57.73	3.95	
8		3570.0	0.00	0.03	18.7	9.72	0.080		0.74	0.16	0.05		90.54	63.59	3.95	
24		3545.0	0.00	0.23	22.9	9.64	0.080		0.79	0.16	0.05		93.41	63.59	3.95	
40		3520.0	0.00	0.00	25.8	9.83	0.078		0.83	0.16	0.05		**95.69**	**63.59**	**3.95**	
TOTAL			3.65	1.73												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2982.6	0.09	268	4.31	0.2	447	36.41	3	7457	96.05
Solution (mL)	3520.0	0.825	2904	46.64	0.16	563	45.84	0.05	176	2.27
Solution Samples *			93	1.49		19	1.55		6	0.08
Gravity		1.0	**2961**	**47.55**		**199**	**16.20**		**124**	**1.60**
Total Extraction				**95.69**			**63.59**			**3.95**
Total			6226	100.00		1229	100.00		7763	100.00
Calculated Head		2.09			0.4			3		
Assayed Head		**2.24**			**<2**			**<10**		

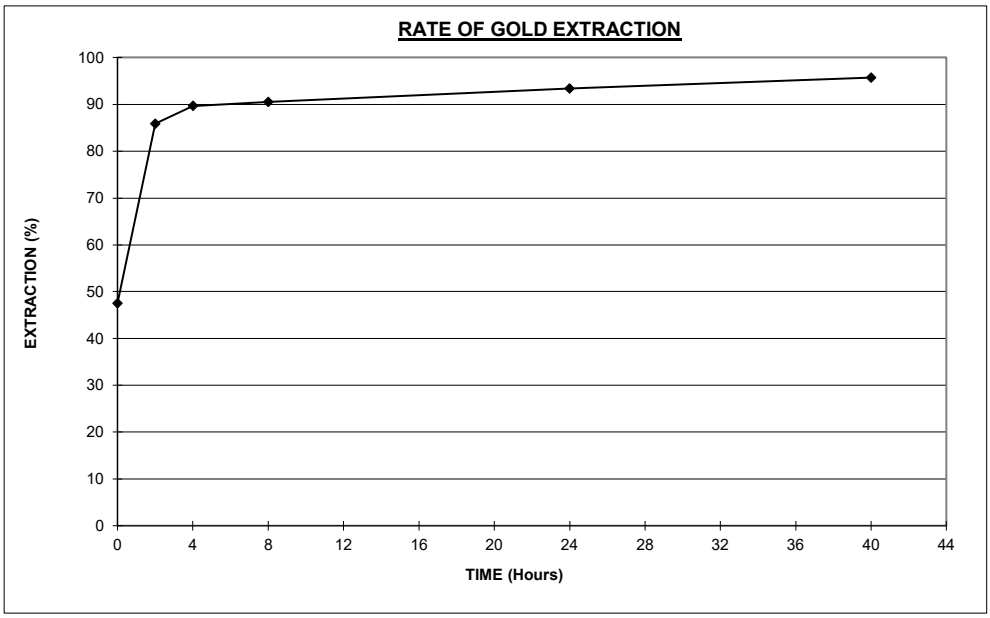
RESIDUE ASSAYS (ppm)

Au	0.09
Ag	0.15
As	2.5
S	0.06%
S2-	0.06%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3645.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.27 (kg/t)
13. Lime consum'n (kg/t) : 0.58 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7005**
SAMPLE ID	**ATTIRE TRANS MASTER COMPOSITE (MC-23)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2982.6	3645.0			9.1	7.79										
0		3645.0	3.65	1.26	20.0	10.50	**0.100**		0.00	0.00	0.00		48.12	14.93	1.46	
2		3620.0	0.00	0.00	21.2	9.90	0.083		0.62	0.14	0.05		84.84	57.07	3.81	
4		3595.0	0.00	0.00	21.2	9.82	0.080		0.67	0.16	0.05		88.10	63.05	3.81	
8		3570.0	0.00	0.06	21.4	9.73	0.078		0.71	0.16	0.05		90.45	63.05	3.81	
24		3545.0	0.00	0.22	23.5	9.66	0.080		0.76	0.16	0.05		93.08	63.05	3.81	
40		3520.0	0.00	0.00	25.8	9.82	0.078		0.79	0.16	0.05		**95.11**	**63.05**	**3.81**	
TOTAL			3.65	1.54												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2982.6	0.10	298	4.89	0.2	447	36.95	3	7457	96.19
Solution (mL)	3520.0	0.790	2781	45.55	0.16	563	46.51	0.05	176	2.27
Solution Samples *			89	1.45		20	1.61		6	0.08
Gravity		1.0	**2938**	**48.12**		**181**	**14.93**		**113**	**1.46**
Total Extraction				**95.11**			**63.05**			**3.81**
Total			6106	100.00		1211	100.00		7752	100.00
Calculated Head		2.05			0.4			3		
Assayed Head		**2.24**			**<2**			**<10**		

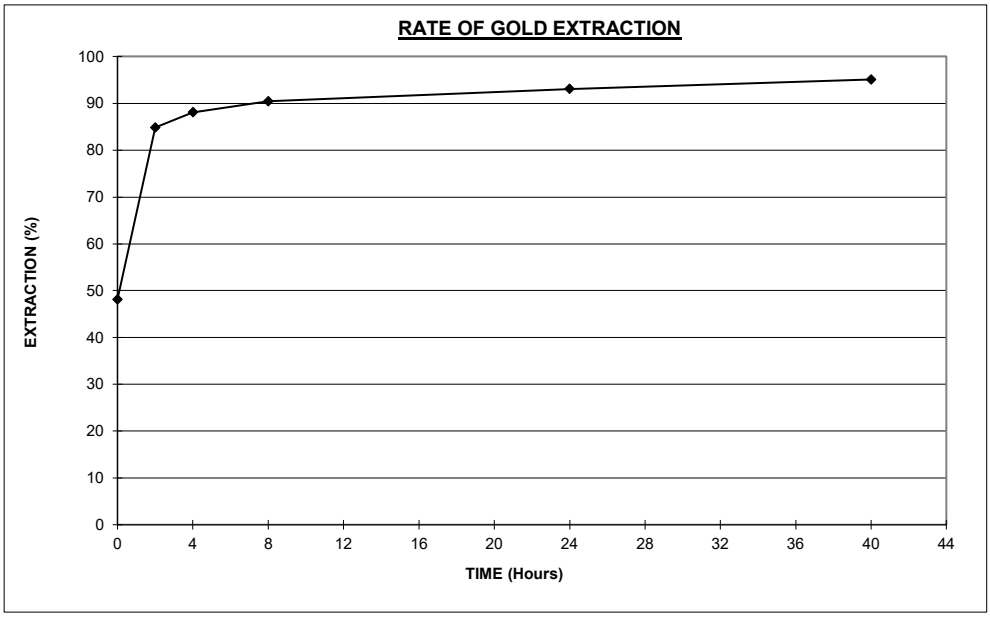
RESIDUE ASSAYS (ppm)

Au	0.10
Ag	0.15
As	2.5
S	0.06%
S2-	0.06%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3645.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.27 (kg/t)
13. Lime consum'n (kg/t) : 0.52 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7006**
SAMPLE ID	**ATTIRE FRESH MASTER COMPOSITE (MC-24)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2997.0	3663.0			9.5	7.85										
0		3663.0	3.66	1.37	20.0	10.51	**0.100**		0.00	0.00	0.00		44.34	16.85	1.91	
2		3638.0	0.00	0.00	23.3	10.38	0.095		0.13	0.08	0.05		59.83	44.32	4.25	
4		3613.0	0.00	0.00	19.8	10.34	0.096		0.17	0.10	0.05		64.57	51.14	4.25	
8		3588.0	0.00	0.00	25.6	10.29	0.093		0.20	0.10	0.05		68.09	51.14	4.25	
24		3563.0	0.00	0.00	24.4	10.23	0.090		0.27	0.12	0.05		75.68	57.86	4.25	
40		3538.0	0.00	0.00	26.7	10.26	0.090		0.32	0.12	0.05		**81.48**	**57.86**	**4.25**	
TOTAL			3.66	1.37												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2997.0	0.19	569	18.52	0.2	450	42.14	3	7493	95.75
Solution (mL)	3538.0	0.315	1114	36.26	0.12	425	39.80	0.05	177	2.26
Solution Samples *			27	0.88		13	1.22		6	0.08
Gravity		0.5	**1363**	**44.34**		**180**	**16.85**		**150**	**1.91**
Total Extraction				**81.48**			**57.86**			**4.25**
Total			3074	100.00		1067	100.00		7825	100.00
Calculated Head		1.03			0.4			3		
Assayed Head		**1.29**			**<2**			**<10**		

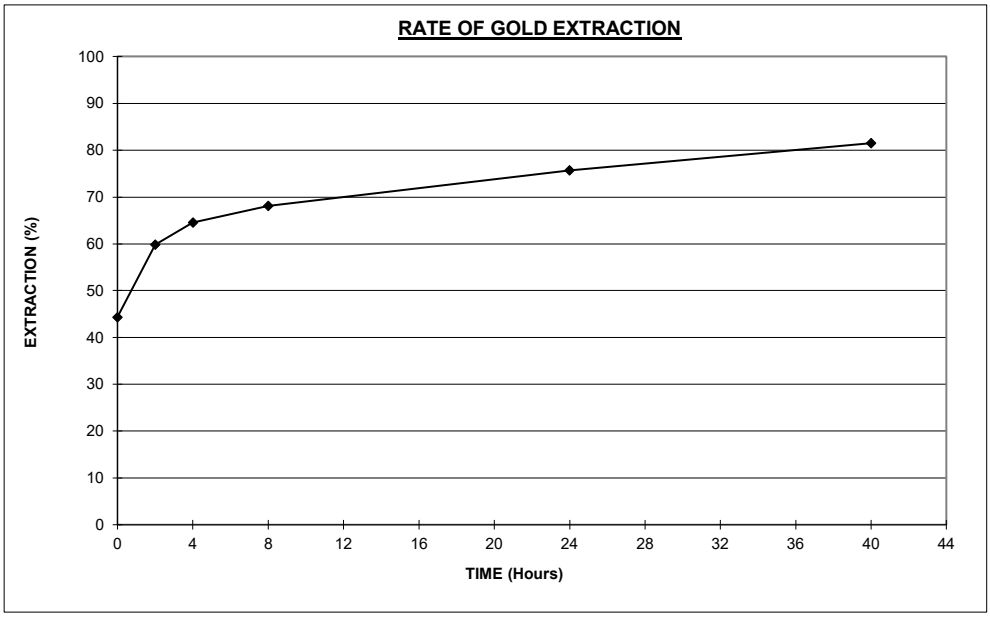
RESIDUE ASSAYS (ppm)

Au	0.19
Ag	0.15
As	2.5
S	0.40%
S2-	0.40%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3663.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.46 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7007**
SAMPLE ID	**ATTIRE FRESH MASTER COMPOSITE (MC-24)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2997.0	3663.0			9.5	7.80										
0		3663.0	3.66	1.43	20.0	10.56	**0.100**		0.00	0.00	0.00		43.45	11.80	1.90	
2		3638.0	0.00	0.00	27.6	10.42	0.098		0.13	0.08	0.05		62.06	40.95	4.24	
4		3613.0	0.00	0.00	20.0	10.33	0.095		0.17	0.10	0.05		67.03	48.19	4.24	
8		3588.0	0.00	0.00	16.9	10.37	0.090		0.19	0.10	0.05		69.85	48.19	4.24	
24		3563.0	0.00	0.00	24.8	10.29	0.090		0.25	0.10	0.05		78.26	48.19	4.24	
40		3538.0	0.00	0.00	27.0	10.30	0.088		0.28	0.12	0.05		**82.44**	**55.28**	**4.24**	
TOTAL			3.66	1.43												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2997.0	0.15	450	17.56	0.2	450	44.72	3	7493	95.76
Solution (mL)	3538.0	0.275	973	38.01	0.12	425	42.23	0.05	177	2.26
Solution Samples *			25	0.98		13	1.24		6	0.08
Gravity		0.4	**1112**	**43.45**		**119**	**11.80**		**148**	**1.90**
Total Extraction				**82.44**			**55.28**			**4.24**
Total			2560	100.00		1005	100.00		7824	100.00
Calculated Head		0.85			0.3			3		
Assayed Head		**1.29**			**<2**			**<10**		

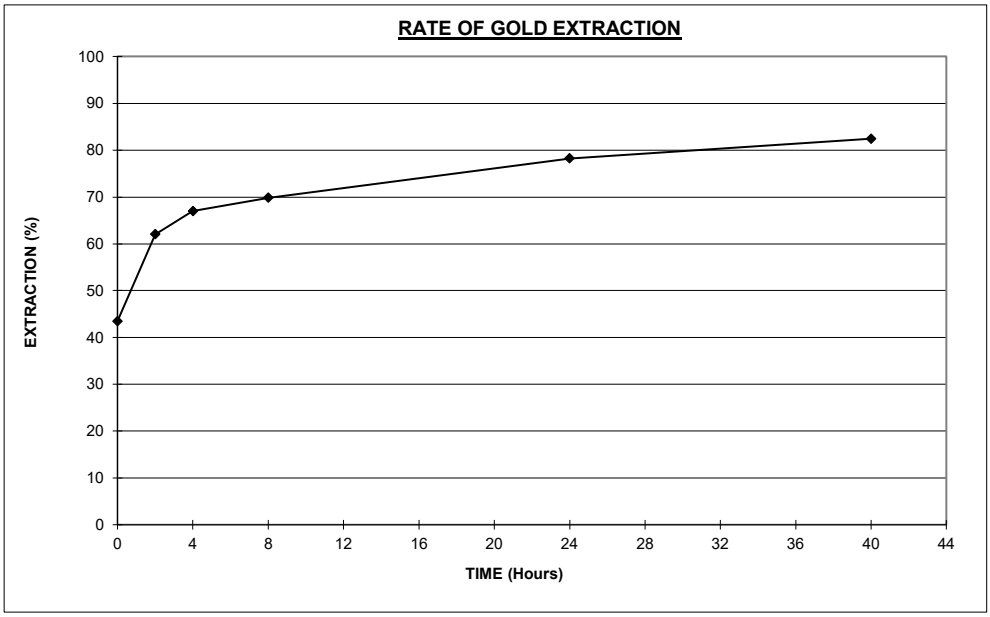
RESIDUE ASSAYS (ppm)

Au	0.15
Ag	0.15
As	2.5
S	0.40%
S2-	0.40%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3663.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.14 (kg/t)
13. Lime consum'n (kg/t) : 0.48 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7008**
SAMPLE ID	**ATTIRE FRESH MASTER COMPOSITE (MC-24)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2997.0	3663.0			9.3	7.79										
0		3663.0	3.66	1.57	20.0	10.54	**0.100**		0.00	0.00	0.00		42.02	9.07	1.54	
2		3638.0	0.00	0.00	23.0	10.40	0.098		0.17	0.12	0.05		59.69	50.67	3.89	
4		3613.0	0.00	0.00	20.7	10.34	0.098		0.21	0.12	0.05		64.47	50.67	3.89	
8		3588.0	0.00	0.00	26.5	10.36	0.098		0.26	0.12	0.05		69.23	50.67	3.89	
24		3563.0	0.00	0.00	24.4	10.31	0.090		0.34	0.14	0.05		78.14	57.46	3.89	
40		3538.0	0.00	0.00	26.7	10.29	0.090		0.39	0.14	0.05		**83.35**	**57.46**	**3.89**	
TOTAL			3.66	1.57												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2997.0	0.19	569	16.65	0.2	450	42.54	3	7493	96.11
Solution (mL)	3538.0	0.390	1380	40.34	0.14	495	46.88	0.05	177	2.27
Solution Samples *			34	0.99		16	1.51		6	0.08
Gravity		0.5	**1437**	**42.02**		**96**	**9.07**		**120**	**1.54**
Total Extraction				**83.35**			**57.46**			**3.89**
Total			3420	100.00		1057	100.00		7795	100.00
Calculated Head		1.14			0.4			3		
Assayed Head		**1.29**			**<2**			**<10**		

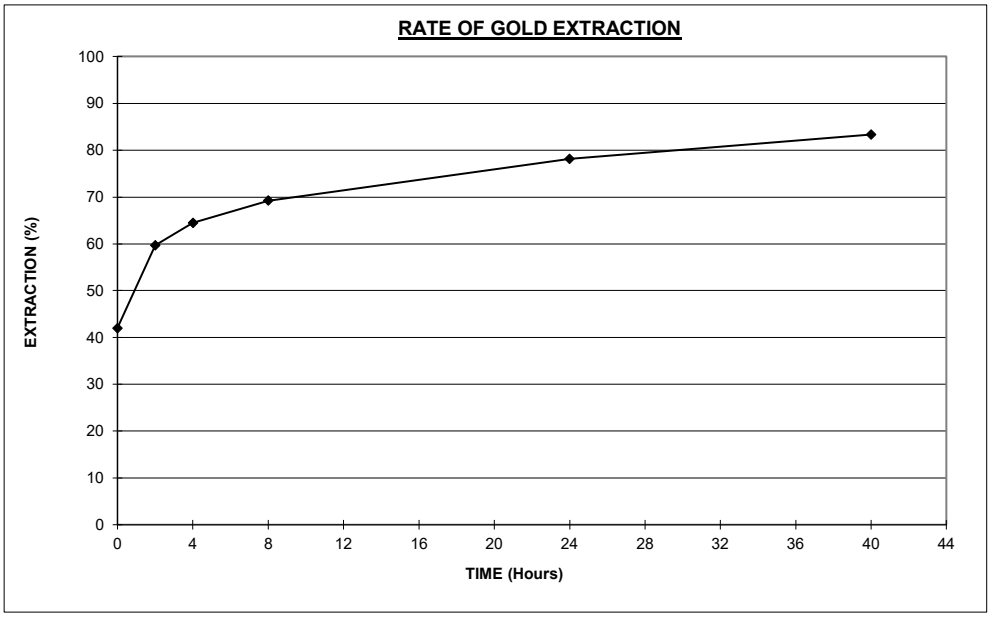
RESIDUE ASSAYS (ppm)

Au	0.19
Ag	0.15
As	2.5
S	0.40%
S2-	0.40%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3663.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.52 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7156**
SAMPLE ID	**ATTIRE TRANS MASTER COMPOSITE (MC-23)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2982.6	3645.0			8.3	7.98										
0		3645.0	2.55	2.86	20.0	10.50	**0.070**		0.00	0.00	0.00		45.93	7.86	1.26	
2		3620.0	0.00	0.00	22.6	9.81	0.060		0.65	0.20	0.50		83.85	38.04	20.66	
4		3595.0	0.00	0.60	21.1	9.75	0.060		0.72	0.40	0.50		88.23	68.02	20.66	
8		3570.0	0.00	0.00	20.9	9.94	0.060		0.74	0.20	0.50		89.10	38.25	20.66	
24		3545.0	0.00	0.03	19.8	9.76	0.060		0.79	0.20	0.50		92.27	38.25	20.66	
40		3520.0	0.00	0.00	25.0	10.02	0.060		0.82	0.20	0.50		**93.99**	**38.25**	**20.66**	
TOTAL			2.55	3.49												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2982.6	0.13	373	6.01	0.5	1491	61.75	3	7457	79.34
Solution (mL)	3520.0	0.820	2886	46.56	0.20	704	29.15	0.50	1760	18.73
Solution Samples *			93	1.50		30	1.24		63	0.67
Gravity		1.0	**2847**	**45.93**		**190**	**7.86**		**119**	**1.26**
Total Extraction				**93.99**			**38.25**			**20.66**
Total			6199	100.00		2415	100.00		9398	100.00
Calculated Head		2.08			0.8			3		
Assayed Head		**2.24**			**<2**			**<10**		

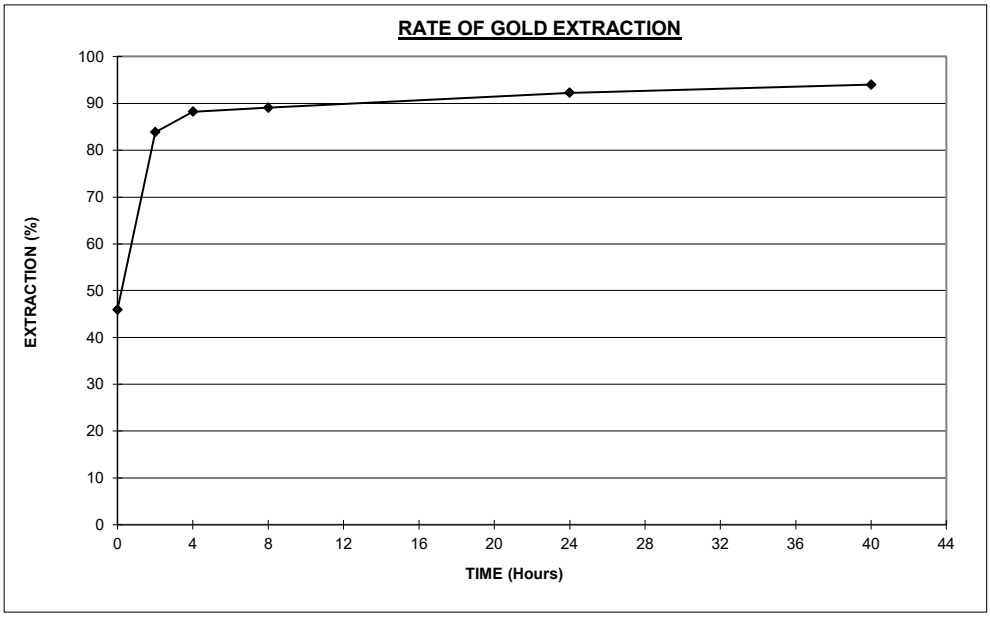
RESIDUE ASSAYS (ppm)

Au	0.13
Ag	0.5
As	2.5
S	0.04%
S2-	0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3645.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.85 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 1.17 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7169**
SAMPLE ID	**ATTIRE TRANS MASTER COMPOSITE (MC-23)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2982.6	3645.0			7.9	7.86										
0		3645.0	1.82	2.06	20.0	10.55	**0.050**		0.00	0.00	0.00		46.50	18.33	3.14	
2		3620.0	0.00	0.00	21.4	9.88	0.043		0.65	0.16	0.05		83.01	61.53	5.45	
4		3595.0	0.00	0.00	21.8	9.87	0.040		0.72	0.16	0.05		86.95	61.53	5.45	
8		3570.0	0.00	0.00	22.1	9.84	0.040		0.76	0.18	0.05		89.46	66.86	5.45	
24		3545.0	0.00	0.33	21.8	9.70	0.040		0.80	0.18	0.05		91.68	66.86	5.45	
40		3520.0	0.00	0.00	26.8	9.77	0.040		0.83	0.18	0.05		**93.05**	**66.86**	**5.45**	
TOTAL			1.82	2.39												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2982.6	0.15	447	6.95	0.2	447	33.14	3	7457	94.55
Solution (mL)	3520.0	0.825	2904	45.10	0.18	634	46.93	0.05	176	2.23
Solution Samples *			94	1.45		22	1.59		6	0.08
Gravity		1.0	**2995**	**46.50**		**247**	**18.33**		**247**	**3.14**
Total Extraction				**93.05**			**66.86**			**5.45**
Total			6440	100.00		1350	100.00		7886	100.00
Calculated Head		2.16			0.5			3		
Assayed Head		**2.24**			**<2**			**<10**		

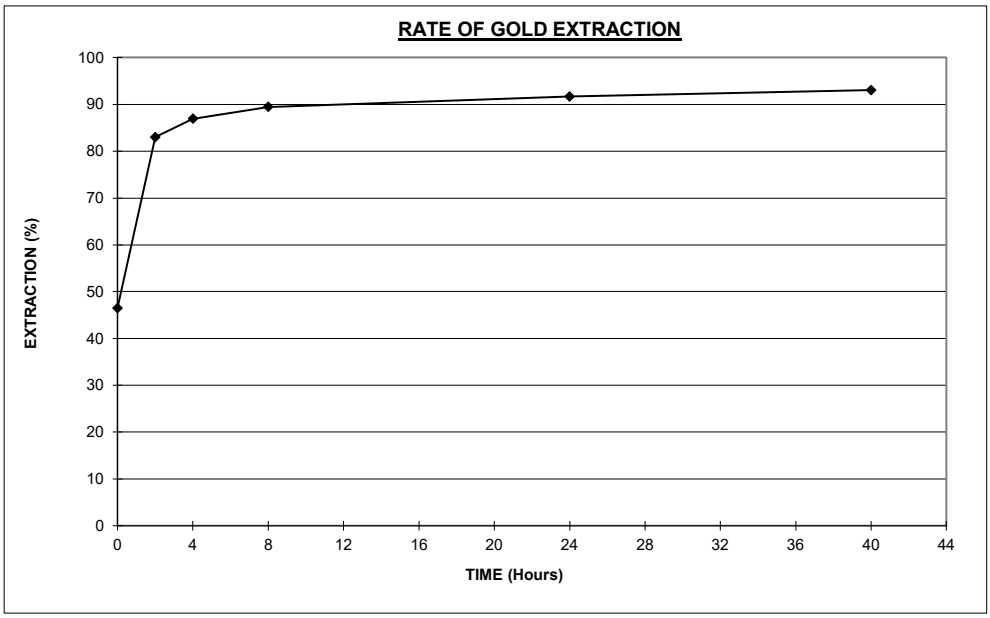
RESIDUE ASSAYS (ppm)

Au	0.15
Ag	0.15
As	2.5
S	0.04%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3645.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.80 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7182**
SAMPLE ID	**ATTIRE TRANS MASTER COMPOSITE (MC-23)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As	Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]	[%]	[%]	[%]	
	2982.6	3645.0			8.1	8.14									
0		3645.0	1.09	1.61	20.0	10.59	**0.030**		0.00	0.00	0.00	48.53	18.27	0.41	
2		3620.0	0.00	0.00	20.7	9.90	0.028		0.71	0.14	0.05	83.02	56.17	1.01	
4		3595.0	0.00	0.00	25.4	9.84	0.025		0.81	0.14	0.05	87.85	56.17	1.01	
8		3570.0	0.00	0.00	27.6	9.88	0.025		0.85	0.16	0.05	89.76	61.51	1.01	
24		3545.0	0.00	0.13	26.7	9.53	0.025		0.89	0.16	0.05	91.43	61.51	1.01	
40		3520.0	0.00	0.00	27.0	9.90	0.023		0.92	0.18	0.10	**92.84**	**66.77**	**1.59**	
TOTAL			1.09	1.74											

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2982.6	0.18	537	7.16	0.2	447	33.23	10	29826	98.41
Solution (mL)	3520.0	0.915	3221	42.93	0.18	634	47.05	0.10	352	1.16
Solution Samples *			104	1.39		20	1.45		8	0.02
Gravity		1.2	**3641**	**48.53**		**246**	**18.27**		**123**	**0.41**
Total Extraction				**92.84**			**66.77**			**1.59**
Total			7503	100.00		1347	100.00		30309	100.00
Calculated Head		2.52			0.5			10		
Assayed Head		**2.24**			**<2**			**<10**		

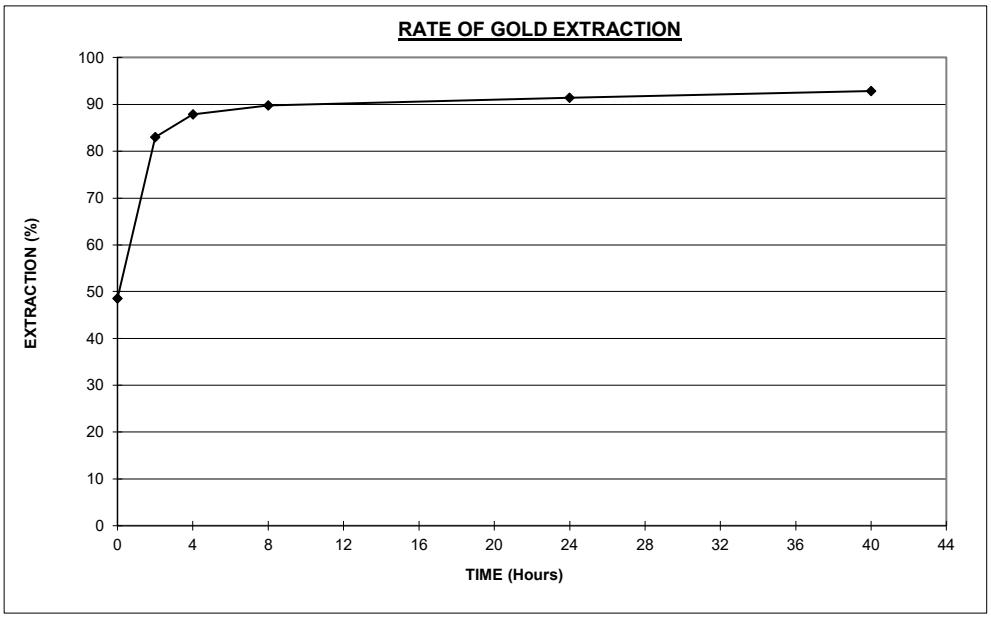
RESIDUE ASSAYS (ppm)

Au	0.18
Ag	0.15
As	10
S	0.04%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3645.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.08 (kg/t)
13. Lime consum'n (kg/t) : 0.58 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7219**
SAMPLE ID	**ATTIRE FRESH MASTER COMPOSITE (MC-24)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2997.0	3663.0			7.3	8.05										
0		3663.0	2.56	1.13	20.0	10.52	**0.070**		0.00	0.00	0.00		26.70	9.29	1.58	
2		3638.0	0.00	0.00	23.4	10.19	0.065		0.21	0.10	0.05		52.37	43.85	3.93	
4		3613.0	0.00	0.00	27.0	10.07	0.060		0.25	0.12	0.05		56.62	50.72	3.93	
8		3588.0	0.00	0.00	30.2	10.18	0.060		0.29	0.14	0.05		62.05	57.54	3.93	
24		3563.0	0.00	0.00	30.2	9.94	0.055		0.36	0.16	0.05		69.83	64.31	3.93	
40		3538.0	0.00	0.00	25.7	10.09	0.050		0.39	0.14	0.05		**73.99**	**57.58**	**3.93**	
TOTAL			2.56	1.13												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2997.0	0.26	779	26.01	0.2	450	42.42	3	7493	96.07
Solution (mL)	3538.0	0.390	1380	46.05	0.14	495	46.74	0.05	177	2.27
Solution Samples *			37	1.24		17	1.56		6	0.08
Gravity		0.3	**800**	**26.70**		**98**	**9.29**		**123**	**1.58**
Total Extraction				**73.99**			**57.58**			**3.93**
Total			2996	100.00		1060	100.00		7799	100.00
Calculated Head		1.00			0.4			3		
Assayed Head		**1.29**			**<2**			**<10**		

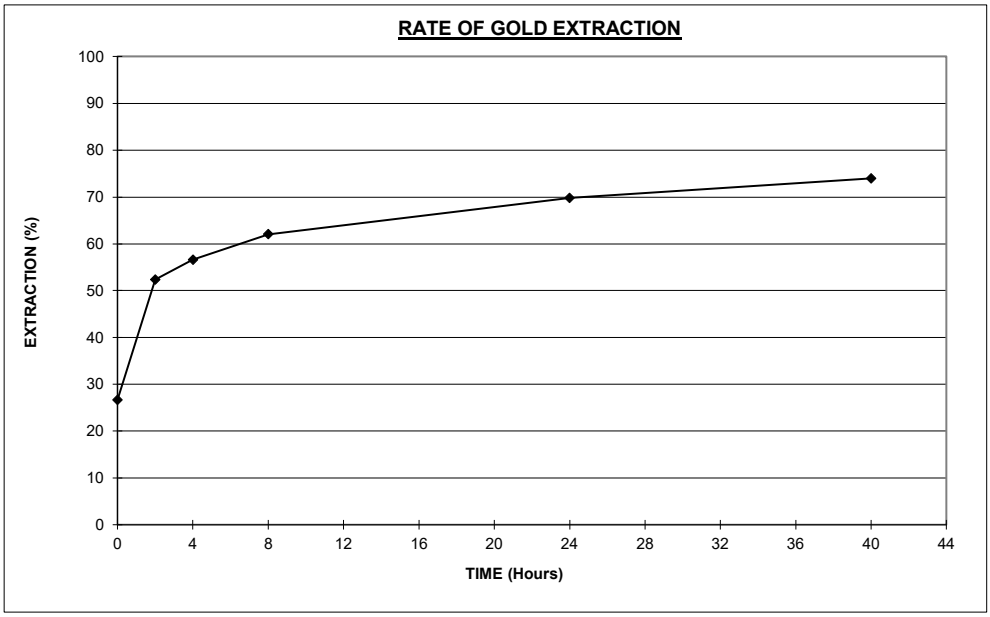
RESIDUE ASSAYS (ppm)

Au	0.26
Ag	0.15
As	2.5
S	0.44%
S2-	0.34%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3663.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.85 (kg/t)
12. NaCN consum'n (kg/t) : 0.24 (kg/t)
13. Lime consum'n (kg/t) : 0.38 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7227**
SAMPLE ID	**ATTIRE FRESH MASTER COMPOSITE (MC-24)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2997.0	3663.0			6.3	7.83										
0		3663.0	1.83	1.02	20.0	10.50	**0.050**		0.00	0.00	0.00		33.11	9.19	1.56	
2		3638.0	0.00	0.00	21.1	10.17	0.040		0.16	0.10	0.05		54.91	43.81	3.91	
4		3613.0	0.00	0.00	23.3	10.12	0.040		0.18	0.12	0.05		58.40	50.68	3.91	
8		3588.0	0.00	0.00	24.2	10.08	0.040		0.21	0.14	0.05		61.87	57.51	3.91	
24		3563.0	0.00	0.00	24.7	10.01	0.040		0.26	0.14	0.05		68.75	57.51	3.91	
40		3538.0	0.00	0.00	25.5	10.06	0.040		0.29	0.14	0.05		**73.54**	**57.51**	**3.91**	
TOTAL			1.83	1.02												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2997.0	0.23	689	26.46	0.2	450	42.49	3	7493	96.09
Solution (mL)	3538.0	0.290	1026	39.38	0.14	495	46.81	0.05	177	2.27
Solution Samples *			27	1.04		16	1.51		6	0.08
Gravity		0.3	**863**	**33.11**		**97**	**9.19**		**122**	**1.56**
Total Extraction				**73.54**			**57.51**			**3.91**
Total			2605	100.00		1058	100.00		7797	100.00
Calculated Head		0.87			0.4			3		
Assayed Head		**1.29**			**<2**			**<10**		

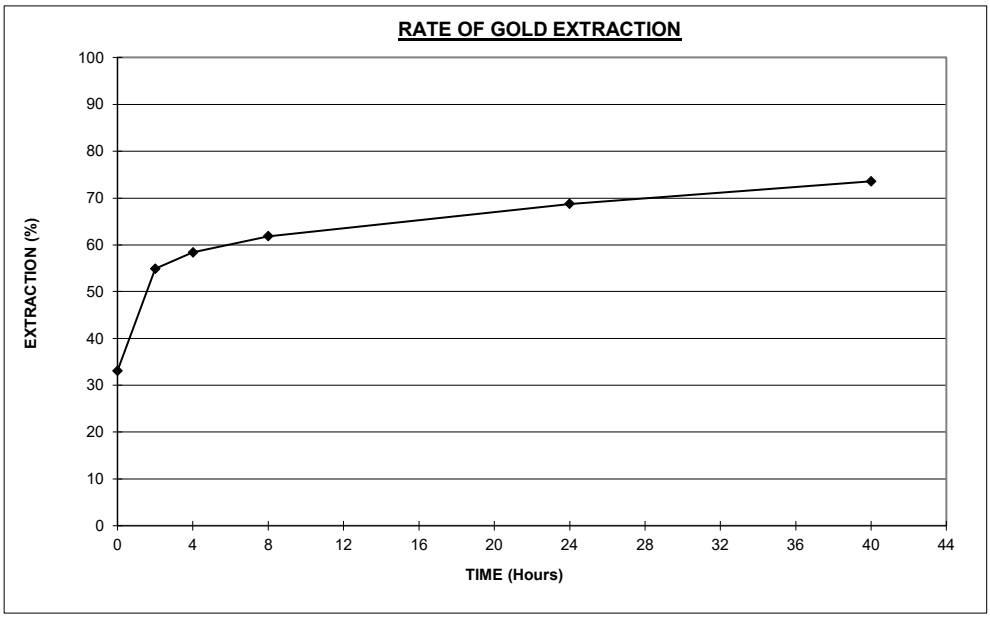
RESIDUE ASSAYS (ppm)

Au	0.23
Ag	0.15
As	2.5
S	0.44%
S2-	0.40%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3663.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.34 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7239**
SAMPLE ID	**ATTIRE FRESH MASTER COMPOSITE (MC-24)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2997.0	3663.0			7.8	8.06										
0		3663.0	1.10	0.83	20.0	10.50	**0.030**		0.00	0.00	0.00		30.22	8.70	1.58	
2		3638.0	0.00	0.00	27.7	9.90	0.028		0.17	0.10	0.05		51.18	41.10	3.93	
4		3613.0	0.00	0.00	27.4	9.88	0.028		0.21	0.12	0.05		55.47	47.54	3.93	
8		3588.0	0.00	0.00	35.7	9.87	0.025		0.24	0.14	0.05		59.12	53.93	3.93	
24		3563.0	0.00	0.00	28.7	9.86	0.025		0.29	0.14	0.05		65.76	53.93	3.93	
40		3538.0	0.00	0.00	33.8	9.83	0.020		0.34	0.16	0.05		**71.75**	**60.24**	**3.93**	
TOTAL			1.10	0.83												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2997.0	0.28	839	28.25	0.2	450	39.76	3	7493	96.07
Solution (mL)	3538.0	0.340	1203	40.49	0.16	566	50.07	0.05	177	2.27
Solution Samples *			31	1.04		17	1.46		6	0.08
Gravity		0.3	**898**	**30.22**		**98**	**8.70**		**123**	**1.58**
Total Extraction				**71.75**			**60.24**			**3.93**
Total			2971	100.00		1131	100.00		7799	100.00
Calculated Head		0.99			0.4			3		
Assayed Head		**1.29**			**<2**			**<10**		

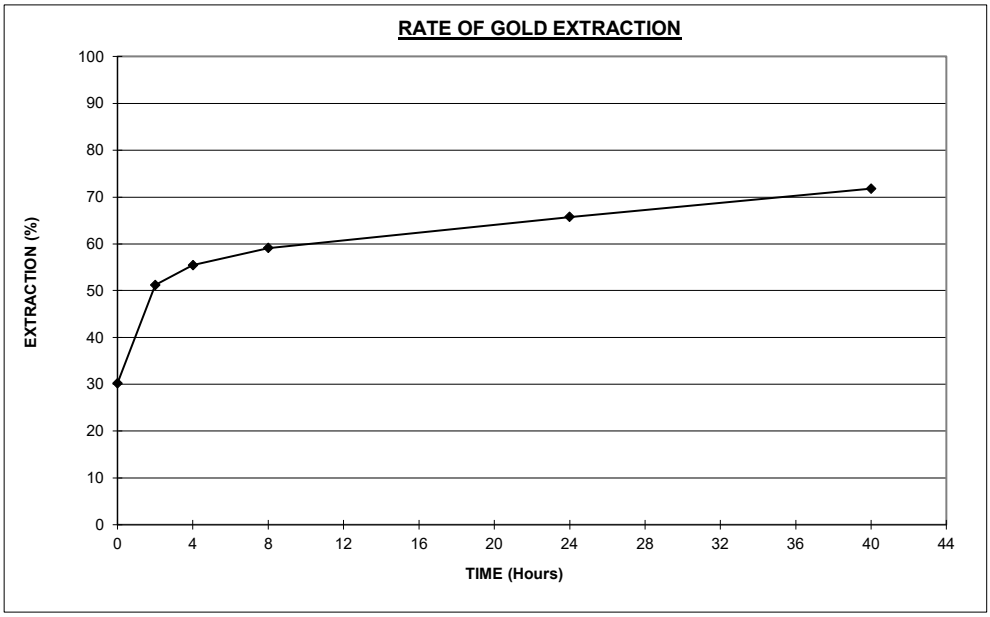
RESIDUE ASSAYS (ppm)

Au	0.28	
Ag	0.15	TBC
As	2.5	TBC
S		
S2-		

* : Intermediate solution samples removed during the test.

COMMENTS

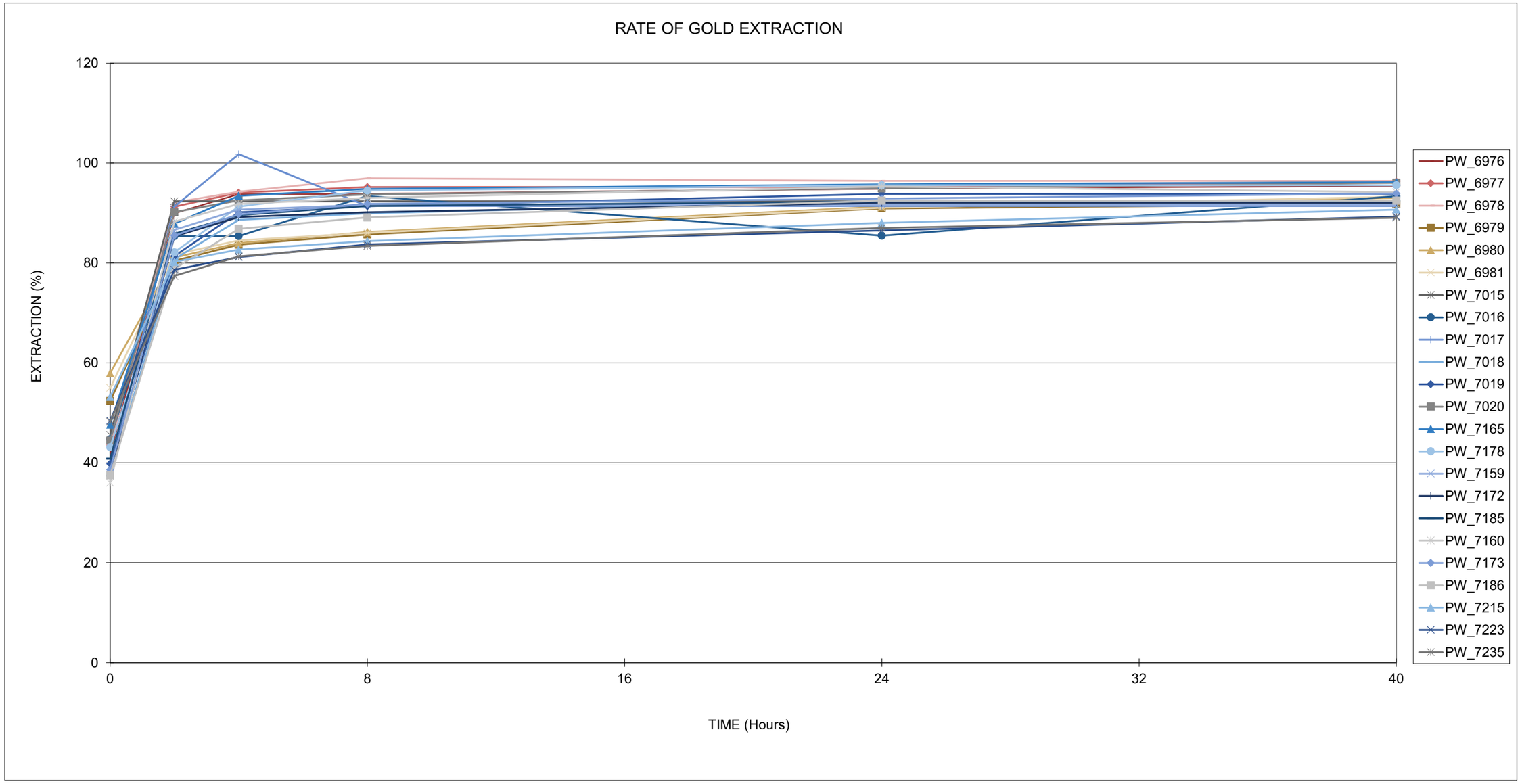
1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3663.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.28 (kg/t)



PROJECT	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
DATE	2/05/2023

SUMMARY

TEST No	SAMPLE ID	GRIND SIZE (P80, µm)	O2 / AIR SPARGE	% NaCN (Init / Mtn)	% Solids (w/w)	DCN OR CIL	GOLD HEAD GRADE (g/t)		GOLD DISTRIBUTION (g/t)			GOLD DISTRIBUTION (%)			TOTAL GOLD RECOVERY (%)	REAGENTS (kg/t)	
							Assayed	Calculated	Gravity	Leach	Residue	Gravity	Leach	Residue		NaCN	Lime
PW_6976	CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-14)	125	O2	0.10 / 0.05	45	DCN	1.12	1.09	0.46	0.59	0.05	41.9	53.6	4.6	95.4	0.21	1.61
PW_6977	CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-14)	106	O2	0.10 / 0.05	45	DCN	1.12	1.08	0.47	0.57	0.04	43.5	52.8	3.7	96.3	0.21	1.50
PW_6978	CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-14)	75	O2	0.10 / 0.05	45	DCN	1.12	1.12	0.48	0.59	0.04	43.4	53.0	3.6	96.4	0.24	1.38
	AVERAGE CALCULATED HEAD GRADE							**1.10**									
PW_6979	CHEGUE MAIN FRESH MASTER COMPOSITE (MC-15)	125	O2	0.10 / 0.05	45	DCN	2.30	2.07	1.08	0.82	0.17	52.4	39.4	8.2	91.8	0.12	0.42
PW_6980	CHEGUE MAIN FRESH MASTER COMPOSITE (MC-15)	106	O2	0.10 / 0.05	45	DCN	2.30	2.72	1.57	0.95	0.19	57.9	35.1	7.0	93.0	0.12	0.44
PW_6981	CHEGUE MAIN FRESH MASTER COMPOSITE (MC-15)	75	O2	0.10 / 0.05	45	DCN	2.30	2.38	1.31	0.91	0.16	55.0	38.3	6.7	93.3	0.12	0.44
	AVERAGE CALCULATED HEAD GRADE							**2.39**									
PW_7015	CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-3)	125	O2	0.10 / 0.05	45	DCN	1.21	0.65	0.30	0.31	0.05	45.6	46.8	7.7	92.3	0.21	1.44
PW_7016	CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-3)	106	O2	0.10 / 0.05	45	DCN	1.21	0.75	0.34	0.37	0.05	44.7	48.6	6.7	93.3	0.18	1.48
PW_7017	CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-3)	75	O2	0.10 / 0.05	45	DCN	1.21	0.58	0.22	0.31	0.05	38.6	52.8	8.6	91.4	0.18	1.54
	AVERAGE CALCULATED HEAD GRADE							**0.66**									
PW_7018	CHEGUE MAIN TRANS MASTER COMPOSITE (MC-4)	125	O2	0.10 / 0.05	45	DCN	0.47	0.47	0.17	0.26	0.04	37.4	55.0	7.5	92.5	0.15	0.79
PW_7019	CHEGUE MAIN TRANS MASTER COMPOSITE (MC-4)	106	O2	0.10 / 0.05	45	DCN	0.47	0.49	0.19	0.26	0.03	39.8	54.0	6.2	93.8	0.21	0.59
PW_7020	CHEGUE MAIN TRANS MASTER COMPOSITE (MC-4)	75	O2	0.10 / 0.05	45	DCN	0.47	0.51	0.23	0.26	0.02	44.5	51.6	3.9	96.1	0.18	0.68
	AVERAGE CALCULATED HEAD GRADE							**0.49**									
PW_7152	CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-14)	106	O2	0.07 / 0.04	45	DCN	1.12	1.14	0.52	0.57	0.05	45.7	49.9	4.4	95.6	0.21	1.84
PW_7165	CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-14)	106	O2	0.05 / 0.03	45	DCN	1.12	1.31	0.62	0.63	0.05	47.6	48.6	3.8	96.2	0.12	1.85
PW_7178	CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-14)	106	O2	0.03 / 0.02	45	DCN	1.12	1.13	0.49	0.59	0.05	43.1	52.5	4.4	95.6	0.06	1.76
	AVERAGE CALCULATED HEAD GRADE							**1.19**									
PW_7159	CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-3)	106	O2	0.07 / 0.04	45	DCN	1.21	0.60	0.23	0.32	0.05	37.6	54.0	8.3	91.7	0.15	1.45
PW_7172	CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-3)	106	O2	0.05 / 0.03	45	DCN	1.21	0.63	0.24	0.34	0.05	37.6	54.5	8.0	92.0	0.12	1.37
PW_7185	CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-3)	106	O2	0.03 / 0.02	45	DCN	1.21	0.65	0.27	0.34	0.05	40.8	51.5	7.7	92.3	0.08	1.12
	AVERAGE CALCULATED HEAD GRADE							**0.63**									
PW_7160	CHEGUE MAIN TRANS MASTER COMPOSITE (MC-4)	106	O2	0.07 / 0.04	45	DCN	0.47	0.51	0.19	0.30	0.03	36.0	58.2	5.8	94.2	0.12	0.58
PW_7173	CHEGUE MAIN TRANS MASTER COMPOSITE (MC-4)	106	O2	0.05 / 0.03	45	DCN	0.47	0.57	0.22	0.32	0.04	38.6	55.3	6.1	93.9	0.14	0.56
PW_7186	CHEGUE MAIN TRANS MASTER COMPOSITE (MC-4)	106	O2	0.03 / 0.02	45	DCN	0.47	0.53	0.20	0.29	0.04	37.5	55.0	7.5	92.5	0.08	0.63
	AVERAGE CALCULATED HEAD GRADE							**0.54**									
PW_7215	CHEGUE MAIN FRESH MASTER COMPOSITE (MC-15)	75	O2	0.07 / 0.04	45	DCN	2.30	2.47	1.31	0.92	0.23	53.2	37.5	9.3	90.7	0.14	0.37
PW_7223	CHEGUE MAIN FRESH MASTER COMPOSITE (MC-15)	75	O2	0.05 / 0.03	45	DCN	2.30	2.14	1.04	0.88	0.23	48.4	40.9	10.7	89.3	0.06	0.37
PW_7235	CHEGUE MAIN FRESH MASTER COMPOSITE (MC-15)	75	O2	0.03 / 0.02	45	DCN	2.30	2.01	0.97	0.82	0.22	48.2	40.9	10.9	89.1	0.08	0.32
	AVERAGE CALCULATED HEAD GRADE							**2.21**									


RATE OF GOLD EXTRACTION
EXTRACTION (%)
120
100
80
60
40
20
0
0
8
16
24
32
40
TIME (Hours)
PW_6976
PW_6977
PW_6978
PW_6979
PW_6980
PW_6981
PW_7015
PW_7016
PW_7017
PW_7018
PW_7019
PW_7020
PW_7165
PW_7178
PW_7159
PW_7172
PW_7185
PW_7160
PW_7173
PW_7186
PW_7215
PW_7223
PW_7235

PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6976**
SAMPLE ID	**CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-14)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2955.0	3612.0			8.3	7.52										
0		3612.0	3.61	4.77	20.0	10.59	**0.100**		0.00	0.00	0.00		41.87	17.34	3.10	
2		3587.0	0.00	0.00	18.4	10.17	0.088		0.43	3.00	0.05		89.91	88.85	3.12	
4		3562.0	0.00	0.00	21.6	10.18	0.088		0.47	2.98	0.05		93.79	88.38	3.12	
8		3537.0	0.00	0.00	21.8	10.07	0.085		0.47	3.08	0.05		93.79	90.73	3.12	
24		3512.0	0.00	0.00	21.4	10.02	0.085		0.48	3.00	0.10		94.89	88.86	3.14	
40		3487.0	0.00	0.00	22.9	10.18	0.083		0.48	3.06	0.05		**95.43**	**90.25**	**3.12**	
TOTAL			3.61	4.77												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2955.0	0.05	148	4.57	0.5	1478	9.75	295	871725	96.88
Solution (mL)	3487.0	0.480	1674	51.77	3.06	10670	70.41	0.05	174	0.02
Solution Samples *			58	1.79		378	2.49		8	0.00
Gravity		0.5	**1353**	**41.87**		**2628**	**17.34**		**27857**	**3.10**
Total Extraction				**95.43**			**90.25**			**3.12**
Total			3233	100.00		15154	100.00		899764	100.00
Calculated Head		1.09			5.1			304		
Assayed Head		**1.12**			**4.0**			**390**		

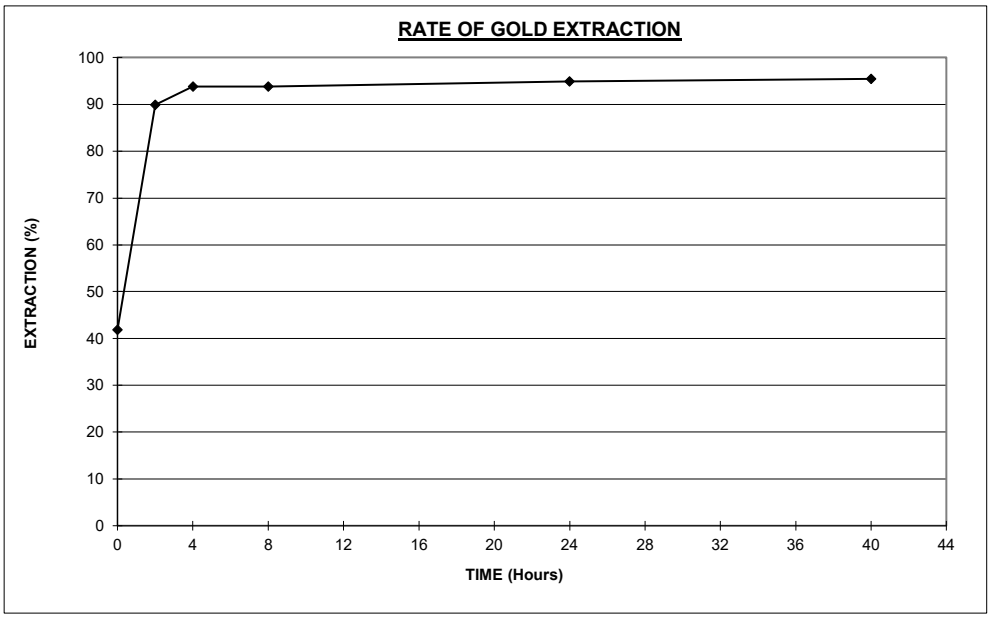
RESIDUE ASSAYS (ppm)

Au	0.05
Ag	0.5
As	295
S	0.04%
S2-	0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3612.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.21 (kg/t)
13. Lime consum'n (kg/t) : 1.61 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6977**
SAMPLE ID	**CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-14)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2955.0	3612.0			7.8	7.45										
0		3612.0	3.61	4.44	20.0	10.50	**0.100**		0.00	0.00	0.00		43.51	19.08	4.61	
2		3587.0	0.00	0.00	21.8	10.12	0.088		0.42	2.94	0.05		91.24	90.92	4.63	
4		3562.0	0.00	0.00	21.3	10.11	0.085		0.45	2.96	0.05		94.06	91.41	4.63	
8		3537.0	0.00	0.00	22.3	10.05	0.083		0.46	2.98	0.05		95.18	91.89	4.63	
24		3512.0	0.00	0.00	20.9	10.01	0.083		0.46	3.06	0.05		95.18	93.81	4.63	
40		3487.0	0.00	0.00	22.5	10.10	0.083		0.47	2.90	0.05		**96.28**	**90.00**	**4.63**	
TOTAL			3.61	4.44												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2955.0	0.04	118	3.72	0.5	1478	10.00	255	753525	95.37
Solution (mL)	3487.0	0.465	1621	51.01	2.90	10112	68.42	0.05	174	0.02
Solution Samples *			56	1.76		371	2.51		6	0.00
Gravity		0.5	**1383**	**43.51**		**2820**	**19.08**		**36442**	**4.61**
Total Extraction				**96.28**			**90.00**			**4.63**
Total			3179	100.00		14780	100.00		790148	100.00
Calculated Head		1.08			5.0			267		
Assayed Head		**1.12**			**4.0**			**390**		

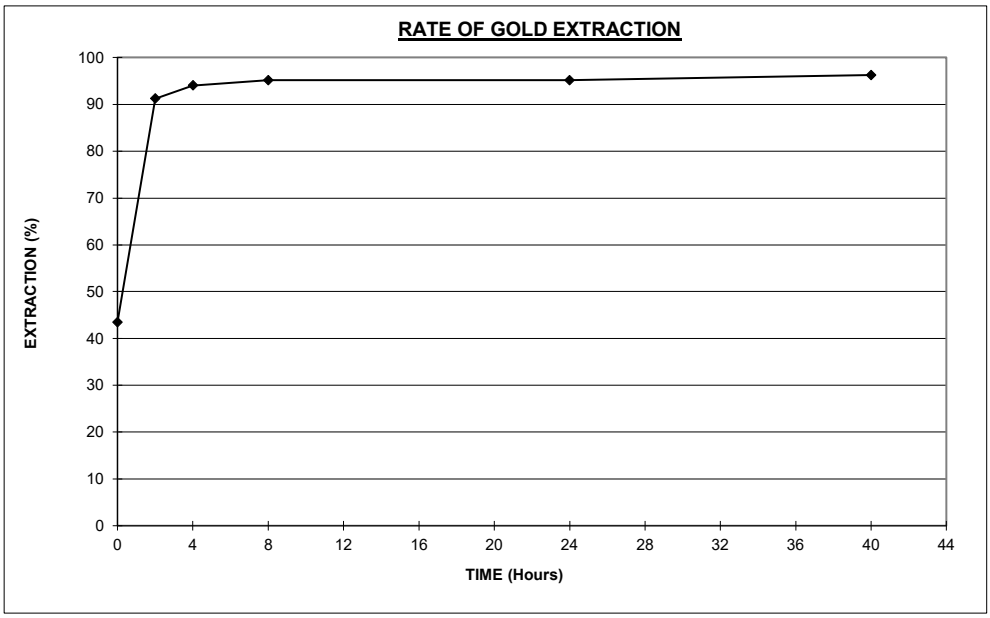
RESIDUE ASSAYS (ppm)

Au	0.04
Ag	0.5
As	255
S	0.04%
S2-	0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3612.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.21 (kg/t)
13. Lime consum'n (kg/t) : 1.50 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6978**
SAMPLE ID	**CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-14)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2955.0	3612.0			6.9	7.46										
0		3612.0	3.61	4.09	20.0	10.53	**0.100**		0.00	0.00	0.00		43.40	17.09	3.64	
2		3587.0	0.00	0.00	22.1	10.02	0.085		0.45	3.22	0.05		92.09	89.48	3.66	
4		3562.0	0.00	0.00	21.3	10.00	0.085		0.47	3.28	0.05		94.26	90.82	3.66	
8		3537.0	0.00	0.00	26.9	9.95	0.085		0.49	3.28	0.05		96.96	90.82	3.66	
24		3512.0	0.00	0.00	21.9	9.94	0.083		0.49	3.20	0.05		96.42	89.06	3.66	
40		3487.0	0.00	0.00	24.1	10.02	0.080		0.49	3.28	0.20		**96.42**	**90.80**	**3.72**	
TOTAL			3.61	4.09												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2955.0	0.04	118	3.58	0.5	1478	9.20	295	871725	96.28
Solution (mL)	3487.0	0.485	1691	51.23	3.28	11437	71.19	0.20	697	0.08
Solution Samples *			59	1.79		407	2.53		10	0.00
Gravity		0.5	**1433**	**43.40**		**2745**	**17.09**		**32990**	**3.64**
Total Extraction				**96.42**			**90.80**			**3.72**
Total			3301	100.00		16066	100.00		905422	100.00
Calculated Head		1.12			5.4			306		
Assayed Head		**1.12**			**4.0**			**390**		

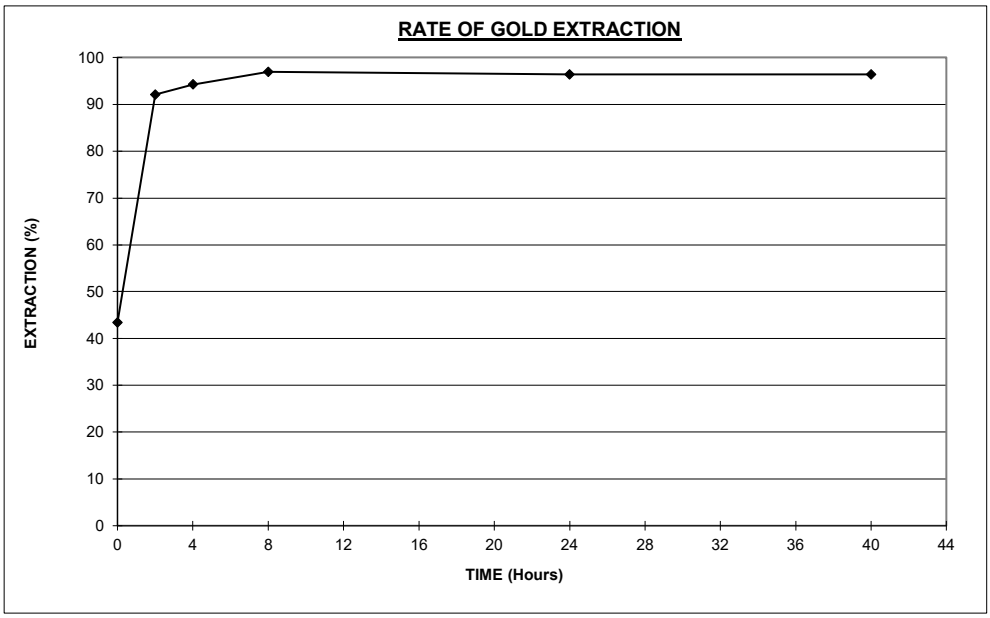
RESIDUE ASSAYS (ppm)

Au	0.04
Ag	0.5
As	295
S	0.04%
S2-	0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3612.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.24 (kg/t)
13. Lime consum'n (kg/t) : 1.38 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6979**
SAMPLE ID	**CHEGUE MAIN FRESH MASTER COMPOSITE (MC-15)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2997.6	3664.0			7.7	8.05										
0		3664.0	3.66	1.27	20.0	10.51	**0.100**		0.00	0.00	0.00		52.36	12.91	6.96	
2		3639.0	0.00	0.00	21.7	10.31	0.093		0.48	0.10	0.05		80.44	29.38	9.18	
4		3614.0	0.00	0.00	26.3	10.28	0.090		0.53	0.10	0.05		83.66	29.38	9.18	
8		3589.0	0.00	0.00	20.8	10.27	0.090		0.57	0.12	0.05		85.71	32.63	9.18	
24		3564.0	0.00	0.00	26.3	10.25	0.090		0.66	0.12	0.05		90.92	32.63	9.18	
40		3539.0	0.00	0.00	25.0	10.36	0.090		0.67	0.12	0.05		**91.78**	**32.63**	**9.18**	
TOTAL			3.66	1.27												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2997.6	0.17	510	8.22	0.5	1499	67.37	3	7494	90.82
Solution (mL)	3539.0	0.670	2371	38.25	0.12	425	19.09	0.05	177	2.14
Solution Samples *			72	1.17		14	0.63		6	0.08
Gravity		1.1	**3245**	**52.36**		**287**	**12.91**		**574**	**6.96**
Total Extraction				**91.78**			**32.63**			**9.18**
Total			6198	100.00		2225	100.00		8252	100.00
Calculated Head		2.07			0.7			3		
Assayed Head		**2.30**			**<2**			**<10**		

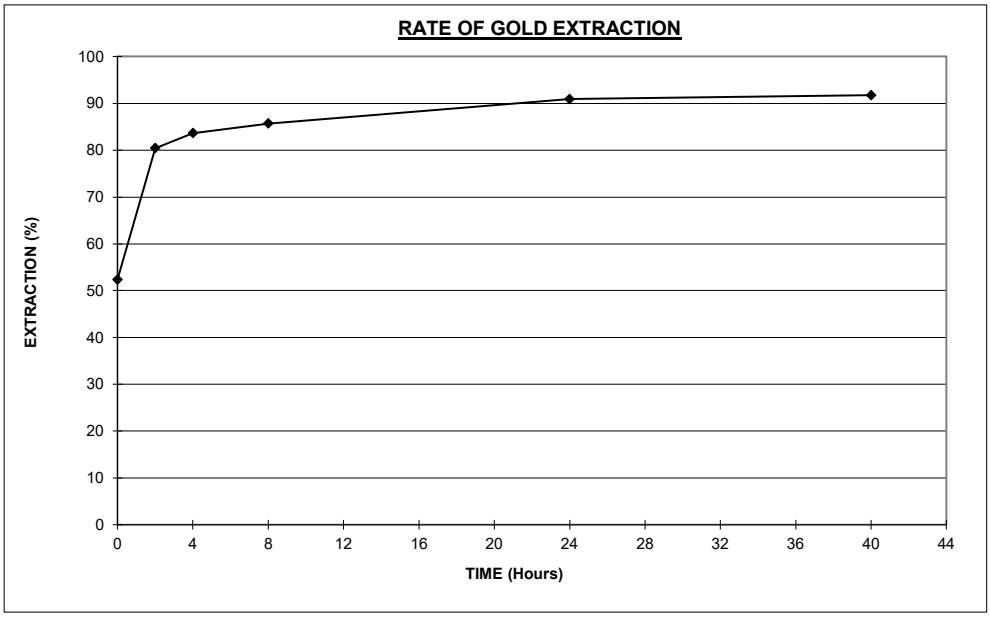
RESIDUE ASSAYS (ppm)

Au	0.17
Ag	0.5
As	2.5
S	0.40%
S2-	0.30%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3664.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.42 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6919**
SAMPLE ID	**CHEGUE MAIN FRESH MASTER COMPOSITE (MC-15)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2997.6	3664.0			7.7	7.98										
0		3664.0	3.66	1.31	20.0	10.50	**0.100**		0.00	0.00	0.00		57.93	18.45	1.82	
2		3639.0	0.00	0.00	25.5	10.37	0.095		0.52	0.12	0.05		81.08	36.29	4.16	
4		3614.0	0.00	0.00	26.6	10.35	0.095		0.58	0.12	0.05		83.98	36.29	4.16	
8		3589.0	0.00	0.00	27.1	10.30	0.095		0.63	0.14	0.05		86.20	39.22	4.16	
24		3564.0	0.00	0.00	21.8	10.29	0.093		0.75	0.14	0.05		91.26	39.22	4.16	
40		3539.0	0.00	0.00	23.6	10.38	0.090		0.79	0.14	0.05		**93.01**	**39.22**	**4.16**	
TOTAL			3.66	1.31												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2997.6	0.19	570	6.99	0.5	1499	60.78	3	7494	95.84
Solution (mL)	3539.0	0.785	2778	34.09	0.14	495	20.09	0.05	177	2.26
Solution Samples *			81	1.00		17	0.67		6	0.08
Gravity		1.6	**4721**	**57.93**		**455**	**18.45**		**142**	**1.82**
Total Extraction				**93.01**			**39.22**			**4.16**
Total			8150	100.00		2466	100.00		7819	100.00
Calculated Head		2.72			0.8			3		
Assayed Head		**2.30**			**<2**			**<10**		

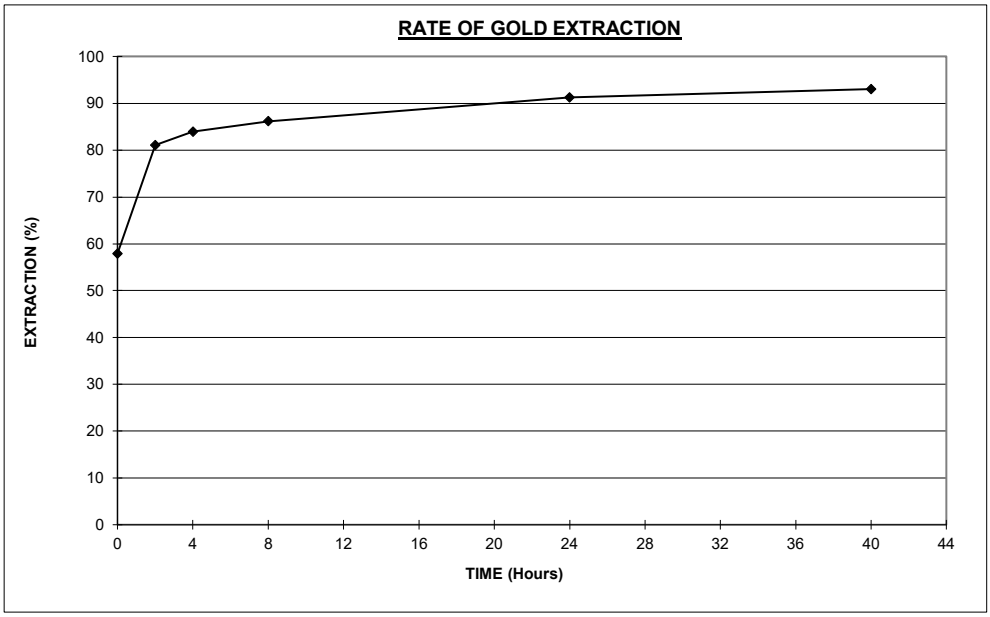
RESIDUE ASSAYS (ppm)

Au	0.19
Ag	0.5
As	2.5
S	0.40%
S2-	0.34%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	> 0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3664.0	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.12	(kg/t)
13. Lime consum'n (kg/t) :	0.44	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6981**
SAMPLE ID	**CHEGUE MAIN FRESH MASTER COMPOSITE (MC-15)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2997.6	3664.0			7.6	7.98										
0		3664.0	3.66	1.31	20.0	10.50	**0.100**		0.00	0.00	0.00		54.99	14.91	3.17	
2		3639.0	0.00	0.00	21.4	10.44	0.098		0.52	0.12	0.05		81.68	33.52	5.48	
4		3614.0	0.00	0.00	21.6	10.42	0.095		0.58	0.12	0.05		84.49	33.52	5.48	
8		3589.0	0.00	0.00	21.0	10.34	0.093		0.61	0.12	0.05		86.01	33.52	5.48	
24		3564.0	0.00	0.00	22.8	10.35	0.093		0.71	0.14	0.05		91.03	36.56	5.48	
40		3539.0	0.00	0.00	23.5	10.42	0.090		0.75	0.14	0.05		**93.28**	**36.56**	**5.48**	
TOTAL			3.66	1.31												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2997.6	0.16	480	6.72	0.5	1499	63.44	3	7494	94.52
Solution (mL)	3539.0	0.750	2654	37.19	0.14	495	20.97	0.05	177	2.23
Solution Samples *			79	1.11		16	0.68		6	0.08
Gravity		1.3	**3925**	**54.99**		**352**	**14.91**		**252**	**3.17**
Total Extraction				**93.28**			**36.56**			**5.48**
Total			7138	100.00		2363	100.00		7929	100.00
Calculated Head		2.38			0.8			3		
Assayed Head		**2.30**			**<2**			**<10**		

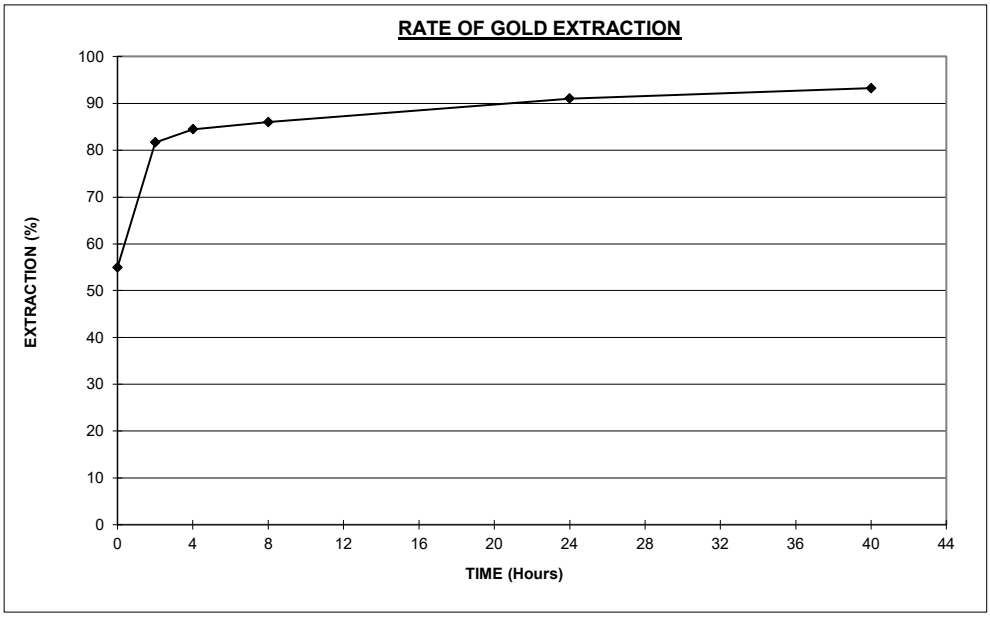
RESIDUE ASSAYS (ppm)

Au	0.16
Ag	0.5
As	2.5
S	0.42%
S2-	0.34%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3664.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.44 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7015**
SAMPLE ID	**CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-3)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2956.2	3613.0			6.2	7.52										
0		3613.0	3.61	3.11	20.0	10.52	**0.100**		0.00	0.00	0.00		45.57	5.87	0.85	
2		3588.0	0.00	0.00	20.2	9.93	0.083		0.25	0.66	0.05		92.35	74.49	2.04	
4		3563.0	0.00	1.15	20.9	9.74	0.083		0.25	0.66	0.05		92.35	74.49	2.04	
8		3538.0	0.00	0.00	20.1	10.09	0.083		0.25	0.66	0.05		92.35	74.49	2.04	
24		3513.0	0.00	0.00	23.4	10.01	0.083		0.25	0.64	0.05		92.35	72.46	2.04	
40		3488.0	0.00	0.00	20.3	10.11	0.083		0.25	0.66	0.05		**92.35**	**74.48**	**2.04**	
TOTAL			3.61	4.26												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2956.2	0.05	148	7.65	0.3	887	25.52	5	14781	97.96
Solution (mL)	3488.0	0.250	872	45.16	0.66	2302	66.25	0.05	174	1.16
Solution Samples *			31	1.62		82	2.36		6	0.04
Gravity		0.3	**880**	**45.57**		**204**	**5.87**		**128**	**0.85**
Total Extraction				**92.35**			**74.48**			**2.04**
Total			1931	100.00		3475	100.00		15089	100.00
Calculated Head		0.65			1.2			5		
Assayed Head		**1.21**			**<2**			**<10**		

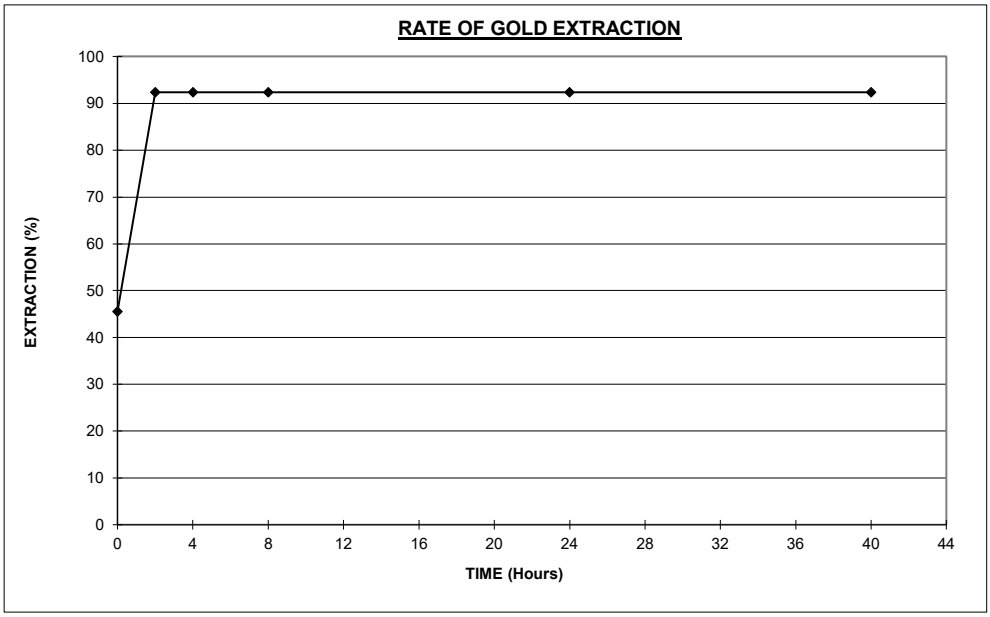
RESIDUE ASSAYS (ppm)

Au	0.05
Ag	0.3
As	5
S	0.01%
S2-	0.01%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3613.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.21 (kg/t)
13. Lime consum'n (kg/t) : 1.44 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7016**
SAMPLE ID	**CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-3)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2956.2	3613.0			6.4	7.57										
0		3613.0	3.61	3.19	20.0	10.51	**0.100**		0.00	0.00	0.00		44.72	7.06	1.67	
2		3588.0	0.00	0.00	20.7	9.97	0.085		0.25	0.62	0.05		85.38	84.66	2.86	
4		3563.0	0.00	1.18	20.7	9.77	0.085		0.25	0.60	0.05		85.38	82.17	2.86	
8		3538.0	0.00	0.00	19.4	10.16	0.085		0.30	0.62	0.05		93.40	84.64	2.86	
24		3513.0	0.00	0.00	20.8	10.08	0.085		0.25	0.62	0.05		85.44	84.64	2.86	
40		3488.0	0.00	0.00	20.4	10.17	0.085		0.30	0.62	0.05		**93.35**	**84.64**	**2.86**	
TOTAL			3.61	4.37												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2956.2	0.05	148	6.65	0.2	443	15.36	5	14781	97.14
Solution (mL)	3488.0	0.300	1046	47.11	0.62	2163	74.91	0.05	174	1.15
Solution Samples *			34	1.52		77	2.67		6	0.04
Gravity		0.3	**993**	**44.72**		**204**	**7.06**		**255**	**1.67**
Total Extraction				**93.35**			**84.64**			**2.86**
Total			2221	100.00		2887	100.00		15216	100.00
Calculated Head		0.75			1.0			5		
Assayed Head		**1.21**			**<2**			**<10**		

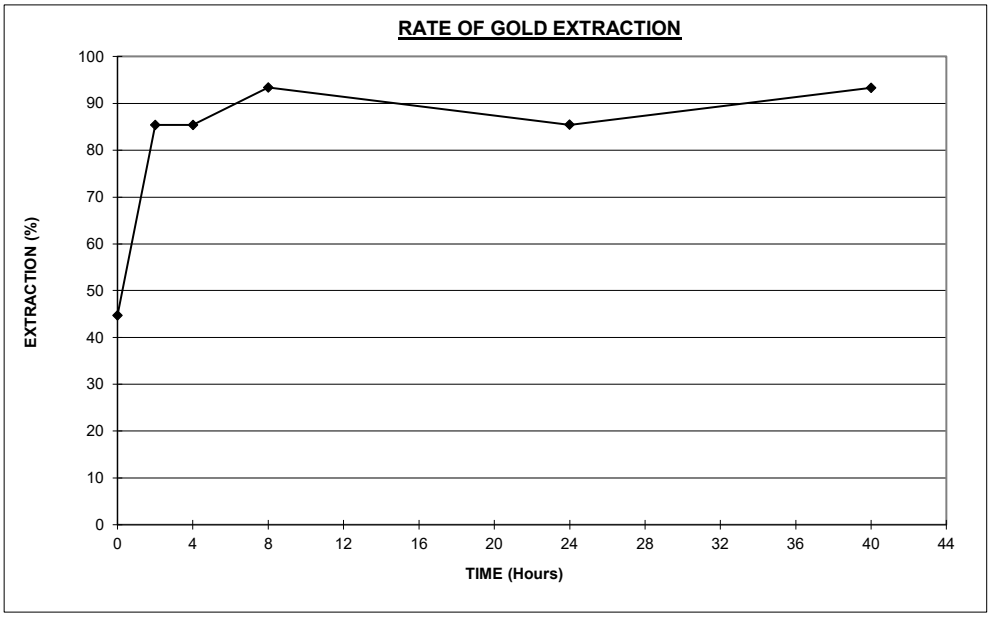
RESIDUE ASSAYS (ppm)

Au	0.05
Ag	0.15
As	5
S	0.01%
S2-	0.01%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	> 0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3613.0	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.18	(kg/t)
13. Lime consum'n (kg/t) :	1.48	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7017**
SAMPLE ID	**CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-3)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As	Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]	[%]	[%]	[%]	
	2956.2	3613.0			6.2	7.52									
0		3613.0	3.61	3.24	20.0	10.50	**0.100**		0.00	0.00	0.00	38.61	6.48	3.14	
2		3588.0	0.00	0.00	21.4	9.96	0.078		0.25	0.68	0.05	91.30	87.65	5.45	
4		3563.0	0.00	1.30	21.0	9.75	0.078		0.30	0.70	0.05	101.77	90.02	5.45	
8		3538.0	0.00	0.00	15.5	10.18	0.078		0.25	0.68	0.05	91.38	87.67	5.45	
24		3513.0	0.00	0.00	18.2	10.06	0.085		0.25	0.68	0.05	91.38	87.67	5.45	
40		3488.0	0.00	0.00	19.3	10.18	0.085		0.25	0.66	0.05	**91.38**	**85.35**	**5.45**	
TOTAL			3.61	4.54											

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2956.2	0.05	148	8.62	0.2	443	14.65	3	7391	94.55
Solution (mL)	3488.0	0.250	872	50.87	0.66	2302	76.06	0.05	174	2.23
Solution Samples *			33	1.90		85	2.81		6	0.08
Gravity		0.2	**662**	**38.61**		**196**	**6.48**		**245**	**3.14**
Total Extraction				**91.38**			**85.35**			**5.45**
Total			1714	100.00		3027	100.00		7816	100.00
Calculated Head		0.58			1.0			3		
Assayed Head		**1.21**			**<2**			**<10**		

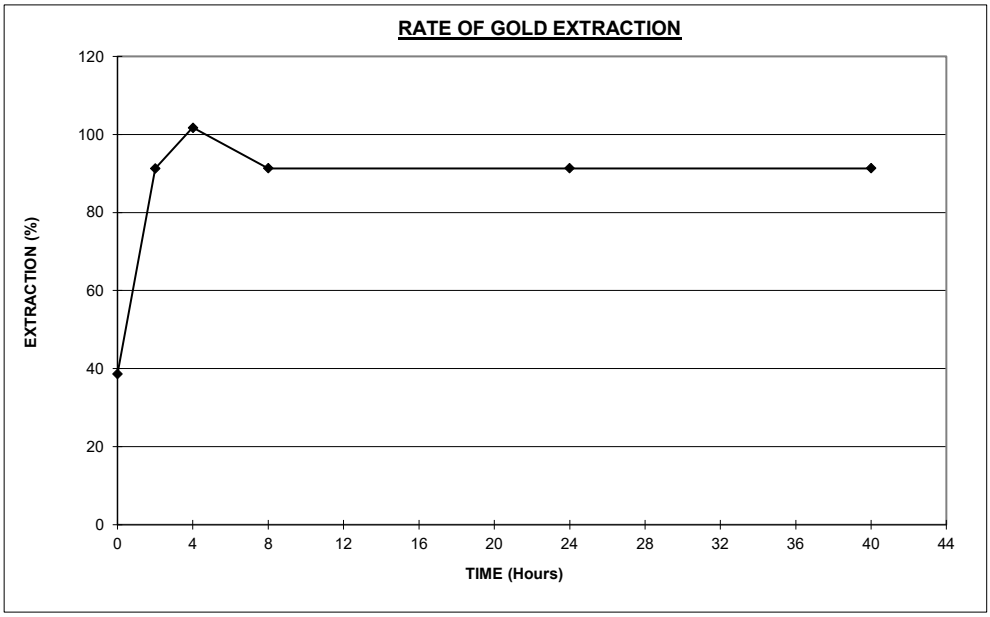
RESIDUE ASSAYS (ppm)

Au	0.05
Ag	0.15
As	2.5
S	0.01%
S2-	0.01%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	> 0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3613.0	(g)
8. Grind size P 80 :	75	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.18	(kg/t)
13. Lime consum'n (kg/t) :	1.54	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7018**
SAMPLE ID	**CHEGUE MAIN TRANS MASTER COMPOSITE (MC-4)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2983.2	3646.0			8.3	7.93										
0		3646.0	3.65	2.35	20.0	10.58	**0.100**		0.00	0.00	0.00		37.43	23.08	12.28	
2		3621.0	0.00	0.00	20.8	10.09	0.090		0.17	0.38	0.05		80.78	79.04	29.51	
4		3596.0	0.00	0.00	18.6	10.07	0.090		0.20	0.38	0.05		88.61	79.04	29.51	
8		3571.0	0.00	0.00	22.8	9.89	0.090		0.20	0.38	0.05		89.90	79.04	29.51	
24		3546.0	0.00	0.00	21.3	10.00	0.090		0.21	0.40	0.05		92.48	81.93	29.51	
40		3521.0	0.00	0.00	21.7	10.29	0.088		0.21	0.40	0.05		**92.48**	**81.93**	**29.51**	
TOTAL			3.65	2.35												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2983.2	0.04	104	7.52	0.2	447	18.07	0	746	70.49
Solution (mL)	3521.0	0.210	739	53.28	0.40	1408	56.89	0.05	176	16.64
Solution Samples *			25	1.77		49	1.96		6	0.59
Gravity		0.2	**520**	**37.43**		**571**	**23.08**		**130**	**12.28**
Total Extraction				**92.48**			**81.93**			**29.51**
Total			1388	100.00		2476	100.00		1058	100.00
Calculated Head		0.47			0.8			0		
Assayed Head		**0.47**			**<2**			**<10**		

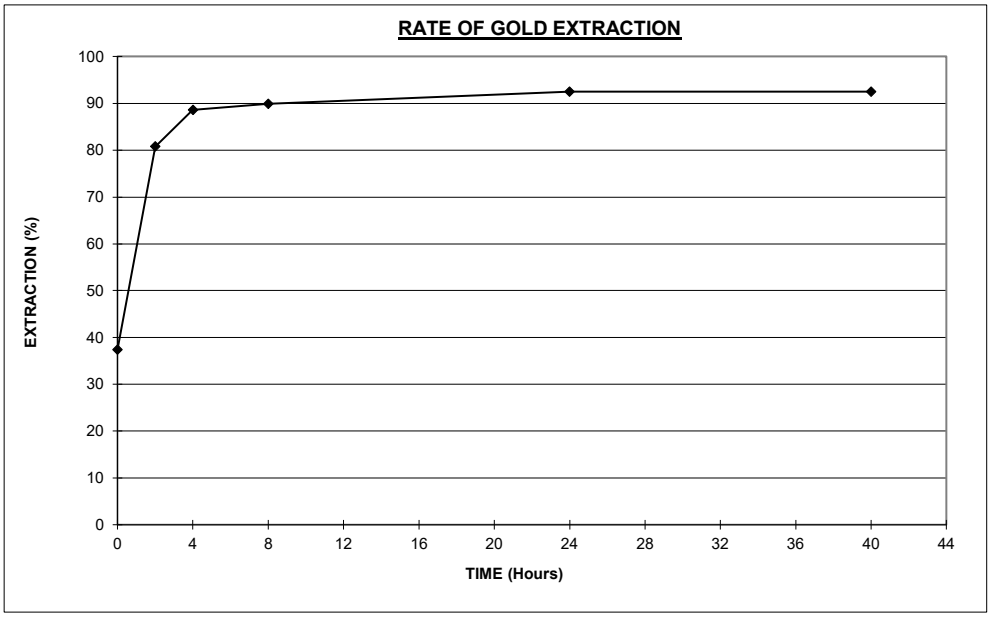
RESIDUE ASSAYS (ppm)

Au	0.04
Ag	0.15
As	0.25
S	0.01%
S2-	0.01%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3646.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.15 (kg/t)
13. Lime consum'n (kg/t) : 0.79 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7019**
SAMPLE ID	**CHEGUE MAIN TRANS MASTER COMPOSITE (MC-4)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2983.2	3646.0			8.3	7.86										
0		3646.0	3.65	1.75	20.0	10.53	**0.100**		0.00	0.00	0.00		39.81	16.38	20.29	
2		3621.0	0.00	0.00	19.4	9.96	0.090		0.17	0.40	0.05		81.36	68.19	21.25	
4		3596.0	0.00	0.00	18.9	9.88	0.088		0.20	0.40	0.05		90.11	68.19	21.25	
8		3571.0	0.00	0.00	23.0	9.80	0.088		0.21	0.40	0.05		91.35	68.19	21.25	
24		3546.0	0.00	0.00	22.9	9.87	0.085		0.22	0.42	0.05		93.82	70.73	21.25	
40		3521.0	0.00	0.00	17.3	10.01	0.083		0.22	0.40	0.05		**93.82**	**68.21**	**21.25**	
TOTAL			3.65	1.75												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2983.2	0.03	89	6.18	0.3	895	31.79	5	14916	78.75
Solution (mL)	3521.0	0.215	757	52.28	0.40	1408	50.03	0.05	176	0.93
Solution Samples *			25	1.73		51	1.79		6	0.03
Gravity		0.2	**577**	**39.81**		**461**	**16.38**		**3844**	**20.29**
Total Extraction				**93.82**			**68.21**			**21.25**
Total			1448	100.00		2815	100.00		18942	100.00
Calculated Head		0.49			0.9			6		
Assayed Head		**0.47**			**<2**			**<10**		

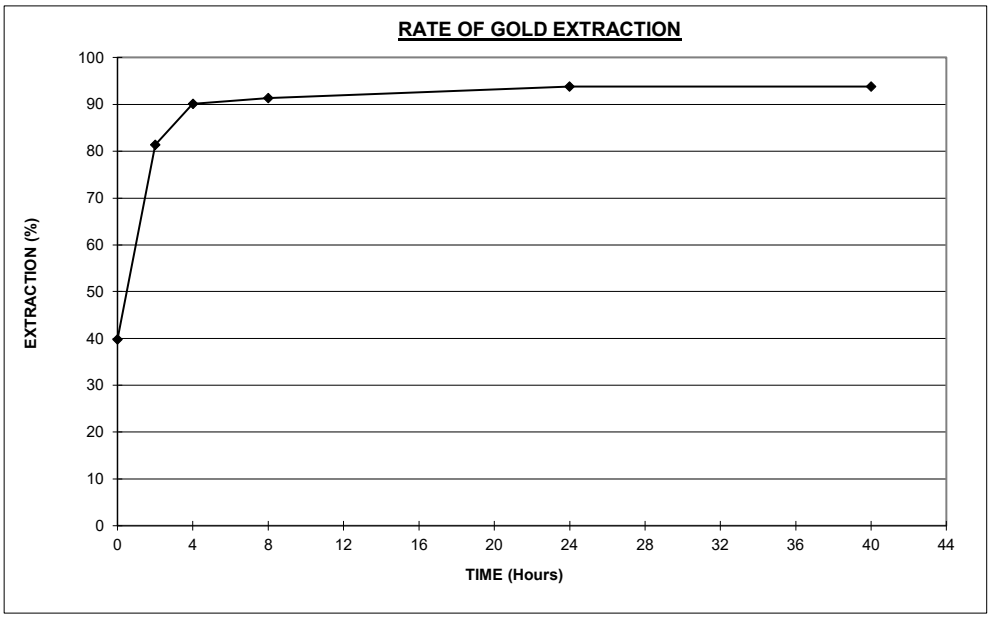
RESIDUE ASSAYS (ppm)

Au	0.03
Ag	0.3
As	5
S	0.01%
S2-	0.01%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3646.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.21 (kg/t)
13. Lime consum'n (kg/t) : 0.59 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7020**
SAMPLE ID	**CHEGUE MAIN TRANS MASTER COMPOSITE (MC-4)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]
	2983.2	3646.0			8.2	7.88									
0		3646.0	3.65	2.04	10.5	10.53	**0.100**		0.00	0.00	0.00		44.46	16.98	10.80
2		3621.0	0.00	0.00	10.0	10.03	0.093		0.19	0.40	0.05		90.15	78.18	28.32
4		3596.0	0.00	0.00	10.0	10.01	0.090		0.20	0.42	0.05		92.53	81.22	28.32
8		3571.0	0.00	0.00	9.9	9.92	0.090		0.21	0.42	0.05		93.72	81.22	28.32
24		3546.0	0.00	0.00	10.0	9.97	0.090		0.21	0.42	0.05		94.90	81.22	28.32
40		3521.0	0.00	0.00	10.0	10.04	0.085		0.22	0.42	0.05		**96.07**	**81.22**	**28.32**
TOTAL			3.65	2.04											

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2983.2	0.02	60	3.93	0.2	447	18.78	0	746	71.68
Solution (mL)	3521.0	0.215	757	49.92	0.42	1479	62.06	0.05	176	16.92
Solution Samples *			26	1.68		52	2.18		6	0.60
Gravity		0.2	**674**	**44.46**		**405**	**16.98**		**112**	**10.80**
Total Extraction				**96.07**			**81.22**			**28.32**
Total			1516	100.00		2383	100.00		1040	100.00
Calculated Head		0.51			0.8			0		
Assayed Head		**0.47**			**<2**			**<10**		

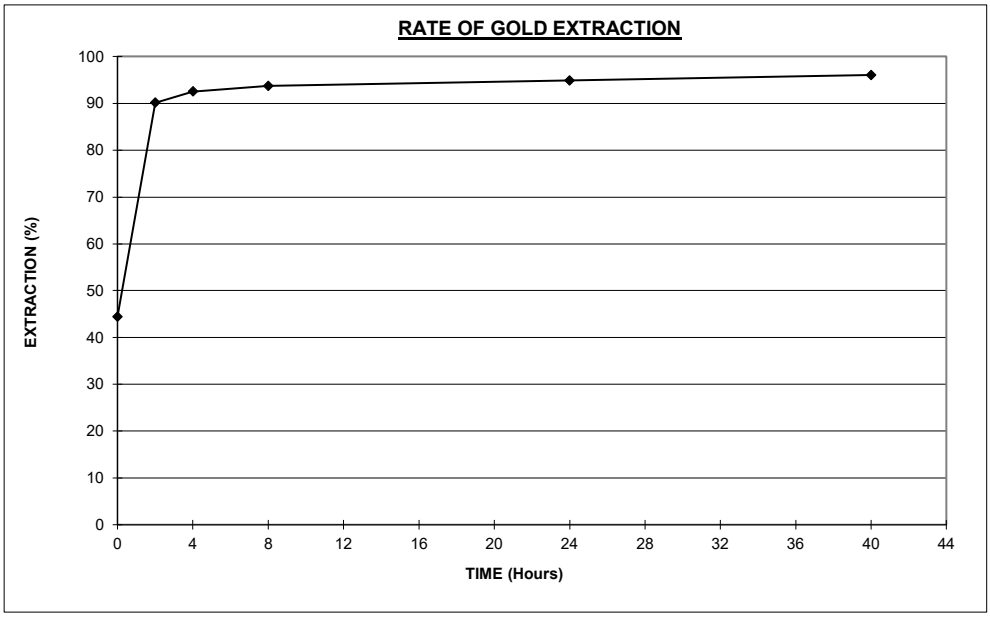
RESIDUE ASSAYS (ppm)

Au	0.02
Ag	0.15
As	0.25
S	0.01%
S2-	0.01%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3646.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 0.68 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7152**
SAMPLE ID	**CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-14)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
[h]	Ore [g]	Water [mL]	NaCN [g]	Lime [g]	Oxygen [ppm]	pH	NaCN [%, w/v]		Au [ppm]	Ag [ppm]	As [ppm]		Au [%]	Ag [%]	As [%]	
	2955.0	3612.0			9.3	7.51										
0		3612.0	2.53	5.44	20.0	10.54	**0.070**		0.00	0.00	0.00		45.69	15.56	2.09	
2		3587.0	0.00	0.00	19.2	10.05	0.053		0.43	3.28	0.05		91.36	92.52	2.11	
4		3562.0	0.00	0.00	20.3	10.04	0.053		0.45	3.40	0.05		94.03	95.31	2.11	
8		3537.0	0.00	0.00	22.6	10.01	0.053		0.45	3.34	0.05		94.03	93.92	2.11	
24		3512.0	0.00	0.00	20.0	10.16	0.053		0.47	3.36	0.05		95.60	94.38	2.11	
40		3487.0	0.00	0.00	21.6	10.06	0.053		0.47	3.48	0.10		**95.60**	**97.12**	**2.13**	
TOTAL			2.53	5.44												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2955.0	0.05	148	4.40	0.2	443	2.88	330	975150	97.87
Solution (mL)	3487.0	0.465	1621	48.23	3.48	12135	78.82	0.10	349	0.03
Solution Samples *			56	1.68		422	2.74		8	0.00
Gravity		0.5	**1536**	**45.69**		**2395**	**15.56**		**20829**	**2.09**
Total Extraction				**95.60**			**97.12**			**2.13**
Total			3362	100.00		15395	100.00		996335	100.00
Calculated Head		1.14			5.2			337		
Assayed Head		**1.12**			**4.0**			**390**		

RESIDUE ASSAYS (ppm)

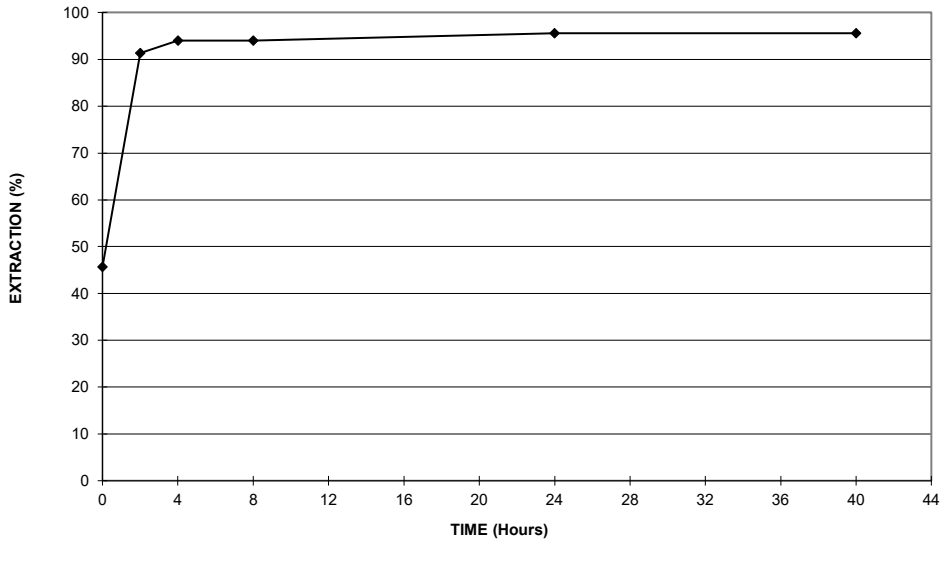
Au	0.05
Ag	0.15
As	330
S	<0.02
S2-	<0.02

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.070	(%)
2. Maintain % NaCN :	0.04	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3612.0	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.86	(kg/t)
12. NaCN consum'n (kg/t) :	0.21	(kg/t)
13. Lime consum'n (kg/t) :	1.84	(kg/t)

RATE OF GOLD EXTRACTION



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7165**
SAMPLE ID	**CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-14)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
[h]	Ore [g]	Water [mL]	NaCN [g]	Lime [g]	Oxygen [ppm]	pH	NaCN [%, w/v]		Au [ppm]	Ag [ppm]	As [ppm]		Au [%]	Ag [%]	As [%]	
	2955.0	3612.0			7.8	7.32										
0		3612.0	1.81	5.48	20.0	10.50	**0.050**		0.00	0.00	0.00		47.61	12.47	2.04	
2		3587.0	0.00	0.00	19.7	10.23	0.045		0.43	3.52	0.05		87.84	87.50	2.06	
4		3562.0	0.00	0.00	19.8	10.12	0.045		0.49	3.62	0.05		93.42	89.62	2.06	
8		3537.0	0.00	0.00	21.1	10.12	0.043		0.51	3.62	0.05		94.80	89.62	2.06	
24		3512.0	0.00	0.00	27.3	10.08	0.040		0.52	3.66	0.05		95.72	90.45	2.06	
40		3487.0	0.00	0.00	23.8	10.15	0.040		0.52	3.70	0.10		**96.17**	**91.28**	**2.07**	
TOTAL			1.81	5.48												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2955.0	0.05	148	3.83	0.5	1478	8.72	325	960375	97.93
Solution (mL)	3487.0	0.520	1813	46.97	3.70	12902	76.13	0.10	349	0.04
Solution Samples *			62	1.59		453	2.67		8	0.00
Gravity		0.6	**1838**	**47.61**		**2114**	**12.47**		**19989**	**2.04**
Total Extraction				**96.17**			**91.28**			**2.07**
Total			3861	100.00		16946	100.00		980720	100.00
Calculated Head		1.31			5.7			332		
Assayed Head		**1.12**			**4.0**			**390**		

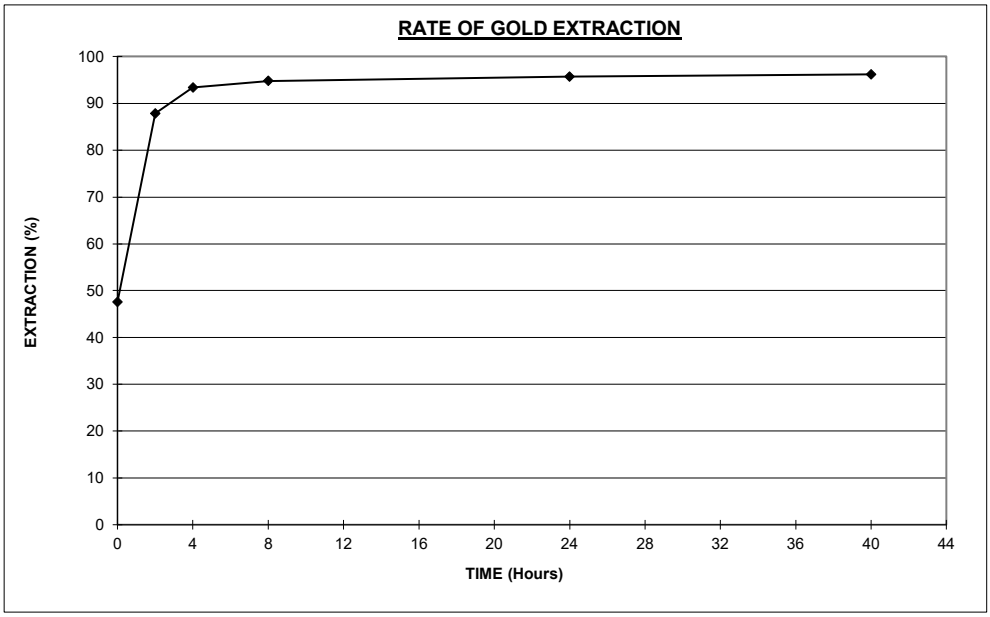
RESIDUE ASSAYS (ppm)

Au	0.05
Ag	0.5
As	325
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3612.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 1.85 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7178**
SAMPLE ID	**CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-14)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
[h]	Ore [g]	Water [mL]	NaCN [g]	Lime [g]	Oxygen [ppm]	pH	NaCN [%, w/v]		Au [ppm]	Ag [ppm]	As [ppm]		Au [%]	Ag [%]	As [%]	
	2955.0	3612.0			7.0	7.16										
0		3612.0	1.08	5.21	20.0	10.53	**0.030**		0.00	0.00	0.00		43.10	13.80	1.77	
2		3587.0	0.00	0.00	20.6	10.30	0.025		0.36	3.58	0.05		82.14	94.15	1.79	
4		3562.0	0.00	0.00	20.1	10.28	0.025		0.45	3.66	0.05		91.29	95.94	1.79	
8		3537.0	0.00	0.00	23.4	10.26	0.025		0.48	3.68	0.05		94.50	96.38	1.79	
24		3512.0	0.00	0.00	25.6	10.18	0.025		0.49	3.64	0.05		95.56	95.50	1.79	
40		3487.0	0.00	0.00	23.2	10.26	0.025		0.49	3.72	0.10		**95.56**	**97.25**	**1.81**	
TOTAL			1.08	5.21												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2955.0	0.05	148	4.44	0.2	443	2.75	300	886500	98.19
Solution (mL)	3487.0	0.485	1691	50.78	3.72	12972	80.61	0.10	349	0.04
Solution Samples *			56	1.69		457	2.84		8	0.00
Gravity		0.5	**1435**	**43.10**		**2221**	**13.80**		**15980**	**1.77**
Total Extraction				**95.56**			**97.25**			**1.81**
Total			3331	100.00		16093	100.00		902836	100.00
Calculated Head		1.13			5.4			306		
Assayed Head		**1.12**			**4.0**			**390**		

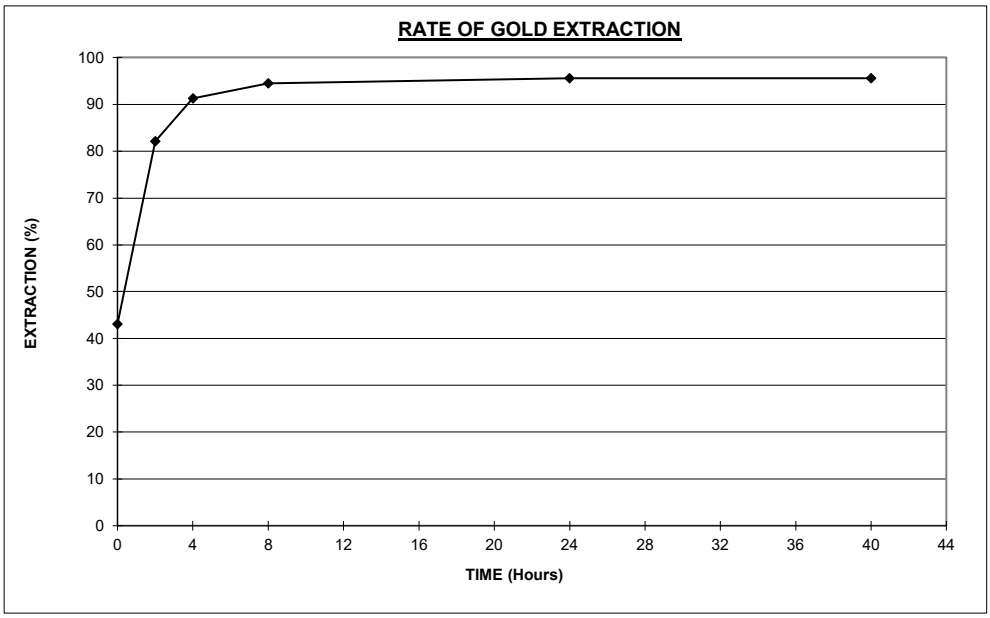
RESIDUE ASSAYS (ppm)

Au	0.05
Ag	0.15
As	300
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3612.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.06 (kg/t)
13. Lime consum'n (kg/t) : 1.76 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7159**
SAMPLE ID	**CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-3)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
[h]	Ore [g]	Water [mL]	NaCN [g]	Lime [g]	Oxygen [ppm]	pH	NaCN [%, w/v]		Au [ppm]	Ag [ppm]	As [ppm]		Au [%]	Ag [%]	As [%]	
	2956.2	3613.0			8.4	7.76										
0		3613.0	2.53	3.80	20.0	10.50	**0.070**		0.00	0.00	0.00		37.64	3.34	1.35	
2		3588.0	0.00	0.00	20.5	9.80	0.058		0.24	0.80	0.50		86.60	67.29	20.73	
4		3563.0	0.00	0.00	26.8	9.80	0.058		0.26	0.80	0.50		90.65	67.29	20.73	
8		3538.0	0.00	0.18	26.4	9.69	0.055		0.27	0.80	0.50		91.65	67.29	20.73	
24		3503.0	0.00	0.31	24.1	9.61	0.058		0.27	0.80	0.50		91.65	67.29	20.73	
40		3478.0	0.00	0.00	22.6	9.89	0.058		0.27	0.80	0.50		**91.65**	**67.29**	**20.73**	
TOTAL			2.53	4.29												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2956.2	0.05	148	8.35	0.5	1478	32.71	3	7391	79.27
Solution (mL)	3478.0	0.265	922	52.04	0.80	2782	61.57	0.50	1739	18.65
Solution Samples *			35	1.98		108	2.39		68	0.72
Gravity		0.2	**667**	**37.64**		**151**	**3.34**		**126**	**1.35**
Total Extraction				**91.65**			**67.29**			**20.73**
Total			1771	100.00		4519	100.00		9323	100.00
Calculated Head		0.60			1.5			3		
Assayed Head		**1.21**			**<2**			**<10**		

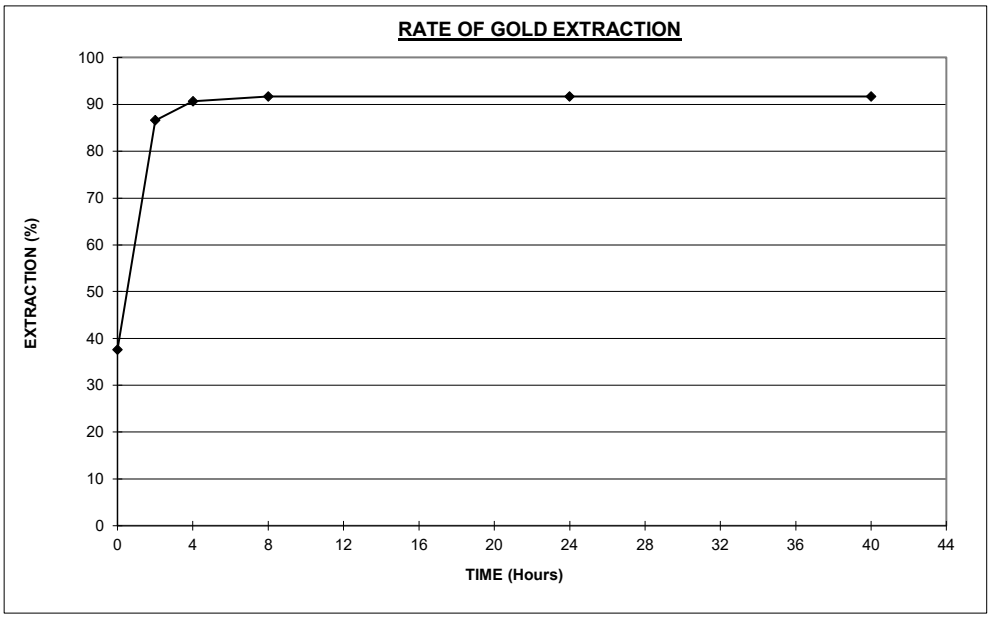
RESIDUE ASSAYS (ppm)

Au	0.05
Ag	0.5
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3613.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.86 (kg/t)
12. NaCN consum'n (kg/t) : 0.15 (kg/t)
13. Lime consum'n (kg/t) : 1.45 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7172**
SAMPLE ID	**CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-3)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
[h]	Ore [g]	Water [mL]	NaCN [g]	Lime [g]	Oxygen [ppm]	pH	NaCN [%, w/v]		Au [ppm]	Ag [ppm]	As [ppm]		Au [%]	Ag [%]	As [%]	
	2956.2	3613.0			7.7	7.51										
0		3613.0	1.81	4.06	20.0	10.50	**0.050**		0.00	0.00	0.00		37.58	7.91	1.62	
2		3588.0	0.00	0.00	23.5	10.02	0.045		0.25	0.64	0.05		85.30	81.38	3.97	
4		3563.0	0.00	0.00	23.1	9.97	0.043		0.27	0.64	0.05		89.17	81.38	3.97	
8		3538.0	0.00	0.00	22.0	9.94	0.043		0.27	0.68	0.05		90.13	85.91	3.97	
24		3503.0	0.00	0.00	23.0	9.86	0.040		0.28	0.68	0.05		92.03	85.91	3.97	
40		3478.0	0.00	0.00	23.2	9.76	0.040		0.28	0.68	0.05		**92.03**	**85.91**	**3.97**	
TOTAL			1.81	4.06												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2956.2	0.05	148	7.97	0.2	443	14.09	3	7391	96.03
Solution (mL)	3478.0	0.280	974	52.49	0.68	2365	75.15	0.05	174	2.26
Solution Samples *			36	1.96		90	2.85		7	0.09
Gravity		0.2	**697**	**37.58**		**249**	**7.91**		**125**	**1.62**
Total Extraction				**92.03**			**85.91**			**3.97**
Total			1855	100.00		3147	100.00		7696	100.00
Calculated Head		0.63			1.1			3		
Assayed Head		**1.21**			**<2**			**<10**		

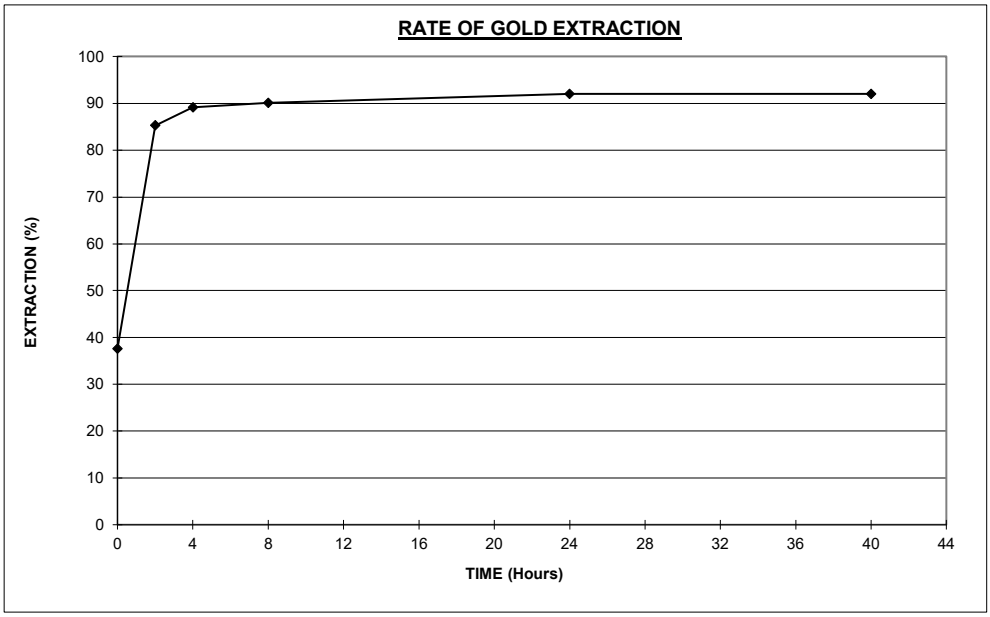
RESIDUE ASSAYS (ppm)

Au	0.05
Ag	0.15
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3613.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 1.37 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7185**
SAMPLE ID	**CHEGUE MAIN OXIDE MASTER COMPOSITE (MC-3)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As	Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]	[%]	[%]	[%]	
	2956.2	3613.0			7.8	7.65									
0		3613.0	1.08	3.15	20.0	10.53	**0.030**		0.00	0.00	0.00	40.82	6.17	0.79	
2		3588.0	0.00	0.00	24.5	10.00	0.025		0.24	0.64	0.05	85.83	81.04	1.99	
4		3563.0	0.00	0.00	30.7	9.94	0.025		0.26	0.66	0.05	89.56	83.36	1.99	
8		3538.0	0.00	0.00	34.4	9.89	0.025		0.27	0.68	0.05	91.41	85.67	1.99	
24		3503.0	0.00	0.15	30.8	9.60	0.025		0.28	0.66	0.05	92.33	83.38	1.99	
40		3478.0	0.00	0.00	25.6	9.87	0.023		0.28	0.68	0.05	**92.33**	**85.64**	**1.99**	
TOTAL			1.08	3.30											

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2956.2	0.05	148	7.67	0.2	443	14.36	5	14781	98.01
Solution (mL)	3478.0	0.275	956	49.65	0.68	2365	76.57	0.05	174	1.15
Solution Samples *			36	1.86		90	2.90		7	0.04
Gravity		0.3	**786**	**40.82**		**191**	**6.17**		**119**	**0.79**
Total Extraction				**92.33**			**85.64**			**1.99**
Total			1926	100.00		3089	100.00		15081	100.00
Calculated Head		0.65			1.0			5		
Assayed Head		**1.21**			**<2**			**<10**		

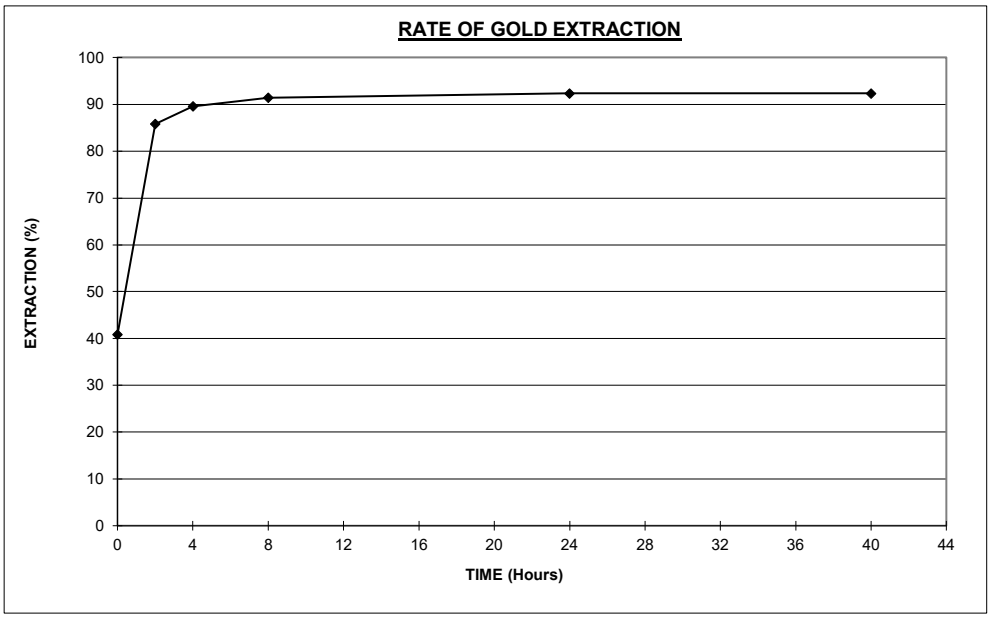
RESIDUE ASSAYS (ppm)

Au	0.05
Ag	0.15
As	5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3613.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.08 (kg/t)
13. Lime consum'n (kg/t) : 1.12 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7160**
SAMPLE ID	**CHEGUE MAIN TRANS MASTER COMPOSITE (MC-4)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2983.2	3646.0			8.3	8.03										
0		3646.0	2.55	1.61	20.0	10.51	**0.070**		0.00	0.00	0.00		36.00	12.25	2.69	
2		3621.0	0.00	0.00	21.7	9.92	0.063		0.22	0.60	0.50		88.28	64.43	21.81	
4		3596.0	0.00	0.00	20.0	9.90	0.063		0.24	0.60	0.50		91.82	64.43	21.81	
8		3571.0	0.00	0.00	20.7	9.84	0.063		0.24	0.60	0.50		92.99	64.43	21.81	
24		3546.0	0.00	0.12	20.3	9.66	0.060		0.25	0.60	0.50		95.32	64.43	21.81	
40		3521.0	0.00	0.00	20.5	9.95	0.060		0.25	0.60	0.50		**94.17**	**64.43**	**21.81**	
TOTAL			2.55	1.73												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2983.2	0.03	89	5.83	0.5	1492	35.57	3	7458	78.19
Solution (mL)	3521.0	0.245	863	56.23	0.60	2113	50.39	0.50	1761	18.46
Solution Samples *			30	1.94		75	1.79		63	0.66
Gravity		0.2	**552**	**36.00**		**514**	**12.25**		**257**	**2.69**
Total Extraction				**94.17**			**64.43**			**21.81**
Total			1534	100.00		4193	100.00		9538	100.00
Calculated Head		0.51			1.4			3		
Assayed Head		**0.47**			**<2**			**<10**		

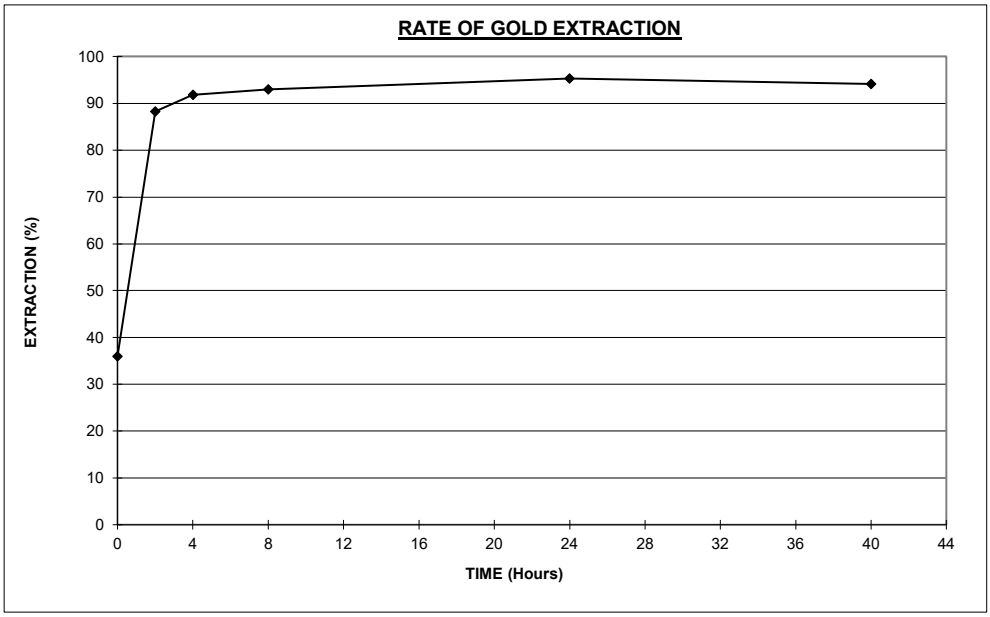
RESIDUE ASSAYS (ppm)

Au	0.03
Ag	0.5
As	2.5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3646.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.85 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.58 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7173**
SAMPLE ID	**CHEGUE MAIN TRANS MASTER COMPOSITE (MC-4)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2983.2	3646.0			8.0	7.90										
0		3646.0	1.82	1.68	20.0	10.51	**0.050**		0.00	0.00	0.00		38.60	18.51	0.43	
2		3621.0	0.00	0.00	26.2	9.98	0.043		0.22	0.44	0.05		85.48	82.21	1.03	
4		3596.0	0.00	0.00	21.4	9.96	0.040		0.24	0.44	0.05		89.72	82.21	1.03	
8		3571.0	0.00	0.00	24.9	9.93	0.040		0.25	0.46	0.05		91.82	85.07	1.03	
24		3546.0	0.00	0.00	24.1	9.85	0.040		0.26	0.44	0.05		92.86	82.23	1.03	
40		3521.0	0.00	0.00	24.9	9.79	0.038		0.26	0.44	0.05		**93.90**	**82.23**	**1.03**	
TOTAL			1.82	1.68												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2983.2	0.04	104	6.10	0.2	447	17.77	10	29832	98.97
Solution (mL)	3521.0	0.260	915	53.51	0.44	1549	61.52	0.05	176	0.58
Solution Samples *			31	1.79		56	2.20		6	0.02
Gravity		0.2	**660**	**38.60**		**466**	**18.51**		**130**	**0.43**
Total Extraction				**93.90**			**82.23**			**1.03**
Total			1711	100.00		2518	100.00		30144	100.00
Calculated Head		0.57			0.8			10		
Assayed Head		**0.47**			**<2**			**<10**		

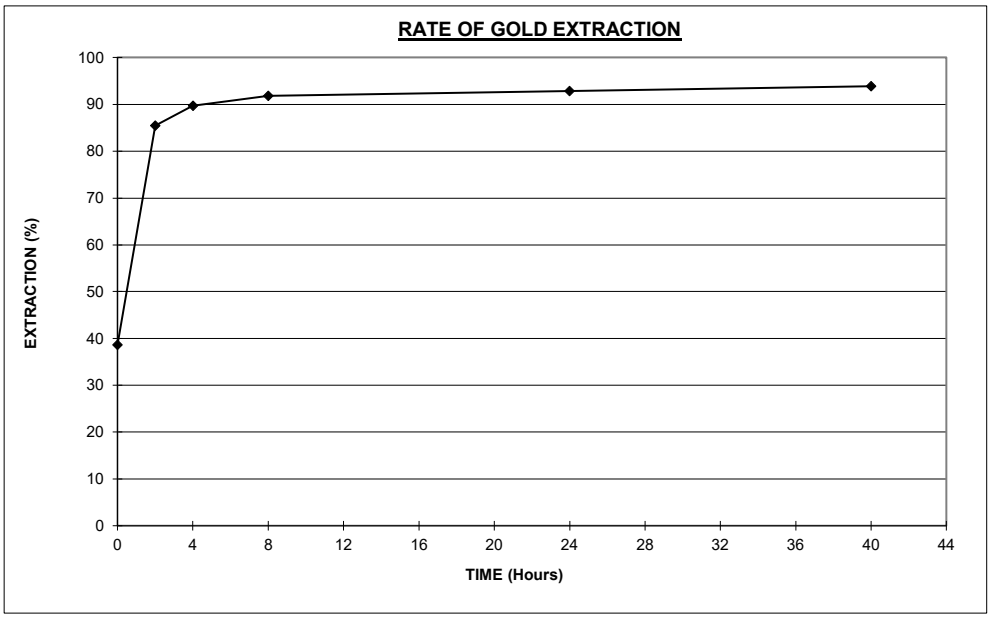
RESIDUE ASSAYS (ppm)

Au	0.04
Ag	0.15
As	10
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3646.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.14 (kg/t)
13. Lime consum'n (kg/t) : 0.56 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7186**
SAMPLE ID	**CHEGUE MAIN TRANS MASTER COMPOSITE (MC-4)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2983.2	3646.0			8.1	8.02										
0		3646.0	1.09	1.76	20.0	10.60	**0.030**		0.00	0.00	0.00		37.50	22.48	0.81	
2		3621.0	0.00	0.00	26.2	9.98	0.028		0.18	0.44	0.05		78.85	83.08	2.01	
4		3596.0	0.00	0.00	25.9	9.96	0.023		0.22	0.44	0.05		86.84	83.08	2.01	
8		3571.0	0.00	0.00	28.8	9.94	0.023		0.23	0.44	0.05		89.10	83.08	2.01	
24		3546.0	0.00	0.11	26.0	9.66	0.023		0.24	0.46	0.05		92.48	85.78	2.01	
40		3521.0	0.00	0.00	32.3	9.98	0.023		0.24	0.44	0.05		**92.48**	**83.10**	**2.01**	
TOTAL			1.09	1.87												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2983.2	0.04	119	7.52	0.2	447	16.90	5	14916	97.99
Solution (mL)	3521.0	0.240	845	53.25	0.44	1549	58.52	0.05	176	1.16
Solution Samples *			28	1.73		56	2.10		6	0.04
Gravity		0.2	**595**	**37.50**		**595**	**22.48**		**124**	**0.81**
Total Extraction				**92.48**			**83.10**			**2.01**
Total			1587	100.00		2647	100.00		15222	100.00
Calculated Head		0.53			0.9			5		
Assayed Head		**0.47**			**<2**			**<10**		

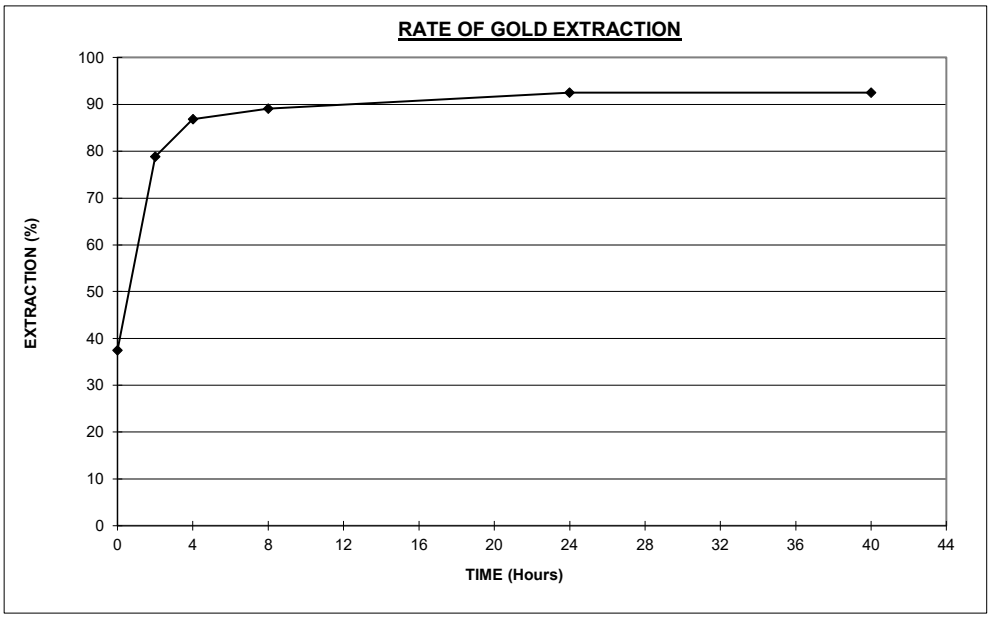
RESIDUE ASSAYS (ppm)

Au	0.04
Ag	0.15
As	5
S	<0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3646.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.08 (kg/t)
13. Lime consum'n (kg/t) : 0.63 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7215**
SAMPLE ID	**CHEGUE MAIN FRESH MASTER COMPOSITE (MC-15)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
[h]	Ore [g]	Water [mL]	NaCN [g]	Lime [g]	Oxygen [ppm]	pH	NaCN [%, w/v]		Au [ppm]	Ag [ppm]	As [ppm]		Au [%]	Ag [%]	As [%]	
	2997.6	3664.0			7.9	7.85										
0		3664.0	2.56	1.10	20.0	10.51	**0.070**		0.00	0.00	0.00		53.18	23.45	1.57	
2		3639.0	0.00	0.00	23.6	10.12	0.070		0.55	0.12	0.05		80.20	58.43	3.92	
4		3614.0	0.00	0.00	22.8	10.12	0.070		0.60	0.14	0.05		82.66	64.22	3.92	
8		3589.0	0.00	0.00	30.7	10.15	0.063		0.63	0.14	0.05		84.37	64.22	3.92	
24		3564.0	0.00	0.00	24.9	10.12	0.058		0.71	0.14	0.05		88.02	64.22	3.92	
40		3539.0	0.00	0.00	31.3	10.12	0.058		0.76	0.14	0.05		**90.67**	**64.22**	**3.92**	
TOTAL			2.56	1.10												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2997.6	0.23	689	9.33	0.2	450	35.78	3	7494	96.08
Solution (mL)	3539.0	0.760	2690	36.40	0.14	495	39.42	0.05	177	2.27
Solution Samples *			81	1.09		17	1.35		6	0.08
Gravity		1.3	**3930**	**53.18**		**295**	**23.45**		**123**	**1.57**
Total Extraction				**90.67**			**64.22**			**3.92**
Total			7390	100.00		1257	100.00		7800	100.00
Calculated Head		2.47			0.4			3		
Assayed Head		**2.30**			**<2**			**<10**		

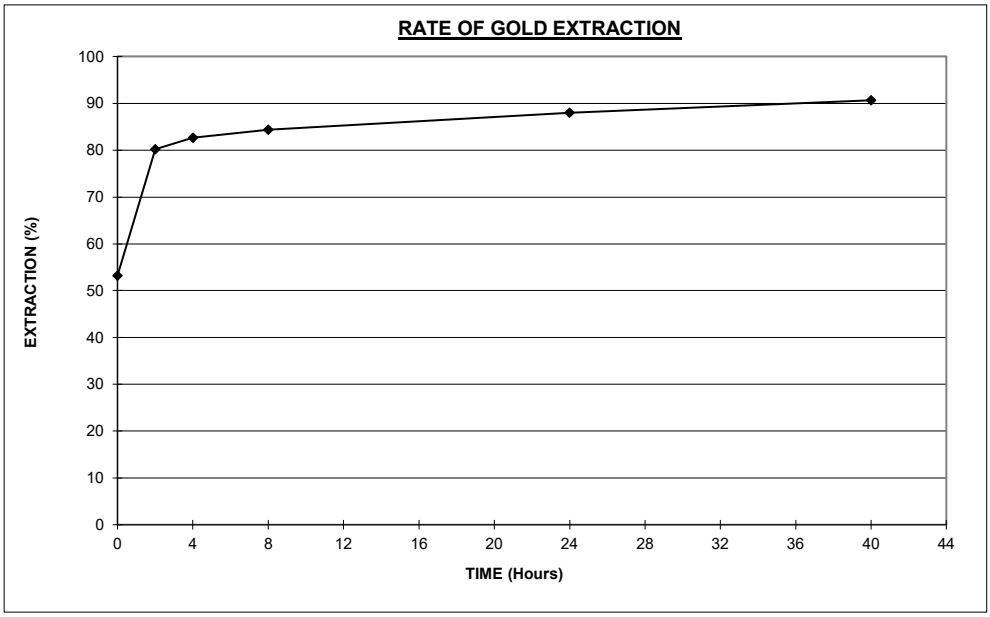
RESIDUE ASSAYS (ppm)

Au	0.23
Ag	0.15
As	2.5
S	0.44%
S2-	0.38%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3664.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.85 (kg/t)
12. NaCN consum'n (kg/t) : 0.14 (kg/t)
13. Lime consum'n (kg/t) : 0.37 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7223**
SAMPLE ID	**CHEGUE MAIN FRESH MASTER COMPOSITE (MC-15)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2997.6	3664.0			6.4	7.77										
0		3664.0	1.83	1.12	20.0	10.51	**0.050**		0.00	0.00	0.00		48.42	24.01	1.62	
2		3639.0	0.00	0.00	18.8	10.30	0.050		0.53	0.12	0.05		78.63	58.77	3.97	
4		3614.0	0.00	0.00	19.2	10.25	0.045		0.58	0.12	0.05		81.18	58.77	3.97	
8		3589.0	0.00	0.00	25.9	10.25	0.045		0.62	0.12	0.05		83.71	58.77	3.97	
24		3564.0	0.00	0.00	22.7	10.25	0.045		0.67	0.14	0.05		86.50	64.45	3.97	
40		3539.0	0.00	0.00	25.7	10.35	0.045		0.72	0.14	0.05		**89.27**	**64.45**	**3.97**	
TOTAL			1.83	1.12												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2997.6	0.23	689	10.73	0.2	450	35.55	3	7494	96.03
Solution (mL)	3539.0	0.720	2548	39.64	0.14	495	39.18	0.05	177	2.27
Solution Samples *			78	1.21		16	1.27		6	0.08
Gravity		1.0	**3112**	**48.42**		**304**	**24.01**		**127**	**1.62**
Total Extraction				**89.27**			**64.45**			**3.97**
Total			6427	100.00		1265	100.00		7804	100.00
Calculated Head		2.14			0.4			3		
Assayed Head		**2.30**			**<2**			**<10**		

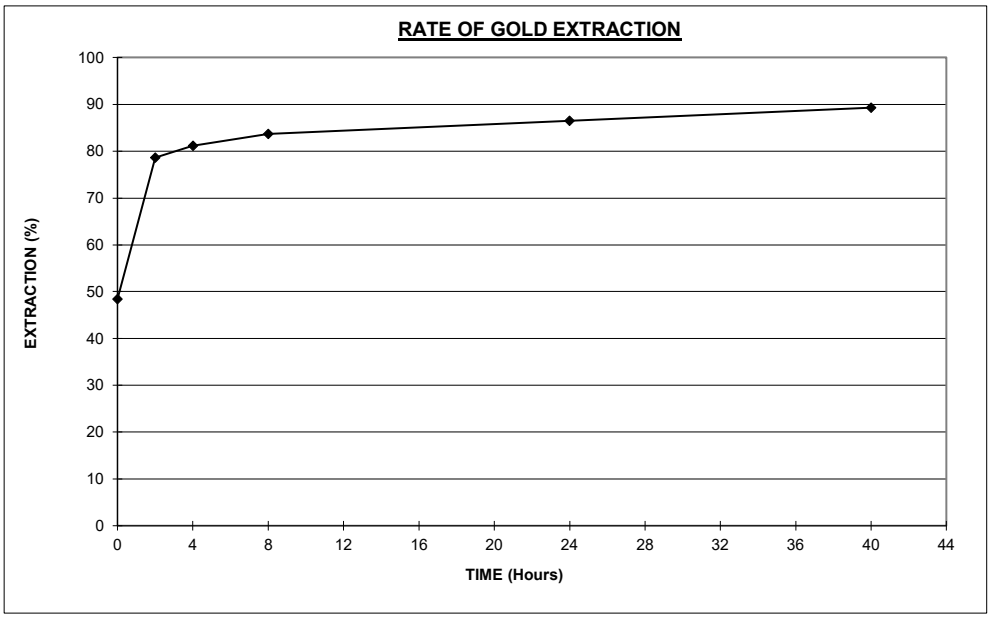
RESIDUE ASSAYS (ppm)

Au	0.23
Ag	0.15
As	2.5
S	0.40%
S2-	0.34%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3664.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.06 (kg/t)
13. Lime consum'n (kg/t) : 0.37 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7235**
SAMPLE ID	**CHEGUE MAIN FRESH MASTER COMPOSITE (MC-15)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
[h]	Ore [g]	Water [mL]	NaCN [g]	Lime [g]	Oxygen [ppm]	pH	NaCN [%, w/v]		Au [ppm]	Ag [ppm]	As [ppm]		Au [%]	Ag [%]	As [%]	
	2997.6	3664.0			8.1	7.88										
0		3664.0	1.10	0.95	20.0	10.53	**0.030**		0.00	0.00	0.00		48.21	23.07	1.54	
2		3639.0	0.00	0.00	26.9	10.12	0.030		0.48	0.10	0.05		77.39	52.41	3.89	
4		3614.0	0.00	0.00	22.6	10.02	0.028		0.55	0.12	0.05		81.31	58.24	3.89	
8		3589.0	0.00	0.00	21.6	10.00	0.028		0.58	0.12	0.05		83.41	58.24	3.89	
24		3564.0	0.00	0.00	27.8	10.04	0.025		0.64	0.14	0.05		86.99	63.99	3.89	
40		3539.0	0.00	0.00	20.2	10.03	0.023		0.68	0.14	0.05		**89.06**	**63.99**	**3.89**	
TOTAL			1.10	0.95												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2997.6	0.22	659	10.94	0.2	450	36.01	3	7494	96.11
Solution (mL)	3539.0	0.675	2389	39.64	0.14	495	39.68	0.05	177	2.27
Solution Samples *			73	1.21		16	1.24		6	0.08
Gravity		1.0	**2905**	**48.21**		**288**	**23.07**		**120**	**1.54**
Total Extraction				**89.06**			**63.99**			**3.89**
Total			6026	100.00		1249	100.00		7797	100.00
Calculated Head		2.01			0.4			3		
Assayed Head		**2.30**			**<2**			**<10**		

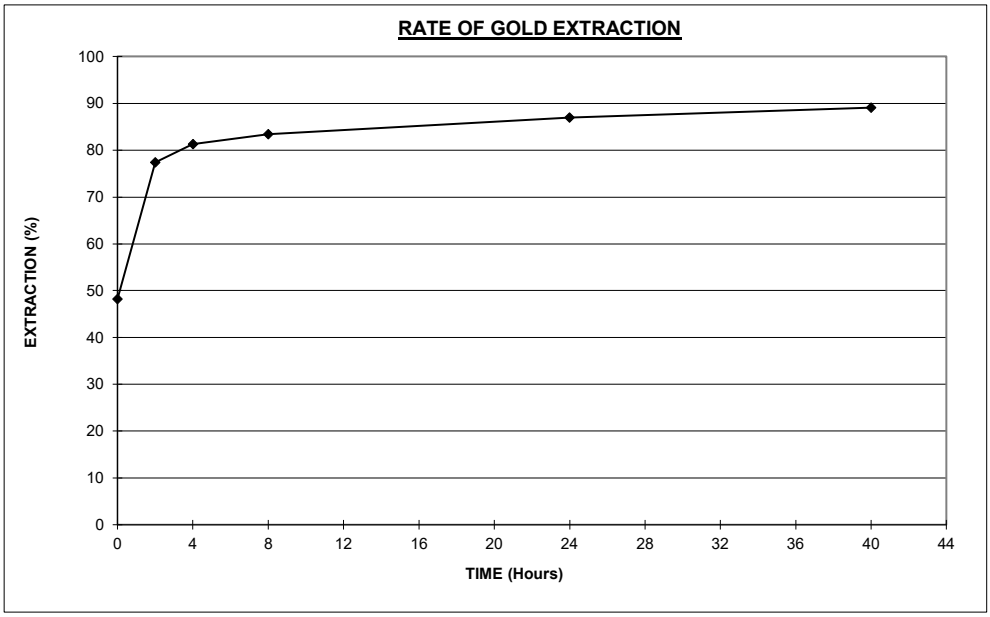
RESIDUE ASSAYS (ppm)

Au	0.22	
Ag	0.15	TBC
As	2.5	TBC
S		
S2-		

* : Intermediate solution samples removed during the test.

COMMENTS

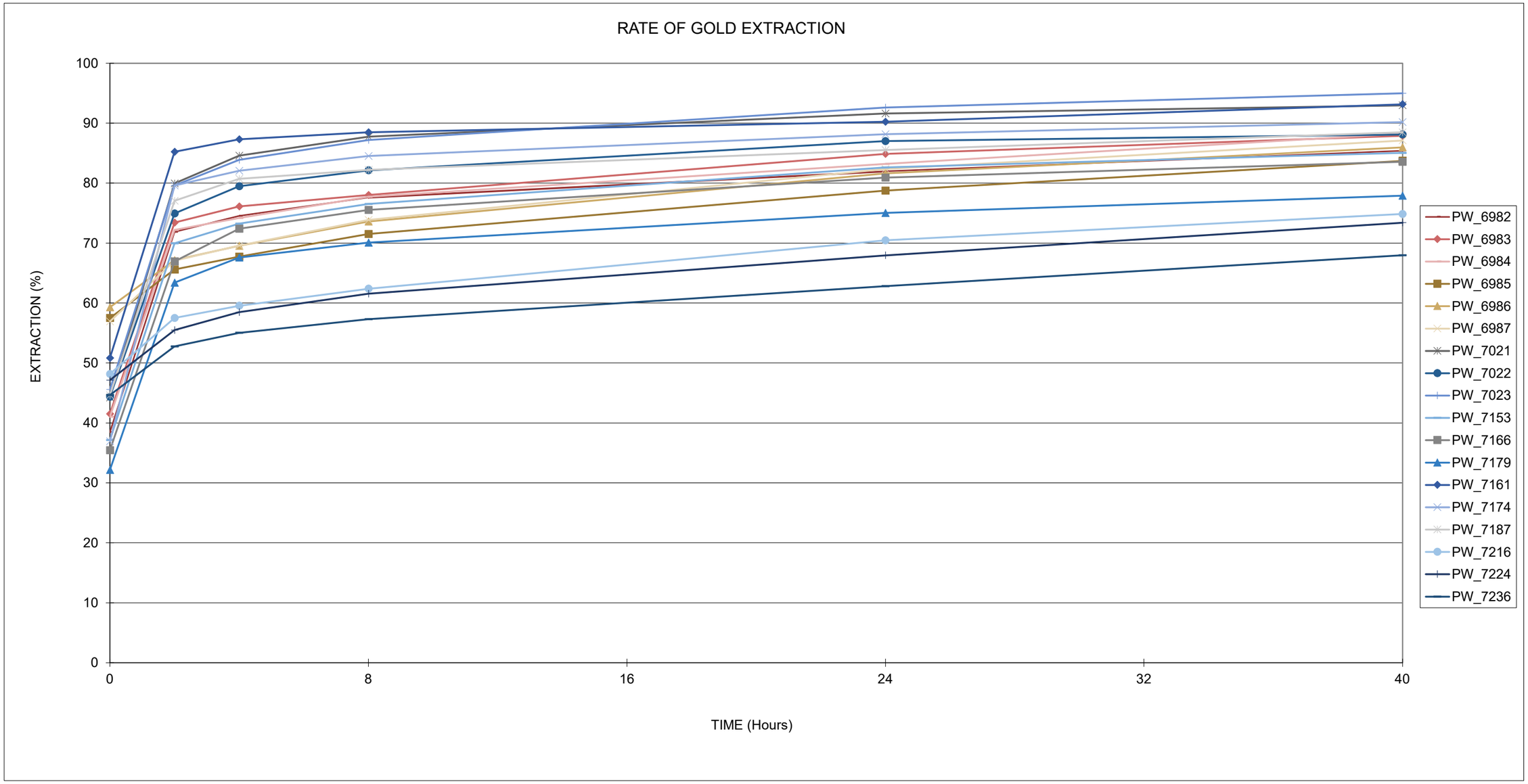
1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3664.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.08 (kg/t)
13. Lime consum'n (kg/t) : 0.32 (kg/t)



PROJECT	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
DATE	2/05/2023

SUMMARY

TEST No	SAMPLE ID	GRIND SIZE (P80, µm)	O2 / AIR SPARGE	% NaCN (Init / Mtn)	% Solids (w/w)	DCN OR CIL	GOLD HEAD GRADE (g/t)		GOLD DISTRIBUTION (g/t)			GOLD DISTRIBUTION (%)			TOTAL GOLD RECOVERY (%)	REAGENTS (kg/t)	
							Assayed	Calculated	Gravity	Leach	Residue	Gravity	Leach	Residue		NaCN	Lime
PW_6982	CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-16)	125	O2	0.10 / 0.05	45	DCN	1.53	1.37	0.53	0.64	0.20	38.5	47.0	14.6	85.4	0.26	0.55
PW_6983	CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-16)	106	O2	0.10 / 0.05	45	DCN	1.53	1.57	0.65	0.73	0.19	41.5	46.4	12.1	87.9	0.18	0.70
PW_6984	CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-16)	75	O2	0.10 / 0.05	45	DCN	1.53	1.53	0.63	0.72	0.18	41.0	47.2	11.8	88.2	0.24	0.65
	AVERAGE CALCULATED HEAD GRADE							**1.49**									
PW_6985	CHEGUE SOUTH FRESH MASTER COMPOSITE (MC-17)	125	O2	0.10 / 0.05	45	DCN	4.27	4.30	2.47	1.13	0.70	57.5	26.2	16.3	83.7	0.24	0.26
PW_6986	CHEGUE SOUTH FRESH MASTER COMPOSITE (MC-17)	106	O2	0.10 / 0.05	45	DCN	4.27	3.28	1.94	0.87	0.46	59.3	26.7	14.0	86.0	0.24	0.25
PW_6987	CHEGUE SOUTH FRESH MASTER COMPOSITE (MC-17)	75	O2	0.10 / 0.05	45	DCN	4.27	3.38	1.92	1.02	0.44	56.9	30.2	12.9	87.1	0.18	0.30
	AVERAGE CALCULATED HEAD GRADE							**3.65**									
PW_7021	CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-5)	125	O2	0.10 / 0.05	45	DCN	1.46	1.71	0.76	0.83	0.12	44.2	48.8	7.0	93.0	0.21	0.67
PW_7022	CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-5)	106	O2	0.10 / 0.05	45	DCN	1.46	1.60	0.71	0.70	0.19	44.3	43.8	11.9	88.1	0.21	0.64
PW_7023	CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-5)	75	O2	0.10 / 0.05	45	DCN	1.46	1.99	0.91	0.98	0.10	45.6	49.4	5.0	95.0	0.18	0.59
	AVERAGE CALCULATED HEAD GRADE							**1.77**									
PW_7153	CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-16)	106	O2	0.07 / 0.04	45	DCN	1.53	1.47	0.55	0.70	0.22	37.1	47.9	15.0	85.0	0.18	0.68
PW_7166	CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-16)	106	O2	0.05 / 0.03	45	DCN	1.53	1.34	0.47	0.64	0.22	35.4	48.1	16.4	83.6	0.12	0.74
PW_7179	CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-16)	106	O2	0.03 / 0.02	45	DCN	1.53	1.45	0.47	0.66	0.32	32.2	45.7	22.1	77.9	0.09	0.67
	AVERAGE CALCULATED HEAD GRADE							**1.42**									
PW_7161	CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-5)	106	O2	0.07 / 0.04	45	DCN	1.46	2.04	1.04	0.86	0.14	50.8	42.3	6.9	93.1	0.15	0.79
PW_7174	CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-5)	106	O2	0.05 / 0.03	45	DCN	1.46	1.48	0.55	0.79	0.15	36.9	53.2	9.8	90.2	0.09	0.76
PW_7187	CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-5)	106	O2	0.03 / 0.02	45	DCN	1.46	2.00	0.89	0.88	0.23	44.6	43.9	11.5	88.5	0.08	0.66
	AVERAGE CALCULATED HEAD GRADE							**1.84**									
PW_7216	CHEGUE SOUTH FRESH MASTER COMPOSITE (MC-17)	75	O2	0.07 / 0.04	45	DCN	4.27	4.45	2.14	1.19	1.12	48.2	26.7	25.2	74.8	0.12	0.39
PW_7224	CHEGUE SOUTH FRESH MASTER COMPOSITE (MC-17)	75	O2	0.05 / 0.03	45	DCN	4.27	4.68	2.21	1.23	1.25	47.1	26.3	26.6	73.4	0.08	0.35
PW_7236	CHEGUE SOUTH FRESH MASTER COMPOSITE (MC-17)	75	O2	0.03 / 0.02	45	DCN	4.27	3.46	1.55	0.81	1.11	44.6	23.3	32.0	68.0	0.08	0.24
	AVERAGE CALCULATED HEAD GRADE							**4.20**									


RATE OF GOLD EXTRACTION
EXTRACTION (%)
100
90
80
70
60
50
40
30
20
10
0
0
8
16
24
32
40
TIME (Hours)
PW_6982
PW_6983
PW_6984
PW_6985
PW_6986
PW_6987
PW_7021
PW_7022
PW_7023
PW_7153
PW_7166
PW_7179
PW_7161
PW_7174
PW_7187
PW_7216
PW_7224
PW_7236

PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6982**
SAMPLE ID	**CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-16)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2988.0	3652.0			6.8	8.11										
0		3652.0	3.65	1.64	20.0	10.50	**0.100**		0.00	0.00	0.00		38.46	7.94	1.72	
2		3627.0	0.00	0.00	22.7	9.93	0.093		0.38	0.10	0.05		71.87	26.02	4.06	
4		3602.0	0.00	0.00	20.1	9.91	0.093		0.41	0.10	0.05		74.52	26.02	4.06	
8		3577.0	0.00	0.00	25.1	9.86	0.088		0.44	0.10	0.05		77.60	26.02	4.06	
24		3552.0	0.00	0.00	22.7	10.07	0.080		0.49	0.10	0.05		81.96	26.02	4.06	
40		3527.0	0.00	0.00	26.3	9.88	0.078		0.53	0.10	0.05		**85.42**	**26.02**	**4.06**	
TOTAL			3.65	1.64												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2988.0	0.20	598	14.58	0.5	1494	73.98	3	7470	95.94
Solution (mL)	3527.0	0.530	1869	45.59	0.10	353	17.46	0.05	176	2.26
Solution Samples *			56	1.37		13	0.62		6	0.08
Gravity		0.5	**1577**	**38.46**		**160**	**7.94**		**134**	**1.72**
Total Extraction				**85.42**			**26.02**			**4.06**
Total			4100	100.00		2020	100.00		7786	100.00
Calculated Head		1.37			0.7			3		
Assayed Head		**1.53**			**<2**			**<10**		

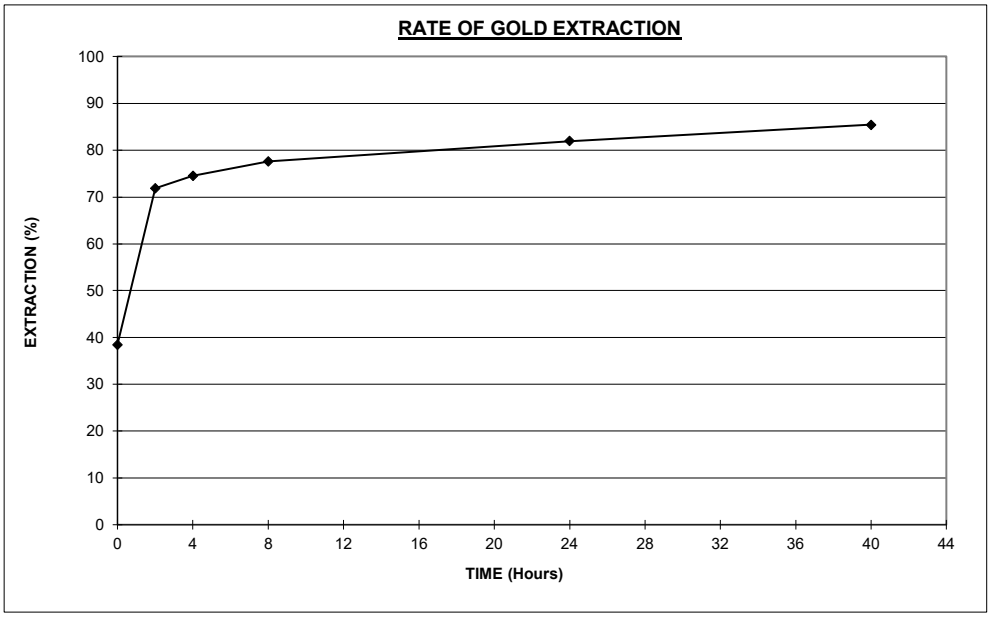
RESIDUE ASSAYS (ppm)

Au	0.20
Ag	0.5
As	2.5
S	0.12%
S2-	0.06%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3652.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.26 (kg/t)
13. Lime consum'n (kg/t) : 0.55 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6983**
SAMPLE ID	**CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-16)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As	Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]	[%]	[%]	[%]	
	2988.0	3652.0			6.9	8.03									
0		3652.0	3.65	2.08	20.0	10.50	**0.100**		0.00	0.00	0.00	41.51	7.60	1.64	
2		3627.0	0.00	0.00	28.8	10.11	0.088		0.41	0.10	0.05	73.40	25.75	3.98	
4		3602.0	0.00	0.00	20.1	10.08	0.088		0.45	0.10	0.05	76.11	25.75	3.98	
8		3577.0	0.00	0.00	25.2	10.05	0.090		0.47	0.10	0.05	78.02	25.75	3.98	
24		3552.0	0.00	0.00	22.4	10.23	0.088		0.56	0.10	0.05	84.88	25.75	3.98	
40		3527.0	0.00	0.00	24.5	10.51	0.085		0.60	0.10	0.05	**87.91**	**25.75**	**3.98**	
TOTAL			3.65	2.08											

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2988.0	0.19	568	12.09	0.5	1494	74.25	3	7470	96.02
Solution (mL)	3527.0	0.600	2116	45.08	0.10	353	17.53	0.05	176	2.27
Solution Samples *			62	1.32		13	0.62		6	0.08
Gravity		0.7	**1949**	**41.51**		**153**	**7.60**		**127**	**1.64**
Total Extraction				**87.91**			**25.75**			**3.98**
Total			4695	100.00		2012	100.00		7780	100.00
Calculated Head		1.57			0.7			3		
Assayed Head		**1.53**			**<2**			**<10**		

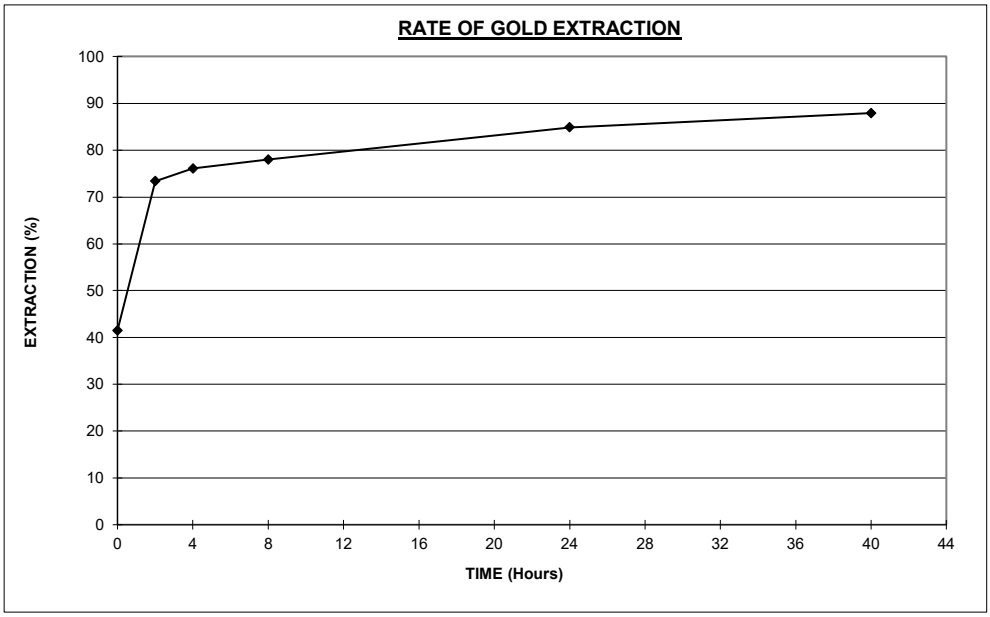
RESIDUE ASSAYS (ppm)

Au	0.19
Ag	0.5
As	2.5
S	0.12%
S2-	0.08%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3652.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 0.70 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6984**
SAMPLE ID	**CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-16)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2988.0	3652.0			6.5	7.98										
0		3652.0	3.65	1.93	20.0	10.55	**0.100**		0.00	0.00	0.00		41.05	6.45	5.49	
2		3627.0	0.00	0.00	22.2	10.10	0.095		0.39	0.10	0.05		72.19	24.14	7.74	
4		3602.0	0.00	0.00	17.5	10.03	0.090		0.42	0.12	0.05		74.17	27.65	7.74	
8		3577.0	0.00	0.00	31.0	9.99	0.088		0.46	0.12	0.05		77.72	27.65	7.74	
24		3552.0	0.00	0.00	22.7	10.14	0.080		0.53	0.12	0.05		83.19	27.65	7.74	
40		3527.0	0.00	0.00	25.6	9.97	0.080		0.60	0.12	0.05		**88.24**	**27.65**	**7.74**	
TOTAL			3.65	1.93												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2988.0	0.18	538	11.76	0.5	1494	72.35	3	7470	92.26
Solution (mL)	3527.0	0.595	2099	45.89	0.12	423	20.50	0.05	176	2.18
Solution Samples *			60	1.31		15	0.70		6	0.08
Gravity		0.6	**1877**	**41.05**		**133**	**6.45**		**444**	**5.49**
Total Extraction				**88.24**			**27.65**			**7.74**
Total			4573	100.00		2065	100.00		8097	100.00
Calculated Head		1.53			0.7			3		
Assayed Head		**1.53**			**<2**			**<10**		

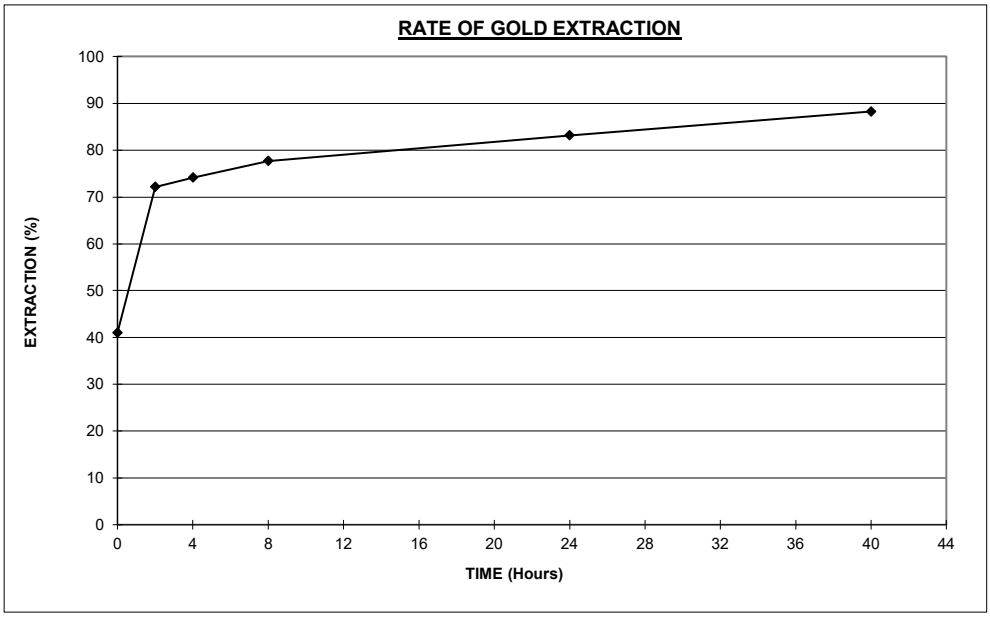
RESIDUE ASSAYS (ppm)

Au	0.18
Ag	0.5
As	2.5
S	0.10%
S2-	0.10%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3652.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.24 (kg/t)
13. Lime consum'n (kg/t) : 0.65 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6985**
SAMPLE ID	**CHEGUE SOUTH FRESH MASTER COMPOSITE (MC-17)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2998.2	3664.0			7.3	8.08										
0		3664.0	3.66	0.78	20.0	10.53	**0.100**		0.00	0.00	0.00		57.50	14.30	1.30	
2		3639.0	0.00	0.00	22.9	10.06	0.085		0.29	0.08	0.05		65.60	27.28	3.65	
4		3614.0	0.00	0.00	24.3	10.03	0.085		0.36	0.10	0.05		67.72	30.50	3.65	
8		3589.0	0.00	0.00	24.3	10.01	0.085		0.50	0.10	0.05		71.50	30.50	3.65	
24		3564.0	0.00	0.00	22.2	10.17	0.083		0.76	0.10	0.05		78.74	30.50	3.65	
40		3539.0	0.00	0.00	26.1	10.01	0.080		0.94	0.12	0.05		**83.72**	**33.65**	**3.65**	
TOTAL			3.66	0.78												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2998.2	0.70	2099	16.28	0.5	1499	66.35	3	7496	96.35
Solution (mL)	3539.0	0.935	3309	25.67	0.12	425	18.80	0.05	177	2.27
Solution Samples *			71	0.55		13	0.55		6	0.08
Gravity		2.5	**7412**	**57.50**		**323**	**14.30**		**101**	**1.30**
Total Extraction				**83.72**			**33.65**			**3.65**
Total			12890	100.00		2259	100.00		7780	100.00
Calculated Head		4.30			0.8			3		
Assayed Head		**4.27**			**<2**			**10**		

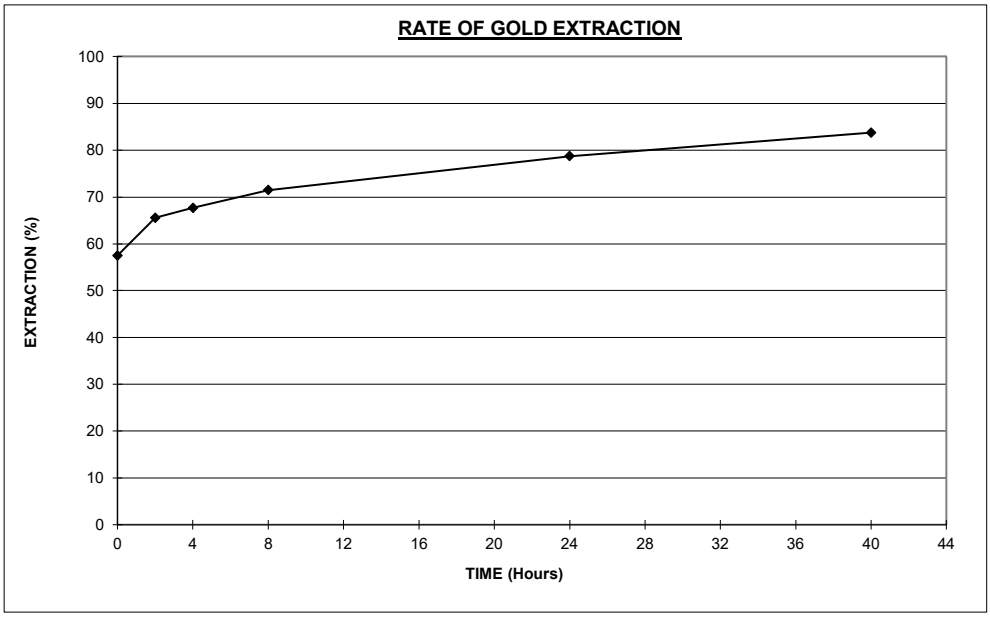
RESIDUE ASSAYS (ppm)

Au	0.70
Ag	0.5
As	2.5
S	0.26%
S2-	0.20%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	> 0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3664.0	(g)
8. Grind size P 80 :	125	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.24	(kg/t)
13. Lime consum'n (kg/t) :	0.26	(kg/t)



PROJECT:	A23136 : DOROPO GOLD PROJECT
CLIENT:	AMPELLA MINING COTE D'IVOIRE
TEST No	PW6986
SAMPLE ID	CHEGUE SOUTH FRESH MASTER COMPOSITE (MC-17)
GRIND SIZE P_{80}:	106 µm
WATER TYPE:	PERTH TAP WATER
DATE:	Feb-23

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2998.2	3664.0			7.5	8.00										
0		3664.0	3.66	0.75	20.0	10.54	**0.100**		0.00	0.00	0.00		59.30	12.65	1.73	
2		3639.0	0.00	0.00	22.6	10.09	0.093		0.21	0.06	0.05		67.13	22.95	4.07	
4		3614.0	0.00	0.00	18.0	10.06	0.090		0.28	0.08	0.05		69.54	26.36	4.07	
8		3589.0	0.00	0.00	22.8	10.06	0.083		0.39	0.10	0.05		73.58	29.75	4.07	
24		3564.0	0.00	0.00	22.6	10.21	0.080		0.61	0.10	0.05		81.62	29.75	4.07	
40		3539.0	0.00	0.00	25.4	10.03	0.080		0.73	0.10	0.05		**85.97**	**29.75**	**4.07**	
TOTAL			3.66	0.75												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2998.2	0.46	1379	14.03	0.5	1499	70.25	3	7496	95.93
Solution (mL)	3539.0	0.725	2566	26.11	0.10	354	16.59	0.05	177	2.26
Solution Samples *			55	0.56		11	0.52		6	0.08
Gravity		1.9	**5829**	**59.30**		**270**	**12.65**		**135**	**1.73**
Total Extraction				**85.97**			**29.75**			**4.07**
Total			9828	100.00		2134	100.00		7814	100.00
Calculated Head		3.28			0.7			3		
Assayed Head		**4.27**			**<2**			**10**		

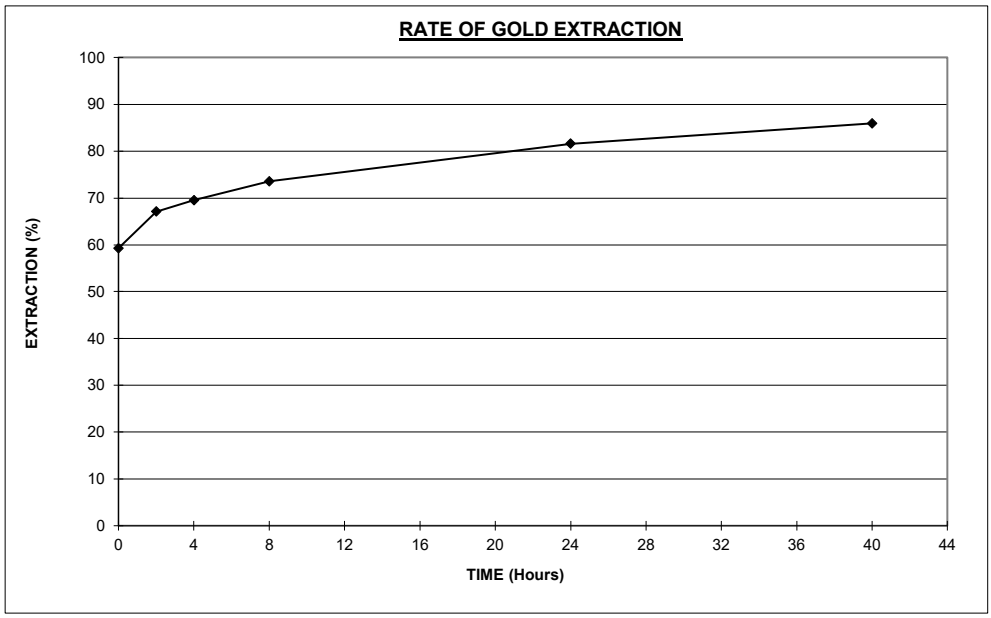
RESIDUE ASSAYS (ppm)

Au	0.46
Ag	0.5
As	2.5
S	0.24%
S2-	0.20%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	> 0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3664.0	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.24	(kg/t)
13. Lime consum'n (kg/t) :	0.25	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6987**
SAMPLE ID	**CHEGUE SOUTH FRESH MASTER COMPOSITE (MC-17)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2998.2	3664.0			7.1	7.93										
0		3664.0	3.66	0.89	20.0	10.50	**0.100**		0.00	0.00	0.00		56.92	11.53	1.56	
2		3639.0	0.00	0.00	23.0	10.14	0.090		0.28	0.10	0.05		67.05	28.90	3.91	
4		3614.0	0.00	0.00	16.7	10.12	0.090		0.35	0.10	0.05		69.57	28.90	3.91	
8		3589.0	0.00	0.00	29.9	10.12	0.090		0.47	0.10	0.05		73.85	28.90	3.91	
24		3564.0	0.00	0.00	25.2	10.24	0.090		0.71	0.12	0.05		82.36	32.30	3.91	
40		3539.0	0.00	0.00	25.6	10.10	0.085		0.85	0.10	0.05		**87.12**	**28.92**	**3.91**	
TOTAL			3.66	0.89												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2998.2	0.44	1304	12.88	0.5	1499	71.08	3	7496	96.09
Solution (mL)	3539.0	0.845	2990	29.54	0.10	354	16.78	0.05	177	2.27
Solution Samples *			66	0.66		13	0.62		6	0.08
Gravity		1.9	**5761**	**56.92**		**243**	**11.53**		**122**	**1.56**
Total Extraction				**87.12**			**28.92**			**3.91**
Total			10122	100.00		2109	100.00		7800	100.00
Calculated Head		3.38			0.7			3		
Assayed Head		**4.27**			**<2**			**10**		

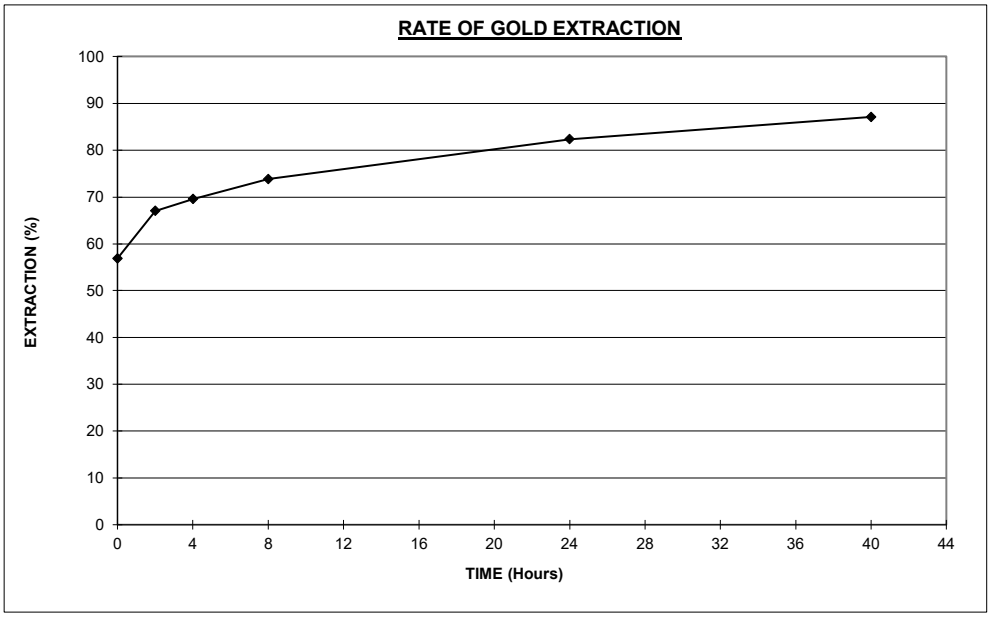
RESIDUE ASSAYS (ppm)

Au	0.44
Ag	0.5
As	2.5
S	0.24%
S2-	0.22%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3664.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 0.30 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7021**
SAMPLE ID	**CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-5)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2978.4	3640.0			8.3	7.91										
0		3640.0	3.64	1.99	20.0	10.58	**0.100**		0.00	0.00	0.00		44.23	19.99	22.87	
2		3615.0	0.00	0.00	19.4	10.05	0.093		0.50	0.22	0.05		79.96	68.55	38.02	
4		3590.0	0.00	0.00	17.1	9.90	0.088		0.57	0.22	0.05		84.57	68.55	38.02	
8		3565.0	0.00	0.00	22.0	9.88	0.083		0.61	0.24	0.05		87.74	72.91	38.02	
24		3540.0	0.00	0.00	22.7	9.89	0.083		0.67	0.24	0.05		91.59	72.91	38.02	
40		3515.0	0.00	0.00	21.8	10.03	0.083		0.69	0.24	0.05		**92.98**	**72.91**	**38.02**	
TOTAL			3.64	1.99												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2978.4	0.12	357	7.02	0.2	447	27.09	0.25	745	61.98
Solution (mL)	3515.0	0.685	2408	47.27	0.24	844	51.16	0.05	176	14.63
Solution Samples *			76	1.48		29	1.76		6	0.52
Gravity		0.8	**2253**	**44.23**		**330**	**19.99**		**275**	**22.87**
Total Extraction				**92.98**			**72.91**			**38.02**
Total			5094	100.00		1649	100.00		1201	100.00
Calculated Head		1.71			0.6			0		
Assayed Head		**1.46**			**<2**			**<10**		

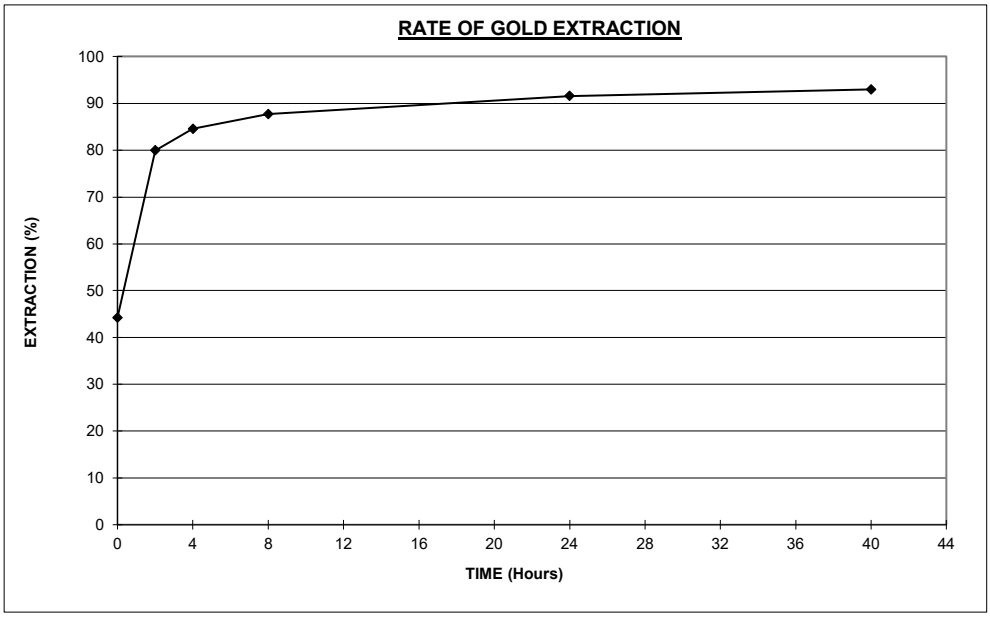
RESIDUE ASSAYS (ppm)

Au	0.12
Ag	0.15
As	0.25
S	0.06%
S2-	0.04%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3640.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.21 (kg/t)
13. Lime consum'n (kg/t) : 0.67 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7022**
SAMPLE ID	**CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-5)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]
	2978.4	3640.0			8.1	7.87									
0		3640.0	3.64	1.90	20.0	10.54	**0.100**		0.00	0.00	0.00		44.35	7.41	12.46
2		3615.0	0.00	0.00	18.4	9.97	0.093		0.40	0.22	0.05		74.93	63.59	29.66
4		3590.0	0.00	0.00	17.1	9.92	0.088		0.46	0.24	0.05		79.49	68.66	29.66
8		3565.0	0.00	0.00	21.6	9.86	0.088		0.50	0.24	0.05		82.13	68.66	29.66
24		3540.0	0.00	0.00	23.3	9.87	0.083		0.56	0.24	0.05		87.00	68.66	29.66
40		3515.0	0.00	0.00	21.1	10.02	0.083		0.58	0.24	0.05		**88.11**	**68.66**	**29.66**
TOTAL			3.64	1.90											

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2978.4	0.19	566	11.89	0.2	447	31.34	0.25	745	70.34
Solution (mL)	3515.0	0.575	2021	42.46	0.24	844	59.18	0.05	176	16.60
Solution Samples *			62	1.31		30	2.07		6	0.59
Gravity		0.7	**2111**	**44.35**		**106**	**7.41**		**132**	**12.46**
Total Extraction				**88.11**			**68.66**			**29.66**
Total			4760	100.00		1425	100.00		1059	100.00
Calculated Head		1.60			0.5			0		
Assayed Head		**1.46**			**<2**			**<10**		

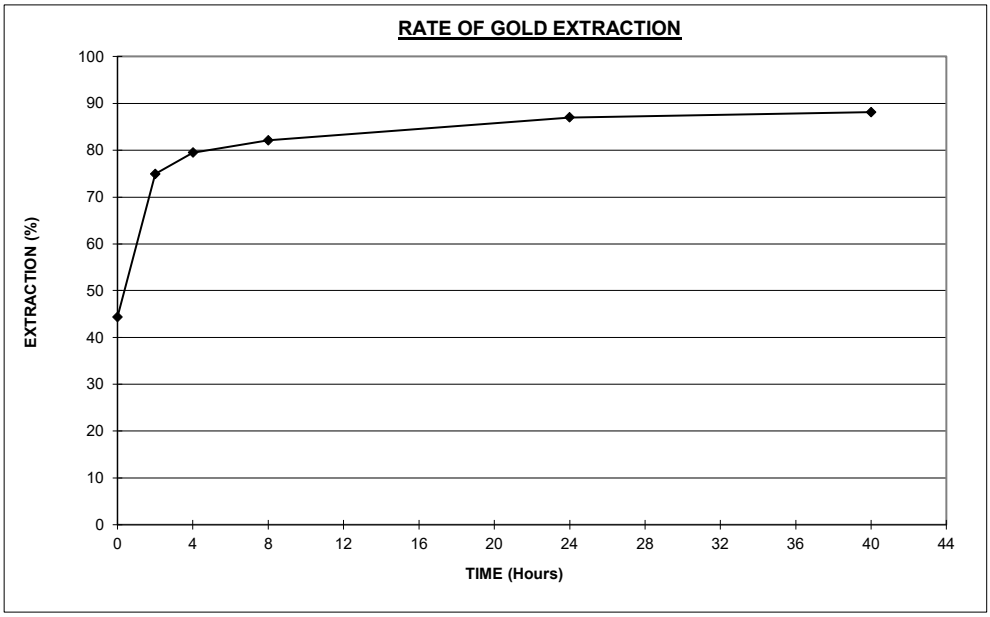
RESIDUE ASSAYS (ppm)

Au	0.19
Ag	0.15
As	0.25
S	0.06%
S2-	0.04%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3640.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.21 (kg/t)
13. Lime consum'n (kg/t) : 0.64 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7023**
SAMPLE ID	**CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-5)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2978.4	3640.0			8.9	7.76										
0		3640.0	3.64	1.76	20.0	10.51	**0.100**		0.00	0.00	0.00		45.58	6.55	33.30	
2		3615.0	0.00	0.00	19.8	10.04	0.090		0.56	0.22	0.05		79.61	63.25	46.40	
4		3590.0	0.00	0.00	17.0	10.01	0.090		0.63	0.24	0.05		83.87	68.37	46.40	
8		3565.0	0.00	0.00	22.4	9.98	0.085		0.68	0.24	0.05		87.19	68.37	46.40	
24		3540.0	0.00	0.00	22.4	9.94	0.085		0.77	0.24	0.05		92.60	68.37	46.40	
40		3515.0	0.00	0.00	22.2	10.11	0.085		0.81	0.24	0.05		**94.98**	**68.37**	**46.40**	
TOTAL			3.64	1.76												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2978.4	0.10	298	5.02	0.2	447	31.63	0.25	745	53.60
Solution (mL)	3515.0	0.810	2847	47.95	0.24	844	59.73	0.05	176	12.65
Solution Samples *			86	1.45		30	2.09		6	0.45
Gravity		0.9	**2706**	**45.58**		**93**	**6.55**		**463**	**33.30**
Total Extraction				**94.98**			**68.37**			**46.40**
Total			5937	100.00		1412	100.00		1389	100.00
Calculated Head		1.99			0.5			0		
Assayed Head		**1.46**			**<2**			**<10**		

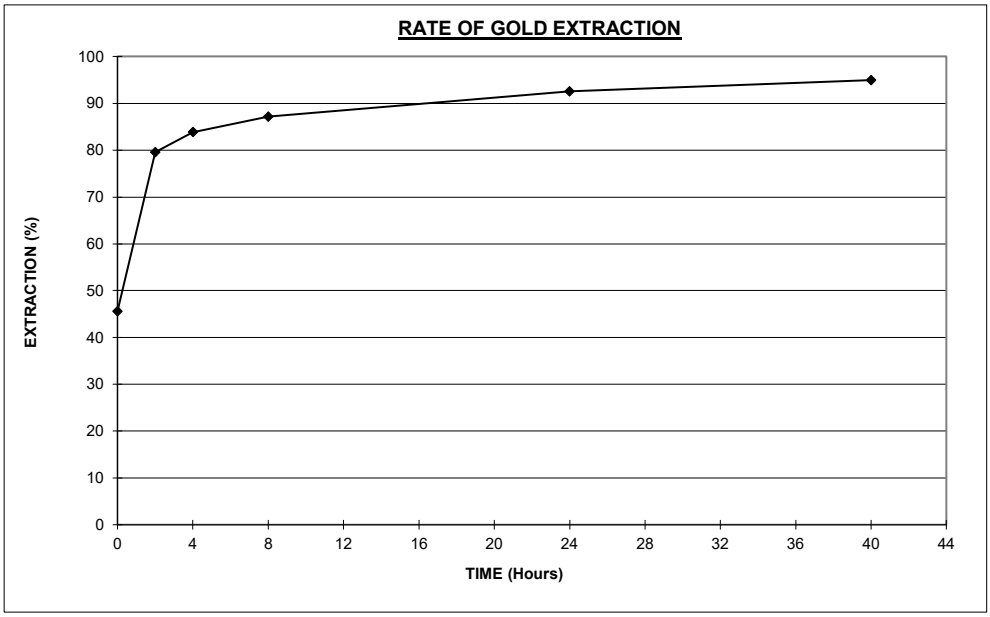
RESIDUE ASSAYS (ppm)

Au	0.10
Ag	0.15
As	0.25
S	0.06%
S2-	0.04%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3640.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 0.59 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7153**
SAMPLE ID	**CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-16)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2988.0	3652.0			9.5	7.94										
0		3652.0	2.56	1.64	20.0	10.51	**0.070**		0.00	0.00	0.00		37.14	15.26	3.35	
2		3627.0	0.00	0.14	14.3	9.73	0.053		0.40	0.10	0.05		69.95	50.25	5.66	
4		3602.0	0.00	0.14	19.5	9.75	0.060		0.44	0.10	0.05		73.25	50.25	5.66	
8		3577.0	0.00	0.12	23.2	9.77	0.060		0.48	0.10	0.05		76.52	50.25	5.66	
24		3552.0	0.00	0.00	16.9	9.93	0.058		0.55	0.10	0.05		82.63	50.25	5.66	
40		3527.0	0.00	0.00	20.4	9.88	0.055		0.58	0.12	0.05		**85.05**	**57.06**	**5.66**	
TOTAL			2.56	2.04												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2988.0	0.22	657	14.95	0.2	448	42.94	3	7470	94.34
Solution (mL)	3527.0	0.580	2046	46.53	0.12	423	40.55	0.05	176	2.23
Solution Samples *			61	1.38		13	1.25		6	0.08
Gravity		0.5	**1633**	**37.14**		**159**	**15.26**		**266**	**3.35**
Total Extraction				**85.05**			**57.06**			**5.66**
Total			4397	100.00		1044	100.00		7918	100.00
Calculated Head		1.47			0.3			3		
Assayed Head		**1.53**			**<2**			**<10**		

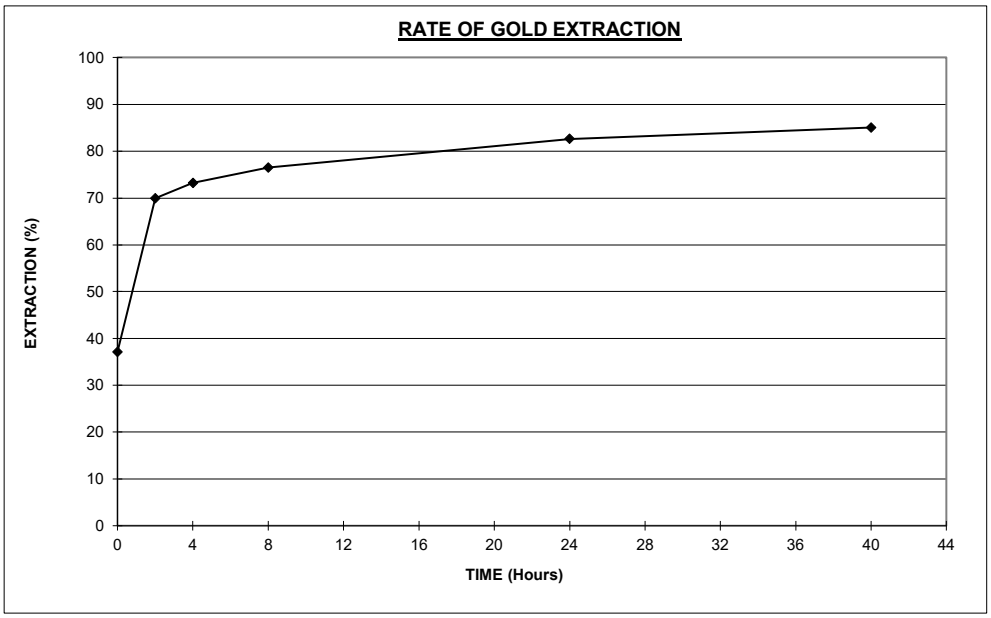
RESIDUE ASSAYS (ppm)

Au	0.22
Ag	0.15
As	2.5
S	0.08%
S2-	0.06%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3652.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.86 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 0.68 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7166**
SAMPLE ID	**CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-16)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
[h]	Ore [g]	Water [mL]	NaCN [g]	Lime [g]	Oxygen [ppm]	pH	NaCN [%, w/v]		Au [ppm]	Ag [ppm]	As [ppm]		Au [%]	Ag [%]	As [%]	
	2988.0	3652.0			7.8	7.97										
0		3652.0	1.83	2.22	20.0	10.50	**0.050**		0.00	0.00	0.00		35.44	7.23	1.61	
2		3627.0	0.00	0.00	22.4	10.09	0.045		0.35	0.10	0.05		66.94	24.76	3.96	
4		3602.0	0.00	0.00	19.9	9.96	0.043		0.41	0.14	0.05		72.38	31.72	3.96	
8		3577.0	0.00	0.00	20.4	9.99	0.043		0.44	0.12	0.05		75.53	28.26	3.96	
24		3552.0	0.00	0.00	21.7	9.89	0.043		0.50	0.14	0.05		80.90	31.70	3.96	
40		3527.0	0.00	0.00	19.8	9.97	0.040		0.53	0.12	0.05		**83.56**	**28.29**	**3.96**	
TOTAL			1.83	2.22												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2988.0	0.22	657	16.44	0.5	1494	71.71	3	7470	96.04
Solution (mL)	3527.0	0.530	1869	46.74	0.12	423	20.32	0.05	176	2.27
Solution Samples *			56	1.39		16	0.74		6	0.08
Gravity		0.5	**1417**	**35.44**		**151**	**7.23**		**125**	**1.61**
Total Extraction				**83.56**			**28.29**			**3.96**
Total			4000	100.00		2083	100.00		7778	100.00
Calculated Head		1.34			0.7			3		
Assayed Head		**1.53**			**<2**			**<10**		

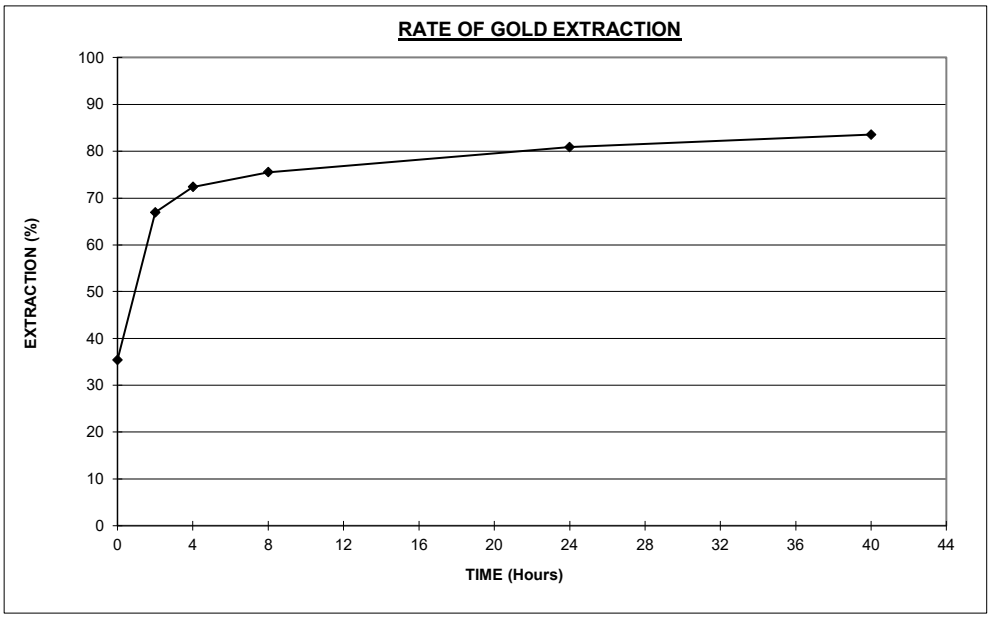
RESIDUE ASSAYS (ppm)

Au	0.22
Ag	0.5
As	2.5
S	0.10%
S2-	0.08%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3652.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.74 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7179**
SAMPLE ID	**CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-16)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
[h]	Ore [g]	Water [mL]	NaCN [g]	Lime [g]	Oxygen [ppm]	pH	NaCN [%, w/v]		Au [ppm]	Ag [ppm]	As [ppm]		Au [%]	Ag [%]	As [%]	
	2988.0	3652.0			7.5	7.92										
0		3652.0	1.10	2.01	20.0	10.57	**0.030**		0.00	0.00	0.00		32.16	14.87	1.66	
2		3627.0	0.00	0.00	21.0	9.89	0.028		0.37	0.10	0.05		63.38	50.00	4.00	
4		3602.0	0.00	0.00	20.2	9.90	0.028		0.42	0.10	0.05		67.58	50.00	4.00	
8		3577.0	0.00	0.00	20.4	9.88	0.028		0.45	0.10	0.05		70.07	50.00	4.00	
24		3552.0	0.00	0.00	24.4	9.80	0.023		0.51	0.12	0.05		75.03	56.89	4.00	
40		3527.0	0.00	0.00	24.3	9.86	0.023		0.55	0.12	0.05		**77.90**	**56.89**	**4.00**	
TOTAL			1.10	2.01												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2988.0	0.32	956	22.10	0.2	448	43.11	3	7470	96.00
Solution (mL)	3527.0	0.545	1922	44.42	0.12	423	40.71	0.05	176	2.27
Solution Samples *			57	1.33		14	1.30		6	0.08
Gravity		0.5	**1392**	**32.16**		**155**	**14.87**		**129**	**1.66**
Total Extraction				**77.90**			**56.89**			**4.00**
Total			4327	100.00		1040	100.00		7781	100.00
Calculated Head		1.45			0.3			3		
Assayed Head		**1.53**			**<2**			**<10**		

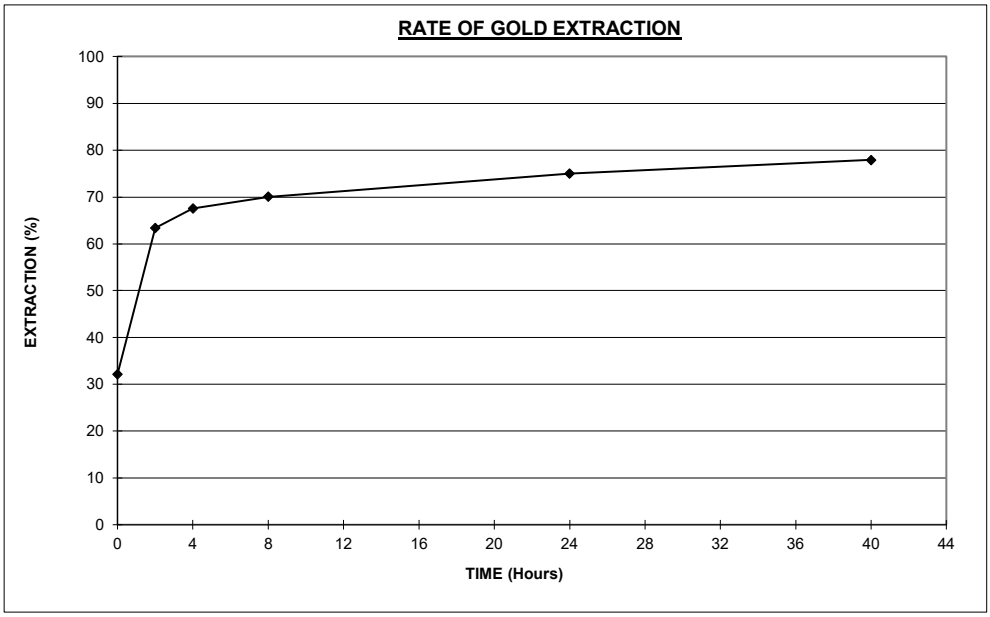
RESIDUE ASSAYS (ppm)

Au	0.32
Ag	0.15
As	2.5
S	0.08%
S2-	0.06%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3652.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.09 (kg/t)
13. Lime consum'n (kg/t) : 0.67 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7161**
SAMPLE ID	**CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-5)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2978.4	3640.0			8.3	8.08										
0		3640.0	2.55	1.98	20.0	10.52	**0.070**		0.00	0.00	0.00		50.83	5.05	1.38	
2		3615.0	0.00	0.16	22.0	9.70	0.063		0.58	0.40	0.50		85.22	52.15	20.75	
4		3590.0	0.00	0.00	20.3	9.84	0.060		0.61	0.20	0.50		87.30	28.76	20.75	
8		3565.0	0.00	0.00	20.9	9.87	0.060		0.63	0.20	0.50		88.48	28.76	20.75	
24		3540.0	0.00	0.22	20.9	9.72	0.060		0.66	0.40	0.50		90.24	51.82	20.75	
40		3515.0	0.00	0.00	21.8	9.89	0.058		0.71	0.40	0.50		**93.15**	**51.82**	**20.75**	
TOTAL			2.55	2.36												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2978.4	0.14	417	6.85	0.5	1489	48.18	2.50	7446	79.25
Solution (mL)	3515.0	0.710	2496	41.01	0.40	1406	45.48	0.50	1758	18.70
Solution Samples *			80	1.31		40	1.29		63	0.67
Gravity		1.0	**3094**	**50.83**		**156**	**5.05**		**130**	**1.38**
Total Extraction				**93.15**			**51.82**			**20.75**
Total			6086	100.00		3091	100.00		9396	100.00
Calculated Head		2.04			1.0			3		
Assayed Head		**1.46**			**<2**			**<10**		

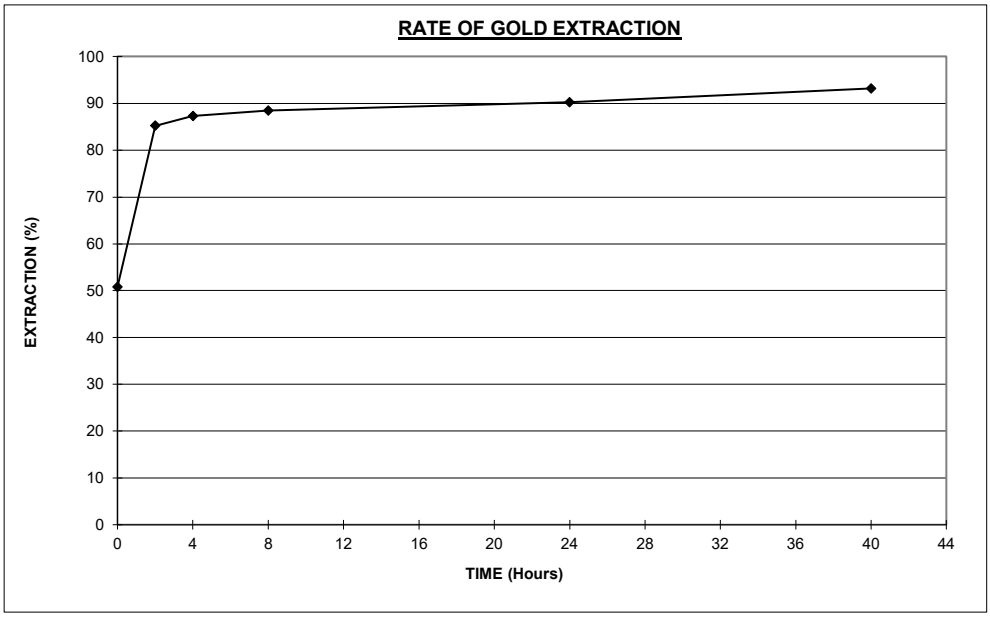
RESIDUE ASSAYS (ppm)

Au	0.14
Ag	0.5
As	2.5
S	0.06%
S2-	0.04%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3640.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.86 (kg/t)
12. NaCN consum'n (kg/t) : 0.15 (kg/t)
13. Lime consum'n (kg/t) : 0.79 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7174**
SAMPLE ID	**CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-5)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
[h]	Ore [g]	Water [mL]	NaCN [g]	Lime [g]	Oxygen [ppm]	pH	NaCN [%, w/v]		Au [ppm]	Ag [ppm]	As [ppm]		Au [%]	Ag [%]	As [%]	
	2978.4	3640.0			6.9	7.86										
0		3640.0	1.82	2.18	20.0	10.54	**0.050**		0.00	0.00	0.00		36.94	6.18	1.63	
2		3615.0	0.00	0.00	23.4	9.87	0.045		0.52	0.28	0.05		79.59	68.38	3.98	
4		3590.0	0.00	0.00	26.4	9.83	0.043		0.55	0.28	0.05		82.06	68.38	3.98	
8		3565.0	0.00	0.07	22.3	9.75	0.043		0.58	0.28	0.05		84.51	68.38	3.98	
24		3540.0	0.00	0.00	21.7	9.68	0.043		0.62	0.30	0.05		88.16	72.73	3.98	
40		3515.0	0.00	0.00	23.5	9.86	0.043		0.65	0.30	0.05		**90.17**	**72.73**	**3.98**	
TOTAL			1.82	2.25												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2978.4	0.15	432	9.83	0.2	447	27.27	2.50	7446	96.02
Solution (mL)	3515.0	0.645	2267	51.58	0.30	1055	64.35	0.05	176	2.27
Solution Samples *			73	1.65		36	2.20		6	0.08
Gravity		0.5	**1624**	**36.94**		**101**	**6.18**		**127**	**1.63**
Total Extraction				**90.17**			**72.73**			**3.98**
Total			4395	100.00		1639	100.00		7755	100.00
Calculated Head		1.48			0.6			3		
Assayed Head		**1.46**			**<2**			**<10**		

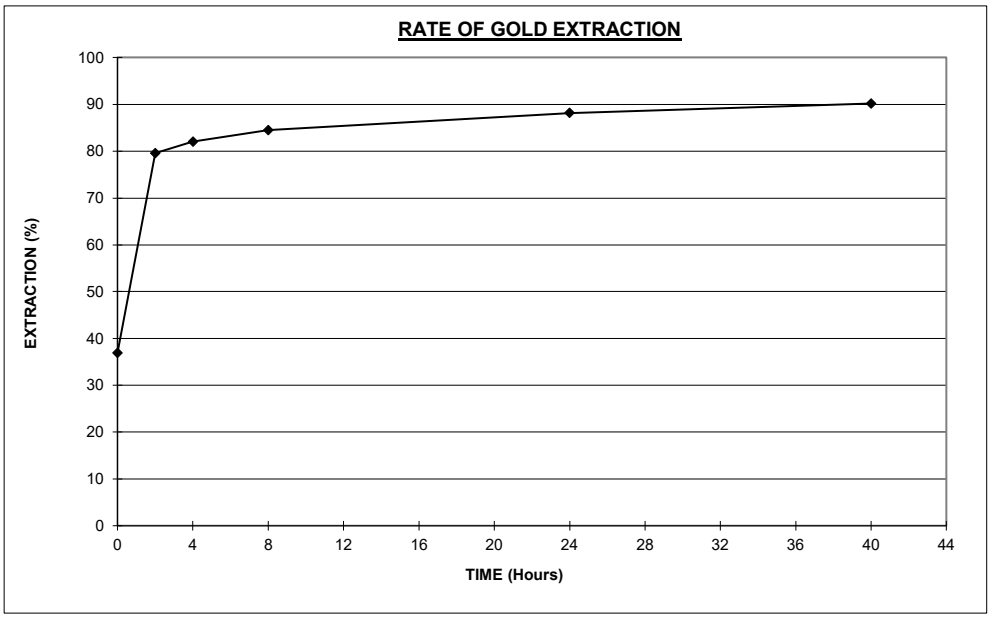
RESIDUE ASSAYS (ppm)

Au	0.15
Ag	0.15
As	2.5
S	0.06%
S2-	0.04%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3640.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.09 (kg/t)
13. Lime consum'n (kg/t) : 0.76 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7187**
SAMPLE ID	**CHEGUE SOUTH TRANS MASTER COMPOSITE (MC-5)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
[h]	Ore [g]	Water [mL]	NaCN [g]	Lime [g]	Oxygen [ppm]	pH	NaCN [%, w/v]		Au [ppm]	Ag [ppm]	As [ppm]		Au [%]	Ag [%]	As [%]	
	2978.4	3640.0			8.2	8.15										
0		3640.0	1.09	1.75	20.0	10.53	**0.030**		0.00	0.00	0.00		44.61	9.38	0.83	
2		3615.0	0.00	0.00	24.1	9.88	0.028		0.53	0.26	0.05		77.05	67.90	2.03	
4		3590.0	0.00	0.00	21.7	9.84	0.025		0.59	0.28	0.05		80.70	72.37	2.03	
8		3565.0	0.00	0.00	28.6	9.83	0.023		0.62	0.28	0.05		82.21	72.37	2.03	
24		3540.0	0.00	0.21	25.1	9.53	0.023		0.67	0.28	0.05		85.50	72.37	2.03	
40		3515.0	0.00	0.00	29.3	9.84	0.023		0.72	0.28	0.05		**88.48**	**72.37**	**2.03**	
TOTAL			1.09	1.96												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2978.4	0.23	685	11.52	0.2	447	27.63	5.00	14892	97.97
Solution (mL)	3515.0	0.720	2531	42.56	0.28	984	60.86	0.05	176	1.16
Solution Samples *			78	1.31		35	2.13		6	0.04
Gravity		0.9	**2653**	**44.61**		**152**	**9.38**		**126**	**0.83**
Total Extraction				**88.48**			**72.37**			**2.03**
Total			5947	100.00		1617	100.00		15200	100.00
Calculated Head		2.00			0.5			5		
Assayed Head		**1.46**			**<2**			**<10**		

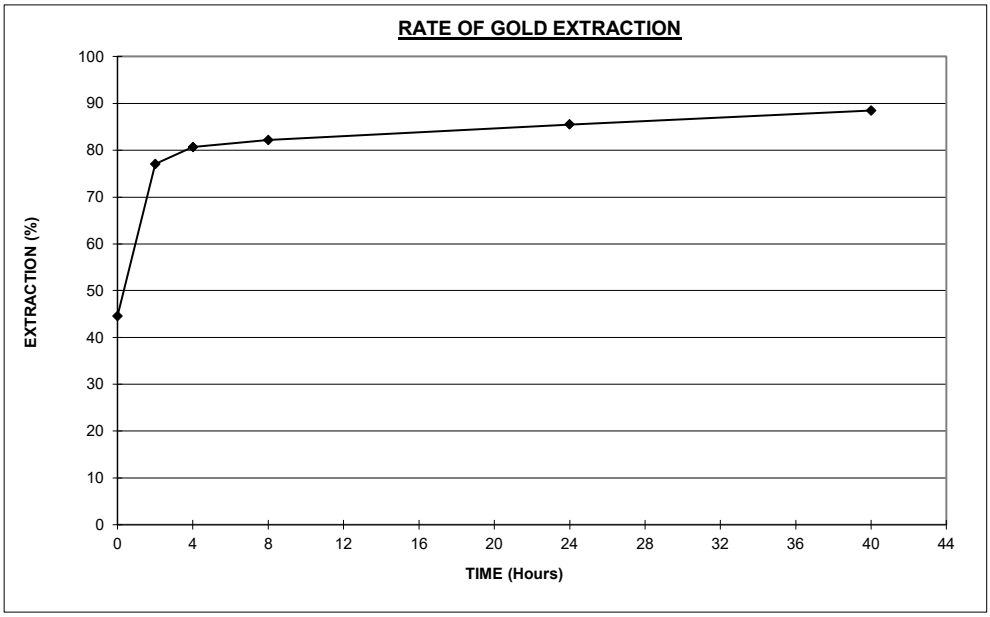
RESIDUE ASSAYS (ppm)

Au	0.23
Ag	0.15
As	5
S	0.04%
S2-	0.04%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3640.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.08 (kg/t)
13. Lime consum'n (kg/t) : 0.66 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7216**
SAMPLE ID	**CHEGUE SOUTH FRESH MASTER COMPOSITE (MC-17)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2998.2	3664.0			8.4	8.09										
0		3664.0	2.57	1.18	20.0	10.57	**0.070**		0.00	0.00	0.00		48.16	22.99	1.51	
2		3639.0	0.00	0.00	24.1	10.36	0.068		0.34	0.10	0.05		57.49	48.53	3.86	
4		3614.0	0.00	0.00	22.7	10.24	0.065		0.42	0.14	0.05		59.54	58.68	3.86	
8		3589.0	0.00	0.00	20.6	10.31	0.063		0.52	0.14	0.05		62.38	58.68	3.86	
24		3564.0	0.00	0.00	27.2	10.11	0.060		0.82	0.16	0.05		70.45	63.68	3.86	
40		3539.0	0.00	0.00	23.5	10.45	0.060		0.99	0.18	0.05		**74.85**	**68.65**	**3.86**	
TOTAL			2.57	1.18												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2998.2	1.12	3358	25.15	0.2	450	31.35	3	7496	96.14
Solution (mL)	3539.0	0.985	3486	26.11	0.18	637	44.41	0.05	177	2.27
Solution Samples *			77	0.58		18	1.25		6	0.08
Gravity		2.1	**6431**	**48.16**		**330**	**22.99**		**118**	**1.51**
Total Extraction				**74.85**			**68.65**			**3.86**
Total			13352	100.00		1435	100.00		7796	100.00
Calculated Head		4.45			0.5			3		
Assayed Head		**4.27**			**<2**			**10**		

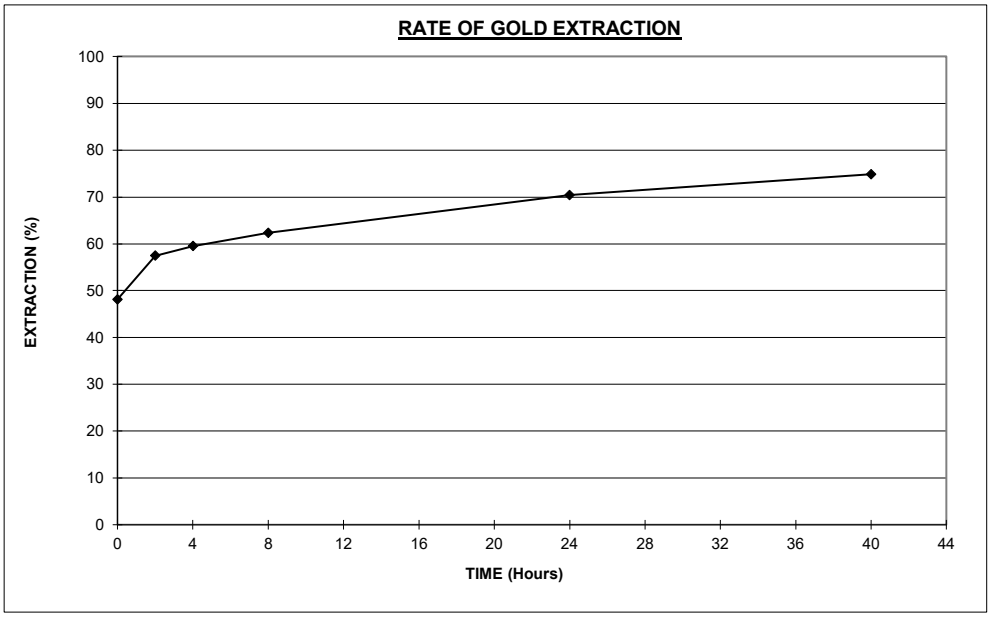
RESIDUE ASSAYS (ppm)

Au	1.12
Ag	0.15
As	2.5
S	0.20%
S2-	0.20%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3664.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.86 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.39 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7224**
SAMPLE ID	**CHEGUE SOUTH FRESH MASTER COMPOSITE (MC-17)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2998.2	3664.0			7.3	7.82										
0		3664.0	1.83	1.04	20.0	10.54	**0.050**		0.00	0.00	0.00		47.13	22.42	0.13	
2		3639.0	0.00	0.00	20.1	10.22	0.045		0.32	0.10	0.05		55.48	52.01	0.33	
4		3614.0	0.00	0.00	22.6	10.22	0.045		0.44	0.12	0.05		58.47	57.88	0.33	
8		3589.0	0.00	0.00	23.3	10.17	0.043		0.56	0.12	0.05		61.56	57.88	0.33	
24		3564.0	0.00	0.00	24.2	10.15	0.043		0.81	0.14	0.05		67.95	63.68	0.33	
40		3539.0	0.00	0.00	23.1	10.16	0.043		1.02	0.14	0.05		**73.41**	**63.68**	**0.33**	
TOTAL			1.83	1.04												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2998.2	1.25	3733	26.59	0.2	450	36.32	30	89946	99.67
Solution (mL)	3539.0	1.020	3610	25.72	0.14	495	40.01	0.05	177	0.20
Solution Samples *			78	0.56		16	1.25		6	0.01
Gravity		2.2	**6616**	**47.13**		**278**	**22.42**		**116**	**0.13**
Total Extraction				**73.41**			**63.68**			**0.33**
Total			14037	100.00		1238	100.00		90245	100.00
Calculated Head		4.68			0.4			30		
Assayed Head		**4.27**			**<2**			**10**		

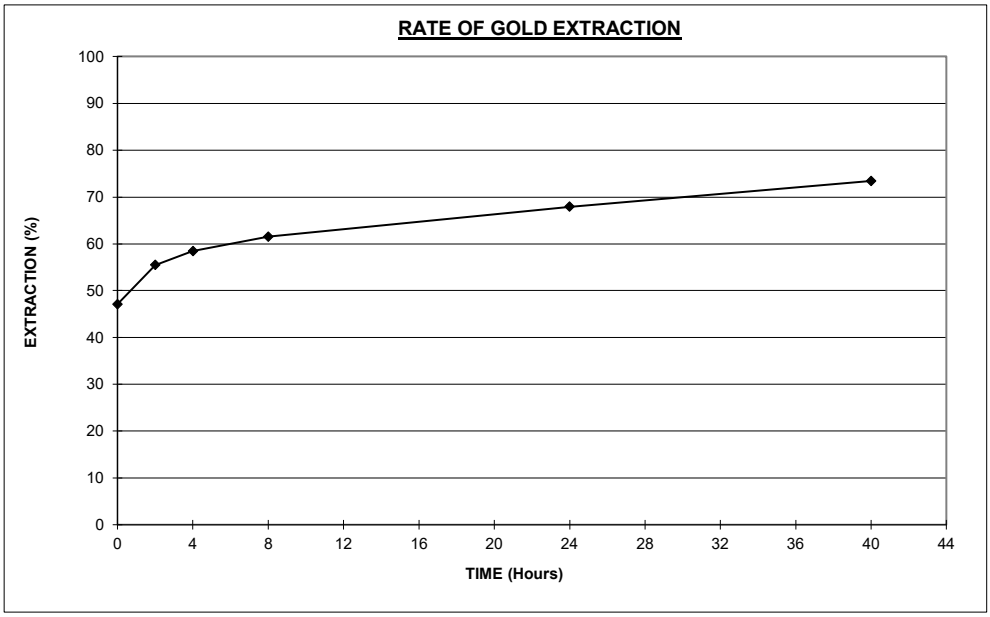
RESIDUE ASSAYS (ppm)

Au	1.25
Ag	0.15
As	30
S	0.20%
S2-	0.20%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3664.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.08 (kg/t)
13. Lime consum'n (kg/t) : 0.35 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7236**
SAMPLE ID	**CHEGUE SOUTH FRESH MASTER COMPOSITE (MC-17)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2998.2	3664.0			8.9	8.10										
0		3664.0	1.10	0.71	20.0	10.56	**0.030**		0.00	0.00	0.00		44.64	22.58	0.71	
2		3639.0	0.00	0.00	24.8	10.08	0.028		0.23	0.08	0.05		52.75	48.15	1.90	
4		3614.0	0.00	0.00	26.7	9.91	0.028		0.30	0.10	0.05		55.03	54.50	1.90	
8		3589.0	0.00	0.00	31.7	9.99	0.028		0.36	0.10	0.05		57.29	54.50	1.90	
24		3564.0	0.00	0.00	28.0	9.98	0.023		0.52	0.12	0.05		62.82	60.76	1.90	
40		3539.0	0.00	0.00	23.2	9.91	0.023		0.67	0.12	0.05		**67.96**	**60.76**	**1.90**	
TOTAL			1.10	0.71												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2998.2	1.11	3328	32.04	0.2	450	39.24	5	14991	98.10
Solution (mL)	3539.0	0.670	2371	22.83	0.12	425	37.05	0.05	177	1.16
Solution Samples *			52	0.50		13	1.13		6	0.04
Gravity		1.5	**4637**	**44.64**		**259**	**22.58**		**108**	**0.71**
Total Extraction				**67.96**			**60.76**			**1.90**
Total			10388	100.00		1146	100.00		15282	100.00
Calculated Head		3.46			0.4			5		
Assayed Head		**4.27**			**<2**			**10**		

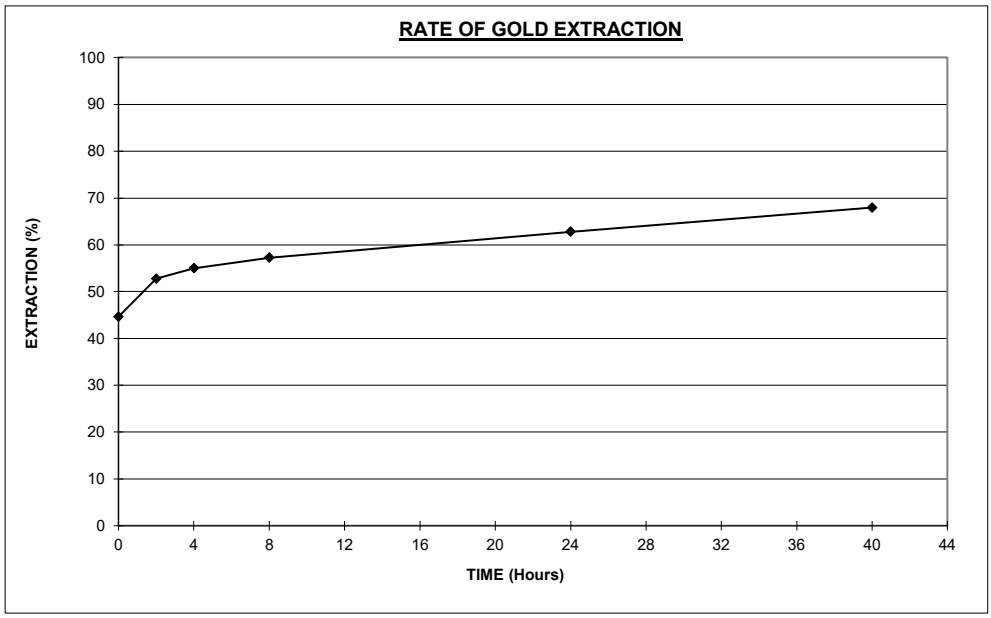
RESIDUE ASSAYS (ppm)

Au	1.11	
Ag	0.15	TBC
As	5	TBC
S		
S2-		

* : Intermediate solution samples removed during the test.

COMMENTS

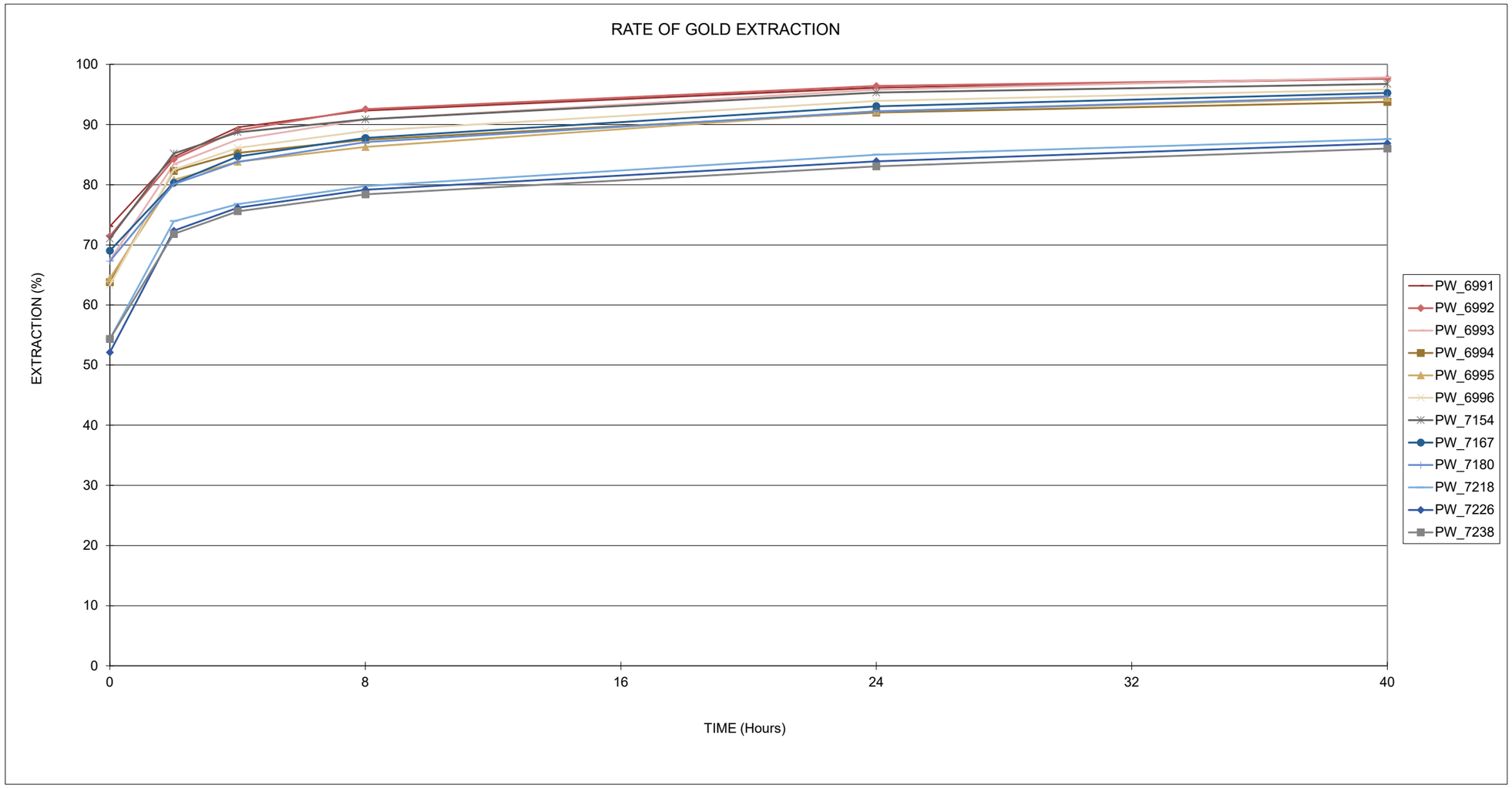
1. Start % NaCN :	0.030	(%)
2. Maintain % NaCN :	0.02	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3664.0	(g)
8. Grind size P 80 :	75	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.37	(kg/t)
12. NaCN consum'n (kg/t) :	0.08	(kg/t)
13. Lime consum'n (kg/t) :	0.24	(kg/t)



PROJECT	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
DATE	2/05/2023

SUMMARY

TEST No	SAMPLE ID	GRIND SIZE (P80, µm)	O2 / AIR SPARGE	% NaCN (Init / Mtn)	% Solids (w/w)	DCN OR CIL	GOLD HEAD GRADE (g/t)		GOLD DISTRIBUTION (g/t)			GOLD DISTRIBUTION (%)			TOTAL GOLD RECOVERY (%)	REAGENTS (kg/t)	
							Assayed	Calculated	Gravity	Leach	Residue	Gravity	Leach	Residue		NaCN	Lime
PW_6991	HAN TRANS MASTER COMPOSITE (MC-19)	125	O2	0.10 / 0.05	45	DCN	13.31	10.43	7.62	2.56	0.25	73.1	24.5	2.4	97.6	0.15	0.34
PW_6992	HAN TRANS MASTER COMPOSITE (MC-19)	106	O2	0.10 / 0.05	45	DCN	13.31	12.40	8.86	3.25	0.29	71.5	26.2	2.3	97.7	0.15	0.32
PW_6993	HAN TRANS MASTER COMPOSITE (MC-19)	75	O2	0.10 / 0.05	45	DCN	13.31	12.62	8.51	3.84	0.27	67.4	30.5	2.1	97.9	0.15	0.42
	AVERAGE CALCULATED HEAD GRADE							**11.82**									
PW_6994	HAN FRESH MASTER COMPOSITE (MC-20)	125	O2	0.10 / 0.05	45	DCN	3.68	3.04	1.94	0.91	0.19	63.8	29.9	6.2	93.8	0.15	0.52
PW_6995	HAN FRESH MASTER COMPOSITE (MC-20)	106	O2	0.10 / 0.05	45	DCN	3.68	3.43	2.21	1.03	0.19	64.4	30.0	5.5	94.5	0.18	0.39
PW_6996	HAN FRESH MASTER COMPOSITE (MC-20)	75	O2	0.10 / 0.05	45	DCN	3.68	3.38	2.14	1.10	0.14	63.3	32.5	4.1	95.9	0.18	0.48
	AVERAGE CALCULATED HEAD GRADE							**3.28**									
PW_7154	HAN TRANS MASTER COMPOSITE (MC-19)	106	O2	0.07 / 0.04	45	DCN	13.31	12.36	8.78	3.18	0.40	71.0	25.7	3.2	96.8	0.13	0.31
PW_7167	HAN TRANS MASTER COMPOSITE (MC-19)	106	O2	0.05 / 0.03	45	DCN	13.31	11.36	7.84	2.98	0.54	69.0	26.2	4.8	95.2	0.08	0.38
PW_7180	HAN TRANS MASTER COMPOSITE (MC-19)	106	O2	0.03 / 0.02	45	DCN	13.31	11.46	7.71	3.14	0.61	67.3	27.4	5.3	94.7	0.06	0.44
	AVERAGE CALCULATED HEAD GRADE							**11.73**									
PW_7218	HAN FRESH MASTER COMPOSITE (MC-20)	75	O2	0.07 / 0.04	45	DCN	3.68	3.22	1.75	1.07	0.40	54.4	33.2	12.4	87.6	0.14	0.38
PW_7226	HAN FRESH MASTER COMPOSITE (MC-20)	75	O2	0.05 / 0.03	45	DCN	3.68	3.81	1.98	1.32	0.50	52.1	34.7	13.1	86.9	0.12	0.35
PW_7238	HAN FRESH MASTER COMPOSITE (MC-20)	75	O2	0.03 / 0.02	45	DCN	3.68	3.22	1.75	1.02	0.45	54.3	31.7	14.0	86.0	0.08	0.31
	AVERAGE CALCULATED HEAD GRADE							**3.41**									



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6991**
SAMPLE ID	**HAN TRANS MASTER COMPOSITE (MC-19)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2994.6	3660.0			8.9	7.99										
0		3660.0	3.66	1.03	20.0	10.55	**0.100**		0.00	0.00	0.00		73.07	37.20	0.05	
2		3635.0	0.00	0.00	23.0	10.25	0.095		0.99	0.24	0.05		84.61	59.08	0.35	
4		3610.0	0.00	0.00	22.9	10.11	0.093		1.41	0.28	0.05		89.56	62.70	0.35	
8		3585.0	0.00	0.00	21.3	10.13	0.093		1.65	0.28	0.05		92.33	62.70	0.35	
24		3560.0	0.00	0.00	20.7	10.25	0.088		1.98	0.28	0.05		96.12	62.70	0.35	
40		3535.0	0.00	0.00	24.9	10.21	0.088		2.11	0.28	0.05		**97.60**	**62.70**	**0.35**	
TOTAL			3.66	1.03												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2994.6	0.25	749	2.40	0.5	1497	37.30	20	59892	99.65
Solution (mL)	3535.0	2.110	7459	23.88	0.28	990	24.66	0.05	177	0.29
Solution Samples *			203	0.65		34	0.85		6	0.01
Gravity		7.6	**22818**	**73.07**		**1493**	**37.20**		**30**	**0.05**
Total Extraction				**97.60**			**62.70**			**0.35**
Total			31229	100.00		4014	100.00		60105	100.00
Calculated Head		10.4			1.3			20		
Assayed Head		**13.3**			**<2**			**<10**		

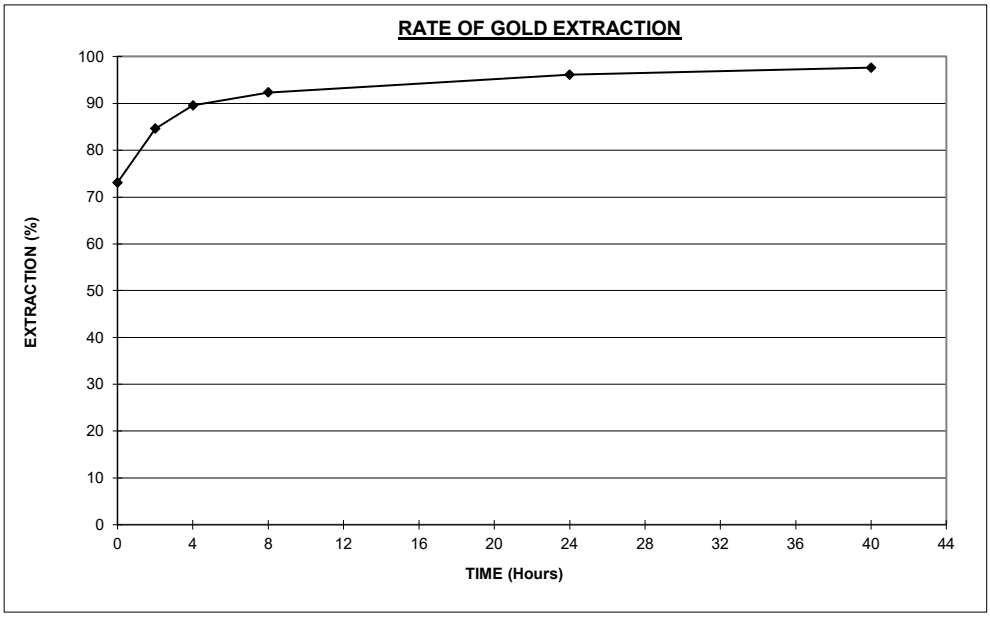
RESIDUE ASSAYS (ppm)

Au	0.25
Ag	0.5
As	20
S	0.36%
S2-	0.30%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3660.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.15 (kg/t)
13. Lime consum'n (kg/t) : 0.34 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6992**
SAMPLE ID	**HAN TRANS MASTER COMPOSITE (MC-19)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2994.6	3660.0			9.0	8.01										
0		3660.0	3.66	0.96	20.0	10.58	**0.100**		0.00	0.00	0.00		71.45	37.49	0.03	
2		3635.0	0.00	0.00	22.1	10.23	0.098		1.30	0.26	0.05		84.26	59.22	0.20	
4		3610.0	0.00	0.00	22.3	10.10	0.093		1.79	0.30	0.05		89.06	62.54	0.20	
8		3585.0	0.00	0.00	25.3	10.15	0.088		2.15	0.32	0.05		92.56	64.19	0.20	
24		3560.0	0.00	0.00	25.9	10.24	0.088		2.55	0.32	0.05		96.42	64.19	0.20	
40		3535.0	0.00	0.00	27.4	10.22	0.088		2.68	0.34	0.05		**97.66**	**65.81**	**0.20**	
TOTAL			3.66	0.96												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2994.6	0.29	868	2.34	0.5	1497	34.19	35	104811	99.80
Solution (mL)	3535.0	2.680	9474	25.50	0.34	1202	27.44	0.05	177	0.17
Solution Samples *			262	0.70		39	0.88		6	0.01
Gravity		8.9	**26542**	**71.45**		**1642**	**37.49**		**29**	**0.03**
Total Extraction				**97.66**			**65.81**			**0.20**
Total			37146	100.00		4380	100.00		105023	100.00
Calculated Head		12.4			1.5			35		
Assayed Head		**13.3**			**<2**			**<10**		

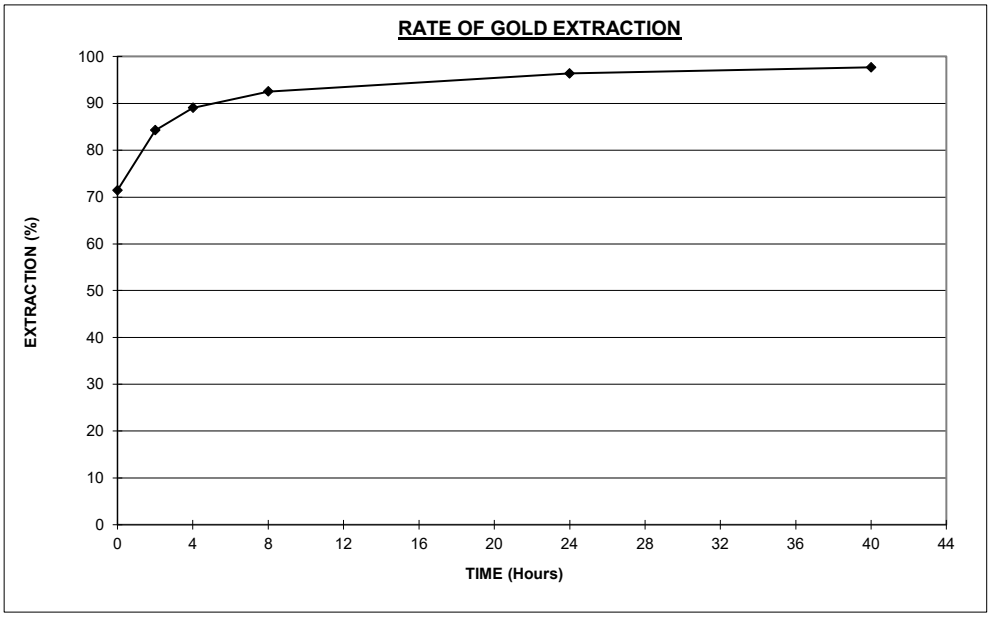
RESIDUE ASSAYS (ppm)

Au	0.29
Ag	0.5
As	35
S	0.36%
S2-	0.30%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3660.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.15 (kg/t)
13. Lime consum'n (kg/t) : 0.32 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6993**
SAMPLE ID	**HAN TRANS MASTER COMPOSITE (MC-19)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2994.6	3660.0			9.1	7.83										
0		3660.0	3.66	1.26	20.0	10.54	**0.100**		0.00	0.00	0.00		67.40	35.22	0.13	
2		3635.0	0.00	0.00	23.1	10.35	0.090		1.65	0.30	0.05		83.38	60.52	0.38	
4		3610.0	0.00	0.00	16.2	10.17	0.090		2.08	0.32	0.05		87.52	62.19	0.38	
8		3585.0	0.00	0.00	25.5	10.24	0.090		2.43	0.34	0.05		90.86	63.85	0.38	
24		3560.0	0.00	0.00	24.1	10.35	0.088		2.95	0.36	0.05		95.79	65.51	0.38	
40		3535.0	0.00	0.00	26.1	10.31	0.088		3.17	0.36	0.05		**97.86**	**65.51**	**0.38**	
TOTAL			3.66	1.26												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2994.6	0.27	809	2.14	0.5	1497	34.49	25	74865	99.62
Solution (mL)	3535.0	3.170	11206	29.64	0.36	1273	29.32	0.05	177	0.24
Solution Samples *			307	0.81		42	0.97		6	0.01
Gravity		8.5	**25480**	**67.40**		**1529**	**35.22**		**101**	**0.13**
Total Extraction				**97.86**			**65.51**			**0.38**
Total			37802	100.00		4341	100.00		75149	100.00
Calculated Head		12.6			1.4			25		
Assayed Head		**13.3**			**<2**			**<10**		

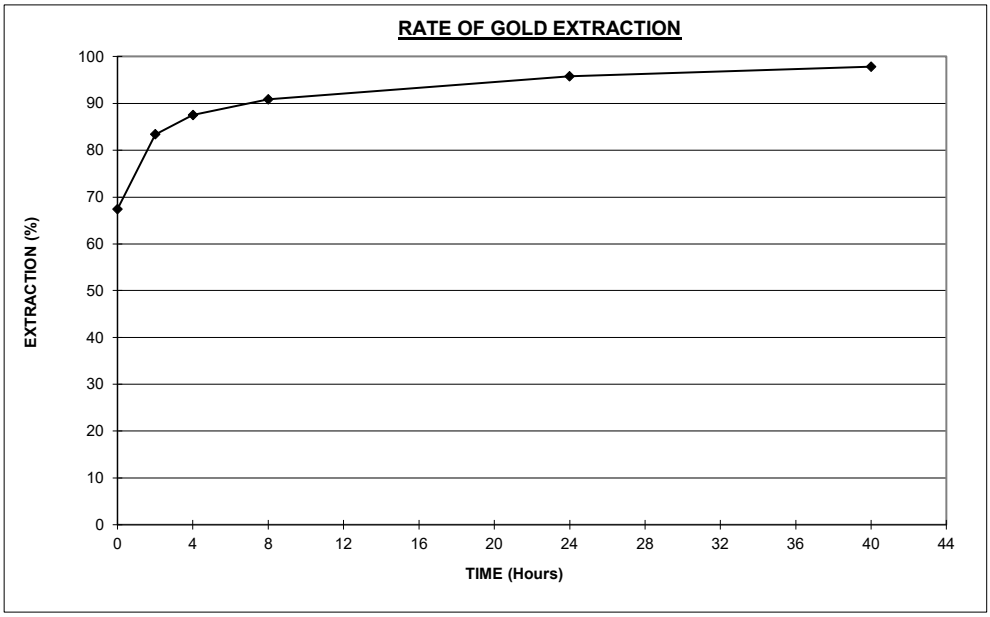
RESIDUE ASSAYS (ppm)

Au	0.27
Ag	0.5
As	25
S	0.36%
S2-	0.30%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3660.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.15 (kg/t)
13. Lime consum'n (kg/t) : 0.42 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6994**
SAMPLE ID	**HAN FRESH MASTER COMPOSITE (MC-20)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2997.0	3663.0			8.8	7.88										
0		3663.0	3.66	1.55	20.0	10.62	**0.100**		0.00	0.00	0.00		63.81	18.85	2.40	
2		3638.0	0.00	0.00	21.5	10.57	0.090		0.46	0.16	0.05		82.29	41.66	4.73	
4		3613.0	0.00	0.00	15.7	10.51	0.090		0.54	0.16	0.05		85.29	41.66	4.73	
8		3588.0	0.00	0.00	19.0	10.40	0.090		0.59	0.16	0.05		87.47	41.66	4.73	
24		3563.0	0.00	0.00	17.3	10.33	0.088		0.71	0.16	0.05		91.99	41.66	4.73	
40		3538.0	0.00	0.00	22.0	10.39	0.088		0.75	0.16	0.05		**93.75**	**41.66**	**4.73**	
TOTAL			3.66	1.55												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2997.0	0.19	569	6.25	0.5	1499	58.34	3	7493	95.27
Solution (mL)	3538.0	0.750	2654	29.11	0.16	566	22.04	0.05	177	2.25
Solution Samples *			76	0.83		20	0.78		6	0.08
Gravity		1.9	**5816**	**63.81**		**484**	**18.85**		**189**	**2.40**
Total Extraction				**93.75**			**41.66**			**4.73**
Total			9115	100.00		2569	100.00		7864	100.00
Calculated Head		3.04			0.9			3		
Assayed Head		**3.68**			**<2**			**<10**		

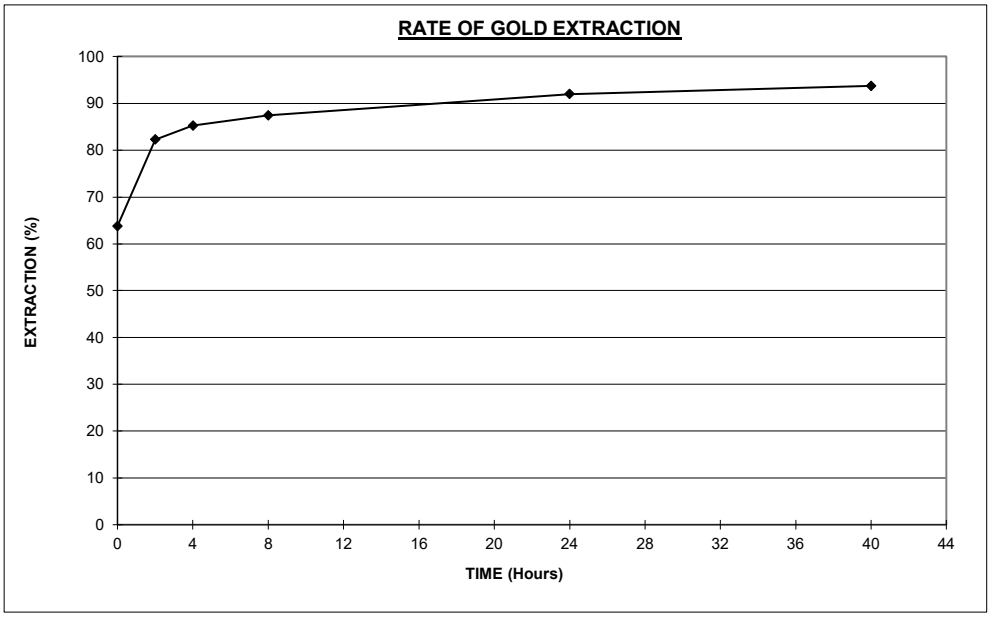
RESIDUE ASSAYS (ppm)

Au	0.19
Ag	0.5
As	2.5
S	0.54%
S2-	0.54%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3663.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.15 (kg/t)
13. Lime consum'n (kg/t) : 0.52 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW**
SAMPLE ID	**HAN FRESH MASTER COMPOSITE (MC-20)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2997.0	3663.0			8.6	7.90										
0		3663.0	3.66	1.18	20.0	10.50	**0.100**		0.00	0.00	0.00		64.42	19.90	0.40	
2		3638.0	0.00	0.00	22.4	10.17	0.095		0.46	0.14	0.05		80.81	39.61	2.78	
4		3613.0	0.00	0.00	18.4	10.18	0.095		0.55	0.14	0.05		83.82	39.61	2.78	
8		3588.0	0.00	0.00	17.8	10.10	0.090		0.62	0.16	0.05		86.28	42.39	2.78	
24		3563.0	0.00	0.00	20.3	10.02	0.088		0.79	0.16	0.05		92.21	42.39	2.78	
40		3538.0	0.00	0.00	24.1	10.11	0.085		0.85	0.16	0.05		**94.46**	**42.39**	**2.78**	
TOTAL			3.66	1.18												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2997.0	0.19	569	5.54	0.5	1499	57.61	3	7493	97.22
Solution (mL)	3538.0	0.850	3007	29.25	0.16	566	21.76	0.05	177	2.30
Solution Samples *			81	0.79		19	0.73		6	0.08
Gravity		2.2	**6624**	**64.42**		**518**	**19.90**		**31**	**0.40**
Total Extraction				**94.46**			**42.39**			**2.78**
Total			10282	100.00		2601	100.00		7706	100.00
Calculated Head		3.43			0.9			3		
Assayed Head		**3.68**			**<2**			**<10**		

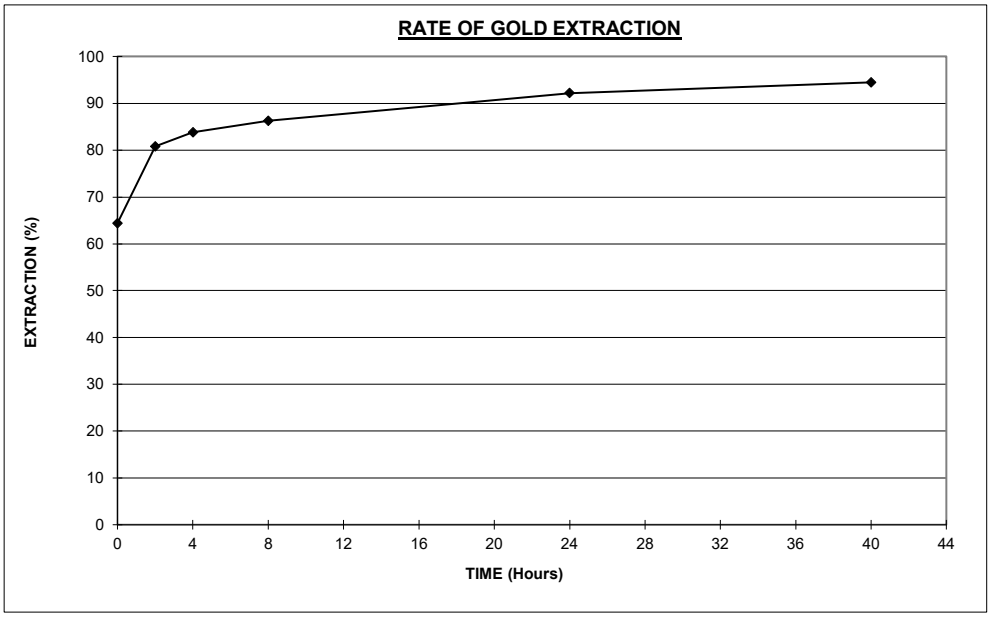
RESIDUE ASSAYS (ppm)

Au	0.19
Ag	0.5
As	2.5
S	0.56%
S2-	0.56%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3663.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 0.39 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW**
SAMPLE ID	**HAN FRESH MASTER COMPOSITE (MC-20)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As	Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]	[%]	[%]	[%]	
	2997.0	3663.0			8.6	7.87									
0		3663.0	3.66	1.43	20.0	10.53	**0.100**		0.00	0.00	0.00	63.33	17.21	0.73	
2		3638.0	0.00	0.00	20.6	10.37	0.093		0.53	0.16	0.05	82.51	39.71	3.10	
4		3613.0	0.00	0.00	22.1	10.31	0.093		0.63	0.16	0.05	86.10	39.71	3.10	
8		3588.0	0.00	0.00	20.0	10.26	0.088		0.71	0.16	0.05	88.96	39.71	3.10	
24		3563.0	0.00	0.00	22.6	10.17	0.085		0.85	0.18	0.05	93.92	42.47	3.10	
40		3538.0	0.00	0.00	22.4	10.26	0.085		0.91	0.18	0.05	**95.86**	**42.47**	**3.10**	
TOTAL			3.66	1.43											

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2997.0	0.14	420	4.14	0.5	1499	57.53	3	7493	96.90
Solution (mL)	3538.0	0.905	3202	31.63	0.18	637	24.45	0.05	177	2.29
Solution Samples *			91	0.90		21	0.81		6	0.08
Gravity		2.1	**6412**	**63.33**		**448**	**17.21**		**57**	**0.73**
Total Extraction				**95.86**			**42.47**			**3.10**
Total			10124	100.00		2605	100.00		7732	100.00
Calculated Head		3.38			0.9			3		
Assayed Head		**3.68**			**<2**			**<10**		

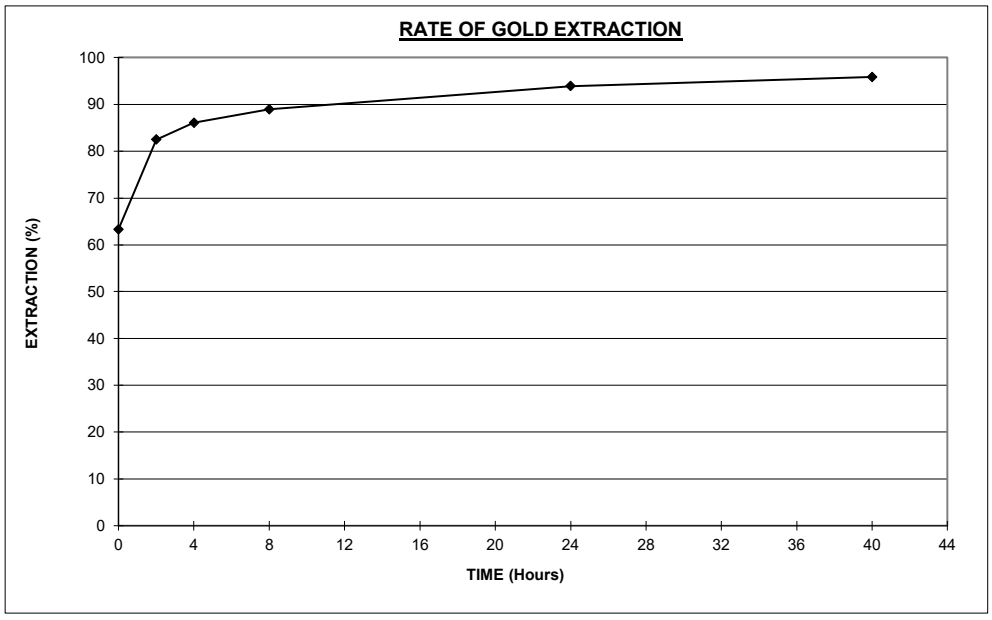
RESIDUE ASSAYS (ppm)

Au	0.14
Ag	0.5
As	2.5
S	0.54%
S2-	0.54%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	> 0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3663.0	(g)
8. Grind size P 80 :	75	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.18	(kg/t)
13. Lime consum'n (kg/t) :	0.48	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7154**
SAMPLE ID	**HAN TRANS MASTER COMPOSITE (MC-19)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2994.6	3660.0			9.1	7.86										
0		3660.0	2.58	0.93	20.0	20.00	**0.070**		0.00	0.00	0.00		71.05	48.04	3.32	
2		3635.0	0.00	0.00	23.4	9.90	0.063		1.43	0.30	0.05		85.19	80.39	5.62	
4		3610.0	0.00	0.00	18.5	9.88	0.063		1.79	0.32	0.05		88.72	82.53	5.62	
8		3585.0	0.00	0.00	22.0	9.84	0.060		2.01	0.34	0.05		90.87	84.65	5.62	
24		3560.0	0.00	0.00	16.6	9.96	0.060		2.47	0.36	0.05		95.32	86.77	5.62	
40		3535.0	0.00	0.00	22.0	9.85	0.060		2.62	0.36	0.05		**96.76**	**86.77**	**5.62**	
TOTAL			2.58	0.93												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2994.6	0.40	1198	3.24	0.2	449	13.23	3	7487	94.38
Solution (mL)	3535.0	2.620	9262	25.02	0.36	1273	37.49	0.05	177	2.23
Solution Samples *			258	0.70		42	1.24		6	0.08
Gravity		8.8	**26300**	**71.05**		**1631**	**48.04**		**263**	**3.32**
Total Extraction				**96.76**			**86.77**			**5.62**
Total			37018	100.00		3394	100.00		7933	100.00
Calculated Head		12.4			1.1			3		
Assayed Head		**13.3**			**<2**			**<10**		

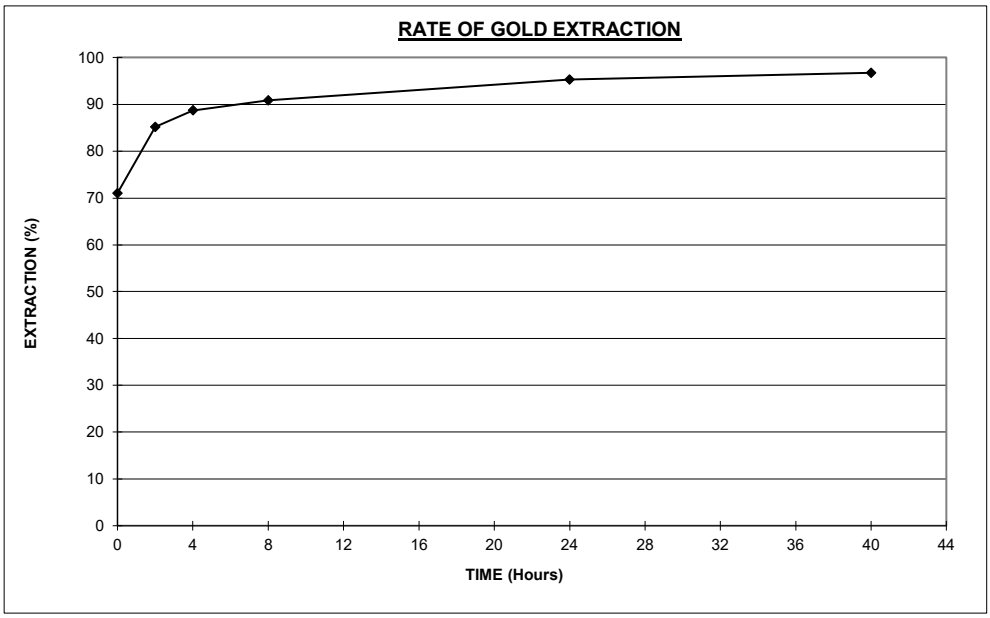
RESIDUE ASSAYS (ppm)

Au	0.40
Ag	0.15
As	2.5
S	0.42%
S2-	0.36%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3660.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.86 (kg/t)
12. NaCN consum'n (kg/t) : 0.13 (kg/t)
13. Lime consum'n (kg/t) : 0.31 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7167**
SAMPLE ID	**HAN TRANS MASTER COMPOSITE (MC-19)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2994.6	3660.0			8.0	7.85										
0		3660.0	1.83	1.13	20.0	10.50	**0.050**		0.00	0.00	0.00		69.02	34.66	0.44	
2		3635.0	0.00	0.00	20.7	10.13	0.048		1.05	0.26	0.05		80.32	56.79	1.04	
4		3610.0	0.00	0.00	18.3	10.03	0.045		1.46	0.30	0.05		84.70	60.17	1.04	
8		3585.0	0.00	0.00	20.6	10.04	0.043		1.75	0.32	0.05		87.78	61.85	1.04	
24		3560.0	0.00	0.00	20.7	9.98	0.043		2.25	0.36	0.05		93.05	65.18	1.04	
40		3535.0	0.00	0.00	20.8	10.04	0.043		2.46	0.36	0.05		**95.25**	**65.18**	**1.04**	
TOTAL			1.83	1.13												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2994.6	0.54	1617	4.75	0.5	1497	34.82	10	29946	98.96
Solution (mL)	3535.0	2.460	8696	25.57	0.36	1273	29.59	0.05	177	0.58
Solution Samples *			224	0.66		40	0.93		6	0.02
Gravity		7.8	**23472**	**69.02**		**1490**	**34.66**		**133**	**0.44**
Total Extraction				**95.25**			**65.18**			**1.04**
Total			34009	100.00		4300	100.00		30262	100.00
Calculated Head		11.4			1.4			10		
Assayed Head		**13.3**			**<2**			**<10**		

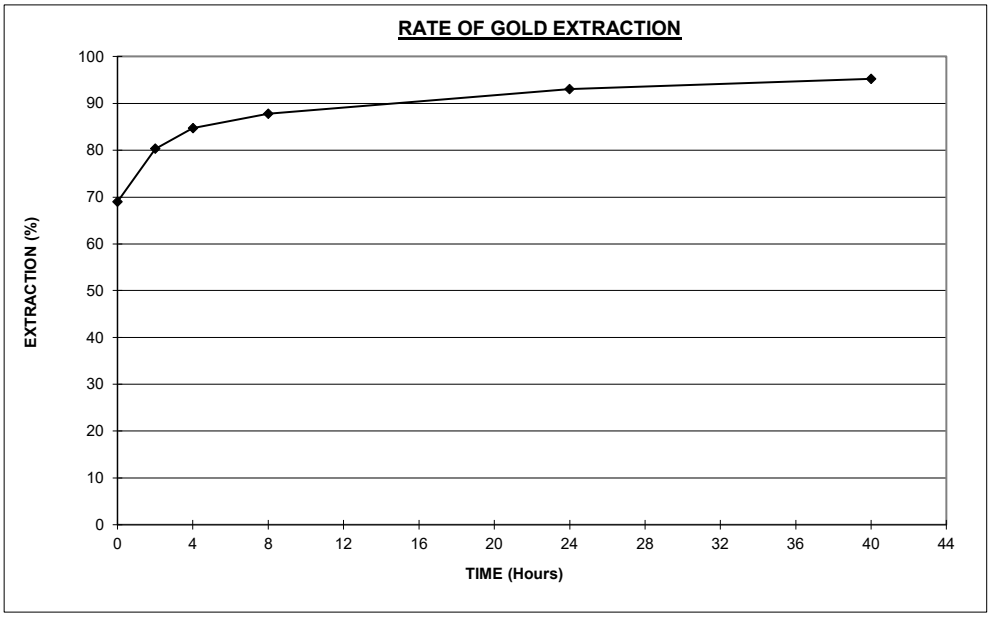
RESIDUE ASSAYS (ppm)

Au	0.54
Ag	0.5
As	10
S	0.44%
S2-	0.32%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3660.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.08 (kg/t)
13. Lime consum'n (kg/t) : 0.38 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7180**
SAMPLE ID	**HAN TRANS MASTER COMPOSITE (MC-19)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2994.8	3660.0			7.3	7.63										
0		3660.0	1.10	1.33	20.0	10.50	**0.030**		0.00	0.00	0.00		67.30	46.25	1.81	
2		3635.0	0.00	0.00	20.4	10.01	0.028		1.20	0.28	0.05		80.10	76.27	4.15	
4		3610.0	0.00	0.00	20.9	10.04	0.025		1.55	0.32	0.05		83.81	80.53	4.15	
8		3585.0	0.00	0.00	22.4	10.01	0.025		1.86	0.36	0.05		87.07	84.76	4.15	
24		3560.0	0.00	0.00	22.6	9.93	0.025		2.35	0.36	0.05		92.19	84.76	4.15	
40		3535.0	0.00	0.00	22.4	9.94	0.025		2.59	0.38	0.05		**94.68**	**86.84**	**4.15**	
TOTAL			1.10	1.33												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2994.8	0.61	1827	5.32	0.2	449	13.16	3	7487	95.85
Solution (mL)	3535.0	2.590	9156	26.68	0.38	1343	39.34	0.05	177	2.26
Solution Samples *			239	0.70		43	1.24		6	0.08
Gravity		7.7	**23096**	**67.30**		**1579**	**46.25**		**141**	**1.81**
Total Extraction				**94.68**			**86.84**			**4.15**
Total			34317	100.00		3414	100.00		7811	100.00
Calculated Head		11.5			1.1			3		
Assayed Head		**13.3**			**<2**			**<10**		

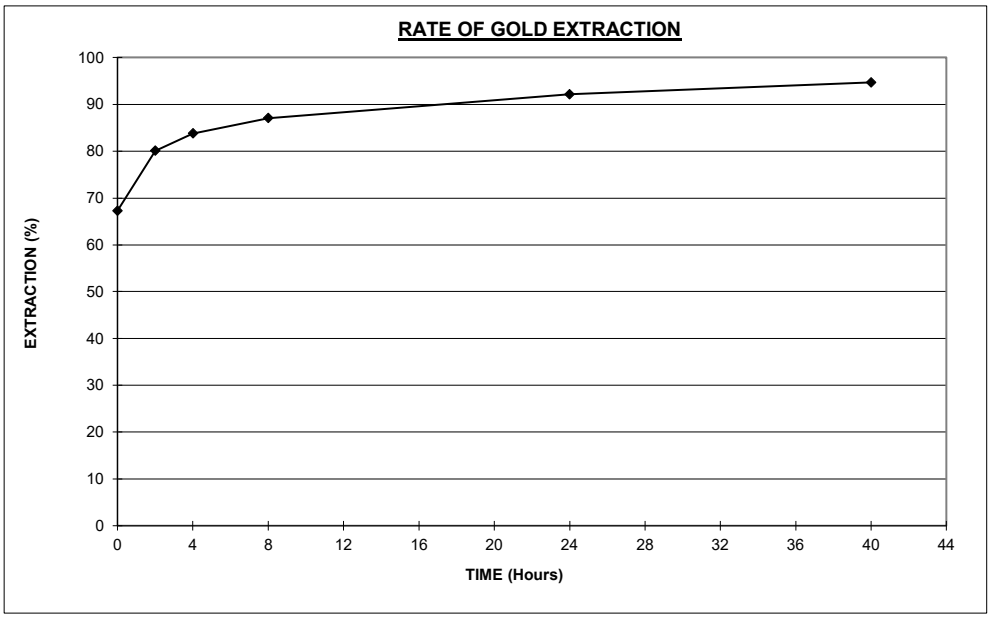
RESIDUE ASSAYS (ppm)

Au	0.61
Ag	0.15
As	2.5
S	0.38%
S2-	0.38%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.040 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3660.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.06 (kg/t)
13. Lime consum'n (kg/t) : 0.44 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7218**
SAMPLE ID	**HAN FRESH MASTER COMPOSITE (MC-20)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2997.0	3663.0			8.0	8.00										
0		3663.0	2.56	1.14	20.0	10.55	**0.070**		0.00	0.00	0.00		54.36	21.20	1.69	
2		3638.0	0.00	0.00	22.4	10.26	0.065		0.52	0.18	0.05		73.93	65.23	4.04	
4		3613.0	0.00	0.00	27.3	10.15	0.063		0.59	0.16	0.05		76.76	60.37	4.04	
8		3588.0	0.00	0.00	34.4	10.23	0.060		0.67	0.18	0.05		79.76	65.19	4.04	
24		3563.0	0.00	0.00	30.4	10.03	0.058		0.81	0.20	0.05		84.97	69.98	4.04	
40		3538.0	0.00	0.00	25.9	10.30	0.058		0.88	0.20	0.05		**87.56**	**69.98**	**4.04**	
TOTAL			2.56	1.14												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2997.0	0.40	1199	12.44	0.2	450	30.02	3	7493	95.96
Solution (mL)	3538.0	0.880	3113	32.30	0.20	708	47.25	0.05	177	2.27
Solution Samples *			87	0.90		23	1.54		6	0.08
Gravity		1.7	**5239**	**54.36**		**318**	**21.20**		**132**	**1.69**
Total Extraction				**87.56**			**69.98**			**4.04**
Total			9638	100.00		1498	100.00		7808	100.00
Calculated Head		3.22			0.5			3		
Assayed Head		**3.68**			**<2**			**<10**		

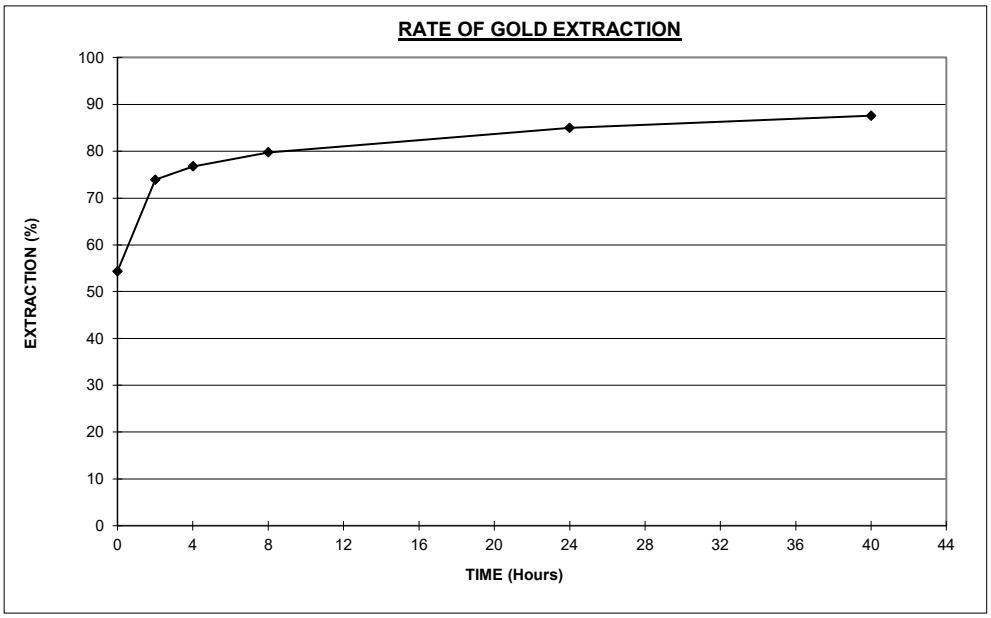
RESIDUE ASSAYS (ppm)

Au	0.40
Ag	0.15
As	2.5
S	0.60%
S2-	0.44%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3663.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.85 (kg/t)
12. NaCN consum'n (kg/t) : 0.14 (kg/t)
13. Lime consum'n (kg/t) : 0.38 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7226**
SAMPLE ID	**HAN FRESH MASTER COMPOSITE (MC-20)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2997.0	3663.0			7.0	7.73										
0		3663.0	1.83	1.04	20.0	10.55	**0.050**		0.00	0.00	0.00		52.13	21.33	1.56	
2		3638.0	0.00	0.00	25.6	10.20	0.045		0.63	0.18	0.05		72.35	62.72	3.91	
4		3613.0	0.00	0.00	23.1	10.16	0.040		0.75	0.20	0.05		76.18	67.28	3.91	
8		3588.0	0.00	0.00	22.7	10.12	0.040		0.85	0.20	0.05		79.19	67.28	3.91	
24		3563.0	0.00	0.00	23.2	10.09	0.040		1.00	0.22	0.05		83.90	71.79	3.91	
40		3538.0	0.00	0.00	22.8	10.12	0.040		1.09	0.22	0.05		**86.87**	**71.79**	**3.91**	
TOTAL			1.83	1.04												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2997.0	0.50	1499	13.13	0.2	450	28.21	3	7493	96.09
Solution (mL)	3538.0	1.090	3856	33.79	0.22	778	48.85	0.05	177	2.27
Solution Samples *			108	0.94		26	1.60		6	0.08
Gravity		2.0	**5949**	**52.13**		**340**	**21.33**		**121**	**1.56**
Total Extraction				**86.87**			**71.79**			**3.91**
Total			11411	100.00		1593	100.00		7797	100.00
Calculated Head		3.81			0.5			3		
Assayed Head		**3.68**			**<2**			**<10**		

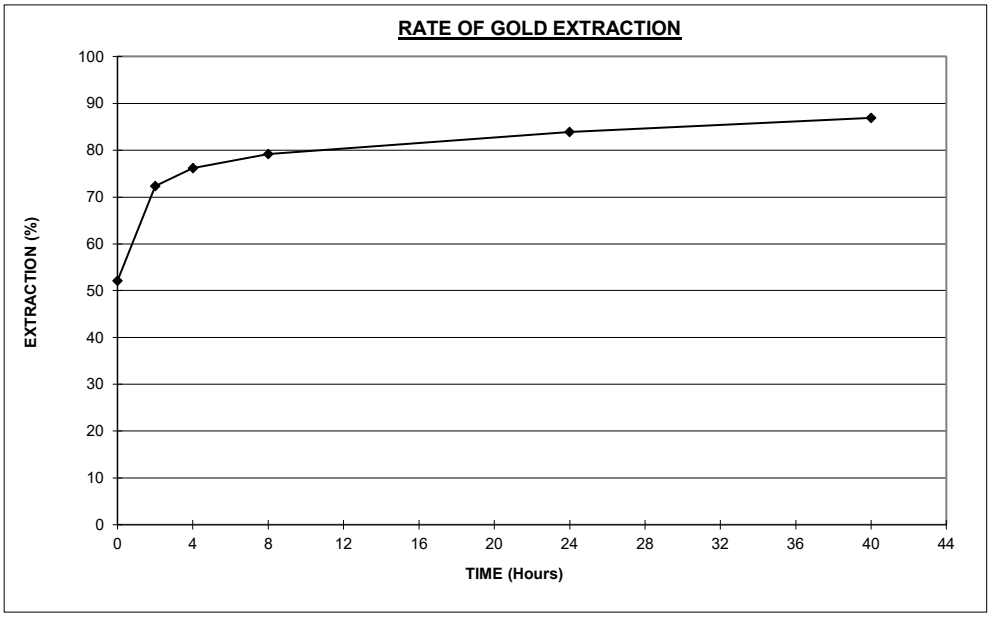
RESIDUE ASSAYS (ppm)

Au	0.50
Ag	0.15
As	2.5
S	0.58%
S2-	0.54%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3663.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.35 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7238**
SAMPLE ID	**HAN FRESH MASTER COMPOSITE (MC-20)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2997.0	3663.0			8.7	8.02										
0		3663.0	1.10	0.92	20.0	10.58	**0.030**		0.00	0.00	0.00		54.35	21.21	3.33	
2		3638.0	0.00	0.00	23.9	10.04	0.033		0.46	0.14	0.05		71.82	55.46	5.64	
4		3613.0	0.00	0.00	25.3	9.98	0.028		0.56	0.18	0.05		75.59	65.18	5.64	
8		3588.0	0.00	0.00	20.6	9.98	0.028		0.64	0.18	0.05		78.40	65.18	5.64	
24		3563.0	0.00	0.00	28.9	9.91	0.023		0.76	0.20	0.05		83.06	69.97	5.64	
40		3538.0	0.00	0.00	29.0	9.98	0.023		0.84	0.20	0.05		**86.01**	**69.97**	**5.64**	
TOTAL			1.10	0.92												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2997.0	0.45	1349	13.99	0.2	450	30.03	3	7493	94.36
Solution (mL)	3538.0	0.840	2972	30.82	0.20	708	47.26	0.05	177	2.23
Solution Samples *			81	0.84		23	1.50		6	0.08
Gravity		1.7	**5240**	**54.35**		**318**	**21.21**		**265**	**3.33**
Total Extraction				**86.01**			**69.97**			**5.64**
Total			9642	100.00		1497	100.00		7940	100.00
Calculated Head		3.22			0.5			3		
Assayed Head		**3.68**			**<2**			**<10**		

RESIDUE ASSAYS (ppm)

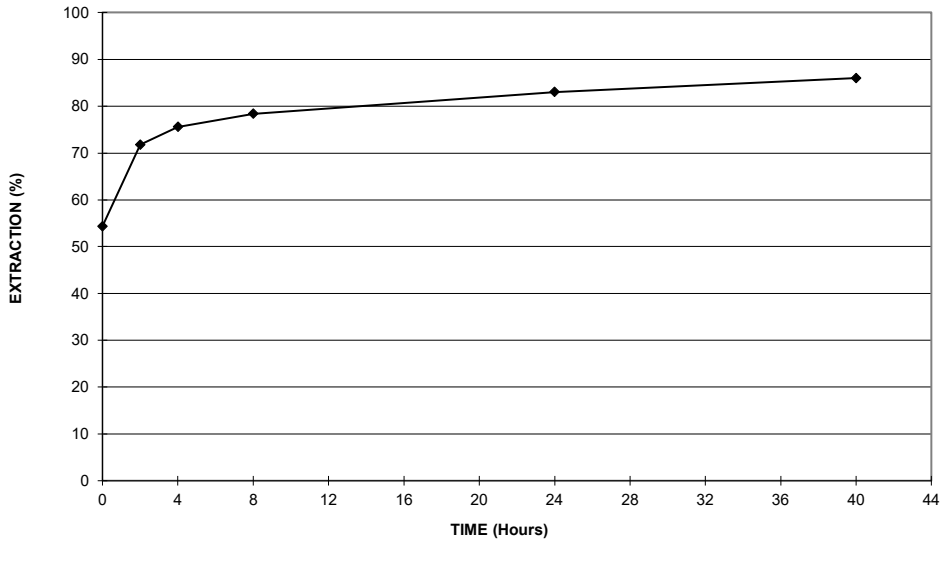
Au	0.45	
Ag	0.15	TBC
As	2.5	TBC
S		
S2-		

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.030	(%)
2. Maintain % NaCN :	0.02	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3663.0	(g)
8. Grind size P 80 :	75	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.37	(kg/t)
12. NaCN consum'n (kg/t) :	0.08	(kg/t)
13. Lime consum'n (kg/t) :	0.31	(kg/t)

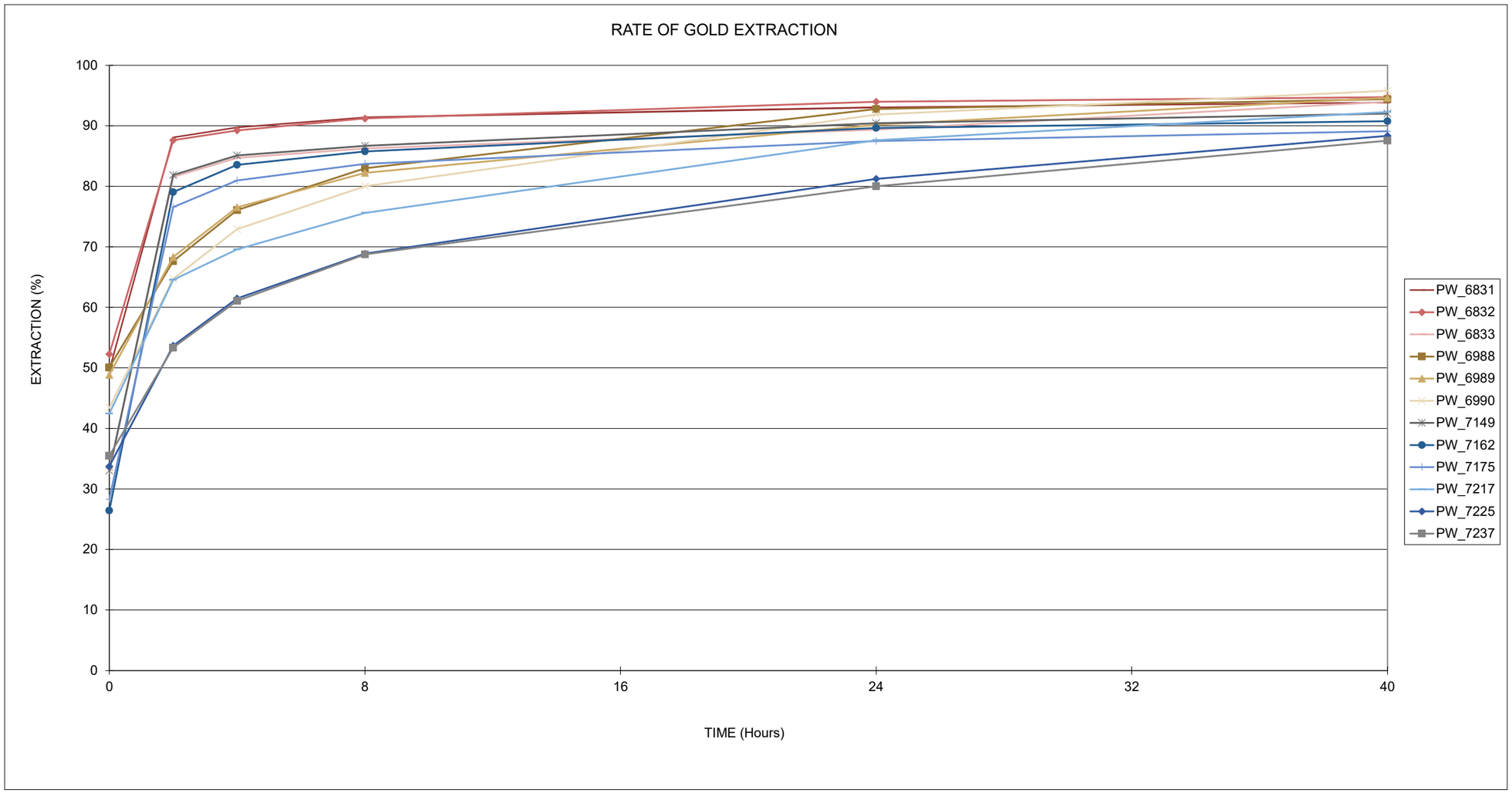
RATE OF GOLD EXTRACTION



PROJECT	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
DATE	2/05/2023

SUMMARY

TEST No	SAMPLE ID	GRIND SIZE (P80, µm)	O2 / AIR SPARGE	% NaCN (Init / Mtn)	% Solids (w/w)	DCN OR CIL	GOLD HEAD GRADE (g/t)		GOLD DISTRIBUTION (g/t)			GOLD DISTRIBUTION (%)			TOTAL GOLD RECOVERY (%)	REAGENTS (kg/t)	
							Assayed	Calculated	Gravity	Leach	Residue	Gravity	Leach	Residue		NaCN	Lime
PW_6831	KEKEDA TRANSITION MASTER COMPOSITE (MC-6)	125	O2	0.10 / 0.05	45	DCN	1.05	1.46	0.72	0.65	0.09	49.6	44.2	6.2	93.8	0.24	0.43
PW_6832	KEKEDA TRANSITION MASTER COMPOSITE (MC-6)	106	O2	0.10 / 0.05	45	DCN	1.05	1.52	0.80	0.65	0.08	52.3	42.5	5.3	94.7	0.27	0.39
PW_6833	KEKEDA TRANSITION MASTER COMPOSITE (MC-6)	75	O2	0.10 / 0.05	45	DCN	1.05	1.16	0.38	0.71	0.07	33.1	60.9	6.0	94.0	0.27	0.36
	AVERAGE CALCULATED HEAD GRADE							**1.38**									
PW_6988	KEKEDA FRESH MASTER COMPOSITE (MC-18)	125	O2	0.10 / 0.05	45	DCN	3.56	3.66	1.83	1.62	0.21	50.1	44.3	5.6	94.4	0.15	0.47
PW_6989	KEKEDA FRESH MASTER COMPOSITE (MC-18)	106	O2	0.10 / 0.05	45	DCN	3.56	3.17	1.55	1.45	0.17	48.9	45.8	5.4	94.6	0.15	0.43
PW_6990	KEKEDA FRESH MASTER COMPOSITE (MC-18)	75	O2	0.10 / 0.05	45	DCN	3.56	3.33	1.44	1.74	0.14	43.4	52.4	4.2	95.8	0.18	0.45
	AVERAGE CALCULATED HEAD GRADE							**3.39**									
PW_7149	KEKEDA TRANSITION MASTER COMPOSITE (MC-6)	106	O2	0.07 / 0.04	45	DCN	1.05	1.13	0.37	0.66	0.09	33.0	59.0	8.0	92.0	0.13	0.64
PW_7162	KEKEDA TRANSITION MASTER COMPOSITE (MC-6)	106	O2	0.05 / 0.03	45	DCN	1.05	1.08	0.29	0.69	0.10	26.4	64.3	9.3	90.7	0.12	0.55
PW_7175	KEKEDA TRANSITION MASTER COMPOSITE (MC-6)	106	O2	0.03 / 0.02	45	DCN	1.05	1.10	0.31	0.67	0.12	28.3	60.8	10.9	89.1	0.06	0.55
	AVERAGE CALCULATED HEAD GRADE							**1.10**									
PW_7217	KEKEDA FRESH MASTER COMPOSITE (MC-18)	75	O2	0.07 / 0.04	45	DCN	3.56	4.59	1.95	2.29	0.36	42.4	49.8	7.7	92.3	0.18	0.37
PW_7225	KEKEDA FRESH MASTER COMPOSITE (MC-18)	75	O2	0.05 / 0.03	45	DCN	3.56	3.34	1.13	1.82	0.39	33.7	54.6	11.7	88.3	0.12	0.33
PW_7237	KEKEDA FRESH MASTER COMPOSITE (MC-18)	75	O2	0.03 / 0.02	45	DCN	3.56	3.46	1.23	1.80	0.43	35.5	52.1	12.4	87.6	0.06	0.31
	AVERAGE CALCULATED HEAD GRADE							**3.80**									



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6831**
SAMPLE ID	**KEKEDA TRANSITION MASTER COMPOSITE (MC-6)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Dec-22**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
[h]	Ore [g]	Water [mL]	NaCN [g]	Lime [g]	Oxygen [ppm]	pH	NaCN [%, w/v]		Au [ppm]	Ag [ppm]	As [ppm]		Au [%]	Ag [%]	As [%]	
	3000.0	3667.0			8.2	7.85										
0		3667.0	3.67	1.29	8.2	10.52	**0.100**		0.00	0.00	0.00		49.60	13.86	2.85	
2		3642.0	0.00	0.00	24.3	10.07	0.085		0.46	0.30	0.01		88.08	48.38	3.09	
4		3617.0	0.00	0.00	24.0	10.03	0.085		0.48	0.32	0.01		89.74	50.67	3.09	
8		3592.0	0.00	0.00	22.1	10.02	0.083		0.50	0.32	0.10		91.39	50.67	7.53	
24		3567.0	0.00	0.00	19.7	9.85	0.080		0.52	0.34	0.01		93.03	52.92	3.12	
40		3542.0	0.00	0.00	24.9	9.91	0.080		0.53	0.34	0.01		**93.84**	**52.92**	**3.12**	
TOTAL			3.67	1.29												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	3000.0	0.09	270	6.16	0.5	1500	47.08	3	7500	96.88
Solution (mL)	3542.0	0.530	1877	42.82	0.34	1204	37.80	0.01	18	0.23
Solution Samples *			62	1.42		41	1.27		3	0.04
Gravity		0.7	**2174**	**49.60**		**441**	**13.86**		**221**	**2.85**
Total Extraction				**93.84**			**52.92**			**3.12**
Total			4384	100.00		3186	100.00		7741	100.00
Calculated Head		1.46			1.1			3		
Assayed Head		**1.05**			**<2**			**30**		

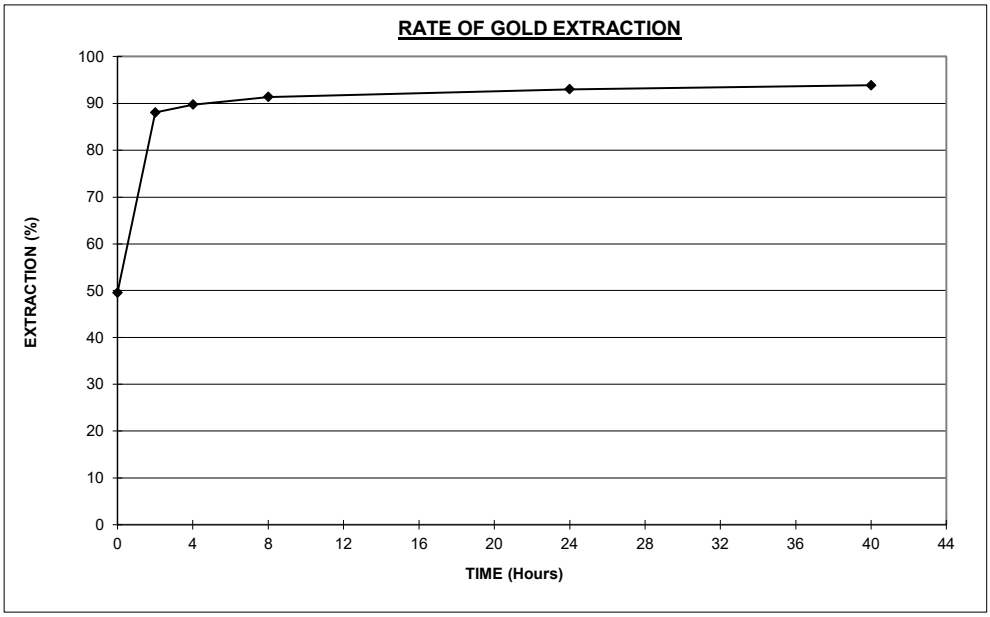
RESIDUE ASSAYS (ppm)

Au	0.09
Ag	0.5
As	2.5
S	0.36%
S2-	0.24%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3667.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.24 (kg/t)
13. Lime consum'n (kg/t) : 0.43 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6832**
SAMPLE ID	**KEKEDA TRANSITION MASTER COMPOSITE (MC-6)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Dec-22**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
[h]	Ore [g]	Water [mL]	NaCN [g]	Lime [g]	Oxygen [ppm]	pH	NaCN [%, w/v]		Au [ppm]	Ag [ppm]	As [ppm]		Au [%]	Ag [%]	As [%]	
	3000.0	3667.0			8.2	7.85										
0		3667.0	3.67	1.17	8.2	10.68	**0.100**		0.00	0.00	0.00		52.27	14.17	1.68	
2		3642.0	0.00	0.00	27.6	10.28	0.088		0.44	0.30	0.01		87.63	49.49	1.80	
4		3617.0	0.00	0.00	25.0	10.00	0.088		0.46	0.32	0.01		89.22	51.83	1.80	
8		3592.0	0.00	0.00	22.4	10.02	0.085		0.49	0.32	0.01		91.20	51.83	1.80	
24		3567.0	0.00	0.00	19.0	9.85	0.080		0.52	0.32	0.01		93.96	51.83	1.80	
40		3542.0	0.00	0.00	25.5	9.87	0.078		0.53	0.32	0.01		**94.74**	**51.83**	**1.80**	
TOTAL			3.67	1.17												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	3000.0	0.08	240	5.26	0.5	1500	48.17	5	15000	98.20
Solution (mL)	3542.0	0.530	1877	41.14	0.32	1133	36.40	0.01	18	0.12
Solution Samples *			61	1.33		40	1.27		1	0.00
Gravity		0.8	**2385**	**52.27**		**441**	**14.17**		**256**	**1.68**
Total Extraction				**94.74**			**51.83**			**1.80**
Total			4563	100.00		3114	100.00		15275	100.00
Calculated Head		1.52			1.0			5		
Assayed Head		**1.05**			**<2**			**30**		

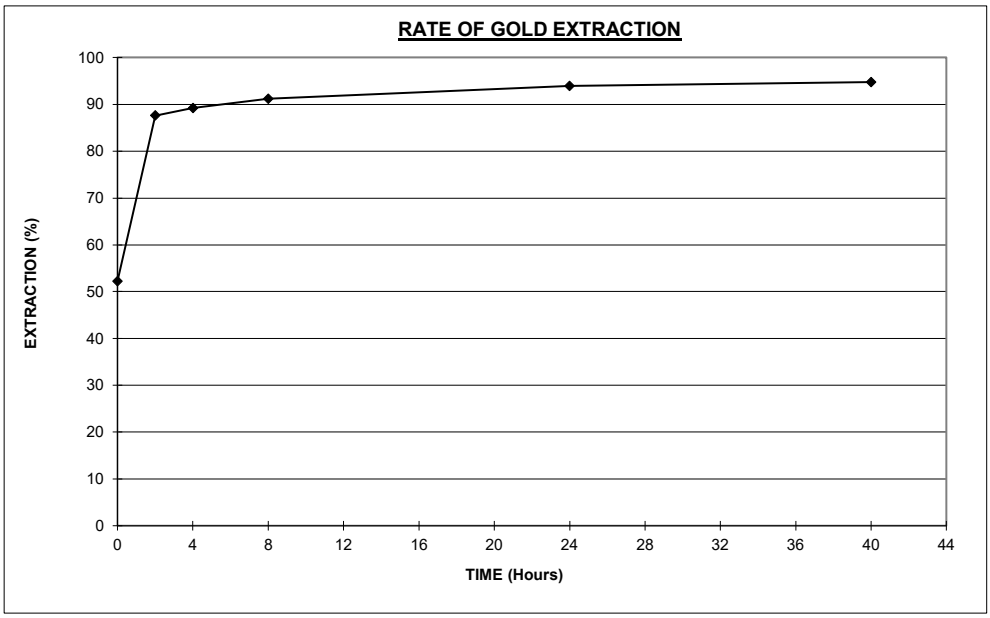
RESIDUE ASSAYS (ppm)

Au	0.08
Ag	0.5
As	5
S	0.34%
S2-	0.28%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3667.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.27 (kg/t)
13. Lime consum'n (kg/t) : 0.39 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6833**
SAMPLE ID	**KEKEDA TRANSITION MASTER COMPOSITE (MC-6)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Dec-22**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
[h]	Ore [g]	Water [mL]	NaCN [g]	Lime [g]	Oxygen [ppm]	pH	NaCN [%, w/v]		Au [ppm]	Ag [ppm]	As [ppm]		Au [%]	Ag [%]	As [%]	
	3000.0	3667.0			8.2	7.86										
0		3667.0	3.67	1.01	8.2	10.55	**0.100**		0.00	0.00	0.00		33.11	2.71	3.26	
2		3642.0	0.00	0.00	25.1	10.03	0.088		0.46	0.32	0.01		81.57	13.85	3.49	
4		3617.0	0.00	0.00	24.6	9.96	0.083		0.49	0.32	0.01		84.70	13.85	3.49	
8		3592.0	0.00	0.00	21.0	9.94	0.083		0.51	0.34	0.01		86.26	14.54	3.49	
24		3567.0	0.00	0.08	20.8	9.75	0.080		0.54	0.34	0.01		89.36	14.54	3.49	
40		3542.0	0.00	0.00	24.2	9.87	0.078		0.58	0.34	0.01		**93.97**	**14.54**	**3.49**	
TOTAL			3.67	1.09												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	3000.0	0.07	210	6.03	3.0	9000	85.46	3	7500	96.51
Solution (mL)	3542.0	0.580	2054	59.01	0.34	1204	11.44	0.01	18	0.23
Solution Samples *			64	1.85		42	0.39		1	0.01
Gravity		0.4	**1153**	**33.11**		**285**	**2.71**		**253**	**3.26**
Total Extraction				**93.97**			**14.54**			**3.49**
Total			3482	100.00		10531	100.00		7771	100.00
Calculated Head		1.16			3.5			3		
Assayed Head		**1.05**			**<2**			**30**		

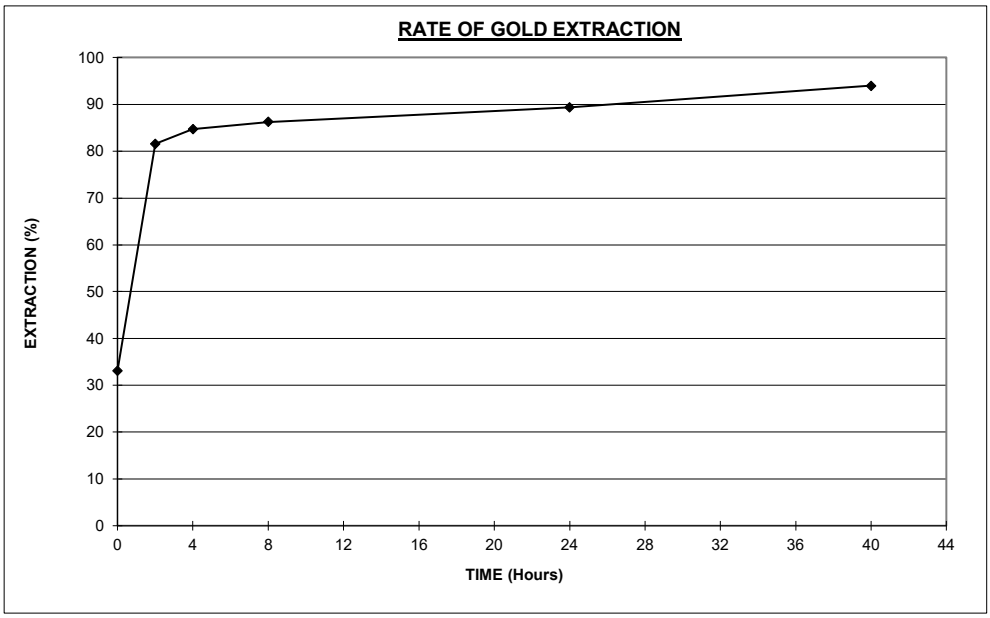
RESIDUE ASSAYS (ppm)

Au	0.07
Ag	3
As	2.5
S	0.34%
S2-	0.26%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3667.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.27 (kg/t)
13. Lime consum'n (kg/t) : 0.36 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6988**
SAMPLE ID	**KEKEDA FRESH MASTER COMPOSITE (MC-18)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2994.6	3660.0			8.9	7.93										
0		3660.0	3.66	1.41	20.0	10.55	**0.100**		0.00	0.00	0.00		50.09	26.10	0.17	
2		3635.0	0.00	0.00	23.2	10.40	0.095		0.53	0.38	0.05		67.61	58.45	0.31	
4		3610.0	0.00	0.00	16.5	10.24	0.095		0.78	0.42	0.05		76.06	61.83	0.31	
8		3585.0	0.00	0.00	24.4	10.32	0.090		0.99	0.44	0.05		82.97	63.51	0.31	
24		3560.0	0.00	0.00	23.1	10.35	0.090		1.29	0.46	0.05		92.78	65.18	0.31	
40		3535.0	0.00	0.00	24.6	10.38	0.088		1.34	0.46	0.05		**94.40**	**65.18**	**0.31**	
TOTAL			3.66	1.41												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2994.6	0.21	614	5.60	0.5	1497	34.82	45	134757	99.69
Solution (mL)	3535.0	1.340	4737	43.19	0.46	1626	37.82	0.05	177	0.13
Solution Samples *			123	1.12		54	1.26		6	0.00
Gravity		1.8	**5494**	**50.09**		**1122**	**26.10**		**234**	**0.17**
Total Extraction				**94.40**			**65.18**			**0.31**
Total			10968	100.00		4300	100.00		135174	100.00
Calculated Head		3.66			1.4			45		
Assayed Head		**3.56**			**<2**			**<10**		

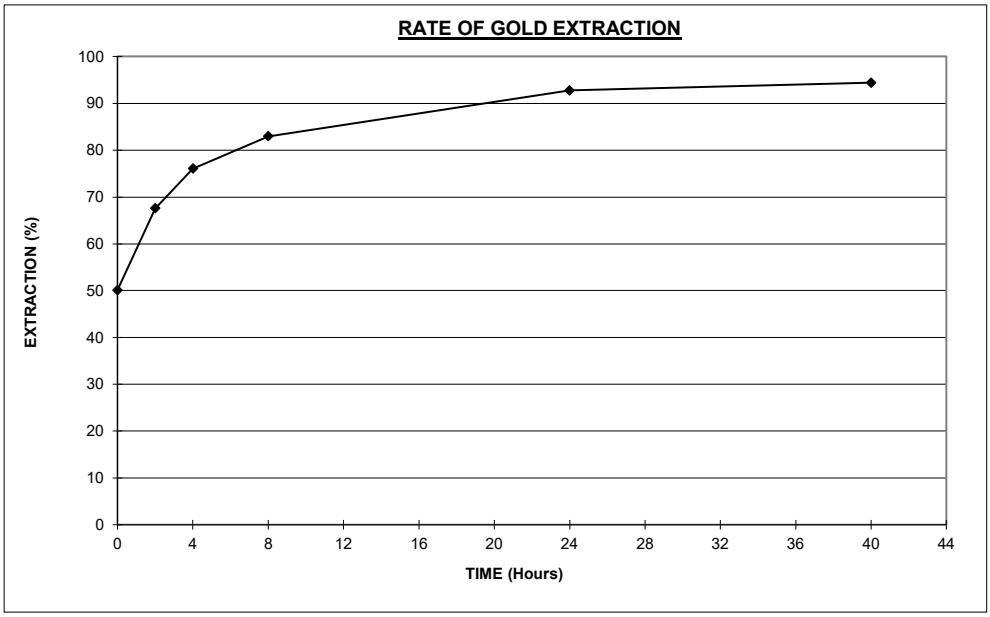
RESIDUE ASSAYS (ppm)

Au	0.21
Ag	0.5
As	45
S	0.54%
S2-	0.36%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3660.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.15 (kg/t)
13. Lime consum'n (kg/t) : 0.47 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6989**
SAMPLE ID	**KEKEDA FRESH MASTER COMPOSITE (MC-18)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As	Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]	[%]	[%]	[%]	
	2994.6	3660.0			8.7	7.78									
0		3660.0	3.66	1.30	20.0	10.58	**0.100**		0.00	0.00	0.00	48.86	27.69	0.12	
2		3635.0	0.00	0.00	23.0	10.36	0.093		0.51	0.40	0.05	68.31	60.25	0.21	
4		3610.0	0.00	0.00	21.9	10.21	0.088		0.72	0.48	0.05	76.53	66.71	0.21	
8		3585.0	0.00	0.00	22.3	10.25	0.088		0.87	0.48	0.05	82.23	66.71	0.21	
24		3560.0	0.00	0.00	21.6	10.34	0.088		1.08	0.46	0.05	90.15	65.12	0.21	
40		3535.0	0.00	0.00	30.0	10.36	0.088		1.20	0.48	0.05	**94.64**	**66.70**	**0.21**	
TOTAL			3.66	1.30											

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2994.6	0.17	509	5.36	0.5	1497	33.30	65	194649	99.79
Solution (mL)	3535.0	1.200	4242	44.64	0.48	1697	37.73	0.05	177	0.09
Solution Samples *			109	1.15		58	1.28		6	0.00
Gravity		1.6	**4643**	**48.86**		**1245**	**27.69**		**233**	**0.12**
Total Extraction				**94.64**			**66.70**			**0.21**
Total			9504	100.00		4497	100.00		195065	100.00
Calculated Head		3.17			1.5			65		
Assayed Head		**3.56**			**<2**			**<10**		

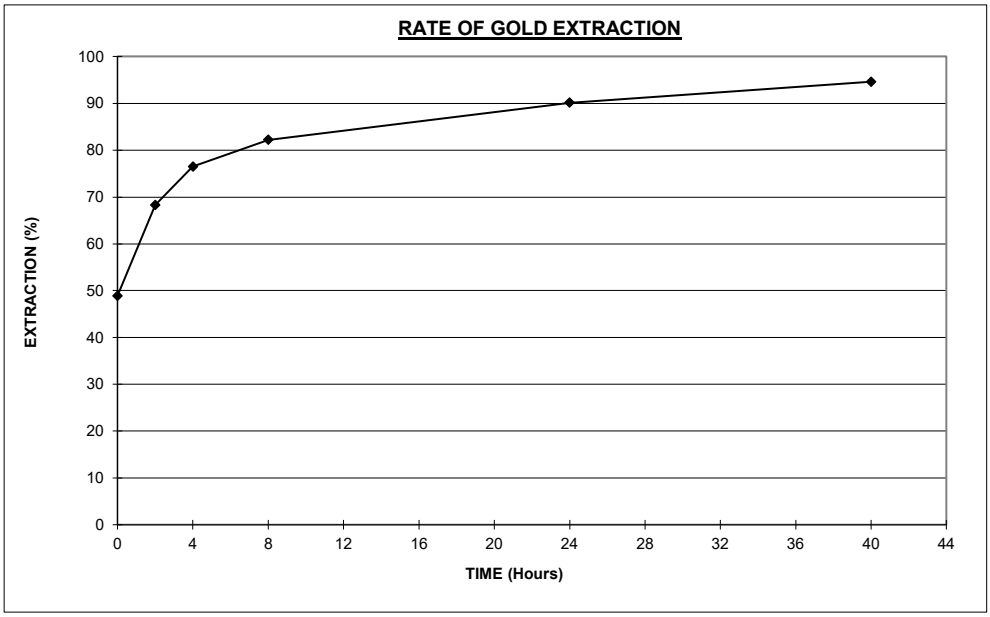
RESIDUE ASSAYS (ppm)

Au	0.17
Ag	0.5
As	65
S	0.36%
S2-	0.34%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3660.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.15 (kg/t)
13. Lime consum'n (kg/t) : 0.43 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6990**
SAMPLE ID	**KEKEDA FRESH MASTER COMPOSITE (MC-18)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2994.6	3660.0			8.8	7.86										
0		3660.0	3.66	1.34	20.0	10.56	**0.100**		0.00	0.00	0.00		43.42	21.37	0.11	
2		3635.0	0.00	0.00	23.1	10.28	0.090		0.58	0.42	0.05		64.72	57.70	0.51	
4		3610.0	0.00	0.00	21.7	10.12	0.090		0.81	0.50	0.05		72.93	64.57	0.51	
8		3585.0	0.00	0.00	18.6	10.12	0.090		1.00	0.52	0.05		79.99	66.28	0.51	
24		3560.0	0.00	0.00	27.4	10.31	0.088		1.33	0.56	0.05		91.86	69.66	0.51	
40		3535.0	0.00	0.00	26.0	10.36	0.085		1.44	0.50	0.05		**95.79**	**64.62**	**0.51**	
TOTAL			3.66	1.34												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2994.6	0.14	419	4.21	0.5	1497	35.38	15	44919	99.49
Solution (mL)	3535.0	1.440	5090	51.08	0.50	1768	41.77	0.05	177	0.39
Solution Samples *			129	1.29		63	1.48		6	0.01
Gravity		1.4	**4327**	**43.42**		**904**	**21.37**		**49**	**0.11**
Total Extraction				**95.79**			**64.62**			**0.51**
Total			9965	100.00		4232	100.00		45151	100.00
Calculated Head		3.33			1.4			15		
Assayed Head		**3.56**			**<2**			**<10**		

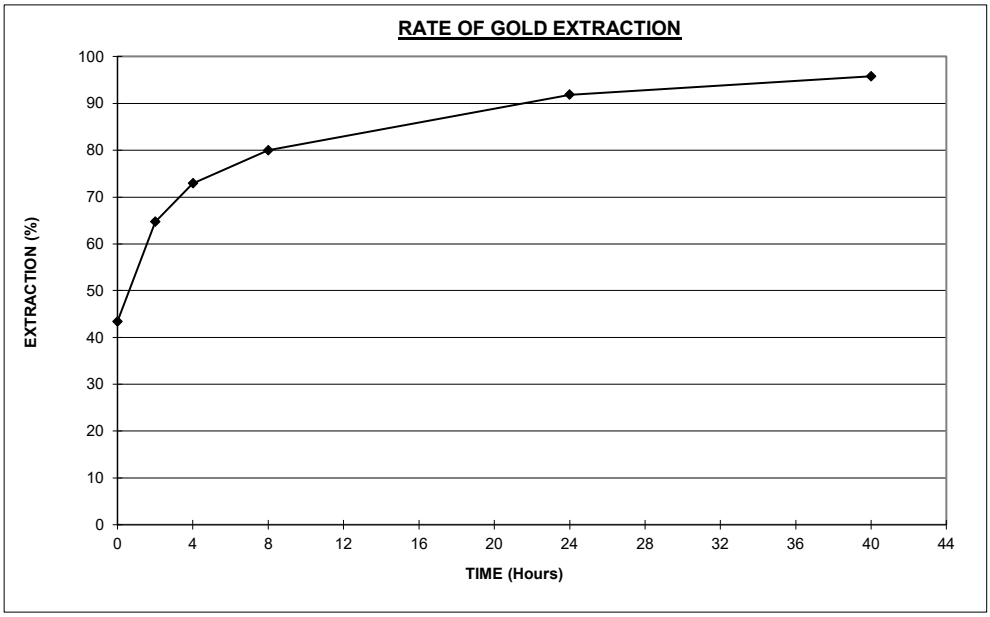
RESIDUE ASSAYS (ppm)

Au	0.14
Ag	0.5
As	15
S	0.36%
S2-	0.32%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3660.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 0.45 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7149**
SAMPLE ID	**KEKEDA TRANSITION MASTER COMPOSITE (MC-6)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2985.3	3649.0			9.9	7.92										
0		3649.0	2.57	1.64	20.0	10.56	**0.070**		0.00	0.00	0.00		33.01	13.47	0.88	
2		3624.0	0.00	0.00	17.4	9.81	0.065		0.45	0.26	0.05		81.86	53.31	2.07	
4		3599.0	0.00	0.26	19.0	9.72	0.063		0.48	0.28	0.05		85.10	56.35	2.07	
8		3574.0	0.00	0.00	22.3	9.90	0.060		0.50	0.32	0.05		86.70	62.40	2.07	
24		3549.0	0.00	0.00	18.3	10.04	0.060		0.53	0.32	0.05		90.42	62.40	2.07	
40		3524.0	0.00	0.00	21.5	9.90	0.060		0.55	0.32	0.05		**92.01**	**62.40**	**2.07**	
TOTAL			2.57	1.90												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2985.3	0.09	269	7.99	0.3	896	37.60	5	14927	97.93
Solution (mL)	3524.0	0.545	1921	57.14	0.32	1128	47.35	0.05	176	1.16
Solution Samples *			63	1.86		38	1.57		6	0.04
Gravity		0.4	**1110**	**33.01**		**321**	**13.47**		**134**	**0.88**
Total Extraction				**92.01**			**62.40**			**2.07**
Total			3361	100.00		2382	100.00		15243	100.00
Calculated Head		1.13			0.8			5		
Assayed Head		**1.05**			**<2**			**30**		

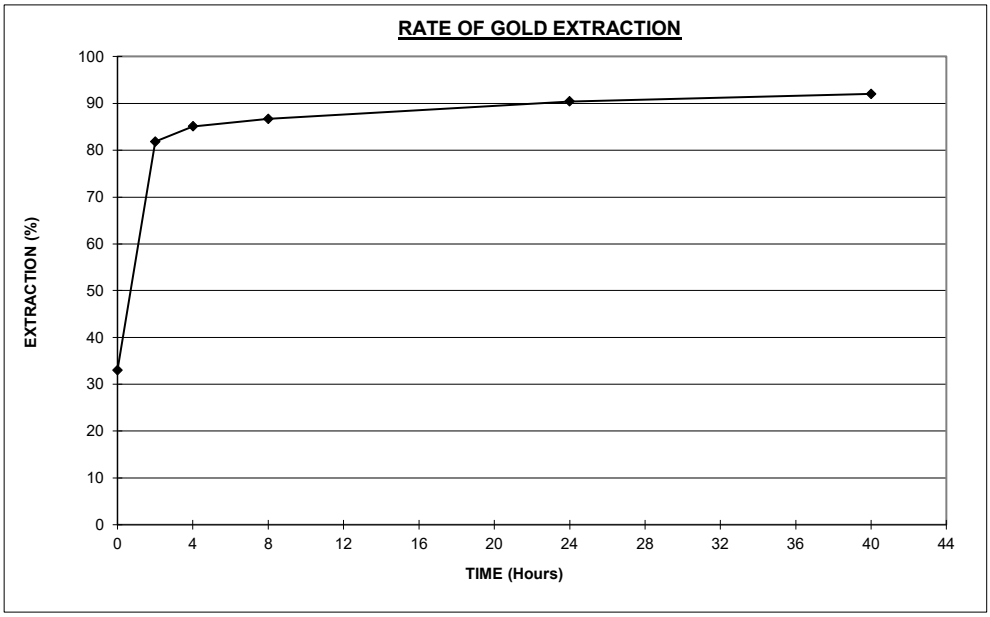
RESIDUE ASSAYS (ppm)

Au	0.09
Ag	0.3
As	5
S	0.32%
S2-	0.24%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3649.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.86 (kg/t)
12. NaCN consum'n (kg/t) : 0.13 (kg/t)
13. Lime consum'n (kg/t) : 0.64 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7162**
SAMPLE ID	**KEKEDA TRANSITION MASTER COMPOSITE (MC-6)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2985.3	3649.0			7.9	7.90										
0		3649.0	1.83	1.63	20.0	10.54	**0.050**		0.00	0.00	0.00		26.42	9.01	4.93	
2		3624.0	0.00	0.00	18.2	10.00	0.048		0.47	0.28	0.05		79.04	43.06	6.04	
4		3599.0	0.00	0.00	20.1	9.95	0.045		0.51	0.32	0.05		83.53	47.89	6.04	
8		3574.0	0.00	0.00	21.7	9.90	0.043		0.53	0.32	0.05		85.76	47.89	6.04	
24		3549.0	0.00	0.00	19.6	9.86	0.043		0.56	0.34	0.10		89.64	50.27	7.13	
40		3524.0	0.00	0.00	22.1	9.92	0.040		0.57	0.34	0.20		**90.74**	**50.27**	**9.28**	
TOTAL			1.83	1.63												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2985.3	0.10	299	9.26	0.5	1493	49.73	5	14927	90.72
Solution (mL)	3524.0	0.570	2009	62.29	0.34	1198	39.92	0.20	705	4.28
Solution Samples *			66	2.03		40	1.33		11	0.07
Gravity		0.3	**852**	**26.42**		**271**	**9.01**		**812**	**4.93**
Total Extraction				**90.74**			**50.27**			**9.28**
Total			3225	100.00		3001	100.00		16454	100.00
Calculated Head		1.08			1.0			6		
Assayed Head		**1.05**			**<2**			**30**		

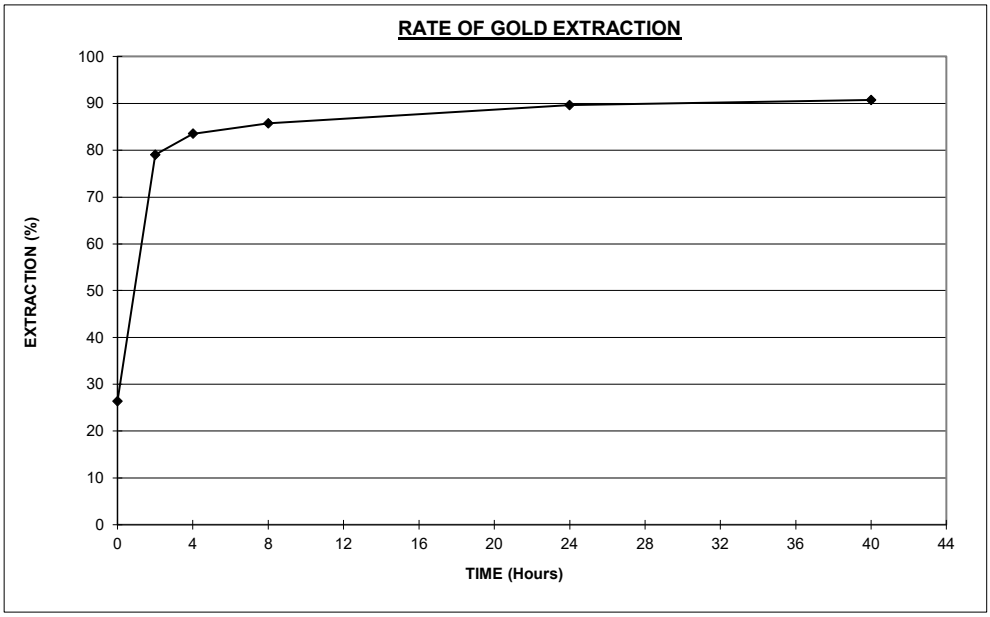
RESIDUE ASSAYS (ppm)

Au	0.10
Ag	0.5
As	5
S	0.32%
S2-	0.26%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3649.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.55 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7175**
SAMPLE ID	**KEKEDA TRANSITION MASTER COMPOSITE (MC-6)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2985.3	3649.0			7.6	7.86										
0		3649.0	1.10	1.59	20.0	10.50	**0.030**		0.00	0.00	0.00		28.31	15.94	0.18	
2		3624.0	0.00	0.00	19.6	9.82	0.028		0.44	0.26	0.05		76.55	63.27	0.42	
4		3599.0	0.00	0.00	20.0	9.91	0.028		0.48	0.30	0.05		80.96	70.50	0.42	
8		3574.0	0.00	0.00	21.8	9.84	0.025		0.50	0.32	0.05		83.69	74.09	0.42	
24		3549.0	0.00	0.05	22.6	9.74	0.025		0.54	0.34	0.05		87.50	77.66	0.42	
40		3524.0	0.00	0.00	23.6	9.87	0.025		0.55	0.34	0.05		**89.11**	**77.66**	**0.42**	
TOTAL			1.10	1.64												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2985.3	0.12	358	10.89	0.2	448	22.34	25	74633	99.58
Solution (mL)	3524.0	0.550	1938	58.90	0.34	1198	59.78	0.05	176	0.24
Solution Samples *			62	1.90		39	1.95		6	0.01
Gravity		0.3	**932**	**28.31**		**319**	**15.94**		**133**	**0.18**
Total Extraction				**89.11**			**77.66**			**0.42**
Total			3291	100.00		2004	100.00		74948	100.00
Calculated Head		1.10			0.7			25		
Assayed Head		**1.05**			**<2**			**30**		

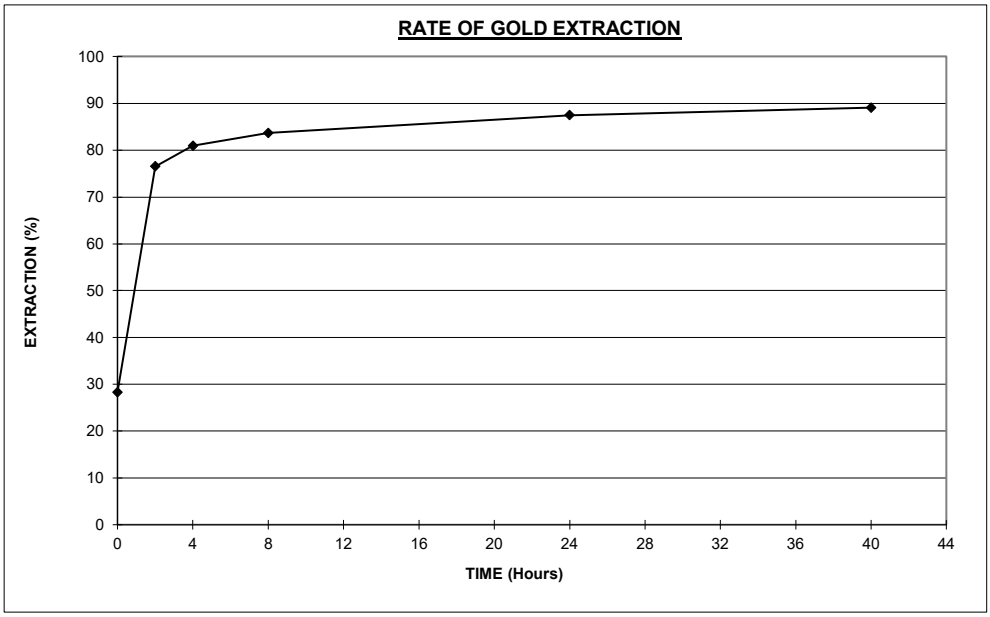
RESIDUE ASSAYS (ppm)

Au	0.12
Ag	0.15
As	25
S	0.30%
S2-	0.24%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3649.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.06 (kg/t)
13. Lime consum'n (kg/t) : 0.55 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7217**
SAMPLE ID	**KEKEDA FRESH MASTER COMPOSITE (MC-18)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As	Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]	[%]	[%]	[%]	
	2994.6	3660.0			7.7	8.05									
0		3660.0	2.56	1.12	20.0	10.50	**0.070**		0.00	0.00	0.00	42.45	26.91	1.56	
2		3635.0	0.00	0.00	20.0	10.16	0.068		0.83	0.48	0.05	64.55	75.52	3.91	
4		3610.0	0.00	0.00	24.1	10.05	0.063		1.02	0.56	0.05	69.57	83.56	3.91	
8		3585.0	0.00	0.00	27.6	10.13	0.060		1.25	0.60	0.05	75.61	87.56	3.91	
24		3560.0	0.00	0.00	28.3	9.91	0.058		1.71	0.62	0.05	87.61	89.54	3.91	
40		3535.0	0.00	0.00	27.2	10.23	0.055		1.89	0.60	0.05	**92.27**	**87.57**	**3.91**	
TOTAL			2.56	1.12											

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2994.6	0.36	1063	7.73	0.2	449	12.43	3	7487	96.09
Solution (mL)	3535.0	1.890	6681	48.60	0.60	2121	58.68	0.05	177	2.27
Solution Samples *			168	1.22		72	1.98		6	0.08
Gravity		1.9	**5836**	**42.45**		**973**	**26.91**		**122**	**1.56**
Total Extraction				**92.27**			**87.57**			**3.91**
Total			13748	100.00		3614	100.00		7791	100.00
Calculated Head		4.59			1.2			3		
Assayed Head		**3.56**			**<2**			**<10**		

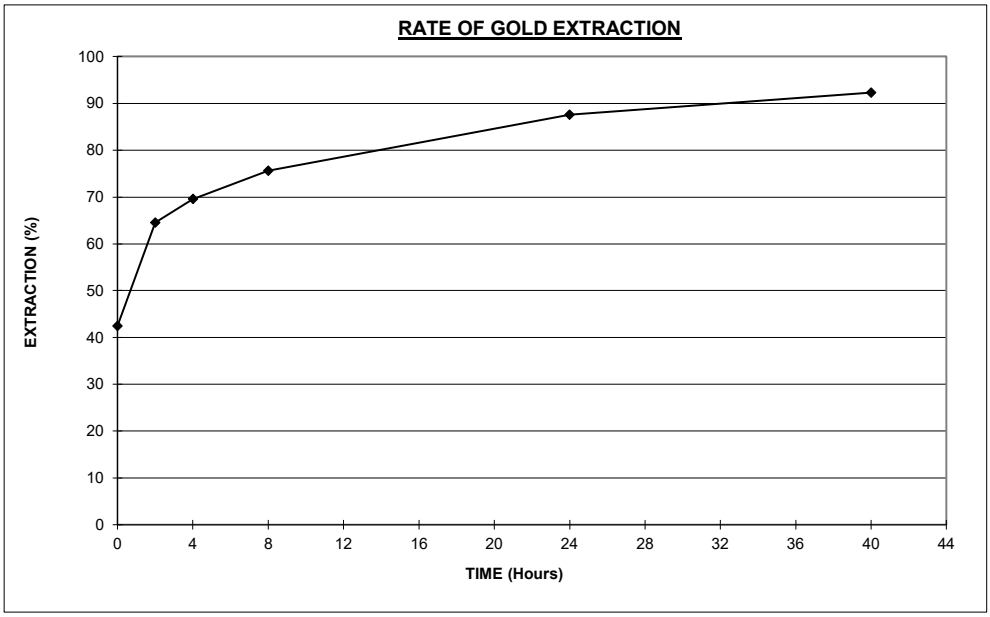
RESIDUE ASSAYS (ppm)

Au	0.36
Ag	0.15
As	2.5
S	0.42%
S2-	0.40%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3660.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.85 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 0.37 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7225**
SAMPLE ID	**KEKEDA FRESH MASTER COMPOSITE (MC-18)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2994.6	3660.0			7.1	7.78										
0		3660.0	1.83	1.00	20.0	10.50	**0.050**		0.00	0.00	0.00		33.74	23.01	1.55	
2		3635.0	0.00	0.00	21.2	10.09	0.040		0.55	0.42	0.05		53.67	71.87	3.90	
4		3610.0	0.00	0.00	23.1	10.05	0.040		0.76	0.50	0.05		61.47	81.12	3.90	
8		3585.0	0.00	0.00	23.4	10.03	0.040		0.97	0.54	0.05		68.87	85.71	3.90	
24		3560.0	0.00	0.00	24.0	10.01	0.040		1.31	0.56	0.05		81.22	87.98	3.90	
40		3535.0	0.00	0.00	25.9	10.05	0.040		1.51	0.54	0.05		**88.33**	**85.72**	**3.90**	
TOTAL			1.83	1.00												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2994.6	0.39	1168	11.67	0.2	449	14.28	3	7487	96.10
Solution (mL)	3535.0	1.510	5338	53.32	0.54	1909	60.68	0.05	177	2.27
Solution Samples *			127	1.27		64	2.03		6	0.08
Gravity		1.1	**3378**	**33.74**		**724**	**23.01**		**121**	**1.55**
Total Extraction				**88.33**			**85.72**			**3.90**
Total			10011	100.00		3146	100.00		7790	100.00
Calculated Head		3.34			1.1			3		
Assayed Head		**3.56**			**<2**			**<10**		

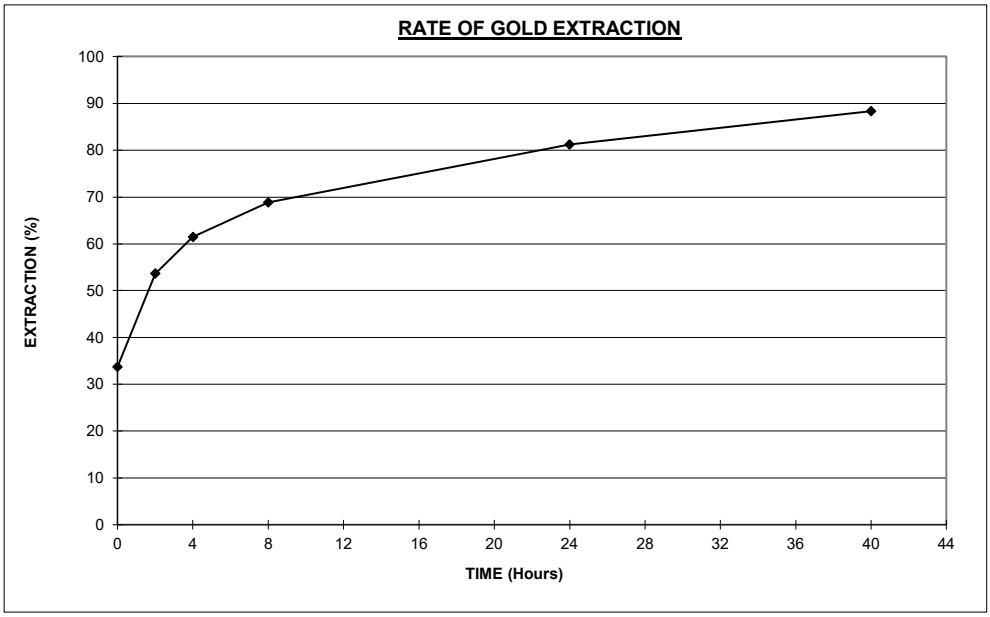
RESIDUE ASSAYS (ppm)

Au	0.39
Ag	0.15
As	2.5
S	0.40%
S2-	0.40%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3660.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.33 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7237**
SAMPLE ID	**KEKEDA FRESH MASTER COMPOSITE (MC-18)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As	Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]	[%]	[%]	[%]	
	2994.6	3660.0			8.7	8.02									
0		3660.0	1.10	0.93	20.0	10.59	**0.030**		0.00	0.00	0.00	35.49	24.11	1.53	
2		3635.0	0.00	0.00	27.3	10.03	0.028		0.51	0.42	0.05	53.34	64.99	3.88	
4		3610.0	0.00	0.00	24.9	9.90	0.025		0.73	0.52	0.05	61.07	74.66	3.88	
8		3585.0	0.00	0.00	28.0	9.93	0.025		0.95	0.60	0.05	68.74	82.34	3.88	
24		3560.0	0.00	0.00	26.2	9.91	0.025		1.27	0.64	0.05	79.99	86.16	3.88	
40		3535.0	0.00	0.00	27.1	9.88	0.025		1.49	0.66	0.05	**87.56**	**88.05**	**3.88**	
TOTAL			1.10	0.93											

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2994.6	0.43	1288	12.44	0.2	449	11.95	3	7487	96.12
Solution (mL)	3535.0	1.490	5267	50.88	0.66	2333	62.06	0.05	177	2.27
Solution Samples *			123	1.19		71	1.89		6	0.08
Gravity		1.2	**3673**	**35.49**		**906**	**24.11**		**119**	**1.53**
Total Extraction				**87.56**			**88.05**			**3.88**
Total			10351	100.00		3760	100.00		7789	100.00
Calculated Head		3.46			1.3			3		
Assayed Head		**3.56**			**<2**			**<10**		

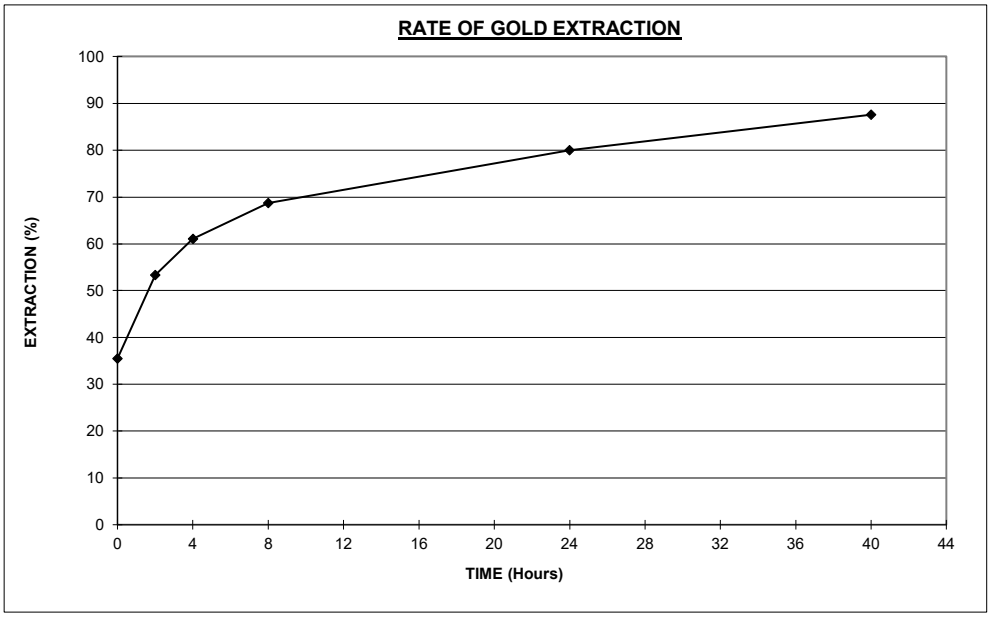
RESIDUE ASSAYS (ppm)

Au	0.43	
Ag	0.15	TBC
As	2.5	TBC
S		
S2-		

* : Intermediate solution samples removed during the test.

COMMENTS

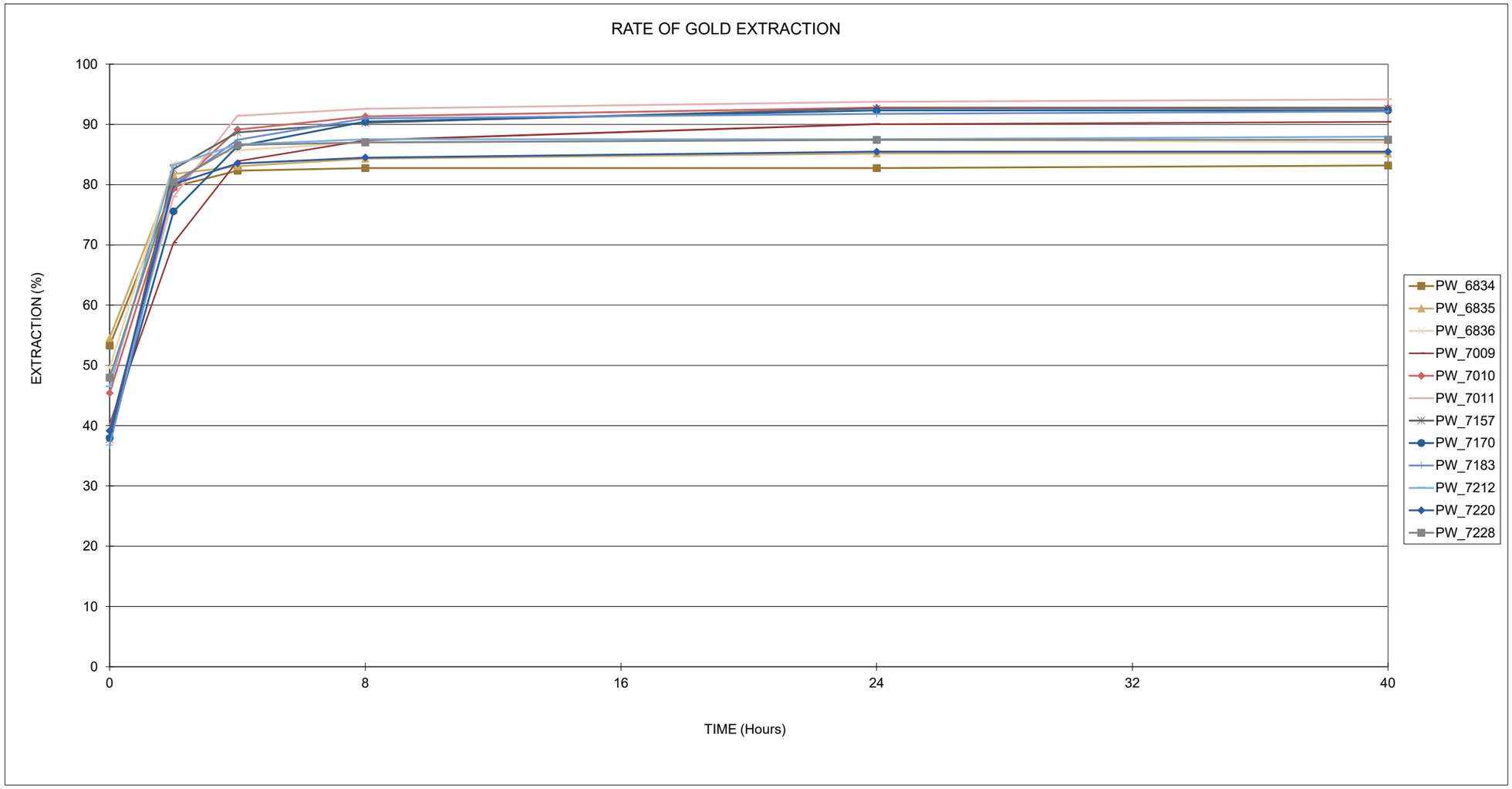
1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3660.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.06 (kg/t)
13. Lime consum'n (kg/t) : 0.31 (kg/t)



PROJECT	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
DATE	2/05/2023

SUMMARY

TEST No	SAMPLE ID	GRIND SIZE (P80, µm)	O2 / AIR SPARGE	% NaCN (Init / Mtn)	% Solids (w/w)	DCN OR CIL	GOLD HEAD GRADE (g/t)		GOLD DISTRIBUTION (g/t)			GOLD DISTRIBUTION (%)			TOTAL GOLD RECOVERY (%)	REAGENTS (kg/t)	
							Assayed	Calculated	Gravity	Leach	Residue	Gravity	Leach	Residue		NaCN	Lime
PW_6834	KILOSEGUI FRESH MASTER COMPOSITE (MC-7)	125	O2	0.10 / 0.05	45	DCN	1.37	1.37	0.73	0.41	0.23	53.3	29.9	16.8	83.2	0.15	0.30
PW_6835	KILOSEGUI FRESH MASTER COMPOSITE (MC-7)	106	O2	0.10 / 0.05	45	DCN	1.37	1.42	0.77	0.43	0.21	54.6	30.6	14.8	85.2	0.21	0.30
PW_6836	KILOSEGUI FRESH MASTER COMPOSITE (MC-7)	75	O2	0.10 / 0.05	45	DCN	1.37	1.39	0.69	0.52	0.18	49.6	37.4	13.0	87.0	0.24	0.34
	AVERAGE CALCULATED HEAD GRADE							**1.39**									
PW_7009	KILOSEGUI TRANS MASTER COMPOSITE (MC-25)	125	O2	0.10 / 0.05	45	DCN	1.79	1.57	0.63	0.79	0.15	40.3	50.1	9.6	90.4	0.12	0.49
PW_7010	KILOSEGUI TRANS MASTER COMPOSITE (MC-25)	106	O2	0.10 / 0.05	45	DCN	1.79	1.66	0.75	0.79	0.12	45.4	47.4	7.2	92.8	0.12	0.48
PW_7011	KILOSEGUI TRANS MASTER COMPOSITE (MC-25)	75	O2	0.10 / 0.05	45	DCN	1.79	1.54	0.61	0.84	0.09	39.5	54.7	5.9	94.1	0.12	0.47
	AVERAGE CALCULATED HEAD GRADE							**1.59**									
PW_7157	KILOSEGUI TRANS MASTER COMPOSITE (MC-25)	106	O2	0.07 / 0.04	45	DCN	1.79	1.50	0.57	0.82	0.11	37.8	54.9	7.3	92.7	0.12	0.42
PW_7170	KILOSEGUI TRANS MASTER COMPOSITE (MC-25)	106	O2	0.05 / 0.03	45	DCN	1.79	1.63	0.62	0.88	0.13	38.0	54.4	7.7	92.3	0.12	0.49
PW_7183	KILOSEGUI TRANS MASTER COMPOSITE (MC-25)	106	O2	0.04 / 0.02	45	DCN	1.79	1.53	0.56	0.85	0.12	36.8	55.4	7.8	92.2	0.09	0.34
	AVERAGE CALCULATED HEAD GRADE							**1.55**									
PW_7212	KILOSEGUI FRESH MASTER COMPOSITE (MC-7)	75	O2	0.07 / 0.04	45	DCN	1.37	1.41	0.66	0.59	0.17	46.5	41.5	12.0	88.0	0.06	0.52
PW_7220	KILOSEGUI FRESH MASTER COMPOSITE (MC-7)	75	O2	0.05 / 0.03	45	DCN	1.37	1.24	0.49	0.57	0.18	39.2	46.3	14.5	85.5	0.06	0.38
PW_7228	KILOSEGUI FRESH MASTER COMPOSITE (MC-7)	75	O2	0.04 / 0.02	45	DCN	1.37	1.39	0.67	0.55	0.18	48.0	39.4	12.6	87.4	0.08	0.28
	AVERAGE CALCULATED HEAD GRADE							**1.35**									



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6834**
SAMPLE ID	**KILOSEGUI FRESH MASTER COMPOSITE (MC-7)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Dec-22**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As	Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]	[%]	[%]	[%]	
	3000.0	3667.0			8.4	7.94									
0		3667.0	3.67	0.90	8.4	10.57	**0.100**		0.00	0.00	0.00	53.30	13.22	0.48	
2		3642.0	0.00	0.00	23.6	10.41	0.093		0.30	0.10	0.01	79.65	29.63	0.54	
4		3617.0	0.00	0.00	30.7	10.35	0.093		0.33	0.12	0.01	82.32	32.89	0.54	
8		3592.0	0.00	0.00	24.6	10.35	0.090		0.33	0.12	0.01	82.76	32.89	0.54	
24		3567.0	0.00	0.00	22.9	10.17	0.088		0.33	0.12	0.01	82.76	32.89	0.54	
40		3542.0	0.00	0.00	24.5	10.25	0.088		0.34	0.12	0.01	**83.19**	**32.89**	**0.54**	
TOTAL			3.67	0.90											

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	3000.0	0.23	690	16.81	0.5	1500	67.11	10	30000	99.46
Solution (mL)	3542.0	0.335	1187	28.91	0.12	425	19.02	0.01	18	0.06
Solution Samples *			40	0.98		15	0.65		1	0.00
Gravity		0.7	**2188**	**53.30**		**296**	**13.22**		**145**	**0.48**
Total Extraction				**83.19**			**32.89**			**0.54**
Total			4105	100.00		2235	100.00		30163	100.00
Calculated Head		1.37			0.7			10		
Assayed Head		**1.37**			**<2**			**30**		

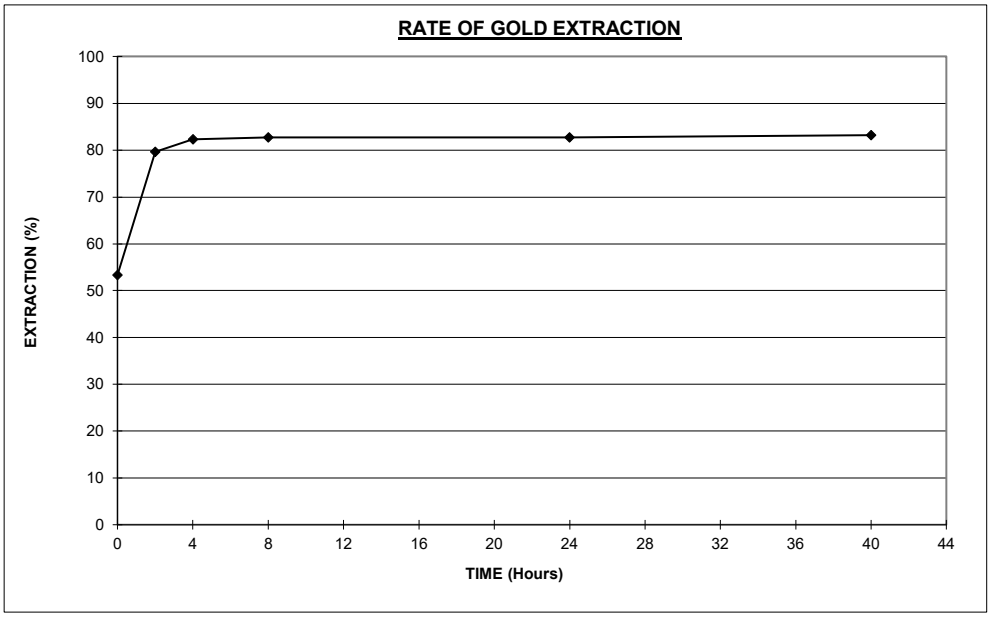
RESIDUE ASSAYS (ppm)

Au	0.23
Ag	0.5
As	10
S	0.40%
S2-	0.36%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3667.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.15 (kg/t)
13. Lime consum'n (kg/t) : 0.30 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6835**
SAMPLE ID	**KILOSEGUI FRESH MASTER COMPOSITE (MC-7)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Dec-22**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]
	3000.0	3667.0			8.3	7.93									
0		3667.0	3.67	0.89	8.3	10.55	**0.100**		0.00	0.00	0.00		54.56	13.85	0.37
2		3642.0	0.00	0.00	26.1	10.30	0.093		0.32	0.12	0.01		81.76	33.39	0.43
4		3617.0	0.00	0.00	24.3	10.25	0.090		0.33	0.12	0.01		83.04	33.39	0.43
8		3592.0	0.00	0.00	21.4	10.23	0.090		0.35	0.12	0.01		84.32	33.39	0.43
24		3567.0	0.00	0.00	17.4	10.08	0.088		0.36	0.12	0.01		85.17	33.39	0.43
40		3542.0	0.00	0.00	25.5	10.17	0.083		0.36	0.12	0.01		**85.17**	**33.39**	**0.43**
TOTAL			3.67	0.89											

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	3000.0	0.21	630	14.83	0.5	1500	66.61	10	30000	99.57
Solution (mL)	3542.0	0.355	1257	29.60	0.12	425	18.87	0.01	18	0.06
Solution Samples *			43	1.00		15	0.67		1	0.00
Gravity		0.8	**2318**	**54.56**		**312**	**13.85**		**111**	**0.37**
Total Extraction				**85.17**			**33.39**			**0.43**
Total			4248	100.00		2252	100.00		30130	100.00
Calculated Head		1.42			0.8			10		
Assayed Head		**1.37**			**<2**			**30**		

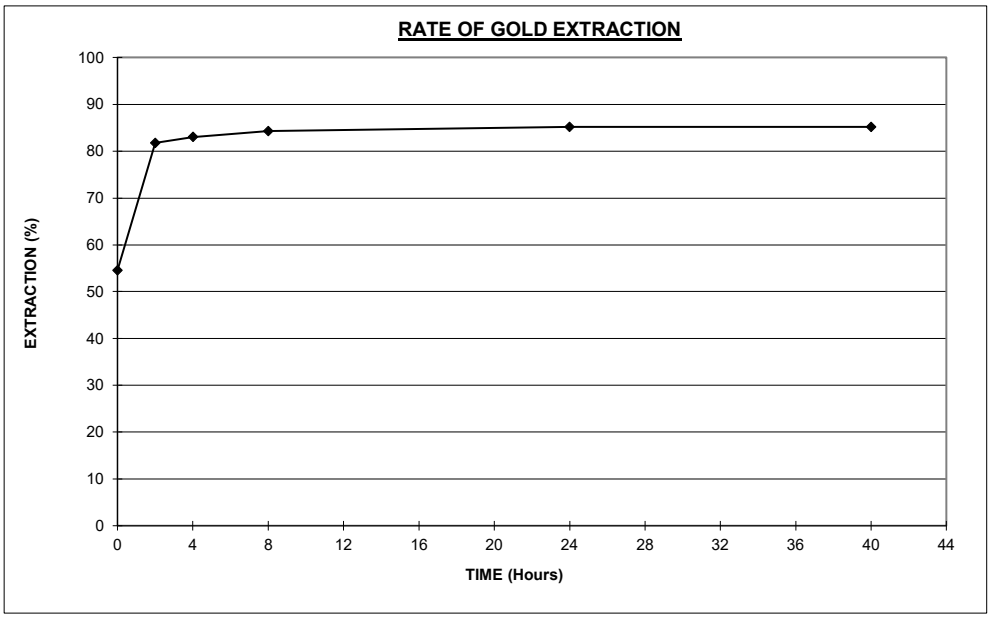
RESIDUE ASSAYS (ppm)

Au	0.21
Ag	0.5
As	10
S	0.38%
S2-	0.34%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3667.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.21 (kg/t)
13. Lime consum'n (kg/t) : 0.30 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6836**
SAMPLE ID	**KILOSEGUI FRESH MASTER COMPOSITE (MC-7)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Dec-22**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	3000.0	3667.0			8.0	7.92										
0		3667.0	3.67	1.03	8.0	10.58	**0.100**		0.00	0.00	0.00		49.57	10.99	0.32	
2		3642.0	0.00	0.00	27.0	10.28	0.090		0.39	0.12	0.01		83.52	30.45	0.38	
4		3617.0	0.00	0.00	25.7	10.26	0.090		0.41	0.14	0.01		85.71	33.67	0.38	
8		3592.0	0.00	0.00	18.4	10.23	0.090		0.43	0.14	0.01		87.01	33.67	0.38	
24		3567.0	0.00	0.00	16.1	10.08	0.085		0.43	0.14	0.01		87.44	33.67	0.38	
40		3542.0	0.00	0.00	26.9	10.15	0.080		0.43	0.14	0.01		**87.02**	**33.67**	**0.38**	
TOTAL			3.67	1.03												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	3000.0	0.18	540	12.98	0.5	1500	66.33	10	30000	99.62
Solution (mL)	3542.0	0.425	1505	36.20	0.14	496	21.93	0.01	18	0.06
Solution Samples *			52	1.25		17	0.75		1	0.00
Gravity		0.7	**2062**	**49.57**		**248**	**10.99**		**96**	**0.32**
Total Extraction				**87.02**			**33.67**			**0.38**
Total			4159	100.00		2261	100.00		30114	100.00
Calculated Head		1.39			0.8			10		
Assayed Head		**1.37**			**<2**			**30**		

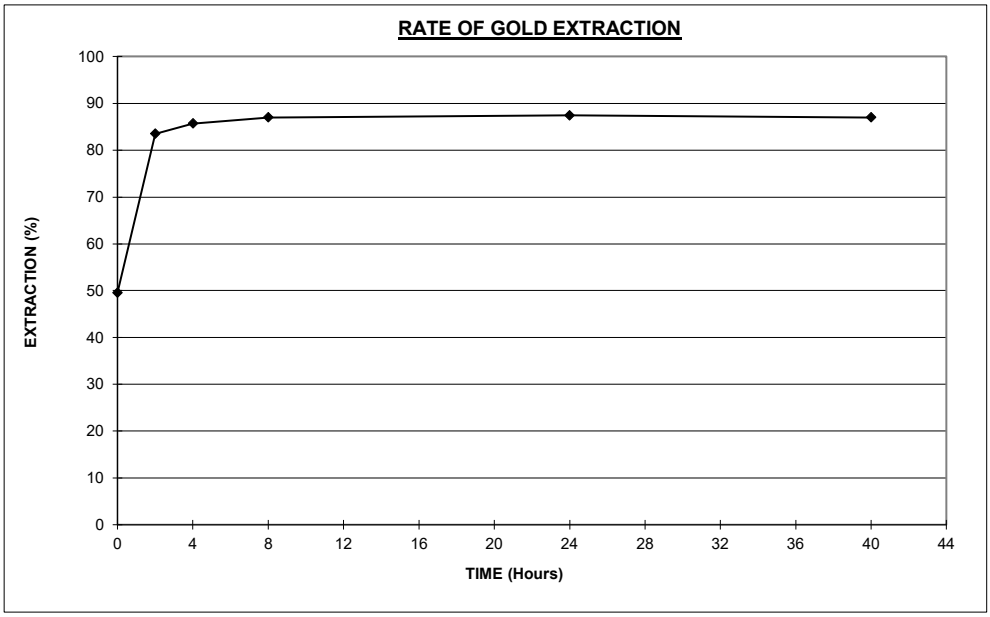
RESIDUE ASSAYS (ppm)

Au	0.18
Ag	0.5
As	10
S	0.40%
S2-	0.34%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3667.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.24 (kg/t)
13. Lime consum'n (kg/t) : 0.34 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7009**
SAMPLE ID	**KILOSEGUI TRANS MASTER COMPOSITE (MC-25)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2993.4	3659.0			9.9	7.83										
0		3659.0	3.66	1.46	20.0	10.55	**0.100**		0.00	0.00	0.00		40.30	17.10	1.71	
2		3634.0	0.00	0.00	20.9	10.25	0.095		0.39	0.10	0.05		70.34	46.48	4.05	
4		3609.0	0.00	0.00	16.7	10.19	0.095		0.56	0.14	0.05		83.91	58.15	4.05	
8		3584.0	0.00	0.00	21.6	10.21	0.090		0.61	0.16	0.05		87.37	63.95	4.05	
24		3559.0	0.00	0.00	29.3	10.18	0.090		0.64	0.16	0.05		90.04	63.95	4.05	
40		3534.0	0.00	0.00	25.6	10.18	0.090		0.65	0.16	0.05		**90.42**	**63.95**	**4.05**	
TOTAL			3.66	1.46												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2993.4	0.15	449	9.58	0.2	449	36.05	3	7484	95.95
Solution (mL)	3534.0	0.645	2279	48.61	0.16	565	45.40	0.05	177	2.27
Solution Samples *			71	1.51		18	1.45		6	0.08
Gravity		0.6	**1890**	**40.30**		**213**	**17.10**		**133**	**1.71**
Total Extraction				**90.42**			**63.95**			**4.05**
Total			4689	100.00		1245	100.00		7800	100.00
Calculated Head		1.57			0.4			3		
Assayed Head		**1.79**			**<2**			**<10**		

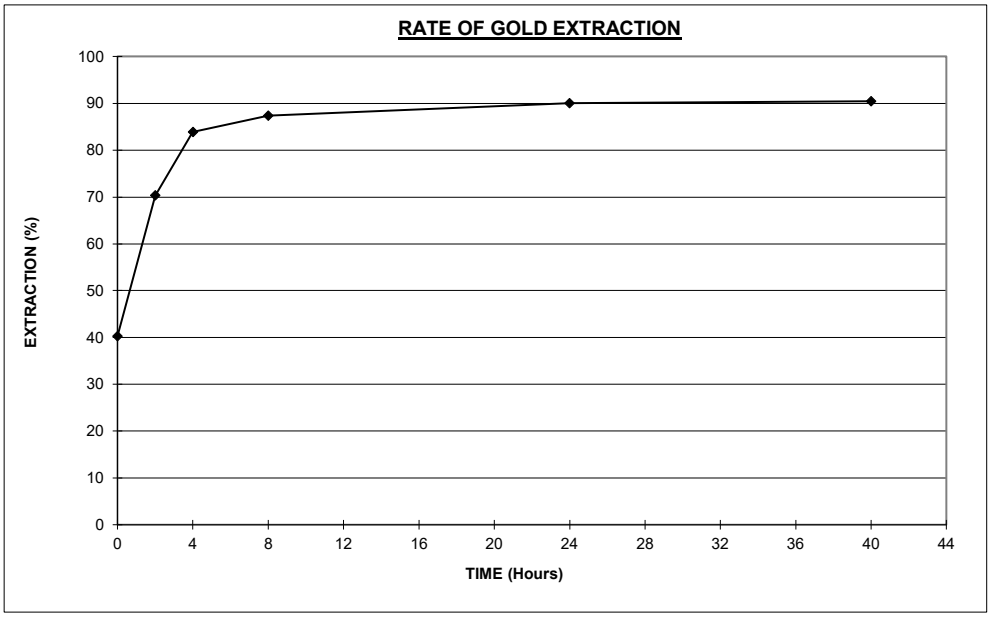
RESIDUE ASSAYS (ppm)

Au	0.15
Ag	0.15
As	2.5
S	0.04%
S2-	0.04%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3659.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.49 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7010**
SAMPLE ID	**KILOSEGUI TRANS MASTER COMPOSITE (MC-25)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2993.4	3659.0			9.9	7.86										
0		3659.0	3.66	1.44	20.0	10.50	**0.100**		0.00	0.00	0.00		45.42	18.66	1.63	
2		3634.0	0.00	0.00	28.1	10.24	0.095		0.46	0.14	0.05		79.28	56.35	3.98	
4		3609.0	0.00	0.00	21.6	10.16	0.095		0.60	0.16	0.05		89.15	61.69	3.98	
8		3584.0	0.00	0.00	19.1	10.20	0.093		0.63	0.16	0.05		91.33	61.69	3.98	
24		3559.0	0.00	0.00	24.3	10.14	0.090		0.65	0.18	0.05		92.77	66.97	3.98	
40		3534.0	0.00	0.00	25.3	10.15	0.090		0.65	0.18	0.05		**92.77**	**66.97**	**3.98**	
TOTAL			3.66	1.44												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2993.4	0.12	359	7.23	0.2	449	33.03	3	7484	96.02
Solution (mL)	3534.0	0.645	2279	45.86	0.18	636	46.80	0.05	177	2.27
Solution Samples *			74	1.49		21	1.51		6	0.08
Gravity		0.8	**2258**	**45.42**		**254**	**18.66**		**127**	**1.63**
Total Extraction				**92.77**			**66.97**			**3.98**
Total			4971	100.00		1359	100.00		7793	100.00
Calculated Head		1.66			0.5			3		
Assayed Head		**1.79**			**<2**			**<10**		

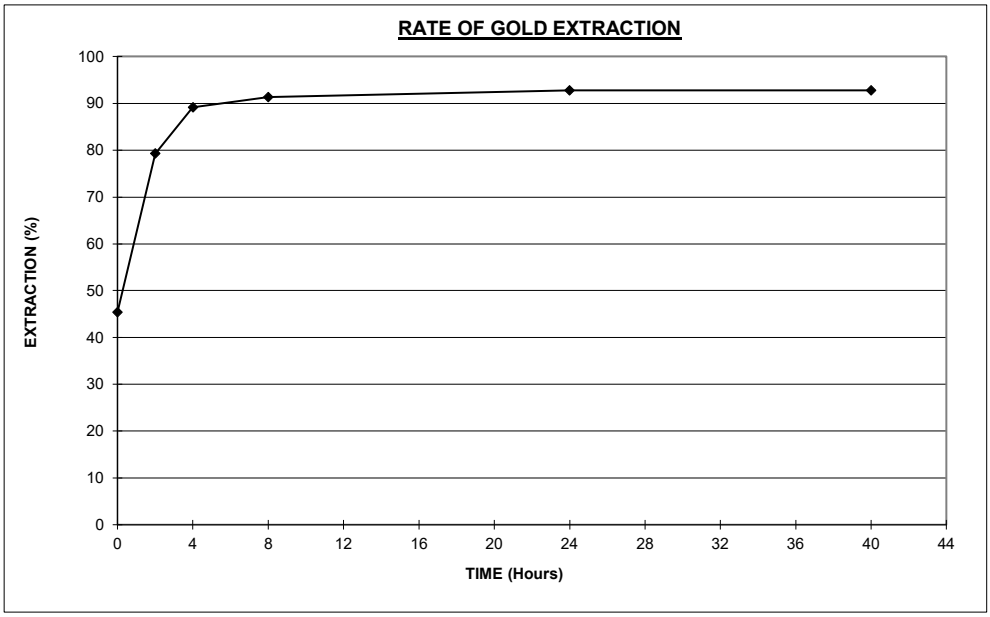
RESIDUE ASSAYS (ppm)

Au	0.12
Ag	0.15
As	2.5
S	0.04%
S2-	0.04%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3659.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.48 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7009**
SAMPLE ID	**KILOSEGUI TRANS MASTER COMPOSITE (MC-25)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2993.4	3659.0			9.9	7.86										
0		3659.0	3.66	1.41	20.0	10.51	**0.100**		0.00	0.00	0.00		39.45	15.82	1.42	
2		3634.0	0.00	0.00	23.8	10.27	0.095		0.49	0.14	0.05		78.00	52.40	3.78	
4		3609.0	0.00	0.00	15.8	10.18	0.093		0.66	0.18	0.05		91.42	62.78	3.78	
8		3584.0	0.00	0.00	26.6	10.19	0.093		0.67	0.20	0.05		92.59	67.93	3.78	
24		3559.0	0.00	0.00	25.6	10.15	0.090		0.69	0.20	0.05		93.76	67.93	3.78	
40		3534.0	0.00	0.00	26.0	10.16	0.090		0.69	0.20	0.05		**94.15**	**67.93**	**3.78**	
TOTAL			3.66	1.41												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2993.4	0.09	269	5.85	0.2	449	32.07	3	7484	96.22
Solution (mL)	3534.0	0.690	2438	52.97	0.20	707	50.48	0.05	177	2.27
Solution Samples *			80	1.73		23	1.64		6	0.08
Gravity		0.6	**1816**	**39.45**		**221**	**15.82**		**111**	**1.42**
Total Extraction				**94.15**			**67.93**			**3.78**
Total			4604	100.00		1400	100.00		7777	100.00
Calculated Head		1.54			0.5			3		
Assayed Head		**1.79**			**<2**			**<10**		

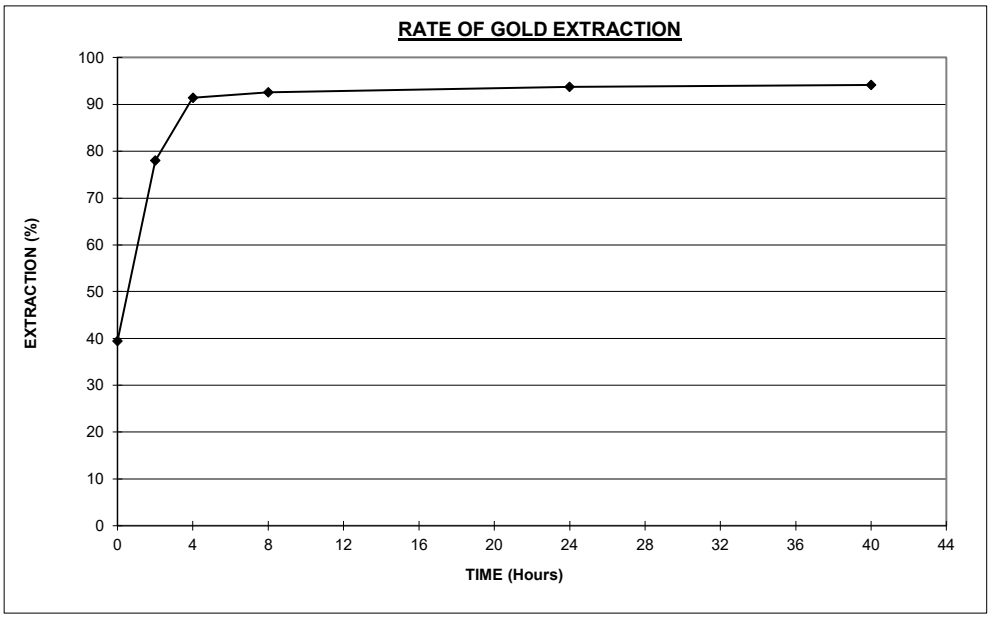
RESIDUE ASSAYS (ppm)

Au	0.09
Ag	0.15
As	2.5
S	0.04%
S2-	0.04%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3659.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.47 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7157**
SAMPLE ID	**KILOSEGUI TRANS MASTER COMPOSITE (MC-25)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2993.4	3659.0			8.4	8.21										
0		3659.0	2.56	1.24	20.0	10.51	**0.070**		0.00	0.00	0.00		37.80	6.48	1.35	
2		3634.0	0.00	0.00	22.6	9.96	0.063		0.55	0.20	0.50		82.60	29.72	20.73	
4		3609.0	0.00	0.00	21.1	9.88	0.063		0.63	0.40	0.50		88.67	52.80	20.73	
8		3584.0	0.00	0.00	20.5	9.86	0.063		0.65	0.20	0.50		90.28	29.88	20.73	
24		3559.0	0.00	0.02	19.0	9.73	0.060		0.68	0.20	0.50		92.67	29.88	20.73	
40		3534.0	0.00	0.00	22.6	10.00	0.060		0.68	0.40	0.50		**92.67**	**52.48**	**20.73**	
TOTAL			2.56	1.26												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2993.4	0.11	329	7.33	0.5	1497	47.52	3	7484	79.27
Solution (mL)	3534.0	0.675	2385	53.11	0.40	1414	44.88	0.50	1767	18.72
Solution Samples *			79	1.76		35	1.11		63	0.66
Gravity		0.6	**1698**	**37.80**		**204**	**6.48**		**128**	**1.35**
Total Extraction				**92.67**			**52.48**			**20.73**
Total			4492	100.00		3150	100.00		9441	100.00
Calculated Head		1.50			1.1			3		
Assayed Head		**1.79**			**<2**			**<10**		

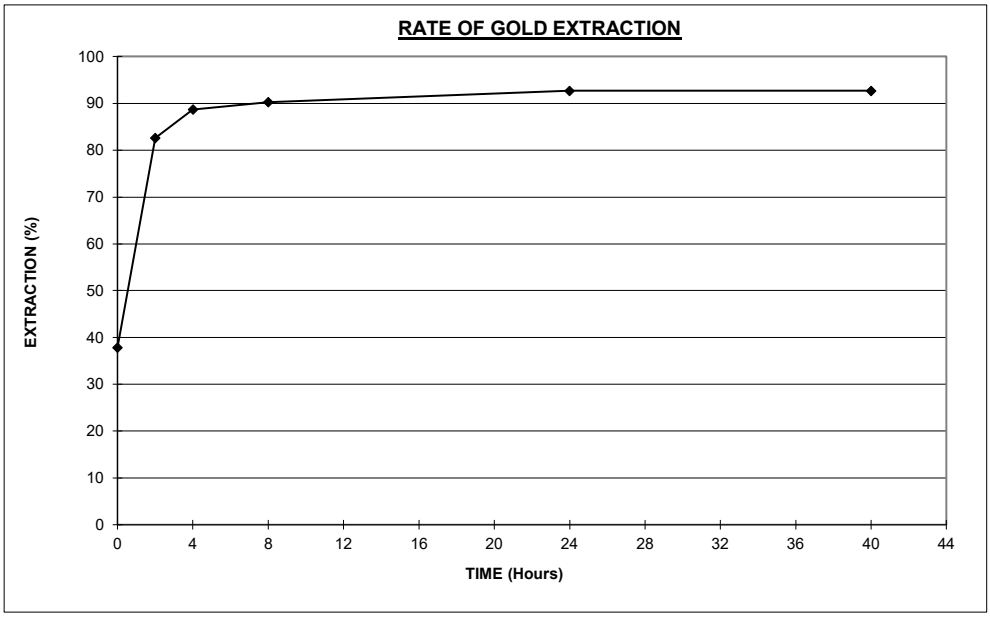
RESIDUE ASSAYS (ppm)

Au	0.11
Ag	0.5
As	2.5
S	0.04%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3659.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.86 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.42 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7170**
SAMPLE ID	**KILOSEGUI TRANS MASTER COMPOSITE (MC-25)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2993.4	3659.0			8.0	7.98										
0		3659.0	1.83	1.48	20.0	10.59	**0.050**		0.00	0.00	0.00		37.96	17.02	1.61	
2		3634.0	0.00	0.00	21.4	10.18	0.048		0.50	0.16	0.05		75.56	55.87	3.90	
4		3609.0	0.00	0.00	23.6	10.16	0.045		0.65	0.18	0.05		86.39	60.69	3.90	
8		3584.0	0.00	0.00	24.6	10.16	0.045		0.70	0.18	0.05		90.47	60.69	3.90	
24		3559.0	0.00	0.00	23.9	10.04	0.045		0.73	0.22	0.05		92.31	70.20	3.90	
40		3534.0	0.00	0.00	24.3	10.00	0.040		0.73	0.22	0.10		**92.31**	**70.20**	**6.14**	
TOTAL			1.83	1.48												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2993.4	0.13	374	7.69	0.2	449	29.80	3	7484	93.86
Solution (mL)	3534.0	0.725	2562	52.66	0.22	777	51.59	0.10	353	4.43
Solution Samples *			82	1.69		24	1.59		8	0.09
Gravity		0.6	**1847**	**37.96**		**256**	**17.02**		**128**	**1.61**
Total Extraction				**92.31**			**70.20**			**6.14**
Total			4865	100.00		1507	100.00		7973	100.00
Calculated Head		1.63			0.5			3		
Assayed Head		**1.79**			**<2**			**<10**		

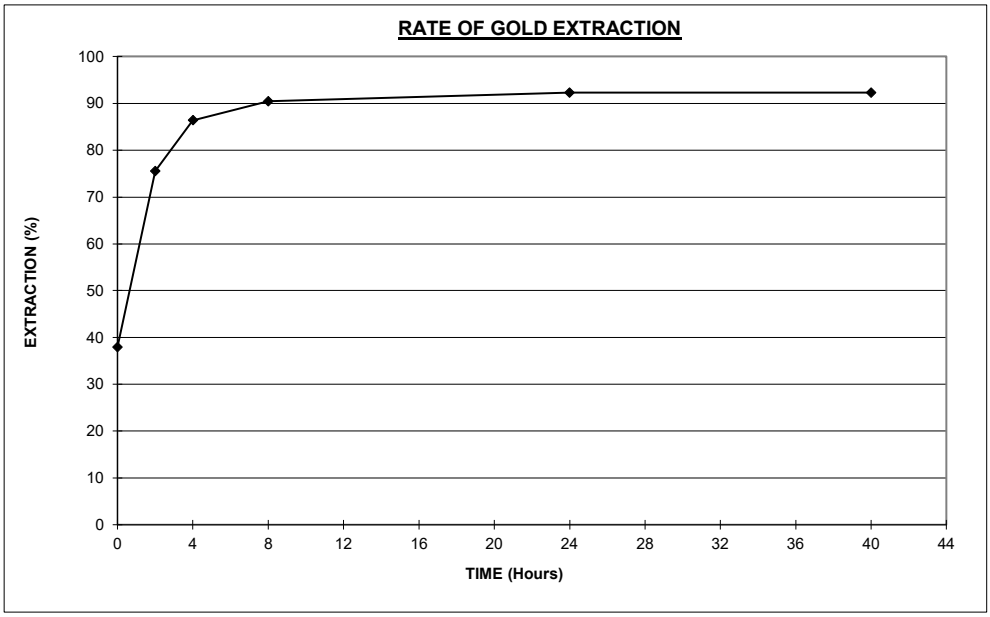
RESIDUE ASSAYS (ppm)

Au	0.13
Ag	0.15
As	2.5
S	0.04%
S2-	0.04%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3659.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.49 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7183**
SAMPLE ID	**KILOSEGUI TRANS MASTER COMPOSITE (MC-25)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2993.4	3659.0			8.3	8.34										
0		3659.0	1.10	0.87	20.0	10.51	**0.030**		0.00	0.00	0.00		36.78	13.09	0.44	
2		3634.0	0.00	0.00	24.6	9.98	0.028		0.54	0.20	0.05		79.91	58.59	1.04	
4		3609.0	0.00	0.00	24.8	9.92	0.025		0.64	0.22	0.05		87.44	63.11	1.04	
8		3584.0	0.00	0.00	27.6	9.94	0.023		0.68	0.26	0.05		90.99	72.08	1.04	
24		3559.0	0.00	0.14	25.0	9.64	0.023		0.69	0.26	0.05		91.77	72.08	1.04	
40		3534.0	0.00	0.00	29.7	10.02	0.023		0.70	0.26	0.05		**92.16**	**72.08**	**1.04**	
TOTAL			1.10	1.01												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2993.4	0.12	359	7.84	0.2	449	27.92	10	29934	98.96
Solution (mL)	3534.0	0.695	2456	53.61	0.26	919	57.13	0.05	177	0.58
Solution Samples *			81	1.77		30	1.87		6	0.02
Gravity		0.6	**1685**	**36.78**		**211**	**13.09**		**132**	**0.44**
Total Extraction				**92.16**			**72.08**			**1.04**
Total			4581	100.00		1608	100.00		30249	100.00
Calculated Head		1.53			0.5			10		
Assayed Head		**1.79**			**<2**			**<10**		

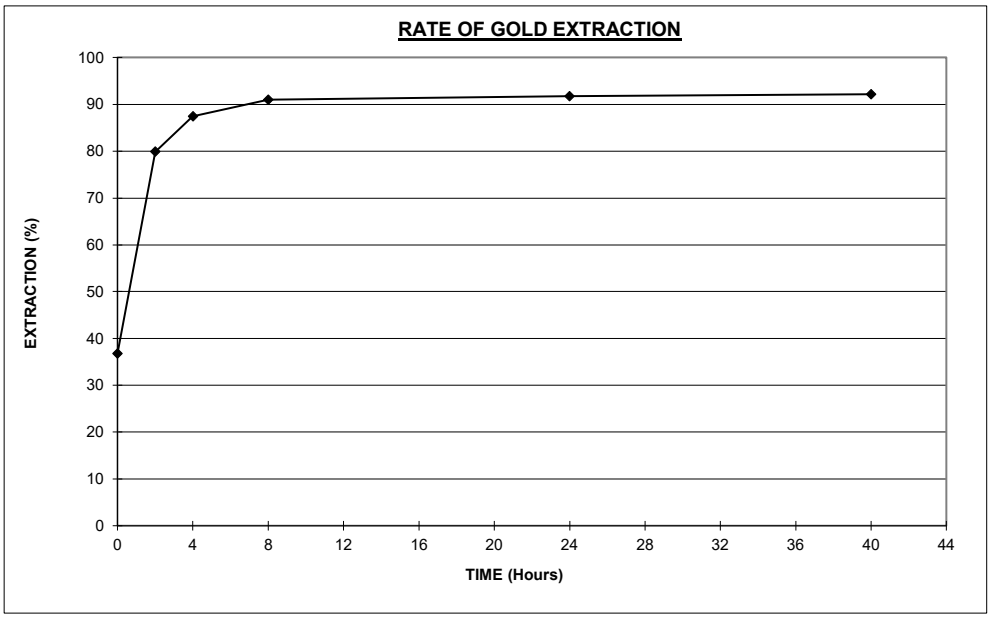
RESIDUE ASSAYS (ppm)

Au	0.12
Ag	0.15
As	10
S	0.04%
S2-	0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3659.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.09 (kg/t)
13. Lime consum'n (kg/t) : 0.34 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7212**
SAMPLE ID	**KILOSEGUI FRESH MASTER COMPOSITE (MC-7)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2995.2	3661.0			8.0	7.94										
0		3661.0	2.56	1.55	20.0	10.78	**0.070**		0.00	0.00	0.00		46.48	20.66	1.61	
2		3636.0	0.00	0.00	26.6	10.61	0.070		0.43	0.14	0.05		83.25	62.94	3.95	
4		3611.0	0.00	0.00	26.4	10.60	0.070		0.47	0.14	0.05		86.69	62.94	3.95	
8		3586.0	0.00	0.00	28.2	10.60	0.068		0.48	0.14	0.05		87.54	62.94	3.95	
24		3561.0	0.00	0.00	23.8	10.55	0.065		0.48	0.14	0.05		87.54	62.94	3.95	
40		3536.0	0.00	0.00	24.4	10.53	0.065		0.48	0.14	0.05		**87.97**	**62.94**	**3.95**	
TOTAL			2.56	1.55												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2995.2	0.17	509	12.03	0.2	449	37.06	3	7488	96.05
Solution (mL)	3536.0	0.480	1697	40.11	0.14	495	40.83	0.05	177	2.27
Solution Samples *			58	1.37		18	1.44		6	0.08
Gravity		0.7	**1967**	**46.48**		**251**	**20.66**		**125**	**1.61**
Total Extraction				**87.97**			**62.94**			**3.95**
Total			4231	100.00		1212	100.00		7796	100.00
Calculated Head		1.41			0.4			3		
Assayed Head		**1.37**			**<2**			**30**		

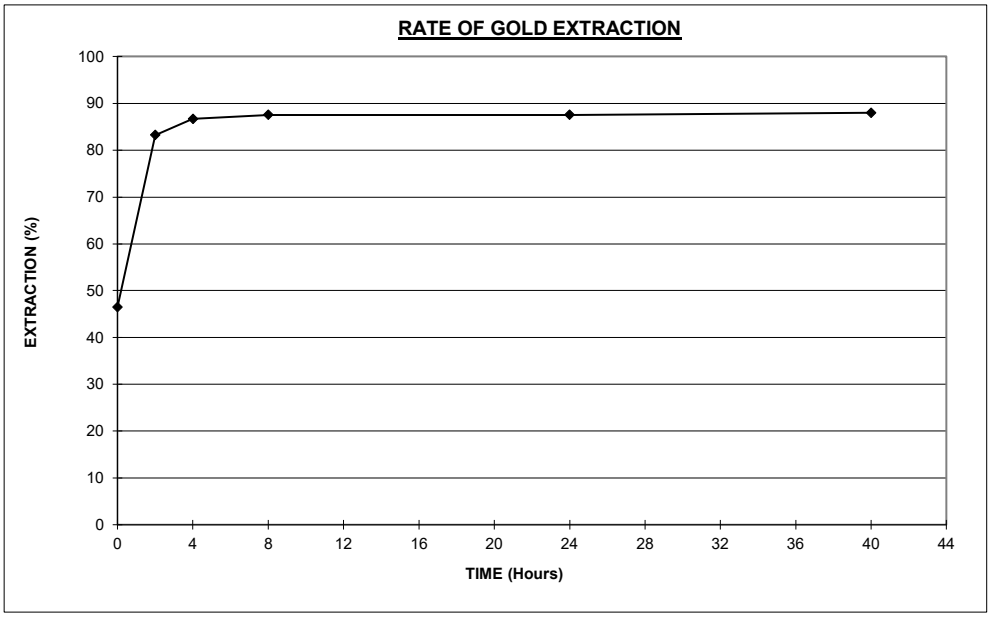
RESIDUE ASSAYS (ppm)

Au	0.17
Ag	0.15
As	2.5
S	0.44%
S2-	0.36%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3661.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.85 (kg/t)
12. NaCN consum'n (kg/t) : 0.06 (kg/t)
13. Lime consum'n (kg/t) : 0.52 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7220**
SAMPLE ID	**KILOSEGUI FRESH MASTER COMPOSITE (MC-7)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data								Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2995.2	3661.0			6.6	7.85										
0		3661.0	1.83	1.15	20.0	10.57	**0.050**		0.00	0.00	0.00		39.16	16.12	0.41	
2		3636.0	0.00	0.00	21.7	10.40	0.050		0.42	0.14	0.05		80.10	57.70	1.02	
4		3611.0	0.00	0.00	16.6	10.38	0.048		0.45	0.14	0.05		83.53	57.70	1.02	
8		3586.0	0.00	0.00	25.5	10.36	0.048		0.46	0.16	0.05		84.50	63.55	1.02	
24		3561.0	0.00	0.00	21.8	10.34	0.048		0.47	0.16	0.05		85.47	63.55	1.02	
40		3536.0	0.00	0.00	22.4	10.48	0.045		0.47	0.16	0.05		**85.47**	**63.55**	**1.02**	
TOTAL			1.83	1.15												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2995.2	0.18	539	14.53	0.2	449	36.45	10	29952	98.98
Solution (mL)	3536.0	0.470	1662	44.79	0.16	566	45.89	0.05	177	0.58
Solution Samples *			57	1.53		19	1.54		6	0.02
Gravity		0.5	**1453**	**39.16**		**199**	**16.12**		**124**	**0.41**
Total Extraction				**85.47**			**63.55**			**1.02**
Total			3711	100.00		1233	100.00		30259	100.00
Calculated Head		1.24			0.4			10		
Assayed Head		**1.37**			**<2**			**30**		

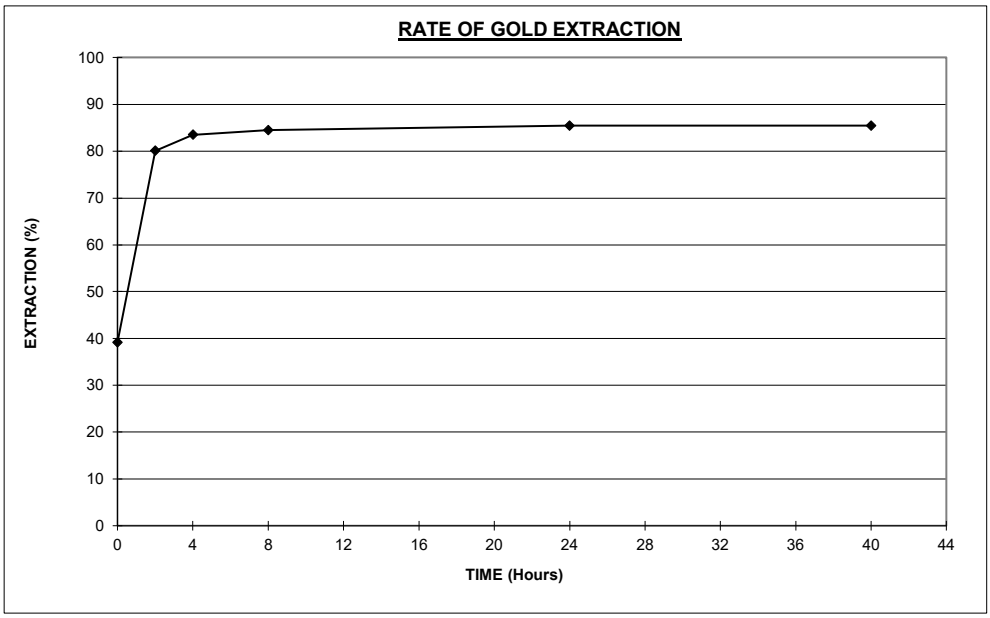
RESIDUE ASSAYS (ppm)

Au	0.18
Ag	0.15
As	10
S	0.36%
S2-	0.26%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3661.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.06 (kg/t)
13. Lime consum'n (kg/t) : 0.38 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6836**
SAMPLE ID	**KILOSEGUI FRESH MASTER COMPOSITE (MC-7)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2995.2	3661.0			8.4	7.95										
0		3661.0	1.10	0.85	20.0	10.50	**0.030**		0.00	0.00	0.00		48.00	29.69	1.58	
2		3636.0	0.00	0.00	22.8	10.15	0.030		0.37	0.14	0.05		80.47	64.52	2.76	
4		3611.0	0.00	0.00	23.3	10.08	0.028		0.44	0.16	0.05		86.57	69.47	2.76	
8		3586.0	0.00	0.00	23.1	10.07	0.028		0.45	0.16	0.05		87.01	69.47	2.76	
24		3561.0	0.00	0.00	26.9	10.09	0.025		0.45	0.16	0.05		87.44	69.47	2.76	
40		3536.0	0.00	0.00	24.2	10.02	0.023		0.45	0.16	0.05		**87.44**	**69.47**	**2.76**	
TOTAL			1.10	0.85												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2995.2	0.18	524	12.56	0.2	449	30.53	5	14976	97.24
Solution (mL)	3536.0	0.450	1591	38.14	0.16	566	38.45	0.05	177	1.15
Solution Samples *			54	1.29		20	1.33		6	0.04
Gravity		0.7	**2002**	**48.00**		**437**	**29.69**		**243**	**1.58**
Total Extraction				**87.44**			**69.47**			**2.76**
Total			4172	100.00		1471	100.00		15402	100.00
Calculated Head		1.39			0.5			5		
Assayed Head		**1.37**			**<2**			**30**		

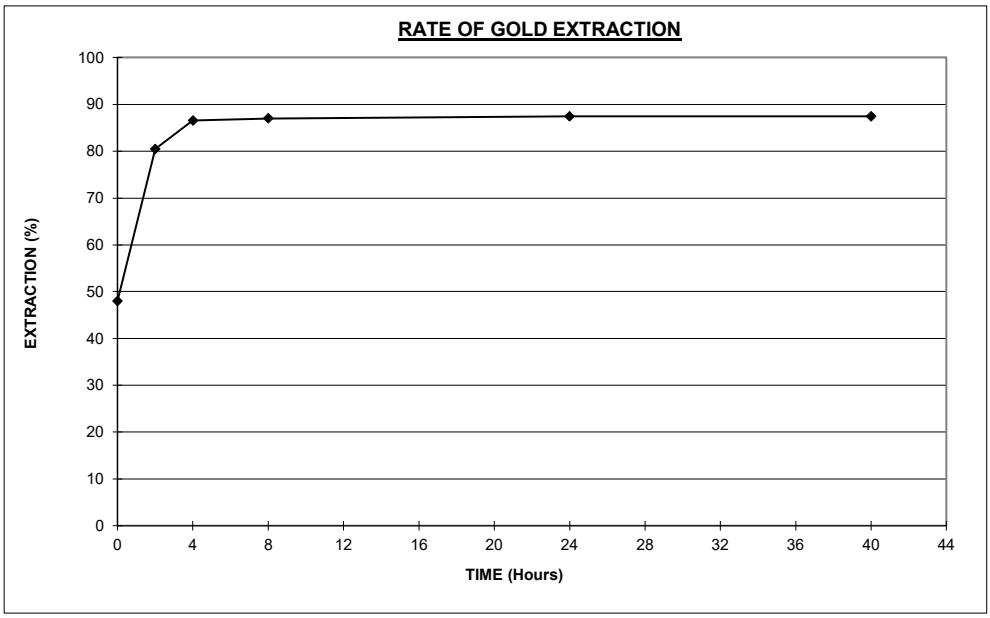
RESIDUE ASSAYS (ppm)

Au	0.18	
Ag	0.15	TBC
As	5	TBC
S		
S2-		

* : Intermediate solution samples removed during the test.

COMMENTS

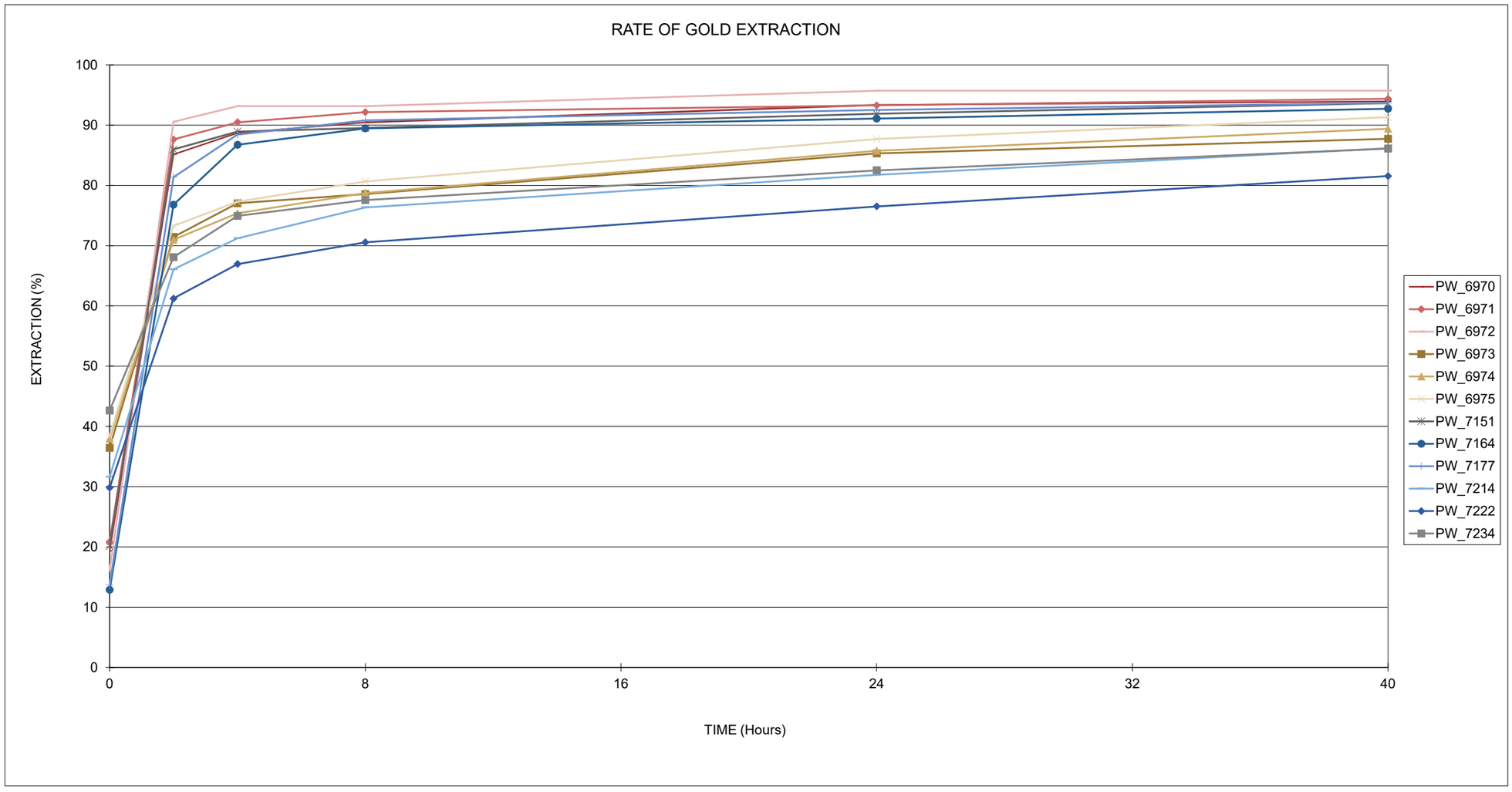
1. Start % NaCN :	0.030	(%)
2. Maintain % NaCN :	0.02	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3661.0	(g)
8. Grind size P 80 :	75	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	0.37	(kg/t)
12. NaCN consum'n (kg/t) :	0.08	(kg/t)
13. Lime consum'n (kg/t) :	0.28	(kg/t)



PROJECT	A23136 : DOROPO GOLD PROJECT
CLIENT	AMPELLA MINING COTE D'IVOIRE
DATE	2/05/2023

SUMMARY

TEST No	SAMPLE ID	GRIND SIZE (P80, µm)	O2 / AIR SPARGE	% NaCN (Init / Mtn)	% Solids (w/w)	DCN OR CIL	GOLD HEAD GRADE (g/t)		GOLD DISTRIBUTION (g/t)			GOLD DISTRIBUTION (%)			TOTAL GOLD RECOVERY (%)	REAGENTS (kg/t)	
							Assayed	Calculated	Gravity	Leach	Residue	Gravity	Leach	Residue		NaCN	Lime
PW_6970	NOKPA TRANS MASTER COMPOSITE (MC-12)	125	O2	0.10 / 0.05	45	DCN	2.10	2.06	0.40	1.54	0.13	19.3	74.6	6.1	93.9	0.18	0.86
PW_6971	NOKPA TRANS MASTER COMPOSITE (MC-12)	106	O2	0.10 / 0.05	45	DCN	2.10	2.14	0.45	1.57	0.12	20.9	73.5	5.6	94.4	0.18	0.87
PW_6972	NOKPA TRANS MASTER COMPOSITE (MC-12)	75	O2	0.10 / 0.05	45	DCN	2.10	1.87	0.30	1.49	0.08	16.1	79.6	4.3	95.7	0.18	0.86
	AVERAGE CALCULATED HEAD GRADE							**2.02**									
PW_6973	NOKPA FRESH MASTER COMPOSITE (MC-13)	125	O2	0.10 / 0.05	45	DCN	1.74	1.96	0.71	1.00	0.24	36.5	51.3	12.3	87.7	0.15	0.28
PW_6974	NOKPA FRESH MASTER COMPOSITE (MC-13)	106	O2	0.10 / 0.05	45	DCN	1.74	1.79	0.68	0.92	0.19	37.9	51.5	10.6	89.4	0.14	0.34
PW_6975	NOKPA FRESH MASTER COMPOSITE (MC-13)	75	O2	0.10 / 0.05	45	DCN	1.74	1.96	0.75	1.04	0.17	38.4	52.9	8.7	91.3	0.12	0.38
	AVERAGE CALCULATED HEAD GRADE							**1.90**									
PW_7151	NOKPA TRANS MASTER COMPOSITE (MC-12)	106	O2	0.07 / 0.04	45	DCN	2.10	2.04	0.41	1.50	0.13	20.2	73.5	6.4	93.6	0.20	0.75
PW_7164	NOKPA TRANS MASTER COMPOSITE (MC-12)	106	O2	0.05 / 0.03	45	DCN	2.10	2.20	0.28	1.76	0.16	12.9	79.8	7.3	92.7	0.14	0.77
PW_7177	NOKPA TRANS MASTER COMPOSITE (MC-12)	106	O2	0.03 / 0.02	45	DCN	2.10	2.06	0.28	1.65	0.13	13.7	80.0	6.3	93.7	0.08	0.66
	AVERAGE CALCULATED HEAD GRADE							**2.10**									
PW_7214	NOKPA FRESH MASTER COMPOSITE (MC-13)	75	O2	0.07 / 0.04	45	DCN	1.74	1.88	0.60	1.03	0.26	31.6	54.5	13.8	86.2	0.06	0.38
PW_7222	NOKPA FRESH MASTER COMPOSITE (MC-13)	75	O2	0.05 / 0.03	45	DCN	1.74	2.01	0.60	1.04	0.37	29.9	51.7	18.4	81.6	0.08	0.36
PW_7234	NOKPA FRESH MASTER COMPOSITE (MC-13)	75	O2	0.03 / 0.02	45	DCN	1.74	2.30	0.98	1.00	0.32	42.6	43.5	13.9	86.1	0.06	0.30
	AVERAGE CALCULATED HEAD GRADE							**2.06**									



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6970**
SAMPLE ID	**NOKPA TRANS MASTER COMPOSITE (MC-12)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	3000.0	3667.0			8.1	7.86										
0		3667.0	3.65	2.58	20.0	10.51	**0.100**		0.00	0.00	0.00		19.33	22.89	6.27	
2		3642.0	0.00	0.00	20.8	10.05	0.095		1.11	0.30	0.01		85.16	72.93	6.50	
4		3617.0	0.00	0.00	19.8	10.07	0.093		1.17	0.34	0.01		88.70	79.55	6.50	
8		3592.0	0.00	0.00	20.4	10.10	0.085		1.20	0.34	0.01		90.45	79.55	6.50	
24		3567.0	0.00	0.00	20.6	10.02	0.085		1.25	0.32	0.01		93.36	76.29	6.50	
40		3542.0	0.00	0.00	19.3	9.92	0.085		1.26	0.34	0.01		**93.93**	**79.53**	**6.50**	
TOTAL			3.65	2.58												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	3000.0	0.13	375	6.07	0.2	450	20.47	3	7500	93.50
Solution (mL)	3542.0	1.260	4463	72.18	0.34	1204	54.78	0.01	18	0.22
Solution Samples *			150	2.42		41	1.86		1	0.01
Gravity		0.4	**1195**	**19.33**		**503**	**22.89**		**503**	**6.27**
Total Extraction				**93.93**			**79.53**			**6.50**
Total			6183	100.00		2198	100.00		8022	100.00
Calculated Head		2.06			0.7			3		
Assayed Head		**2.10**			**<2**			**<10**		

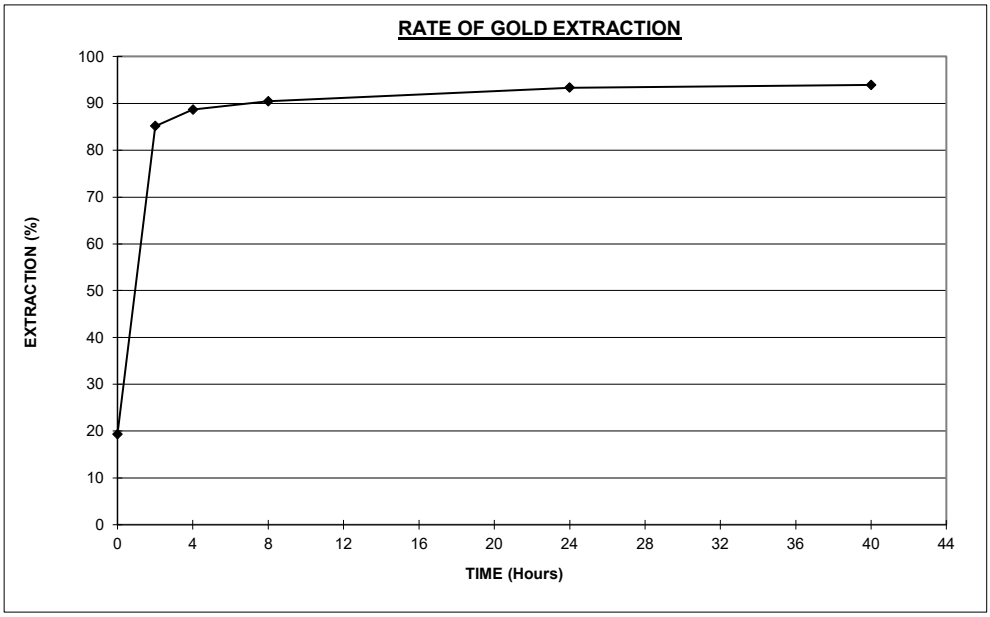
RESIDUE ASSAYS (ppm)

Au	0.13
Ag	0.15
As	2.5
S	0.06%
S2-	0.04%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3667.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.18 (kg/t)
13. Lime consum'n (kg/t) : 0.86 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6971**
SAMPLE ID	**NOKPA TRANS MASTER COMPOSITE (MC-12)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2983.2	3646.0			7.1	7.80										
0		3646.0	3.65	2.61	20.0	10.50	**0.100**		0.00	0.00	0.00		20.86	20.84	3.20	
2		3621.0	0.00	0.00	20.8	10.03	0.090		1.17	0.34	0.01		87.64	79.00	3.43	
4		3596.0	0.00	0.00	19.6	10.03	0.090		1.22	0.34	0.01		90.48	79.00	3.43	
8		3571.0	0.00	0.00	20.9	10.01	0.088		1.25	0.34	0.01		92.17	79.00	3.43	
24		3546.0	0.00	0.00	21.3	9.92	0.088		1.27	0.34	0.01		93.29	79.00	3.43	
40		3521.0	0.00	0.00	17.9	9.93	0.085		1.29	0.34	0.01		**94.40**	**79.00**	**3.43**	
TOTAL			3.65	2.61												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2983.2	0.12	358	5.60	0.2	447	21.00	3	7458	96.57
Solution (mL)	3521.0	1.290	4542	71.11	0.34	1197	56.17	0.01	18	0.23
Solution Samples *			155	2.43		43	1.99		1	0.01
Gravity		0.4	**1333**	**20.86**		**444**	**20.84**		**247**	**3.20**
Total Extraction				**94.40**			**79.00**			**3.43**
Total			6388	100.00		2131	100.00		7723	100.00
Calculated Head		2.14			0.7			3		
Assayed Head		**2.10**			**<2**			**<10**		

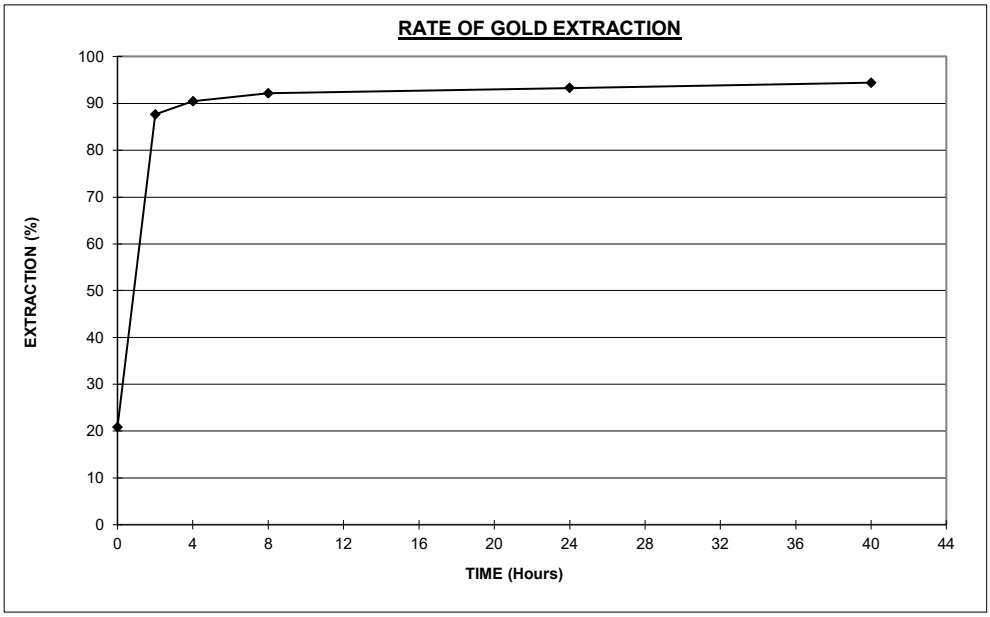
RESIDUE ASSAYS (ppm)

Au	0.12
Ag	0.15
As	2.5
S	0.06%
S2-	0.04%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	> 0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3646.0	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.18	(kg/t)
13. Lime consum'n (kg/t) :	0.87	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6972**
SAMPLE ID	**NOKPA TRANS MASTER COMPOSITE (MC-12)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2983.2	3646.0			7.8	7.78										
0		3646.0	3.65	2.58	20.0	10.50	**0.100**		0.00	0.00	0.00		16.10	8.81	1.41	
2		3621.0	0.00	0.00	20.8	10.02	0.090		1.14	0.34	0.01		90.57	45.25	1.65	
4		3596.0	0.00	0.00	19.3	10.04	0.088		1.18	0.34	0.01		93.17	45.25	1.65	
8		3571.0	0.00	0.00	20.5	10.01	0.088		1.18	0.38	0.01		93.17	49.48	1.65	
24		3546.0	0.00	0.00	21.7	9.84	0.088		1.22	0.36	0.01		95.72	47.38	1.65	
40		3521.0	0.00	0.00	17.4	9.95	0.085		1.22	0.36	0.01		**95.72**	**47.38**	**1.65**	
TOTAL			3.65	2.58												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2983.2	0.08	239	4.28	0.6	1790	52.62	3	7458	98.35
Solution (mL)	3521.0	1.220	4296	76.96	0.36	1268	37.26	0.01	18	0.23
Solution Samples *			149	2.66		45	1.31		1	0.01
Gravity		0.3	**899**	**16.10**		**300**	**8.81**		**107**	**1.41**
Total Extraction				**95.72**			**47.38**			**1.65**
Total			5582	100.00		3402	100.00		7583	100.00
Calculated Head		1.87			1.1			3		
Assayed Head		**2.10**			**<2**			**<10**		

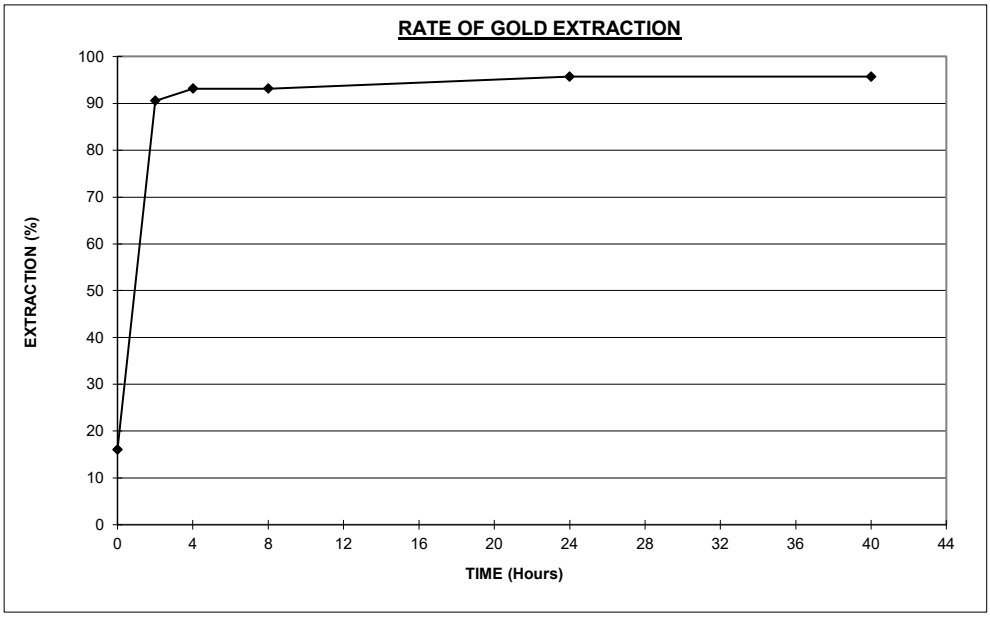
RESIDUE ASSAYS (ppm)

Au	0.08
Ag	0.6
As	2.5
S	0.06%
S2-	0.04%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	> 0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3646.0	(g)
8. Grind size P 80 :	75	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.18	(kg/t)
13. Lime consum'n (kg/t) :	0.86	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6973**
SAMPLE ID	**NOKPA FRESH MASTER COMPOSITE (MC-13)**
GRIND SIZE P_{80}:	**125 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2996.4	3662.0			8.2	7.87										
0		3662.0	3.66	0.85	20.0	10.51	**0.100**		0.00	0.00	0.00		36.47	23.59	17.87	
2		3637.0	0.00	0.00	26.5	10.24	0.093		0.56	0.30	0.01		71.45	71.16	18.07	
4		3612.0	0.00	0.00	16.6	10.23	0.090		0.65	0.34	0.01		77.03	77.45	18.07	
8		3587.0	0.00	0.00	22.3	10.21	0.088		0.68	0.34	0.01		78.57	77.45	18.07	
24		3562.0	0.00	0.00	21.0	10.21	0.088		0.79	0.34	0.01		85.30	77.45	18.07	
40		3537.0	0.00	0.00	19.2	10.20	0.088		0.83	0.36	0.01		**87.73**	**80.54**	**18.07**	
TOTAL			3.66	0.85												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2996.4	0.24	719	12.27	0.2	449	19.46	3	7491	81.93
Solution (mL)	3537.0	0.825	2918	49.77	0.36	1273	55.13	0.01	18	0.19
Solution Samples *			87	1.49		42	1.82		1	0.01
Gravity		0.7	**2138**	**36.47**		**545**	**23.59**		**1634**	**17.87**
Total Extraction				**87.73**			**80.54**			**18.07**
Total			5863	100.00		2310	100.00		9144	100.00
Calculated Head		1.96			0.8			3		
Assayed Head		**1.74**			**<2**			**<10**		

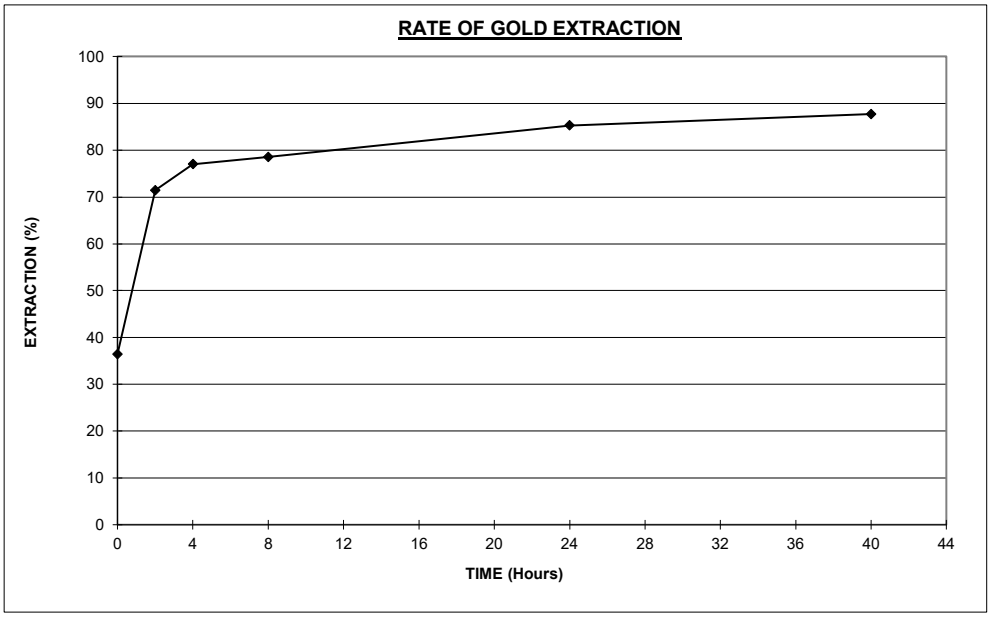
RESIDUE ASSAYS (ppm)

Au	0.24
Ag	0.15
As	2.5
S	0.34%
S2-	0.28%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3662.0 (g)
8. Grind size P 80 : 125 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.15 (kg/t)
13. Lime consum'n (kg/t) : 0.28 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6974**
SAMPLE ID	**NOKPA FRESH MASTER COMPOSITE (MC-13)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2996.4	3662.0			8.2	7.89										
0		3662.0	3.66	1.02	20.0	10.51	**0.100**		0.00	0.00	0.00		37.94	24.63	1.73	
2		3637.0	0.00	0.00	21.0	10.35	0.095		0.49	0.28	0.01		70.99	72.33	1.97	
4		3612.0	0.00	0.00	21.0	10.38	0.095		0.55	0.30	0.01		75.39	75.71	1.97	
8		3587.0	0.00	0.00	19.5	10.31	0.093		0.60	0.34	0.01		78.75	82.43	1.97	
24		3562.0	0.00	0.00	21.8	10.28	0.088		0.71	0.32	0.01		85.76	79.09	1.97	
40		3537.0	0.00	0.00	18.9	10.30	0.088		0.76	0.32	0.01		**89.41**	**79.09**	**1.97**	
TOTAL			3.66	1.02												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay	Mass	Dist'n	Assay	Mass	Dist'n	Assay	Mass	Dist'n
		[ppm]	[µg]	[%]	[ppm]	[µg]	[%]	[ppm]	[µg]	[%]
Solids (g)	2996.4	0.19	569	10.59	0.2	449	20.91	3	7491	98.03
Solution (mL)	3537.0	0.760	2688	50.02	0.32	1132	52.65	0.01	18	0.23
Solution Samples *			78	1.44		39	1.81		1	0.01
Gravity		0.7	**2039**	**37.94**		**530**	**24.63**		**132**	**1.73**
Total Extraction				**89.41**			**79.09**			**1.97**
Total			5374	100.00		2150	100.00		7642	100.00
Calculated Head		1.79			0.7			3		
Assayed Head		**1.74**			**<2**			**<10**		

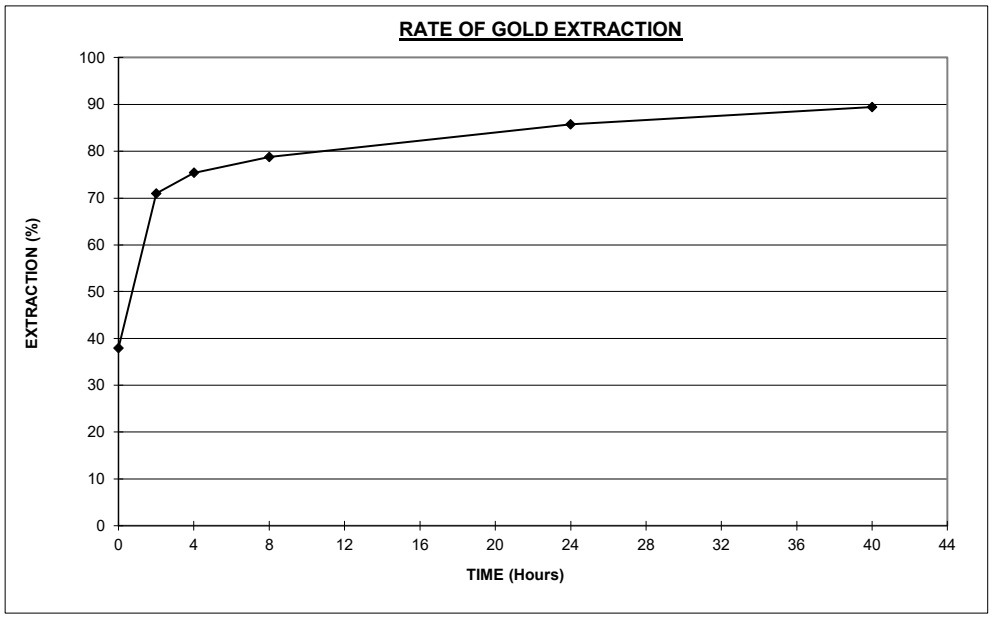
RESIDUE ASSAYS (ppm)

Au	0.19
Ag	0.15
As	2.5
S	0.32%
S2-	0.22%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN :	0.100	(%)
2. Maintain % NaCN :	> 0.05	(%)
3. Maintain pH (lime) :	9.8	
4. Oxygen sparge :	>20	(ppm)
5. Solids % :	45.0	(%w/w)
6. Tap water SG :	1.0000	(g/cm^3)
7. Water weight to leach :	3662.0	(g)
8. Grind size P 80 :	106	(µm)
9. Evaporation losses were made for prior to sampling at each period.		
10. 25mL solution removed at each sampling period.		
11. NaCN addition :	1.22	(kg/t)
12. NaCN consum'n (kg/t) :	0.14	(kg/t)
13. Lime consum'n (kg/t) :	0.34	(kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW6975**
SAMPLE ID	**NOKPA FRESH MASTER COMPOSITE (MC-13)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Feb-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF GRIND SIZE

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2996.4	3662.0			8.0	7.88										
0		3662.0	3.66	1.14	20.0	10.56	**0.100**		0.00	0.00	0.00		38.39	21.60	1.45	
2		3637.0	0.00	0.00	18.8	10.46	0.090		0.56	0.30	0.01		73.28	70.36	1.69	
4		3612.0	0.00	0.00	20.0	10.42	0.090		0.63	0.34	0.01		77.30	76.82	1.69	
8		3587.0	0.00	0.00	16.5	10.37	0.090		0.68	0.38	0.01		80.68	83.23	1.69	
24		3562.0	0.00	0.00	21.1	10.38	0.090		0.80	0.36	0.01		87.70	80.05	1.69	
40		3537.0	0.00	0.00	18.4	10.29	0.090		0.86	0.36	0.01		**91.33**	**80.05**	**1.69**	
TOTAL			3.66	1.14												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2996.4	0.17	509	8.67	0.2	449	19.95	3	7491	98.31
Solution (mL)	3537.0	0.855	3024	51.45	0.36	1273	56.52	0.01	18	0.23
Solution Samples *			88	1.50		44	1.93		1	0.01
Gravity		0.8	**2256**	**38.39**		**487**	**21.60**		**111**	**1.45**
Total Extraction				**91.33**			**80.05**			**1.69**
Total			5878	100.00		2253	100.00		7620	100.00
Calculated Head		1.96			0.8			3		
Assayed Head		**1.74**			**<2**			**<10**		

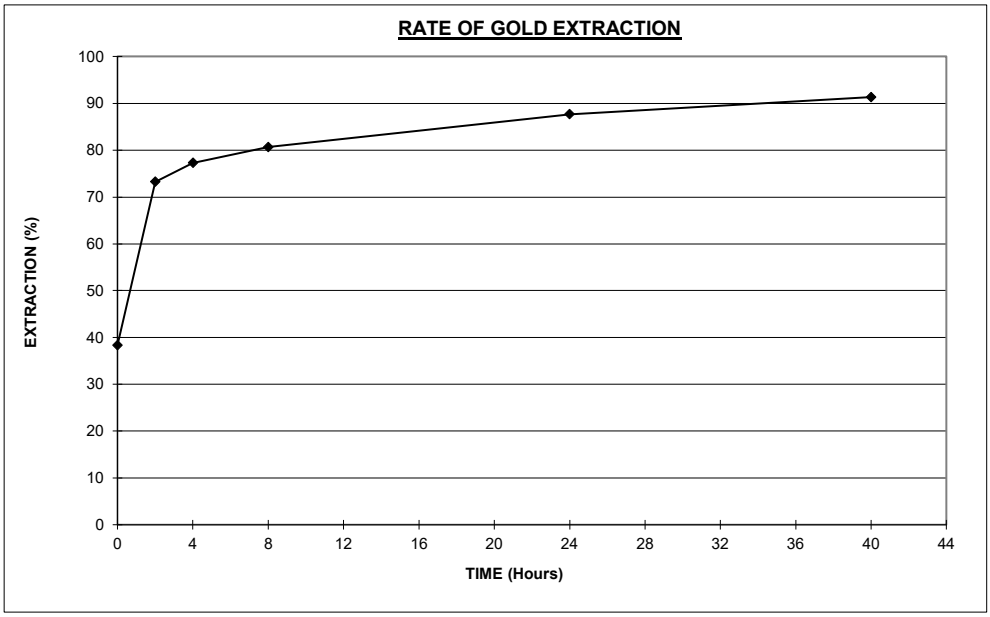
RESIDUE ASSAYS (ppm)

Au	0.17
Ag	0.15
As	2.5
S	0.36%
S2-	0.28%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.100 (%)
2. Maintain % NaCN : > 0.05 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3662.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 1.22 (kg/t)
12. NaCN consum'n (kg/t) : 0.12 (kg/t)
13. Lime consum'n (kg/t) : 0.38 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7151**
SAMPLE ID	**NOKPA TRANS MASTER COMPOSITE (MC-12)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2983.2	3646.0			9.6	7.92										
0		3646.0	2.55	1.62	20.0	10.58	**0.070**		0.00	0.00	0.00		20.15	22.37	6.22	
2		3621.0	0.00	0.25	17.2	9.60	0.065		1.10	0.32	0.05		85.98	73.90	8.45	
4		3596.0	0.00	0.25	19.1	9.68	0.063		1.15	0.34	0.05		88.95	77.10	8.45	
8		3571.0	0.00	0.13	22.6	9.74	0.058		1.16	0.34	0.05		89.54	77.10	8.45	
24		3546.0	0.00	0.00	17.6	9.83	0.055		1.20	0.34	0.05		91.89	77.10	8.45	
40		3521.0	0.00	0.00	20.9	9.76	0.053		1.23	0.36	0.05		**93.63**	**80.23**	**8.45**	
TOTAL			2.55	2.25												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2983.2	0.13	388	6.37	0.2	447	19.77	3	7458	91.55
Solution (mL)	3521.0	1.230	4331	71.08	0.36	1268	55.99	0.05	176	2.16
Solution Samples *			146	2.40		43	1.88		6	0.08
Gravity		0.4	**1228**	**20.15**		**506**	**22.37**		**506**	**6.22**
Total Extraction				**93.63**			**80.23**			**8.45**
Total			6092	100.00		2264	100.00		8147	100.00
Calculated Head		2.04			0.8			3		
Assayed Head		**2.10**			**<2**			**<10**		

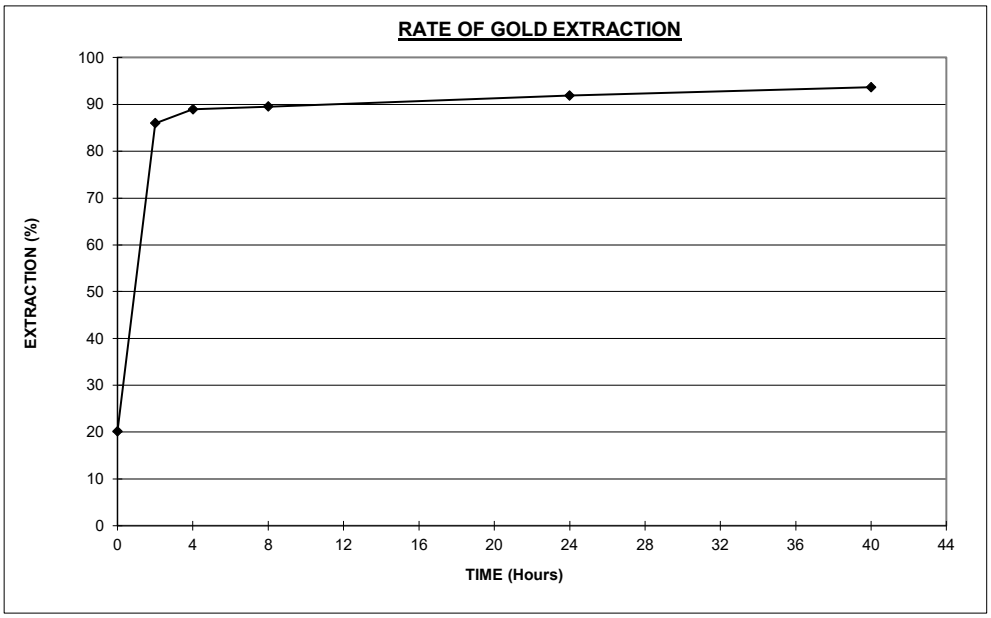
RESIDUE ASSAYS (ppm)

Au	0.13
Ag	0.15
As	2.5
S	0.04%
S2-	<0.02

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3646.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.85 (kg/t)
12. NaCN consum'n (kg/t) : 0.20 (kg/t)
13. Lime consum'n (kg/t) : 0.75 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7164**
SAMPLE ID	**NOKPA TRANS MASTER COMPOSITE (MC-12)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2983.2	3646.0			7.9	7.83										
0		3646.0	1.82	2.19	20.0	10.52	**0.050**		0.00	0.00	0.00		12.90	13.13	0.96	
2		3621.0	0.00	0.00	17.9	9.90	0.043		1.15	0.34	0.05		76.80	49.67	3.33	
4		3596.0	0.00	0.00	20.9	9.83	0.043		1.33	0.38	0.05		86.73	53.94	3.33	
8		3571.0	0.00	0.00	20.2	9.81	0.040		1.38	0.38	0.05		89.47	53.94	3.33	
24		3546.0	0.00	0.10	22.3	9.74	0.040		1.41	0.38	0.05		91.10	53.94	3.33	
40		3521.0	0.00	0.00	23.2	9.83	0.038		1.44	0.40	0.05		**92.73**	**56.03**	**3.33**	
TOTAL			1.82	2.29												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2983.2	0.16	477	7.27	0.5	1492	43.97	3	7458	96.67
Solution (mL)	3521.0	1.440	5070	77.27	0.40	1408	41.52	0.05	176	2.28
Solution Samples *			168	2.56		47	1.39		6	0.08
Gravity		0.3	**846**	**12.90**		**445**	**13.13**		**74**	**0.96**
Total Extraction				**92.73**			**56.03**			**3.33**
Total			6562	100.00		3392	100.00		7715	100.00
Calculated Head		2.20			1.1			3		
Assayed Head		**2.10**			**<2**			**<10**		

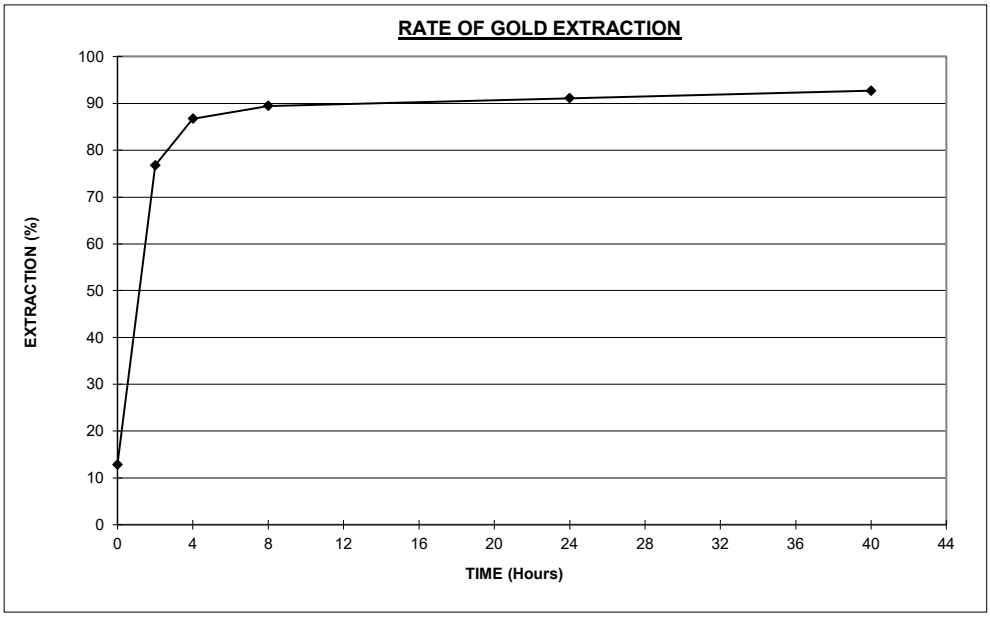
RESIDUE ASSAYS (ppm)

Au	0.16
Ag	0.5
As	2.5
S	0.04%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3646.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.14 (kg/t)
13. Lime consum'n (kg/t) : 0.77 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7177**
SAMPLE ID	**NOKPA TRANS MASTER COMPOSITE (MC-12)**
GRIND SIZE P_{80}:	**106 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Mar-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2983.2	3646.0			7.5	7.71										
0		3646.0	1.09	1.68	20.0	10.50	**0.030**		0.00	0.00	0.00		13.70	16.87	1.64	
2		3621.0	0.00	0.06	19.7	9.71	0.028		1.14	0.32	0.05		81.37	71.99	3.99	
4		3596.0	0.00	0.08	20.3	9.76	0.025		1.26	0.36	0.05		88.45	78.83	3.99	
8		3571.0	0.00	0.06	23.4	9.70	0.025		1.30	0.38	0.05		90.79	82.23	3.99	
24		3546.0	0.00	0.08	23.0	9.66	0.023		1.33	0.36	0.05		92.53	78.86	3.99	
40		3521.0	0.00	0.00	22.0	9.73	0.023		1.35	0.36	0.05		**93.69**	**78.86**	**3.99**	
TOTAL			1.09	1.96												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2983.2	0.13	388	6.31	0.2	447	21.14	3	7458	96.01
Solution (mL)	3521.0	1.350	4753	77.39	0.36	1268	59.89	0.05	176	2.27
Solution Samples *			160	2.60		45	2.10		6	0.08
Gravity		0.3	**842**	**13.70**		**357**	**16.87**		**128**	**1.64**
Total Extraction				**93.69**			**78.86**			**3.99**
Total			6142	100.00		2117	100.00		7768	100.00
Calculated Head		2.06			0.7			3		
Assayed Head		**2.10**			**<2**			**<10**		

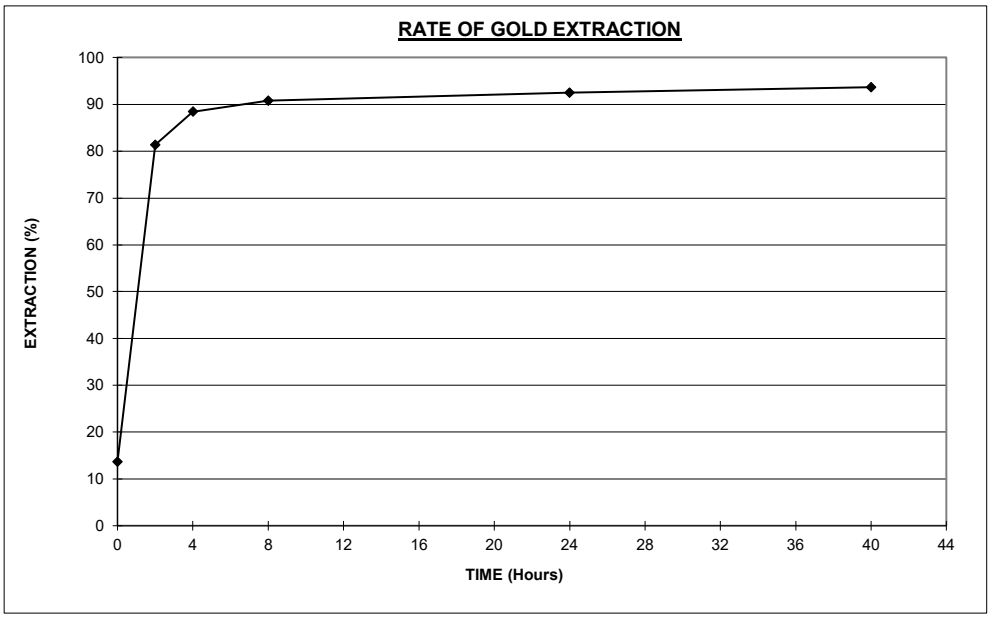
RESIDUE ASSAYS (ppm)

Au	0.13
Ag	0.15
As	2.5
S	0.02%
S2-	<0.02%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3646.0 (g)
8. Grind size P 80 : 106 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.08 (kg/t)
13. Lime consum'n (kg/t) : 0.66 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7214**
SAMPLE ID	**NOKPA FRESH MASTER COMPOSITE (MC-13)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2996.4	3662.0			7.8	7.78										
0		3662.0	2.56	1.15	20.0	10.54	**0.070**		0.00	0.00	0.00		31.65	15.61	1.56	
2		3637.0	0.00	0.00	24.9	10.27	0.065		0.53	0.28	0.05		66.07	62.71	3.91	
4		3612.0	0.00	0.00	23.6	10.26	0.065		0.61	0.34	0.05		71.23	72.74	3.91	
8		3587.0	0.00	0.00	28.0	10.31	0.065		0.69	0.36	0.10		76.35	76.06	6.22	
24		3562.0	0.00	0.00	25.0	10.31	0.065		0.78	0.38	0.05		81.76	79.35	3.92	
40		3537.0	0.00	0.00	26.7	10.29	0.065		0.85	0.38	0.05		**86.18**	**79.35**	**3.92**	
TOTAL			2.56	1.15												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2996.4	0.26	779	13.82	0.2	449	20.65	3	7491	96.08
Solution (mL)	3537.0	0.845	2989	53.01	0.38	1344	61.74	0.05	177	2.27
Solution Samples *			86	1.53		44	2.00		8	0.10
Gravity		0.6	**1784**	**31.65**		**340**	**15.61**		**121**	**1.56**
Total Extraction				**86.18**			**79.35**			**3.92**
Total			5638	100.00		2177	100.00		7797	100.00
Calculated Head		1.88			0.7			3		
Assayed Head		**1.74**			**<2**			**<10**		

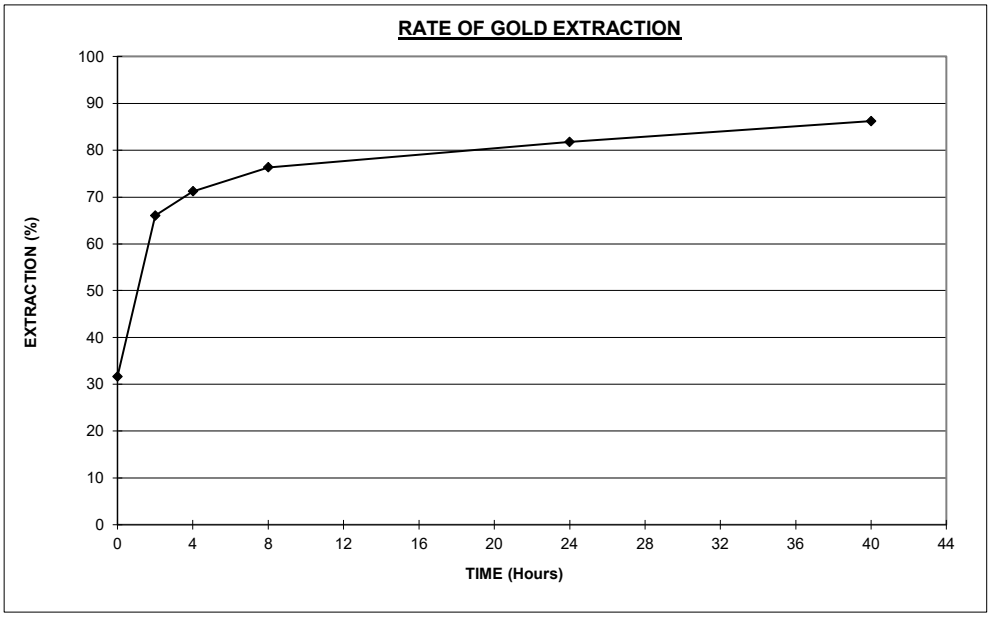
RESIDUE ASSAYS (ppm)

Au	0.26
Ag	0.15
As	2.5
S	0.34%
S2-	0.26%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.070 (%)
2. Maintain % NaCN : 0.04 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3662.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.85 (kg/t)
12. NaCN consum'n (kg/t) : 0.06 (kg/t)
13. Lime consum'n (kg/t) : 0.38 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7222**
SAMPLE ID	**NOKPA FRESH MASTER COMPOSITE (MC-13)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2996.4	3662.0			6.4	7.83										
0		3662.0	1.83	1.08	20.0	10.57	**0.050**		0.00	0.00	0.00		29.86	14.37	1.47	
2		3637.0	0.00	0.00	21.1	10.40	0.050		0.52	0.26	0.05		61.22	57.09	3.82	
4		3612.0	0.00	0.00	17.2	10.36	0.048		0.61	0.32	0.05		66.96	66.89	3.82	
8		3587.0	0.00	0.00	23.1	10.35	0.045		0.67	0.38	0.05		70.57	76.61	3.82	
24		3562.0	0.00	0.00	19.8	10.39	0.045		0.77	0.40	0.05		76.53	79.83	3.82	
40		3537.0	0.00	0.00	21.9	10.52	0.043		0.86	0.40	0.05		**81.56**	**79.83**	**3.82**	
TOTAL			1.83	1.08												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2996.4	0.37	1109	18.44	0.2	449	20.17	3	7491	96.18
Solution (mL)	3537.0	0.855	3024	50.29	0.40	1415	63.49	0.05	177	2.27
Solution Samples *			86	1.42		44	1.97		6	0.08
Gravity		0.6	**1795**	**29.86**		**320**	**14.37**		**114**	**1.47**
Total Extraction				**81.56**			**79.83**			**3.82**
Total			6014	100.00		2228	100.00		7788	100.00
Calculated Head		2.01			0.7			3		
Assayed Head		**1.74**			**<2**			**<10**		

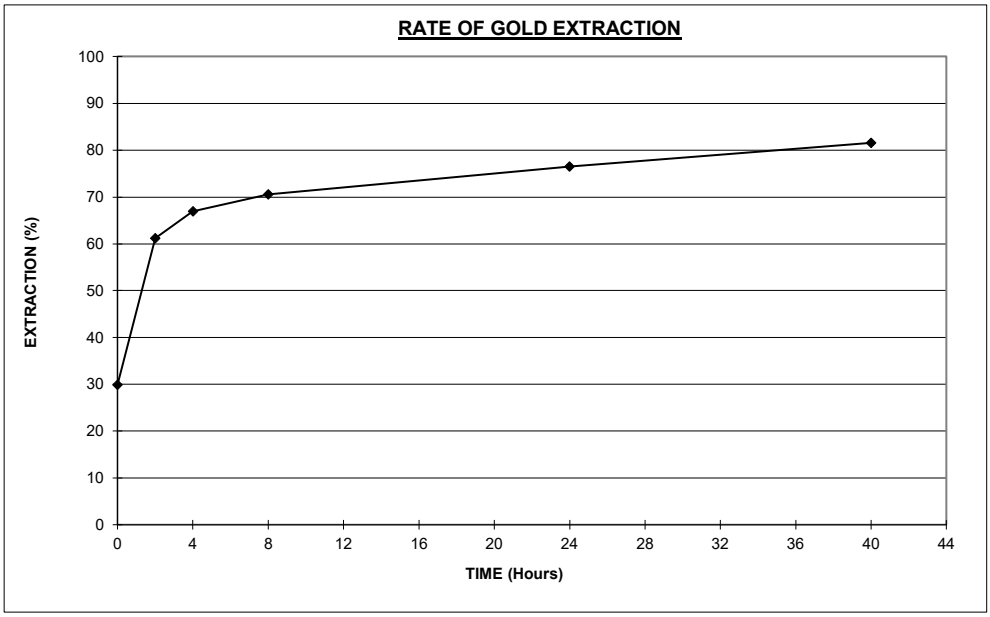
RESIDUE ASSAYS (ppm)

Au	0.37
Ag	0.15
As	2.5
S	0.32%
S2-	0.24%

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.050 (%)
2. Maintain % NaCN : 0.03 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3662.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.61 (kg/t)
12. NaCN consum'n (kg/t) : 0.08 (kg/t)
13. Lime consum'n (kg/t) : 0.36 (kg/t)



PROJECT:	**A23136 : DOROPO GOLD PROJECT**
CLIENT:	**AMPELLA MINING COTE D'IVOIRE**
TEST No	**PW7234**
SAMPLE ID	**NOKPA FRESH MASTER COMPOSITE (MC-13)**
GRIND SIZE P_{80}:	**75 µm**
WATER TYPE:	**PERTH TAP WATER**
DATE:	**Apr-23**

GRAVITY / DIRECT CYANIDATION LEACH TESTWORK - EFFECT OF CYANIDE CONCENTRATION

Time	Additions				Solution Data							Total Extraction			
	Ore	Water	NaCN	Lime	Oxygen	pH	NaCN		Au	Ag	As		Au	Ag	As	
[h]	[g]	[mL]	[g]	[g]	[ppm]		[%, w/v]		[ppm]	[ppm]	[ppm]		[%]	[%]	[%]	
	2996.4	3662.0			8.2	7.87										
0		3662.0	1.10	0.90	20.0	10.63	**0.030**		0.00	0.00	0.00		42.65	20.98	1.48	
2		3637.0	0.00	0.00	22.8	10.18	0.033		0.48	0.24	0.05		68.11	57.40	3.83	
4		3612.0	0.00	0.00	22.6	10.11	0.033		0.61	0.32	0.05		74.95	69.46	3.83	
8		3587.0	0.00	0.00	24.1	10.09	0.030		0.66	0.36	0.05		77.57	75.45	3.83	
24		3562.0	0.00	0.00	29.1	10.17	0.028		0.76	0.38	0.05		82.50	78.42	3.83	
40		3537.0	0.00	0.00	22.8	10.12	0.025		0.83	0.40	0.05		**86.11**	**81.37**	**3.83**	
TOTAL			1.10	0.90												

<LDL; 50% LDL applied.

GOLD, SILVER & ARSENIC EXTRACTION CALCULATIONS

Product	Quantity	Gold			Silver			Arsenic		
		Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]	Assay [ppm]	Mass [µg]	Dist'n [%]
Solids (g)	2996.4	0.32	959	13.89	0.2	449	18.63	3	7491	96.17
Solution (mL)	3537.0	0.825	2918	42.26	0.40	1415	58.63	0.05	177	2.27
Solution Samples *			83	1.21		43	1.76		6	0.08
Gravity		1.0	**2945**	**42.65**		**506**	**20.98**		**115**	**1.48**
Total Extraction				**86.11**			**81.37**			**3.83**
Total			6905	100.00		2413	100.00		7789	100.00
Calculated Head		2.30			0.8			3		
Assayed Head		**1.74**			**<2**			**<10**		

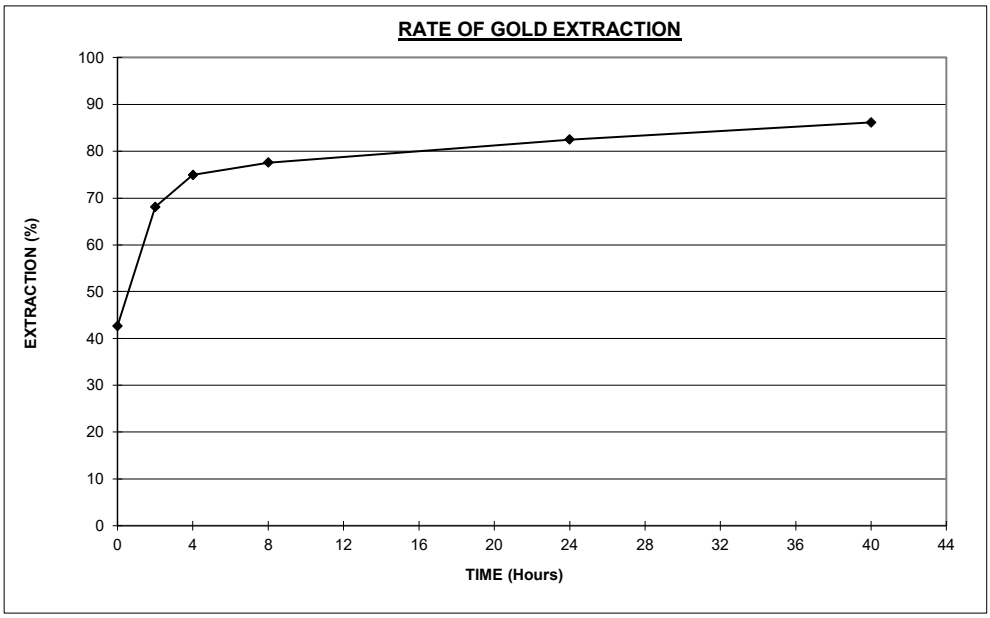
RESIDUE ASSAYS (ppm)

Au	0.32	
Ag	0.15	TBC
As	2.5	TBC
S		
S2-		

* : Intermediate solution samples removed during the test.

COMMENTS

1. Start % NaCN : 0.030 (%)
2. Maintain % NaCN : 0.02 (%)
3. Maintain pH (lime) : 9.8
4. Oxygen sparge : >20 (ppm)
5. Solids % : 45.0 (%w/w)
6. Tap water SG : 1.0000 (g/cm^3)
7. Water weight to leach : 3662.0 (g)
8. Grind size P 80 : 75 (µm)
9. Evaporation losses were made for prior to sampling at each period.
10. 25mL solution removed at each sampling period.
11. NaCN addition : 0.37 (kg/t)
12. NaCN consum'n (kg/t) : 0.06 (kg/t)
13. Lime consum'n (kg/t) : 0.30 (kg/t)



APPENDIX 6.2

OMC REPORT 7557.35-01

DOROPO GOLD PROJECT

High Level Comminution Modelling

Centamin plc

Report No. 7557.35-01 Rev 3 1 February 2023



Orway Mineral Consultants (WA) Pty Ltd
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
+61 8 6210 5601 | omc@orway.com.au | www.orway.com.au

Centamin plc

High Level Comminution Modelling

1.0 INTRODUCTION

Bruce Lilford, Study-Project Manager for Doropo Gold Project requested Orway Mineral Consultants (WA) Pty Ltd (OMC) to provide high level modelling for a primary crush SABC circuit processing 4.0Mt/a fresh ore, at two grind sizes (P_{80} 75µm and 106µm) for the Doropo Gold Project located in Cote d'Ivoire, West Africa. The modelling was based on testwork from 9 deposits associated with the Doropo Project.

The high-level modelling will be used for comparison of the mill sizes between the two grind size scenarios. The mill operating conditions when processing oxide ore will also be considered in this review. This work will form part of a broader prefeasibility study scope of work.

2.0 ORE CHARACTERISTICS

Comminution testwork was conducted on 43 samples from 9 deposits, including ore from fresh, transition and oxide zones. Sample location, descriptions and testwork results are presented in Table 2-1 and Table 2-2.

Table 2-1 Sample Location and Description

Deposit	Sample Name	Drill Hole Id	Depth From, (m)	Depth To, (m)	Weathering	Lithology	Alteration
Souwa	Souwa Oxide	DPDD1517	0	10	Oxide		
	Souwa Transition	DPDD1462	22.5	32.5	Transition		
	Souwa Fresh 1	DPDD1520	60	70	Fresh	Granodiorite	Sericite
	Souwa Fresh 2	DPDD1523	133	143	Fresh	Granodiorite	Veining
	Souwa Fresh 3	DPDD1527	96	103	Fresh	Granodiorite	Hematite
	Souwa Fresh 4	DPDD1382	79	90	Fresh	Granodiorite	Chlorite & Hematite & Silica
	Souwa Fresh 5	DPDD1473	80	87	Fresh	Granodiorite + Vein	Silica & Sericite
Nokpa	Nokpa Transition	DPDD1533	12.5	21.5	Transition	Saprolite	Veining
	Nokpa Fresh 1	DPDD1528	81	88	Fresh	Granodiorite	
	Nokpa Fresh 2	DPDD1531	108	118	Fresh	Granodiorite	Veining
	Nokpa Fresh 3	DPDD1425	120	137.7	Fresh	Granodiorite + Vein	Hematite & Silica
Chegue Main	Chegue Main Oxide	DPDD1541	5	11	Oxide	Saprolite	Clay Undiff
	Chegue Main Transition	DPDD1541	21	26	Transition	Saprock	Limonite
	Chegue Main Fresh 1	DPDD1536	75	80	Fresh	Granodiorite	Sericite
	Chegue Main Fresh 2	DPDD1537	52	57	Fresh	Stockwork veins	Silica
	Chegue Main Fresh 3	DPDD1538	78	83	Fresh	Granodiorite	Hematite
	Chegue Main Fresh 4	DPDD1543	65	70	Fresh	Vein (>10cm)	Silica
	Chegue Main Fresh 5	DPDD1494	50	58	Fresh	Granodiorite + Vein	Silica & Sericite

Table 2-1 Sample Location and Description (cont.)

Deposit	Sample Name	Drill Hole Id	Depth From, (m)	Depth To, (m)	Weathering	Lithology	Alteration
Chegue South	Chegue South Transition	DPDD1551	23	28	Transition	Saprock + Vein	Limonite + Clay
	Chegue South Fresh 1	DPDD1544	55	61	Fresh	Granodiorite	Hematite
	Chegue South Fresh 2	DPDD1549	82	90	Fresh	Granodiorite + Vein	Chlorite + Sericite
Kekeda	Kekeda Transition 1	DPDD1554	38	47	Transition	Saprock & Stockwork Veins	Epidote & Limonite
	Kekeda Transition 2	DPDD1559	39	46	Transition	Granodiorite	Silica & Sericite
	Kekeda Fresh 1	DPDD1554	57	64	Fresh	Granodiorite with Veins	Sericite
	Kekeda Fresh 2	DPDD1556	49	53	Fresh	Vein	Silica
	Kekeda Fresh 3	DPDD1558	68	73	Fresh	Granodiorite	Sericite & Hematite
	Kekeda Fresh 4	DPDD1479	44	50.3	Fresh	Granite + Vein	Sericite & Hematite & Silica & Epidote
Han	Han Transition	DPDD1562	12	17	Trans / Fresh	Granodiorite	Sericite
	Han Fresh 1	DPDD1564	81	86	Fresh	Granodiorite	Hematite
	Han Fresh 2	DPDD1561	61	67	Fresh	Granodiorite	Chlorite & Hematite bands
	Han Fresh 3	DPDD1565	48	54	Fresh	Granodiorite	Chlorite
Enioda	Enioda Oxide 1	DPDD1571	20	27	Oxide	Saprock & Vein	Hematite & Limonite
	Enioda Oxide 2	DPDD1574	10	20	Oxide	Saprolite	Hemataite & Limonite
	Enioda Fresh 1	DPDD1567	79	86	Fresh	Granodiorite	Chlorite & Hematite
	Enioda Fresh 2	DPDD1573	78	85	Fresh	Granodiorite	Seticite & Hematite & Silica
Attire	Attire Transition	DPDD1580	30	39	Transition	Saprock	Hematite
	Attire Fresh 1	DPDD1578	55	60	Fresh	Granodiorite	Chlorite & Hematite
	Attire Fresh 2	DPDD1575	73	81	Fresh	Granodioritic Gneiss & Vein	Seticite & Hematite & Silica
Kilosegui	Kilosegui Transition	DPDD3012	23	28	Transition	Saprock	Sericite & Hematite & Silica
	Kilosegui Fresh 1	DPDD3008	37	42	Fresh	Granodiorite with Small Veins	Sericite & Hematite & Silica
	Kilosegui Fresh 2	DPDD3010	28	33	Fresh	Granodiorite	Hematite
	Kilosegui Fresh 3	DPDD3011	63	68	Fresh	Granodiorite with Large Qtz Vein	Sericite & Hematite & Silica
	Kilosegui Fresh 4	DPDD3013	91	96	Fresh	Granodiorite	Hematite

Table 2-2 Testwork Results

Deposit	Sample Name	Average UCS, MPa	Ai, g	Average CWi, kWh/t	RWi, kWh/t	BWi, kWh/t	Ore SG	Axb
Souwa	Souwa Oxide	-	0.136	-	11.9	17.5	2.32	304.4
	Souwa Transition	-	0.148	2.9	12.7	13.6	2.56	99.5
	Souwa Fresh 1	22	0.223	4.8	16.6	15.9	2.67	45.8
	Souwa Fresh 2	30	0.267	9.3	17.9	17.8	2.69	39.7
	Souwa Fresh 3	54	0.255	10.0	18.8	17.7	2.68	36.4
	Souwa Fresh 4	54	0.169	6.9	16.5	16.9	2.67	64.2
	Souwa Fresh 5	54	0.145	5.3	16.3	17.0	2.67	74.0
Nokpa	Nokpa Transition	-	0.326	-	15.9	19.7	2.58	83.6
	Nokpa Fresh 1	-	0.018	3.1	15.7	18.3	2.66	85.2
	Nokpa Fresh 2	22	0.122	5.6	16.0	17.9	2.67	56.8
	Nokpa Fresh 3	22	0.113	4.6	18.4	19.6	2.65	52.0
Chegue Main	Chegue Main Oxide	-	-	-	-	19.8	-	-
	Chegue Main Transition	-	0.045	1.6	7.2	12.6	2.48	480.3
	Chegue Main Fresh 1	60	0.120	8.8	18.2	17.7	2.68	38.9
	Chegue Main Fresh 2	44	0.347	11.0	18.7	16.8	2.67	41.8
	Chegue Main Fresh 3	-	0.125	2.1	17.2	16.9	2.65	43.7
	Chegue Main Fresh 4	40	0.380	12.3	17.4	17.7	2.68	46.4
	Chegue Main Fresh 5	40	0.191	6.5	17.3	17.8	2.67	46.1
Chegue South	Chegue South Transition	14	0.214	1.8	11.9	16.1	2.56	79.1
	Chegue South Fresh 1	38	0.291	13.3	17.9	19.4	2.68	37.3
	Chegue South Fresh 2	85	0.161	10.7	19.4	18.5	2.72	36.9
Kekeda	Kekeda Transition 1	34	0.135	4.1	10.6	14.0	2.58	168.2
	Kekeda Transition 2	37	0.119	12.1	12.5	15.2	2.58	91.6
	Kekeda Fresh 1	106	0.217	13.8	18.1	16.4	2.70	44.1
	Kekeda Fresh 2	83	0.162	7.1	14.3	17.1	2.68	59.5
	Kekeda Fresh 3	93	0.172	15.8	17.4	17.3	2.72	47.5
	Kekeda Fresh 4	93	0.163	6.2	13.3	16.1	2.63	72.0
Han	Han Transition	88	0.168	7.8	11.8	17.0	2.65	82.8
	Han Fresh 1	98	0.251	14.6	16.3	19.4	2.67	46.5
	Han Fresh 2	99	0.223	10.6	17.4	17.8	2.70	36.8
	Han Fresh 3	94	0.262	9.1	15.3	17.2	2.69	47.0
Enioda	Enioda Oxide 1	-	0.360	3.9	-	18.3	2.29	91.9
	Enioda Oxide 2	-	-	-	-	22.2	-	-
	Enioda Fresh 1	134	0.244	13.5	21.4	16.9	2.70	31.3
	Enioda Fresh 2	56	0.155	7.9	17.8	16.6	2.73	39.7
Attire	Attire Transition	-	0.072	5.0	12.8	16.6	2.57	112.8
	Attire Fresh 1	73	0.122	11.3	17.4	17.2	2.69	39.7
	Attire Fresh 2	87	0.116	10.8	18.6	18.7	2.71	36.8
Kilosegui	Kilosegui Transition	-	0.062	-	12.3	11.0	2.60	100.6
	Kilosegui Fresh 1	60	0.315	9.9	16.5	16.5	2.57	53.4
	Kilosegui Fresh 2	128	0.309	10.4	12.7	16.1	2.63	61.2
	Kilosegui Fresh 3	96	0.183	10.3	16.4	16.7	2.68	52.9
	Kilosegui Fresh 4	82	0.193	10.4	17.3	16.7	2.58	46.8

The 85th percentile ore characteristics were determined for all samples (i.e. unweighted fresh, oxide and transition) as ore types are not planned to be blended. This was found to be similar to the 85th percentile ore characteristics for fresh samples only. The 85th percentile oxide characteristics were also calculated and found to be similar whether or not transitional samples were included. This is likely owing to the nature of transitional samples (degree of weathering), but also to the generally high variability of Axb and BWi observed across all samples.

It is noted that the 85th percentile BWi for oxide & transitional, or oxide only are higher than the design BWi. However the Axb for all samples is significantly lower (i.e. more competent) than for oxides. This will influence the coarse vs fine grinding power split when processing oxide and transitional ores.

Table 2-3 85th Percentile Ore Characteristics

Parameter	Ai, g	Average CWi, kWh/t	RWi, kWh/t	BWi, kWh/t	Ore SG	Axb
All Samples	0.190	12.2	18.2	18.6	2.63	39.0
Fresh Only	0.200	13.0	18.5	18.4	2.67	37.2
Oxide & Transitional	0.162	7.6	12.7	19.7	2.52	84.2
Oxide Only	0.242	3.8	14.9	20.4	2.47	89.7

The total SAG and ball mill specific grinding energy (SGE) required in SABC configuration was estimated for each sample to a grind size P_{80} of 106µm. Based on these calculated specific grinding energies, the 85th percentile design SGE was determined. The results are shown in Figure 2-1. The 85th percentile SGE of each deposit is compared with the design SAG mill SGE in Figure 2-2 and design ball mill SGE in Figure 2-3.

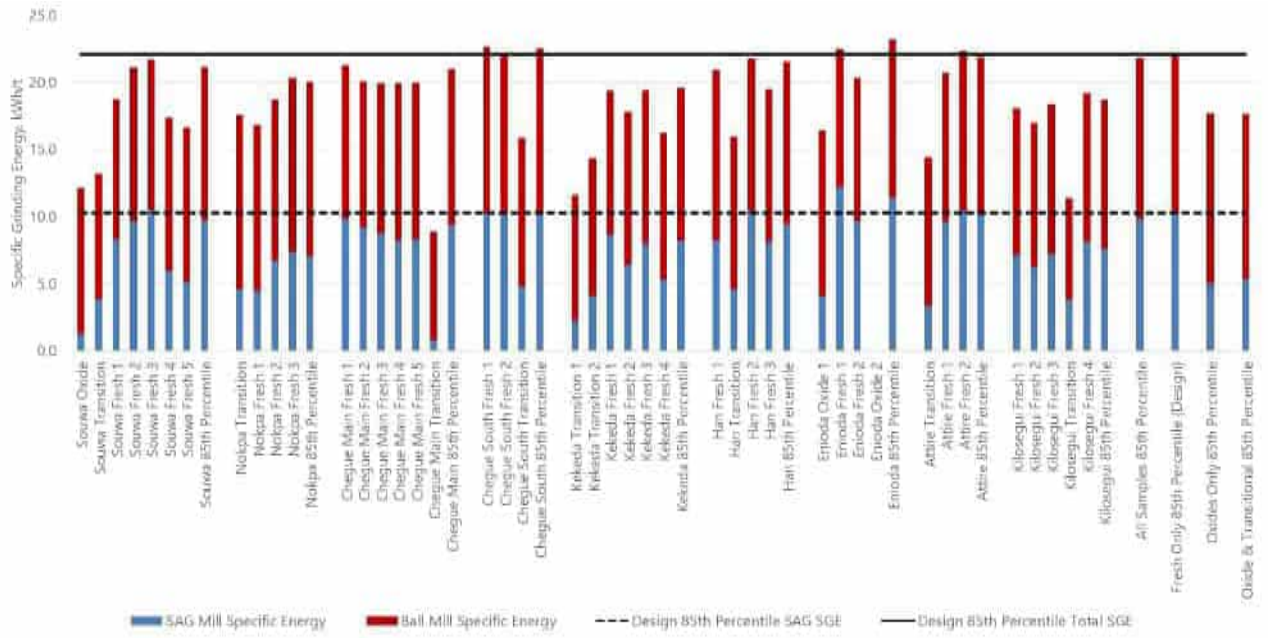


Figure 2-1 Total Specific Grinding Energy

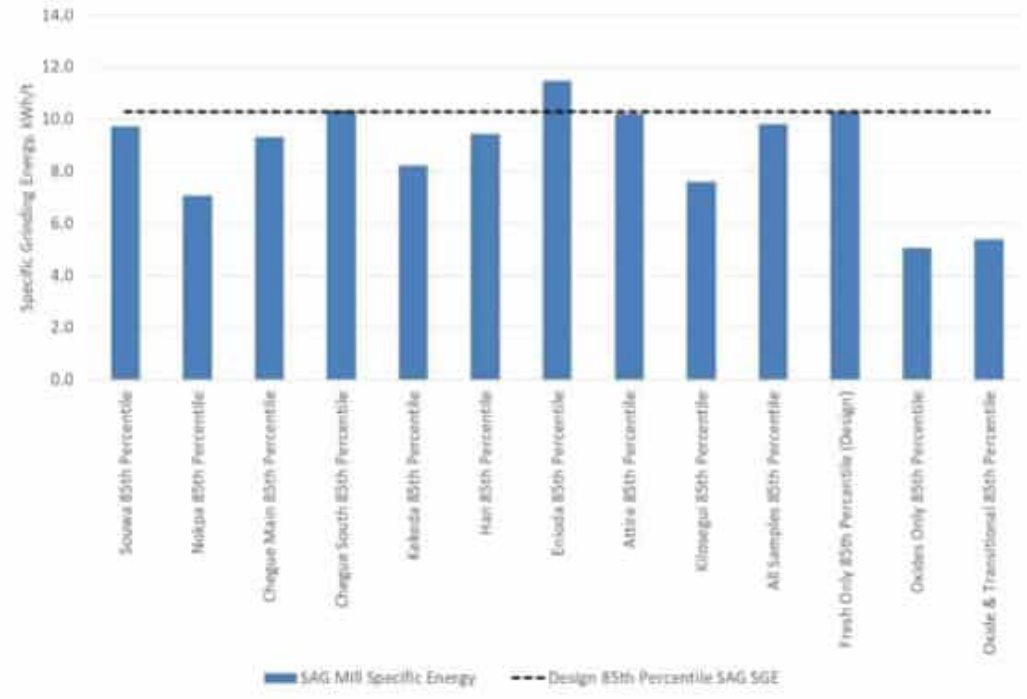


Figure 2-2 SAG Mill Specific Grinding Energy

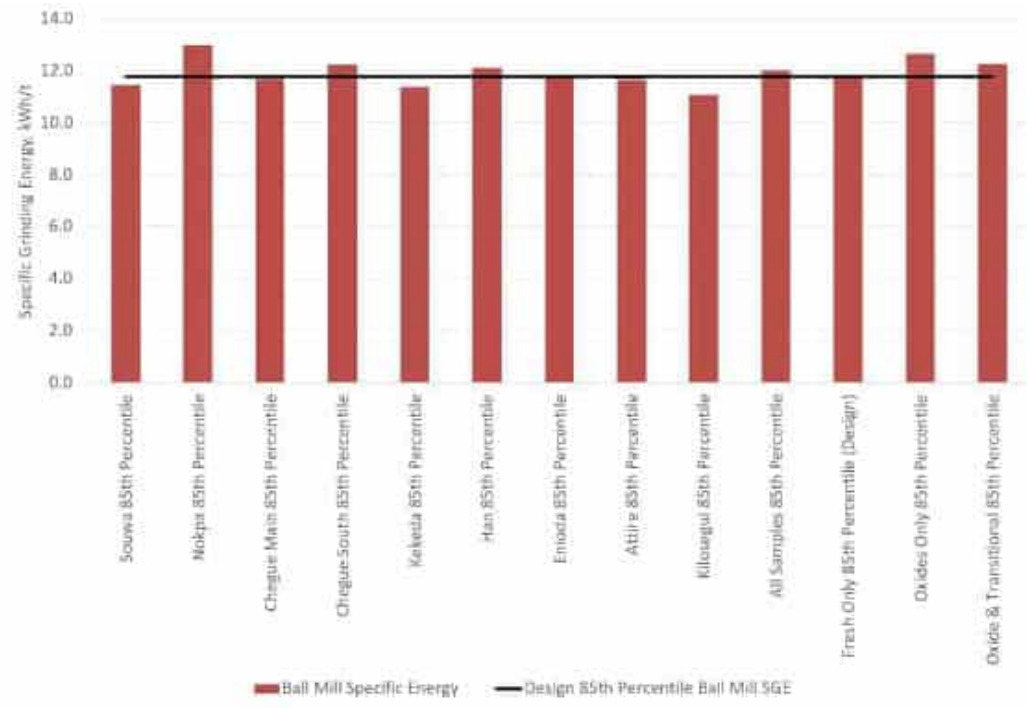


Figure 2-3 Ball Mill Specific Grinding Energy

The following notes are made:

- Four of the 43 samples have higher total specific energy requirement than design, being Chegue South Fresh 1 and 2, Enioda Fresh 1 and Attire Fresh 2. These samples are predicted to be SAG mill limited, with Chegue South Fresh 1 also predicted to be ball mill limited.
- Chegue South, Attire and Enioda deposits are more likely to be SAG mill limited in a SABC circuit (refer Figure 2-2).
- Chegue South, Han and Nokpa deposits are more likely to be ball mill limited (refer Figure 2-3).
- Processing of oxides only, or oxides and transitional ore will likely lead to the circuit becoming ball mill power limited. This is due to the higher BWi value compared with design. This is discussed further in section 5.0 power modelling.
- The client has advised that each deposit will be processed in sequence, i.e. no ore blending across deposits. Given the range of SAG mill specific energy for each deposit (ranging from ~7kWh/t to 11.5kWh/t) it is recommended to review the suitability of the 85th percentile as a design point with respect to the mining schedule such that the SAG mill is not undersized for the first few year's payback period. Based on a preliminary meeting with the client, the 85th percentile design point was deemed suitable for this stage of the study.
- The client has indicated that the first four deposits to be processed are likely to be Souwa, Nokpa, Chegue Main and Chegue South. For Souwa, Nokpa and Chegue Main ores the circuit is not expected to be power constrained and the power utilisation across the circuit can be balanced via pebble crushing. On the other hand the Chegue South deposit may become total circuit power constrained when processing fresh ores.

3.0 PROCESS DESIGN CRITERIA

The circuit will be designed based on processing 4Mt/a fresh ore at a grind size P_{80} of 75µm. The expected oxide ore throughput will be evaluated at P_{80} 106µm grind. The process design criteria used in modelling is presented in Table 3-1, with ore characteristics presented in Table 3-2. The design ore parameters are derived from fresh samples only, and checked based on the 85th percentile specific energy requirement in SABC configuration. The oxide 85th percentile ore characteristics includes all samples classified as either oxide or transitional, and will be used for simulating oxide processing through the circuit.

Table 3-1 Process Design Criteria

Parameter	Unit	Fresh	Oxide	Source
Annual Throughput	Mt/a	4.0#	5.4	Client (Fresh) / Calculation (Oxide)
Crushing Circuit Availability	%	80	80	Assumed
Operating Hours	hours	7,008	7,008	Calculation
Crusher Throughput	t/h	571	775	Calculation
Grinding Circuit Availability	%	91.3	91.3	Assumed
Operating Hours	hours	8,000	8,000	Calculation
Grinding Throughput	t/h	500	679	Calculation
ROM Feed Size, F_{100}	mm	800	800	Assumed
Product Size, P_{80}	µm	75 / 106	75 / 106	Client

Note #: Fresh ore

Table 3-2 Design Ore Characteristics

Parameter	Unit	Fresh 85th Percentile#	Oxide 85th Percentile@
CWi	kWh/t	13.0	7.6
RWi	kWh/t	18.5	12.7
BWi	kWh/t	18.4	19.7
Axb		37.2	84.2
Ore SG	t/m^3	2.67	2.52
Ai	g	0.200	0.162

Note #: Fresh samples only

Note @: Includes any samples classified as either oxide or transitional

4.0 CRUSHING CIRCUIT MODELLING

The primary crushing circuit was modelled using Metso-Outotec Bruno© software. The model output is presented in Figure 4-1, with equipment specifications in Table 4-1. A C150 jaw crusher or equivalent was found to be suitable for the duty. Note that client input regarding a suitable ROM size distribution will be required going forward.

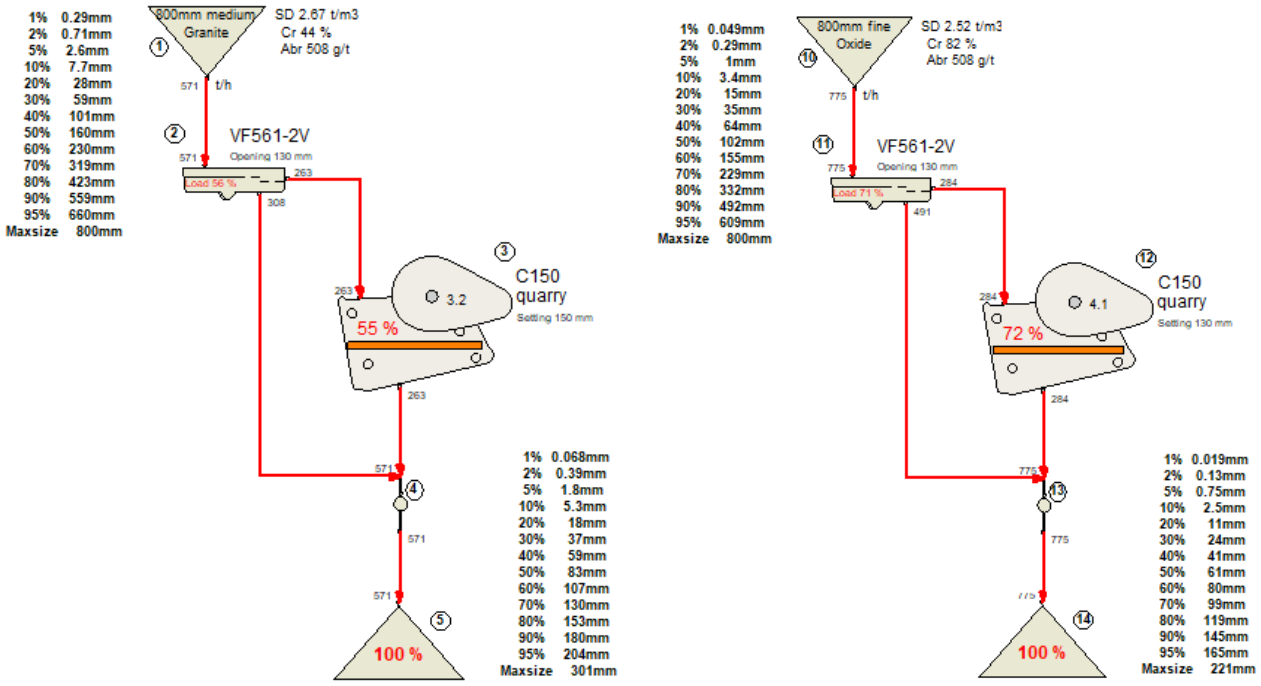


Figure 4-1 Primary Crusher Model Output Fresh (left) and Oxide (right)

Table 4-1 Primary Crusher Specifications

Parameter	Unit	Value
Crusher Model		C150 or Equiv.
Number Required	qty	1
Closed Side Set	mm	150@ / 130#
Power Required – Per Unit	kW	50@ / 77#
Installed Power – Per Unit	kW	200

Note @: Fresh
Note #: Oxide

5.0 GRINDING CIRCUIT MODELLING

The grinding circuit was modelled using OMC's proprietary power modelling software, based on the design criteria in Table 3-1. The power utilisation for two grind size scenarios, P_{80} 75µm & 106µm, are presented in Table 5-1. Power utilisation for oxide ore processing is also presented at both grind sizes.

From the design power model suitable SAG and ball mills were selected for each grind scenario, presented in Table 5-2 and Table 5-3. The SAG mill is the same for both cases. A larger ball mill and additional cyclones are required for the P_{80} 75µm grind size.

Table 5-1 Mill Power Utilisation

Parameter	Unit	Fresh		Oxide		
		P_{80} 75µm	P_{80} 106µm	P_{80} 75µm	Coarse Grind P_{80} 106µm@	P_{80} 106µm
CWi	kWh/t	13.0	13.0	7.6	7.6	7.6
RWi	kWh/t	18.5	18.5	12.7	12.7	12.7
BWi	kWh/t	18.4	18.4	19.7	19.7	19.7
Axb		37.2	37.2	84.2	84.2	84.2
Ore SG		2.67	2.67	2.52	2.52	2.52
Feed Rate	**t/h**	**500**	**500**	**574**	**679**	**595**
Primary Feed Size, F_{80}#	mm	119	119	56	56	56
Product Size, P_{80}	µm	75	106	75	106	106
Pebble Crushing Rate	% Feed	19	19	-	-	-
	t/h	93	93	-	-	-
SAG Mill Specific Energy	kWh/t	10.1	10.1	8.1	6.1	7.8
Ball Mill Specific Energy	kWh/t	15.6	11.9	13.5	11.5	9.9
Pebble Crusher Specific Energy	kWh/t	0.1	0.1	-	-	-
Total Specific Energy	kWh/t	25.8	22.1	21.7	17.6	17.7
SAG Mill Pinion Power	kW	5,042	5,042	4,677	4,163	4,683
Ball Mill Pinion Power	kW	7,805	5,963	7,773	7,781	5,930

Note #: Derived from CSS and Axb value

Note @: Power utilisation when processing oxide through the ball mill selected for 75µm at a coarser grind size of P_{80} 106µm

For oxide processing, the higher BWi results in the circuit becoming ball mill limited. To maintain the required grind size and balance the power utilisation across the circuit, a partial bleed back of the cyclone underflow (CUF) stream to the SAG mill is required. The bleed back should be carefully designed and controlled to be effective. The SAG mill will operate at a low speed and high ball charge to manage the finer transfer size required. There will be sufficient SAG power contingency to manage more competent ores, as may be expected from oxide and transitional testwork. An alternative for oxide processing is to enable a higher throughput by allowing a coarser grind size, e.g. when processing oxide through the 75µm circuit, additional throughput can be achieved by allowing the grind to coarsen to 106µm (as seen in Table 5-1). In this case, retaining the ability

to bleed back the CUF stream to the SAG mill will still allow a degree of control over the grind size to avoid the grind becoming overly coarse.

Table 5-2 SAG Mill Equipment Specification

Parameter		Unit	Design	Oxide
Mill Type			SAG	SAG
Number of Mills		qty	1	1
Mill Diameter (Inside Shell)		m	8.53	8.53
Effective Grinding Length (EGL)		m	5.05	5.05
Imperial		ft x ft	28 x 16.6	28 x 16.6
L : D Ratio			0.59	0.59
Discharge Configuration			Grate	Grate
Grinding Media Size		mm	125	125
Mill Speed		%Nc	75	65
		rpm	11.0	9.5
		Max%Nc	80	80
Ball Charge	- Duty	%Vol	10	14 (13[@])
	- Max	%Vol	14	14
Total Load	- Duty	%Vol	25	18 (18[@])
	- Max	%Vol	35	35
Pinion Power	- Duty	kW	5,042	4,677 (4,163[@])
	- Max	kW	6,578	6,434
Motor Type			Variable	Variable
Selected Motor Size		kW	6,900	6,900

Note @: Milling parameters when processing oxide through the ball mill selected for 75µm at a coarser grind size of P_{80} 106µm

Table 5-3 Ball Mill Equipment Specification

Parameter	Unit	Fresh		Oxide		
		P_{80} 75µm	P_{80} 106µm	P_{80} 75µm	Coarser Grind P_{80} 106µm@	P_{80} 106µm
Mill Type		Ball	Ball	Ball	Ball	Ball
Number of Mills	qty	1	1	1	1	1
Mill Diameter (Inside Shell)	m	6.71	6.40	6.71	6.71	6.40
Effective Grinding Length (EGL)	m	11.12	9.60	11.12	11.12	9.60
Imperial	ft x ft	22 x 36.5	21 x 31.5	22 x 36.5	22 x 36.5	21 x 31.5
L : D Ratio		1.66	1.50	1.66	1.66	1.50
Discharge Configuration		Overflow	Overflow	Overflow	Overflow	Overflow
Grinding Media Size	mm	50	50	50	50	50
Mill Speed	%Nc	75	75	75	75	75
	rpm	12.4	12.8	12.4	12.4	12.8
	Max%Nc	75	75	75	75	75
Ball Charge - Duty	%Vol	30	30	30	30	30
- Max	%Vol	34	35	34	34	35
Pinion Power - Duty	kW	7,807	5,963	7,774	7,781	5,930
- Max	kW	8,580	6,604	8,545	8,553	6,583
Motor Type		Fixed	Fixed	Fixed	Fixed	Fixed
Selected Motor Size	kW	9,000	6,900	9,000	9,000	6,900

Note @: Milling parameters when processing oxide through the ball mill selected for 75µm at a coarser grind size of P_{80} 106µm

Suitable cyclones for both grind scenarios are presented in Table 5-4.

Table 5-4 Hydrocyclone Equipment Specification

Parameter	Unit	Fresh		Oxide		
		P_{80} 75µm	P_{80} 106µm	P_{80} 75µm	P_{80} 106µm@	P_{80} 106µm
Make		Cavex	Cavex	Cavex	Cavex	Cavex
Number of Cyclones - Duty	qty	8	7	9	10	9
- Standby	qty	4	4	3	2	2
- Total	qty	12	11	12	12	11
Cyclone Diameter	mm	500	500	500	500	500
Op. Pressure	kPa	110	110	110	110	110
Vortex Finder	mm	185	170	185	170	170
Spigot	mm	120	115	115	110	110
Cyclone Feed Density	%solids	54.5	58.4	53.0	56.3	56.3
Cyclone Overflow Density	%solids	30.0	35.4	30.0	33.7	33.3
Circulating Load	%	299	260	268	250	258

The pebble crusher was modelled using Metso-Outotec Bruno© software presented in Figure 5-1 with equipment specifications in Table 5-5. A HP200 cone crusher or equivalent was found to be suitable for the duty. Pebble crushing will not be required for oxide processing.

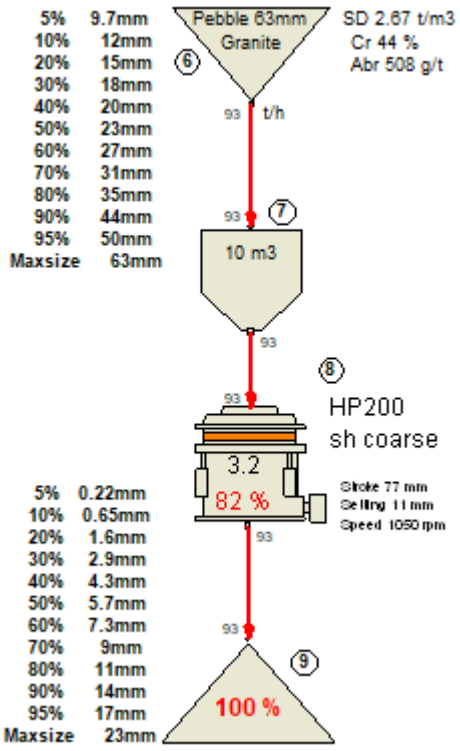


Figure 5-1 Pebble Crusher Model Output

Table 5-5 Pebble Crusher Specification

Parameter	Unit	Value
Crusher Model		HP200 or Equiv.
Number Required	qty	1
Closed Side Set	mm	11
Power Required – Per Unit	kW	67
Installed Power – Per Unit	kW	132

6.0 CONCLUSIONS AND RECOMMENDATIONS

The following points have been concluded:

- The 85th percentile specific energy was found to be a suitable design point for high level modelling of the primary crush SABC circuit. Given the range of SAG mill specific energy for each deposit (ranging from ~7kWh/t to 11.5kWh/t) it is recommended to review the suitability of the 85th percentile as a design point with respect to the mining schedule such that the SAG mill is not undersized for the first few years' payback period.

- The client has indicated that the first four deposits to be processed are likely to be Souwa, Nokpa, Chegue Main and Chegue South. Of these, the Chegue South deposit may become total circuit power constrained when processing fresh ore. There will be sufficient installed power to manage processing of Souwa, Nokpa and Chegue Main ores.

- A suitable primary crusher is a 200kW C150 jaw crusher, or equivalent.

- A suitable SAG mill is a 6,900kW, 8.53m Ø x 5.05m EGL variable speed drive. The SAG mill selection for both grind size scenarios is identical.

- At a target grind of P_{80} 75µm, a suitable ball mill is a 9,000kW, 6.71m Ø x 11.12m EGL fixed speed drive. A smaller 6,900kW, 6.40m Ø x 9.60m EGL ball mill would be suitable for the P_{80} 106µm grind size.

- A suitable pebble crusher is a 132kW HP200 cone crusher, or equivalent. Pebble crushing will not be required for oxide processing.

- The circuit will become ball mill limited when processing oxide/transition ore due to the higher than design BWi (19.7kWh/t vs. 18.4kWh/t). The circuit will be required to operate with a partial bleed of the cyclone underflow stream to the SAG mill, with the SAG mill operating at low speed and high ball charge.

- When processing oxides the milling circuit will be capable of 574t/h (4.59Mt/a) throughput at P_{80} 75µm grind, with the 9MW ball mill. At a P_{80} 106µm grind target, the circuit will be capable of 595t/h (4.76Mt/a) oxide throughput with the 6.9MW ball mill, or 679t/h (5.43Mt/a) with the 9MW ball mill. The primary crusher will be suitable for the range of throughputs modelled for oxide processing.

7.0 DISCLAIMER

The material and advice produced by OMC as contained in this report is for the internal use of the client only and OMC takes no responsibility and accepts no liability for the use of or reliance upon any such material or advice by any third party. Should a third party suffer any loss or damage as a result of using or relying upon such material or advice, OMC shall in no way be liable to the client or the third party.

8.0 STANDARD WARRANTY

Orway Mineral Consultants warrants that it will perform the Services in accordance with standards of care and diligence normally practised by recognised engineering consulting firms in performing services of a similar nature. If during the one (1) year period following completion or termination of the Services, it is shown that there is error in the report or Services as a result of those standards not having been met, and you have promptly notified Orway Mineral Consultants in writing of such error, Orway Mineral Consultants shall perform on a reimbursable basis but without any additional fees, such corrective services as may be necessary within the original scope of Orway Mineral Consultants Services to remedy such error. This warranty shall constitute Orway Mineral Consultants sole liability with respect to the Services or any information or report supplied to you. Acceptance of our report or use of any of the Services or information shall constitute a release and agreement to defend and indemnify Orway Mineral Consultants from and against all other liabilities arising.

9.0 OWNERSHIP

This report, together with all intellectual property contained or embodied therein remains the property of Orway Mineral Consultants, subject only to an express written agreement with the client to the contrary.

Prepared by ORWAY MINERAL CONSULTANTS (WA) PTY LTD:

Wei Ying Lui

Senior Metallurgist

Countersigned by:

Fred Kock

Principal Metallurgist

©-Orway Mineral Consultants (WA) Pty Ltd 2023

APPENDIX 6.3

DFS TESTWORK REPORT

Metallurgical Testwork

conducted upon

Doropo Côte d'Ivoire Samples

for

Ampella Mining Côte d'Ivoire Sarl

Report No. A24862

November 2024

The results contained in this report relate only to the sample(s) submitted for testing.
ALS Metallurgy accepts no responsibility for the representativeness of the sample(s) submitted.

TABLE OF CONTENTS

		PAGE NO.
SUMMARY		*(i)*
1.	INTRODUCTION	1
2.	THE SAMPLES	3
2.1	Drill Hole Interval Samples	3
2.2	Master Composites	3
2.3	Variability Composites	4
3.	SAMPLE PREPARATION	5
4.	ANALYTICAL	5
5.	HEAD ANALYSIS	6
5.1	Detailed Chemical Assay Results	6
5.2	Cyanide Soluble Gold Assay	8
5.2.1	Test Procedure	8
5.2.2	Results	8
6.	MINERALOGICAL ANALYSIS	10
7.	GRIND ESTABLISHMENT TESTWORK	11
7.1	Test Procedure	11
7.2	Grind Times	11
8.	TESTWORK WATER	13
9.	GRAVITY/LEACH OPTIMISATION TESTWORK	13
9.1	Test Procedures	14
9.1.1	Gravity Separation/Intensive Leach	14
9.1.2	Direct Cyanide Leach	14
9.1.3	Carbon-in-Leach (CIL)	15
9.1.4	Carbon-in-Leach (CIL) with Pre-oxidation	16
9.1.5	Pre-leach/Carbon-in-Leach (CIL)	17

TABLE OF CONTENTS (Cont'd)

		PAGE NO.
9.2	**Results**	**18**
9.2.1	Influence of Grind Size	18
9.2.2	Influence of Cyanide Concentration	21
9.2.3	Effect of Air vs Oxygen Sparge	24
9.2.4	Effect of CIL versus Direct Cyanidation (DCN)	25
9.2.5	Effect of Pre-oxidation and/or Lead Nitrate	26
9.2.6	Effect of Pre-Leach/CIL	27
9.2.7	Leach Conditions Selected as Optimal	28
10.	**SEQUENTIAL CIP AND EQUILIBRIUM ISOTHERM TESTWORK**	**31**
10.1	**Sequential CIP Test Procedure**	**31**
10.2	**Equilibrium Isotherm Test Procedure**	**32**
10.3	**Sequential CIP Test Results**	**33**
10.4	**Equilibrium Isotherm Test Results**	**33**
11.	**DIAGNOSTIC LEACH TESTWORK**	**34**
11.1	**Test Procedure**	**34**
11.2	**Results**	**37**
12.	**BULK LEACH AND CYANIDE DETOXIFICATION TESTWORK**	**39**
12.1	**Cyanide Detoxification Testwork using the SO_2/Air Process**	**40**
12.2	**Stoichiometric Requirements**	**41**
12.3	**Cyanide Detoxification Testwork**	**41**
12.3.1	Reaction Vessel and Equipment Arrangement	41
12.3.2	Operation	41
12.3.3	Cyanide Analysis	42
12.4	**Results**	**42**

TABLE OF CONTENTS (Cont'd)

		PAGE NO.
13.	OXYGEN UPTAKE RATE DETERMINATION	43
	13.1 Test Procedure	43
	13.2 Results	44
14.	RHEOLOGY TESTWORK	45
	14.1 Test Procedure	45
	14.2 Results	45
15.	SHEAR REACTOR (MACH ®) TESTWORK	48
	15.1 Test Procedure: Pre-oxidation Test	48
	15.2 Test Conditions and Results	49
16.	GRAVITY/LEACH TESTWORK: VARIABILITY COMPOSITE	52
17.	THICKENING TESTWORK ON LEACH TAILINGS	54

APPENDICES

Appendix I	Sample and Composite Details
Appendix II	Head Assay
Appendix III	Mineralogical Analysis by QEMScan: Report MIN6541
Appendix IV	Leach Optimisation: Master Composites – Details and Results
Appendix V	Sequential CIP Testwork – Details and Results
Appendix VI	Equilibrium Isotherm Testwork – Details and Results
Appendix VII	Diagnostic Leach Testwork – Details and Results
Appendix VIII	Bulk Cyanide Leach and Cyanide Detoxification Testwork – Details and Results
Appendix IX	Oxygen Uptake Rate Determination – Details and Results
Appendix X	Rheology Testwork – Details and Results
Appendix XI	Shear Reactor (MACH™) Testwork – Details and Results
Appendix XII	Gravity and Leach Testwork: Variability Composites – Details and Results
Appendix XIII	Thickening Testwork: Metso Reports

SUMMARY

In August 2023, ALS Metallurgy Services (ALS) was requested by Mr Bruce Lilford, representing Ampella Mining Côte d'Ivoire (the Client), to conduct a defined program of metallurgical testwork on gold ore samples from the Doropo Project, northeast Côte d'Ivoire.

The program characterised 24 Master Composites and 39 Variability Composites with respect to:

- Chemical and mineralogical composition.
- Gold recovery by gravity and cyanide leach.
- Leach tailings management including cyanide detoxification and thickening requirements.

Salient testwork results are as follows:

• Head Assays

Master Composite head assays are presented in the following table.

MASTER COMPOSITES: HEAD ASSAYS

Master Composite	Comp ID	Au-1 (g/t)	Au-2 (g/t)	Au-Ave (g/t)	Ag (g/t)	As (ppm)	Cu (ppm)	S^{2-} (%)
Souwa Oxide	**MC-1**	3.97	3.43	**3.70**	<2	<10	30.0	<0.02
Souwa Trans	**MC-2**	1.51	1.24	**1.38**	<2	<10	18.0	0.04
Souwa Fresh	**MC-3**	1.15	1.21	**1.18**	4.00	<10	26.0	0.60
Nokpa Oxide	**MC-4**	1.41	1.17	**1.29**	<2	<10	8.00	<0.02
Nopka Trans	**MC-5**	2.68	2.93	**2.81**	<2	<10	22.0	<0.02
Nopka Fresh	**MC-6**	2.32	2.41	**2.37**	<2	<10	30.0	0.28
Kilosegui Oxide	**MC-7**	0.65	0.71	**0.68**	<2	<10	18.0	<0.02
Kilosegui Trans	**MC-8**	1.70	1.89	**1.80**	<2	<10	20.0	0.06
Kilosegui Fresh	**MC-9**	1.19	1.21	**1.20**	<2	10.0	12.0	0.30
Kekeda Oxide	**MC-10**	1.21	1.47	**1.34**	4.00	<10	54.0	<0.02
Kekeda Trans	**MC-11**	0.90	0.80	**0.85**	<2	<10	26.0	<0.02
Kekeda Fresh	**MC-12**	1.88	1.87	**1.88**	<2	<10	16.0	0.62
Enioda Oxide	**MC-13**	1.39	1.73	**1.56**	6.00	<10	98.0	<0.02
Enioda Trans	**MC-14**	1.00	0.95	**0.98**	2.00	<10	78.0	0.12
Enioda Fresh	**MC-15**	1.34	1.26	**1.30**	<2	<10	28.0	0.44
Han Oxide	**MC-16**	1.79	2.12	**1.96**	12.0	<10	40.0	<0.02
Han Trans	**MC-17**	2.34	1.34	**1.84**	2.00	<10	16.0	0.08
Han Fresh	**MC-18**	1.27	1.30	**1.29**	4.00	<10	12.0	0.50
Chegue Main Oxide	**MC-19**	0.64	0.83	**0.74**	2.00	<10	14.0	<0.02
Chegue Main Trans	**MC-20**	0.86	0.98	**0.92**	<2	<10	10.0	0.04
Chegue Main Fresh	**MC-21**	1.75	1.46	**1.61**	<2	<10	22.0	0.32
Chegue South Oxide	**MC-22**	2.56	3.89	**3.23**	<2	<10	12.0	<0.02
Chegue South Trans	**MC-23**	1.62	1.45	**1.54**	<2	<10	14.0	0.04
Chegue South Fresh	**MC-24**	1.60	1.76	**1.68**	<2	<10	12.0	0.24

Variability Composite head assay data are presented in the following table.

VARIABILITY COMPOSITES: HEAD ASSAYS								
Variability Composite	**Comp ID**	**Au-1 (g/t)**	**Au-2 (g/t)**	**Au-Ave (g/t)**	**Ag (g/t)**	**As (ppm)**	**Cu (ppm)**	**Total S (%)**
Souwa Oxide Low Grade	**VC-1**	0.72	0.65	**0.69**	<2	<10	40.0	<0.02
Souwa Oxide High Grade	**VC-2**	3.83	3.18	**3.51**	2.00	<10	30.0	<0.02
Souwa Trans Low Grade	**VC-3**	1.02	1.01	**1.02**	<2	10.00	16.0	0.42
Souwa Trans High Grade	**VC-4**	3.98	3.64	**3.81**	<2	<10	46.0	<0.02
Souwa Fresh Low Grade	**VC-5**	0.76	0.94	**0.85**	<2	<10	30.0	0.68
Souwa Fresh High Grade	**VC-6**	2.31	2.57	**2.44**	<2	<10	20.0	1.44
Nopka Oxide Low Grade	**VC-7**	1.02	1.09	**1.06**	<2	<10	18.0	<0.02
Nopka Trans Low Grade	**VC-8**	1.38	1.35	**1.37**	<2	<10	30.0	<0.02
Nopka Trans High Grade	**VC-9**	1.92	2.12	**2.02**	<2	<10	24.0	0.06
Nopka Fresh Low Grade	**VC-10**	0.85	0.85	**0.85**	<2	<10	40.0	0.16
Nopka Fresh High Grade	**VC-11**	3.11	3.12	**3.12**	2.00	<10	8.0	0.38
Kilosegui Trans Low Grade	**VC-12**	0.52	0.60	**0.56**	<2	<10	14.0	<0.02
Kilosegui Trans High Grade	**VC-13**	1.80	2.19	**2.00**	<2	<10	12.0	<0.02
Kilosegui Fresh Low Grade	**VC-14**	0.79	0.82	**0.81**	<2	<10	6.00	0.16
Kilosegui Fresh High Grade	**VC-15**	2.44	2.38	**2.41**	<2	<10	8.00	0.20
Kekeda Oxide High Grade	**VC-17**	10.4	8.82	**9.61**	<2	<10	14.0	<0.02
Kekeda Trans Low Grade	**VC-18**	0.48	0.48	**0.48**	<2	<10	10.0	0.02
Kekeda Trans High Grade	**VC-19**	1.66	1.81	**1.74**	<2	<10	20.0	<0.02
Kekeda Fresh Low Grade	**VC-20**	1.47	1.01	**1.24**	<2	<10	12.0	0.16
Kekeda Fresh High Grade	**VC-21**	3.84	3.80	**3.82**	<2	<10	8.00	0.32
Enioda Oxide Low Grade	**VC-22**	0.99	1.16	**1.08**	24.0	<10	102	<0.02
Enioda Oxide High Grade	**VC-23**	0.83, 0.90	0.46,0.84	**0.76**	<2	<10	14.0	<0.02
Enioda Trans Low Grade	**VC-24**	0.48	0.54	**0.51**	<2	<10	28.0	<0.02
Enioda Trans High Grade	**VC-25**	4.76	5.25	**5.01**	<2	<10	44.0	<0.02
Enioda Fresh Low Grade	**VC-26**	0.93	0.64	**0.79**	<2	10.00	24.0	0.52
Enioda Fresh High Grade	**VC-27**	7.43	13.00	**10.22**	<2	<10	18.0	0.40
Han Trans Low Grade	**VC-28**	0.62	0.53	**0.58**	<2	<10	14.0	0.38
Han Trans High Grade	**VC-29**	20.30	23.70	**22.00**	<2	<10	32.0	0.18
Han Fresh Low-Grade	**VC-30**	0.45	0.45	**0.45**	<2	<10	10.0	0.30
Han Fresh High Grade	**VC-31**	5.03	7.81	**6.42**	<2	<10	114	0.44
Chegue Main Oxide High Grade	**VC-33**	3.45	4.54	**4.00**	<2	<10	26.0	<0.02
Chegue Main Trans Low Grade	**VC-34**	0.92	0.79	**0.86**	<2	<10	22.0	0.02
Chegue Main Trans High Grade	**VC-35**	2.31	3.10	**2.71**	<2	<10	16.0	0.06
Chegue Main Fresh Low Grade	**VC-36**	0.46	0.51	**0.49**	<2	<10	14.0	0.32
Chegue Main Fresh High Grade	**VC-37**	1.96	2.45	**2.21**	<2	<10	10.0	<0.02
Chegue South Trans Low Grade	**VC-38**	0.39	0.45	**0.42**	<2	<10	8.00	0.04
Chegue South Trans High Grade	**VC-39**	1.88	2.04	**1.96**	<2	<10	14.0	0.04
Chegue South Fresh Low Grade	**VC-40**	0.67	0.69	**0.68**	<2	<10	8.00	0.32
Chegue South Fresh High Grade	**VC-41**	3.60	3.40	**3.50**	4.00	<10	14.0	0.36

• Gravity/CIL Testwork Results: Master Composite

Gravity/cyanidation testwork was conducted on the Master composites to determine the influence of grind P_{80} (125 µm, 106 µm, and 75 µm) and cyanide solution strength (0.070% w/w, 0.050% w/w, and 0.030% w/w) on gold leach performance.

The client reviewed the grinding testwork results and selected P_{80} of 106 µm (Oxide and Transition samples) and 75 µm (Fresh samples) for the testwork conducted to assess the influence cyanide solution strength.

The effect of oxygen sparge vs air sparge at selected grind sizes was tested. In most cases, oxygen sparge provided a slight increase in gold extraction as well as improved leach kinetics in most tests, when compared to tests employing air sparge.

A final series of tests investigated the effect of carbon-in-leach (CIL) versus direct cyanide leach; pre-oxygenation and addition of lead nitrate, as well as a 6-hour pre-leach followed by a 34-hour CIL stage. The results showed that:

- There was no clear benefit in using CIL in place of direct leach. The variable gold grade in some composites resulted in largely differing calculated heads, which impacted on reported gold recovery. Assessment of residue grades possibly provided more clarity; however, this measure can also be influenced by head grades.
- Pre-oxygenation (6 hours), the addition of lead nitrate (500 g/t), or pre-leach followed by CIL showed no substantial benefit to overall gold recovery.

Based on the outcomes of all leach tests conducted, the client selected the following parameters as optimal for subsequent testwork:

- Primary Grind size
  - P_{80} 106 µm for Oxide and Transitional composites
  - P_{80} 75 µm for Fresh composites.
- Initial NaCN concentration of 0.05% (w/w) NaCN, maintained at 0.025% (w/w).
- Oxygen sparge.
- CIL conditions when conducting Variability Composite leach tests.

Gold extractions achieved under the optimal conditions are provided in the following table.

MASTER COMPOSITE GRAVITY/LEACH TESTWORK: OPTIMISED TEST RESULTS								
Test No. (PW-)	Composite Name (ID)	Grind P_{80} (µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Gravity	Grav + Pre-leach + CIL	NaCN	Lime
8074	**Souwa Oxide Master Comp (MC-1)**	106	4.82	3.70	37.0	91.7	0.65	0.55
8075	**Souwa Trans Master Comp (MC-2)**	106	1.83	1.38	38.1	90.7	0.40	0.78
8076	**Souwa Fresh Master Comp (MC-3)**	75	1.33	1.18	29.8	88.0	0.57	0.27
8078	**Nopka Trans Master Comp (MC-5)**	106	2.78	2.81	28.9	92.1	0.45	0.25
8079	**Nopka Fresh Master Comp (MC-6)**	75	1.39	2.37	28.9	92.1	0.45	0.25
8354	**Kilosegui Ox Master Comp (MC-7)**	106	1.00	0.68	41.5	89.4	0.57	0.91
8355	**Kilosegui Trans Master Comp (MC-8)**	106	1.23	1.80	36.9	89.4	0.36	0.73
8348	**Kilosegui Fresh Master Comp (MC-9)**	75	2.51	1.20	49.8	90.0	0.59	0.25
8357	**Kekeda Trans Master Comp (MC-11)**	106	1.53	0.85	37.0	94.8	0.60	0.61
8349	**Kekeda Fresh Master Comp (MC-12)**	75	1.64	1.88	39.3	93.3	0.57	0.26
8358	**Enioda Oxide Master Comp (MC-13)**	106	1.57	1.56	28.8	96.5	0.72	1.00
8359	**Enioda Trans Master Comp (MC-14)**	106	1.44	0.98	46.8	93.8	0.72	0.59
8350	**Enioda Fresh Master Comp (MC-15)**	75	1.63	1.30	47.1	89.5	0.57	0.27
8361	**Han Trans Master Comp (MC-17)**	106	2.09	1.84	33.2	93.3	0.53	0.33
8351	**Han Fresh Master Comp (MC-18)**	75	2.40	1.29	60.5	93.3	0.63	0.24
8363	**Chegue Main Trans Master Comp (MC-20)**	106	1.05	0.92	26.8	91.4	0.48	0.54
8352	**Chegue Main Fresh Master Comp (MC-21)**	75	1.61	1.61	47.8	90.7	0.53	0.23
8365	**Chegue South Trans Master Comp (MC-23)**	106	1.27	1.54	29.4	90.2	0.53	0.42
8353	**Chegue South Fresh Master Comp (MC-24)**	75	1.51	1.68	38.5	83.8	0.60	0.25

• Sequential CIP and Equilibrium Isotherm Testwork

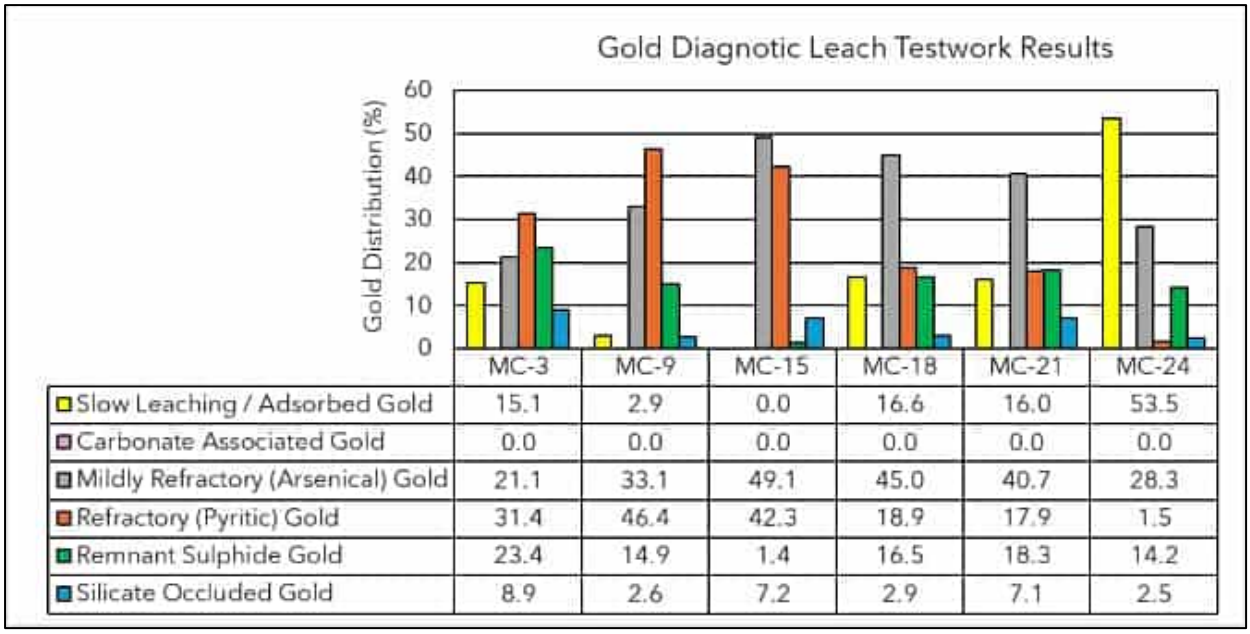
Sequential CIP and equilibrium carbon loading tests were carried out on selected Master composites.

The *Fleming* adsorption constants k and n for gold adsorption on carbon were determined from sequential CIP tests. The results indicated good gold adsorption characteristics could be anticipated in a full-scale leach/adsorption train.

Equilibrium Isotherm tests on leach solutions derived from Souwa Oxide, Trans, and Fresh composites (MC-1, MC-2, and MC-3, respectively) revealed gold loadings of 4,565 g/t, 1,418 g/t, and 1,013 g/t, respectively, for an equilibrium solution concentration of 0.05 mg/L.

• Diagnostic Leach Testwork

Six Fresh Ore leach residues were tested for residual gold deportment to identify causes for lower gold extractions. The diagnostic tests determined the likely gold deportment within the residues, with the result summarised in the figure below.



	MC-3	MC-9	MC-15	MC-18	MC-21	MC-24
Slow Leaching / Adsorbed Gold	15.1	2.9	0.0	16.6	16.0	53.5
Carbonate Associated Gold	0.0	0.0	0.0	0.0	0.0	0.0
Mildly Refractory (Arsenical) Gold	21.1	33.1	49.1	45.0	40.7	28.3
Refractory (Pyritic) Gold	31.4	46.4	42.3	18.9	17.9	1.5
Remnant Sulphide Gold	23.4	14.9	1.4	16.5	18.3	14.2
Silicate Occluded Gold	8.9	2.6	7.2	2.9	7.1	2.5

- Most samples contained some gold, which was extracted by acetonitrile leach. This is indicative of gold associated with organic carbon; however, the conditions are also conducive for the extraction of slow-leaching gold, which may also have been present in the residues.

- In each case, the majority of the residual gold was liberated after oxidation of the mildly and refractory sulphide minerals, viz., arsenopyrite and pyrite.

• Cyanide Detoxification

Cyanide detoxification tests were conducted on selected bulk leach tailings. The batch continuous detox tests were completed using a target reagent addition equivalent to 350% SO_2: CN_{WAD}.

SO_2/AIR CYANIDE DETOXIFICATION TESTWORK: SUMMARY OF RESULTS		
Test No./Comp Name (ID)	Solution Assays	
	Feed	Treated
	CN_P* (mg/L)	
PW8100 Leach Slurry - Souwa Fresh Master Composite (MC-3)	71.0	0.10
PW8103 Leach Slurry - Souwa Oxide Master Composite (MC-1)	71.1	0.15
PW8104 Leach Slurry - Souwa Trans Master Composite (MC-2)	102.0	0.10
PW8108 Leach Slurry - Nokpa Fresh Master Composite (MC-6)	155.0	3.32
PW8110 Leach Slurry - Nokpa Transition Master Composite (MC-5)	47.5	0.16
PW8501 Leach Slurry - Kilosegui Fresh Master Composite (MC-9)	152.0	1.35
PW8554 Leach Slurry - Kilosegui Trans Master Composite (MC-8)	69.3	0.15
PW8555 Leach Slurry - Chegue Main Trans Composite (MC-20)	91.7	0.40
PW8556 Leach Slurry - Enioda Oxide Master Composite (MC-13)	120.0	0.05
PW8557 Leach Slurry - Enioda Trans Master Composite (MC-14)	91.3	0.50
PW8734 Leach Slurry - Kilosegui Oxide Master Composite (MC-7)	125	0.05

* CNp = Wad Cyanide determined directly by a colourimetric method using a picric acid reagent

The target CN_{WAD} level of <10 mg/L in the discharge slurry was readily achieved under the conditions tested.

• Oxygen Uptake Rate Determination

Oxygen uptake testwork was carried out on all of the Master composites, with results demonstrating low oxygen demand in all cases.

• Rheology Testwork

Based on general industry guidelines, some of the Master composites may present difficulties in pumping applications at >50% solids. Composites MC-5, MC-7, MC-10, MC-13 and MC-19 exhibited high viscosity levels (>100 cP at a shear rate of 119.2 s^{-1}) when tested at or above 50% solids.

For mixing and screening applications, MC-7, MC-13 and MC-19 showed elevated viscosity (>3,500 cP) at a shear rate of 4.2 s^{-1} when tested at 55% to 60% solids.

All other composites exhibited low viscosity at the pulp densities tested.

• Shear Reactor (MACH™) Testwork

Selected Fresh Master composites were subjected to pre-oxidation and "Boosted Leach" methods using the Mach Reactor™. The objective was to investigate improved leach extractions using the high-shear mechanism.

- The results of the cyanide leach performed following the pre-oxidation passes using the *Mach Reactor*™ suggested no improvement in gold extraction for the samples and conditions tested.
- The "Boosted-Leach" tests, showed improved leach kinetics up to 24 hours, however, the overall leach results did not outperform the corresponding baseline, or control, tests.

• Gravity and Leach Testwork: Variability Composites

The Variability Composites were subjected to leach tests using the optimised conditions established for the Master Composites.

The average gold extractions (gravity + CIL) for all Oxide, Transition, and Fresh ore types were 93.5%, 90.5% and 88.3%, respectively. The lowest gold extraction for each of the oxidation profiles was 84.2% (Oxide), 62.6% (Transition), and 77.6% (Fresh). A summary of the results is presented in the following table.

VARIABILITY COMPOSITE GRAVITY/LEACH TESTWORK

Test No	Comp Name (ID)	Grind P_{80} (µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
8462	**Souwa Oxide Low Grade (VC-1)**	106	0.63	0.69	21.5	84.2	0.67	0.51
8463	**Souwa Oxide High Grade (VC-2)**	106	3.03	3.51	46.8	95.4	0.61	0.31
8464	**Souwa Trans Low Grade (VC-3)**	106	1.01	1.02	38.5	87.1	0.63	0.23
8465	**Souwa Trans Low Grade (VC-4)**	106	3.45	3.81	21.8	93.5	0.58	0.40
8466	**Souwa Fresh High Grade (VC-5)**	75	0.72	0.85	31.3	86.1	0.51	0.19
8467	**Souwa Fresh Low Grade (VC-6)**	75	2.74	2.44	26.2	86.9	0.51	0.22
8468	**Nopka Oxide Low Grade (VC-7)**	106	1.21	1.06	11.3	92.6	0.60	1.05
8469	**Nopka Trans Low Grade(VC-8)**	106	0.74	1.37	13.3	93.3	0.60	0.39
8470	**Nopka Trans High Grade(VC-9)**	106	1.69	2.02	11.7	93.5	0.57	0.33
8471	**Nopka Fresh Low Grade (VC-10)**	75	0.76	0.85	13.1	88.1	0.42	0.29
8472	**Nopka Fresh High Grade (VC-11)**	75	3.21	3.12	16.3	77.6	0.42	0.28
8473	**Kilosegui Trans Low Grade (VC-12)**	106	0.56	0.56	19.8	91.1	0.48	0.36
8474	**Kilosegui Trans High Grade (VC-13)**	106	1.88	2.00	33.8	91.2	0.51	0.33
8475	**Kilosegui Fresh Low Grade (VC-14)**	75	0.67	0.81	41.8	86.5	0.39	0.23
8476	**Kilosegui Fresh High Grade (VC-15)**	75	2.22	2.41	49.7	89.6	0.45	0.21
8477	**Kekeda Oxide High Grade (VC-17)**	106	9.56	9.61	46.4	97.5	0.63	0.48
8478	**Kekeda Trans Low Grade (VC-18)**	106	0.61	0.48	8.8	91.8	0.51	0.33
8479	**Kekeda Trans High Grade (VC-19)**	106	2.05	1.74	42.2	95.1	0.53	0.36
8480	**Kekeda Fresh Low Grade (VC-20)**	75	0.90	1.24	50.6	83.3	0.42	0.27
8481	**Kekeda Fresh High Grade (VC-21)**	75	4.35	3.82	43.9	88.7	0.42	0.24

VARIABILITY COMPOSITE GRAVITY/LEACH TESTWORK (Cont'd)								
Test No	Comp Name (ID)	Grind P_{80} (µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
8482	**Enioda Oxide Low Grade (VC-22)**	106	0.94	1.08	27.8	90.4	0.78	0.86
8483	**Enioda Oxide High Grade (VC-23)**	106	1.58	0.76	74.1	98.7	0.38	0.33
8484	**Enioda Trans Low Grade (VC-24)**	106	0.55	0.51	18.5	89.1	0.57	0.28
8485	**Enioda Trans Low Grade (VC-25)**	106	5.06	5.01	67.6	96.4	0.69	0.57
8486	**Enioda Fresh High Grade (VC-26)**	75	0.64	0.79	38.5	84.3	0.51	0.17
8487	**Enioda Fresh Low Grade (VC-27)**	75	5.88	10.22	64.8	94.4	0.51	0.18
8488	**Han Trans Low Grade (VC-28)**	106	0.21	0.58	61.2	62.6	0.53	0.18
8489	**Han Trans High Grade (VC-29)**	106	25.21	22.00	70.0	97.3	0.54	0.19
8490	**Han Fresh Low Grade (VC-30)**	75	0.98	0.45	62.9	92.9	0.51	0.17
8491	**Han Fresh High Grade (VC-31)**	75	5.24	6.42	51.9	96.3	0.47	0.19
8492	**Chegue Main Oxide High Grade (VC-33)**	106	4.23	4.00	45.3	95.7	0.41	0.95
8493	**Chegue Main Trans Low Grade (VC-34)**	106	0.67	0.86	33.3	91.1	0.36	0.70
8494	**Chegue Main Trans High Grade (VC-35)**	106	2.14	2.71	37.9	96.3	0.53	0.23
8495	**Chegue Main Fresh Low Grade (VC-36)**	75	0.54	0.49	31.8	85.1	0.51	0.27
8496	**Chegue Main Fresh High Grade (VC-37)**	75	2.83	2.21	64.9	97.5	0.60	0.29
8497	**Chegue South Trans Low Grade (VC-38)**	106	0.52	0.42	17.8	92.4	0.67	0.34
8498	**Chegue South Trans High Grade (VC-39)**	106	2.57	1.96	34.0	86.4	0.57	0.36
8499	**Chegue South Fresh Low Grade (VC-40)**	75	0.83	0.68	23.7	82.0	0.45	0.23
8500	**Chegue South Fresh High Grade (VC-41)**	75	2.42	3.50	40.9	93.0	0.45	0.23

1. INTRODUCTION

In August 2023, ALS Metallurgy Services (ALS) was requested by Mr Bruce Lilford, representing Ampella Mining Côte d'Ivoire (the Client), to conduct a defined program of metallurgical testwork on gold ore samples from the Doropo project, northeast Côte d'Ivoire.

The program formed part of a DFS study on Master Composite (24) and Variability Composite (39) samples representing the Oxide, Transitional, and Fresh lithologies within the Doropo Project, and included the following ore deposits:

- Souwa
- Nopka
- Kilosegui
- Kekeda
- Enioda
- Han
- Chegue Main
- Chegue South.

The program followed a prior PFS study completed in September 2023, which was reported under ALS Job Number A23136.

The DFS program included the following testwork:

- Sample preparation
- Composite head assays
- Mineralogical analysis
- Grind establishment testwork
- Gravity separation/carbon-in-leach testwork
- Gravity separation/direct cyanide leach testwork
- Optimisation of cyanide leach parameters
- Evaluation of the effect of an oxygen-shear reactor (Mach™) on gold extraction
- Oxygen demand in leach
- Gold adsorption kinetics and equilibrium loading on carbon
- Slurry rheology testwork
- Cyanide destruction in leach tailings
- Thickening testwork on leach tailings
- Gold diagnostic leach testwork.

The testwork was controlled by Mr Grant Harding, of Independent Metallurgical Operations Pty Ltd, on behalf of the Client, with Mr Peter Wilkinson supervising the program on behalf of ALS. Testwork results were communicated to the client immediately when available, which enabled the program to progress on a fully informed basis.

The purpose of this report is to describe samples and testwork procedures used in the program together with some commentary on test results.



HAMID SHERIFF
Executive General Manager – Metallurgy Services



PETER WILKINSON
Principal Metallurgist



JIAMIN LIU
Manager Mineralogy Department
Metallurgy Services

2. THE SAMPLES

Five consignments of diamond drill core samples, comprising 1,063 individual intervals and 4,997 kg, were delivered to ALS during July and August 2023.

2.1 Drill Hole Interval Samples

Sample details are available in Appendix I and are briefly summarised below.

DRILL CORE SAMPLES RECEIVED				
Shipment	**Prospect**	**Date Received**	**No Intervals Received**	**Total Mass (kg)**
1	**Souwa**	21/7/2023	218	798
2	**Chegue Main**	31/7/2023	111	580
3	**Nopka**	15/8/2023	105	443
4	**Chegue South**	15/8/2023	58	211
5	**Enioda**	15/8/2023	113	567
6	**Han**	15/8/2023	76	401
7	**Kekeda**	16/8/2023	173	987
8	**Kilosegui**	22/8/2023	209	1,010
TOTAL	-	-	**1,063**	**4,997**

2.2 Master Composites

The following 24 Master composites were prepared according to the client's advice.

MASTER COMPOSITES (1)			
Composite Name	**Comp ID**	**Est'd Au (g/t)**	**Approx Mass (kg)**
Souwa Oxide	**MC-1**	1.47	142
Souwa Trans	**MC-2**	1.45	326
Souwa Fresh	**MC-3**	1.77	239
Nokpa Oxide	**MC-4**	1.39	17
Nopka Trans	**MC-5**	1.64	173
Nopka Fresh	**MC-6**	1.68	174
Kilosegui Oxide	**MC-7**	1.42	65
Kilosegui Trans	**MC-8**	1.49	367
Kilosegui Fresh	**MC-9**	1.65	474
Kekeda Oxide	**MC-10**	0.86	43
Kekeda Trans	**MC-11**	1.29	434
Kekeda Fresh	**MC-12**	1.34	295

MASTER COMPOSITES (2)			
Composite Name	**Comp ID**	**Est'd Au (g/t)**	**Approx Mass (kg)**
Enioda Oxide	**MC-13**	1.53	143
Enioda Trans	**MC-14**	1.33	147
Enioda Fresh	**MC-15**	1.82	146
Han Oxide	**MC-16**	1.35	7
Han Trans	**MC-17**	2.04	123
Han Fresh	**MC-18**	1.96	204
Chegue Main Oxide	**MC-19**	1.11	23
Chegue Main Trans	**MC-20**	1.25	207
Chegue Main Fresh	**MC-21**	1.59	238
Chegue South Oxide	**MC-22**	3.16	7
Chegue South Trans	**MC-23**	1.63	64
Chegue South Fresh	**MC-24**	1.41	99

2.3 Variability Composites

The following 39 Variability composites were prepared according to the client's advice.

VARIABILITY COMPOSITES (1)			
Composite Name	**Comp ID**	**Est'd Au (g/t)**	**Mass (kg)**
Souwa Oxide Low Grade	**VC-1**	0.68	10.5
Souwa Oxide High Grade	**VC-2**	3.79	10.0
Souwa Trans Low Grade	**VC-3**	0.78	13.6
Souwa Trans High Grade	**VC-4**	3.37	8.7
Souwa Fresh Low Grade	**VC-5**	0.92	10.3
Souwa Fresh High Grade	**VC-6**	3.23	10.3
Nopka Oxide Low Grade	**VC-7**	0.66	8.4
Nopka Trans Low Grade	**VC-8**	0.93	11.7
Nopka Trans High Grade	**VC-9**	3.67	17.0
Nopka Fresh Low Grade	**VC-10**	0.71	9.2
Nopka Fresh High Grade	**VC-11**	3.62	9.1
Kilosegui Trans Low Grade	**VC-12**	0.60	21.6
Kilosegui Trans High Grade	**VC-13**	2.92	33.5
Kilosegui Fresh Low Grade	**VC-14**	0.87	8.7
Kilosegui Fresh High Grade	**VC-15**	3.35	16.0
Kekeda Oxide Low Grade*	**VC-16**	NA	NA
Kekeda Oxide High Grade	**VC-17**	3.60	6.25
Kekeda Trans Low Grade	**VC-18**	0.76	68.4
Kekeda Trans High Grade	**VC-19**	2.80	15.6
Kekeda Fresh Low Grade	**VC-20**	0.95	15.6
Kekeda Fresh High Grade	**VC-21**	5.19	33.1

VARIABILITY COMPOSITES (2)			
Composite Name	**Comp ID**	**Est'd Au (g/t)**	**Mass (kg)**
Enioda Oxide Low Grade	**VC-22**	0.87	38.7
Enioda Oxide High Grade	**VC-23**	2.40	12.0
Enioda Trans Low Grade	**VC-24**	0.45	23.9
Enioda Trans High Grade	**VC-25**	3.09	6.6
Enioda Fresh Low Grade	**VC-26**	0.69	28.4
Enioda Fresh High Grade	**VC-27**	4.17	52.9
Han Trans Low Grade	**VC-28**	0.55	5.86
Han Trans High Grade	**VC-29**	23.55	28.2
Han Fresh Low Grade	**VC-30**	0.79	26.1
Han Fresh High Grade	**VC-31**	5.04	39.3
Chegue Main Oxide Low Grade*	**VC-32**	NA	NA
Chegue Main Oxide High Grade	**VC-33**	5.67	11.6
Chegue Main Trans Low Grade	**VC-34**	0.74	45.8
Chegue Main Trans High Grade	**VC-35**	3.14	16.1
Chegue Main Fresh Low Grade	**VC-36**	0.83	53.7
Chegue Main Fresh High Grade	**VC-37**	3.35	27.7
Chegue South Trans Low Grade	**VC-38**	0.74	45.1
Chegue South Trans High Grade	**VC-39**	5.13	23.4
Chegue South Fresh Low Grade	**VC-40**	0.74	21.5
Chegue South Fresh High Grade	**VC-41**	2.90	18.8
-	**-**	-	-

* Omitted due to non-representative gold grade

The sample details comprising each composite are included in Appendix I.

3. SAMPLE PREPARATION

The composites were prepared according to the following procedure description:

For composite masses >100 kg, the sample was initially crushed to <6.7 mm, homogenised by passing it three times through a rotary sample divider, and split into the following charges.

- 100 kg for control-crushing to <3.35 mm with representative charges split for:
  - 1 x 0.25 kg, for head assay
  - 1 kg lots for leach testwork (up to 50 x 1 kg)
  - Reserve splits of ~10 kg, where applicable.
- Reserve splits of ~10 kg.

Composites of 100 kg or less were control-crushed to <3.35 mm, homogenised by passing it three times through a rotary sample divider, and split into the following charges:

- 1 x 0.25 kg, for head assay
- 1 kg lots for leach testwork (up to 50 x 1 kg)
- Reserve splits of ~10 kg, where applicable.

4. ANALYTICAL

Assay samples generated during the test program were submitted to the ALS analytical laboratory in Perth for analysis.

The following analytical techniques were employed:

Gold in ores and leach residues:	Fire assay/ICP-MS finish
Cyanide soluble gold in ores:	1% NaCN + 2% LeachWELL® 24 hours
Gold in solution:	Direct ICP-MS
C_{TOTAL}, $C_{ORGANIC}$:	*Labfit* CS2000 analysis
S_{TOTAL} $S_{SULPHIDE}$:	*Labfit* CS2000 analysis
Sb, Se, Hg, and Te:	Low temperature mixed acid/ICP finish
Multi-element Scan including Ag and Cu:	Mixed acid digest/ICP-OES & ICP/MS
Solid density:	Helium gas pycnometer

5. HEAD ANALYSIS

Representative head samples of the Master and Variability composites were submitted for analysis.

5.1 Detailed Chemical Assay Results

Comprehensive assay results for the composite samples are provided in Appendix II. Selected assay results are presented in the following tables.

MASTER COMPOSITES: HEAD ASSAYS

Master Composite	Comp ID	Au-1 (g/t)	Au-2 (g/t)	Au-Ave (g/t)	Ag (g/t)	As (ppm)	Cu (ppm)	S^{2-} (%)
Souwa Oxide	**MC-1**	3.97	3.43	**3.70**	<2	<10	30.0	<0.02
Souwa Trans	**MC-2**	1.51	1.24	**1.38**	<2	<10	18.0	0.04
Souwa Fresh	**MC-3**	1.15	1.21	**1.18**	4.00	<10	26.0	0.60
Nokpa Oxide	**MC-4**	1.41	1.17	**1.29**	<2	<10	8.00	<0.02
Nopka Trans	**MC-5**	2.68	2.93	**2.81**	<2	<10	22.0	<0.02
Nopka Fresh	**MC-6**	2.32	2.41	**2.37**	<2	<10	30.0	0.28
Kilosegui Oxide	**MC-7**	0.65	0.71	**0.68**	<2	<10	18.0	<0.02
Kilosegui Trans	**MC-8**	1.70	1.89	**1.80**	<2	<10	20.0	0.06
Kilosegui Fresh	**MC-9**	1.19	1.21	**1.20**	<2	10.0	12.0	0.30
Kekeda Oxide	**MC-10**	1.21	1.47	**1.34**	4.00	<10	54.0	<0.02
Kekeda Trans	**MC-11**	0.90	0.80	**0.85**	<2	<10	26.0	<0.02
Kekeda Fresh	**MC-12**	1.88	1.87	**1.88**	<2	<10	16.0	0.62
Enioda Oxide	**MC-13**	1.39	1.73	**1.56**	6.00	<10	98.0	<0.02
Enioda Trans	**MC-14**	1.00	0.95	**0.98**	2.00	<10	78.0	0.12
Enioda Fresh	**MC-15**	1.34	1.26	**1.30**	<2	<10	28.0	0.44
Han Oxide	**MC-16**	1.79	2.12	**1.96**	12.0	<10	40.0	<0.02
Han Trans	**MC-17**	2.34	1.34	**1.84**	2.00	<10	16.0	0.08
Han Fresh	**MC-18**	1.27	1.30	**1.29**	4.00	<10	12.0	0.50
Chegue Main Oxide	**MC-19**	0.64	0.83	**0.74**	2.00	<10	14.0	<0.02
Chegue Main Trans	**MC-20**	0.86	0.98	**0.92**	<2	<10	10.0	0.04
Chegue Main Fresh	**MC-21**	1.75	1.46	**1.61**	<2	<10	22.0	0.32
Chegue South Oxide	**MC-22**	2.56	3.89	**3.23**	<2	<10	12.0	<0.02
Chegue South Trans	**MC-23**	1.62	1.45	**1.54**	<2	<10	14.0	0.04
Chegue South Fresh	**MC-24**	1.60	1.76	**1.68**	<2	<10	12.0	0.24

VARIABILITY COMPOSITES: HEAD ASSAYS

Variability Composite	Comp ID	Au-1 (g/t)	Au-2 (g/t)	Au-Ave (g/t)	Ag (g/t)	As (ppm)	Cu (ppm)	Total S (%)
Souwa Oxide Low Grade	**VC-1**	0.72	0.65	**0.69**	<2	<10	40.0	<0.02
Souwa Oxide High Grade	**VC-2**	3.83	3.18	**3.51**	2.00	<10	30.0	<0.02
Souwa Trans Low Grade	**VC-3**	1.02	1.01	**1.02**	<2	10.00	16.0	0.42
Souwa Trans High Grade	**VC-4**	3.98	3.64	**3.81**	<2	<10	46.0	<0.02
Souwa Fresh Low Grade	**VC-5**	0.76	0.94	**0.85**	<2	<10	30.0	0.68
Souwa Fresh High Grade	**VC-6**	2.31	2.57	**2.44**	<2	<10	20.0	1.44
Nopka Oxide Low Grade	**VC-7**	1.02	1.09	**1.06**	<2	<10	18.0	<0.02
Nopka Trans Low Grade	**VC-8**	1.38	1.35	**1.37**	<2	<10	30.0	<0.02
Nopka Trans High Grade	**VC-9**	1.92	2.12	**2.02**	<2	<10	24.0	0.06
Nopka Fresh Low Grade	**VC-10**	0.85	0.85	**0.85**	<2	<10	40.0	0.16
Nopka Fresh High Grade	**VC-11**	3.11	3.12	**3.12**	2.00	<10	8.0	0.38

Continued/…

VARIABILITY COMPOSITES: HEAD ASSAYS (Cont'd)								
Variability Composite	**Comp ID**	**Au-1 (g/t)**	**Au-2 (g/t)**	**Au-Ave (g/t)**	**Ag (g/t)**	**As (ppm)**	**Cu (ppm)**	**Total S (%)**
Kilosegui Trans Low Grade	**VC-12**	0.52	0.60	**0.56**	<2	<10	14.0	<0.02
Kilosegui Trans High Grade	**VC-13**	1.80	2.19	**2.00**	<2	<10	12.0	<0.02
Kilosegui Fresh Low Grade	**VC-14**	0.79	0.82	**0.81**	<2	<10	6.00	0.16
Kilosegui Fresh High Grade	**VC-15**	2.44	2.38	**2.41**	<2	<10	8.00	0.20
Kekeda Oxide High Grade	**VC-17**	10.4	8.82	**9.61**	<2	<10	14.0	<0.02
Kekeda Trans Low Grade	**VC-18**	0.48	0.48	**0.48**	<2	<10	10.0	0.02
Kekeda Trans High Grade	**VC-19**	1.66	1.81	**1.74**	<2	<10	20.0	<0.02
Kekeda Fresh Low Grade	**VC-20**	1.47	1.01	**1.24**	<2	<10	12.0	0.16
Kekeda Fresh High Grade	**VC-21**	3.84	3.80	**3.82**	<2	<10	8.00	0.32
Enioda Oxide Low Grade	**VC-22**	0.99	1.16	**1.08**	24.0	<10	102	<0.02
Enioda Oxide High Grade	**VC-23**	0.83, 0.90	0.46,0.84	**0.76**	<2	<10	14.0	<0.02
Enioda Trans Low Grade	**VC-24**	0.48	0.54	**0.51**	<2	<10	28.0	<0.02
Enioda Trans High Grade	**VC-25**	4.76	5.25	**5.01**	<2	<10	44.0	<0.02
Enioda Fresh Low Grade	**VC-26**	0.93	0.64	**0.79**	<2	10.00	24.0	0.52
Enioda Fresh High Grade	**VC-27**	7.43	13.00	**10.22**	<2	<10	18.0	0.40
Han Trans Low Grade	**VC-28**	0.62	0.53	**0.58**	<2	<10	14.0	0.38
Han Trans High Grade	**VC-29**	20.30	23.70	**22.00**	<2	<10	32.0	0.18
Han Fresh Low-Grade	**VC-30**	0.45	0.45	**0.45**	<2	<10	10.0	0.30
Han Fresh High Grade	**VC-31**	5.03	7.81	**6.42**	<2	<10	114	0.44
Chegue Main Oxide High Grade	**VC-33**	3.45	4.54	**4.00**	<2	<10	26.0	<0.02
Chegue Main Trans Low Grade	**VC-34**	0.92	0.79	**0.86**	<2	<10	22.0	0.02
Chegue Main Trans High Grade	**VC-35**	2.31	3.10	**2.71**	<2	<10	16.0	0.06
Chegue Main Fresh Low Grade	**VC-36**	0.46	0.51	**0.49**	<2	<10	14.0	0.32
Chegue Mof ain Fresh High Grade	**VC-37**	1.96	2.45	**2.21**	<2	<10	10.0	<0.02
Chegue South Trans Low Grade	**VC-38**	0.39	0.45	**0.42**	<2	<10	8.00	0.04
Chegue South Trans High Grade	**VC-39**	1.88	2.04	**1.96**	<2	<10	14.0	0.04
Chegue South Fresh Low Grade	**VC-40**	0.67	0.69	**0.68**	<2	<10	8.00	0.32
Chegue South Fresh High Grade	**VC-41**	3.60	3.40	**3.50**	4.00	<10	14.0	0.36

Comments on the assay data for the Master composites are as follows:

- Average gold fire assays ranged from 0.68 g/t to 3.70 g/t for the Master composites and from 0.42 g/t to 22.0 g/t for the Variability composites. Coarse gold was evident in several samples, with variable results obtained in duplicate fire assays.
- Silver head assays are <2 ppm for the majority of the composites except composites VC-22 and MC16 that contain 24 g/t and12 g/t Ag, respectively.
- The head assay data indicated that the majority of the sulphur in all the composites is present as sulphide sulphur.
- The organic carbon levels in these composites are not elevated, reducing the likelihood of gold preg-robbing during cyanidation.
- Copper levels in the composites range from 6 ppm to 114 ppm, consequently, in some cases, the potential exists for increased cyanide consumption due to complexation with copper.
- The arsenic levels are very low (<10 ppm) indicating the absence of significant arsenopyrite and associated refractory gold.

5.2 Cyanide Soluble Gold Assay

5.2.1 Test Procedure

Each composite was subjected to an intensive cyanide leach on a 1 kg split of pulverised sample, as outlined below.

(1) The samples were leached under the following conditions:

- Solids : 40% (w/w)
- NaOH : 0.7%
- LeachWELL™ : 2% (w/w)
- NaCN : 1% (w/w)
- Oxygen Sparge
- Duration : 24 hours

(2) The intensive leach solution was analysed for Au.

(3) The washed residue was dried, weighed, and assayed for gold.

5.2.2 Results

The results of these tests are presented in the following table.

MASTER COMPOSITES: CYANIDE SOLUBLE GOLD ASSAY

Master Composite	Comp ID	Gold Extr'n (%)	Calc'd Head Au (g/t)	Master Composite	Comp ID	Gold Extr'n (%)	Calc'd Head Au (g/t)
Souwa Oxide	**MC-1**	96.7	6.36	**Enioda Oxide**	**MC-13**	98.7	1.55
Souwa Trans	**MC-2**	97.6	1.68	**Enioda Trans**	**MC-14**	96.7	1.37
Souwa Fresh	**MC-3**	93.0	1.28	**Enioda Fresh**	**MC-15**	91.2	1.36
Nokpa Oxide	**MC-4**	96.0	1.27	**Han Oxide**	**MC-16**	98.9	2.66
Nopka Trans	**MC-5**	96.7	2.75	**Han Trans**	**MC-17**	97.9	1.44
Nopka Fresh	**MC-6**	96.3	1.35	**Han Fresh**	**MC-18**	96.6	1.76
Kilosegui Oxide	**MC-7**	98.6	0.69	**Chegue Main Oxide**	**MC-19**	97.5	0.81
Kilosegui Trans	**MC-8**	96.0	1.24	**Chegue Main Trans**	**MC-20**	96.6	1.17
Kilosegui Fresh	**MC-9**	86.9	1.37	**Chegue Main Fresh**	**MC-21**	94.8	1.35
Kekeda Oxide	**MC-10**	93.4	1.13	**Chegue South Oxide**	**MC-22**	98.2	2.55
Kekeda Trans	**MC-11**	97.3	1.12	**Chegue South Trans**	**MC-23**	98.3	1.18
Kekeda Fresh	**MC-12**	96.5	1.99	**Chegue South Fresh**	**MC-24**	97.2	1.41

VARIABILITY COMPOSITES: CYANIDE SOLUBLE GOLD ASSAY							
Master Composite	**Comp ID**	**Au Extr'n (%)**	**Calc'd Head Au (g/t)**	**Master Composite**	**Comp ID**	**Au Extr'n (%)**	**Calc'd Head Au (g/t)**
Souwa Oxide Low Grade	**VC-1**	89	0.71	**Enioda Oxide Low Grade**	**VC-22**	98	0.85
Souwa Oxide High Grade	**VC-2**	98	1.97	**Enioda Oxide High Grade**	**VC-23**	99	2.14
Souwa Trans Low Grade	**VC-3**	95	1.41	**Enioda Trans Low Grade**	**VC-24**	93	0.57
Souwa Trans High Grade	**VC-4**	96	3.93	**Enioda Trans High Grade**	**VC-25**	99	4.89
Souwa Fresh Low Grade	**VC-5**	53	0.13	**Enioda Fresh Low Grade**	**VC-26**	89	0.74
Souwa Fresh High Grade	**VC-6**	94	2.46	**Enioda Fresh High Grade**	**VC-27**	98	6.52
Nopka Oxide Low Grade	**VC-7**	93	1.17	**Han Trans Low Grade**	**VC-28**	95	0.66
Nopka Trans Low Grade	**VC-8**	98	0.89	**Han Trans High Grade**	**VC-29**	100	22.6
Nopka Trans High Grade	**VC-9**	97	1.73	**Han Fresh Low Grade**	**VC-30**	95	0.55
Nopka Fresh Low Grade	**VC-10**	98	0.88	**Han Fresh High Grade**	**VC-31**	98	5.62
Nopka Fresh High Grade	**VC-11**	96	3.67	**Chegue Main Oxide High Grade**	**VC-33**	99	4.75
Kilosegui Trans Low Grade	**VC-12**	95	0.57	**Chegue Main Trans Low Grade**	**VC-34**	97	0.74
Kilosegui Trans High Grade	**VC-13**	96	1.90	**Chegue Main Trans High Grade**	**VC-35**	99	2.03
Kilosegui Fresh Low Grade	**VC-14**	92	0.76	**Chegue Main Fresh Low Grade**	**VC-36**	92	0.51
Kilosegui Fresh High Grade	**VC-15**	95	2.58	**Chegue Main Fresh High Grade**	**VC-37**	99	3.41
Kekeda Oxide High Grade	**VC-17**	96	9.30	**Chegue South Trans Low Grade**	**VC-38**	98	0.51
Kekeda Trans Low Grade	**VC-18**	96	0.49	**Chegue South Trans High Grade**	**VC-39**	99	3.73
Kekeda Trans High Grade	**VC-19**	98	2.07	**Chegue South Fresh Low Grade**	**VC-40**	95	0.82
Kekeda Fresh Low Grade	**VC-20**	97	0.71	**Chegue South Fresh High Grade**	**VC-41**	98	2.99
Kekeda Fresh High Grade	**VC-21**	99	4.41	**-**	**-**	-	-

Comments on the above results are as follows:

- The results indicated high gold extractions for most composites when subjecting the pulverised solids to intensive leach.
- The only composite to not achieve greater than 90% gold extraction was Kilosegui Fresh (MC-9), while Variability composites with <90% gold extraction included Souwa Oxide Low Grade (VC-1), Souwa Fresh Low Grade (VC-5), and Enioda Fresh Low Grade (VC-26).
- Calculated heads derived from these tests were mostly consistent with the results of duplicate fire assays. Some notable exceptions included Suowa Oxide (MC-1), Nopka Fresh (MC-6), Han Oxide (MC-16), Chegue South Oxide (MC-22), Souwa Oxide High Grade (VC-2), Souwa Fresh Low Grade (VC-5), Enioda Oxide High Grade (VC-23), Enioda Fresh High Grade (VC-27), Chegue Main Fresh High Grade (VC-37), and Chegue South Trans High Grade (VC-39). The results further demonstrated the potential for variable gold grade in these ores.

6. MINERALOGICAL ANALYSIS

Mineral examinations (QEMSCAN on pulverised feed samples) were undertaken on the feed samples of all 24 Master composites. Detailed mineralogical reports can be found in Appendix III.

Summary observations are as follows:

- The eight Fresh Master composites (MC-3, MC-6, MC-9, MC-12, MC-15, MC-18, MC-21, and MC-24) have relatively high carbonate content. Calcite occurs in all of these composites, while intermediate ankerite-dolomite is most abundant in MC-15 and MC-18 composites. Pyrite (between 0.9% and 1.6% by mass) is evident in the Fresh composites.

- Pyrite measures less than 0.5% in the Transitions composites. Trace amounts of complex, poorly characterised Fe-sulphate phases that occur in the Transition composites are likely to include partially oxidised pyrite and the products of more extensive oxidation such as melanterite. Sample MC-14 is the only Transition Composite that contains a significant proportion of carbonate, essentially all as 'ankerite-dolomite'.

- Pyrite is absent from the Oxide composites. The eight Oxide composites (MC-1, MC-4, MC-7, MC-10, MC-13, MC-16, MC-19, and MC 22), tend to contain a higher proportion of clay minerals. Examination of XRD data obtained as part of the investigation indicates that these are predominantly smectite-type minerals with variable Fe composition, as indicated by the QEMSCAN spectra.

- For this study, three main types of clay minerals have been defined and illustrate that the proportion of Fe-rich clay minerals is higher in some samples (for example, MC-11 and MC-22) than in others (for example, MC-7 and MC-19).

7. GRIND ESTABLISHMENT TESTWORK

Representative sub-samples of each composite were submitted for grind establishment in preparation for extractive leach testwork.

7.1 Test Procedure

The grind establishment procedure was conducted as follows:

(1) One-kilogram sub-samples were ground in a laboratory stainless steel rod mill at 50% solids (w/w) for various times.

(2) The ground solids were wet screened over a 75 µm aperture sieve.

(3) The screen oversize material was dried and then re-screened over a nest of screens, with a 75 µm bottom screen. The 75 µm screen undersize material was combined with the undersize material from step (2).

(4) Each size fraction was dried, weighed, and the masses were used to determine the particle size distribution (PSD).

(5) The resultant sizing data were utilised to determine the grinding times necessary to realise the target P_{80} grind size stipulated by the client.

7.2 Grind Times

The requisite grind times to achieve a specific P_{80} value are presented in the tables below.

GRIND ESTABLISHMENT RESULTS: MASTER COMPOSITES

Composite Name	Comp ID	P_{80} 125 µm		P_{80} 106 µm		P_{80} 75 µm	
		mins	secs	mins	secs	mins	secs
Souwa Oxide	**MC-1**	5	54	6	47	9	41
Souwa Trans	**MC-2**	7	8	8	14	11	36
Souwa Fresh	**MC-3**	8	32	9	28	12	8
Nokpa Oxide*	**MC-4**	4	30	5	30	8	30
Nopka Trans	**MC-5**	6	20	7	7	10	8
Nopka Fresh	**MC-6**	9	22	10	25	14	25
Kilosegui Oxide	**MC-7**	3	13	4	0	6	59
Kilosegui Trans	**MC-8**	7	20	8	27	11	50
Kilosegui Fresh	**MC-9**	8	43	9	47	13	46
Kekeda Oxide	**MC-10**	4	52	5	55	9	12
Kekeda Trans	**MC-11**	7	3	8	15	12	5
Kekeda Fresh	**MC-12**	8	38	9	56	13	49
Enioda Oxide	**MC-13**	4	26	5	18	8	5
Enioda Trans	**MC-14**	6	17	7	36	11	6
Enioda Fresh	**MC-15**	9	39	10	55	14	6
Han Oxide*	**MC-16**	4	30	5	30	8	30
Han Trans	**MC-17**	8	30	10	12	14	36
Han Fresh	**MC-18**	8	18	9	31	13	11
Chegue Main Oxide	**MC-19**	5	42	6	59	10	26
Chegue Main Trans	**MC-20**	7	20	8	45	12	8
Chegue Main Fresh	**MC-21**	10	22	11	52	16	1
Chegue South Oxide*	**MC-22**	4	30	5	30	8	30
Chegue South Trans	**MC-23**	7	40	9	4	12	35
Chegue South Fresh	**MC-24**	11	13	12	49	16	52

* Low weight composites. The average times for other oxides applied.

GRIND ESTABLISHMENT RESULTS: VARIABILITY COMPOSITES					
Composite Name	Composite ID	P_{80} 106 µm		P_{80} 75 µm	
		mins	secs	mins	secs
Souwa Oxide Low Grade	VC-1	7	06	-	-
Souwa Oxide High Grade	VC-2	11	15	-	-
Souwa Trans Low Grade	VC-3	10	1	-	-
Souwa Trans High Grade	VC-4	4	50	-	-
Souwa Fresh Low Grade	VC-5	-	-	14	3
Souwa Fresh High Grade	VC-6	-	-	10	57
Nopka Oxide Low Grade	VC-7	5	35	-	-
Nopka Trans Low Grade	VC-8	10	5	-	-
Nopka Trans High Grade	VC-9	10	24	-	-
Nopka Fresh Low Grade	VC-10	-	-	15	9
Nopka Fresh High Grade	VC-11	-	-	13	33
Kilosegui Trans Low Grade	VC-12	9	30	-	-
Kilosegui Trans High Grade	VC-13	7	16	-	-
Kilosegui Fresh Low Grade	VC-14	-	-	15	9
Kilosegui Fresh High Grade	VC-15	-	-	15	3
Kekeda Oxide High Grade	VC-17	8	16	-	-
Kekeda Trans Low Grade	VC-18	10	50	-	-
Kekeda Trans High Grade	VC-19	10	26	-	-
Kekeda Fresh Low Grade	VC-20	-	-	15	40
Kekeda Fresh High Grade	VC-21	-	-	15	46
Enioda Oxide Low Grade	VC-22	3	58	-	-
Enioda Oxide High Grade	VC-23	12	16	-	-
Enioda Trans Low Grade	VC-24	6	0	-	-
Enioda Trans High Grade	VC-25	7	5	-	-
Enioda Fresh Low Grade	VC-26	-	-	12	56
Enioda Fresh High Grade	VC-27	-	-	15	56
Han Trans Low Grade	VC-28	8	48	-	-
Han Trans High Grade	VC-29	10	40	-	-
Han Fresh Low Grade	VC-30	-	-	13	21
Han Fresh High Grade	VC-31	-	-	9	34
Chegue Main Oxide High Grade	VC-33	8	33	-	-
Chegue Main Trans Low Grade	VC-34	9	10	-	-
Chegue Main Trans High Grade	VC-35	9	41	-	-
Chegue Main Fresh Low Grade	VC-36	-	-	14	46
Chegue Main Fresh High Grade	VC-37	-	-	17	3
Chegue South Trans Low Grade	VC-38	10	26	-	-
Chegue South Trans High Grade	VC-39	10	16	-	-
Chegue South Fresh Low Grade	VC-40	-	-	16	15
Chegue South Fresh High Grade	VC-41	-	-	15	34

8. TESTWORK WATER

All testwork was conducted using Perth tap water.

9. GRAVITY/LEACH OPTIMISATION TESTWORK

A series of leach optimisation tests were conducted on the Master composites to identify the effect of grind size, cyanide concentration, oxygen sparge, CIL, pre-oxidation, lead nitrate addition, and a pre-leach stage on gold extraction.

The following table provides the matrix of tests completed on the composites. "NT" denotes Not Tested, while "X" identifies the composites that were subjected to each test.

GRAVITY/LEACH OPTIMISATION TESTWORK: MASTER COMPOSITE TEST MATRIX							
Comp Name	**Comp ID**	**Grind Size**	**[CN] Conc.**	**O2 vs Air**	**DCN vs CIL**	**Pre-Ox & Lead Nitrate**	**Pre-Leach**
Souwa Oxide	**MC-1**	X	X	X	X	X	X
Souwa Trans	**MC-2**	X	X	X	X	X	X
Souwa Fresh	**MC-3**	X	X	X	X	X	X
Nokpa Oxide	**MC-4**	X	NT	NT	X	NT	NT
Nopka Trans	**MC-5**	X	X	X	X	X	X
Nopka Fresh	**MC-6**	X	X	X	X	X	X
Kilosegui Oxide	**MC-7**	X	X	NT	X	NT	X
Kilosegui Trans	**MC-8**	X	X	X	X	X	X
Kilosegui Fresh	**MC-9**	X	X	X	X	X	X
Kekeda Oxide	**MC-10**	X	X	NT	X	NT	NT
Kekeda Trans	**MC-11**	X	X	X	X	X	X
Kekeda Fresh	**MC-12**	X	X	X	X	X	X
Enioda Oxide	**MC-13**	X	X	X	X	X	X
Enioda Trans	**MC-14**	X	X	X	X	X	X
Enioda Fresh	**MC-15**	X	X	X	X	X	X
Han Oxide	**MC-16**	NT	NT	NT	X	NT	NT
Han Trans	**MC-17**	X	X	X	X	X	X
Han Fresh	**MC-18**	X	X	X	X	X	X
Chegue Main Oxide	**MC-19**	X	X	NT	X	NT	NT
Chegue Main Trans	**MC-20**	X	X	X	X	X	X
Chegue Main Fresh	**MC-21**	X	X	X	X	X	X
Chegue South Oxide	**MC-22**	NT	NT	NT	X	NT	NT
Chegue South Trans	**MC-23**	X	X	X	X	X	X
Chegue South Fresh	**MC-24**	X	X	X	X	X	X

9.1 Test Procedures

The test procedures used are presented in the following sections.

9.1.1 Gravity Separation/Intensive Leach

The following test procedure was followed:

(1) The 3 kg test sample was ground to the requisite grind size (P_{80}: 125 µm, 106 µm or 75 µm) and passed through a laboratory *Knelson* KC-MD3 gravity concentrator, with the following specifications:

- 0.12 kW drive
- 1500 rpm
- 3.5 L/min fluidisation flow rate.

(2) Each *Knelson* gravity concentrate was submitted for an intensive leach under the following conditions:

- Solids : 20% (w/w)
- NaOH : 0.8%
- LeachWELL™ : 2% (w/w)
- NaCN : 5% (w/w)
- Oxygen Sparge
- Duration : 24 hours

(3) The intensive leach solution was analysed for Au, Ag and Cu.

(4) The washed gravity concentrate intensive leach tailings were recombined with the *Knelson* gravity tailings for cyanide leach testwork.

9.1.2 Direct Cyanide Leach

The following procedure was followed:

(1) The combined gravity tailings product was transferred into a 10-litre leach bottle with a screw-on lid. Slurry agitation was applied by mechanical rollers.

(2) Perth tap water was added to establish a slurry comprising 45% solids (w/w).

(3) Lime was added as required to establish a pH of 10.5 and maintained at ≥9.8 for the remainder of the test.

(4) Where appropriate, the slurry was sparged with oxygen to maintain a slurry dissolved oxygen (DO) content of >20 ppm for the duration of the leach test.

(5) Sodium cyanide was added to the slurry to establish an initial cyanide solution concentration of 0.05% (w/v), or as specified. The cyanide solution strength was maintained at ≥0.050% (w/v), or as specified, for the duration of the leach.

(6) At regular intervals (2, 4, 8 and 24 hours), slurry pH, DO, and cyanide concentration were measured and recorded.

(7) Lime was added as required to maintain the target pH (~9.8).

(8) Intermediate solution sub-samples (2, 4, 8 and 24 hours) were assayed for gold, silver, and copper.

(9) At the conclusion of the test (40 hours), the terminal pH, oxygen, and cyanide levels were measured, and a solution sample was assayed for gold, silver, and copper.

(10) The residual slurry sample was washed with Perth tap water and filtered. The washed filter cake (leach residue solids) was oven-dried before splitting out a sub-sample for gold, silver, and copper assays.

9.1.3 Carbon-in-Leach (CIL)

The CIL test procedure is described below:

(1) The combined gravity tailings product was transferred into a 10-litre leach bottle with a screw-on lid. Slurry agitation was applied by mechanical rollers.

(2) Perth tap water was added as required to establish a 45% (w/w) solids slurry.

(3) Lime was added as required to establish a pH of 10.5 and maintained at ≥9.8 for the remainder of the test.

(4) Haycarb YAO was added (20 g/L).

(5) Sodium cyanide was added to the slurry to establish an initial cyanide concentration of 0.050% (w/w) and maintained at ≥0.025 % (w/w) for the remainder of the test.

(6) The slurry was sparged with oxygen to maintain a dissolved oxygen (DO) level of ≥20 ppm for the duration of the test.

(7) At each monitoring interval (2, 4, 8 and 24 hours), solution and carbon samples were collected for cyanide titration and Au, Ag, and Cu assay. In addition, slurry pH and DO levels were measured and recorded.

(8) At the termination of the test (40 hours), the terminal pH, oxygen, and cyanide levels were determined, and a solution sample was taken for Au, Ag, and Cu assay.

(9) The remaining loaded carbon was recovered by screening, washed, dried, weighed, and submitted for Au, Ag, and Cu assay.

(10) The residual slurry was filtered and washed. The filter cake was dried and a sub-sample was split out and assayed for Au, Ag, and Cu.

9.1.4 Carbon-in-Leach (CIL) with Pre-oxidation

The pre-oxidation CIL test procedure is described below:

(1) The combined gravity tailings product was transferred into a 10-litre leach bottle with a screw-on lid. Slurry agitation was applied by mechanical rollers.

(2) Perth tap water was added as required to establish a 45% (w/w) solids slurry.

(3) Lime was added as required to establish a pH of 10.5 and maintained at ≥9.8 for the remainder of the test.

(4) If required, lead nitrate was added at the rate of 500 g/t of ore.

(5) The slurry was sparged with oxygen to maintain a dissolved oxygen (DO) level of ≥20 ppm for 6 hours.

(6) At regular intervals, the pH and DO were measured and reagent additions made to maintain the desired conditions.

(7) Following 6 hours of pre-oxidation, *Haycarb YAO* was added (20 g/L).

(8) Sodium cyanide was added to the slurry to establish an initial cyanide concentration of 0.050% (w/w) and maintained at ≥0.025 % (w/w) for the remainder of the test.

(9) The slurry was sparged with oxygen to maintain a dissolved oxygen (DO) level of ≥20 ppm for the duration of the leach.

(10) At each monitoring interval (2, 4, 8, 24, and 40 hours post-cyanide addition), solution samples were collected for cyanide titration and Au, Ag, and Cu assay. In addition, slurry pH and DO levels were measured and recorded.

(11) At 24 hours, a carbon sample was collected, washed, dried, and assayed for Au, Ag, and Cu.

(12) At the termination of the test (40 hours post-cyanide addition), the terminal pH, oxygen, and cyanide levels were determined, and a solution sample was taken for Au, Ag, and Cu assay.

(13) The remaining loaded carbon was screened out, washed, dried, weighed, and submitted for Au, Ag, and Cu assay.

(14) The residual slurry was filtered and washed. The filter cake was dried and a sub-sample was split out and assayed for Au, Ag, and Cu.

9.1.5 Pre-leach/Carbon-in-Leach (CIL)

The pre-leach followed by the CIL test procedure is described below:

(1) The combined gravity tailings product was transferred into a 12-litre leach bottle with a screw-on lid. Slurry agitation was applied by mechanical rollers.

(2) Perth tap water was added as required to establish a 45% (w/w) solids slurry.

(3) Lime was added as required to establish a pH of 10.5 and maintained at ≥9.8 for the remainder of the test.

(4) If required, lead nitrate was added at the rate of 500 g/t of ore.

(5) Sodium cyanide was added to the slurry to establish an initial cyanide concentration of 0.050% (w/w) and maintained at ≥0.025 % (w/w) for the remainder of the test.

(6) The slurry was sparged with oxygen to maintain a dissolved oxygen (DO) level of ≥20 ppm for the duration of the leach.

(7) At each monitoring interval (2, 4 and 6 hours post-cyanide addition), solution samples were collected for cyanide titration and Au, Ag, and Cu assay. In addition, slurry pH and DO levels were measured and recorded.

(8) Following 6 hours of pre-leach, *Haycarb YAO* was added (20 g/L).

(9) At each monitoring interval (8, 24 and 40 hours post-cyanide addition), solution samples were collected for cyanide titration and Au, Ag, and Cu assay. In addition, slurry pH and DO levels were measured and recorded.

(10) At 8 and 24 hours, a carbon sample was collected, washed, dried, and assayed for Au, Ag, and Cu.

(11) At the termination of the test (40 hours total duration), the terminal pH, oxygen, and cyanide levels were determined, and a solution sample was taken for Au, Ag, and Cu assay.

(12) The remaining loaded carbon was screened out, washed, dried, weighed, and submitted for Au, Ag, and Cu assay.

(13) The residual slurry was filtered and washed. The filter cake was dried and a sub-sample was split out and assayed for Au, Ag, and Cu.

9.2 Results

Detailed leach test report sheets for all control variables are included in Appendix IV, with the gold leach results summarised in the following sections.

9.2.1 Influence of Grind Size

Sub-samples of each Master Composite underwent gravity separation and direct cyanide leach testwork at varying primary grind sizes to better understand the effect of the grind size on the overall gold recovery.

A summary of the results is presented in the following tables.

MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND - SOUWA COMPOSITES

Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Grav'	Grav + Leach	NaCN	Lime
7612	Souwa Oxide Master Comp (MC-1)	125	5.67	3.70	39.1	93.5	0.39	0.52
7613		106	4.82		38.3	93.8	0.36	0.57
7614		75	5.81		38.0	95.4	0.39	0.56
7615	Souwa Trans Master Comp (MC-2)	125	1.16	1.38	25.4	92.2	0.33	0.29
7616		106	1.18		28.0	94.1	0.33	0.32
7617		75	1.23		26.8	93.5	0.36	0.31
7618	Souwa Fresh Master Comp (MC-3)	125	1.47	1.18	36.4	85.7	0.21	0.22
7619		106	1.50		33.1	86.0	0.30	0.18
7620		75	1.35		27.2	86.7	0.27	0.23

MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND - NOPKA COMPOSITES

Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Grav'	Grav' + Leach	NaCN	Lime
7621	Nopka Oxide Master Comp (MC-4)	125	1.04	1.29	15.6	93.3	0.24	1.31
7622		106	1.07		15.8	92.5	0.39	0.73
7623		75	1.35		24.5	95.2	0.37	0.75
7624	Nopka Trans Master Comp (MC-5)	125	2.53	2.81	12.9	94.9	0.30	0.68
7625		106	2.67		14.3	95.1	0.30	0.75
7626		75	2.72		14.2	96.3	0.27	0.73
7627	Nopka Fresh Master Comp (MC-6)	125	1.36	2.37	27.7	86.7	0.24	0.22
7628		106	1.6		29.4	86.8	0.21	0.25
7629		75	1.51		29.3	88.8	0.21	0.24

MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND - KILOSEGUI COMPOSITES								
Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Grav'	Grav' + Leach	NaCN	Lime
7630	Kilosegui Oxide Master Comp (MC-7)	125	0.85	0.68	50.3	97.7	0.18	1.72
7631		106	0.72		44.1	97.2	0.18	1.95
7632		75	0.62		34.9	96.8	0.21	1.88
7633	Kilosegui Trans Master Comp (MC-8)	125	1.78	1.8	55.2	93.2	0.27	0.41
7634		106	1.23		34.2	90.2	0.24	0.44
7635		75	1.23		37.7	92.7	0.27	0.41
7636	Kilosegui Fresh Master Comp (MC-9)	125	1.45	1.2	42.6	81.3	0.27	0.30
7637		106	1.4		41.1	81.5	0.36	0.25
7638		75	1.37		37.7	84.7	0.36	0.22

MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND - KEKEDA COMPOSITES								
Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Grav'	Grav' + Leach	NaCN	Lime
7639	Kekeda Oxide Master Comp (MC-10)	125	0.72	1.34	20.2	94.4	0.39	1.05
7640		106	0.71		24.0	95.8	0.43	1.08
7641		75	0.79		25.2	95.6	0.37	1.20
7642	Kekeda Trans Master Comp (MC-11)	125	1.25	0.85	24.8	94.4	0.36	0.62
7643		106	1.01		15.8	94.1	0.33	0.58
7644		75	1.12		20.5	93.8	0.36	0.61
7645	Kekeda Fresh Master Comp (MC-12)	125	1.68	1.88	35.3	88.1	0.21	0.28
7646		106	1.77		38.4	89.8	0.27	0.23
7647		75	1.54		32.2	89.6	0.30	0.25

MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND - ENIODA COMPOSITES								
Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Grav'	Grav' + Leach	NaCN	Lime
7696	Enioda Oxide Master Comp (MC-13)	125	1.56	1.56	34.9	96.2	0.43	1.00
7697		106	1.63		39	96.9	0.45	1.05
7698		75	1.39		30.2	97.8	0.33	1.08
7699	Enioda Trans Master Comp (MC-14)	125	1.23	0.98	36.5	92.7	0.43	0.67
7700		106	1.26		43.3	93.2	0.43	0.62
7701		75	0.99		33.5	93.9	0.39	0.69
7702	Enioda Fresh Master Comp (MC-15)	125	1.29	1.3	38	84.4	0.45	0.27
7703		106	1.34		38.4	86.6	0.42	0.26
7704		75	1.31		42	87.8	0.48	0.25

MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND - HAN COMPOSITES								
Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
7705	Han Trans Master Comp (MC-17)	125	1.67	1.84	52.9	95.2	0.36	0.35
7706		106	1.62		40.9	95.7	0.33	0.34
7707		75	1.60		41.9	96.3	0.39	0.32
7708	Han Fresh Master Comp (MC-18)	125	1.22	1.29	32.1	84.4	0.33	0.29
7709		106	1.31		35.9	85.5	0.30	0.27
7710		75	1.59		45	88.7	0.33	0.29

MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND – CHEGUE MAIN COMPOSITES								
Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
7711	Chegue Main Oxide Master Comp (MC-19)	125	1.07	0.74	42.7	96.3	0.18	1.36
7712		106	0.82		32	95.1	0.24	1.43
7713		75	1.17		37	96.6	0.30	1.53
7714	Chegue Main Trans Master Comp (MC-20)	125	1.15	0.92	30	93.9	0.30	0.46
7715		106	1.08		25.5	93.5	0.31	0.44
7716		75	1.13		25.9	93.8	0.31	0.46
7717	Chegue Main Fresh Master Comp (MC-21)	125	1.41	1.61	42.6	88.7	0.27	0.22
7718		106	1.36		44	89.7	0.27	0.24
7719		75	1.25		38.1	88.8	0.3	0.23

MASTER COMPOSITE GRAVITY/DIRECT LEACH TESTWORK: INFLUENCE OF GRIND – CHEGUE SOUTH COMPOSITES								
Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
7720	Chegue South Trans Master Comp (MC-23)	125	1.11	1.54	23.2	92.8	0.24	0.54
7721		106	1.12		24.8	93.7	0.24	0.56
7722		75	1.15		24.9	94.8	0.20	0.56
7723	Chegue South Fresh Master Comp (MC-24)	125	1.17	1.68	35.1	82.9	0.26	0.30
7724		106	1.13		37.2	85.9	0.27	0.31
7725		75	1.14		31.1	84.2	0.3	0.29

Comments and observations of the above results are as follows:

- The overall gold recovery for the majority of the Oxide and Transition Master composites showed a slight improvement with reducing grind size.
- For the Fresh Master composites, the overall gold extraction consistently improved with decreasing grind size. In some cases, the benefit of grinding finer than P_{80} 106 µm was minimal.
- Based on the results, P_{80} 106 µm was selected for all oxide and transition composites with P_{80} 75 µm selected for all fresh composites.
- Cyanide and lime consumptions were low for all the tests.

9.2.2 Influence of Cyanide Concentration

The Master composites were subjected to gravity separation and direct cyanide leach test at three different levels of NaCN concentration to establish the gold extraction characteristics.

A summary of the results is presented in the following tables.

MASTER COMPOSITE GRAVITY/ LEACH TESTWORK: INFLUENCE OF CYANIDE CONCENTRATION – SOUWA COMPOSITES

Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maint.	Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
7873	Souwa Oxide Master Comp (MC-1)	106	0.07	0.04	5.1	3.70	36.3	94.0	0.21	0.81
7874		106	0.05	0.025	5.09		39.8	94.9	0.15	0.8
7875		106	0.03	0.015	6.94		42.4	92.8	0.09	0.78
7876	Souwa Trans Master Comp (MC-2)	106	0.07	0.04	1.36	1.38	29	92.7	0.21	0.51
7877		106	0.05	0.025	1.57		34.6	89.8	0.15	0.52
7878		106	0.03	0.015	1.11		26.4	92.8	0.08	0.55
7879	Souwa Fresh Master Comp (MC-3)	75	0.07	0.04	1.42	1.18	32.6	87.3	0.18	0.38
7880		75	0.05	0.025	1.32		32	87.2	0.12	0.36
7881		75	0.03	0.015	1.31		28.2	83.3	0.09	0.31

MASTER COMPOSITE GRAVITY/ LEACH TESTWORK: INFLUENCE OF CYANIDE CONCENTRATION – NOKPA COMPOSITES

Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maint.	Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
7882	Nopka Trans Master Comp (MC-5)	106	0.07	0.04	2.78	2.81	15.5	95.0	0.30	0.68
7883		106	0.05	0.025	2.71		15.7	94.5	0.15	0.72
7884		106	0.03	0.015	2.67		14.4	94.0	0.12	0.66
7885	Nopka Fresh Master Comp (MC-6)	75	0.07	0.04	1.28	2.37	23.3	86.7	0.20	0.23
7886		75	0.05	0.025	1.31		29.1	86.2	0.14	0.22
7887		75	0.03	0.015	1.43		31.4	86.7	0.09	0.23

MASTER COMPOSITE GRAVITY/ LEACH TESTWORK: INFLUENCE OF CYANIDE CONCENTRATION – KILOSEGUI COMPOSITES

Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maint.	Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
7888	Kilosegui Oxide Master Comp (MC-7)	106	0.07	0.04	0.77	0.68	45.5	98.7	0.27	0.75
7889		106	0.05	0.025	0.68		37.8	97.1	0.21	0.75
7890		106	0.03	0.015	0.86		51.5	97.7	0.12	0.75
7891	Kilosegui Trans Master Comp (MC-8)	106	0.07	0.04	1.31	1.80	38.7	91.6	0.18	0.5
7892		106	0.05	0.025	1.18		35.3	91.5	0.18	0.45
7893		106	0.03	0.015	1.27		41.4	92.9	0.08	0.50
7894	Kilosegui Fresh Master Comp (MC-9)	75	0.07	0.04	1.5	1.20	38.5	84.6	0.24	0.30
7895		75	0.05	0.025	1.44		40.3	84.0	0.14	0.31
7896		75	0.03	0.015	1.33		36.4	83.4	0.12	0.30

MASTER COMPOSITE GRAVITY/ LEACH TESTWORK: INFLUENCE OF CYANIDE CONCENTRATION – KEKEDA COMPOSITES										
Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maint.	Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
7897	Kekeda Oxide Master Comp (MC-10)	106	0.07	0.04	0.65	1.34	27.0	95.4	0.24	1.09
7898		106	0.05	0.025	0.74		25.5	96.0	0.21	1.11
7899		106	0.03	0.015	0.98		43.1	95.9	0.12	1.11
7900	Kekeda Trans Master Comp (MC-11)	106	0.07	0.04	1.10	0.85	30.6	94.5	0.27	0.59
7901		106	0.05	0.025	1.14		20.8	93.8	0.18	0.58
7902		106	0.03	0.015	1.08		27.0	94.0	0.12	0.61
7903	Kekeda Fresh Master Comp (MC-12)	75	0.07	0.04	1.50	1.88	34.7	90.0	0.27	0.28
7904		75	0.05	0.025	1.71		37.0	89.5	0.18	0.29
7905		75	0.03	0.015	1.67		35.5	88.0	0.12	0.33

MASTER COMPOSITE GRAVITY/ LEACH TESTWORK: INFLUENCE OF CYANIDE CONCENTRATION – ENIODA COMPOSITES										
Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maint.	Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
7906	Enioda Oxide Master Comp (MC-13)	106	0.07	0.04	1.62	1.56	33.0	96.3	0.37	1.19
7907		106	0.05	0.025	1.48		28.2	95.9	0.27	1.17
7908		106	0.03	0.015	1.47		27.5	96.3	0.18	1.13
7909	Enioda Trans Master Comp (MC-14)	106	0.07	0.04	1.31	0.98	41.6	93.1	0.36	0.67
7910		106	0.05	0.025	1.08		36.7	95.4	0.24	0.69
7911		106	0.03	0.015	1.47		48.7	91.8	0.13	0.78
7912	Enioda Fresh Master Comp (MC-15)	75	0.07	0.04	1.27	1.30	34.4	90.5	0.30	0.31
7913		75	0.05	0.025	1.42		32.9	86.0	0.27	0.34
7914		75	0.03	0.015	1.33		36.2	88.8	0.09	0.35

MASTER COMPOSITE GRAVITY/ LEACH TESTWORK: INFLUENCE OF CYANIDE CONCENTRATION – HAN COMPOSITES										
Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maint.	Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
7915	Han Trans Master Comp (MC-17)	75	0.07	0.04	1.61	1.84	29.6	90.1	0.18	0.4
7916		75	0.05	0.025	1.59		43.7	94.3	0.18	0.42
7917		75	0.03	0.015	1.97		52.5	91.4	0.12	0.45
7918	Han Fresh Master Comp (MC-18)	106	0.07	0.04	1.58	1.29	48.6	89.9	0.24	0.24
7919		106	0.05	0.025	1.53		44.7	86.9	0.2	0.26
7920		106	0.03	0.015	1.65		49.8	89.1	0.12	0.30

MASTER COMP GRAVITY/ LEACH TESTWORK: INFLUENCE OF CYANIDE CONCENTRATION – CHEGUE MAIN COMPOSITES										
Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maint.	Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
7921	Chegue Main Oxide Master Comp (MC-19)	75	0.07	0.04	0.82	0.74	34.8	96.4	0.33	0.89
7922		75	0.05	0.025	0.93		35.4	94.6	0.21	0.99
7923		75	0.03	0.015	0.90		36.7	95.6	0.12	1.02
7924	Chegue Main Trans Master Comp (MC-20)	106	0.07	0.04	1.15	0.92	28.6	93.1	0.31	0.42
7925		106	0.05	0.025	1.14		28.0	93.0	0.18	0.44
7926		106	0.03	0.015	1.16		28.2	90.9	0.12	0.49
7927	Chegue Main Fresh Master Comp (MC-21)	106	0.07	0.04	1.40	1.61	43.3	87.2	0.18	0.26
7928		106	0.05	0.025	1.29		43.8	89.1	0.15	0.26
7929		106	0.03	0.015	1.38		44.3	88.0	0.09	0.31

MASTER COMP GRAVITY/ LEACH TESTWORK: INFLUENCE OF CYANIDE CONCENTRATION – CHEGUE SOUTH COMPOSITES										
Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	% NaCN (w/v)		Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Initial	Maint.	Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
7930	Chegue South Trans Master Comp (MC-23)	75	0.07	0.04	1.34	1.54	37.5	93.3	0.20	0.50
7931		75	0.05	0.025	1.16		27.0	92.2	0.15	0.50
7932		75	0.03	0.015	1.23		26.8	91.8	0.06	0.50
7933	Chegue South Fresh Master Comp (MC-24)	106	0.07	0.04	1.14	1.68	30.7	82.4	0.20	0.26
7934		106	0.05	0.025	1.87		40.4	79.6	0.12	0.30
7935		106	0.03	0.015	1.44		35.1	76.1	0.06	0.30
7927	Chegue Main Fresh Master Comp (MC-21)	106	0.07	0.04	1.40	1.61	43.3	87.2	0.18	0.26
7928		106	0.05	0.025	1.29		43.8	89.1	0.15	0.26
7929		106	0.03	0.015	1.38		44.3	88.0	0.09	0.31

Comments and observations of the above results are as follows:

- The higher cyanide concentrations of 0.07% and 0.05% NaCN resulted in higher overall gold recovery than for the lowest concentration of 0.03% NaCN.
- An initial cyanide concentration of 0.05%, with a maintained level of 0.025% was selected for subsequent optimisation tests on all composites.

9.2.3 Effect of Air vs Oxygen Sparge

These tests assessed the effect of air sparge versus oxygen sparge in parallel tests. A summary of the results is presented in the following table.

MASTER COMPOSITE GRAVITY/ LEACH TESTWORK: EFFECT OF AIR VS OXYGEN SPARGE

Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	Sparge Gas	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
				Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
8058	**Souwa Oxide Master Comp (MC-1)**	106	O_2	5.56	3.70	33.4	93.9	0.21	0.75
8063		106	Air	6.05		38.4	91.7	0.18	0.73
8059	**Souwa Trans Master Comp (MC-2)**	106	O_2	1.20	1.38	24.1	91.7	0.21	0.54
8064		106	Air	1.31		23.8	90.8	0.12	0.45
8060	**Souwa Fresh Master Comp (MC-3)**	75	O_2	1.41	1.18	27.0	85.9	0.21	0.25
8065		75	Air	1.51		31.3	81.1	0.14	0.27
8061	**Nopka Trans Master Comp (MC-5)**	106	O_2	2.74	2.81	13.0	94.5	0.15	0.78
8066		106	Air	2.68		13.6	94.0	0.14	0.74
8062	**Nopka Fresh Master Comp (MC-6)**	75	O_2	1.57	2.37	28.9	89.8	0.18	0.43
8067		75	Air	1.26		25.8	80.2	0.08	0.22
8170	**Kilosegui Trans Master Comp (MC-8)**	106	O_2	1.23	1.80	33.6	89.5	0.12	0.42
8183		106	Air	1.17		32.1	89.8	0.15	0.41
8171	**Kilosegui Fresh Master Comp (MC-9)**	75	O_2	1.40	1.20	39.1	85.0	0.06	0.42
8184		75	Air	1.19		35.1	82.3	0.15	0.29
8172	**Kekeda Trans Master Comp (MC-11)**	106	O_2	1.40	0.85	30.0	92.2	0.14	0.60
8185		106	Air	1.06		21.5	91.5	0.14	0.64
8173	**Kekeda Fresh Master Comp (MC-12)**	75	O_2	1.56	1.88	33.2	92.9	0.02	0.67
8186		75	Air	1.77		44.7	87.6	0.15	0.30
8174	**Enioda Oxide Master Comp (MC-13)**	106	O_2	1.52	1.56	29.8	95.4	0.12	1.42
8187		106	Air	1.45		29.6	95.9	0.15	1.21
8175	**Enioda Trans Master Comp (MC-14)**	106	O_2	1.20	0.98	36.9	94.2	0.15	0.88
8188		106	Air	1.19		28.3	92.4	0.21	0.58
8176	**Enioda Fresh Master Comp (MC-15)**	75	O_2	1.29	1.30	29.3	86.0	0.14	0.32
8089		75	Air	1.28		33.1	86.7	0.18	0.26
8177	**Han Trans Master Comp (MC-17)**	106	O_2	1.57	1.84	41.0	95.5	0.12	0.41
8190		106	Air	1.63		40.7	93.3	0.12	0.52
8178	**Han Fresh Master Comp (MC-18)**	75	O_2	1.76	1.29	47.7	88.1	0.15	0.31
8191		75	Air	1.63		46.1	84.1	0.18	0.21
8179	**Chegue Main Trans Master Comp (MC-20)**	106	O_2	1.17	0.92	28.2	94.0	0.14	0.50
8192		106	Air	1.07		24.6	91.1	0.20	0.35
8180	**Chegue Main Fresh Master Comp (MC-21)**	75	O_2	1.42	1.61	44.5	88.7	0.08	0.29
8193		75	Air	1.35		41.7	83.7	0.20	0.22
8181	**Chegue South Trans Master Comp (MC-23)**	106	O_2	1.38	1.54	27.4	89.9	0.09	0.54
8194		106	Air	1.27		23.7	89.8	0.27	0.37
8182	**Chegue South Fresh Master Comp (MC-24)**	75	O_2	1.09	1.68	32.5	80.8	0.12	0.32
8195		75	Air	1.20		35.2	74.6	0.24	0.24

In most cases, oxygen sparge provided a slight increase in gold extraction as well as improved leach kinetics when compared to tests conducted with air sparge.

9.2.4 Effect of CIL versus Direct Cyanidation (DCN)

Each Master Composite was subjected to a CIL test to determine a benefit to gold extraction under CIL conditions. For ease of comparison, the results of a direct cyanide leach (DCN) test conducted on the composite under similar parameters as the CIL tests are included in the table. A summary of the results is presented in the following table.

MASTER COMPOSITE GRAVITY/LEACH TESTWORK: EFFECT OF CIL VS DCN

Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	CIL or DCN	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
				Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
8074	**Souwa Oxide Master Comp (MC-1)**	106	CIL	4.82	3.70	37.0	91.7	0.65	0.55
8058		106	DCN	5.56		33.4	93.9	0.21	0.75
8075	**Souwa Trans Master Comp (MC-2)**	106	CIL	1.83	1.38	38.1	90.7	0.48	0.78
8059		106	DCN	1.20		24.1	91.7	0.21	0.54
8076	**Souwa Fresh Master Comp (MC-3)**	75	CIL	1.33	1.18	29.8	88.0	0.57	0.27
8060		75	DCN	1.41		27.0	85.9	0.21	0.25
8077	**Nopka Oxide Master Comp (MC-4)**	106	CIL	2.64	1.29	62.0	95.0	0.71	0.80
8548		106	DCN	1.20		14.4	92.5	0.12	1.18
8078	**Nopka Trans Master Comp (MC-5)**	106	CIL	2.78	2.81	17.5	93.9	0.65	0.61
8061		106	DCN	2.74		13.0	94.5	0.15	0.78
8079	**Nopka Fresh Master Comp (MC-6)**	75	CIL	1.39	2.37	28.9	92.1	0.45	0.25
8062		75	DCN	1.57		28.9	89.8	0.18	0.43
8354	**Kilosegui Oxide Master Comp (MC-7)**	106	CIL	1.00	0.68	57.7	97.0	0.57	0.91
8534		106	DCN	0.77		38.0	93.5	0.21	0.73
8355	**Kilosegui Trans Master Comp (MC-8)**	106	CIL	1.23	1.80	41.5	89.4	0.36	0.73
8170		106	DCN	1.23		33.6	89.5	0.12	0.42
8348	**Kilosegui Fresh Master Comp (MC-9)**	75	CIL	2.51	1.20	43.2	90.0	0.59	0.25
8171		75	DCN	1.40		39.1	85.0	0.06	0.42
8356	**Kekeda Oxide Master Comp (MC-10)**	106	CIL	0.76	1.34	29.8	94.7	0.71	0.97
8537		106	DCN	0.70		16.2	94.3	0.27	1.35
8357	**Kekeda Trans Master Comp (MC-11)**	106	CIL	1.53	0.85	37.0	94.8	0.60	0.61
8172		106	DCN	1.40		30.0	92.2	0.14	0.60
8349	**Kekeda Fresh Master Comp (MC-12)**	75	CIL	1.64	1.88	39.3	93.3	0.57	0.26
8173		75	DCN	1.56		33.2	92.9	0.02	0.67
8358	**Enioda Oxide Master Comp (MC-13)**	106	CIL	1.57	1.56	28.8	96.5	0.72	1.00
8174		106	DCN	1.52		29.8	95.4	0.12	1.42
8359	**Enioda Trans Master Comp (MC-14)**	106	CIL	1.44	0.98	46.8	93.8	0.72	0.59
8175		106	DCN	1.20		36.9	94.2	0.15	0.88
8350	**Enioda Fresh Master Comp (MC-15)**	75	CIL	1.63	1.30	47.1	89.5	0.57	0.27
8176		75	DCN	1.29		29.3	86.0	0.14	0.32
8360	**Han Oxide Master Comp (MC-16)**	106	CIL	2.23	1.96	27.1	96.4	0.81	2.20
8177		106	DCN	1.84		41.0	95.5	0.12	0.41
8361	**Han Trans Master Comp (MC-17)**	106	CIL	2.09	1.84	33.2	93.3	0.53	0.33
8177		106	DCN	1.57		41.0	95.5	0.12	0.41
8351	**Han Fresh Master Comp (MC-18)**	75	CIL	2.40	1.29	60.5	93.3	0.63	0.24
8178		75	DCN	1.76		47.7	88.1	0.15	0.31
8362	**Chegue Main Oxide Master Comp (MC-19)**	106	CIL	1.02	0.74	37.8	95.1	0.53	1.06
7922		106	DCN	0.93		35.4	94.6	0.21	0.99
8363	**Chegue Main Trans Master Comp (MC-20)**	106	CIL	1.05	0.92	26.8	91.4	0.48	0.54
8179		106	DCN	1.17		28.2	94.0	0.14	0.50
8352	**Chegue Main Fresh Master Comp (MC-21)**	75	CIL	1.61	1.61	47.8	90.7	0.53	0.23
8180		75	DCN	1.42		44.5	88.7	0.08	0.29
8364	**Chegue South Oxide Master Comp (MC-22)**	106	CIL	2.39	1.61	30.2	95.0	0.63	1.12
8365	**Chegue South Trans Master Comp (MC-23)**	106	CIL	1.27	1.54	29.4	90.2	0.53	0.42
8181		106	DCN	1.38		27.4	89.9	0.09	0.54
8353	**Chegue South Fresh Master Comp (MC-24)**	75	CIL	1.51	1.68	38.5	83.8	0.60	0.25
8182		75	DCN	1.09		32.5	80.8	0.12	0.32

Comments and observations of the above results are as follows:

- The overall results were mixed, with no definitive benefit of using CIL in place of direct leach. The variable gold grade in some composites resulted in largely differing calculated heads, which impacted on reported gold recovery. Assessment of residue grades possibly provides more clarity; however, this measure can also be influenced by head grades.
- Cyanide and lime consumptions were generally low. Higher consumptions noted in CIL tests compared to the direct cyanide leach tests is expected.

9.2.5 Effect of Pre-oxidation and/or Lead Nitrate

A series of CIL leach tests were carried out on each composite to evaluate the effect of pre-oxygenation and/or addition of lead nitrate on the overall gold recovery and kinetics. A summary of the results is presented in the following table.

MASTER COMPOSITE GRAVITY/LEACH TESTWORK: INFLUENCE OF PRE-OXIDATION VS LEAD NITRATE

Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	Lead Nitrate (g/t)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
				Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
8095	**Souwa Oxide Master Comp (MC-1)**	106	0	3.70	5.59	37.6	92.5	0.57	0.77
8090		106	500	5.56	5.78	39.4	92.0	0.65	0.97
8096	**Souwa Trans Master Comp (MC-2)**	106	0	1.38	1.55	36.6	94.2	0.53	0.67
8091		106	500	1.20	1.48	25.4	91.2	0.60	0.62
8097	**Souwa Fresh Master Comp (MC-3)**	75	0	1.18	1.40	29.9	87.8	0.53	0.29
8092		75	500	1.41	1.33	30.7	89.5	0.55	0.42
8098	**Nopka Trans Master Comp (MC-5)**	106	0	2.81	2.74	15.2	93.6	0.65	0.80
8093		106	500	1.20	2.44	13.5	93.2	0.59	1.02
8099	**Nopka Fresh Master Comp (MC-6)**	75	0	2.37	1.61	31.6	92.5	0.48	0.33
8094		75	500	2.74	1.26	31.5	90.5	0.55	0.37
8411	**Kilosegui Trans Master Comp (MC-8)**	106	0	1.80	1.27	30.0	88.2	0.51	0.50
8398		106	500	1.57	1.51	45.1	91.4	0.51	0.62
8405	**Kilosegui Fresh Master Comp (MC-9)**	75	0	1.20	1.81	49.8	87.5	0.51	0.31
8392		75	500	0.77	1.42	36.9	80.3	0.51	0.36
8412	**Kekeda Trans Master Comp (MC-11)**	106	0	0.85	1.22	23.5	91.8	0.53	0.66
8399		106	500	1.23	1.07	21.3	95.3	0.57	0.87
8406	**Kekeda Fresh Master Comp (MC-12)**	75	0	1.88	1.86	47.2	94.6	0.51	0.41
8393		75	500	1.40	1.76	41.7	93.2	0.55	0.36
8413	**Enioda Oxide Master Comp (MC-13)**	106	0	1.56	1.39	28.4	96.4	0.69	1.27
8400		106	500	0.70	1.51	26.1	97.3	0.63	1.37
8414	**Enioda Trans Master Comp (MC-14)**	106	0	0.98	1.28	42.1	93.8	0.65	0.78
8401		106	500	1.40	1.28	40.5	94.5	0.63	0.89
8407	**Enioda Fresh Master Comp (MC-15)**	75	0	1.30	1.56	44.1	88.4	0.53	0.36
8394		75	500	1.56	1.61	45.6	89.7	0.57	0.36
8415	**Han Trans Master Comp (MC-17)**	106	0	1.84	1.75	37.8	93.7	0.42	0.59
8402		106	500	1.52	1.57	39.1	94.9	0.49	0.55
8408	**Han Fresh Master Comp (MC-18)**	75	0	1.29	1.38	42.1	88.4	0.51	0.33
8395		75	500	1.20	2.24	59.1	92.4	0.55	0.35
8416	**Chegue Main Trans Master Comp (MC-20)**	106	0	0.92	1.28	28.9	93.0	0.51	0.50
8403		106	500	1.29	1.07	26.4	91.6	0.51	0.58
8409	**Chegue Main Fresh Master Comp (MC-21)**	75	0	1.61	1.76	48.3	93.2	0.57	0.33
8396		75	500	1.84	1.46	50.2	90.4	0.55	0.34
8417	**Chegue South Trans Master Comp (MC-23)**	106	0	1.54	1.48	30.2	91.9	0.54	0.50
8404		106	500	1.57	1.24	29.9	93.5	0.39	0.83
8410	**Chegue South Fresh Master Comp (MC-24)**	75	0	1.68	1.30	36.4	81.5	0.45	0.59
8397		75	500	1.76	1.41	37.3	84.4	0.57	0.34

Comments and observations of the above results are as follows:

- The results indicated that pre-oxidation, or the addition of lead nitrate, did not provide a major difference to the overall gold recovery when compared to the CIL tests without pre-oxygenation or lead nitrate.
- Based on these results the addition of lead nitrate and pre-oxygenation was not taken into consideration for future tests.

9.2.6 Effect of Pre-Leach/CIL

In this series of tests, samples were subjected to a 6-hour pre-leach prior to the addition of carbon to complete the leach cycle under CIL conditions (refer to Section 9.1.1). The tests assessed the effect of changes in leach conditions on overall gold recovery.

A summary of the results from these pre-leach tests and those conducted using CIL only are shown in the table below for easy comparison.

MASTER COMPOSITE GRAVITY/LEACH TESTWORK: INFLUENCE OF PRE-LEACH FOLLOWED BY CIL

Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	Gold (g/t)		Gold Recovery (%)			Reagents (kg/t)	
			Calc'd Head	Assay Head	Grav'	Grav'+ Pre-leach	Grav' + Pre-leach + CIL	NaCN	Lime
8588	Souwa Oxide Master Comp (MC-1)	106	5.19	3.70	39.7	88.6	91.9	0.48	0.76
8074*		106	4.82		37.0	-	91.7	0.65	0.55
8582	Souwa Trans Master Comp (MC-2)	106	1.14	1.38	27.6	92.7	92.1	0.42	0.63
8075*		106	1.83		38.1	-	90.7	0.40	0.78
8583	Souwa Fresh Master Comp (MC-3)	75	1.17	1.18	26.6	78.7	86.4	0.51	0.25
8076*		75	1.33		29.8	-	88.0	0.57	0.27
8584	Nopka Trans Master Comp (MC-5)	106	2.63	2.81	14.2	95.1	94.3	0.57	0.77
8078*		106	2.78		28.9	-	92.1	0.45	0.25
8585	Nopka Fresh Master Comp (MC-6)	75	1.35	2.37	31.8	78.0	90.4	0.55	0.17
8079*		75	1.39		28.9	-	92.1	0.45	0.25
8595	Kilosegui Oxide Master Comp (MC-7)	106	0.72	0.68	42.1	93.8	97.2	0.39	0.95
8354*		106	1.00		41.5	-	89.4	0.57	0.91
8586	Kilosegui Trans Master Comp (MC-8)	106	1.26	1.80	40.9	89.1	90.1	0.45	0.54
8355*		106	1.23		36.9	-	89.4	0.36	0.73
8587	Kilosegui Fresh Master Comp (MC-9)	75	1.42	1.20	32.8	75.9	81.6	0.34	0.29
8348*		75	2.51		49.8	-	90.0	0.59	0.25
8589	Kekeda Trans Master Comp (MC-11)	106	0.92	0.85	15.3	89.9	92.4	0.37	0.67
8357*		106	1.53		37.0	-	94.8	0.60	0.61
8590	Kekeda Fresh Master Comp (MC-12)	75	1.72	1.88	33.0	75.1	90.7	0.30	0.39
8349*		75	1.64		39.3	-	93.3	0.57	0.26
8598	Enioda Oxide Master Comp (MC-13)	106	1.44	1.56	31.9	94.1	96.5	0.60	0.99
8358*		106	1.57		28.8	-	96.5	0.72	1.00
8591	Enioda Trans Master Comp (MC-14)	106	1.00	0.98	31.5	93.0	91.0	0.43	0.73
8359*		106	1.44		46.8	-	93.8	0.72	0.59
8592	Enioda Fresh Master Comp (MC-15)	75	1.61	1.30	30.3	74.0	87.9	0.42	0.27
8350*		75	1.63		47.1	-	89.5	0.57	0.27
8593	Han Trans Master Comp (MC-17)	106	2.31	1.84	51.9	85.5	92.6	0.36	0.40
8361*		106	2.09		33.2	-	93.3	0.53	0.33
8594	Han Fresh Master Comp (MC-18)	75	1.32	1.29	38.7	78.0	86.4	0.34	0.34
8351*		75	2.40		60.5	-	93.3	0.63	0.24
8596	Chegue Main Trans Master Comp (MC-20)	106	0.98	0.92	25.5	94.6	91.8	0.49	0.49
8363*		106	1.05		26.8	-	91.4	0.48	0.54
8597	Chegue Main Fresh Master Comp (MC-21)	75	1.37	1.61	41.7	77.4	89.4	0.37	0.28
8352*		75	1.61		47.8	-	90.7	0.53	0.23
8599	Chegue South Trans Master Comp (MC-23)	106	1.37	1.54	24.4	81.2	90.5	0.49	0.40
8365*		106	1.27		29.4	-	90.2	0.53	0.42
8600	Chegue South Fresh Master Comp (MC-24)	75	1.36	1.68	34.5	62.7	79.5	0.37	0.27
8353*		75	1.51		38.5	-	83.8	0.60	0.25

* Denotes comparative Gravity + CIL test conducted without pre-leach

Comments and observations of the above results are as follows:

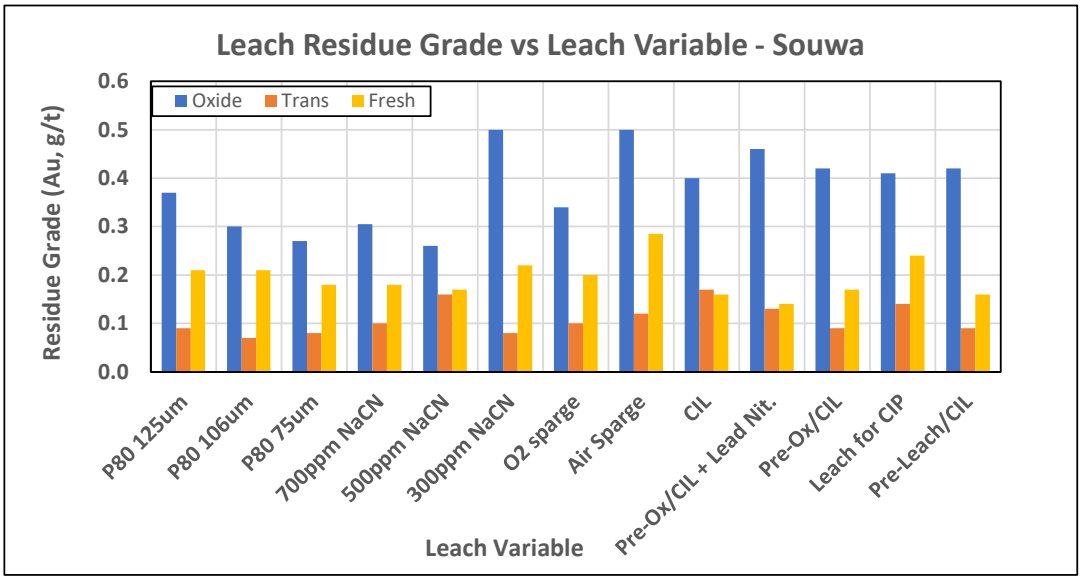
- Overall, the results indicated similar gold extractions using pre-leach/CIL and CIL methods. Direct comparisons were problematic due to variable calculated heads.
- The results that show a decrease in gold extraction after the 6-hour pre-leach can be attributed to a near maximum gold extraction achieved at the 6-hour interval and/or the influence of minor differences in the loaded carbon assay at different time intervals.

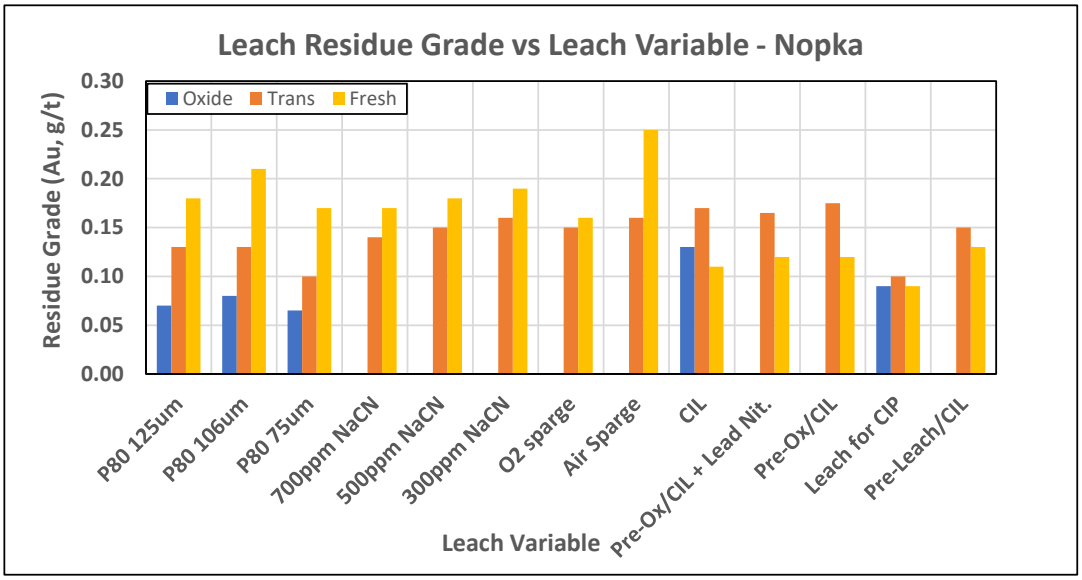
9.2.7 Leach Conditions Selected as Optimal

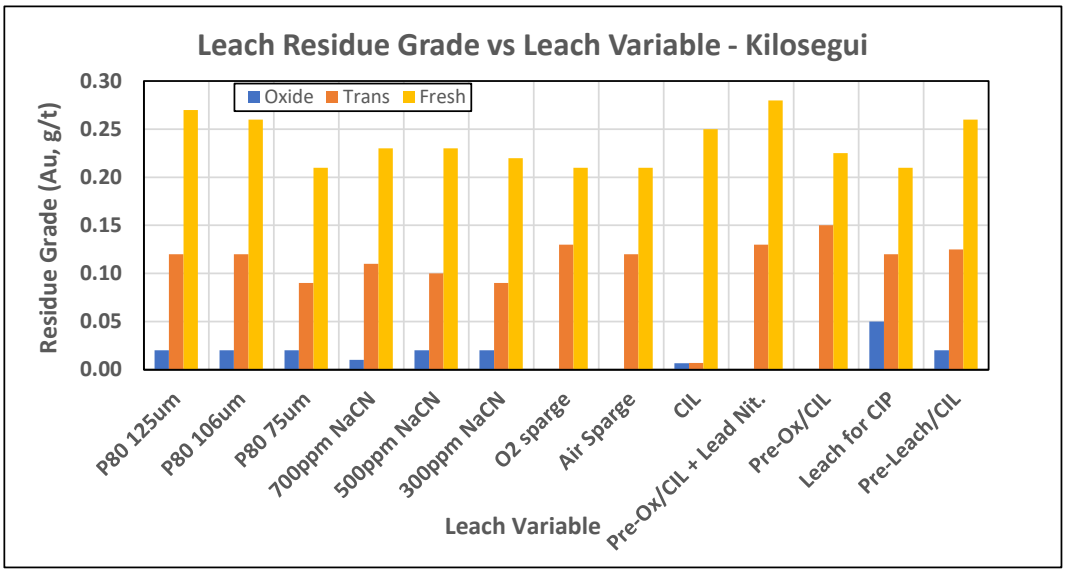
The residue gold grade for each of the optimisation leach tests is collectively shown for each ore source in the figures below. The comparison provides the relative difference when evaluating leach behaviour under the varying conditions. As noted above, residue grades can be influenced by inherently variable gold head grades.

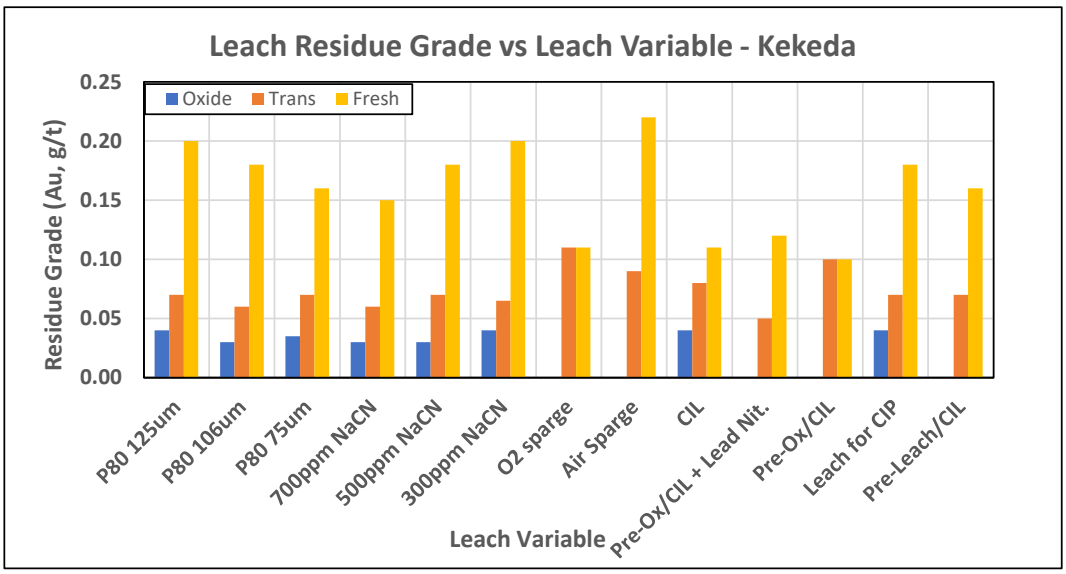
Based on the overall results for all leach tests conducted, the client selected the following parameters as optimal for subsequent testwork:

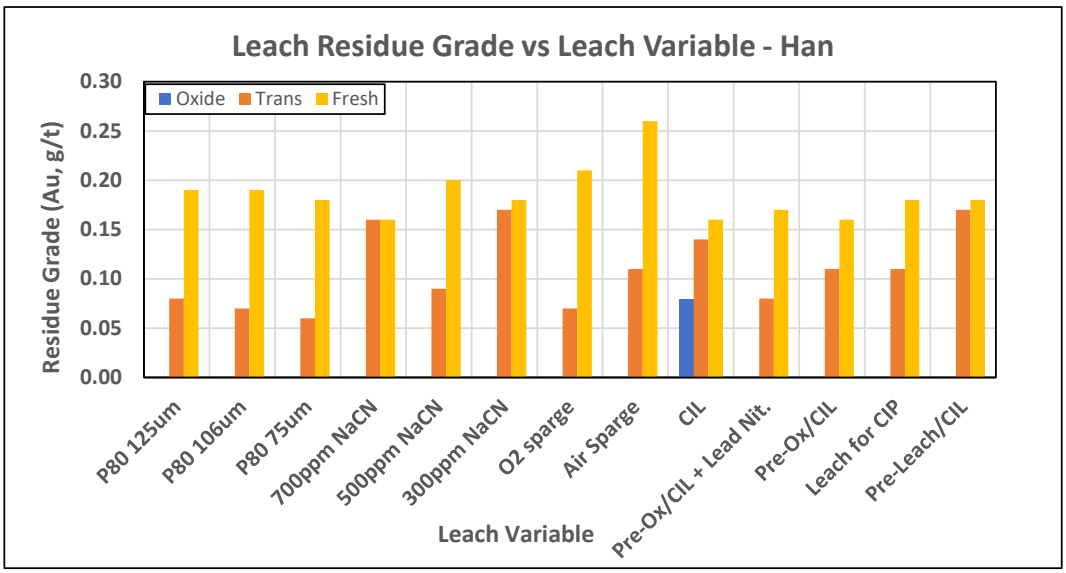
- Primary Grind size:
  - P_{80} 106 µm for Oxide and Transitional composites
  - P_{80} 75 µm for Fresh composites.
- Initial NaCN concentration of 0.05% (w/w) NaCN, maintained at 0.025% (w/w).
- Oxygen sparge
- CIL conditions.

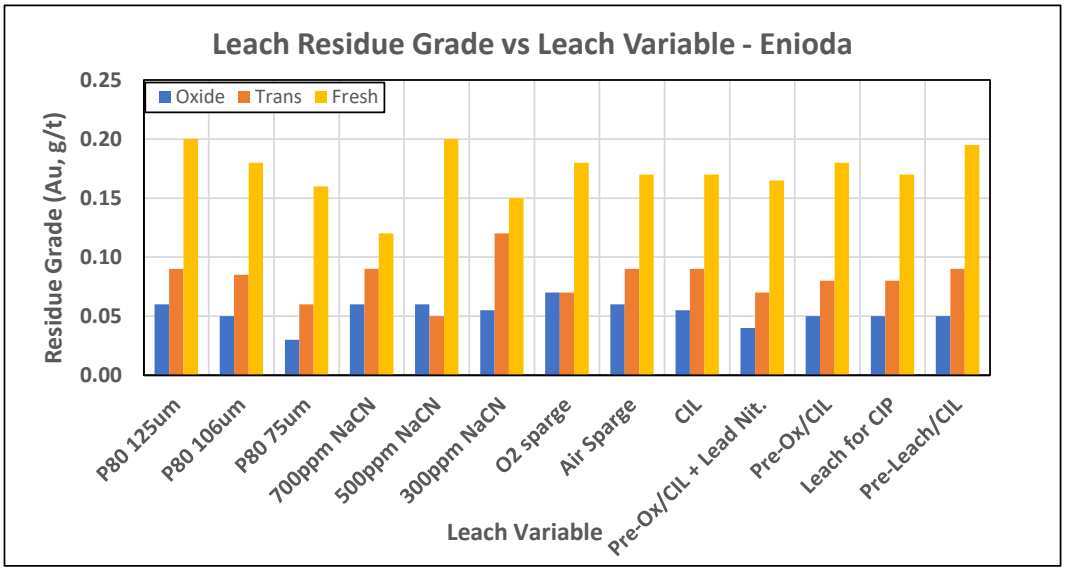


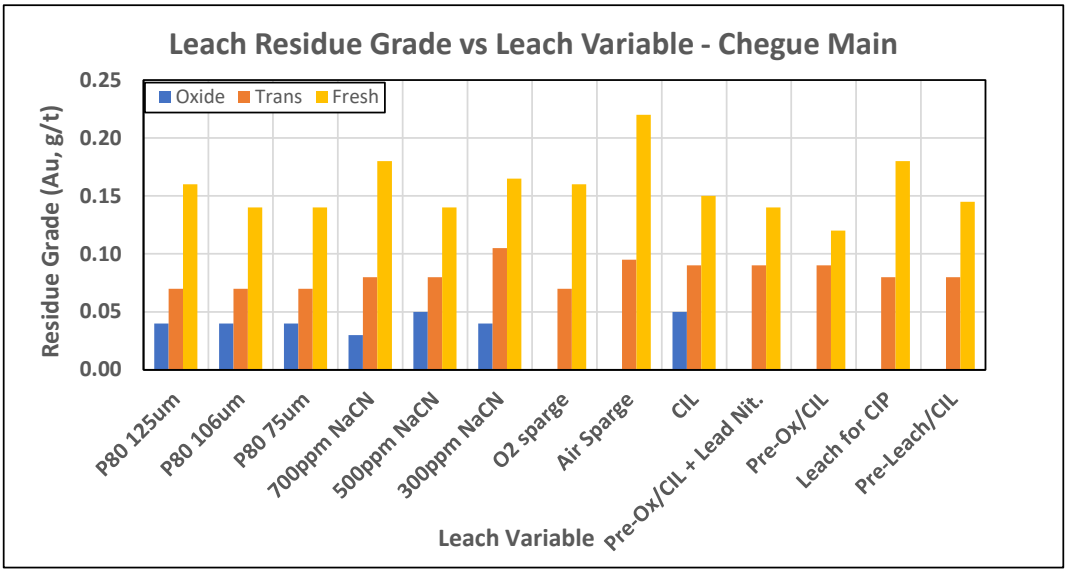


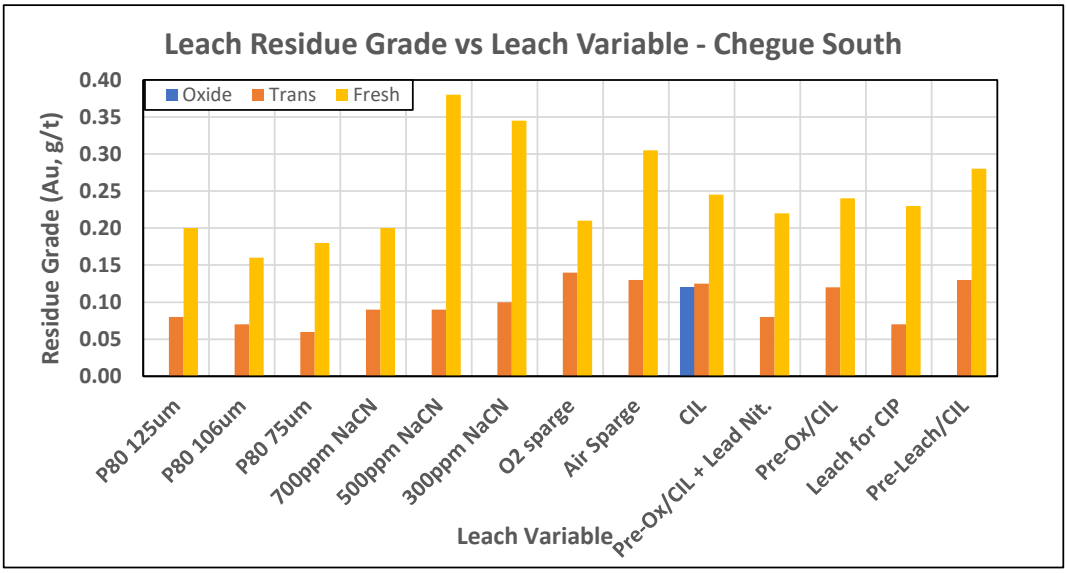

Leach Residue Grade vs Leach Variable - Kilosegui
Residue Grade (Au, g/t)
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Oxide
Trans
Fresh
P80 125um
P80 106um
P80 75um
700ppm NaCN
500ppm NaCN
300ppm NaCN
O2 sparge
Air Sparge
CIL
Pre-Ox/CIL + Lead Nit.
Pre-Ox/CIL
Leach for CIP
Pre-Leach/CIL
Leach Variable


Leach Residue Grade vs Leach Variable - Kekeda
Residue Grade (Au, g/t)
0.25
0.20
0.15
0.10
0.05
0.00
Oxide
Trans
Fresh
P80 125um
P80 106um
P80 75um
700ppm NaCN
500ppm NaCN
300ppm NaCN
O2 sparge
Air Sparge
CIL
Pre-Ox/CIL + Lead Nit.
Pre-Ox/CIL
Leach for CIP
Pre-Leach/CIL
Leach Variable


Leach Residue Grade vs Leach Variable - Han
Residue Grade (Au, g/t)
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Oxide
Trans
Fresh
P80 125um
P80 106um
P80 75um
700ppm NaCN
500ppm NaCN
300ppm NaCN
O2 sparge
Air Sparge
CIL
Pre-Ox/CIL + Lead Nit.
Pre-Ox/CIL
Leach for CIP
Pre-Leach/CIL
Leach Variable


Leach Residue Grade vs Leach Variable - Enioda
Residue Grade (Au, g/t)
0.25
0.20
0.15
0.10
0.05
0.00
Oxide
Trans
Fresh
P80 125um
P80 106um
P80 75um
700ppm NaCN
500ppm NaCN
300ppm NaCN
O2 sparge
Air Sparge
CIL
Pre-Ox/CIL + Lead Nit.
Pre-Ox/CIL
Leach for CIP
Pre-Leach/CIL
Leach Variable


Leach Residue Grade vs Leach Variable - Chegue Main
Residue Grade (Au, g/t)
0.25
0.20
0.15
0.10
0.05
0.00
Oxide
Trans
Fresh
P80 125um
P80 106um
P80 75um
700ppm NaCN
500ppm NaCN
300ppm NaCN
O2 sparge
Air Sparge
CIL
Pre-Ox/CIL + Lead Nit.
Pre-Ox/CIL
Leach for CIP
Pre-Leach/CIL
Leach Variable


Leach Residue Grade vs Leach Variable - Chegue South
Residue Grade (Au, g/t)
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Oxide
Trans
Fresh
P80 125um
P80 106um
P80 75um
700ppm NaCN
500ppm NaCN
300ppm NaCN
O2 sparge
Air Sparge
CIL
Pre-Ox/CIL + Lead Nit.
Pre-Ox/CIL
Leach for CIP
Pre-Leach/CIL
Leach Variable

10. SEQUENTIAL CIP AND EQUILIBRIUM ISOTHERM TESTWORK

Sub-samples of selected Master Composite were submitted for sequential CIP and equilibrium isotherm testwork. The testwork was carried out according to the following procedures.

10.1 Sequential CIP Test Procedure

The procedure is summarised as follows:

(1) A 6 kg gravity and direct cyanide leach test was performed using the optimised leach conditions prescribed.

(2) The bulk leach slurry was split into three equal sub-samples (batches) for sequential CIP testwork.

(3) A pre-determined quantity of *Haycarb YAO* activated carbon was added to the first batch of slurry (Batch 1) in a 7-litre, baffled, mechanically agitated leach vessel.

(4) Slurry samples (80 mL) were collected after 30 minutes, 1 hour, and 2 hours. The samples were filtered to generate solution samples. The solution samples were submitted for gold assay.

(5) The carbon was screened from the Batch 1 slurry and added to the Batch 2 slurry. Again, slurry samples were collected after 0.5, 1 and 2 hours. The samples were filtered, and the resulting solution was submitted for gold assay.

(6) The carbon was screened from the Batch 2 slurry and added to the Batch 3 slurry. In this instance, slurry samples were collected 0.5, 1, 2, 3, 4 and 20 hours after the carbon addition.

(7) Slurry samples were filtered, and the solutions were submitted for gold assay.

(8) The final carbon was recovered, washed, dried, and weighed. The carbon was then submitted for gold assay and a 25-element scan.

(9) The adsorption of gold from solution by activated carbon in a continuous CIP adsorption train generally obeys the following empirical derived relationship:

$$\delta[Au]_c = k \times [Au]_s \times t^n$$

Where:

$\delta[Au]_c$	=	Increase in the concentration of gold on the carbon (mg/L of carbon)
k	=	Empirical rate constant dependent upon slurry mixing efficiency, pulp viscosity and carbon particle size
$[Au]_s$	=	Solution grade of gold
t	=	Elapsed time (hours)
n	=	Exponential constant

Although the above model was derived for continuous CIP plants, experience has shown that approximate values for k and n can be determined by applying regression analysis to the data from stages of a sequential CIP test.

10.2 Equilibrium Isotherm Test Procedure

Equilibrium isotherm tests were conducted on the Souwa Oxide, Transition, and Fresh composites.

The rates and equilibrium of gold cyanide adsorption depends upon the loading of gold already on carbon, i.e., depends on the number of sites available. As the carbon becomes loaded it is slower to take up gold and the concentration of gold in equilibrium increases. The activity of carbon falls off exponentially as gold is adsorbed, resembling the behaviour of catalysts or solids that adsorb gases or organic molecules.

These materials follow Freundlich's isotherms and give a straight-line plot of log (Au on carbon) versus log (Au in solution).

$$Log\left(\frac{X}{M}\right) = m\log C + \log K$$

Where:

X/M = mg of gold adsorbed per gram of carbon at equilibrium

C = mg/L of gold remaining in solution

K, m = Constants

The method involves loading to various gold levels using a stock pregnant feed solution with various carbon concentrations.

Five isotherm tests were conducted in which fresh activated carbon was contacted with 2,100 g of fresh leach slurry for 72 hours. The resulting solutions were assayed for gold. The procedure is summarised as follows:

(1) A 5 kg charge of each composite was subjected to a gravity and direct leach test under the optimal conditions prescribed.

(2) The final leach slurry was divided into five portions of 2,100 g.

(3) A pre-determined quantity of *Haycarb Yao* activated carbon was added to each slurry portion in a bottle and the bottle was sealed, placed on rollers and continuously agitated for 72 hours.

(4) At 72 hours, the slurry was filtered, and the solution was assayed for gold to determine the quantity that had been adsorbed onto the carbon.

(5) The carbon loading values were calculated from solution gold assays, the loading capacity relative to the equilibrium solution tenor was graphed, and the carbon loading capacity was calculated.

10.3 Sequential CIP Test Results

The results from the tests are summarised in the table below, whilst detailed test report sheets are presented in Appendix V.

SEQUENTIAL TRIPLE-CONTACT CIP TESTWORK: SUMMARY OF RESULTS					
Comp Name (ID)	Test No.	*Fleming* Adsorption Constants		Loaded Carbon Au Grade (g/t)	
		k	n	Calculated	Assayed
Souwa Oxide (MC-1)	PW8529	206.02	0.596	2,088	1,857
Souwa Trans (MC-2)	PW8530	151.87	0.738	1,109	1,245
Souwa Fresh (MC-3)	PW8531	161.39	0.629	868	960
Nopka Oxide (MC-4)	PW8548	157.61	0.517	1,106	1,188
Nokpa Trans (MC-5)	PW8532	188.56	0.701	1,930	1,707
Nokpa Fresh (MC-6)	PW8533	184.21	0.617	985	929
Kilosegui Oxide (MC-7)	PW8534	59.34	1.028	669	753
Kilosegui Trans (MC-8)	PW8535	177.97	0.731	1,129	1,131
Kilosegui Fresh (MC-9)	PW8536	146.70	0.783	873	789
Kekeda Oxide (MC-10)	PW8537	50.56	1.093	655	711
Kekeda Trans (MC-11)	PW8538	212.87	0.740	1,284	1,173
Kekeda Fresh (MC-12)	PW8539	228.83	0.659	1,150	1,055
Enioda Oxide (MC-13)	PW8540	137.18	0.720	1,111	1,041
Enioda Trans (MC-14)	PW8541	195.90	0.897	1,196	1,020
Enioda Fresh (MC-15)	PW8542	169.34	0.734	274	759
Han Trans (MC-17)	PW8543	195.19	0.718	1,251	1,314
Han Fresh (MC-18)	PW8544	200.98	0.717	1,008	1,026
Chegue Main Trans (MC-20)	PW8546	183.12	0.713	1,240	1,080
Chegue Main Fresh (MC-21)	PW8547	218.83	0.695	1,050	1,035
Chegue South Trans (MC-23)	PW8549	163.05	0.637	1,203	1,145
Chegue South Fresh (MC-24)	PW8550	212.46	0.655	1,052	1,029

The *Fleming* equation constants, k and n, for gold adsorption on carbon were derived from sequential CIP test results. In most cases these indicated good gold adsorption characteristic could be expected in a full-scale leach/adsorption train.

The low k values obtained for Kilosegui Oxide (MC-7) and Kekeda Oxide (MC-10) may suggest carbon fouling, however, the values may also have been influenced by the relatively low gold concentration in the feed solutions, at 0.37 mg/L and 0.47 mg/L, respectively.

10.4 Equilibrium Isotherm Test Results

The detailed test report sheets are included in Appendix VI, whilst a summary of results is presented below.

EQUILIBRIUM CARBON LOADING TESTWORK: SUMMARY OF RESULTS				
Comp Name (ID)	Test No.	Equilibrium Carbon Loading Au (g/t) @ Solution Concentration		
		0.50 mg/L	0.10 mg/L	0.05 mg/L
Souwa Oxide Master Comp (MC-1)	PW8688	66,782	10,238	4,565
Souwa Trans Master Comp (MC-2)	PW8689	3,455	1,854	1,418
Souwa Fresh Master Comp (MC-3)	PW8690	4,422	1,579	1,013

For a solution concentration of 0.05 mg/L at equilibrium, the gold loadings were 4,565 g/t for MC-1, 1,418 g/t for MC-2, and 1,013 g/t for MC-3.

11. DIAGNOSTIC LEACH TESTWORK

For six Fresh Master composites that exhibited lower gold extraction from the gravity/cyanide leach testwork, a sub-sample of each was submitted for multi-stage diagnostic leach testwork. The objective of the diagnostic testwork was to determine the deportment of unrecovered gold in the cyanide leach residue.

The following modes of gold occurrence were investigated:

- Gold-robbed (associated with carbonaceous material)
- Carbonate-locked gold
- Arsenical mineral-locked gold
- Sulphide mineral-locked gold
- Silicate (gangue)-locked gold.

11.1 Test Procedure

The diagnostic sequence of tests was conducted as follows.

(1) The leach residue was submitted for elution testwork to determine the proportion of gold associated with carbonaceous material (gold-robbed).

(2) The leach residue was then subjected to 3M HCl digestion to destroy the carbonate minerals. The residue from hydrochloric acid digestion was subsequently carbon in leached to determine the quantity of gold released from the carbonate minerals.

(3) The HCl digest/cyanidation leach residue was submitted for a HNO_3 digest to destroy the arsenical minerals. The digest residue was subjected to a carbon in leach to determine the quantity of gold locked in arsenopyrite.

(4) The residue from the HNO_3/cyanidation leach was subjected to dilute nitric acid digestion to destroy the arsenical minerals such as arsenopyrite and arsenical pyrite. The residue from the nitric acid digestion stage was subsequently carbon in leached to determine the released gold content.

(5) The residue from the HNO_3/cyanidation leach stage was split. One sub-sample was submitted directly for fire assay, the other was ashed at 800°C to prevent gold-robbing by organic carbon and then submitted for aqua regia digestion to destroy all remaining sulphide minerals (mostly pyrite) and simultaneously release the contained gold into the solution.

(6) The residue from the aqua regia digestion was fire assay smelted to determine the silicate (gangue) encapsulated gold content.

A summary of the sequential digestion/leach methods employed is presented below:

Stage 1: Elution

- % Solids : 40% (w/w)
- NaOH : 0.7% (w/w)
- NaCN : 1.0% (w/w)
- Acetonitrile : 40% (v/v)
- Temperature : 30°C
- Duration : 24 hours

Stage 2: Dilute HCl Digest

- % Solids : 33.33% (w/w)
- Acid : 3M HCl
- Temperature : 50°C
- Duration : 2 hours

Stage 3: Cyanidation Leach on HCl Digest Residue

- % Solids : 40% (w/w)
- pH : 9.8-10.5
- NaCN : 0.1%, w/v (maintained >0.05%, w/v)
- Oxygen Sparge : Yes
- Duration : 48 hours

Stage 4: Dilute Nitric Acid Digest

- % Solids : 20% (w/w)
- Acid : 20% HNO_3
- Temperature : 40-50°C
- Duration : 4 hours

Stage 5: Cyanidation on HNO_3 Digest Residue

- % Solids : 40% (w/w)
- pH : 9.8-10.5
- NaCN : 0.1%, w/v (maintained >0.05%, w/v)
- Oxygen Sparge : Yes
- Duration : 48 hours

Stage 6: Conc HNO_3 Digest

- Acid : 63% w/v HNO_3
- % Solids : 20% (w/w)
- Temperature : 70-80°C
- Duration : 4 hours

Stage 7: Cyanidation Leach on $SnCl_2$ + HNO_3 Digest Residue

- % Solids : 40% (w/w)
- pH : 9.8-10.5
- NaCN : 0.1% (w/v) (maintained >0.05%, w/v)
- Oxygen Sparge : Yes
- Duration : 48 hours

Stage 8: Ashing

- Temperature : 800°C
- Duration : 6 hours

Stage 9: Aqua Regia Digest

- % Solids : 10% (w/w)
- Acid : Aqua Regia
- Temperature : Boiling
- Duration : 3 hours

Stage 10: Fire Assay Smelt

The residue from aqua regia digest (Stage 9) was totally fire assay smelted.

11.2 Results

The results from the diagnostic analyses on six Fresh Master composites are summarised in the tables below. Detailed testwork report sheets are included in Appendix VII.

MULTI-STAGE DIAGNOSTIC LEACH TESTWORK – SUMMARY OF RESULTS			
Diagnostic Stage	**Description of Gold Deportment**	**MC #3 Souwa Fresh**	
		Au (g/t)	**Au (%)**
Acetonitrile (Pseudo Elution)	Organic Carbon Robbed, &/or Slow-Leaching	0.03	15.1
Dilute HCl Digest/Cyanidation	Carbonate-Locked	0.00	0.0
Dilute HNO_3 Digest/Cyanidation	Arsenical Mineral-Locked (Mildly Refractory)	0.04	21.1
Concentrated HNO_3 Digest/Cyanidation	Pyrite-Locked (Highly Refractory)	0.06	31.4
Ash/Aqua Regia Digest	Remnant Sulphide-Locked (Very Refractory)	0.05	23.4
Total Fire Assay Smelt	Silicate (Gangue)-Locked	0.02	8.9
TOTAL		**0.20**	**100.0**
ASSAY GRADE		**0.16**	**-**

MULTI-STAGE DIAGNOSTIC LEACH TESTWORK – SUMMARY OF RESULTS			
Diagnostic Stage	**Description of Gold Deportment**	**MC #9 Kilosegui Fresh**	
		Au (g/t)	**Au (%)**
Acetonitrile (Pseudo Elution)	Organic Carbon Robbed, &/or Slow-Leaching	0.01	2.9
Dilute HCl Digest/Cyanidation	Carbonate-Locked	0.00	0.0
Dilute HNO_3 Digest/Cyanidation	Arsenical Mineral-Locked (Mildly Refractory)	0.11	33.1
Concentrated HNO_3 Digest/Cyanidation	Pyrite-Locked (Highly Refractory)	0.16	46.4
Ash/Aqua Regia Digest	Remnant Sulphide-Locked (Very Refractory)	0.05	14.9
Total Fire Assay Smelt	Silicate (Gangue)-Locked	0.01	2.6
TOTAL		**0.35**	**100.0**
ASSAY GRADE		**0.25**	**-**

MULTI-STAGE DIAGNOSTIC LEACH TESTWORK – SUMMARY OF RESULTS			
Diagnostic Stage	**Description of Gold Deportment**	**MC #15 Enioda Fresh**	
		Au (g/t)	**Au (%)**
Acetonitrile (Pseudo Elution)	Organic Carbon Robbed, &/or Slow-Leaching	0.00	0.0
Dilute HCl Digest/Cyanidation	Carbonate-Locked	0.00	0.0
Dilute HNO_3 Digest/Cyanidation	Arsenical Mineral-Locked (Mildly Refractory)	0.12	49.1
Concentrated HNO_3 Digest/Cyanidation	Pyrite-Locked (Highly Refractory)	0.10	42.3
Ash/Aqua Regia Digest	Remnant Sulphide-Locked (Very Refractory)	0.00	1.4
Total Fire Assay Smelt	Silicate (Gangue)-Locked	0.02	7.2
TOTAL		**0.24**	**100.0**
ASSAY GRADE		**0.17**	**-**

MULTI-STAGE DIAGNOSTIC LEACH TESTWORK – SUMMARY OF RESULTS			
Diagnostic Stage	**Description of Gold Deportment**	**MC #18 Han Fresh**	
		Au (g/t)	**Au (%)**
Acetonitrile (Pseudo Elution)	Organic Carbon Robbed, &/or Slow-Leaching	0.05	16.6
Dilute HCl Digest/Cyanidation	Carbonate-Locked	0.00	0.0
Dilute HNO_3 Digest/Cyanidation	Arsenical Mineral-Locked (Mildly Refractory)	0.14	45.0
Concentrated HNO_3 Digest/Cyanidation	Pyrite-Locked (Highly Refractory)	0.06	18.9
Ash/Aqua Regia Digest	Remnant Sulphide-Locked (Very Refractory)	0.05	16.5
Total Fire Assay Smelt	Silicate (Gangue)-Locked	0.01	2.9
TOTAL		**0.30**	**100.0**
ASSAY GRADE		**0.16**	**-**

MULTI-STAGE DIAGNOSTIC LEACH TESTWORK – SUMMARY OF RESULTS			
Diagnostic Stage	**Description of Gold Deportment**	**MC #21 Chegue Main Fresh**	
		Au (g/t)	**Au (%)**
Acetonitrile (Pseudo Elution)	Organic Carbon Robbed, &/or Slow-Leaching	0.04	16.0
Dilute HCl Digest/Cyanidation	Carbonate-Locked	0.00	0.0
Dilute HNO_3 Digest/Cyanidation	Arsenical Mineral-Locked (Mildly Refractory)	0.10	40.7
Concentrated HNO_3 Digest/Cyanidation	Pyrite-Locked (Highly Refractory)	0.04	17.9
Ash/Aqua Regia Digest	Remnant Sulphide-Locked (Very Refractory)	0.05	18.3
Total Fire Assay Smelt	Silicate (Gangue)-Locked	0.02	7.1
TOTAL		**0.25**	**100**
ASSAY GRADE		**0.15**	**-**

MULTI-STAGE DIAGNOSTIC LEACH TESTWORK – SUMMARY OF RESULTS			
Diagnostic Stage	**Description of Gold Deportment**	**MC #24 Chegue South Fresh**	
		Au (g/t)	**Au (%)**
Acetonitrile (Pseudo Elution)	Organic Carbon Robbed, &/or Slow-Leaching	0.19	53.5
Dilute HCl Digest/Cyanidation	Carbonate-Locked	0.00	0.0
Dilute HNO_3 Digest/Cyanidation	Arsenical Mineral-Locked (Mildly Refractory)	0.10	28.3
Concentrated HNO_3 Digest/Cyanidation	Pyrite-Locked (Highly Refractory)	0.01	1.5
Ash/Aqua Regia Digest	Remnant Sulphide-Locked (Very Refractory)	0.05	14.2
Total Fire Assay Smelt	Silicate (Gangue)-Locked	0.01	2.5
TOTAL		**0.36**	**100**
ASSAY GRADE		**0.25**	**-**

Comments on the above data are as follows:

- Most samples contained some gold, which was extracted by acetonitrile leach. This is indicative of gold associated with organic carbon, however, the conditions are also conducive for extraction of slow-leaching gold, which may also be present in these residues.
- In each case, the majority of the residual gold was liberated after oxidation of the sulphide minerals, arsenopyrite and pyrite.

12. BULK LEACH AND CYANIDE DETOXIFICATION TESTWORK

Bulk leach tests were carried out on the selected composites, using the optimised leach conditions. The purpose of the tests was to generate sufficient leach tailings for batch continuous detoxification tests and tailings thickening testwork by Mesto.

Detailed test report sheets are included in Appendix VIII, while gravity/leach gold results are summarised in the following table.

BULK LEACH AND CYANIDE DETOXIFICATION RESULTS

Test No (PW-)	Composite Name (ID)	Grind P_{80} (µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Grav'	Grav + Leach	NaCN	Lime
8103	**Souwa Oxide Master Comp (MC-1)**	106	5.64	3.70	36.6	92.9	1.15	0.65
8104	**Souwa Trans Master Comp (MC-2)**	106	1.21	1.38	26.9	90.9	1.04	0.41
8100	**Souwa Fresh Master Comp (MC-3)***	75	1.51	1.18	22.8	86.8	0.86	0.23
8110	**Nopka Trans Master Comp (MC-5)**	106	2.78	2.81	12.5	92.4	1.21	0.73
8108	**Nopka Fresh Master Comp (MC-6)***	75	1.29	2.37	25.9	91.4	0.69	0.16
8734	**Kilosegui Oxide Master Comp (MC-7)**	106	0.89	0.68	49.8	93.2	1.00	0.57
8554	**Kilosegui Trans Master Comp (MC-8)**	106	1.26	1.80	35.1	88.8	0.90	0.34
8501	**Kilosegui Fresh Master Comp (MC-9)***	75	1.37	1.20	32.1	81.7	0.70	0.24
8556	**Enioda Oxide Master Comp (MC-13)**	106	1.39	1.56	31.8	94.2	1.17	0.62
8557	**Enioda Trans Master Comp (MC-14)**	106	1.30	0.98	33.9	92.3	1.09	0.45
8555	**Chegue Main Trans Master Comp (MC-20)**	106	1.40	1.17	31.6	92.8	0.85	0.35

* The feed to these tests were reserves of Mach™ pre-oxidation testwork – refer to Section 15 of this report

The results of the bulk leach tests were consistent with prior optimised leach tests under similar conditions.

The leach slurry from these tests was split into portions ready for cyanide speciation assays, detoxification testwork, and thickening tests.

12.1 Cyanide Detoxification Testwork using the SO_2/Air Process

The SO_2/air oxidation process has been found to oxidise cyanide to cyanate effectively at bench, pilot and commercial scale. The chemistry has been simplified as follows:

$$CN^- free + SO_2 + O_2 + H_2O \rightarrow CNO^- + H_2SO_4$$

$$Me(CN)_4^{2-} + 4SO_2 + 4O_2 + 4H_2O \rightarrow 4CNO^- + 4H_2SO_4 + Me^{2+}$$

The reaction requires copper to be present to act as a catalyst and based on the above reaction, the theoretical requirement of SO_2 to CN is 2.46 g (SO_2)/g(CN_{WAD}). However, due to SO_2 consumption by other chemical reactions, the SO_2 dosage is greater; for example, thiocyanate can also be oxidised according to the following proposed reaction:

$$SCN^- + 4SO_2 + 4O_2 + 5H_2O \rightarrow CNO^- + 5H_2SO_4$$

The kinetics of thiocyanate oxidation is much slower than for cyanide, however, so usual levels of thiocyanate in gold mill effluents do not generally adversely affect the SO_2 requirements of the process.

The SO_2/Air oxidation process also destroys the metal cyanide complexes typically present in gold mill effluents. The preferential order of metal cyanide complex removal is as follows:

$$Zn > Fe > Ni > Cu$$

The process is also capable of removing iron cyanide complexes from the solution. The iron remains in the reduced ferrous state and is removed by precipitation of metal ferrocyanide compounds of the form $Me_2Fe(CN)_6$ where Me = Cu, Zn, Ni. Metals liberated from the cyanide complexes of Cu, Zn, and Ni are removed by precipitation of metal hydroxides at the reaction pH.

When sodium metabisulphite is used as the SO_2 source, SO_2 is liberated according to the following reactions:

$$Na_2S_2O_5 + H_2O = Na_2SO_3 + H_2SO_3$$

$$Na_2SO_3 + CN^- + O_2 \rightarrow Na_2SO_4 + CNO^-$$

$$H_2SO_3 + CN^- + O_2 \rightarrow H_2SO_4 + CNO^-$$

Thus, $Na_2S_2O_5$ produces two moles of SO_2 and one requires subsequent neutralisation. The pH range for treatment is usually between 8.0 and 9.0 and is controlled by lime addition.

The oxygen requirements for the reaction are obtained from air as it bubbles through the reaction vessel solution.

12.2 Stoichiometric Requirements

In literature, the stoichiometric requirements are generally reported as g(SO_2)/g(CN_{WAD}) and the requirement will be 2.46 g(SO_2)/g(CN_{WAD}).

Additional requirements will be necessary for thiocyanate and thiosulphate oxidation and although estimates are calculated from experience data the actual requirement will become known from testwork. Also, process reactions have an efficiency factor, which will be generally lower for slurry than for solution, and so calculations prior to testing assign an efficiency factor (e.g. 80% for solution).

A target stoichiometric addition of 350% SO_2: CN_{WAD} was selected for this testwork.

12.3 Cyanide Detoxification Testwork

The leach effluent solution was sampled and filtered before the tests to provide a subsample for Cu, Fe, Ni, Zn, CN_{WAD}, and CN_{FREE} analysis. The remaining solution was used as feed to the cyanide detoxification mini plant.

12.3.1 Reaction Vessel and Equipment Arrangement

The typical test apparatus involved:

(1) An agitated baffled reaction vessel of 800 mL (batch tests) and 2,000 mL (bulk continuous) live volume.

(2) Reagent dosage pumps for lime, sodium metabisulphite and copper sulphate solutions.

(3) pH measurement and controller for alkali (or acid) dosage to maintain reaction pH at ±0.05.

(4) Aeration sparge capacity of 1-3 L/min/L reactor volume, typically 1 L/min/L rate.

(5) Redox and dissolved oxygen measurement.

12.3.2 Operation

The initial level of CN_{WAD} in the leach effluent was estimated from the free cyanide titration together with analysis for Cu, Zn, and Ni. The CN_{WAD} level was also determined directly by a colourimetric method using a picric acid reagent. The two values agreed well allowing the required concentration of sodium metabisulphite solution to be prepared.

An operating pH of 8.5 was initially chosen for the testwork as this represents a typical optimum level for the SO_2/air detoxification process.

The test program involved the following:

(1) Calculations based upon effluent analysis.

(2) The desired amount of SO_2 was added in the form of a $Na_2S_2O_5$ aqueous solution. The pH was controlled at the desired set point by the addition of a lime solution or acid solution on demand by means of a titration device. The solution or slurry was agitated vigorously at 1,100 rpm and air was introduced at a rate of at least 1 L/min/L of reactor volume.

(3) Samples of treated effluent were collected, filtered and analysed for Cu, Ni, Fe, Zn, and CN_{WAD}.

12.3.3 Cyanide Analysis

Solutions were prepared for cyanide analysis using the following procedure:

(1) The slurry samples were coarse-filtered, and the filtrate was collected.

(2) The filtrate was re-filtered through a fine glass fibre paper (0.45 µm).

(3) The samples for analysis were placed in plastic bottles (zero head space) and kept refrigerated until required for analysis.

Both feed effluent and treated effluent solutions were analysed by ALS for CN_{WAD} using a direct spectrophotometric determination with a picric acid reagent. Cyanide determinations using this method have been identified in this report as CN_P. A sub-sample was also sent to ChemCentre for full cyanide speciation.

12.4 Results

Details and results of the batch and continuous cyanide detoxification tests appear in Appendix VIII, along with a detailed summary. The results are briefly summarised in the following table.

SO_2/AIR CYANIDE DETOXIFICATION TESTWORK: SUMMARY OF RESULTS

Comp Name (ID) Test No.	Test Conditions					Solution Assays	
	pH	Retention Time (mins)	Reagents Used			Feed CN_P (mg/L)	Treated CN_P (mg/L)
			SO_2 (g/g CNWAD)	$CuSO_4.5H_2O$ (mg/L)	Lime (g/g SO_2)		
PW8100 Leach Slurry - Souwa Fresh Master Composite (MC-3)	8.51	74.77	13.40	41.26	1.03	71.0	0.10
PW8103 Leach Slurry - Souwa Oxide Master Composite (MC-1)	8.51	29.15	8.79	110.21	0.69	71.1	0.15
PW8104 Leach Slurry - Souwa Trans Master Composite (MC-2)	8.51	38.57	9.12	72.21	0.58	102	0.10
PW8108 Leach Slurry - Nokpa Fresh Master Composite (MC-6)	8.51	38.67	8.00	74.11	0.37	155	3.32
PW8110 Leach Slurry - Nokpa Transition Master Composite (MC-5)	8.53	39.15	8.01	78.39	0.36	47.5	0.16
PW8501 Leach Slurry - Kilosegui Fresh Master Composite MC-9	8.51	38.34	8.62	103.16	0.54	152	1.35
PW8554 Leach Slurry - Kilosegui Trans Master Composite MC-8	8.51	38.73	8.66	81.44	0.72	69.3	0.15
PW8555 Leach Slurry - Chegue Main Trans Composite MC-20	8.51	38.73	8.46	74.31	0.56	91.7	0.40
PW8556 Leach Slurry - Enioda Oxide Master Composite MC-13	8.51	57.57	7.12	44.87	0.54	120	0.05
PW8557 Leach Slurry - Enioda Trans Master Composite MC-14	8.51	57.55	9.44	62.44	0.54	91.3	0.50
PW8734 Leach Slurry - Kilosegui Oxide Master Composite MC-7	8.51	57.05	10.48	50.91	0.54	125	0.05

Notes: 1) CN_P denotes weak acid dissociable cyanide determination using Picric Acid method
2) CN_{TOTAL} calculated as equal to CN_P+ 2.80 x Fe

Comments:

- The target CN_{WAD} level of <10 mg/L in the treated tailings was easily met when applying approximately 350% SO_2:CN_{WAD} in the tests.
- Based on the results achieved, a bulk detox was conducted on the remainder of each sample to destroy cyanide before sending for thickening testwork.

13. OXYGEN UPTAKE RATE DETERMINATION

The Master composites were subjected to oxygen uptake rate determination tests according to the following procedure.

13.1 Test Procedure

The test procedure was as follows:

(1) The ground slurry was adjusted to 45% solids (w/w) by adding Perth tap water. Lime was added to adjust the pH to 10.5 and cyanide was added to establish an initial cyanide solution strength of 0.10% (w/v).

(2) The dissolved oxygen (DO) content of the slurry was monitored and recorded at one-minute intervals (at low agitator speed) for a period of 15 minutes.

(3) The agitator speed was increased to 280 rpm.

(4) An excess of air was sparged into the slurry for 45 minutes.

(5) Upon completion of step (4), the sparge was withdrawn from the slurry and the impeller speed was reduced to 140 rpm.

(6) The dissolved oxygen (DO) content of the slurry was monitored at one-minute intervals for a period of 15 minutes.

(7) Upon completion of step (6), the impeller speed was increased to 280 rpm and air sparging was recommenced.

(8) Steps (4), (5) and (6) were repeated for times of 1, 2, 3, 4, 6, 8 and 24 hours.

(9) The oxygen decay rate for each time period was calculated to determine consumption as mg/L/minute.

13.2 Results

A summary of results is presented in the table below, with a detailed test report sheet is included in Appendix IX.

OXYGEN UPTAKE TESTS: SUMMARY OF RESULTS								
Composite Name (ID)	Slope (mg/L/min) @ hours							
	0**	1	2	3	4	6	8	24
Souwa Oxide Master Comp (MC-1)	-0.0113	-0.0032	-0.0029	-0.0030	-0.0032	-0.0036	-0.0025	-0.0016
Souwa Trans Master Comp (MC-2)	-0.0083	-0.0032	-0.0040	-0.0029	-0.0048	-0.0014	-0.0022	-0.0025
Souwa Fresh Master Comp (MC-3)	-0.0286	-0.0045	-0.0050	-0.0024	-0.0021	-0.0029	-0.0017	-0.0020
Nopka Trans Master Comp (MC-5)	-0.0074	-0.0042	-0.0089	-0.0010	-0.0029	-0.0020	-0.0011	-0.0015
Nopka Fresh Master Comp (MC-6)	-0.0219	-0.0043	-0.0040	-0.0034	-0.0035	-0.0023	-0.0024	-0.0002
Kilosegui Oxide Master Comp (MC-7)	-0.0129	-0.0062	-0.0069	-0.0037	-0.0037	-0.0040	-0.0035	-0.0017
Kilosegui Trans Master Comp (MC-8)	-0.0017	-0.0037	-0.0031	-0.0038	-0.0032	-0.0021	-0.0022	-0.0033
Kilosegui Fresh Master Comp (MC-9)	-0.0016	-0.0072	-0.0052	-0.0054	-0.0036	-0.0047	-0.0041	-0.0009
Kekeda Oxide Master Comp (MC-10)	-0.0011	-0.0054	-0.0047	-0.0040	-0.0025	-0.0027	-0.0028	-0.0021
Kekeda Trans Master Comp (MC-11)	-0.0080	-0.0031	-0.0018	-0.0016	-0.0017	-0.0022	-0.0015	-0.0013
Kekeda Fresh Master Comp (MC-12)	-0.0050	-0.0041	-0.0048	-0.0032	-0.0036	-0.0029	-0.0038	0.0527
Enioda Oxide Master Comp (MC-13)	-0.0045	-0.0026	-0.0046	-0.0023	-0.0039	-0.0039	-0.0032	-0.0028
Enioda Trans Master Comp (MC-14)	-0.0442	-0.0029	-0.0030	-0.0019	-0.0024	-0.0011	-0.0023	-0.0028
Enioda Fresh Master Comp (MC-15)	-0.0313	-0.0094	-0.0072	-0.0054	-0.0040	-0.0032	-0.0035	-0.0020
Han Trans Master Comp (MC-17)	0.0041	-0.0044	-0.0035	-0.0016	-0.0025	-0.0014	-0.0026	-0.0023
Han Fresh Master Comp (MC-18)	-0.0082	-0.0047	-0.0039	-0.0026	-0.0026	-0.0026	-0.0022	-0.0015
Chegue Main Oxide Master Comp (MC-19)	-0.0105	-0.0030	-0.0035	-0.0021	-0.0022	-0.0021	-0.0020	-0.0019
Chegue Main Trans Master Comp (MC-20)	-0.0023	-0.0029	-0.0028	-0.0016	-0.0016	-0.0015	-0.0016	-0.0008
Chegue Main Fresh Master Comp (MC-21)	-0.0348	-0.0046	-0.0027	-0.0036	-0.0031	-0.0036	-0.0024	-0.0029
Chegue South Trans Master Comp (MC-23)	-0.0061	-0.0029	-0.0035	-0.0020	-0.0020	-0.0039	-0.0020	-0.0014
Chegue South Fresh Master Comp (MC-24)	-0.0018	-0.0085	-0.0087	-0.0078	-0.0046	-0.0044	-0.0028	-0.0016

All composites exhibited a low oxygen requirement.

14. RHEOLOGY TESTWORK

Rheology testwork was undertaken on the Master Composites to investigate the slurry flow properties.

14.1 Test Procedure

The following test procedure was used:

(1) The test sample (1 kg) was milled to P_{80} 106 µm for Oxide and Trans composites and P_{80} 75 µm for Fresh composites. The ground samples were transferred to a 1-litre beaker and made up to the requisite initial slurry % solids (60%) with Perth tap water. The tests were conducted at 20°C temperature and pH 10 (adjusted with lime).

(2) A *Bohlin Visco 88* viscometer was used to measure viscosity parameters at shear rates from 4.2 sec^{-1} to 209.5 sec^{-1} and at 60%, 55%, 50%, and 45% solids (w/w).

14.2 Results

A summary of the viscosity results is given in the table below. Detailed results are available in Appendix X.

SLURRY RHEOLOGY TESTWORK: SUMMARY OF RESULTS – MASTER COMPOSITES

Composite Name (ID)	% Solids (w/w)	Viscosity (cP) at Nominated Shear Rate (sec^{-1})							
		4.2	7.4	13.1	21.9	38.9	67.4	119.2	209.5
Souwa Oxide Master Comp (MC-1)	60	**749.0**	616.0	432.0	301.0	202.0	161.0	**153.0**	156.0
	55	**337.0**	212.0	144.0	100.0	89.0	89.0	**90.0**	108.0
	50	**0.0**	0.0	84.0	65.0	61.0	56.0	**63.0**	79.0
	45	**0.0**	0.0	0.0	57.0	40.0	42.0	**50.0**	62.0
Souwa Trans Master Comp (MC-2)	60	**336.9**	233.7	168.0	129.2	109.1	114.3	**118.7**	134.3
	55	**0.0**	169.9	108.0	86.1	80.8	74.6	**80.4**	99.8
	50	**0.0**	0.0	0.0	50.2	48.5	49.0	**56.7**	74.3
	45	**0.0**	0.0	0.0	0.0	32.3	32.7	**44.8**	60.0
Souwa Fresh Master Comp (MC-3)	60	**486.6**	297.4	192.0	157.9	121.2	109.6	**118.7**	140.3
	55	**374.3**	233.7	144.0	100.5	68.7	67.6	**76.5**	93.8
	50	**0.0**	0.0	0.0	57.4	44.5	49.0	**59.3**	79.5
	45	**0.0**	0.0	0.0	50.2	36.4	39.6	**47.5**	60.8
Nopka Trans Master Comp (MC-5)	60	**1422.3**	849.7	552.0	358.9	230.3	158.6	**151.7**	153.8
	55	**673.7**	424.9	288.0	208.2	133.4	107.3	**104.2**	106.6
	50	**299.4**	233.7	144.0	100.5	72.7	63.0	**69.9**	81.8
	45	**0.0**	148.7	96.0	71.8	52.5	49.0	**55.4**	66.8
Nopka Fresh Master Comp (MC-6)	60	**336.9**	212.4	204.0	143.6	113.2	109.6	**118.7**	141.1
	55	**262.0**	169.9	120.0	107.7	76.8	65.3	**75.2**	87.8
	50	**0.0**	0.0	0.0	0.0	40.4	44.3	**58.0**	74.3
	45	**0.0**	0.0	0.0	0.0	32.3	39.6	**50.1**	66.0

Continued/…

SLURRY RHEOLOGY TESTWORK: SUMMARY OF RESULTS - MASTER COMPOSITES (Cont'd)

Composite Name (ID)	% Solids (w/w)	Viscosity (cP) at Nominated Shear Rate (sec^{-1})							
		4.2	7.4	13.1	21.9	38.9	67.4	119.2	209.5
Kilosegui Oxide Master Comp (MC-7)	60	**8,720.9**	4,970.9	2,988.0	1,873.5	1,131.5	706.7	**439.2**	291.9
	55	**3,668.0**	2,166.8	1,284.0	818.3	509.2	317.2	**197.8**	172.6
	50	**1,908.9**	1,189.6	744.0	473.8	286.9	186.6	**131.9**	129.8
	45	**935.7**	552.3	336.0	229.7	149.5	98.0	**91.0**	97.5
Kilosegui Trans Master Comp (MC-8)	60	**0.0**	148.7	108.0	93.3	80.8	84.0	**93.6**	119.3
	55	**0.0**	0.0	96.0	79.0	60.6	58.3	**71.2**	83.3
	50	**0.0**	0.0	0.0	64.6	44.5	46.6	**54.1**	70.5
	45	**0.0**	0.0	0.0	0.0	32.3	35.0	**46.2**	63.0
Kilosegui Fresh Master Comp (MC-9)	60	**0.0**	0.0	0.0	86.1	80.8	81.6	**93.6**	115.6
	55	**0.0**	0.0	0.0	71.8	64.7	60.6	**65.9**	91.5
	50	**0.0**	0.0	0.0	0.0	48.5	46.6	**55.4**	72.0
	45	**0.0**	0.0	0.0	0.0	28.3	32.7	**47.5**	66.0
Kekeda Oxide Master Comp (MC-10)	60	**2,620.0**	1,550.8	900.0	552.7	331.4	207.6	**171.4**	166.6
	55	**1,160.3**	743.5	504.0	323.0	189.9	121.3	**121.3**	117.8
	50	**711.1**	424.9	276.0	179.5	117.2	91.0	**84.4**	89.3
	45	**0.0**	169.9	120.0	93.3	56.6	53.6	**59.3**	67.5
Kekeda Trans Master Comp (MC-11)	60	**898.3**	573.6	396.0	279.9	185.9	128.3	**135.8**	144.1
	55	**262.0**	191.2	132.0	100.5	76.8	70.0	**77.8**	95.3
	50	**0.0**	0.0	0.0	50.2	40.4	44.3	**58.0**	75.0
	45	**0.0**	0.0	0.0	0.0	28.3	28.0	**43.5**	61.5
Kekeda Fresh Master Comp (MC-12)	60	**0.0**	0.0	96.0	93.3	97.0	107.3	**120.0**	141.1
	55	**0.0**	0.0	0.0	0.0	36.4	46.6	**65.9**	93.8
	50	**0.0**	0.0	0.0	0.0	0.0	30.3	**46.2**	65.3
	45	**0.0**	0.0	0.0	0.0	0.0	23.3	**36.9**	55.5
Enioda Oxide Master Comp (MC-13)	60	**6,587.4**	4,078.7	2,496.0	1,615.1	998.2	648.4	**428.6**	321.9
	55	**2,545.1**	1,614.5	1,044.0	674.7	416.2	268.2	**193.9**	178.6
	50	**898.3**	594.8	360.0	236.9	153.6	112.0	**102.9**	108.1
	45	**299.4**	254.9	180.0	136.4	92.9	74.6	**73.9**	80.3
Enioda Trans Master Comp (MC-14)	60	**1,122.9**	786.0	528.0	351.7	238.4	160.9	**162.2**	161.3
	55	**336.9**	212.4	156.0	122.0	97.0	88.6	**85.7**	97.5
	50	**0.0**	0.0	0.0	57.4	44.5	51.3	**56.7**	72.0
	45	**0.0**	0.0	0.0	0.0	32.3	37.3	**47.5**	59.3
Enioda Fresh Master Comp (MC-15)	60	**262.0**	212.4	168.0	129.2	109.1	105.0	**112.1**	131.3
	55	**0.0**	0.0	0.0	57.4	56.6	58.3	**67.3**	87.0
	50	**0.0**	0.0	0.0	0.0	32.3	35.0	**46.2**	66.0
	45	**0.0**	0.0	0.0	0.0	28.3	28.0	**38.2**	54.8
Han Trans Master Comp (MC-17)	60	**486.6**	403.6	276.0	201.0	141.4	121.3	**121.3**	138.1
	55	**0.0**	0.0	96.0	71.8	64.7	67.6	**75.2**	92.3
	50	**0.0**	0.0	0.0	0.0	40.4	46.6	**51.4**	69.8
	45	**0.0**	0.0	0.0	0.0	28.3	28.0	**38.2**	55.5
Han Fresh Master Comp (MC-18)	60	**486.6**	297.4	204.0	143.6	117.2	114.3	**120.0**	135.1
	55	**0.0**	0.0	84.0	64.6	60.6	60.6	**75.2**	93.8
	50	**0.0**	0.0	0.0	0.0	28.3	37.3	**52.8**	67.5
	45	**0.0**	0.0	0.0	0.0	0.0	28.0	**39.6**	57.0
Chegue Main Oxide Master Comp (MC-19)	60	**6,213.1**	3,590.1	2,100.0	1,327.9	808.2	501.5	**317.8**	247.6
	55	**2,358.0**	1,487.0	960.0	610.1	383.9	230.9	**170.1**	157.6
	50	**1,459.7**	849.7	516.0	323.0	194.0	128.3	**109.5**	108.8
	45	**486.6**	339.9	240.0	179.5	113.2	81.6	**79.1**	79.5

Continued/…

SLURRY RHEOLOGY TESTWORK: SUMMARY OF RESULTS - MASTER COMPOSITES (Cont'd)									
Composite Name (ID)	% Solids (w/w)	Viscosity (cP) at Nominated Shear Rate (sec^{-1})							
		4.2	7.4	13.1	21.9	38.9	67.4	119.2	209.5
Chegue Main Trans Master Comp (MC-20)	60	**486.6**	339.9	228.0	150.7	109.1	105.0	**112.1**	131.3
	55	**262.0**	191.2	132.0	93.3	72.7	70.0	**79.1**	93.8
	50	**0.0**	0.0	0.0	50.2	44.5	46.6	**58.0**	73.5
	45	**0.0**	0.0	0.0	0.0	32.3	35.0	**43.5**	60.0
Chegue Main Fresh Master Comp (MC-21)	60	**299.4**	212.4	156.0	122.0	101.0	100.3	**109.5**	126.1
	55	**0.0**	0.0	84.0	71.8	60.6	58.3	**68.6**	87.8
	50	**0.0**	0.0	0.0	50.2	48.5	46.6	**52.8**	72.0
	45	**0.0**	0.0	0.0	0.0	32.3	32.7	**44.8**	60.0
Chegue South Trans Master Comp (MC-23)	60	**299.4**	254.9	168.0	129.2	121.2	118.9	**124.0**	139.6
	55	**0.0**	0.0	96.0	79.0	72.7	70.0	**75.2**	93.8
	50	**0.0**	0.0	0.0	50.2	52.5	51.3	**58.0**	72.8
	45	**0.0**	0.0	0.0	0.0	40.4	42.0	**47.5**	60.0
Chegue South Fresh Master Comp (MC-24)	60	**336.9**	233.7	192.0	157.9	129.3	128.3	**131.9**	146.3
	55	**0.0**	148.7	96.0	79.0	72.7	70.0	**79.1**	94.5
	50	**0.0**	0.0	0.0	0.0	40.4	44.3	**56.7**	73.5
	45	**0.0**	0.0	0.0	0.0	32.3	32.7	**44.8**	58.5

Comments on the above results are as follows:

- Viscosity increased with increasing % solids, with some oxide samples exhibiting high viscosity.
- In general terms, slurries with a viscosity <100 cP at a shear rate of 119.2 s^{-1} are acceptable for pumping applications, and a slurry with a viscosity <3,500 cP at a shear rate of 4.2 s^{-1} is acceptable for mixing and screening applications.
- Based on these guidelines, some of the Master composites may present difficulties in pumping applications at >50% solids. Composites MC-5, MC-7, MC-10, MC-13, and MC-19 exhibited high viscosity levels >100 cP at 119.2 s^{-1} when tested at or above 50% solids.
- For mixing and screening applications, MC-7, MC-13, and MC-19 showed elevated viscosity (>3500 cP) at a shear rate of 4.2 s^{-1} at 55% to 60% solids.

15. SHEAR REACTOR (MACH ®) TESTWORK

Four selected Fresh Master composites underwent pre-oxidation and leach testwork utilising the *Mach Reactor*™. The testwork was conducted under the direction of vendors (Goldore) representative, Mr Adrian Singh.

The feed samples (25 kg) first underwent gravity concentration and intensive leach in the gravity concentrate as has been described in Section 9. The gravity tail and intensive leach tail were then combined for *Mach Reactor*™ testwork. A sub-sample before and after each Mach Reactor™ pass was submitted for cyanide leach testing. Tests were completed in two test modes; (1) Pre-oxidation only where the pH was modified but no cyanide added, and (2) Boosted Leach where lime and cyanide were added to the test.

15.1 Test Procedure: Pre-oxidation Test

The details of the operation of the *Mach Reactor*™ testwork are briefly described below:

(1) A calculated amount of water was added to the feed tank. The gravity tail was added slowly to enable adequate mixing and achieve a slurry comprising 45% solids.

(2) The slurry flow rate through the reactor at target pressure was measured to calculate recirculation pass times.

(3) Air was released into the reactor at a rate of 2.5 L/min and the reactor pump was turned on and the flow was diverted through the reactor.

(4) Lime was added to adjust the pH to 10.5 in the reactor.

(5) For “boosted” runs, in addition to the lime, 0.1% NaCN was also added to the reactor and maintained to >0.05%.

(6) Once a back pressure of 6 bar had been established, the timer was started.

(7) The reactor was run for 1 pass then the pump was slowed, and the rig was put into recirculating mode and slurry sub-samples (approximately 1.0 kg dry weight equivalent) were taken for cyanide leaching testwork.

(8) The pump was restarted and the flow diverted back through the reactor and ran for a further three passes, after which the pump was slowed and another sub-sample was taken.

(9) The testwork was terminated and the slurry left in the equipment was washed out and reserved as “washout material”.

(10) The CIL test condition for each test is as follows:

- % Solids : 45% (w/w)
- Pre-oxygenation:
  - Duration : 6 hours
  - pH : 10.5, Maintained >9.8
  - Oxygen Sparge
- Carbon : 20 g/L
- NaCN : 0.1% (w/w), Maintained > 0.05% (w/w)
- Duration : 34 hours

15.2 Test Conditions and Results

A summary of the Mach Reactor™ test conditions is presented in the table below.

MACH REACTOR™ CONDITIONS										
Pass	**Initial Mass (kg)**	**Sub-Sample (kg)**	**Time (secs)**	**Pressure (bar)**	**Slurry Flowrate (L/min)**	**pH**	**Eh**	**DO (ppm)**	**Lime (g)**	**NaCN (g)**
SOUWA FRESH MASTER COMPOSITE (MC-3) - PRE-OX										
Passes 0	25	1	0	Amb.		8.0/10.5	206	9	6.60	0
Passes 1*	24	1	47	3.5	48.6	9.8/10.5	156	10	1.77	0
Passes 2	23	1	45	3.5	48.6	10.24	136	30	0	0
Passes 5*	22	1	130	3.5	48.6	10.26	89	28	0	0
SOUWA FRESH MASTER COMPOSITE (MC-3) - BOOSTED LEACH										
Passes 0	25	1	0	Amb.		8.0/10.5	282	8	5.56	30.56
Passes 1*	24	1	47	3.5	48.6	10.34	175	26	0	0
Passes 2	23	1	45	3.5	48.6	10.41	119	16	0	0
Passes 5*	22	1	130	3.5	48.6	10.2	76	22	0	0
NOPKA FRESH MASTER COMPOSITE (MC-6) - PRE-OX										
Passes 0	19.5	1	0	Amb.		8.1/10.5	268	8	5.48	0
Passes 1*	18.5	1	37	3.5	48.6	10.27	164	19	0	0
Passes 2	17.5	1	35	3.5	48.6	10.20	161	25	0	0
Passes 5*	16.5	1	98	3.5	48.6	10.1	162	25	0	0
NOPKA FRESH MASTER COMPOSITE (MC-6) - BOOSTED LEACH										
Passes 0	25	1	0	Amb.		7.7/10.5	119	8	7.51	30.56
Passes 1*	24	1	47	3.5	48.6	10.47	89	26	0	0
Passes 2	23	1	45	3.5	48.6	10.44	77	26	0	0
Passes 5*	22	1	130	3.5	48.6	10.41	64	26	0	0

Continued/…

MACH REACTOR™ CONDITIONS (Cont'd)										
Pass	**Initial Mass (kg)**	**Sub-Sample (kg)**	**Time (secs)**	**Pressure (bar)**	**Slurry Flowrate (L/min)**	**pH**	**Eh**	**DO (ppm)**	**Lime (g)**	**NaCN (g)**
KILOSEGUI FRESH MASTER COMPOSITE (MC-9) - PRE-OX										
Passes 0	25	1	0	Amb.		8.0/10.5	104	8	7.77	0
Passes 1*	24	1	37	3.5	48.6	10.24	101	24	0	0
Passes 2	23	1	35	3.5	48.6	10.17	104	27	0	0
Passes 5*	22	1	98	3.5	48.6	10.07	103	29	0	0
KILOSEGUI FRESH MASTER COMPOSITE (MC-9) - BOOSTED LEACH										
Passes 0	25	1	0	Amb.		9.0/10.6	161	10	8.17	30.56
Passes 1*	24	1	47	3.5	48.6	10.48	104	28	0	0
Passes 2	23	1	45	3.5	48.6	10.46	83	29	0	0
Passes 5*	22	1	130	3.5	48.6	10.45	68	29	0	0
KEKEDA FRESH MASTER COMPOSITE (MC-12) - PRE-OX										
Passes 0	25	1	0	Amb.		8.0/10.5	173	8.18	7.58	0
Passes 1*	24	1	47	3.5	48.6	10.2	167	26.2	0	0
Passes 2	23	1	45	3.5	48.6	10.0	136	22.8	0	0
Passes 5*	22	1	130	3.5	48.6	9.91	136	26.5	0	0
KEKEDA FRESH MASTER COMPOSITE (MC-12) - BOOSTED LEACH										
Passes 0	25	1	0	Amb.		8.1/10.5	196	8	5.33	30.56
Passes 1*	24	1	47	3.5	48.6	10.31	145	23	0	0
Passes 2	23	1	45	3.5	48.6	10.29	108	25	0	0
Passes 5*	22	1	130	3.5	48.6	10.23	98	25	0	0

* Cumulative passes

A summary of the leach results is presented in the table below, with detailed test report sheets included in Appendix XI.

MASTER COMPOSITE GRAVITY/ LEACH TESTWORK: MACH ® REACTOR PRE-TREATED									
Test No. (PW-)	**Comp Name (ID)**	**Grind P_{80} (µm)**	**MACH ® Pre-treatment**	**Gold (g/t)**		**Gold Recovery (%)**		**Reagents (kg/t)**	
				Calc'd Head	**Assay Head**	**Grav**	**Grav' + Leach**	**NaCN**	**Lime**
7948	**Souwa Fresh Master Comp (MC-3)**	75	Control	1.37	1.18	25.3	89.0	0.97	0.61
7949			Pre-Ox 1 x Pass	1.36		25.4	89.7	0.92	0.39
7950			Pre-Ox 3 x Pass	1.44		24.0	90.3	0.94	0.36
7951			Pre-Ox 5 x Pass	1.36		25.4	89.7	0.97	0.34
7953			Control	1.39		24.3	89.2	1.16	0.22
7954			Boosted Leach 1 x Pass	1.51		22.3	89.4	1.19	0.22
7955			Boosted Leach 3 x Pass	1.39		24.2	89.2	1.16	0.22
7956			Boosted Leach 5 x Pass	1.40		23.9	89.3	1.22	0.22

Continued/…

MASTER COMPOSITE GRAVITY/ LEACH TESTWORK: MACH ® REACTOR PRE-TREATED (Cont'd)									
Test No. (PW-)	Comp Name (ID)	Grind P_{80} (µm)	MACH ® Pre-treatment	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
				Calc'd Head	Assay Head	Grav	Grav' + Leach	NaCN	Lime
7958	Nopka Fresh Master Comp (MC-6)	75	Control	1.39	2.37, 1.35	24.2	92.8	0.96	0.35
7959			Pre-Ox 1 x Pass	1.42		23.5	91.6	0.99	0.35
7960			Pre-Ox 3 x Pass	1.32		25.4	91.6	1.06	0.35
7961			Pre-Ox 5 x Pass	1.30		25.8	93.1	1.05	0.35
7963			Control	1.33		27.7	94.0	0.96	0.35
7964			Boosted Leach 1 x Pass	1.44		25.5	94.5	0.99	0.35
7965			Boosted Leach 3 x Pass	1.34		27.4	93.3	1.06	0.35
7966			Boosted Leach 5 x Pass	1.34		27.4	93.3	1.05	0.35
7968	Kilosegui Fresh Master Comp (MC-9)	75	Control	1.39	1.20	36.1	84.2	0.86	0.47
7969			Pre-Ox 1 x Pass	1.29		39.0	86.0	0.89	0.56
7970			Pre-Ox 3 x Pass	1.40		36.0	83.5	0.83	0.46
7971			Pre-Ox 5 x Pass	1.36		37.1	86.0	0.83	0.49
7973			Control	1.26		35.1	83.3	0.84	0.41
7974			Boosted Leach 1 x Pass	1.26		35.1	83.3	0.78	0.40
7975			Boosted Leach 3 x Pass	1.26		35.1	83.3	0.65	0.41
7976			Boosted Leach 5 x Pass	1.33		33.3	84.9	0.83	0.40
7978	Kekeda Fresh Master Comp (MC-12)	75	Control	1.60	1.88	32.8	92.5	0.95	0.53
7979			Pre-Ox 1 x Pass	1.62		32.3	92.0	1.03	0.44
7980			Pre-Ox 3 x Pass	1.62		32.3	92.0	0.98	0.42
7981			Pre-Ox 5 x Pass	1.59		33.0	93.1	0.95	0.43
7983			Control	1.52		33.7	94.1	1.13	0.33
7984			Boosted Leach 1 x Pass	1.61		31.8	93.8	1.19	0.31
7985			Boosted Leach 3 x Pass	1.59		32.4	94.3	1.25	0.32
7986			Boosted Leach 5 x Pass	1.64		31.4	93.6	1.24	0.32

Comments on the above results are as follows:

- The results of the cyanide leach tests performed following the pre-oxidation stage using the *Mach Reactor*™ suggested no improvement in gold extraction for the samples and process conditions tested.

- The "boosted-leach" tests showed improved leach kinetics up to 24 hours, however, the overall leach results did not outperform the baseline, or control, test.

16. GRAVITY/LEACH TESTWORK: VARIABILITY COMPOSITE

Carbon-in-Leach (CIL) testwork was carried out on each of the Variability composites using the optimised leach conditions established for the Master composites (Section 9.2.7).

The results of these tests are summarised in the table below, whilst detailed test report sheets are presented in Appendix XII.

VARIABILITY COMPOSITE GRAVITY/LEACH TESTWORK								
Test No	Comp Name (ID)	Grind P_{80} (µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
8462	**Souwa Oxide Low Grade (VC-1)**	106	0.63	0.69	21.5	84.2	0.67	0.51
8463	**Souwa Oxide High Grade (VC-2)**	106	3.03	3.51	46.8	95.4	0.61	0.31
8464	**Souwa Trans Low Grade (VC-3)**	106	1.01	1.02	38.5	87.1	0.63	0.23
8465	**Souwa Trans Low Grade (VC-4)**	106	3.45	3.81	21.8	93.5	0.58	0.40
8466	**Souwa Fresh High Grade (VC-5)**	75	0.72	0.85	31.3	86.1	0.51	0.19
8467	**Souwa Fresh Low Grade (VC-6)**	75	2.74	2.44	26.2	86.9	0.51	0.22
8468	**Nopka Oxide Low Grade (VC-7)**	106	1.21	1.06	11.3	92.6	0.60	1.05
8469	**Nopka Trans Low Grade(VC-8)**	106	0.74	1.37	13.3	93.3	0.60	0.39
8470	**Nopka Trans High Grade(VC-9)**	106	1.69	2.02	11.7	93.5	0.57	0.33
8471	**Nopka Fresh Low Grade (VC-10)**	75	0.76	0.85	13.1	88.1	0.42	0.29
8472	**Nopka Fresh High Grade (VC-11)**	75	3.21	3.12	16.3	77.6	0.42	0.28
8473	**Kilosegui Trans Low Grade (VC-12)**	106	0.56	0.56	19.8	91.1	0.48	0.36
8474	**Kilosegui Trans High Grade (VC-13)**	106	1.88	2.00	33.8	91.2	0.51	0.33
8475	**Kilosegui Fresh Low Grade (VC-14)**	75	0.67	0.81	41.8	86.5	0.39	0.23
8476	**Kilosegui Fresh High Grade (VC-15)**	75	2.22	2.41	49.7	89.6	0.45	0.21
8477	**Kekeda Oxide High Grade (VC-17)**	106	9.56	9.61	46.4	97.5	0.63	0.48
8478	**Kekeda Trans Low Grade (VC-18)**	106	0.61	0.48	8.8	91.8	0.51	0.33
8479	**Kekeda Trans High Grade (VC-19)**	106	2.05	1.74	42.2	95.1	0.53	0.36
8480	**Kekeda Fresh Low Grade (VC-20)**	75	0.90	1.24	50.6	83.3	0.42	0.27
8481	**Kekeda Fresh High Grade (VC-21)**	75	4.35	3.82	43.9	88.7	0.42	0.24
8482	**Enioda Oxide Low Grade (VC-22)**	106	0.94	1.08	27.8	90.4	0.78	0.86
8483	**Enioda Oxide High Grade (VC-23)**	106	1.58	0.76	74.1	98.7	0.38	0.33
8484	**Enioda Trans Low Grade (VC-24)**	106	0.55	0.51	18.5	89.1	0.57	0.28
8485	**Enioda Trans Low Grade (VC-25)**	106	5.06	5.01	67.6	96.4	0.69	0.57
8486	**Enioda Fresh High Grade (VC-26)**	75	0.64	0.79	38.5	84.3	0.51	0.17
8487	**Enioda Fresh Low Grade (VC-27)**	75	5.88	10.22	64.8	94.4	0.51	0.18
8488	**Han Trans Low Grade (VC-28)**	106	0.21	0.58	61.2	62.6	0.53	0.18
8489	**Han Trans High Grade (VC-29)**	106	25.21	22.00	70.0	97.3	0.54	0.19
8490	**Han Fresh Low Grade (VC-30)**	75	0.98	0.45	62.9	92.9	0.51	0.17
8491	**Han Fresh High Grade (VC-31)**	75	5.24	6.42	51.9	96.3	0.47	0.19

Continued/…

VARIABILITY COMPOSITE GRAVITY/LEACH TESTWORK (Cont'd)								
Test No	Comp Name (ID)	Grind P_{80} (µm)	Gold (g/t)		Gold Recovery (%)		Reagents (kg/t)	
			Calc'd Head	Assay Head	Grav	Grav + Leach	NaCN	Lime
8492	**Chegue Main Oxide High Grade (VC-33)**	106	4.23	4.00	45.3	95.7	0.41	0.95
8493	**Chegue Main Trans Low Grade (VC-34)**	106	0.67	0.86	33.3	91.1	0.36	0.70
8494	**Chegue Main Trans High Grade (VC-35)**	106	2.14	2.71	37.9	96.3	0.53	0.23
8495	**Chegue Main Fresh Low Grade (VC-36)**	75	0.54	0.49	31.8	85.1	0.51	0.27
8496	**Chegue Main Fresh High Grade (VC-37)**	75	2.83	2.21	64.9	97.5	0.60	0.29
8497	**Chegue South Trans Low Grade (VC-38)**	106	0.52	0.42	17.8	92.4	0.67	0.34
8498	**Chegue South Trans High Grade (VC-39)**	106	2.57	1.96	34.0	86.4	0.57	0.36
8499	**Chegue South Fresh Low Grade (VC-40)**	75	0.83	0.68	23.7	82.0	0.45	0.23
8500	**Chegue South Fresh High Grade (VC-41)**	75	2.42	3.50	40.9	93.0	0.45	0.23

Comments on the above data are as follows:

- The average gold extractions (gravity + CIL) for all oxide, transition and fresh ore types were 93.5%, 90.5% and 88.3%, respectively. The lowest gold extractions for each of the oxidation profiles were 84.2% (VC-1 Souwa Oxide Low Grade), 62.6% (VC-28 Han Trans Low Grade), and 77.6% (VC-11 Nopka Fresh High Grade).
- Calculated head grades were broadly consistent with assayed grades.
- The cyanide and lime consumption for all the tests were low to moderate. Cyanide consumptions are typically higher in CIL testing than when using direct leach methods.

17. THICKENING TESTWORK ON LEACH TAILINGS

The thickening testwork were performed on the leach slurry from the bulk leaches carried out on selected composites as outlined in Section 12.0 of this report.

The testwork was undertaken at Metso:Outotec's Perth laboratory. The vendor's testwork reports are included in Appendix XIII.

APPENDIX 6.4

CHEMCENTRE CYANIDE SPECIATION ASSAYS

ChemCentre
Scientific Services Division
Report of Examination

Resources and Chemistry Precinct
Cnr Manning Road and Townsing Drive
Bentley
WA 6102
T +61 8 9422 9800
F +61 8 9422 9801
www.chemcentre.wa.gov.au
ABN 40 991 885 705

Accredited for compliance with ISO/IEC 17025 - Testing, Accreditation No. 8

Purchase Order: 135322

ChemCentre Reference: 23S3795 R0

ALS Metallurgy Pty Ltd
6 MacAdam Place
Balcatta WA 6021

Attention: Marjan Nikakhtar

Report on: 4 samples received on 24/04/2024

LAB ID	Material	Client ID and Description
23S3795 / 001	solution	PW8108 Feed solution
23S3795 / 002	solution	PW8108 Final solution
23S3795 / 003	solution	PW8110 Feed solution
23S3795 / 004	solution	PW8110 Final solution

LAB ID			001	002	003	004
Client ID			PW8108 Feed solution	PW8108 Final solution	PW8110 Feed solution	PW8110 Final solution
Sampled						
Analyte	Method	Unit				
Cyanide, WAD	iCNW1WAAA	mg/L	150	0.06	37	0.04
Cyanide, free	iCNF1WATI	mg/L	150	<5	35	<5
Cyanide, total	iCNT1WTAA	mg/L	150	1.2	40	1.5
Cyanate	iCNO1WAIC	mg/L	230	370	330	370
Thiocyanate	iCNSP1WSLC	mg/L	3.4	2.9	<1.0	<1.0
Chromium Cyanide	iCNSP1WSLC	mg/L	<0.5	<0.5	<0.5	<0.5
Cobalt Cyanide	iCNSP1WSLC	mg/L	<0.1	<0.1	<0.1	<0.1
Copper Cyanide	iCNSP1WSLC	mg/L	2.0	<1.0	<1.0	<1.0
Gold Cyanide	iCNSP1WSLC	mg/L	<0.5	<0.5	<0.5	<0.5
Iron (II) Cyanide	iCNSP1WSLC	mg/L	<1.0	<1.0	<1.0	<1.0
Iron (III) Cyanide	iCNSP1WSLC	mg/L	<1.0	<1.0	<1.0	<1.0
Nickel Cyanide	iCNSP1WSLC	mg/L	<0.2	<0.2	<0.2	<0.2
Silver Cyanide	iCNSP1WSLC	mg/L	<1.0	<1.0	<1.0	<1.0
	iCNF1WATI		03/05/2024	03/05/2024	03/05/2024	03/05/2024
	iCNO1WAIC		26/04/2024	26/04/2024	26/04/2024	26/04/2024
	iCNSP1WSLC		07/05/2024	07/05/2024	07/05/2024	07/05/2024
	iCNT1WTAA		01/05/2024	02/05/2024	01/05/2024	02/05/2024
	iCNW1WAAA		01/05/2024	02/05/2024	01/05/2024	02/05/2024
	iCNF1WATI		Ambient	Ambient	Ambient	Ambient

Method	Method Description
iCNF1WATI	Free Cyanide by Silver Nitrate titration.

Method	Method Description
iCNO1WAIC	Cyanate in water by Ion Chromatography (In House).
iCNSP1WSLC	Cyanide metal species (as mg/L of the metal) by HPLC (In House)
iCNT1WTAA	Total cyanide by SFAA.
iCNW1WAAA	Weak acid dissociable (WAD) cyanide by SFAA.

These results apply only to the sample(s) as received. Unless arrangements are made to the contrary, these samples will be disposed of after 30 days of the issue of this report.
This report may only be reproduced in full.



Hanna May
Team Leader
SSD Inorganic Chemistry
9-May-2024

ChemCentre
Scientific Services Division
Report of Examination

Resources and Chemistry Precinct
Cnr Manning Road and Townsing Drive
Bentley
WA 6102
T +61 8 9422 9800
F +61 8 9422 9801
www.chemcentre.wa.gov.au
ABN 40 991 885 705

Accredited for compliance with ISO/IEC 17025 - Testing, Accreditation No. 8

Purchase Order: 135313

ChemCentre Reference: 23S3686 R0

ALS Metallurgy Pty Ltd
6 MacAdam Place
Balcatta WA 6021

Attention: Marjan Nikakhtar

Report on: 6 samples received on 17/04/2024

LAB ID	Material	Client ID and Description
23S3686 / 001	solution	PW8100 FEED
23S3686 / 002	solution	PW8100 DISCHARGE
23S3686 / 003	solution	PW8103 FEED
23S3686 / 004	solution	PW8103 DISCHARGE
23S3686 / 005	solution	PW8104 FEED
23S3686 / 006	solution	PW8104 DISCHARGE

LAB ID			001	002	003	004
Client ID^			PW8100 FEED	PW8100 DISCHARGE	PW8103 FEED	PW8103 DISCHARGE
Sampled^						
Analyte	**Method**	**Unit**				
Cyanide, free	iCNF1WATI	mg/L	71	<5	67	<5
Cyanide, WAD	iCNW1WAAA	mg/L	73	0.01	69	0.02
Cyanide, total	iCNT1WTAA	mg/L	78	0.18	73	1.5
Cyanate	iCNO1WAIC	mg/L	330	350	360	440
Thiocyanate	iCNSP1WSLC	mg/L	7.1	7.3	1.5	1.5
Chromium Cyanide	iCNSP1WSLC	mg/L	<0.5	<0.5	<0.5	<0.5
Cobalt Cyanide	iCNSP1WSLC	mg/L	<0.1	<0.1	<0.1	<0.1
Copper Cyanide	iCNSP1WSLC	mg/L	4.2	<0.1	2.7	<1.0
Gold Cyanide	iCNSP1WSLC	mg/L	<0.5	<0.5	<0.5	<0.5
Iron (II) Cyanide	iCNSP1WSLC	mg/L	1.0	<1.0	<1.0	<1.0
Iron (III) Cyanide	iCNSP1WSLC	mg/L	<1.0	<1.0	<1.0	<1.0
Nickel Cyanide	iCNSP1WSLC	mg/L	<0.2	<0.2	<0.2	<0.2
Silver Cyanide	iCNSP1WSLC	mg/L	<1.0	<1.0	<1.0	<1.0
Date Analysed	iCNF1WATI		24/4/2024	24/4/2024	24/4/2024	24/4/2024
	iCNO1WAIC		22/4/2024	22/4/2024	22/4/2024	22/4/2024
	iCNSP1WSLC		7/5/2024	7/5/2024	7/5/2024	7/5/2024
	iCNT1WTAA		24/4/2024	24/4/2024	24/4/2024	24/4/2024
	iCNW1WAAA		24/4/2024	24/4/2024	24/4/2024	24/4/2024
Sample Condition			Cold	Cold	Cold	Cold

LAB ID			005	006
Client ID^			PW8104 FEED	PW8104 DISCHARGE
Sampled^				
Analyte	**Method**	**Unit**		
Cyanide, free	iCNF1WATI	mg/L	88	<5

LAB ID			005	006
Client ID^			PW8104 FEED	PW8104 DISCHARGE
Sampled^				
Analyte	**Method**	**Unit**		
Cyanide, WAD	iCNW1WAAA	mg/L	87	0.04
Cyanide, total	iCNT1WTAA	mg/L	93	1.3
Cyanate	iCNO1WAIC	mg/L	370	470
Thiocyanate	iCNSP1WSLC	mg/L	2.2	2.5
Chromium Cyanide	iCNSP1WSLC	mg/L	<0.5	<0.5
Cobalt Cyanide	iCNSP1WSLC	mg/L	<0.1	<0.1
Copper Cyanide	iCNSP1WSLC	mg/L	1.4	<0.1
Gold Cyanide	iCNSP1WSLC	mg/L	<0.5	<0.5
Iron (II) Cyanide	iCNSP1WSLC	mg/L	<1.0	<1.0
Iron (III) Cyanide	iCNSP1WSLC	mg/L	<1.0	<1.0
Nickel Cyanide	iCNSP1WSLC	mg/L	<0.2	0.3
Silver Cyanide	iCNSP1WSLC	mg/L	<1.0	<1.0
Date Analysed	iCNF1WATI		24/4/2024	24/4/2024
	iCNO1WAIC		22/4/2024	22/4/2024
	iCNSP1WSLC		7/5/2024	7/5/2024
	iCNT1WTAA		24/4/2024	24/4/2024
	iCNW1WAAA		24/4/2024	24/4/2024
Sample Condition			Cold	Cold

Method	**Method Description**
iCNF1WATI	Free Cyanide by Silver Nitrate titration.
iCNO1WAIC	Cyanate in water by Ion Chromatography (In House).
iCNSP1WSLC	Cyanide metal species (as mg/L of the metal) by HPLC (In House)
iCNT1WTAA	Total cyanide by SFAA.
iCNW1WAAA	Weak acid dissociable (WAD) cyanide by SFAA.

These results apply only to the sample(s) as received. Unless arrangements are made to the contrary, these samples will be disposed of after 30 days of the issue of this report.
This report may only be reproduced in full.

*Analysis not covered by scope of ChemCentre's NATA accreditation.
^Information provided by client, unless otherwise stated.



Hanna May
Team Leader
SSD Inorganic Chemistry
9-May-2024

APPENDIX 6.5

METSO THICKENING TESTWORK REPORTS

Project Name:	Doropo Gold Project
Customer:	ALS Metallurgy on behalf of Centamin Mining
Contact Person(s):	Grant Harding
Email:	gharding@indmetops.com.au
Country:	Cote d'Ivoire
Place:	Bounkani Region
Application:	Detoxed Gold Leach Tailings
Product of Test:	• SOUWA Oxide Master Composite MC-1 • SOUWA Trans Master Composite MC-2 • SOUWA Fresh Master Composite MC-3 • NOKPA Trans Master Composite MC-5 • NOKPA Fresh Master Composite MC-6
Case. No.:	3456183
Case Manager:	Chris Greenwood
Test Case No.:	3456183
Test Performed by:	Giridhar Sankar & Sarah Sutherland
Date of Test:	2nd, 3rd, 6th and 8th - 10th May 2024
Location of Test:	Metso Perth Technology Centre Bayswater, Australia
Test Equipment:	99 mm Diameter High-Rate Thickener
Date of Test report:	22nd May 2024

Contents

1. General Information 3
2. Objective of Tests and Selected Test Equipment 4
3. Customer Process Data and Simplified Flowsheet 5
4. Description of Thickening Process 7
5. Test – Product Data 9
6. Explanation of Tests 12
7. Conclusion 44
8. Contact Information 45
9. Appendix 46

1. General Information

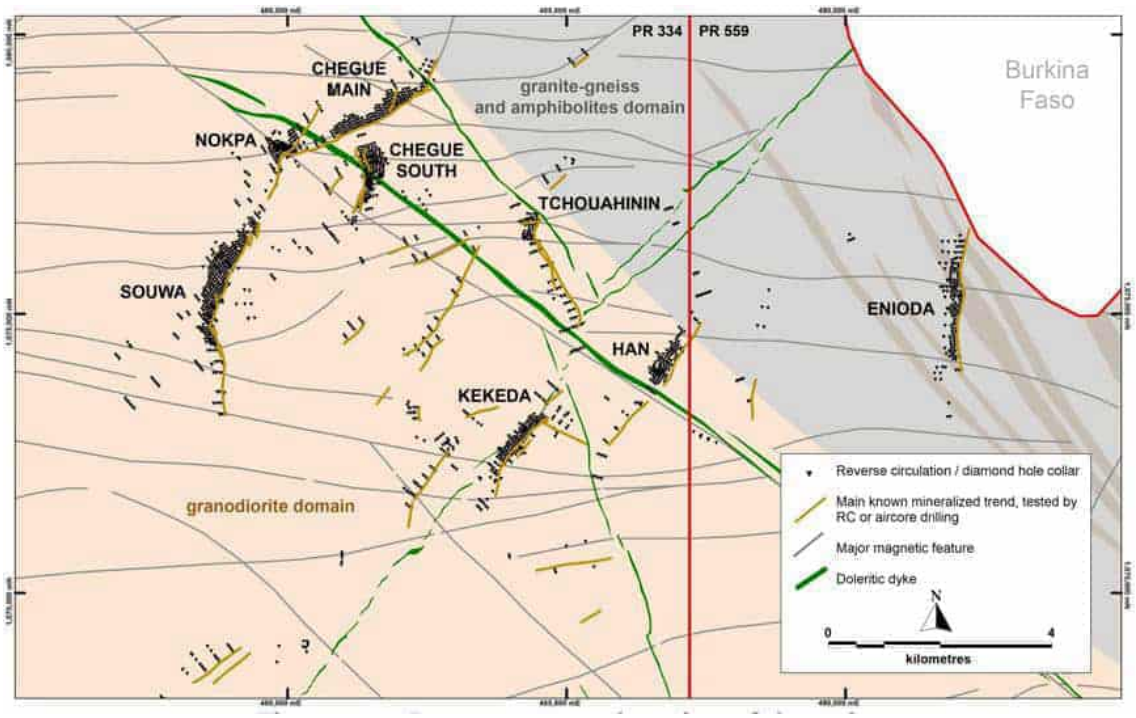
The Doropo Project consists of seven exploration permits, covering an area of approximately 1850km^2. Doropo is in the northeast of Cote dÍvoire, approximately 480km north of Abidjan.

The license holding covers thirteen gold deposits, named Souwa, Nokpa, Ghegue Main, Chegue South, Tchouahinin, Kekeda, Han, Enioda, Hinda, Nare, Kilosegui, Attire and Vako.

Approximately 85 % of the gold deposits are concentrated within a 7km radius, with Vako and Kilosegui deposits located within an approximate 15km and 30km radius, respectively.

Geologically, Doropo lies entirely within the Tonlite-Trondhjemite-Granodiorite domain, bounded on the eastern side by the Boromo-Batie greenstone belt, in Burkina Faso, and by the Tehini-Hounde greenstone belt on the west.

Centamin Mining began extensive exploration at Doropo in 2016, building to a Mineral Resource Estimate of 5Moz in 2021. As part of the PFS work programme, a maiden Mineral Reserve of 1.87 Moz was declared in the Probable Reserves category. The project is being progressed through to the DFS stage which is scheduled for completion in mid-2024.



Picture 1: *Centamin Resource area location of deposits*
Source: 2023-doropo-ni43-101-technical-report.pdf (centamin.com)

2. Objective of Tests and Selected Test Equipment

The purpose of the testing was to conduct thickener testwork on the Gold Tailings SOUWA Oxide Master Composite MC-1, SOUWA Trans Master Composite MC-2, SOUWA Fresh Master Composite MC-3, NOKPA Trans Master Composite MC-5 and NOKPA Fresh Master Composite MC-6 samples, with the objectives to determine:

- flocculant type and dose
- overflow clarity
- underflow density
- underflow yield stress

A 99 mm Diameter High-Rate Thickener test rig was used in this test campaign.



Picture 2: *99 mm Diameter High-Rate Thickener*

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

3. Customer Process Data and Simplified Flowsheet

The proposed process plant design for the Doropo Gold Project is based on a robust metallurgical flowsheet designed for optimum recovery with minimum operating costs. The flowsheet (Picture 3) is based upon unit operations that are well proven in industry.

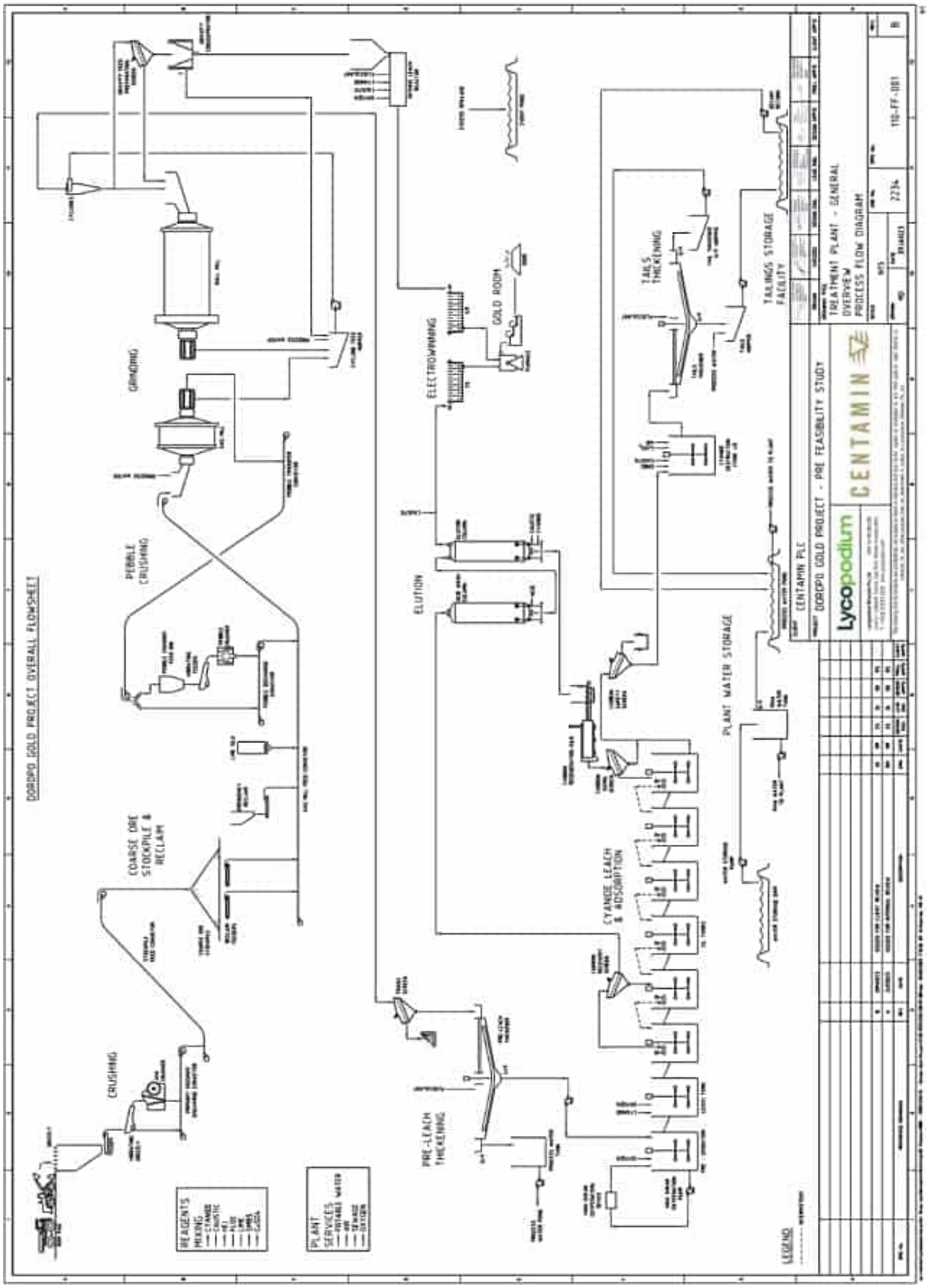
The Doropo gold plant will process a range of material types from the nine Doropo pits included in the current LOM (oxide, transition and primary ore) of variable material characteristics and head grades. It is intended that the process plant will operate with a SABC comminution circuit configuration. All ore types contain significant quantities of gravity recoverable (‘free’) gold.

The plant design has been based on a nominal capacity of 4.0 Mtpa of primary mineralised material. Over the life of mine, the plant will be fed with approximately 13% oxide, 33% transition and 54% primary. The ore will come from nine pits with the two main being Souwa (28% of LOM Feed) and Kilosegui (30% of LOM Feed). The most abundant ore lithology is granodiorite. When processing predominantly oxide ore in the early years of the mine life, it is anticipated that the plant throughput will be significantly greater than the nominal 4.0 Mtpa.

The ROM ore fed to a jaw crusher to produce a coarse crushed product. A SABC comminution circuit comprising a SAG mill in closed circuit with a pebble crusher and a ball mill in closed circuit with hydrocyclones to produce an 80% passing (P80) 75 µm grind size (primary ore) and 106 µm oxide and transition ores. The cyclone overflow slurry will gravitate via trash screening to a pre-leach thickener and the trash screen is employed to remove any trash before the pre-leach thickener. Pre-leach thickening of the milled slurry will increase the slurry density feeding the carbon in leach (CIL) circuit to minimise slurry tank volume requirements and reduce overall reagent consumption.

Pre-oxidation and Carbon in Leach (CIL) circuit consisting of a pre-oxidation tank, followed by a leach tank and six CIL tanks to provide 36 hours of leaching residence time when processing primary ore at design plant throughput. Sodium cyanide solution will be added to the first leach tank slurry to start the gold leaching process in the presence of the elevated dissolved oxygen levels. An acid wash column to remove inorganic contaminants from the carbon with hydrochloric acid. In addition, a split AARL elution circuit, electrowinning and gold smelting employed to recover gold from the loaded carbon to produce doré.

The Tailings treatment incorporates cyanide destruction using the INCO SO2 / air process (sodium metabisulphite / oxygen) and the tailings pumped to the TSF.



Picture 3: *Doropo Gold Proposed Flowsheet*
Source: [2023-doropo-ni43-101-technical-report.pdf (centamin.com)]

4. Description of Thickening Process

4.1. Sample Characterisation

The solids from the slurry samples and the underflow samples that were generated from each thickening test were dried overnight in an oven at 105 °C.

The suspended solids in the overflow samples collected from each test were determined by filtering 100 mL of overflow liquor through pre-weighed Whatman GF/C filter discs using a vacuum filtration unit. The collected overflow solids were also washed thoroughly with Perth tap water prior to oven drying at approximately 105 °C. The filter discs were then re-weighed to determine the suspended solids content.

Representative samples of the feed slurries were submitted to CSIRO for LASER sizing. The results, in graphical form, are shown in Appendices 1, 2, 3, 4 and 5.

4.2. Flocculant Selection

Based on static cylinder tests, the flocculant selected for the dynamic testwork of the gold tailings samples were Magnafloc 155.

Results can be seen in Section 6.1.

A range of BASF products were used for the flocculant selection testwork. This should not be viewed as an endorsement of these particular suppliers and other equivalent products may be used.

The flocculants used for the screening were Magnafloc 333 (M 333), Magnafloc 10 (M 10), Magnafloc 155 (M 155), Magnafloc 5250 (M 5250) and Rheomax R1030. In addition, the sample NOKPA Trans Master Composite MC-5 employed coagulant screening with a coagulant Magnafloc 1425 (M 1425) followed by a BASF flocculant Magnafloc 155 (M 155).

Further flocculant screening may achieve better results.

4.3. Feed Dilution Tests

Dilution tests were conducted using Metso's optimum dilution test method. Metso's optimum dilution method determines the maximum feed solids concentration for efficient flocculation with Metso's Feedwell.

Full dilution data for these tests can be found in Part B of the report.

4.4. General Batch Dynamic Thickening Test Method

The samples were dynamically thickened in the 99 mm rig.

For each test, stock slurry was drawn from an agitated vessel by a variable speed peristaltic pump and diluted as required 'on the fly' with Perth tap water using a second pump.

Flocculant was added at a set flow rate but at a range of concentrations to deliver the required dosage for each test. Stock flocculant solution was hydrolysed in Perth tap water to 0.25 % w/v (2.5 g/L), and then diluted as required. The diluted flocculant was dosed half into the diluent line and half into the diluted feed line further downstream.

With the tailings samples, the flocculated solids bed was raked continuously at 2 r/min with two rotating pickets, in conjunction with two stationary pickets, to aid de-watering. Overflow samples were collected at a bed height of 160 mm, just at the opening of the feed well discharge. Underflow samples were taken at a bed height of 240 mm via a positive displacement pump.

Overflow samples were analysed to determine the suspended solids content as described above in Section 4.1.

All rheological measurements were carried out using a Thermo Haake VT550 rheometer and an “OK600” 4 blade vane. The method measures shear stress versus time with the peak of this curve equating to the yield stress. A constant shear rate of 0.1 sec-1 was used. For each dynamic test underflow sample, a simple un-sheared vane yield stress was measured.

The underflow yield stress is measured to generate data for use in the sizing of the thickener rake drive, it is not intended to be used for any other purpose.

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

5. Test – Product Data

ALS Metallurgy on behalf of Centamin Mining provided five buckets of gold tailings samples for thickening test work.

Buckets of slurry were delivered to Metso Perth Technology Centre in Bayswater, and all samples underwent dynamic testing using Perth tap water due to the limited availability of site water.

All samples were tested at ambient conditions.

5.1. SOUWA Oxide Master Composite MC-1

Kind of process/product

- Product: Oxide Master Composite MC-1

Slurry as tested – Gold Tailings

- Temperature: 25 ^{o}C
- Feedwell density: 1.1274 g/mL
- Liquor density: 0.9959 g/mL (measured)
- Diluent density: (Perth Tap water) 0.9959 g/mL (measured)
- Solids SG: 2.67 t/m^3 (measured)
- pH: 8.6
- Sizing p80*: 126.4 µm (measured)
- Solids phase Composition: Mineral Slurry
- Liquid phase Composition: Water (Perth tap water)
- Corrosive Elements: Nil

5.2. SOUWA Trans Master Composite MC-2

Kind of process/product

- Product: Trans Master Composite MC-2

Slurry as tested – Gold Tailings

- Temperature: 25 ºC
- Feedwell density: 1.1263 g/mL
- Liquor density: 0.9959 g/mL (measured)
- Diluent density: (Perth Tap water) 0.9959 g/mL (measured)
- Solids SG: 2.77 t/m^3 (measured)
- pH: 9.1
- Sizing p80*: 91.6 µm (measured)
- Solids phase
  Composition: Mineral Slurry
- Liquid phase
  Composition: Water (Perth tap water)
- Corrosive Elements: Nil

5.3. SOUWA Fresh Master Composite MC-3

Kind of process/product

- Product: Fresh Master Composite MC-3

Slurry as tested – Gold Tailings

- Temperature: 25 ºC
- Feedwell density: 1.1263 g/mL
- Liquor density: 0.9959 g/mL (measured)
- Diluent density: (Perth Tap water) 0.9959 g/mL (measured)
- Solids SG: 2.78 t/m^3 (measured)
- pH: 9.1
- Sizing p80*: 75.2 µm (measured)
- Solids phase
  Composition: Mineral Slurry
- Liquid phase
  Composition: Water (Perth tap water)
- Corrosive Elements: Nil

5.4. NOKPA Trans Master Composite MC-5

Kind of process/product

- Product: Trans Master Composite MC-5

Slurry as tested – Gold Tailings

- Temperature: 25 °C
- Feedwell density: 1.1232 g/mL
- Liquor density: 0.9959 g/mL (measured)
- Diluent density: (Perth Tap water) 0.9959 g/mL (measured)
- Solids SG: 2.73 t/m^3 (measured)
- pH: 9.4
- Sizing p80*: 157.6 µm (measured)
- Solids phase
  Composition: Mineral Slurry
- Liquid phase
  Composition: Water (Perth tap water)
- Corrosive Elements: Nil

5.5. NOKPA Fresh Master Composite MC-6

Kind of process/product

- Product: Fresh Master Composite MC-6

Slurry as tested – Gold Tailings

- Temperature: 25 °C
- Feedwell density: 1.0777 g/mL
- Liquor density: 0.9959 g/mL (measured)
- Diluent density: (Perth Tap water) 0.9959 g/mL (measured)
- Solids SG: 2.75 t/m^3 (measured)
- pH: 8.9
- Sizing p80*: 95.8 µm (measured)
- Solids phase
  Composition: Mineral Slurry
- Liquid phase
  Composition: Water (Perth tap water)
- Corrosive Elements: Nil

**The particle size distribution via laser sizing should be considered as indicative only. There are numerous factors such as slurry viscosity, particle size, shape and specific gravity which can impact on this PSD technique. Where these factors are likely to be significant, then other sizing techniques should be considered.*

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

6. Explanation of Tests

6.1. SOUWA Oxide Master Composite MC-1

6.1.1. Flocculant Screening

The BASF product Magnafloc 155 was selected as flocculant for dynamic testing.

Static cylinder tests were conducted with Magnafloc 333 (M 333), Magnafloc 10 (M 10), Magnafloc 155 (M 155), Magnafloc 5250 (M 5250) and Rheomax R1030. at 10 % slurry concentration in a 500mL static cylinder to obtain an optimal slurry concentration for the dynamic runs.

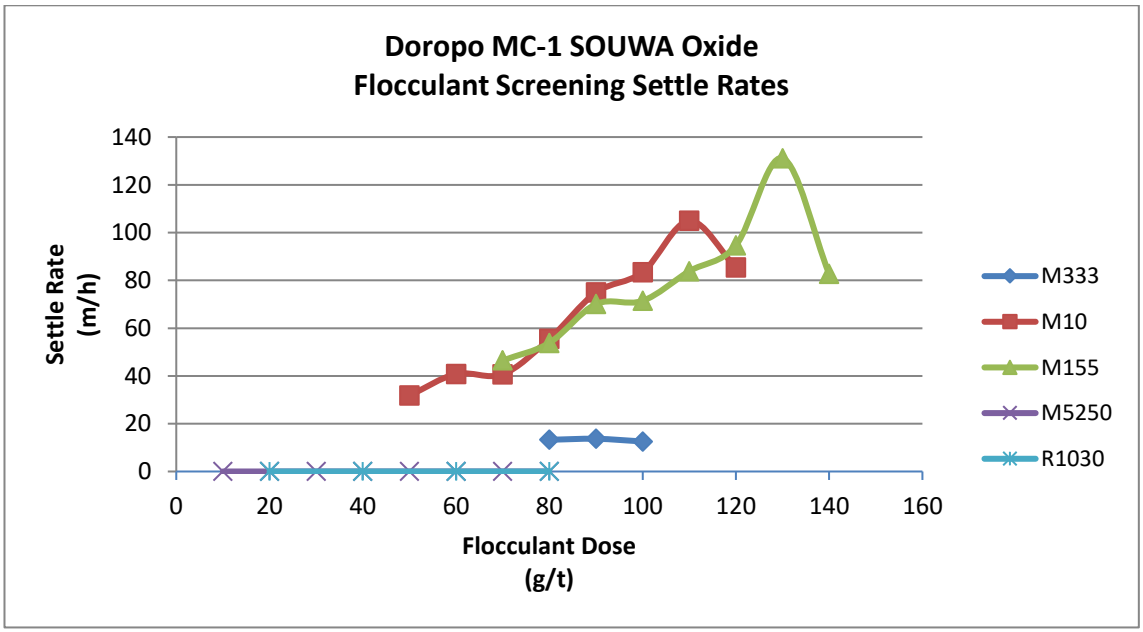


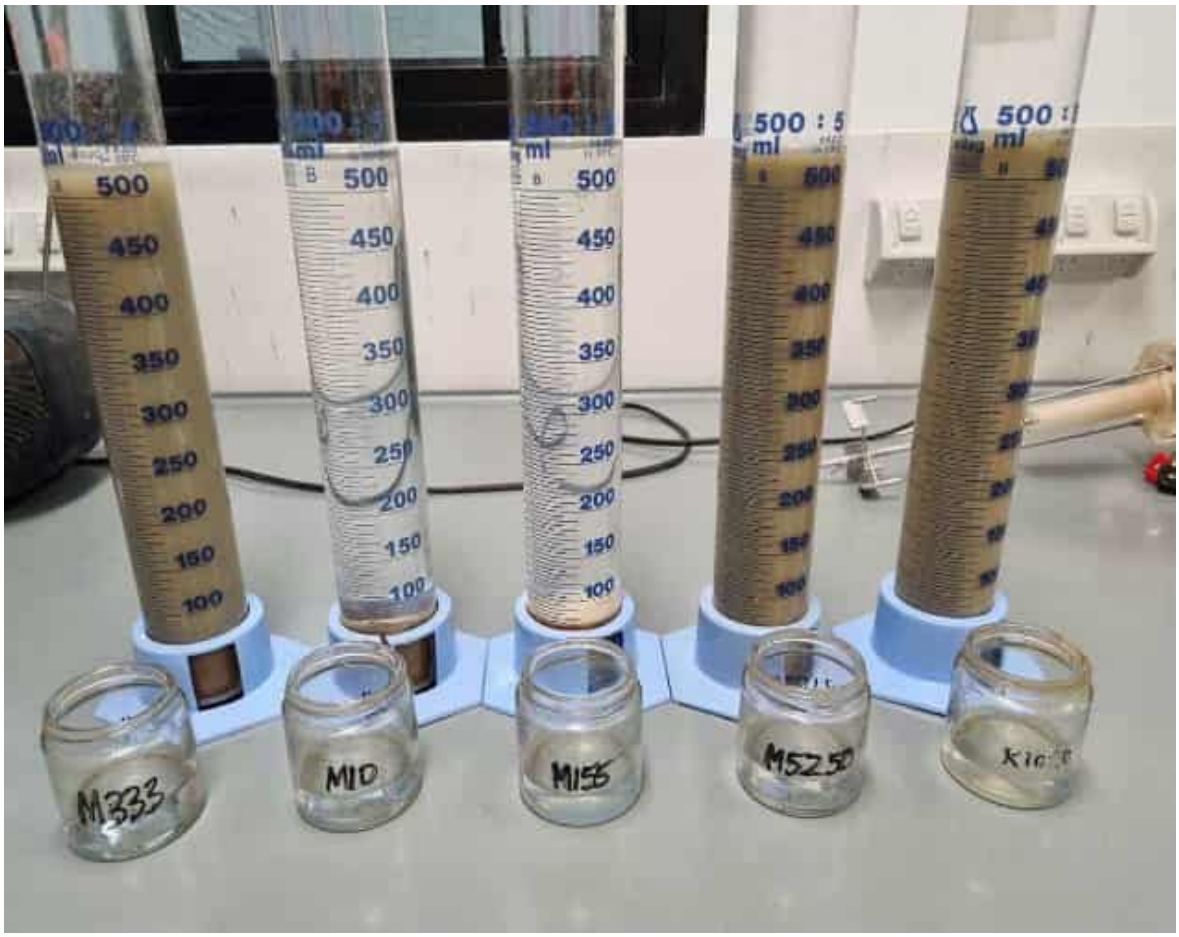
Chart 1: *Flocculant screening settling rates of the Oxide Master Composite MC-1 sample in 500 mL static cylinder test*

Chart 1 depicts the flocculant screening rates of the Oxide Master Composite MC-1 sample in a 500 mL static cylinder test. It was observed that the flocculant Magnafloc 155 produced fast settling rates, robust aggregates and good overflow clarity compared to the other flocculants (M 10, M 333, M 5250 and R 1030).

There was no flocculation observed when using the flocculants M 5250 and R 1030, and the particle settling rate was very slow with these flocculants.

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

Picture 4 shows the flocculant screening of SOUWA Oxide Master Composite MC-1 sample with flocculant M 155.



Picture 4: *Flocculant screening of SOUWA Oxide Master Composite MC-1 sample with M 155*

6.1.2. Dynamic Thickening Tests

Doropo Gold Project MC-1 Dynamic Thickening Testwork Results							
Run	Feed		Flocculant		Underflow		Overflow
	Flux (t/(m²·h))	Liquor RR (m/h)	Type	Dose (g/t)	Meas. Solids (% (w/w))	YS (Pa)	Solids (mg/L)
1	0.50	2.46	M155	120	50.1	69	190
2	0.50	2.46	M155	100	54.2	37	530
3	0.50	2.46	M155	80	52.4	29	410
4	0.75	3.70	M155	120	55.0	243	1060
5	1.00	4.93	M155	120	53.9	125	1100
6	0.75	3.70	M155	80	53.5	62	15770

Table 1: *Dynamic thickening testwork results of the Oxide Master Composite MC-1 sample*

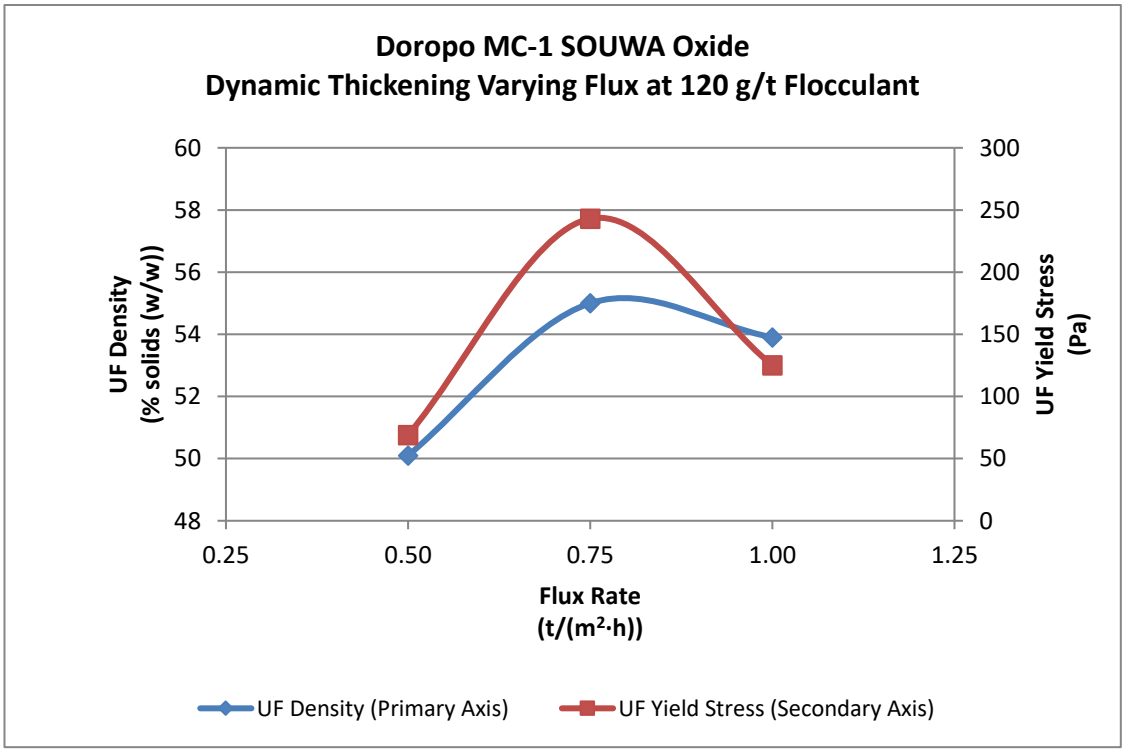


Chart 2: *Dynamic thickening varying flux at 120 g/t flocculant*

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

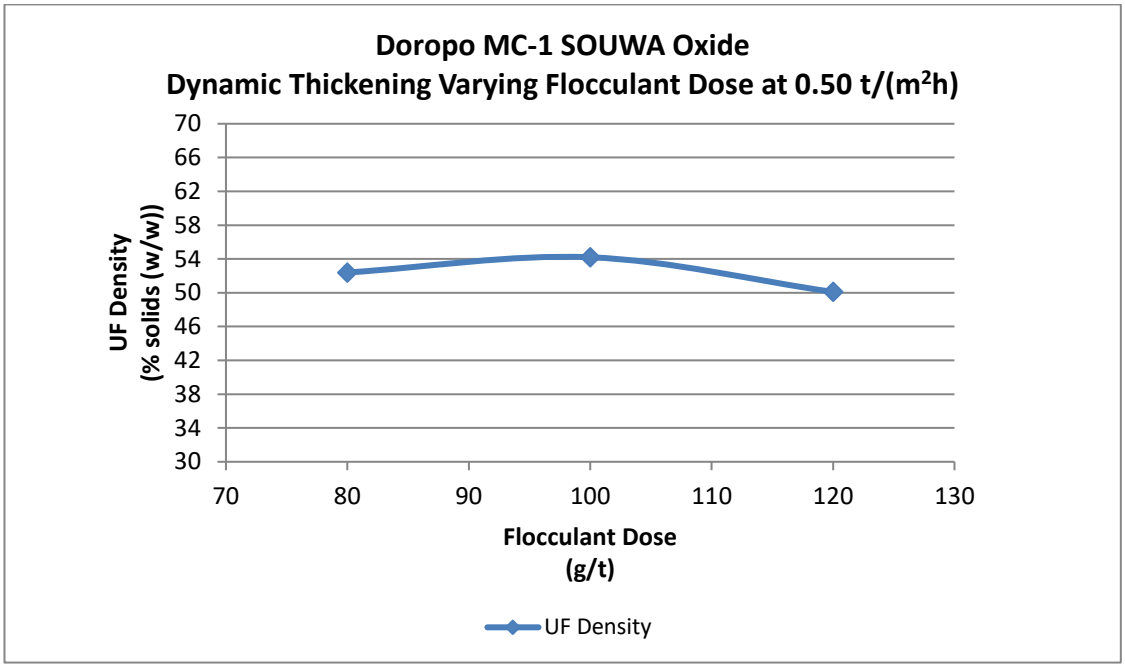


Chart 3: *Dynamic thickening varying flocculant dose at 0.50 t/(m²h)*

Table 1 and chart 2 demonstrate the results of the dynamic thickening of the Oxide Master Composite MC-1 tailings sample.

Chart 3 depicts the results of the dynamic thickening varying flocculant dose at 0.50 t/(m²h) for the MC-1 tailings sample.

The first run employed a flux rate of 0.50 t/(m²h) utilising a flocculant dose of 120 g/t of BASF product Magnafloc 155. This achieved an underflow density of 50.1 % solids (w/w) with an accompanying yield stress measuring 69 Pa. The overflow measured 190 mg/L of total suspended solids.

The second run was conducted at the same conditions as the first run, though the flocculant dose was decreased from 120 g/t to 100 g/t. This resulted in the increase of underflow density from 50.1 % to 54.2 % solids (w/w) and the yield stress measured 37 Pa. The overflow measured 530 mg/L of total suspended solids.

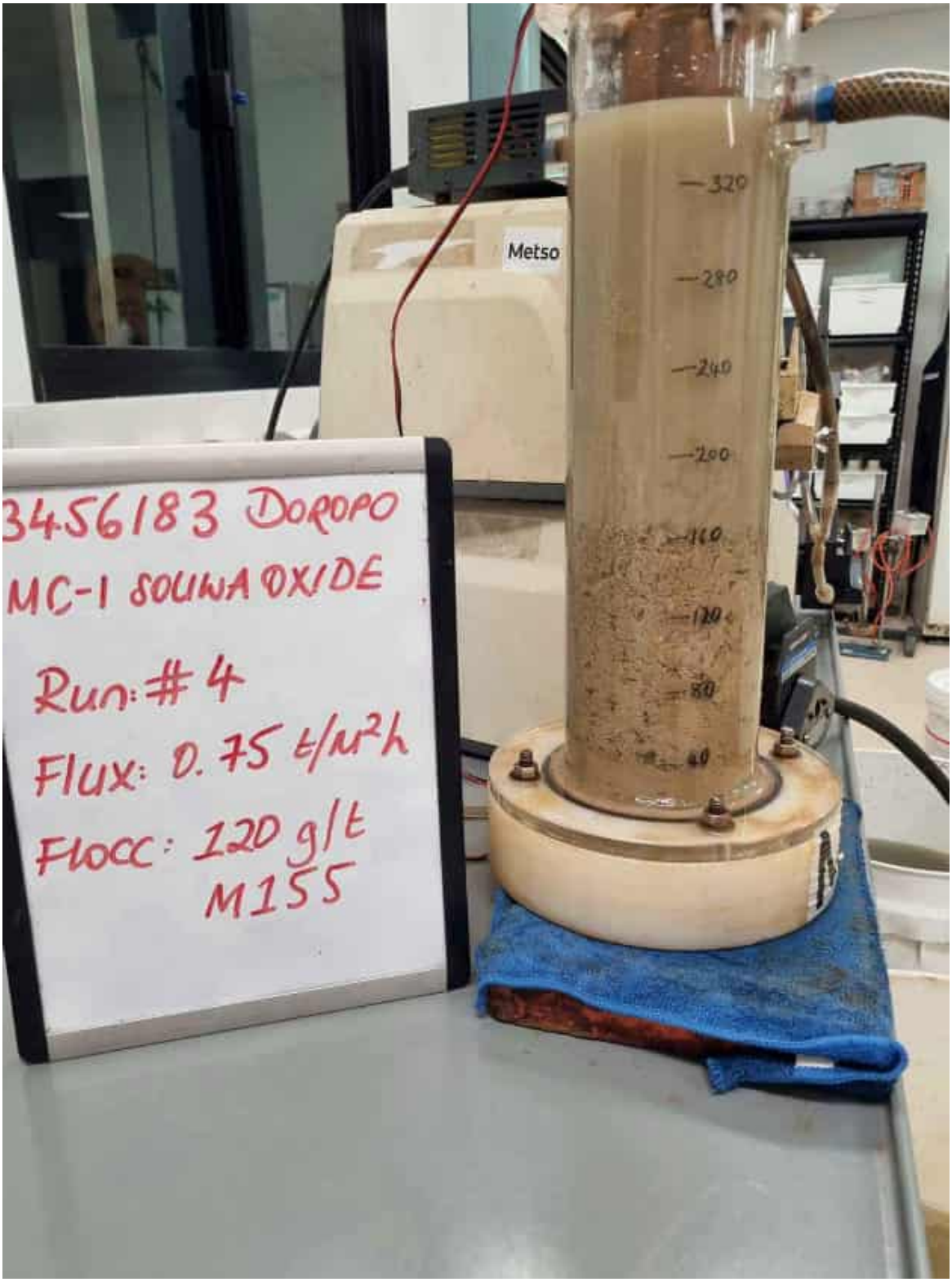
The third run was conducted at the same conditions as the second run, though the flocculant dose was further decreased from 100 g/t to 80 g/t. This resulted in the decrease of underflow density from 54.2 % to 52.4 % solids (w/w) and the yield stress measured 29 Pa. The overflow measured 410 mg/L of total suspended solids.

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

The fourth run was conducted at the same conditions as the first run, though the flux rate was increased from 0.5 t/(m^2h) to 0.75 t/(m^2h). This resulted in the increase of underflow density from 50.1 % to 55.0 % solids (w/w) and the yield stress measured 243 Pa. The overflow measured 1,060 mg/L of total suspended solids.

The fifth run was conducted at the same conditions as the fourth run, though the flux rate was further increased from 0.75 t/(m^2h) to 1.0 t/(m^2h). This resulted in the decrease of underflow density from 55.0 % to 53.9 % solids (w/w) and the yield stress from 243 Pa to 125 Pa. The overflow measured 1,100 mg/L of total suspended solids.

The sixth run was conducted at the same conditions as the fourth run, though the flocculant dose was decreased from 120 g/t to 80 g/t. This resulted in the decrease of underflow density from 55.0 % to 53.5 % solids (w/w) and the yield stress measured 62 Pa. The overflow measured 15,770 mg/L of total suspended solids.



Picture 5: Dynamic run 4 of *SOUWA Oxide Master Composite MC-1 sample with flocculant M 155*

6.2. SOUWA Trans Master Composite MC-2

6.2.1. Flocculant Screening

The BASF product Magnafloc 155 was selected as flocculant for dynamic testing.

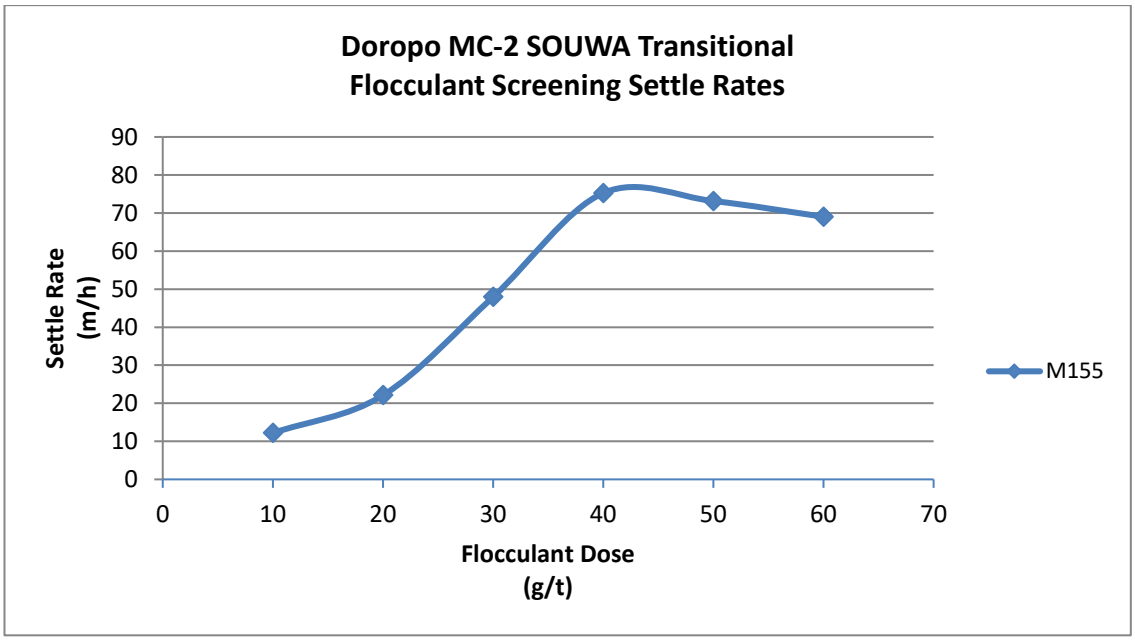


Chart 4: *Flocculant screening settling rates of the Trans Master Composite MC-2 sample in 500 mL static cylinder test*

Chart 4 depicts the flocculant screening rates of the Trans Master Composite MC-2 sample in a 500 mL static cylinder test.

It was observed that the flocculant Magnafloc 155 produced fast settling rates, robust aggregates and good overflow clarity.

Picture 6 shows the flocculant screening of SOUWA Trans Master Composite MC-2 sample with flocculant M 155.



Picture 6: *Flocculant screening of SOUWA Trans Master Composite MC-2 sample with M 155*

6.2.2. Dynamic Thickening Tests

Doropo Gold Project MC-2 Dynamic Thickening Testwork Results							
Run	Feed		Flocculant		Underflow		Overflow
	Flux (t/(m²·h))	Liquor RR (m/h)	Type	Dose (g/t)	Meas. Solids (% (w/w))	YS (Pa)	Solids (mg/L)
1	0.50	2.47	M155	40	63.7	58	<100
2	0.50	2.47	M155	30	61.8	54	<100
3	0.50	2.47	M155	35	63.0	59	<100
4	0.75	3.70	M155	40	59.6	30	<100
5	1.00	4.93	M155	40	59.5	38	<100

Table 2: *Dynamic thickening testwork results of the Trans Master Composite MC-2 sample*

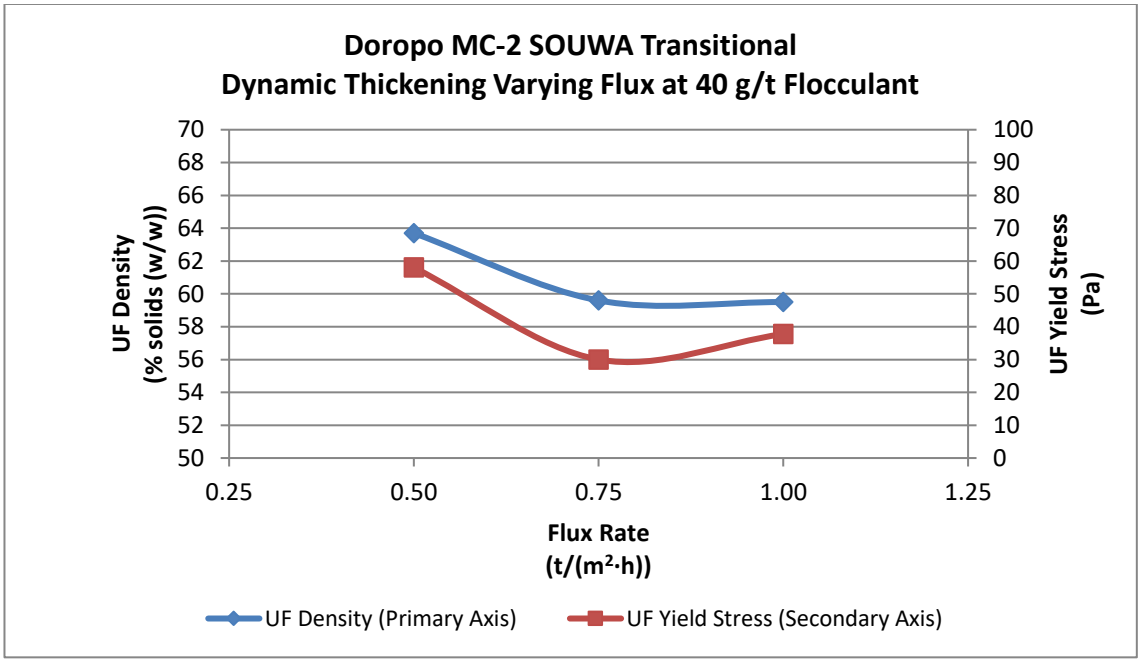


Chart 5: *Dynamic thickening varying flux at 40 g/t flocculant*

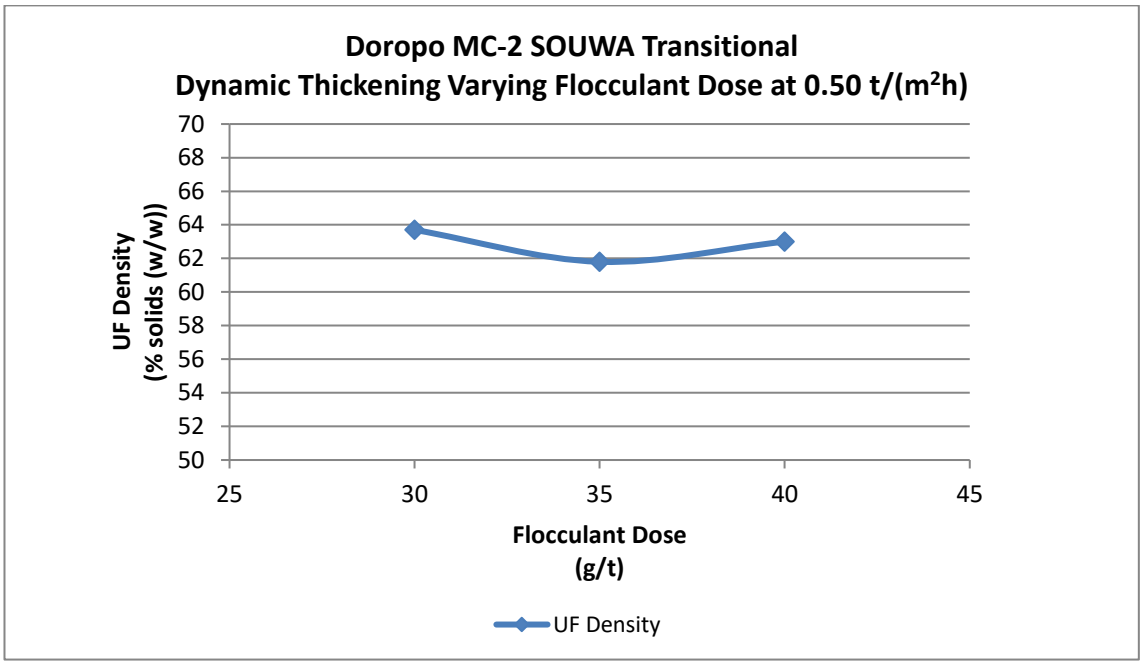


Chart 6: *Dynamic thickening varying flocculant dose at 0.50 t/(m²h)*

Table 2 and chart 5 demonstrate the results of the dynamic thickening of the Trans Master Composite MC-2 tailings sample.

Chart 6 depicts the results of the dynamic thickening varying flocculant dose at 0.50 t/(m²h) for the MC-2 tailings sample.

The first run employed a flux rate of 0.50 t/(m²h) utilising a flocculant dose of 40 g/t of flocculant M 155. This achieved an underflow density of 63.7 % solids (w/w) with an accompanying yield stress measuring 58 Pa. This run resulted in a clean supernatant overflow measuring less than 100mg/l of total suspended solids.

The second run was conducted at the same conditions as the first run, though the flocculant dose was decreased from 40 g/t to 30 g/t. This resulted in the decrease of underflow density from 63.7 % to 61.8 % solids (w/w) and the yield stress from 58 Pa to 54 Pa. The overflow measured less than 100mg/l of total suspended solids.

The third run was conducted at the same conditions as the first run, though the flocculant dose was decreased from 40 g/t to 35 g/t. This resulted in the decrease of underflow density from 63.7 % to 63.0 % solids (w/w) and the yield stress measured 59 Pa. The overflow measured less than 100mg/l of total suspended solids.

The fourth run was conducted at the same conditions as the first run, though the flux rate was increased from 0.5 t/(m^2h) to 0.75 t/(m^2h). This resulted in the decrease of underflow density from 63.7 % to 59.6 % solids (w/w) and the yield stress from 58 Pa to 30 Pa. This run resulted in a clean supernatant overflow measuring less than 100mg/l of total suspended solids.

The fifth run was conducted at the same conditions as the fourth run, though the flux rate was increased from 0.75 t/(m^2h) to 1.0 t/(m^2h). This resulted in almost similar underflow density of 59.5 % solids (w/w) compared to the fourth run and the yield stress measured 38 Pa. This run resulted in a clean supernatant overflow measuring less than 100mg/l of total suspended solids.



Picture 7: *Dynamic run 5 of SOUWA Trans Master Composite MC-2 sample with M 155*

6.3. SOUWA Fresh Master Composite MC-3

6.3.1. Flocculant Screening

The BASF product Magnafloc 155 was selected as flocculant for dynamic testing.

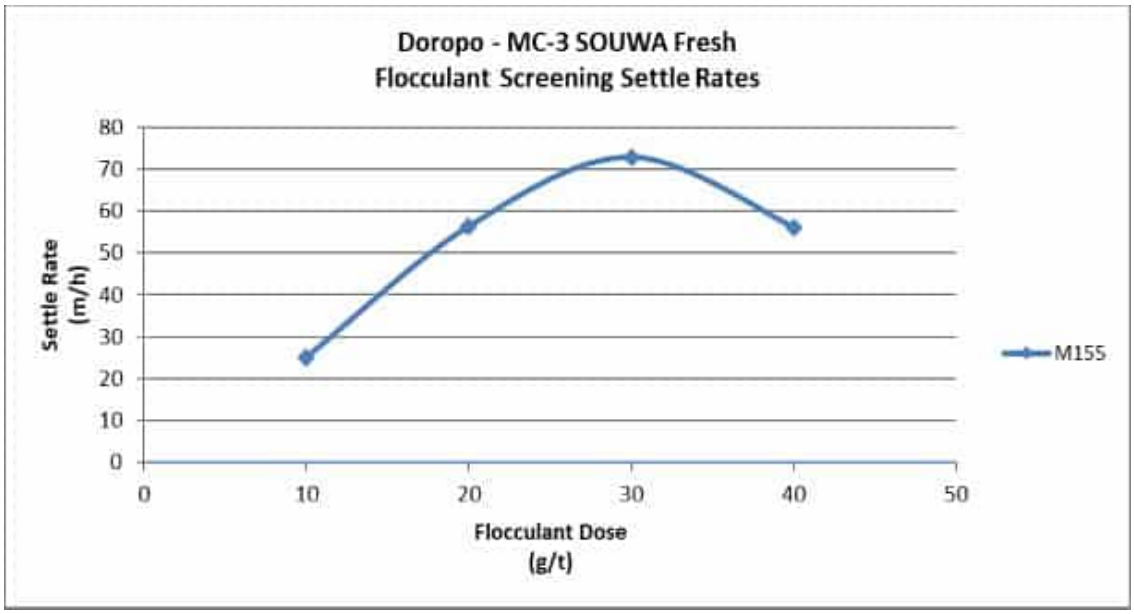
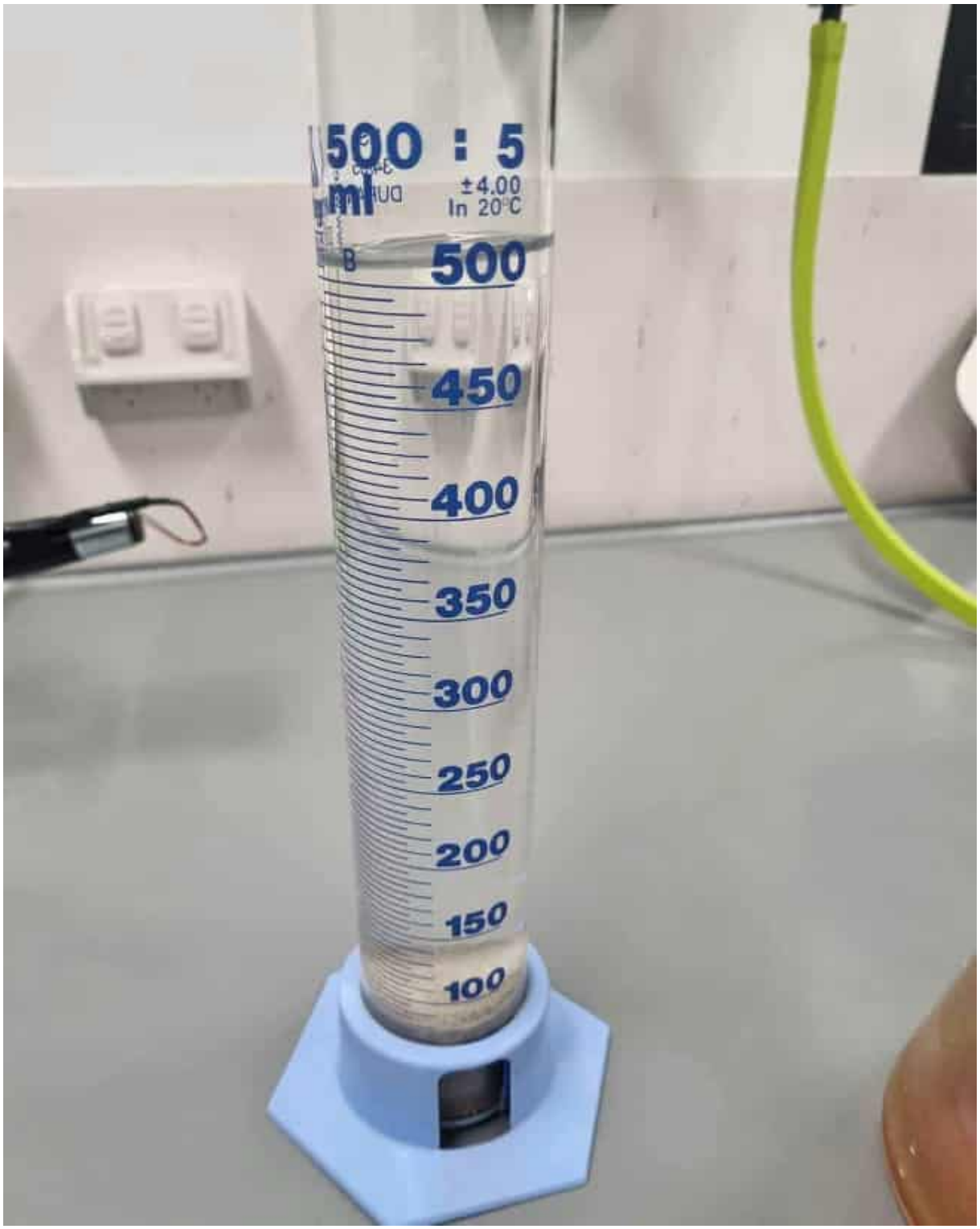


Chart 7: *Flocculant screening settling rates of the Fresh Master Composite MC-3 sample in 500 mL static cylinder test*

Chart 7 depicts the flocculant screening rates of the Fresh Master Composite MC-3 sample in a 500 mL static cylinder test.

It was observed that the flocculant Magnafloc 155 produced fast settling rates, robust aggregates and good overflow clarity.

Picture 8 shows the flocculant screening of SOUWA Fresh Master Composite MC-3 sample with flocculant M 155.



Picture 8: *Flocculant screening of SOUWA Fresh Master Composite MC-3 sample with M 155*

6.3.2. Dynamic Thickening Tests

Doropo Gold Project MC-3 Dynamic Thickening Testwork Results							
Run	Feed		Flocculant		Underflow		Overflow
	Flux (t/(m²·h))	Liquor RR (m/h)	Type	Dose (g/t)	Meas. Solids (% (w/w))	YS (Pa)	Solids (mg/L)
1	0.50	2.47	M155	30	65.5	64	<100
2	0.50	2.47	M155	20	65.7	56	<100
3	0.50	2.47	M155	10	67.2	64	<100
4	0.75	3.70	M155	10	63.2	60	<100
5	1.00	4.93	M155	10	62.3	43	<100

Table 3: *Dynamic thickening testwork results of the Fresh Master Composite MC-3 sample*

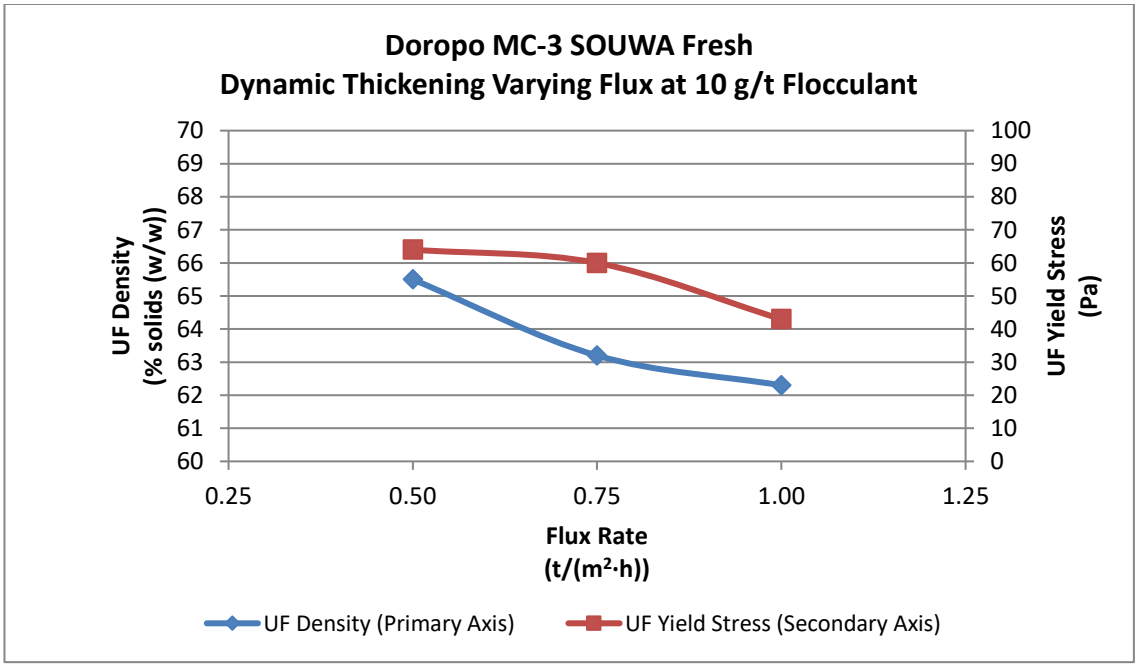


Chart 8: *Dynamic thickening varying flux at 10 g/t flocculant*

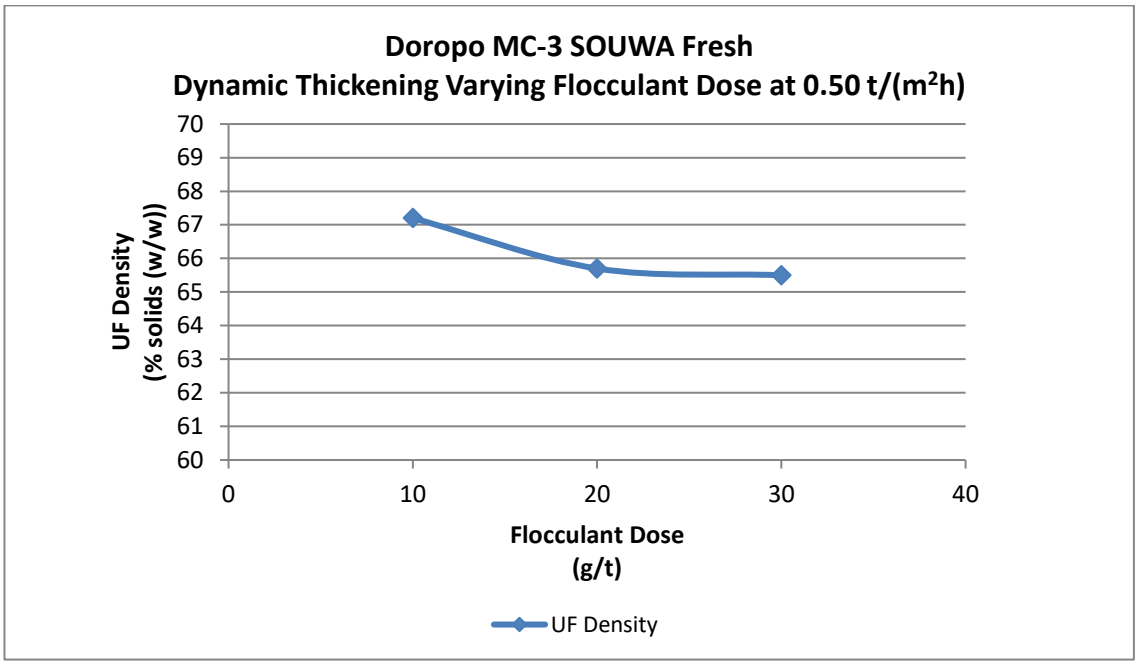


Chart 9: *Dynamic thickening varying flocculant dose at 0.50 t/(m²h)*

Table 3 and chart 8 demonstrate the results of the dynamic thickening of the Fresh Master Composite MC-3 tailings sample.

Chart 9 depicts the results of the dynamic thickening varying flocculant dose at 0.50 t/(m²h) for the MC-3 tailings sample.

The first run employed a flux rate of 0.50 t/(m²h) utilising a flocculant dose of 30 g/t of flocculant M 155. This achieved an underflow density of 65.5 % solids (w/w) with an accompanying yield stress measuring 64 Pa. This run resulted in a clean supernatant overflow measuring less than 100mg/l of total suspended solids.

The second run was conducted at the same conditions as the first run, though the flocculant dose was decreased from 30 g/t to 20 g/t. This resulted in the slight increase of underflow density from 65.5 % to 65.7 % solids (w/w) and the yield stress from 64 Pa to 56 Pa. The overflow measured less than 100mg/l of total suspended solids.

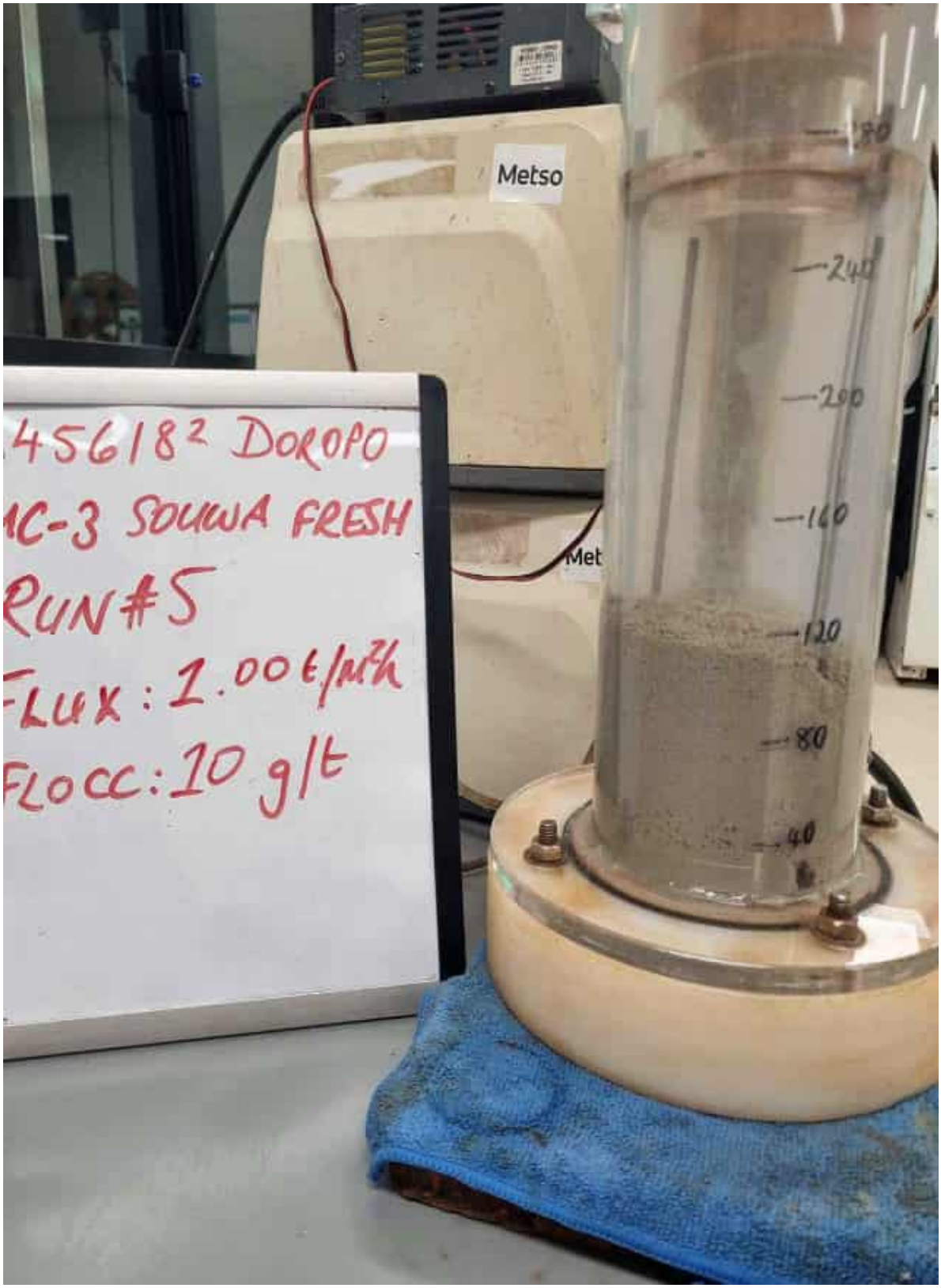
The third run was conducted at the same conditions as the second run, though the flocculant dose was further decreased from 20 g/t to 10 g/t. This resulted in the increase of underflow density from 65.7 % to 67.2 % solids (w/w) and the yield stress from 56 Pa to 64 Pa. The overflow measured less than 100mg/l of total suspended solids.

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

The fourth run was conducted at the same conditions as the third run, though the flux rate was increased from 0.5 t/(m^2h) to 0.75 t/(m^2h). This resulted in the decrease of underflow density from 67.2 % to 63.2 % solids (w/w) and the yield stress from 64 Pa to 60 Pa. This run resulted in a clean supernatant overflow measuring less than 100mg/l of total suspended solids.

The fifth run was conducted at the same conditions as the fourth run, though the flux rate was further increased from 0.75 t/(m^2h) to 1.0 t/(m^2h). This resulted in decrease of underflow density from 63.2 % to 62.3 % solids (w/w) and the yield stress from 60 Pa to 43 Pa. This run resulted in a clean supernatant overflow measuring less than 100mg/l of total suspended solids.

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system



Picture 9: Dynamic run 5 of *SOUWA Fresh Master Composite MC-3 sample with M 155*

6.4. NOKPA Trans Master Composite MC-5

6.4.1. Flocculant Screening

The BASF product Magnafloc 155 was selected as flocculant and BASF product M 1425 was selected as coagulant for dynamic testing.

The sample employed screening with coagulant M 1425 followed by flocculant M 155 for good supernatant overflow clarity.

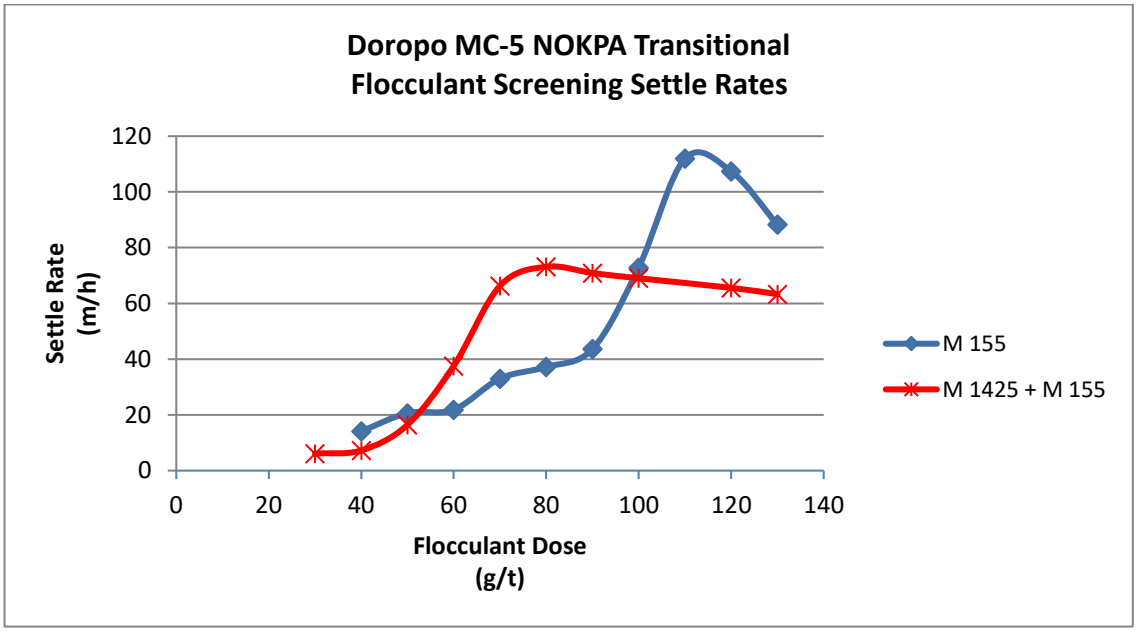
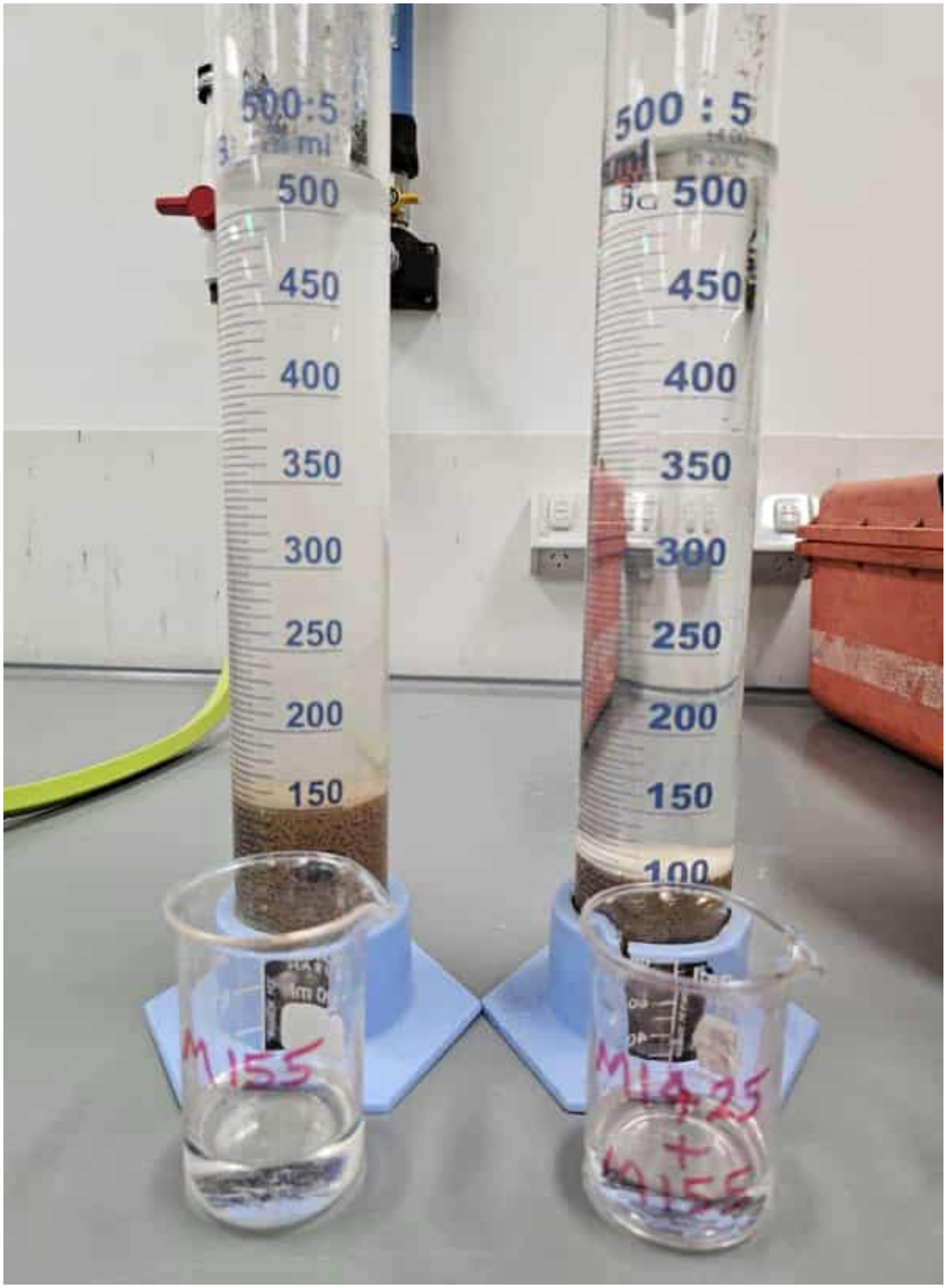


Chart 10: *Flocculant screening settling rates of the Trans Master Composite MC-5 sample in 500 mL static cylinder test*

Chart 10 depicts the flocculant screening rates of the Trans Master Composite MC-5 sample in a 500 mL static cylinder test.

Using the flocculant M 155 alone resulted in a poor overflow clarity. However, it was observed that when the coagulant M 1425 was used in conjunction with the flocculant M 155, it produced fast settling rates, robust aggregates and good supernatant overflow clarity. This performance was notably better compared to the sample that used only the flocculant M 155.

Picture 10 shows the flocculant screening of Trans Master Composite MC-5 sample with flocculant M 155 alone, as well as using coagulant M 1425 followed by flocculant M 155.



Picture 10: *Flocculant screening of the NOKPA Trans Master Composite MC-5 with M 155 (left side), and with M1425 followed by M 155 (right side)*

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

6.4.2. Dynamic Thickening Tests

Two dynamic testing for the Trans MC-5 tailings sample were employed as follows:

1. Dynamic testing using flocculant M 155
2. Dynamic testing using coagulant M 1425 in conjunction with flocculant M 155

1. Dynamic Thickener Testing using Flocculant M 155

Doropo Gold Project MC-5 Dynamic Thickening Testwork Results							
Run	Feed		Flocculant		Underflow		Overflow
	Flux (t/(m²·h))	Liquor RR (m/h)	Type	Dose (g/t)	Meas. Solids (% (w/w))	YS (Pa)	Solids (mg/L)
1	0.50	2.47	M 155	90	52.5	161	21580
2	0.50	3.03	M 155	90	56.1	138	13850
3	0.50	3.86	M 155	90	50.4	172	8130
4	0.50	3.86	M 155	100	53.5	161	8070
5	0.50	3.86	M 155	150	46.6	220	8920

Table 4: *Dynamic thickening testwork results of the Trans Master Composite MC-5 sample using flocculant M 155*

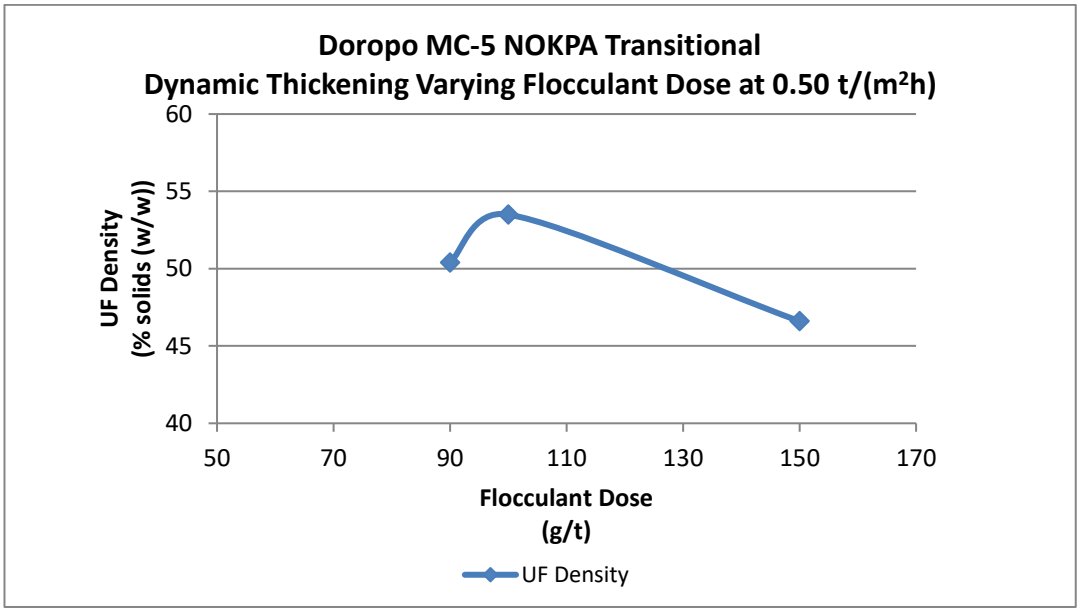


Chart 11: *Dynamic thickening varying flocculant dose at 0.50 t/(m²h)*

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

Table 4 demonstrate the results of the dynamic thickening of the Trans Master Composite MC-5 tailings sample using the flocculant M 155.

Chart 11 illustrates the results of the dynamic thickening varying flocculant dose at 0.50 t/(m^2h) for the MC-5 tailings sample.

The first run employed a flux rate of 0.50 t/(m^2h) utilising a flocculant dose of 90 g/t of flocculant M 155 and a feedwell solid concentration of 18%. This achieved an underflow density of 52.5 % solids (w/w) with an accompanying yield stress measuring 161 Pa. This run resulted in a poor overflow measuring 21,580 mg/l of total suspended solids. During this test run, a full bed rotation was observed in the rig.

The second run was conducted at the same conditions as the first run, though the feedwell solid concentration was decreased from 18 % to 15 %. This resulted in the increase of underflow density from 52.5 % to 56.1 % solids (w/w) and the yield stress measured 138 Pa. The overflow measured 13,850 mg/l of total suspended solids.

The third run was conducted at the same conditions as the second run, though the feedwell solid concentration was further decreased from 15 % to 12 %. This resulted in the decrease of underflow density from 56.1 % to 50.4 % solids (w/w) and the yield stress measured 172 Pa. The overflow measured 8,130 mg/l of total suspended solids.

The fourth run was conducted at the same conditions as the third run, though the flocculant dose was increased from 90 g/t to 100 g/t. This resulted in the increase of underflow density from 50.4 % to 53.5 % solids (w/w) and the yield stress measured 161 Pa. The overflow measured 8,070 mg/l of total suspended solids.

The fifth run was conducted at the same conditions as the fourth run, though the flocculant dose was further increased from 100 g/t to 150 g/t. This resulted in the decrease of underflow density from 53.5 % to 46.6 % solids (w/w) and the yield stress measured 220 Pa. The overflow measured 8,920 mg/l of total suspended solids.

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system



Picture 11: Dynamic run 2 of *NOKPA Trans Master Composite MC-5 sample with flocculant M 155*

2. Dynamic Thickener Testing using Coagulant M 1425 and Flocculant M 155

Doropo Gold Project MC-5 Dynamic Thickening Testwork Results									
Run	Feed		Coagulant		Flocculant		Underflow		Overflow
	Flux (t/(m²·h))	Liquor RR (m/h)	Type	Dose (g/t)	Type	Dose (g/t)	Meas. Solids (% (w/w))	YS (Pa)	Solids (mg/L)
1	0.50	3.86	M 1425	300	M 155	30	54.3	65	<100
2	0.75	5.80	M 1425	300	M 155	30	48.4	36	<100
3	1.00	7.73	M 1425	300	M 155	30	48.0	28	<100
4	0.75	5.80	M 1425	200	M 155	30	45.2	15	<100
5	0.75	5.80	M 1425	250	M 155	30	44.6	8	<100

Table 5: *Dynamic thickening testwork results of the Trans Master Composite MC-5 sample using coagulant M 1425 and flocculant M 155*

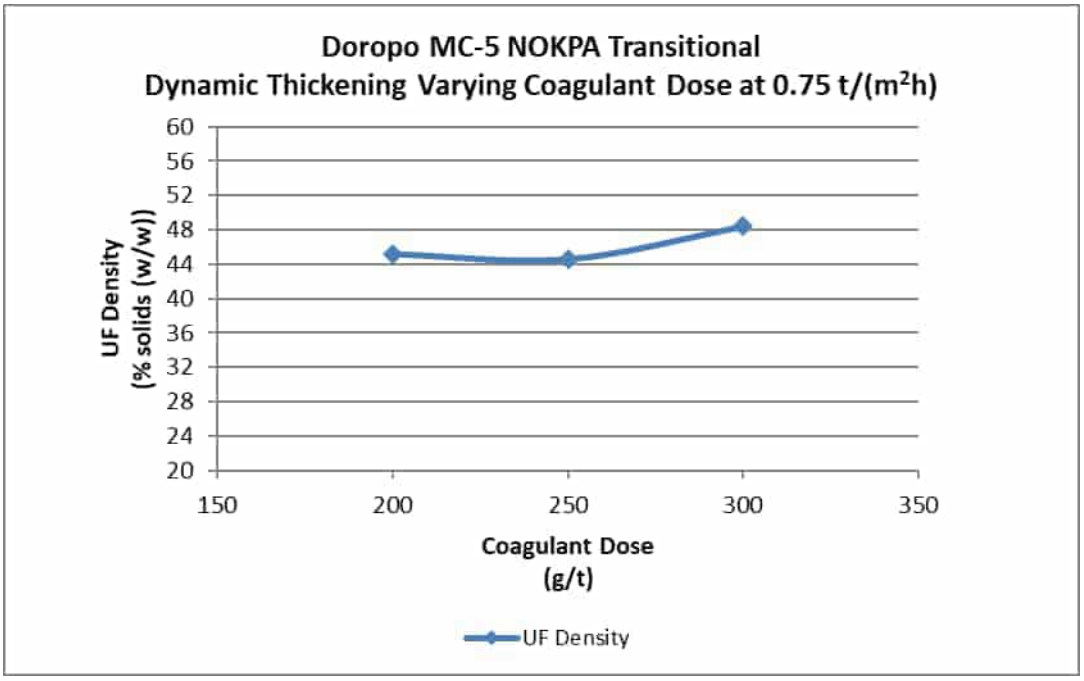


Chart 12: *Dynamic thickening varying Coagulant dose at 0.75 t/(m²h)*

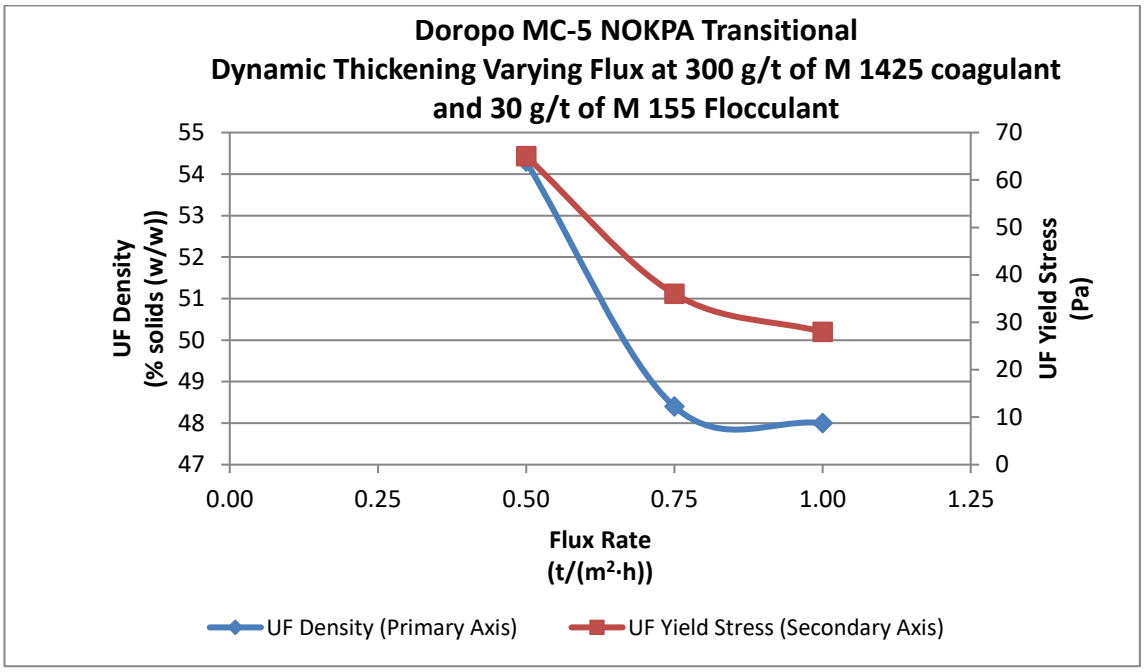


Chart 13: *Dynamic thickening varying flux at 300 g/t coagulant M1425 and 30 g/t flocculant M 155*

Table 5 and Chart 13 demonstrate the results of the dynamic thickening of the Trans Master Composite MC-5 tailings sample using the coagulant M 1425 with 30 g/t of flocculant M 155.

Chart 12 illustrates the results of the dynamic thickening varying coagulant dose at 0.75 t/(m^{2}h) for the MC-5 tailings sample.

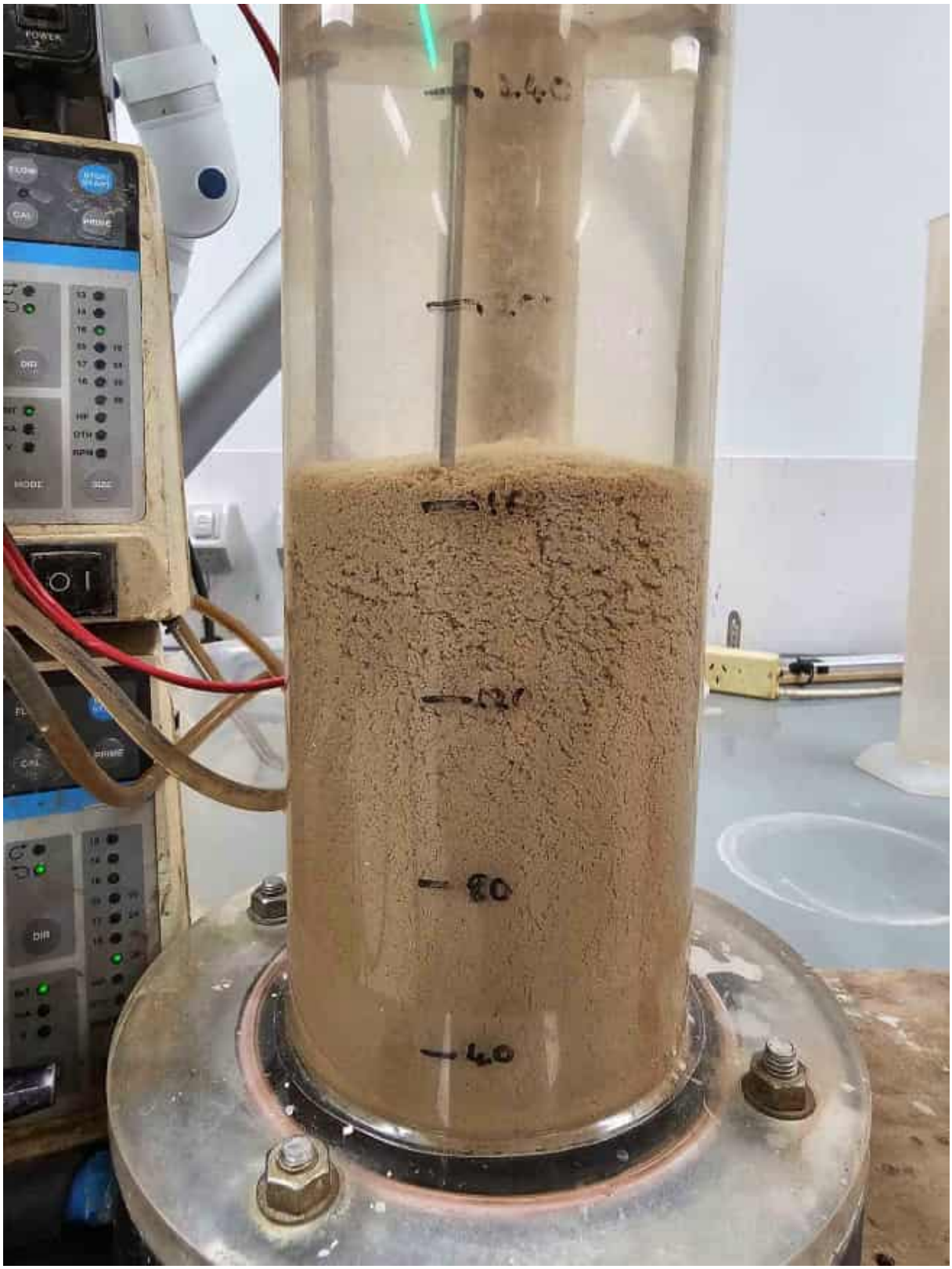
The first run employed a flux rate of 0.50 t/(m^{2}h) utilising a coagulant dose of 300g/t of M 1425 and a flocculant dose of 30 g/t of M 155. This achieved an underflow density of 54.3 % solids (w/w) with an accompanying yield stress measuring 65 Pa. This run resulted in a clean supernatant overflow measuring less than 100 mg/l of total suspended solids.

The second run was conducted at the same conditions as the first run, though the flux rate was increased from 0.50 t/(m^{2}h) to 0.75 t/(m^{2}h). This resulted in the decrease of underflow density from 54.3 % to 48.4 % solids (w/w) and the yield stress from 65 Pa to 36 Pa. The overflow measured less than 100 mg/l of total suspended solids.

The third run was conducted at the same conditions as the second run, though the flux rate was further increased from 0.75 t/(m^{2}h) to 1.0 t/(m^{2}h). This resulted in the slight decrease of underflow density from 48.4 % to 48.0 % solids (w/w) and the yield stress from 36 Pa to 28 Pa. The overflow measured less than 100 mg/l of total suspended solids.

The fourth run was conducted at the same conditions as the second run, though the coagulant dose was decreased from 300 g/t to 200 g/t. This resulted in the decrease of underflow density from 48.4 % to 45.2 % solids (w/w) and the yield stress from 36 Pa to 15 Pa. The overflow measured less than 100 mg/l of total suspended solids.

The fifth run was conducted at the same conditions as the second run, though the coagulant dose was decreased from 300 g/t to 250 g/t. This resulted in the decrease of underflow density from 48.4 % to 44.6 % solids (w/w) and the yield stress from 36 Pa to 8 Pa. This run resulted in a clean supernatant overflow measuring less than 100 mg/l of total suspended solids.



Picture 12: Dynamic run 2 of *NOKPA Trans Master Composite MC-5 sample with M 1425 followed by M 155*

6.5. NOKPA Fresh Master Composite MC-6

6.5.1. Flocculant Screening

The BASF product Magnafloc 155 was selected as flocculant for dynamic testing.

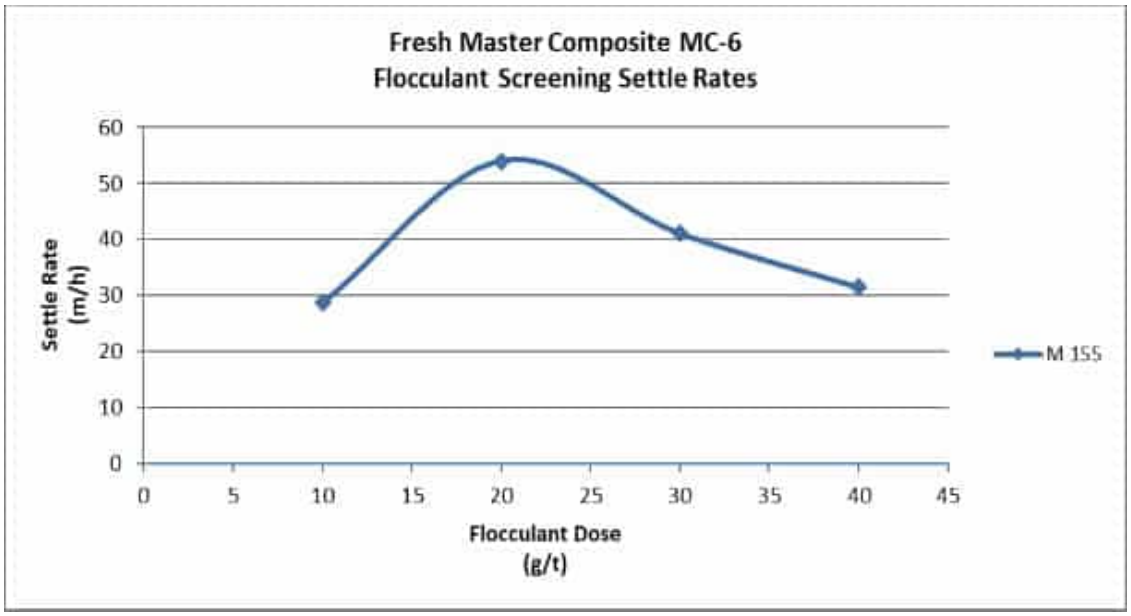
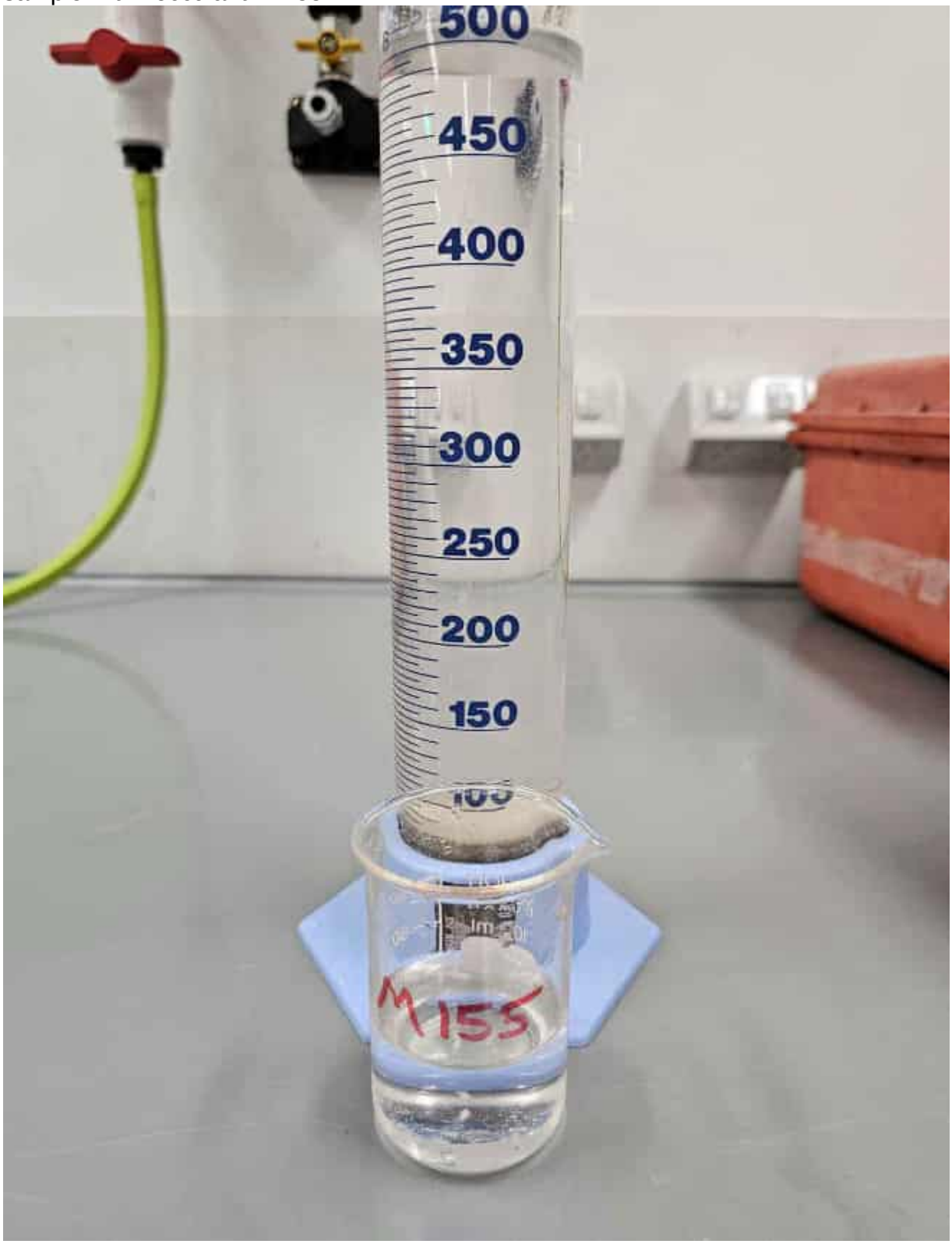


Chart 14: *Flocculant screening settling rates of the Fresh Master Composite MC-6 sample in 500 mL static cylinder test*

Chart 14 depicts the flocculant screening rates of the Fresh Master Composite MC-6 sample in a 500 mL static cylinder test.

It was observed that the flocculant Magnafloc 155 produced fast settling rates, robust aggregates and good supernatant overflow clarity.

Picture 13 shows the flocculant screening of Fresh Master Composite MC-6 sample with flocculant M 155.



Picture 13: *Flocculant screening of the NOKPA Fresh Master Composite MC-6 with M 155*

6.5.2. Dynamic Thickening Tests

Doropo Gold Project MC-6 Dynamic Thickening Testwork Results							
Run	Feed		Flocculant		Underflow		Overflow
	Flux (t/(m²·h))	Liquor RR (m/h)	Type	Dose (g/t)	Meas. Solids (% (w/w))	YS (Pa)	Solids (mg/L)
1	0.50	3.86	M 155	20	67.6	43	<100
2	0.50	3.86	M 155	10	69.7	47	<100
3	0.75	5.79	M 155	10	68.5	42	<100
4	1.00	7.73	M 155	10	67.2	30	<100

Table 6: *Dynamic thickening testwork results of the Fresh Master Composite MC-6 sample*

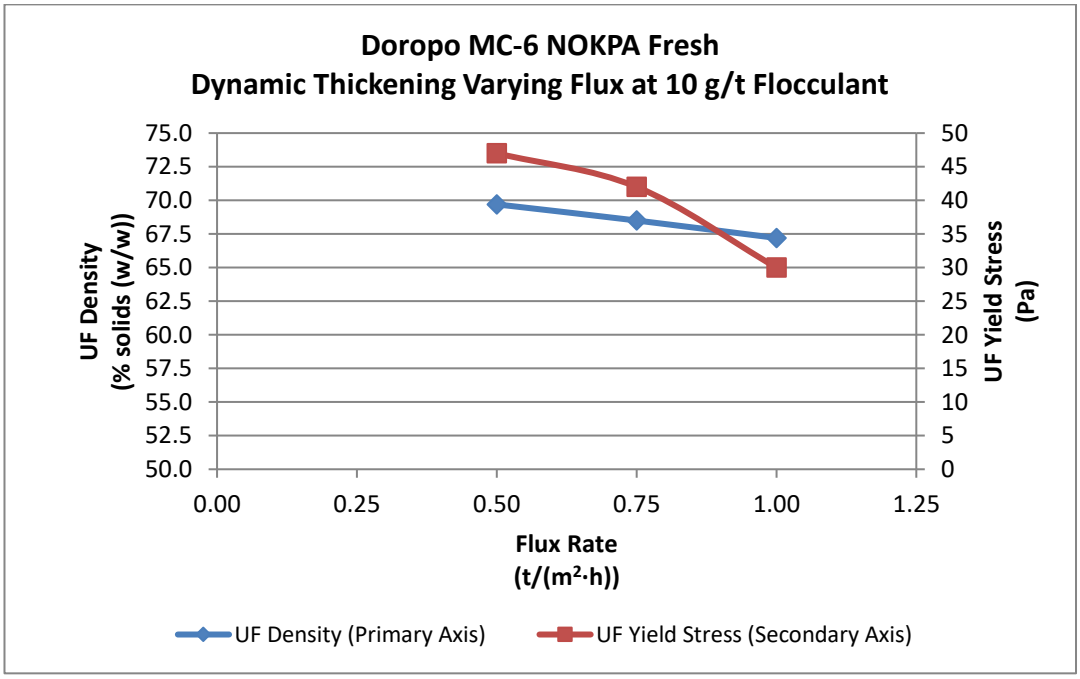


Chart 15: *Dynamic thickening varying flux at 10 g/t flocculant*

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

Table 6 and chart 15 demonstrate the results of the dynamic thickening of the Fresh Master Composite MC-6 tailings sample using the flocculant M 155.

The first run employed a flux rate of 0.50 t/(m^2h) utilising a flocculant dose of 20 g/t of M 155. This achieved an underflow density of 67.6 % solids (w/w) with an accompanying yield stress measuring 43 Pa. This run resulted in a clean supernatant overflow measuring less than 100 mg/l of total suspended solids.

The second run was conducted at the same conditions as the first run, though the flocculant dose was decreased from 20 g/t to 10 g/t. This resulted in the increase of underflow density from 67.6 % to 69.7 % solids (w/w) and the yield stress from 43 Pa to 47 Pa. The overflow measured less than 100 mg/l of total suspended solids. Further lowering the flocculant dose to 5 g/t resulted in poor overflow clarity and compromised underflow density.

The third run was conducted at the same conditions as the second run, though the flux rate was increased from 0.50 t/(m^2h) to 0.75 t/(m^2h). This resulted in the decrease of underflow density from 69.7 % to 68.5 % solids (w/w) and the yield stress from 47 Pa to 42 Pa. The overflow measured less than 100 mg/l of total suspended solids.

The fourth run was conducted at the same conditions as the third run, though the flux rate was further increased from 0.75 t/(m^2h) to 1.0 t/(m^2h). This resulted in the decrease of underflow density from 68.5 % to 67.2 % solids (w/w) and the yield stress from 42 Pa to 30 Pa. This run resulted in a clean supernatant overflow measuring less than 100 mg/l of total suspended solids.



Picture 14: Dynamic run 4 of *NOKPA Fresh Master Composite MC-6 sample with M 155*

7. Conclusion

The testwork on the SOUWA Oxide Master Composite MC-1, SOUWA Trans Master Composite MC-2, SOUWA Fresh Master Composite MC-3, NOKPA Trans Master Composite MC-5 and NOKPA Fresh Master Composite MC-6 samples has shown that the material can be successfully thickened.

All the results are based on the samples as tested, with conditions specified in section 5 (test product data).

The sole purpose of this report (part A) is to provide the experimental results obtained from the testwork performed and the methods used to obtain them. The interpretation of the experimental results obtained, and any equipment recommendations made are provided in a separate report (Part B) marked commercial in confidence – property of Metso (Australia) Pty Ltd.

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

8. Contact Information

For further questions please contact:

Chris Greenwood
Technology Manager - Thickeners
Metso Australia Limited (MA APA)
Tel: 08 9211 2230
Mob: 0407 695 131
Email: chris.greenwood@metso.com
Web: www.metso.com

Giridhar Sankar
Testwork Engineer
Metso Australia Limited (MA APA)
Mob: 0459 045 389
Email: giridhar.sankar@metso.com
Web: www.metso.com

Sarah Sutherland
Testwork Engineer
Metso Australia Limited (MA APA)
Mob: 0492 167 523
Email: sarah.sutherland@metso.com
Web: www.metso.com

9. Appendix

Appendix 1 PSD for SOUWA Oxide Master Composite MC-1

Appendix 2 PSD for SOUWA Trans Master Composite MC-2

Appendix 3 PSD for SOUWA Fresh Master Composite MC-3

Appendix 4 PSD for NOKPA Trans Master Composite MC-5

Appendix 5 PSD for NOKPA Fresh Master Composite MC-6

Appendix 6 Typical Rheological Curve for SOUWA Oxide Master Composite MC-1

Appendix 7 Typical Rheological Curve for SOUWA Trans Master Composite MC-2

Appendix 8 Typical Rheological Curve for SOUWA Fresh Master Composite MC-3

Appendix 9 Typical Rheological Curve for NOKPA Trans Master Composite MC-5

Appendix 10 Typical Rheological Curve for NOKPA Fresh Master Composite MC-6

APPENDIX 1

Particle Distribution Data with LASER for SOUWA Oxide Master Composite MC-1

Particle Size Analysis Report

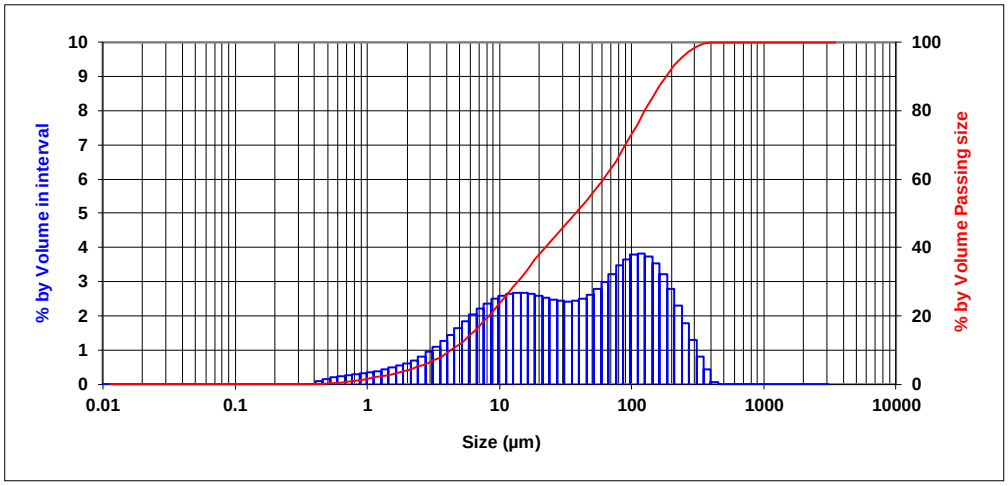
CSIRO

Particle Analysis Service

Sample Name:	3456183 MC-1 Ox
Batch No:	R2416630
PAS ID No:	P90454

Dispersant:	Water	**RI/ABS:**	2.74 / 1
Additives:	0 ml Sodium hexametaphosphate	**Analysis Model:**	General Purpose
Sonication:	20 minutes in ultrasonic bath	**Result units:**	Volume

Concentration:	0.024 % vol	**Vol. Weighted Mean D[4,3]:**	69.47 µm	**d(0.1):**	4.36	µm
Obscuration:	19.21 %	**Surface Weighted Mean D[3,2]:**	9.95 µm	**d(0.5):**	37.67	µm
Weighted Residual:	0.2 %	**Specific Surface Area:**	0.60 m^2/cc	**P80:**	126.44	µm
				d(0.9):	181.92	µm



Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %
0.010	0.00	0.088	0.00	0.767	0.95	6.722	16.06	58.880	59.10	515.772	100.00
0.011	0.00	0.100	0.00	0.872	1.25	7.637	18.27	66.897	62.09	586.001	100.00
0.013	0.00	0.113	0.00	0.991	1.57	8.677	20.63	76.006	65.32	665.793	100.00
0.015	0.00	0.128	0.00	1.125	1.91	9.858	23.12	86.355	68.78	756.449	100.00
0.017	0.00	0.146	0.00	1.279	2.29	11.201	25.71	98.114	72.44	859.450	100.00
0.019	0.00	0.166	0.00	1.453	2.71	12.726	28.35	111.473	76.23	976.475	100.00
0.022	0.00	0.188	0.00	1.651	3.19	14.458	31.02	126.652	80.05	1109.435	100.00
0.024	0.00	0.214	0.00	1.875	3.73	16.427	33.69	143.897	83.79	1260.499	100.00
0.028	0.00	0.243	0.00	2.131	4.34	18.664	36.33	163.490	87.32	1432.133	100.00
0.032	0.00	0.276	0.00	2.421	5.04	21.205	38.92	185.752	90.52	1627.136	100.00
0.036	0.00	0.314	0.00	2.750	5.85	24.092	41.46	211.044	93.31	1848.692	100.00
0.041	0.00	0.357	0.00	3.125	6.78	27.373	43.94	239.780	95.62	2100.416	100.00
0.046	0.00	0.405	0.00	3.550	7.87	31.100	46.37	272.430	97.42	2386.415	100.00
0.053	0.00	0.460	0.09	4.034	9.12	35.335	48.78	309.525	98.70	2711.357	100.00
0.060	0.00	0.523	0.24	4.583	10.56	40.146	51.21	351.670	99.51	3080.544	100.00
0.068	0.00	0.594	0.43	5.207	12.19	45.613	53.70	399.555	99.95	3500.000	100.00
0.077	0.00	0.675	0.67	5.916	14.03	51.823	56.31	453.960	100.00		

20/05/2024

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

APPENDIX 2

Particle Distribution Data with LASER for SOUWA Trans Master Composite MC-2

Particle Size Analysis Report

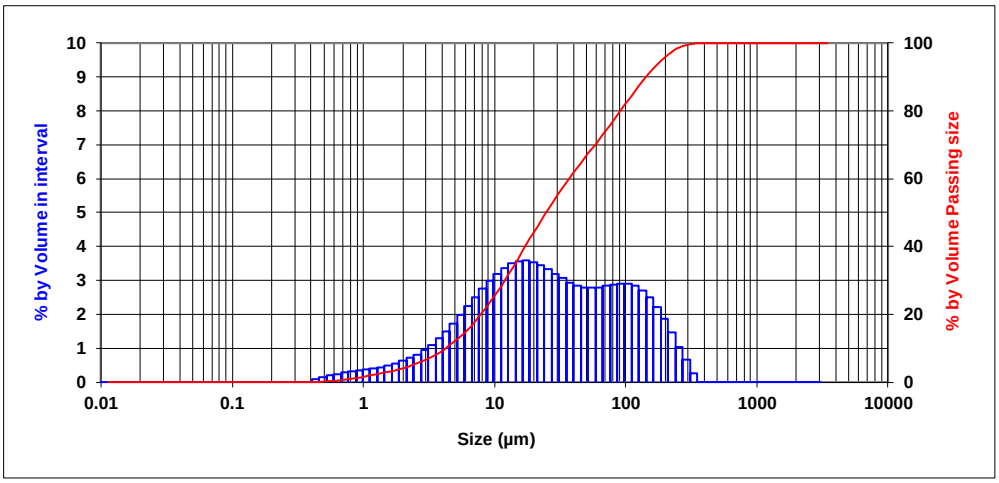
CSIRO

Particle Analysis Service

Sample Name:	3456183 MC-2 Trans
Batch No:	R2416630
PAS ID No:	P90455

Dispersant:	Water	**RI/ABS:**	2.74 / 1
Additives:	0 ml Sodium hexametaphosphate	**Analysis Model:**	General Purpose
Sonication:	20 minutes in ultrasonic bath	**Result units:**	Volume

Concentration:	0.014 % vol	**Vol. Weighted Mean D[4,3]:**	52.07 µm	**d(0.1):**	4.29	µm
Obscuration:	12.38 %	**Surface Weighted Mean D[3,2]:**	9.30 µm	**d(0.5):**	24.83	µm
Weighted Residual:	0.23 %	**Specific Surface Area:**	0.64 m^2/cc	**P80:**	91.61	µm
				d(0.9):	143.67	µm



Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %
0.010	0.00	0.088	0.00	0.767	0.92	6.722	16.74	58.880	70.14	515.772	100.00
0.011	0.00	0.100	0.00	0.872	1.22	7.637	19.25	66.897	72.94	586.001	100.00
0.013	0.00	0.113	0.00	0.991	1.56	8.677	22.01	76.006	75.77	665.793	100.00
0.015	0.00	0.128	0.00	1.125	1.92	9.858	25.01	86.355	78.65	756.449	100.00
0.017	0.00	0.146	0.00	1.279	2.32	11.201	28.21	98.114	81.56	859.450	100.00
0.019	0.00	0.166	0.00	1.453	2.75	12.726	31.58	111.473	84.47	976.475	100.00
0.022	0.00	0.188	0.00	1.651	3.24	14.458	35.07	126.652	87.32	1109.435	100.00
0.024	0.00	0.214	0.00	1.875	3.80	16.427	38.63	143.897	90.03	1260.499	100.00
0.028	0.00	0.243	0.00	2.131	4.42	18.664	42.21	163.490	92.53	1432.133	100.00
0.032	0.00	0.276	0.00	2.421	5.13	21.205	45.75	185.752	94.75	1627.136	100.00
0.036	0.00	0.314	0.00	2.750	5.95	24.092	49.21	211.044	96.60	1848.692	100.00
0.041	0.00	0.357	0.00	3.125	6.89	27.373	52.55	239.780	98.06	2100.416	100.00
0.046	0.00	0.405	0.00	3.550	7.99	31.100	55.75	272.430	99.10	2386.415	100.00
0.053	0.00	0.460	0.08	4.034	9.28	35.335	58.80	309.525	99.74	2711.357	100.00
0.060	0.00	0.523	0.21	4.583	10.78	40.146	61.74	351.670	100.00	3080.544	100.00
0.068	0.00	0.594	0.40	5.207	12.51	45.613	64.58	399.555	100.00	3500.000	100.00
0.077	0.00	0.675	0.64	5.916	14.50	51.823	67.37	453.960	100.00		

20/05/2024

APPENDIX 3

Particle Distribution Data with LASER for SOUWA Fresh Master Composite MC-3

Particle Size Analysis Report

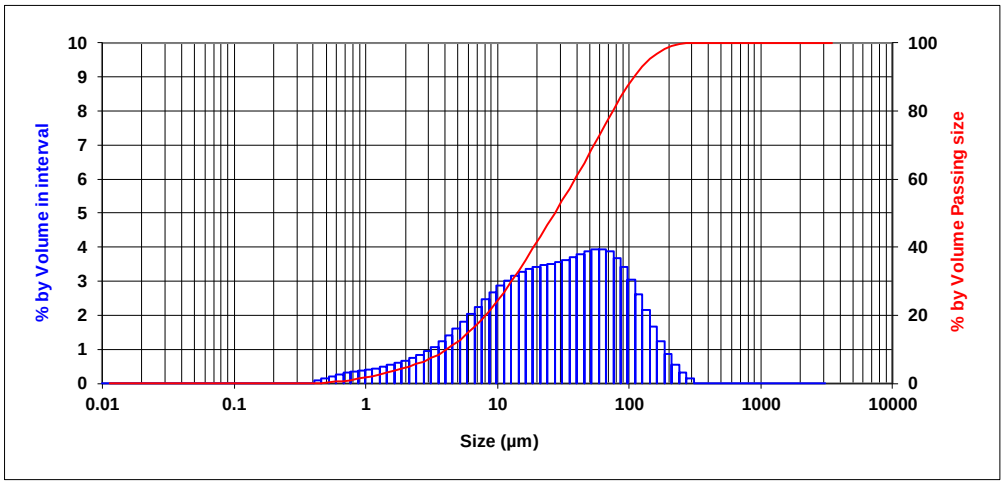
CSIRO

Particle Analysis Service

Sample Name:	3456183 MC-3 Fresh
Batch No:	R2416630
PAS ID No:	P90456

Dispersant:	Water	**RI/ABS:**	2.74 / 1
Additives:	0 ml Sodium hexametaphosphate	**Analysis Model:**	General Purpose
Sonication:	20 minutes in ultrasonic bath	**Result units:**	Volume

Concentration:	0.019 % vol	**Vol. Weighted Mean D[4,3]:**	44.48 µm	**d(0.1):**	4.15	µm
Obscuration:	16.82 %	**Surface Weighted Mean D[3,2]:**	9.11 µm	**d(0.5):**	27.34	µm
Weighted Residual:	0.24 %	**Specific Surface Area:**	0.66 m^2/cc	**P80:**	75.21	µm
				d(0.9):	109.35	µm



Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %
0.010	0.00	0.088	0.00	0.767	1.01	6.722	16.55	58.880	72.51	515.772	100.00
0.011	0.00	0.100	0.00	0.872	1.35	7.637	18.80	66.897	76.45	586.001	100.00
0.013	0.00	0.113	0.00	0.991	1.72	8.677	21.26	76.006	80.32	665.793	100.00
0.015	0.00	0.128	0.00	1.125	2.13	9.858	23.93	86.355	84.01	756.449	100.00
0.017	0.00	0.146	0.00	1.279	2.57	11.201	26.79	98.114	87.42	859.450	100.00
0.019	0.00	0.166	0.00	1.453	3.06	12.726	29.82	111.473	90.46	976.475	100.00
0.022	0.00	0.188	0.00	1.651	3.60	14.458	32.99	126.652	93.07	1109.435	100.00
0.024	0.00	0.214	0.00	1.875	4.20	16.427	36.27	143.897	95.21	1260.499	100.00
0.028	0.00	0.243	0.00	2.131	4.87	18.664	39.63	163.490	96.89	1432.133	100.00
0.032	0.00	0.276	0.00	2.421	5.61	21.205	43.05	185.752	98.13	1627.136	100.00
0.036	0.00	0.314	0.00	2.750	6.44	24.092	46.52	211.044	98.99	1848.692	100.00
0.041	0.00	0.357	0.00	3.125	7.38	27.373	50.03	239.780	99.55	2100.416	100.00
0.046	0.00	0.405	0.00	3.550	8.46	31.100	53.58	272.430	99.86	2386.415	100.00
0.053	0.00	0.460	0.09	4.034	9.69	35.335	57.20	309.525	100.00	2711.357	100.00
0.060	0.00	0.523	0.23	4.583	11.10	40.146	60.90	351.670	100.00	3080.544	100.00
0.068	0.00	0.594	0.44	5.207	12.71	45.613	64.69	399.555	100.00	3500.000	100.00
0.077	0.00	0.675	0.70	5.916	14.52	51.823	68.57	453.960	100.00		

20/05/2024

APPENDIX 4

Particle Distribution Data with LASER for NOKPA Trans Master Composite MC-5

Particle Size Analysis Report

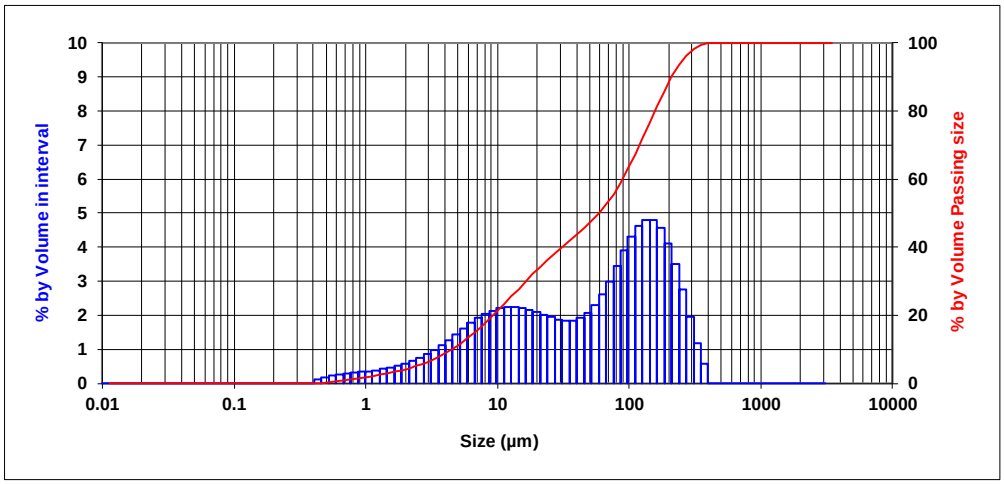
CSIRO

Particle Analysis Service

Sample Name:	3456183 MC-5 Trans
Batch No:	R2416630
PAS ID No:	P90457

Dispersant:	Water	**RI/ABS:**	2.74 / 1
Additives:	0 ml Sodium hexametaphosphate	**Analysis Model:**	General Purpose
Sonication:	20 minutes in ultrasonic bath	**Result units:**	Volume

Concentration:	0.018 % vol	**Vol. Weighted Mean D[4,3]:**	85.52 µm	**d(0.1):**	4.55	µm
Obscuration:	13.82 %	**Surface Weighted Mean D[3,2]:**	10.41 µm	**d(0.5):**	59.14	µm
Weighted Residual:	0.34 %	**Specific Surface Area:**	0.58 m^2/cc	**P80:**	157.61	µm
				d(0.9):	210.72	µm



Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %
0.010	0.00	0.088	0.00	0.767	1.07	6.722	14.88	58.880	49.91	515.772	100.00
0.011	0.00	0.100	0.00	0.872	1.38	7.637	16.80	66.897	52.51	586.001	100.00
0.013	0.00	0.113	0.00	0.991	1.72	8.677	18.84	76.006	55.50	665.793	100.00
0.015	0.00	0.128	0.00	1.125	2.07	9.858	20.98	86.355	58.94	756.449	100.00
0.017	0.00	0.146	0.00	1.279	2.45	11.201	23.19	98.114	62.83	859.450	100.00
0.019	0.00	0.166	0.00	1.453	2.87	12.726	25.42	111.473	67.14	976.475	100.00
0.022	0.00	0.188	0.00	1.651	3.34	14.458	27.66	126.652	71.78	1109.435	100.00
0.024	0.00	0.214	0.00	1.875	3.87	16.427	29.87	143.897	76.59	1260.499	100.00
0.028	0.00	0.243	0.00	2.131	4.46	18.664	32.03	163.490	81.37	1432.133	100.00
0.032	0.00	0.276	0.00	2.421	5.12	21.205	34.13	185.752	85.93	1627.136	100.00
0.036	0.00	0.314	0.00	2.750	5.87	24.092	36.14	211.044	90.05	1848.692	100.00
0.041	0.00	0.357	0.00	3.125	6.72	27.373	38.08	239.780	93.55	2100.416	100.00
0.046	0.00	0.405	0.00	3.550	7.69	31.100	39.96	272.430	96.30	2386.415	100.00
0.053	0.00	0.460	0.11	4.034	8.81	35.335	41.80	309.525	98.25	2711.357	100.00
0.060	0.00	0.523	0.28	4.583	10.07	40.146	43.65	351.670	99.43	3080.544	100.00
0.068	0.00	0.594	0.51	5.207	11.51	45.613	45.56	399.555	100.00	3500.000	100.00
0.077	0.00	0.675	0.77	5.916	13.11	51.823	47.62	453.960	100.00		

20/05/2024

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

APPENDIX 5

Particle Distribution Data with LASER for NOKPA Fresh Master Composite MC-6

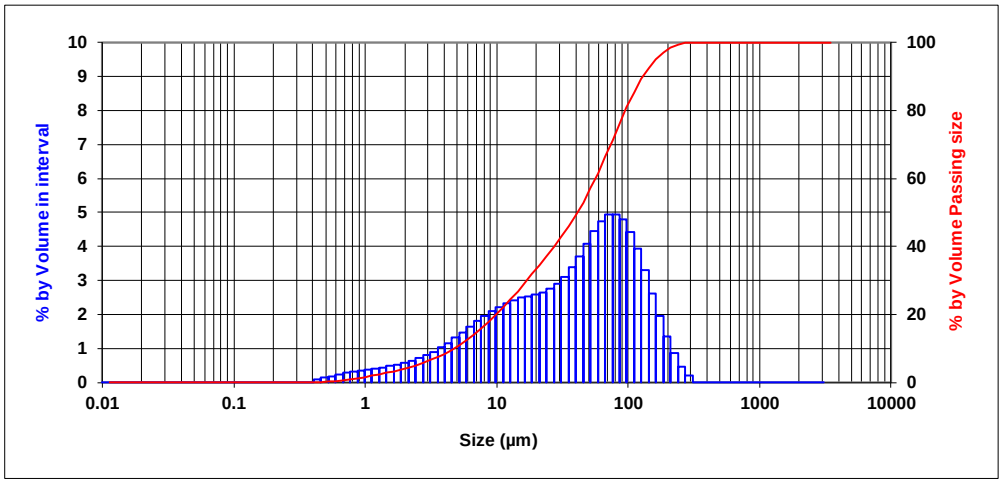
Particle Size Analysis Report

CSIRO

Particle Analysis Service

Sample Name:	3456183 MC-6 Fresh		
Batch No:	R2416630		
PAS ID No:	P90458		
Dispersant:	Water	**RI/ABS:**	2.74 / 1
Additives:	0 ml Sodium hexametaphosphate	**Analysis Model:**	General Purpose
Sonication:	20 minutes in ultrasonic bath	**Result units:**	Volume

Concentration:	0.017 % vol	**Vol. Weighted Mean D[4,3]:**	56.10 µm	**d(0.1):**	4.77 µm
Obscuration:	12.94 %	**Surface Weighted Mean D[3,2]:**	10.52 µm	**d(0.5):**	41.24 µm
Weighted Residual:	0.25 %	**Specific Surface Area:**	0.57 m^2/cc	**P80:**	95.79 µm
				d(0.9):	130.37 µm



Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %
0.010	0.00	0.088	0.00	0.767	0.90	6.722	14.01	58.880	61.48	515.772	100.00
0.011	0.00	0.100	0.00	0.872	1.21	7.637	15.80	66.897	66.23	586.001	100.00
0.013	0.00	0.113	0.00	0.991	1.55	8.677	17.75	76.006	71.16	665.793	100.00
0.015	0.00	0.128	0.00	1.125	1.92	9.858	19.85	86.355	76.11	756.449	100.00
0.017	0.00	0.146	0.00	1.279	2.32	11.201	22.07	98.114	80.90	859.450	100.00
0.019	0.00	0.166	0.00	1.453	2.76	12.726	24.40	111.473	85.33	976.475	100.00
0.022	0.00	0.188	0.00	1.651	3.24	14.458	26.82	126.652	89.25	1109.435	100.00
0.024	0.00	0.214	0.00	1.875	3.77	16.427	29.31	143.897	92.55	1260.499	100.00
0.028	0.00	0.243	0.00	2.131	4.35	18.664	31.85	163.490	95.17	1432.133	100.00
0.032	0.00	0.276	0.00	2.421	4.99	21.205	34.44	185.752	97.13	1627.136	100.00
0.036	0.00	0.314	0.00	2.750	5.70	24.092	37.10	211.044	98.48	1848.692	100.00
0.041	0.00	0.357	0.00	3.125	6.50	27.373	39.85	239.780	99.33	2100.416	100.00
0.046	0.00	0.405	0.00	3.550	7.40	31.100	42.74	272.430	99.80	2386.415	100.00
0.053	0.00	0.460	0.08	4.034	8.42	35.335	45.84	309.525	100.00	2711.357	100.00
0.060	0.00	0.523	0.21	4.583	9.59	40.146	49.22	351.670	100.00	3080.544	100.00
0.068	0.00	0.594	0.39	5.207	10.90	45.613	52.94	399.555	100.00	3500.000	100.00
0.077	0.00	0.675	0.63	5.916	12.37	51.823	57.03	453.960	100.00		

20/05/2024

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

APPENDIX 6

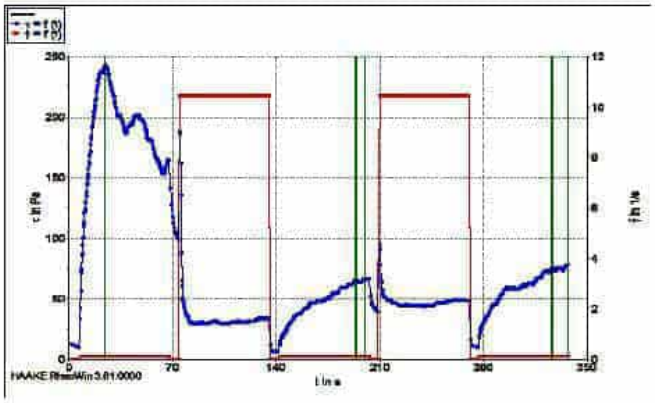
Typical Rheological Curve for SOUWA Oxide Master Composite MC-1

HAAKE RheoWin 3.61.0000 — Rheological Curve — Page 1

Company	Outokumpu Technology Pty Ltd	**Measure device**	VT550		
Operator	Outokumpu Technology Pty Ltd	**Temperature device**			
Date/Time	02.05.2024 / 19:33:37 PM	**Sensor**	OK600	**Gap**	1.000 mm
Substance	OK600SD YS / Shear / YS / Shear / YS Prograi	**A-factor**	21101.551 Pa/Nm		
Sample no	Beaker	**M-factor**	1.996 (1/s)/(rad/s)		
Description					

Comment

Rheology plot



Filename: ----

Job: C:\Program Files (x86)\RheoWin3\JOBS\OK600YIELDDOUBLESHEAR.rwj

---

Curve discussion:

Method	t in s	τ in Pa
Greatest value	24.61	243.3

Curve discussion:

Method	t in s	τ in Pa
Greatest value	200.4	66.26
Maximum	194.1	85.55

Curve discussion:

Method	t in s	τ in Pa
Greatest value	337.6	78.08
Maximum	326.9	75.60

APPENDIX 7

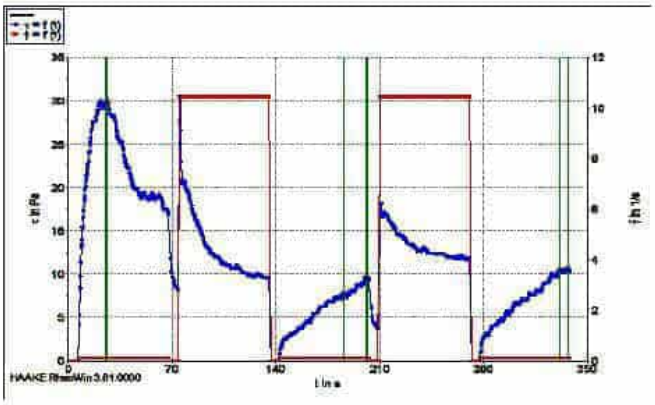
Typical Rheological Curve for SOUWA Trans Master Composite MC-2

HAAKE RheoWin3.61.0000 | Rheological Curve | Page 1

Company	Outokumpu Technology Pty Ltd	**Measure device**	VT550		
Operator	Outokumpu Technology Pty Ltd	**Temperature device**			
Date/Time	06.05.2024 / 19:17:57 PM	**Sensor**	OK600	**Gap**	1.000 mm
Substance	OK600SD YS / Shear / YS / Shear / YS Prograi	**A-factor**	21101.551 Pa/Nm		
Sample no	Beaker	**M-factor**	1.996 (1/s)/(rad/s)		
Description					

Comment

Rheology plot



Filename: ----

Job: C:\Program Files (x86)\RheoWin3\JOBS\OK600YIELDDOUBLESHEAR.rwj

---

Curve discussion:

Method	t in s	τ in Pa
Greatest value	26.26	30.18
Maximum	25.71	30.06

Curve discussion:

Method	t in s	τ in Pa
Greatest value	201.9	9.707
Maximum	186.0	7.745

Curve discussion:

Method	t in s	τ in Pa
Greatest value	337.5	10.76
Maximum	331.7	10.58

APPENDIX 8

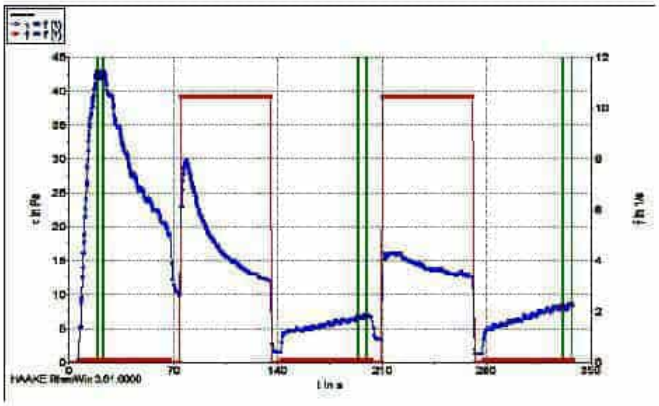
Typical Rheological Curve for SOUWA Fresh Master Composite MC-3

HAAKE RheoWin 3.61.0000 | Rheological Curve | Page 1

Company	Outokumpu Technology Pty Ltd	**Measure device**	VT550		
Operator	Outokumpu Technology Pty Ltd	**Temperature device**			
Date/Time	07.05.2024 / 20:48:47 PM	**Sensor**	OK600	**Gap**	1.000 mm
Substance	OK600SD YS / Shear / YS / Shear / YS Prograi	**A-factor**	21101.551 Pa/Nm		
Sample no	Beaker	**M-factor**	1.996 (1/s)/(rad/s)		
Description					

Comment

Rheology plot



Filename: ----

Job: C:\Program Files (x86)\RheoWin3\JOBS\OK600YIELDDOUBLESHEAR.rwj

---

Curve discussion:

Method	t in s	τ in Pa
Greatest value	22.81	43.05
Maximum	18.86	42.91

Curve discussion:

Method	t in s	τ in Pa
Greatest value	200.1	6.964
Maximum	194.3	6.780

Curve discussion:

Method	t in s	τ in Pa
Greatest value	337.9	8.652
Maximum	331.3	8.429

APPENDIX 9

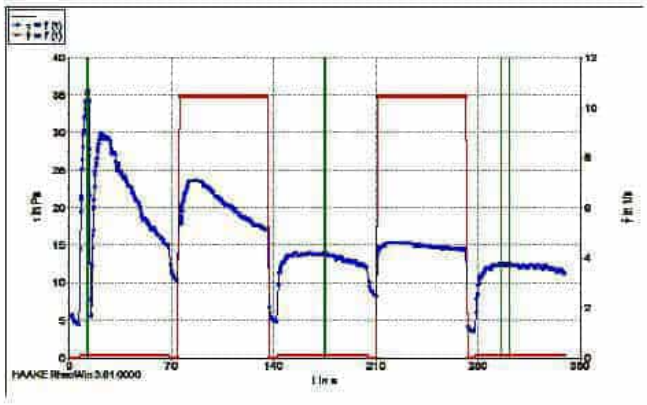
Typical Rheological Curve for NOKPA Trans Master Composite MC-5

HAAKE RheoWin 3.01.0000 **Rheological Curve** Page 1

Company	Outokumpu Technology Pty Ltd	**Measure device**	VT550		
Operator	Outokumpu Technology Pty Ltd	**Temperature device**			
Date/Time	06.05.2024 / 15:19:09 PM	**Sensor**	OK600	**Gap**	1.000 mm
Substance	OK600 SD YS / Shear / YS / Shear / YS Progra	**A-factor**	21101.551 Pa/Nm		
Sample no	Beaker	**M-factor**	1.996 (1/s)/(rad/s)		
Description					

Comment

Rheology plot



Filename: ---
Job: C:\Program Files (x86)\RheoWin3\Jobs\OK600YIELDDOUBLESHEAR.rwj

---

Curve discussion:

Method	t in s	τ in Pa
Greatest value	12.47	35.66
Maximum	11.88	37.13

Curve discussion:

Method	t in s	τ in Pa
Greatest value	175.8	14.14
Maximum	175.2	14.14

Curve discussion:

Method	t in s	τ in Pa
Greatest value	301.8	12.66
Maximum	296.3	12.70

APPENDIX 10

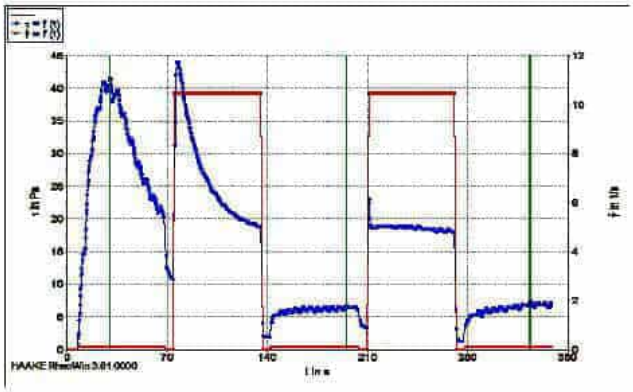
Typical Rheological Curve for NOKPA Fresh Master Composite MC-6

HAAKE RheoWin3.61.0000 **Rheological Curve** Page 1

Company	Outokumpu Technology Pty Ltd	**Measure device**	VT550		
Operator	Outokumpu Technology Pty Ltd	**Temperature device**			
Date/Time	10.05.2024 / 13:01:31 PM	**Sensor**	OK600	**Gap**	1.000 mm
Substance	OK600 SD YS / Shear / YS / Shear / YS Progra	**A-factor**	21101.551 Pa/Nm		
Sample no	Beaker	**M-factor**	1.996 (1/s)/(rad/s)		
Description					

Comment

Rheology plot



Filename: —
Job: C:\Program Files (x86)\RheoWin3\Jobs\OK600YIELDDOUBLESHEAR.rwj

—

Curve discussion:

Method	t in s	τ in Pa
Greatest value	29.94	41.57
Maximum	29.66	41.44

Curve discussion:

Method	t in s	τ in Pa
Greatest value	195.5	6.752
Maximum	195.4	6.643

Curve discussion:

Method	t in s	τ in Pa
Greatest value	323.9	7.386
Maximum	323.9	7.255

END OF REPORT

Project Name:	Doropo Gold Project
Customer:	ALS Metallurgy on behalf of Centamin Mining
Contact Person(s):	Grant Harding
Email:	gharding@indmetops.com.au
Country:	Cote d'Ivoire
Place:	Bounkani Region
Application:	Detoxed Gold Leach Tailings
Product of Test:	• SOUWA Oxide Master Composite MC-1 • SOUWA Trans Master Composite MC-2 • SOUWA Fresh Master Composite MC-3 • NOKPA Trans Master Composite MC-5 • NOKPA Fresh Master Composite MC-6
Case. No.:	3456183
Case Manager:	Chris Greenwood
Test Case No.:	3456183
Test Performed by:	Giridhar Sankar & Sarah Sutherland
Date of Test:	2nd, 3rd, 6th and 8th - 10th May 2024
Location of Test:	Metso Perth Technology Centre Bayswater, Australia
Test Equipment:	99 mm Diameter High-Rate Thickener
Date of Test report:	22nd May 2024

CONFIDENTIAL

Contents

1. Production Data Requirements 3
2. Feed Dilution Tests 4
3. Conclusion and Interpretation of Results 5
4. Recommendations 5
5. Contact Information 7
6. Appendix 8

CONFIDENTIAL

1. Production Data Requirements

Stream	Solids Quantity (t/h)	Underflow Density (% solids (w/w))	Overflow Quality (mg/L solids)
SOUWA Oxide Master Composite MC-1	675	50	<250
SOUWA Trans Master Composite MC-2	675	50	<250
SOUWA Fresh Master Composite MC-3	500	50	<250
NOKPA Trans Master Composite MC-5	675	50	<250
NOKPA Fresh Master Composite MC-6	500	50	<250

CONFIDENTIAL

2. Feed Dilution Tests

Dilution tests were conducted using Metso's optimum dilution test method. Metso's optimum dilution method determines the maximum feed solids concentration for efficient flocculation with Metso's Feedwell.

The maximum feed solids concentration of the SOUWA Oxide Master Composite MC-1 sample was found to be around 27 % solids (w/w), however the dynamic thickening testwork was performed at 18 % solids (w/w) for practical purposes.

The maximum feed solids concentration of the SOUWA Trans Master Composite MC-2 sample was found to be around 21 % solids (w/w), however the dynamic thickening testwork was performed at 18 % solids (w/w) for practical purposes.

The maximum feed solids concentration of the SOUWA Fresh Master Composite MC-3 sample was found to be around 22 % solids (w/w), however the dynamic thickening testwork was performed at 18 % solids (w/w) for practical purposes.

The maximum feed solids concentration of the NOKPA Trans Master Composite MC-5 sample was found to be around 16 % solids (w/w), however the dynamic thickening testwork was performed at 12 % solids (w/w) to provide an extra mixing energy in the feedwell.

The maximum feed solids concentration of the NOKPA Fresh Master Composite MC-6 sample was found to be around 25 % solids (w/w), however the dynamic thickening testwork was performed at 12 % solids (w/w) to provide an extra mixing energy in the feedwell.

.

CONFIDENTIAL

3. Conclusion and Interpretation of Results

The testwork on the SOUWA Oxide Master Composite MC-1, SOUWA Trans Master Composite MC-2, SOUWA Fresh Master Composite MC-3 and NOKPA Trans Master Composite MC-5 and NOKPA Fresh Master Composite MC-6 samples has shown that the material can be successfully thickened.

Over a flux range of 0.50 – 1.0 t/(m^2·h), the SOUWA Oxide Master Composite MC-1 sample had densities of 50.1 % - 55.0 % solids (w/w) with yield stresses 29 – 243 Pa.

Over a flux range of 0.50 – 1.0 t/(m^2·h), the SOUWA Trans Master Composite MC-2 sample had densities of 59.5 % - 63.7 % solids (w/w) with yield stresses 30 – 59 Pa.

Over a flux range of 0.50 – 1.0 t/(m^2·h), the SOUWA Fresh Master Composite MC-3 sample had densities of 62.3 % - 67.2 % solids (w/w) with yield stresses 43 – 64 Pa.

Over a flux range of 0.50 – 1.0 t/(m^2·h), the NOKPA Trans Master Composite MC-5 sample had densities of 44.6 % - 54.3 % solids (w/w) with yield stresses 8 – 65 Pa.

Over a flux range of 0.50 – 1.0 t/(m^2·h), the NOKPA Fresh Master Composite MC-6 sample had densities of 67.2 % - 69.7 % solids (w/w) with yield stresses 30 – 47 Pa.

All the results are based on the samples as tested, with conditions specified in section 5 of Part A (test product data.)

4. Recommendations

From the results of the testwork conducted, the following thickener design specifications are recommended. These recommendations should be read in conjunction with the range of test results obtained in Part A of the test report.

The thickener recommendation is for a Metso High-Rate thickener with a Metso Feedwell.

CONFIDENTIAL

Process Stream	SOUWA Oxide Master Composite MC-1	SOUWA Trans Master Composite MC-2	SOUWA Fresh Master Composite MC-3	NOKPA Trans Master Composite MC-5	NOKPA Fresh Master Composite MC-6
Solids feed rate (t/h)	675	675	500	675	500
Solids loading (t/(m^2·h))	0.75	1.0	1.0	0.75	1.0
Reporting feed slurry density (% solids (w/w))	40	40	40	40	40
Diluted feedwell slurry density (% solids (w/w))	18	18	18	12	12
Slurry pH	8.6	9.1	9.1	9.4	8.9
Coagulant Dosage (g/t)	-	-	-	300	-
Flocculant dosage (g/t)	120	40	10	30	10
Underflow density (% solids (w/w))	55	60	62	48	67
Yield Stress (Pa)	243	38	43	36	30
Overflow clarity (mg/L)	1060	< 100	< 100	< 100	< 100
Required thickener diameter (m)	34	30	26	34	26

CONFIDENTIAL

5. Contact Information

For further questions please contact:

Chris Greenwood
Technology Manager - Thickeners
Metso Australia Limited (MA APA)
Tel: 08 9211 2230
Mob: 0407 695 131
Email: chris.greenwood@metso.com
Web: www.metso.com

Giridhar Sankar
Testwork Engineer
Metso Australia Limited (MA APA)
Mob: 0459 045 389
Email: giridhar.sankar@metso.com
Web: www.metso.com

Sarah Sutherland
Testwork Engineer
Metso Australia Limited (MA APA)
Mob: 0492 167 523
Email: sarah.sutherland@metso.com
Web: www.metso.com

CONFIDENTIAL

6. Appendix

Appendix 1 Questionnaire for SOUWA Oxide Master Composite MC-1, SOUWA Trans Master Composite MC-2, SOUWA Fresh Master Composite MC-3, NOKPA Trans Master Composite MC-5 and NOKPA Fresh Composite MC-6 samples

CONFIDENTIAL

APPENDIX 1 – Questionnaire

Metso

Document title:
Thickener Questionnaire

Metso Project Number: _____

CUSTOMER INFORMATION

Project name:	Doropo Gold Project
Customer:	ALS Metallurgy
Invoicing address:	6 MacAdam Place, Balcatta, WA, 6021
Contact person (submitter):	Marjan Nikakhtar
Title/company:	Senior Metallurgist
Telephone:	+61 8 9344 2416
Email:	Marjan.Nikakhtar@alsglobal.com
Contact person (end client, if different to above):	Grant Harding
Title/company:	Consulting Metallurgist
Telephone:	0457344194
Email:	gharding@indmetops.com.au
Report recipient(s):	Grant Harding

GENERAL INFORMATION ABOUT MATERIAL TO BE THICKENED

Please complete a separate questionnaire for each sample type or application

Application:	
Sample name:	SOLIWA FRESH MASTER COMPOSITE (MC-3) (PW5100 Detoxed Tail)
Composition of solids:	Mineral slurry
Chemical formula:	
Composition of liquid:	
Chemical formula:	
Corrosive compounds:	
Hazards (also attach SDS):	
Estimated mass of solids available (kg):	~10 kg
Estimated volume of site water or liquor available (l):	*If site water/liquor is not available then tap water can be used, check box below*
Use tap water:	X If site water/liquor not available or critical
Other information:	

SAMPLE RETURN INFORMATION (sample to be returned to client at client's expense or waste treatment charges will apply)

Company name:	ALS Metallurgy
Address:	6 MacAdam Place, Balcatta, WA, 6021
Contact person:	Marjan Nikakhtar
Title:	Senior Metallurgist
Telephone:	+61 8 9344 2416
Email:	Marjan.Nikakhtar@alsglobal.com
Courier/transport details:	
Courier account number:	

Metso

Thickener Questionnaire

PURPOSE OF TESTWORK

To determine the size of the tailing's thickener in the Doropo gold processing plant and achievable underflow % solids and rheology

THICKENER CONDITIONS

Process Information	Client Information	Units	Example/units
Thickener feed description	Cyclone O/F (pre leach thickener)		CIL- CN detox tails
Process flow sheet	See attached		
Feed rate (Dry Solids)	675 tph		250 t/h
Feed concentration reporting to thickener	40 % Solids (w/w)		25 % solids (w/w)
Slurry pH	Unknown – please measure		pH 9.0
pH adjustment	Done – post thickening		Lime
Feed temperature	Unknown assume 25- 30°C		25°C
Particle size distribution (if available please send)	P80 75 um		P80 75µm
Estimated solids SG	2.58 t/m³		2.25 t/m³ = g/mL
Estimated liquid SG	1.00 t/m³		1.001 g/mL
Target underflow density	50 % solids (w/w)		60% solids (w/w). Please don't just request max.
Underflow reports to	Gold Leaching to CIL		TSF
Target overflow quality	Process water reuse. Presumed target <250 ppm solids. please define in testing		Process water reuse, 250mg/L (ppm) solids
Coagulant/Flocculant preference (if any)	Flocculant – unknown please screen and test		Type and supplier
Limitations on thickener size (if any)	None, tentatively stated as 35 m pending actual t/m²h results		m

PRESENT THICKENING EQUIPMENT X Does not exist

Process Information	Client Information	Units	Example/units
Type of thickener	High-rate thickener.		Metso High Rate Thickener (HRT)
Thickener diameter	tentatively stated as 35 m pending actual t/m²h results		30m
Underflow density being achieved	Unknown please test		62% solids (w/w)
Overflow quality being achieved	Unknown please test		150mg/L (ppm) solids

Metso

Thickener Questionnaire

Coagulant/Flocculant type	Unknown please test, assumed anionic polyacrylamide		Type and supplier
Coagulant/Flocculant dose	Assumed at 30 g/t – requires screening and testing		25g/t of solids

ADDITIONAL INFORMATION

There is no pre-existing thickening or settling test work for Dompo. The sample requires flocculant screening and testing for what can be achieved via dynamic thickening testing

Please send safety datasheets with sample.

CONFIDENTIAL

END OF REPORT

Project Name:	Doropo Gold Project
Customer:	ALS Metallurgy on behalf of Centamin Mining
Contact Person(s):	Grant Harding
Email:	gharding@indmetops.com.au
Country:	Cote d'Ivoire
Place:	Bounkani Region
Application:	Detoxed Gold Leach Tailings
Product of Test:	• Kilosegui Fresh Master Composite MC-9 • Kilosegui Trans Master Composite MC-8 • Kilosegui Oxide Master Composite MC-7 • Chegue Trans Master Composite MC-20 • Enioda Oxide Master Composite MC-13 • Enioda Trans Master Composite MC-14
Case. No.:	3472031
Case Manager:	Chris Greenwood
Test Case No.:	3472031
Test Performed by:	Giridhar Sankar
Date of Test:	13th, 14th and 20th June 2024 and 1st, 3rd and 16th July 2024
Location of Test:	Metso Perth Technology Centre Bayswater, Australia
Test Equipment:	99 mm Diameter High-Rate Thickener
Date of Test report:	7th August 2024

Contents

1. General Information 3
2. Objective of Tests and Selected Test Equipment 4
3. Customer Process Data and Simplified Flowsheet 5
4. Description of Thickening Process 7
5. Test – Product Data 9
6. Explanation of Tests 13
7. Conclusion 53
8. Contact Information 54
9. Appendix 55

1. General Information

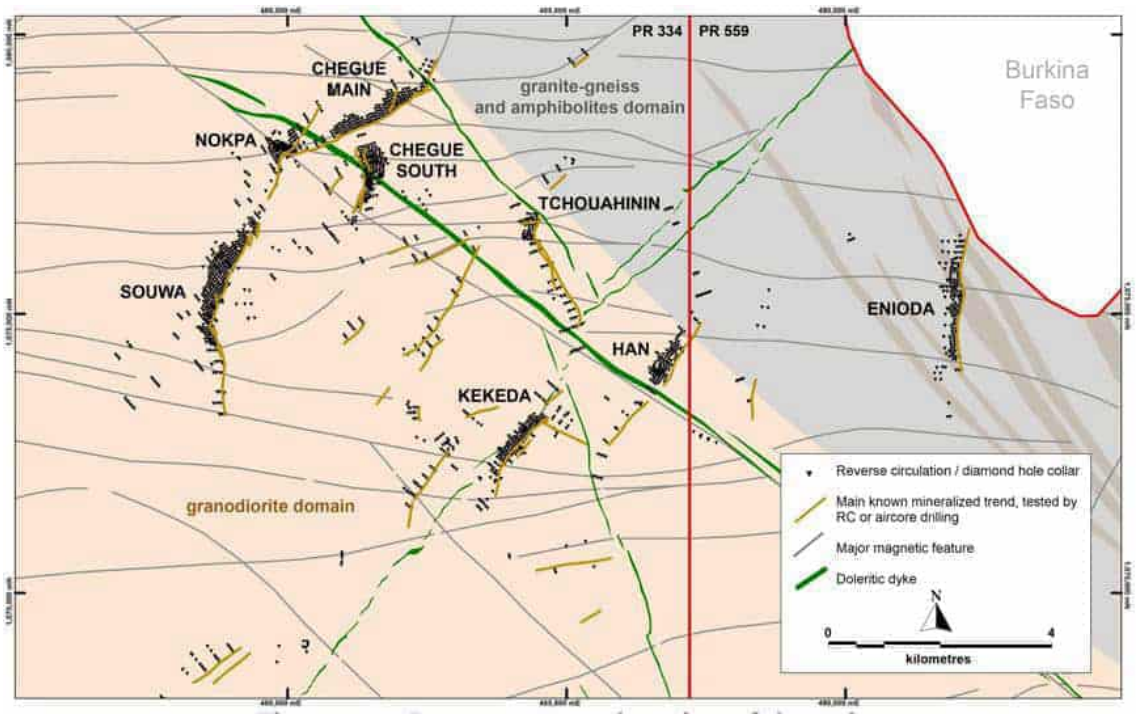
The Doropo Project consists of seven exploration permits, covering an area of approximately 1850km^2. Doropo is in the northeast of Cote dÍvoire, approximately 480km north of Abidjan.

The license holding covers thirteen gold deposits, named Souwa, Nokpa, Chegue Main, Chegue South, Tchouahinin, Kekeda, Han, Enioda, Hinda, Nare, Kilosegui, Attire and Vako.

Approximately 85 % of the gold deposits are concentrated within a 7km radius, with Vako and Kilosegui deposits located within an approximate 15km and 30km radius, respectively.

Geologically, Doropo lies entirely within the Tonlite-Trondhjemite-Granodiorite domain, bounded on the eastern side by the Boromo-Batie greenstone belt, in Burkina Faso, and by the Tehini-Hounde greenstone belt on the west.

Centamin Mining began extensive exploration at Doropo in 2016, building to a Mineral Resource Estimate of 5Moz in 2021. As part of the PFS work programme, a maiden Mineral Reserve of 1.87 Moz was declared in the Probable Reserves category. The project is being progressed through to the DFS stage which is scheduled for completion in mid-2024.



Picture 1: *Centamin Resource area location of deposits*
Source: [2023-doropo-ni43-101-technical-report.pdf (centamin.com)]

2. Objective of Tests and Selected Test Equipment

The purpose of the testing was to conduct thickener testwork on the Gold Tailings Kilosegui Fresh Master Composite MC-9, Kilosegui Trans Master Composite MC-8, Kilosegui Oxide Master Composite MC-7, Chegue Trans Master Composite MC-20, Enioda Oxide Master Composite MC-13 and Enioda Trans Master Composite MC-14 samples, with the objectives to determine:

- flocculant type and dose
- overflow clarity
- underflow density
- underflow yield stress

A 99 mm Diameter High-Rate Thickener test rig was used in this test campaign.



Picture 2: *99 mm Diameter High-Rate Thickener*

3. Customer Process Data and Simplified Flowsheet

The proposed process plant design for the Doropo Gold Project is based on a robust metallurgical flowsheet designed for optimum recovery with minimum operating costs. The flowsheet (Picture 3) is based upon unit operations that are well proven in industry.

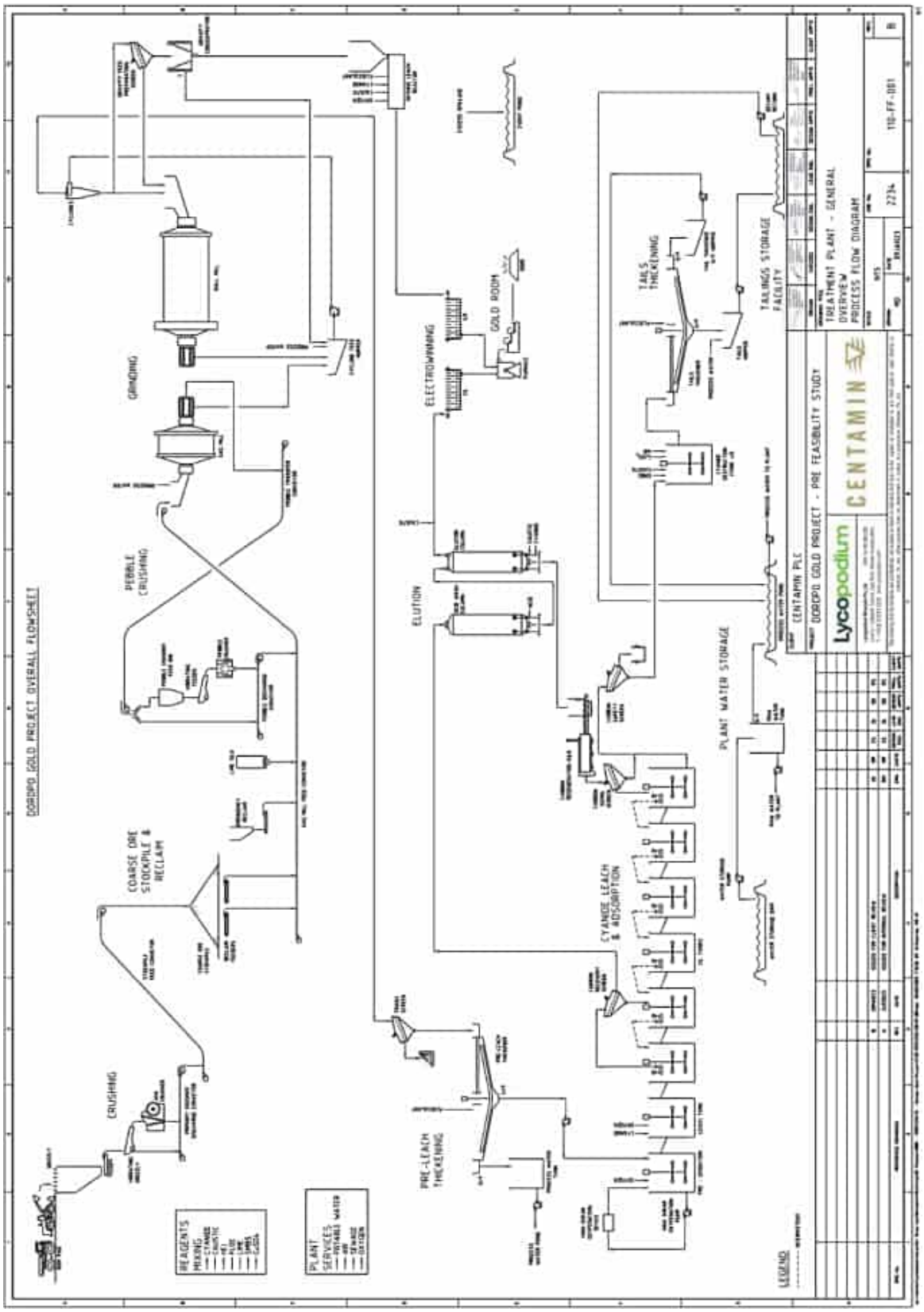
The Doropo gold plant will process a range of material types from the nine Doropo pits included in the current LOM (oxide, transition and primary ore) of variable material characteristics and head grades. It is intended that the process plant will operate with a SABC comminution circuit configuration. All ore types contain significant quantities of gravity recoverable (‘free’) gold.

The plant design has been based on a nominal capacity of 4.0 Mtpa of primary mineralised material. Over the life of mine, the plant will be fed with approximately 13% oxide, 33% transition and 54% primary. The ore will come from nine pits with the two main being Souwa (28% of LOM Feed) and Kilosegui (30% of LOM Feed). The most abundant ore lithology is granodiorite. When processing predominantly oxide ore in the early years of the mine life, it is anticipated that the plant throughput will be significantly greater than the nominal 4.0 Mtpa.

The ROM ore fed to a jaw crusher to produce a coarse crushed product. A SABC comminution circuit comprising a SAG mill in closed circuit with a pebble crusher and a ball mill in closed circuit with hydrocyclones to produce an 80% passing (P80) 75 µm grind size (primary ore) and 106 µm oxide and transition ores. The cyclone overflow slurry will gravitate via trash screening to a pre-leach thickener and the trash screen is employed to remove any trash before the pre-leach thickener. Pre-leach thickening of the milled slurry will increase the slurry density feeding the carbon in leach (CIL) circuit to minimise slurry tank volume requirements and reduce overall reagent consumption.

Pre-oxidation and Carbon in Leach (CIL) circuit consisting of a pre-oxidation tank, followed by a leach tank and six CIL tanks to provide 36 hours of leaching residence time when processing primary ore at design plant throughput. Sodium cyanide solution will be added to the first leach tank slurry to start the gold leaching process in the presence of the elevated dissolved oxygen levels. An acid wash column to remove inorganic contaminants from the carbon with hydrochloric acid. In addition, a split AARL elution circuit, electrowinning and gold smelting employed to recover gold from the loaded carbon to produce doré.

The Tailings treatment incorporates cyanide destruction using the INCO SO2 / air process (sodium metabisulphite / oxygen) and the tailings pumped to the TSF.



Picture 3: *Doropo Gold Proposed Flowsheet*
Source: [2023-doropo-ni43-101-technical-report.pdf (centamin.com)]

4. Description of Thickening Process

4.1. Sample Characterisation

The solids from the slurry samples and the underflow samples that were generated from each thickening test were dried overnight in an oven at 105 °C.

The suspended solids in the overflow samples collected from each test were determined by filtering 100 mL of overflow liquor through pre-weighed Whatman GF/C filter discs using a vacuum filtration unit. The collected overflow solids were also washed thoroughly with Perth tap water prior to oven drying at approximately 105 °C. The filter discs were then re-weighed to determine the suspended solids content.

Representative samples of the feed slurries were submitted to CSIRO for LASER sizing. The results, in graphical form, are shown in Appendices 1, 2, 3, 4, 5 and 6.

4.2. Flocculant Selection

Based on static cylinder tests, the flocculant selected for the dynamic testwork of the gold tailings samples were Magnafloc 155.

Results can be seen in Section 6.1.

A range of BASF products were used for the flocculant selection testwork. This should not be viewed as an endorsement of these particular suppliers and other equivalent products may be used.

The flocculants used for the screening were Magnafloc 333 (M 333), Magnafloc 10 (M 10), Magnafloc 155 (M 155), Magnafloc 5250 (M 5250) and Rheomax R 1030 (Refer the previous 3456183 Doropo Gold Thickening Testwork Report – Part A). In addition, the sample Kilosegui Trans Master Composite MC-8, Chegue Trans Master Composite MC-20 and Enioda Oxide Master Composite MC-13 employed coagulant screening with a coagulant Magnafloc 1425 (M 1425) followed by a BASF flocculant Magnafloc 155 (M 155).

Further flocculant screening may achieve better results.

4.3. Feed Dilution Tests

Dilution tests were conducted using Metso's optimum dilution test method. Metso's optimum dilution method determines the maximum feed solids concentration for efficient flocculation with Metso's Feedwell.

Full dilution data for these tests can be found in Part B of the report.

4.4. General Batch Dynamic Thickening Test Method

The samples were dynamically thickened in the 99 mm rig.

For each test, stock slurry was drawn from an agitated vessel by a variable speed peristaltic pump and diluted as required 'on the fly' with Perth tap water using a second pump.

Flocculant was added at a set flow rate but at a range of concentrations to deliver the required dosage for each test. Stock flocculant solution was hydrolysed in Perth tap water to 0.25 % w/v (2.5 g/L), and then diluted as required. The diluted flocculant was dosed half into the diluent line and half into the diluted feed line further downstream.

With the tailings samples, the flocculated solids bed was raked continuously at 2 r/min with two rotating pickets, in conjunction with two stationary pickets, to aid de-watering. Overflow samples were collected at a bed height of 160 mm, just at the opening of the feed well discharge. Underflow samples were taken at a bed height of 240 mm via a positive displacement pump.

Overflow samples were analysed to determine the suspended solids content as described above in Section 4.1.

All rheological measurements were carried out using a Thermo Haake VT550 rheometer and an “OK600” 4 blade vane. The method measures shear stress versus time with the peak of this curve equating to the yield stress. A constant shear rate of 0.1 sec-1 was used. For each dynamic test underflow sample, a simple un-sheared vane yield stress was measured.

The underflow yield stress is measured to generate data for use in the sizing of the thickener rake drive, it is not intended to be used for any other purpose.

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

5. Test – Product Data

ALS Metallurgy on behalf of Centamin Mining provided six buckets of gold tailings samples for thickening test work.

Buckets of slurry were delivered to Metso Perth Technology Centre in Bayswater, and all samples underwent dynamic testing using Perth tap water due to the limited availability of site water.

All samples were tested at ambient conditions.

5.1. Kilosegui Fresh Master Composite MC-9

Kind of process/product

- Product: Fresh Master Composite MC-9

Slurry as tested – Gold Tailings

- Temperature: 25 ^{o}C
- Feedwell density: 1.1235 g/mL
- Liquor density: 0.9959 g/mL (measured)
- Diluent density: (Perth Tap water) 0.9959 g/mL (measured)
- Solids SG: 2.70 t/m^3 (measured)
- pH: 8.6
- Sizing p80*: 101.7 µm
- Solids phase
  Composition: Mineral Slurry
- Liquid phase
  Composition: Water (Perth tap water)
- Corrosive Elements: Nil

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

5.2. Kilosegui Trans Master Composite MC-8

Kind of process/product

- Product: Trans Master Composite MC-8

Slurry as tested – Gold Tailings

- Temperature: 25 ºC
- Feedwell density: 1.1232 g/mL
- Liquor density: 0.9959 g/mL (measured)
- Diluent density: (Perth Tap water) 0.9959 g/mL (measured)
- Solids SG: 2.69 t/m^3 (measured)
- pH: 8.5
- Sizing p80*: 151.8 µm
- Solids phase
  Composition: Mineral Slurry
- Liquid phase
  Composition: Water (Perth tap water)
- Corrosive Elements: Nil

5.3. Kilosegui Oxide Master Composite MC-7

Kind of process/product

- Product: Oxide Master Composite MC-7

Slurry as tested – Gold Tailings

- Temperature: 25 ºC
- Feedwell density: 1.1232 g/mL
- Liquor density: 0.9959 g/mL (measured)
- Diluent density: (Perth Tap water) 0.9959 g/mL (measured)
- Solids SG: 2.69 t/m^3 (measured)
- pH: 9.2
- Sizing p80*: 136.6 µm
- Solids phase
  Composition: Mineral Slurry
- Liquid phase
  Composition: Water (Perth tap water)
- Corrosive Elements: Nil

5.4. Chegue Trans Master Composite MC-20

Kind of process/product

- Product: Trans Master Composite MC-20

Slurry as tested – Gold Tailings

- Temperature: 25 °C
- Feedwell density: 1.1239 g/mL
- Liquor density: 0.9959 g/mL (measured)
- Diluent density: (Perth Tap water) 0.9959 g/mL (measured)
- Solids SG: 2.71 t/m^3 (measured)
- pH: 8.6
- Sizing p80*: 134.1 µm
- Solids phase
  Composition: Mineral Slurry
- Liquid phase
  Composition: Water (Perth tap water)
- Corrosive Elements: Nil

5.5. Enioda Oxide Master Composite MC-13

Kind of process/product

- Product: Oxide Master Composite MC-13

Slurry as tested – Gold Tailings

- Temperature: 25 °C
- Feedwell density: 1.0888 g/mL
- Liquor density: 0.9959 g/mL (measured)
- Diluent density: (Perth Tap water) 0.9959 g/mL (measured)
- Solids SG: 2.90 t/m^3 (measured)
- pH: 9.2
- Sizing p80*: 100.6 µm
- Solids phase
  Composition: Mineral Slurry
- Liquid phase
  Composition: Water (Perth tap water)
- Corrosive Elements: Nil

5.6. Enioda Trans Master Composite MC-14

Kind of process/product

- Product: Trans Master Composite MC-14

Slurry as tested – Gold Tailings

- Temperature: 25 ^{o}C
- Feedwell density: 1.1263 g/mL
- Liquor density: 0.9959 g/mL (measured)
- Diluent density: (Perth Tap water) 0.9959 g/mL (measured)
- Solids SG: 2.79 t/m^3 (measured)
- pH: 8.7
- Sizing p80*: 144.2 µm
- Solids phase
  Composition: Mineral Slurry
- Liquid phase
  Composition: Water (Perth tap water)
- Corrosive Elements: Nil

**The particle size distribution via laser sizing should be considered as indicative only. There are numerous factors such as slurry viscosity, particle size, shape and specific gravity which can impact on this PSD technique. Where these factors are likely to be significant, then other sizing techniques should be considered.*

6. Explanation of Tests

6.1. Kilosegui Fresh Master Composite MC-9

6.1.1. Flocculant Screening

Based on the previous "3456183 Doropo Gold Thickening Testwork Report – Part A'' testwork report, the BASF product Magnafloc 155 was selected as flocculant for dynamic testing.

Static cylinder tests were conducted with Magnafloc 155 (M 155) at 10 % slurry concentration in a 500mL static cylinder to obtain an optimal slurry concentration for the dynamic runs.

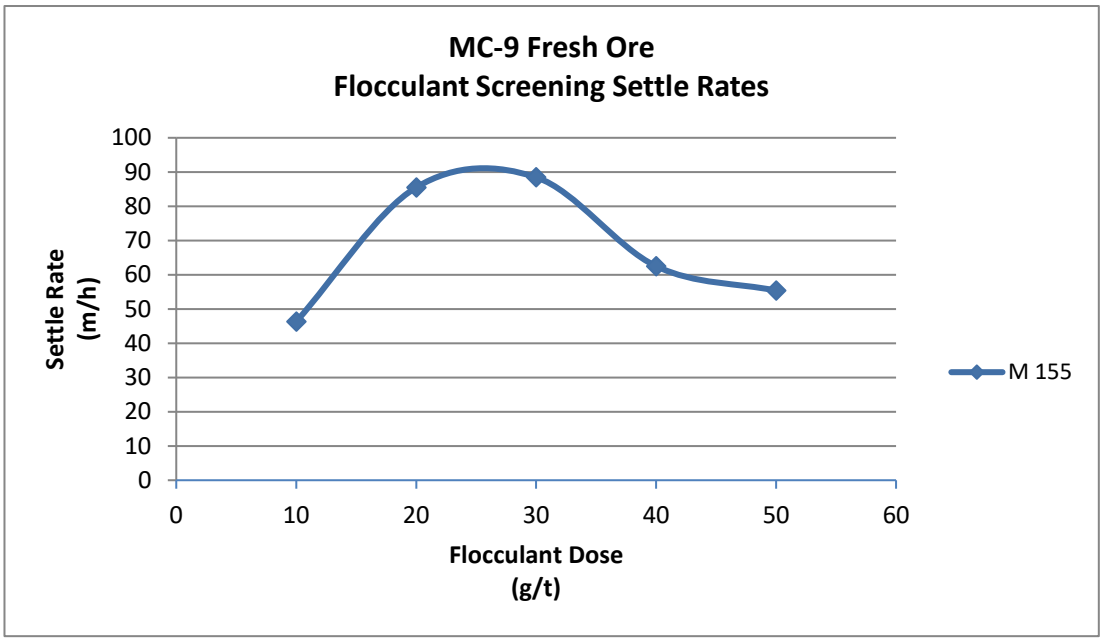
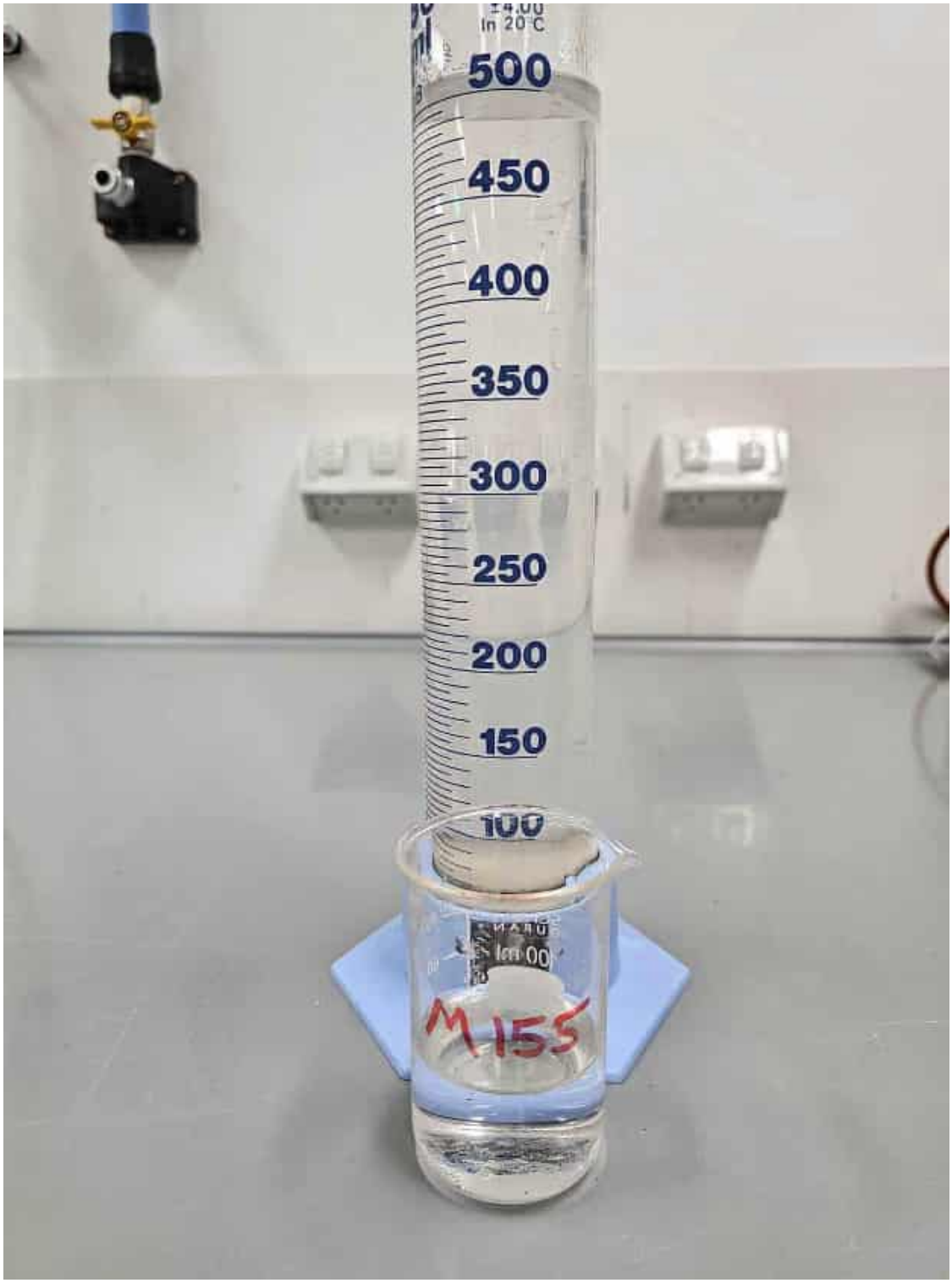


Chart 1: *Flocculant screening settling rates of the Fresh Master Composite MC-9 sample in 500 mL static cylinder test*

Chart 1 depicts the flocculant screening rates of the Fresh Master Composite MC-9 sample in a 500 mL static cylinder test.

It was observed that the flocculant Magnafloc 155 produced fast settling rates, robust aggregates and clean supernatant overflow clarity.

Picture 4 shows the flocculant screening of Fresh Master Composite MC-9 sample with flocculant M 155.



Picture 4: *Flocculant screening of Kilosegui Fresh Master Composite MC-9 sample with M 155*

6.1.2. Dynamic Thickening Tests

Doropo Gold Project MC-9 Fresh Dynamic Thickening Testwork Results							
Run	Feed		Flocculant		Underflow		Overflow
	Flux (t/(m²·h))	Liquor RR (m/h)	Type	Dose (g/t)	Meas. Solids (% (w/w))	YS (Pa)	Solids (mg/L)
1	0.50	2.47	M 155	20	69.0	42	<100
2	0.50	2.47	M 155	10	69.8	38	<100
3	0.75	3.71	M 155	10	69.5	32	130
4	1.00	4.94	M 155	10	67.6	31	140

Table 1: *Dynamic thickening testwork results of the Fresh Master Composite MC-9 sample*

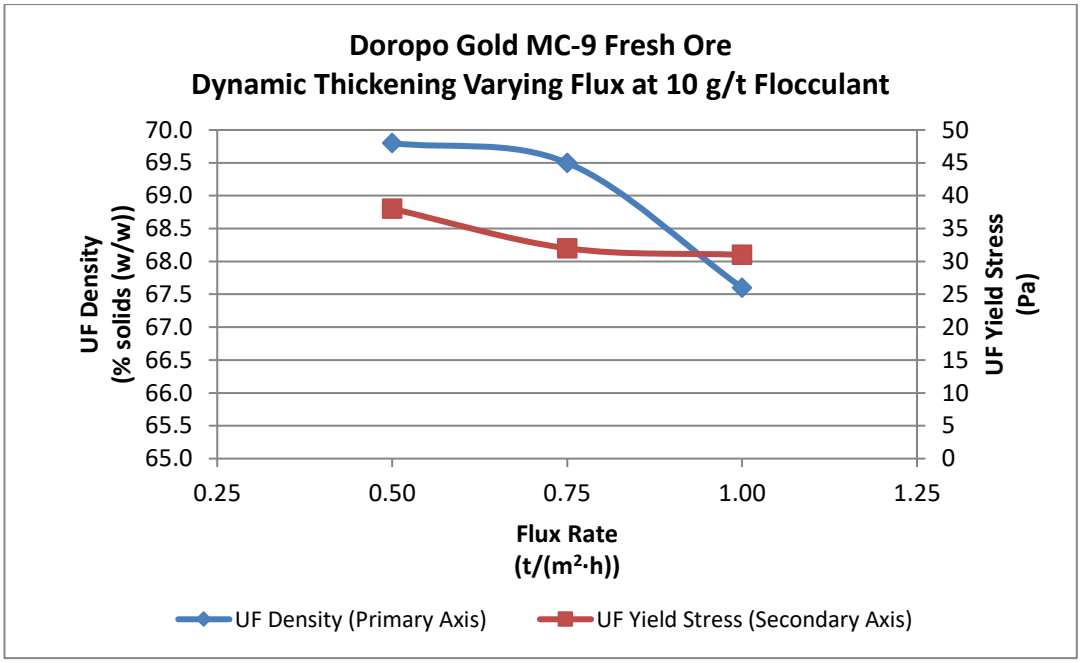


Chart 2: *Dynamic thickening varying flux at 10 g/t flocculant*

Table 1 and chart 2 demonstrate the results of the dynamic thickening of the Fresh Master Composite MC-9 tailings sample.

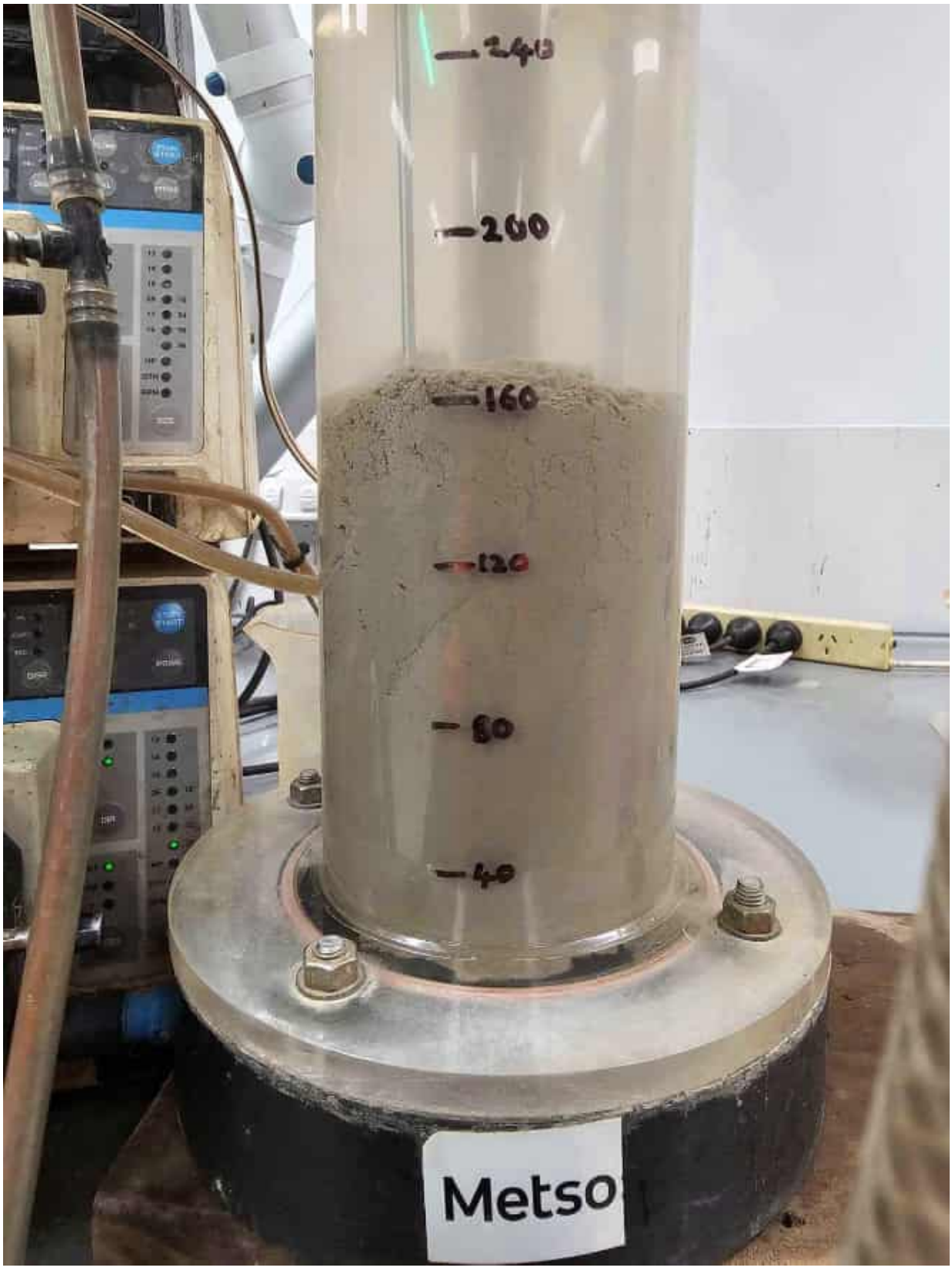
The first run employed a flux rate of 0.50 t/(m^{2}h) utilising a flocculant dose of 20 g/t of BASF product Magnafloc 155. This achieved an underflow density of 69.0 % solids (w/w) with an accompanying yield stress measuring 42 Pa. This run resulted in a clean supernatant overflow measuring less than 100mg/l of total suspended solids.

The second run was conducted at the same conditions as the first run, though the flocculant dose was decreased from 20 g/t to 10 g/t. This resulted in the increase of underflow density from 69.0 % to 69.8 % solids (w/w) and the yield stress measured 38 Pa. The overflow measured less than 100mg/l of total suspended solids.

The third run was conducted at the same conditions as the second run, though the flux rate was increased from 0.5 t/(m^{2}h) to 0.75 t/(m^{2}h). This resulted in the slight decrease of underflow density from 69.8 % to 69.5 % solids (w/w) and the yield stress from 38 Pa to 32 Pa. The overflow measured 130 mg/l of total suspended solids.

The fourth run was conducted at the same conditions as the third run, though the flux rate was increased from 0.75 t/(m^{2}h) to 1.0 t/(m^{2}h). This resulted in the decrease of underflow density from 69.5 % to 67.6 % solids (w/w) and the yield stress from 32 Pa to 31 Pa. The overflow measured 140 mg/l of total suspended solids. Due to the limited availability of the sample, further testing was not possible.

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system



Picture 5: *Dynamic run 4 of Kilosegui Fresh Master Composite MC-9 sample with M 155*

6.2. Kilosegui Trans Master Composite MC-8

6.2.1. Flocculant Screening

The BASF product Magnafloc 155 was selected as flocculant and BASF product M 1425 was selected as coagulant for dynamic testing.

The sample employed screening with coagulant M 1425 followed by flocculant M 155 for good supernatant overflow clarity.

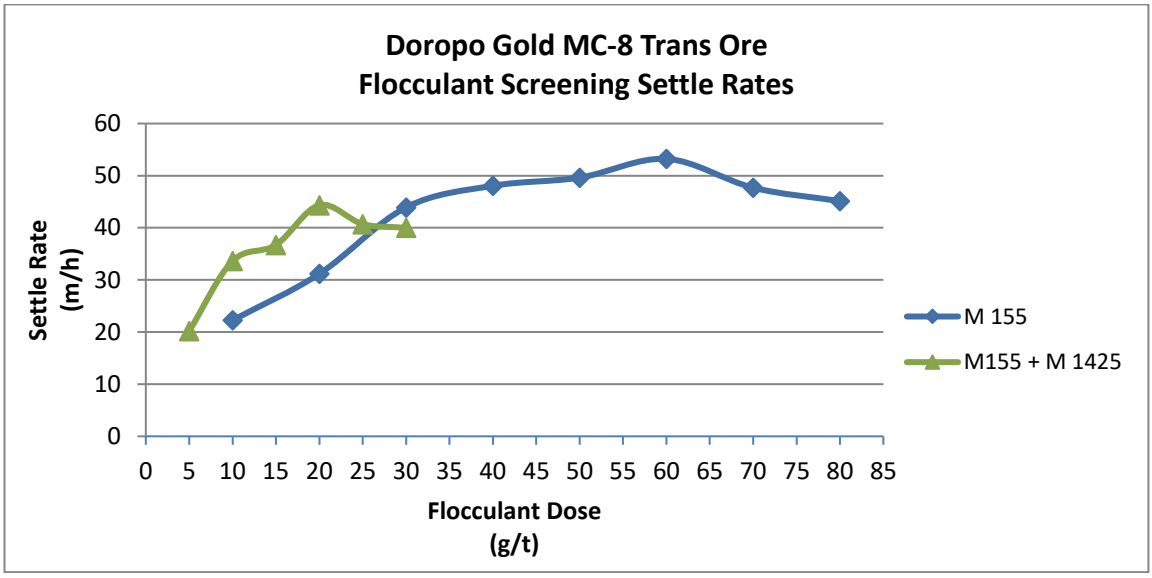
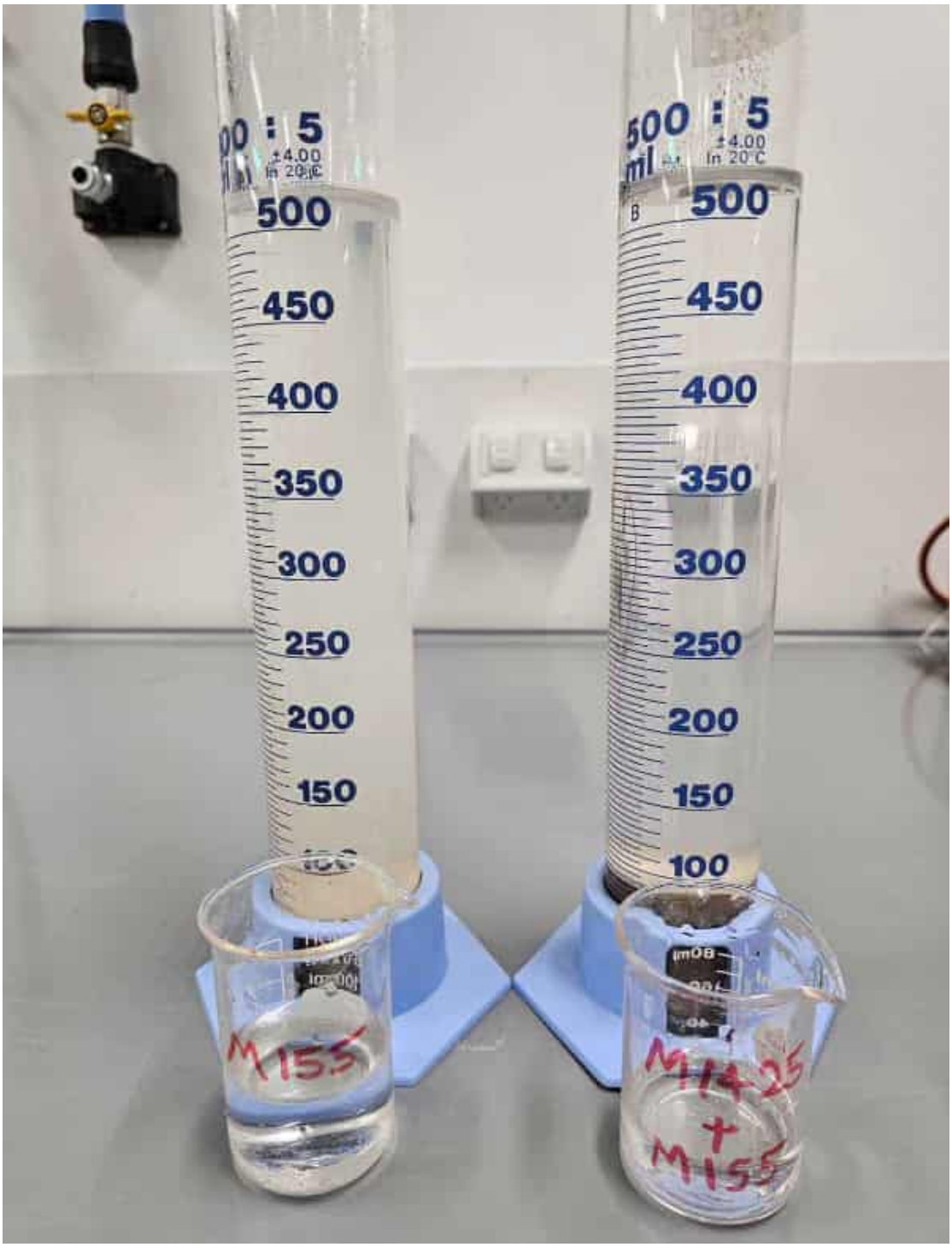


Chart 3: *Flocculant screening settling rates of the Trans Master Composite MC-8 sample in 500 mL static cylinder test*

Chart 3 depicts the flocculant screening rates of the Trans Master Composite MC-8 sample in a 500 mL static cylinder test.

Using the flocculant M 155 alone resulted in a poor overflow clarity. However, it was observed that when the coagulant M 1425 was used in conjunction with the flocculant M 155, it produced fast settling rates, robust aggregates and good supernatant overflow clarity. This performance was notably better compared to the sample that used only the flocculant M 155.

Picture 6 shows the flocculant screening of Trans Master Composite MC-8 sample with flocculant M 155 alone, as well as using coagulant M 1425 followed by flocculant M 155.



Picture 6: *Flocculant screening of the Kilosegui Trans Master Composite MC-8 with M 155 (left side), and with M1425 followed by M 155 (right side)*

6.2.2. Dynamic Thickening Tests

Two dynamic testing for the Trans MC-8 tailings sample were employed as follows:

1. Dynamic testing using flocculant M 155
2. Dynamic testing using coagulant M 1425 in conjunction with flocculant M 155

1. Dynamic Thickener Testing using Flocculant M 155

Doropo Gold Project MC-8 Trans Dynamic Thickening Testwork Results							
Run	Feed		Flocculant		Underflow		Overflow
	Flux ($t/(m^2 \cdot h)$)	Liquor RR (m/h)	Type	Dose (g/t)	Meas. Solids (% (w/w))	YS (Pa)	Solids (mg/L)
1	0.50	2.47	M 155	50	63.0	78	1870
2	0.50	2.47	M 155	50	49.2	82	1330
3	0.50	2.47	M 155	100	39.8	91	800

Table 2: *Dynamic thickening testwork results of the Trans Master Composite MC-8 sample using flocculant M 155*

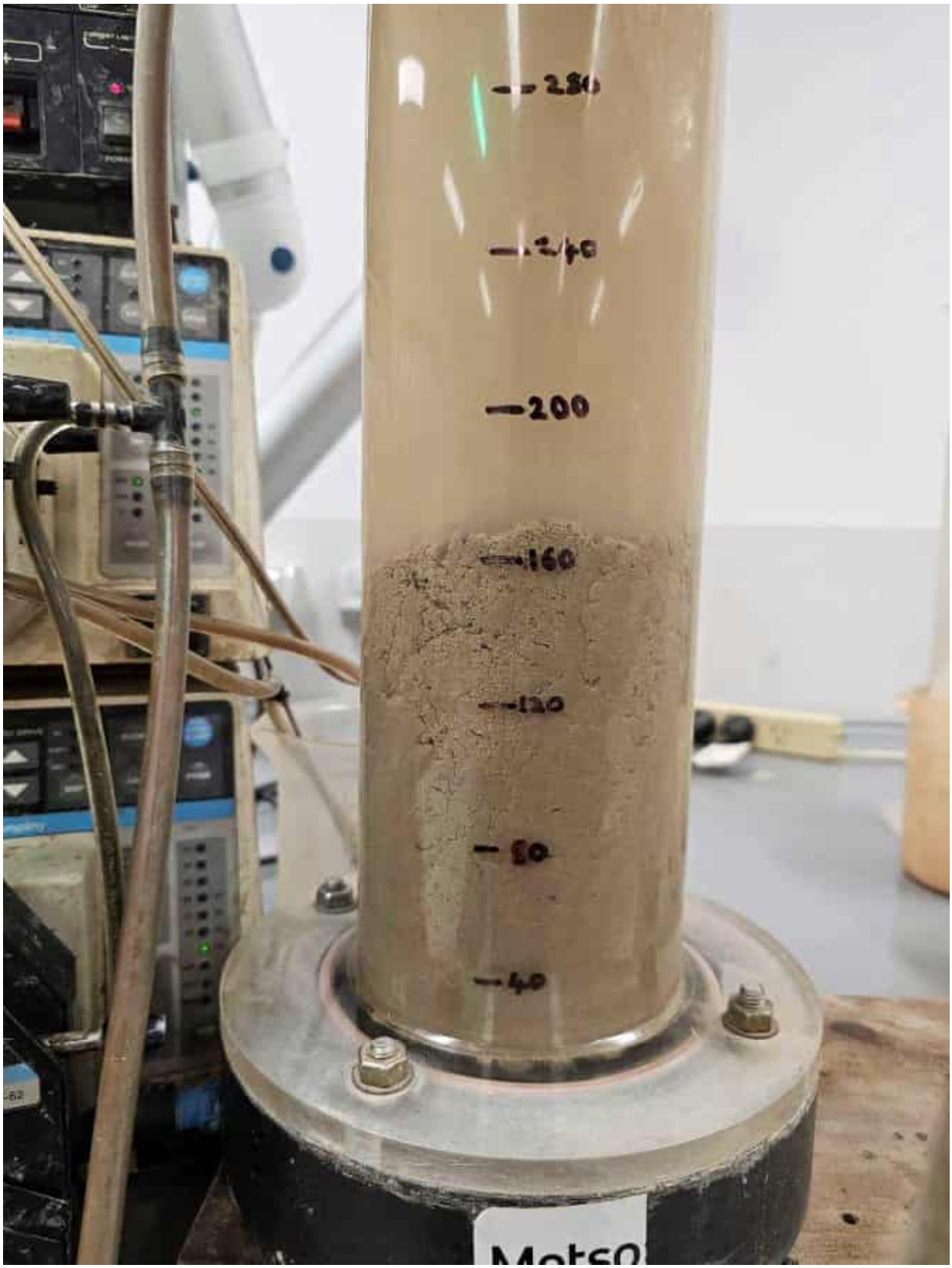
Table 2 demonstrate the results of the dynamic thickening of the Trans Master Composite MC-8 tailings sample using the flocculant M 155.

The first run employed a flux rate of 0.50 $t/(m^2h)$ utilising a flocculant dose of 50 g/t of flocculant M 155 and a feedwell solid concentration of 18%. This achieved an underflow density of 63.0 % solids (w/w) with an accompanying yield stress measuring 78 Pa. This run resulted in a poor overflow measuring 1870 mg/l of total suspended solids. During this test run, a half bed rotation was observed in the rig.

The second run was conducted at the same conditions as the first run, though the feedwell solid concentration was decreased from 18 % to 12 %. This resulted in the decrease of underflow density from 63.0 % to 49.2 % solids (w/w) and the yield stress measured 82 Pa. The overflow measured 1330 mg/l of total suspended solids. A half bed rotation was observed in the rig during this dynamic run.

The third run was conducted at the same conditions as the second run, though the flocculant dose was increased from 50 g/t to 100 g/t. This resulted in the decrease of underflow density from 49.2 % to 39.8 % solids (w/w) and the yield stress measured 91 Pa. The overflow measured 800 mg/l of total suspended solids. During this test run, a half bed rotation was observed in the rig.

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system



Picture 7: Dynamic run 2 of *Kilosegui Trans Master Composite MC-8 sample with flocculant M 155*

2. Dynamic Thickener Testing using Coagulant M 1425 and Flocculant M 155

Doropo Gold Project MC-8 Trans Dynamic Thickening Testwork Results									
Run	Feed		Coagulant		Flocculant		Underflow		Overflow
	Flux (t/(m²·h))	Liquor RR (m/h)	Type	Dose (g/t)	Type	Dose (g/t)	Meas. Solids (% (w/w))	YS (Pa)	Solids (mg/L)
1	0.50	2.82	M 1425	450	M 155	5	66.2	49	370
2	0.50	2.82	M 1425	600	M 155	5	64.7	37	180
3	0.75	4.23	M 1425	600	M 155	5	62.1	28	150
4	1.00	5.65	M 1425	600	M 155	5	58.5	7	<100
5	0.75	4.23	M 1425	500	M 155	5	62.2	15	180
6	0.75	4.23	M 1425	700	M 155	5	62.4	30	<100
7	0.75	4.23	M 1425	475	M 155	5	53.2	21	170

Table 3: *Dynamic thickening testwork results of the Trans Master Composite MC-8 sample using coagulant M 1425 and flocculant M 155*

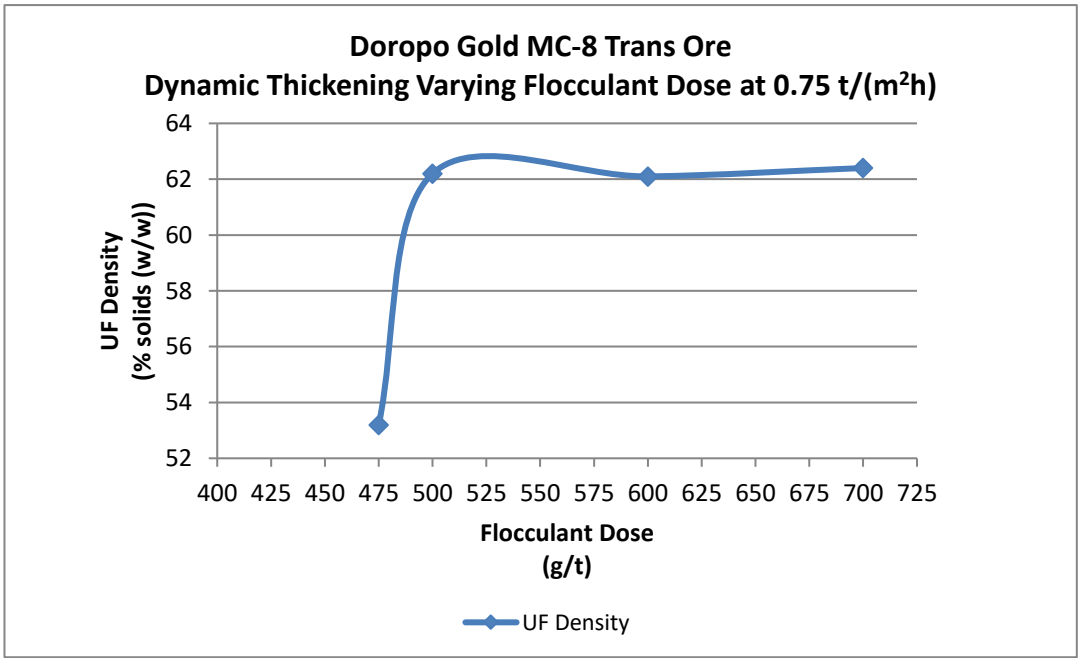


Chart 4: *Dynamic thickening varying Coagulant dose at 0.75 t/(m²h)*

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

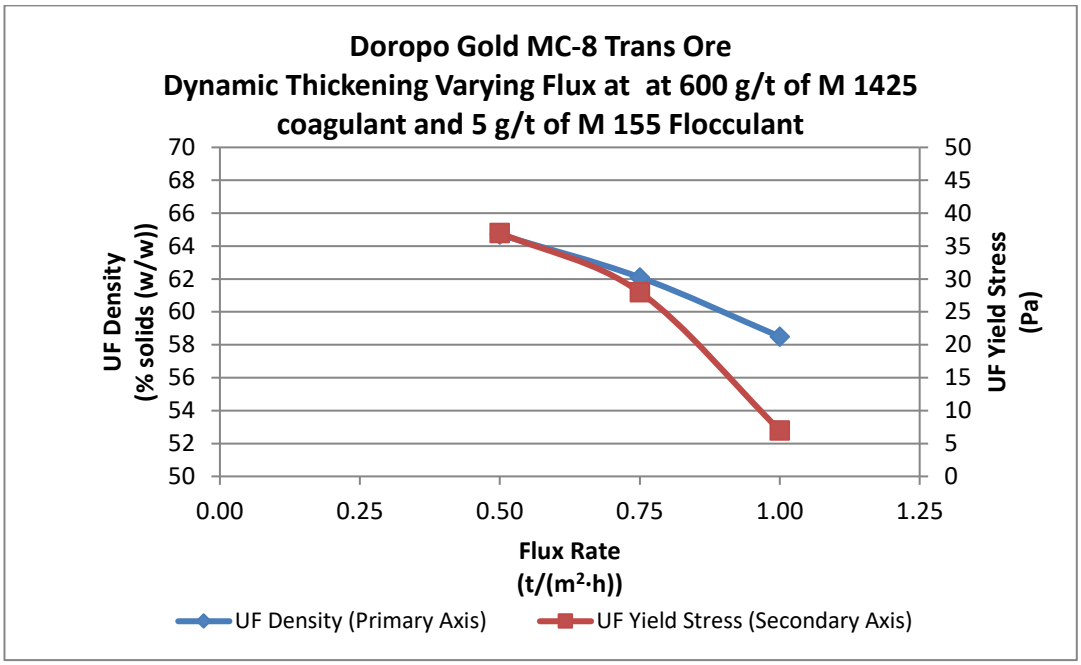


Chart 5: *Dynamic thickening varying flux at 600 g/t coagulant M1425 and 5 g/t flocculant M 155*

Table 3 and Chart 5 demonstrate the results of the dynamic thickening of the Trans Master Composite MC-8 tailings sample using the coagulant M 1425 with 5 g/t of flocculant M 155.

Chart 4 illustrates the results of the dynamic thickening varying coagulant dose at 0.75 t/(m^{2}h) for the MC-8 tailings sample.

The first run employed a flux rate of 0.50 t/(m^{2}h) utilising a coagulant dose of 450 g/t of M 1425 and a flocculant dose of 5 g/t of M 155. This achieved an underflow density of 66.2 % solids (w/w) with an accompanying yield stress measuring 49 Pa. The overflow measured 370 mg/l of total suspended solids.

The second run was conducted at the same conditions as the first run, though the coagulant dose was increased from 450 g/t to 600 g/t. This resulted in the decrease of underflow density from 66.2 % to 64.7 % solids (w/w) and the yield stress from 49 Pa to 37 Pa. The overflow measured 180 mg/l of total suspended solids.

The third run was conducted at the same conditions as the second run, though the flux rate was increased from 0.50 t/(m^{2}h) to 0.75 t/(m^{2}h). This resulted in the decrease of underflow density from 64.7 % to 62.1 % solids (w/w) and the yield stress from 37 Pa to 28 Pa. The overflow measured 150 mg/l of total suspended solids.

The fourth run was conducted at the same conditions as the third run, though the flux rate was further increased from 0.75 t/(m^2h) to 1.0 t/(m^2h). This resulted in the decrease of underflow density from 62.1 % to 58.5 % solids (w/w) and the yield stress from 28 Pa to 7 Pa. The overflow measured less than 100 mg/l of total suspended solids. During this dynamic run, a hindered and unstable bed was observed in the rig as pushing more solids (running aggressively) into the rig resulted in the flocculant disruption, causing the particles to under-flocculate, thus leading to lower underflow density and unreliable overflow results.

The fifth run was conducted at the same conditions as the third run, though the coagulant dose was decreased from 600 g/t to 500 g/t. This resulted in the underflow density of 62.2 % solids (w/w) similar to that of the third run and the yield stress measured 15 Pa. The overflow measured 180 mg/l of total suspended solids. During this dynamic run, a hindered bed was observed in the rig.

The sixth run was conducted at the same conditions as the third run, though the coagulant dose was increased from 600 g/t to 700 g/t. This resulted in the slight increase of underflow density from 62.1 % to 62.4 % solids (w/w) and the yield stress from 28 Pa to 30 Pa. This run resulted in a clean supernatant overflow measuring less than 100 mg/l of total suspended solids.

The seventh run was conducted at the same conditions as the third run, though the coagulant dose was decreased from 600 g/t to 475 g/t. This resulted in the decrease of underflow density from 62.1 % to 53.2 % solids (w/w) and the yield stress from 28 Pa to 21 Pa. The overflow measured 170 mg/l of total suspended solids. During this dynamic run, a hindered bed was observed in the rig.

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system



Picture 8: Dynamic run 6 of *Kilosegui Trans Master Composite MC-8 sample with M 1425 followed by M 155*

6.3. Kilosegui Oxide Master Composite MC-7

6.3.1. Flocculant Screening

The BASF product Magnafloc 155 was selected as flocculant for dynamic testing.

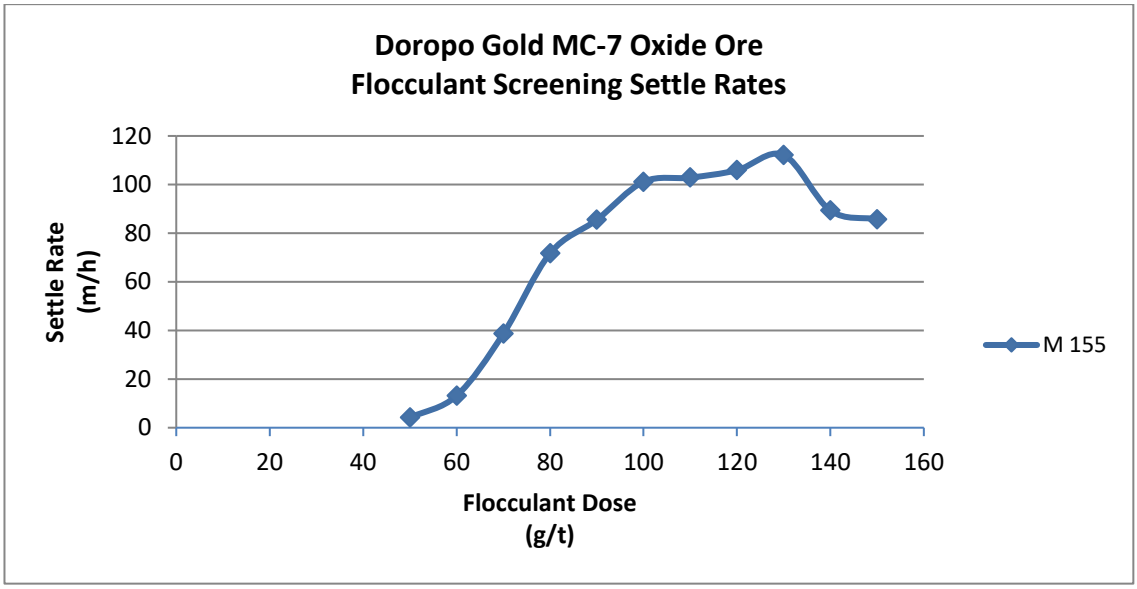
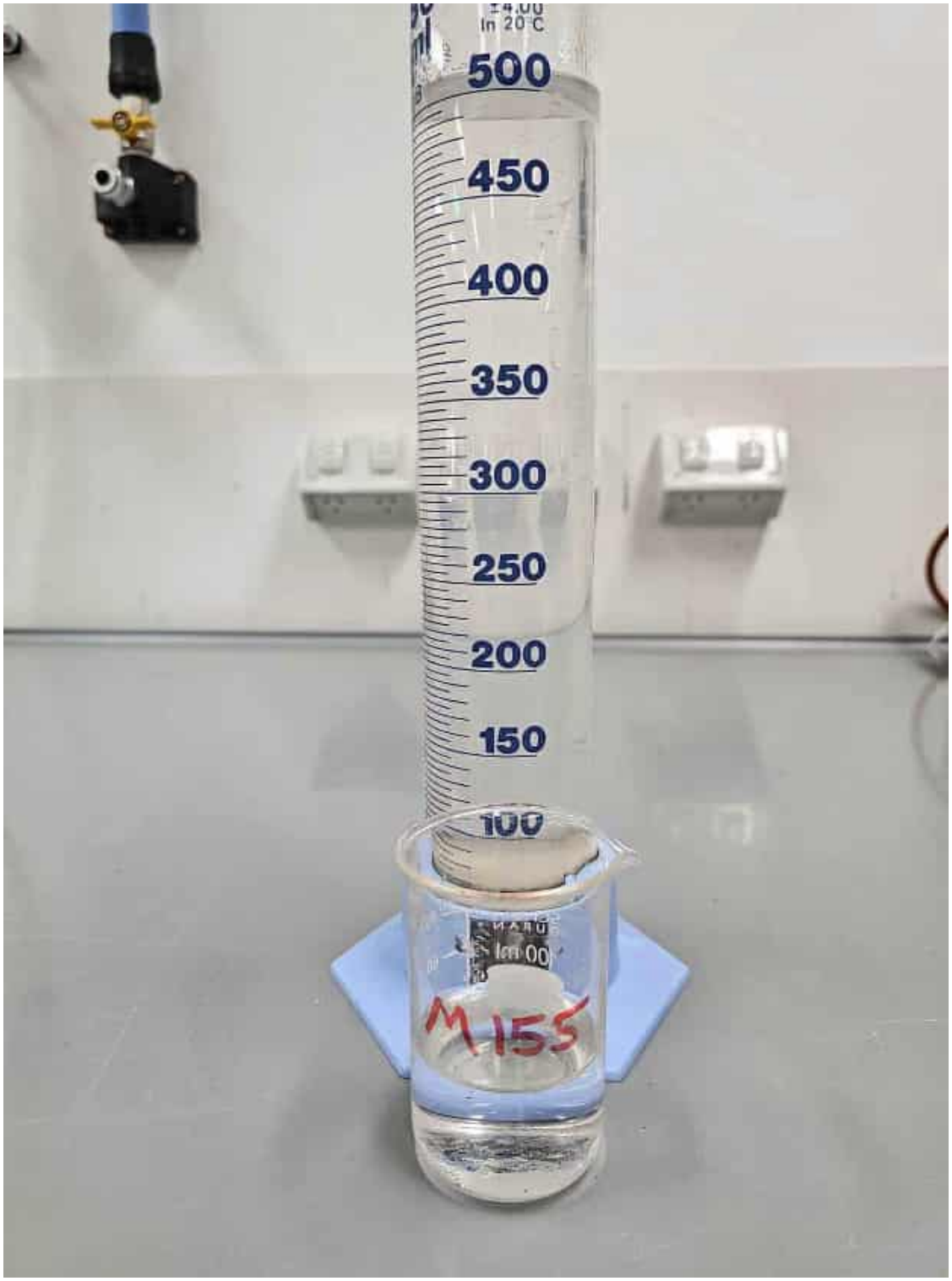


Chart 6: *Flocculant screening settling rates of the Oxide Master Composite MC-7 sample in 500 mL static cylinder test*

Chart 6 depicts the flocculant screening rates of the Oxide Master Composite MC-7 sample in a 500 mL static cylinder test.

It was observed that the flocculant Magnafloc 155 produced fast settling rates, robust aggregates and good supernatant overflow clarity.

Picture 9 shows the flocculant screening of Oxide Master Composite MC-7 sample with flocculant M 155.



Picture 9: *Flocculant screening of the Kilosegui Oxide Master Composite MC-7 with flocculant M 155*

6.3.2. Dynamic Thickening Tests

Doropo Gold Project MC-7 Kilosegui Oxide Dynamic Thickening Testwork Results							
Run	Feed		Flocculant		Underflow		Overflow
	Flux (t/(m²·h))	Liquor RR (m/h)	Type	Dose (g/t)	Meas. Solids (% (w/w))	YS (Pa)	Solids (mg/L)
1	0.50	2.47	M 155	130	56.2	103	130
2	0.50	3.03	M 155	130	56.3	93	140
3	0.50	2.47	M 155	120	57.2	136	140
4	0.50	2.47	M 155	140	56.5	129	<100
5	0.75	3.71	M 155	140	54.9	77	120
6	1.00	4.94	M 155	140	44.9	41	140

Table 4: *Dynamic thickening testwork results of the Oxide Master Composite MC-7 sample*

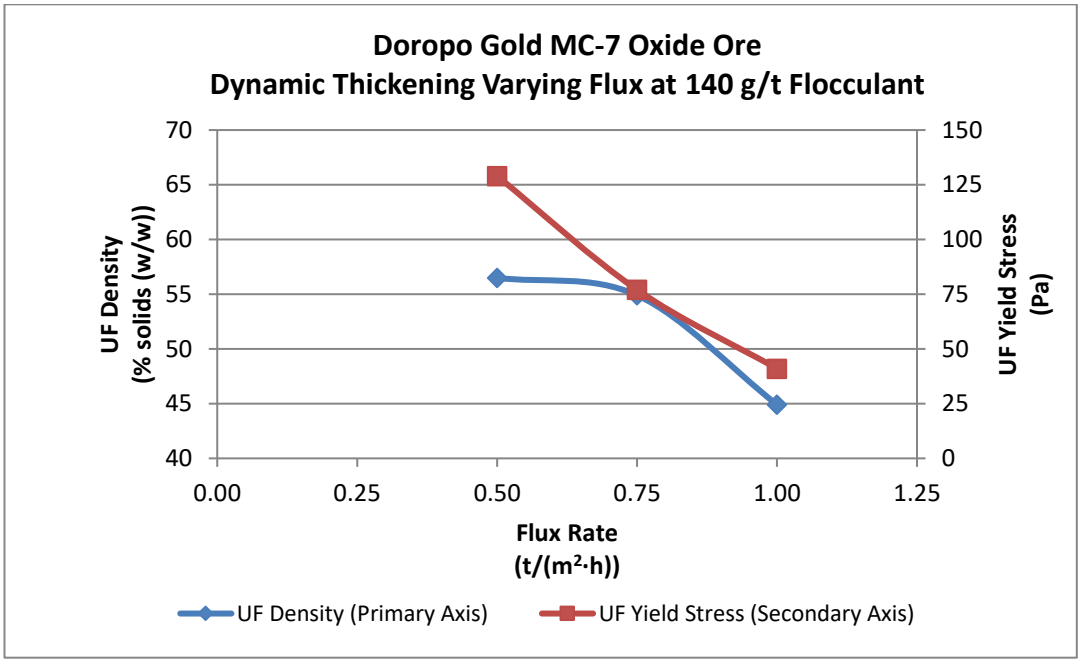


Chart 7: *Dynamic thickening varying flux at 140 g/t flocculant*

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

Table 4 and chart 7 demonstrate the results of the dynamic thickening of the Oxide Master Composite MC-7 tailings sample using the flocculant M 155.

The first run employed a flux rate of 0.50 t/(m^2h) utilising a flocculant dose of 130 g/t of M 155 and a feedwell solid concentration of 18 %. This achieved an underflow density of 56.2 % solids (w/w) with an accompanying yield stress measuring 103 Pa. The overflow measured 130 mg/l of total suspended solids. A half bed rotation was observed in the rig during this dynamic run.

The second run was conducted at the same conditions as the first run, though the feedwell solid concentration was decreased from 18 % to 15 %. This achieved an underflow density of 56.3 % solids (w/w) similar to that of the first run and the yield stress measured 93 Pa. The overflow measured 140 mg/l of total suspended solids. During this test run, a half bed rotation was observed in the rig.

The third run was conducted at the same conditions as the first run, though the flocculant dose was decreased from 130 g/t to 120 g/t. This resulted in the increase of underflow density from 56.2 % to 57.2 % solids (w/w) and the yield stress from 103 Pa to 136 Pa. The overflow measured 140 mg/l of total suspended solids. During this dynamic run, a half bed rotation was observed in the rig.

The fourth run was conducted at the same conditions as the first run though the flocculant dose was increased from 120 g/t to 140 g/t. This resulted in the slight decrease of underflow density from 56.2 % to 56.5 % solids (w/w) and the yield stress from 103 Pa to 129 Pa. This run resulted in a clean supernatant overflow measuring less than 100 mg/l of total suspended solids. A half bed rotation was observed in the rig during this dynamic run.

The fifth run was conducted at the same conditions as the fourth run, though the flux rate was further increased from 0.50 t/(m^2h) to 0.75 t/(m^2h). This resulted in the decrease of underflow density from 56.5 % to 54.9 % solids (w/w) and the yield stress from 129 Pa to 77 Pa. The overflow measured 120 mg/l of total suspended solids. During this dynamic run, a half bed rotation was observed in the rig.

The sixth run was conducted at the same conditions as the fourth run, though the flux rate was further increased from 0.50 t/(m^2h) to 1.0 t/(m^2h). This resulted in the decrease of underflow density from 56.5 % to 44.9 % solids (w/w) and the yield stress from 129 Pa to 41 Pa. The overflow measured 140 mg/l of total suspended solids. A half bed rotation was observed in the rig during this dynamic run.



Picture 10: Dynamic run 5 of Kilosegui *Oxide Master Composite MC-7 sample with M 155*

6.4. Chegue Trans Master Composite MC-20

6.4.1. Flocculant Screening

The BASF product Magnafloc 155 was selected as flocculant for dynamic testing.

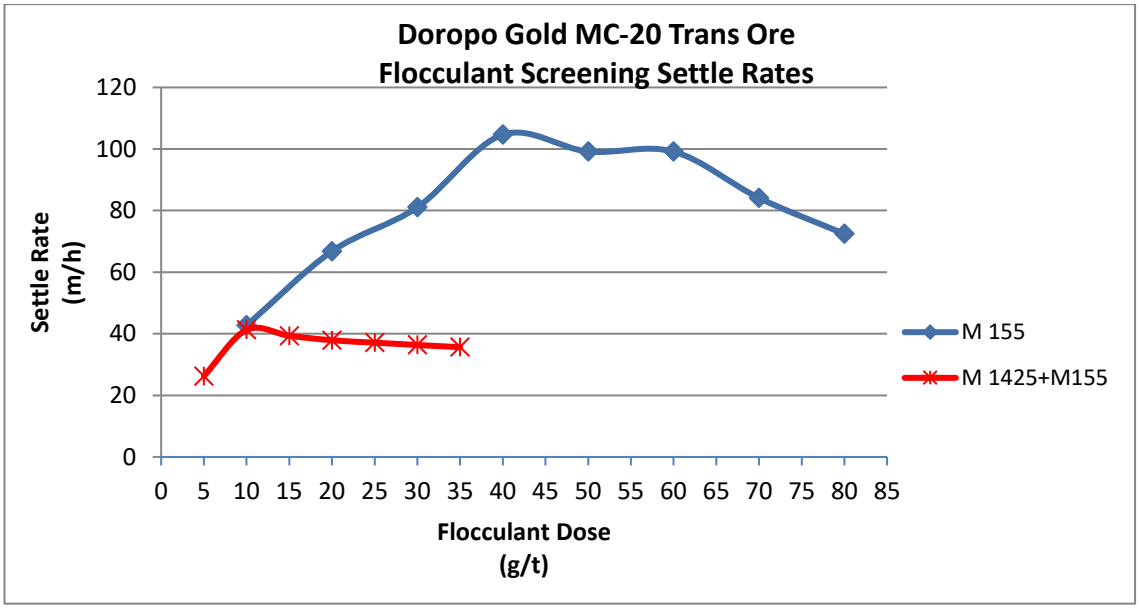
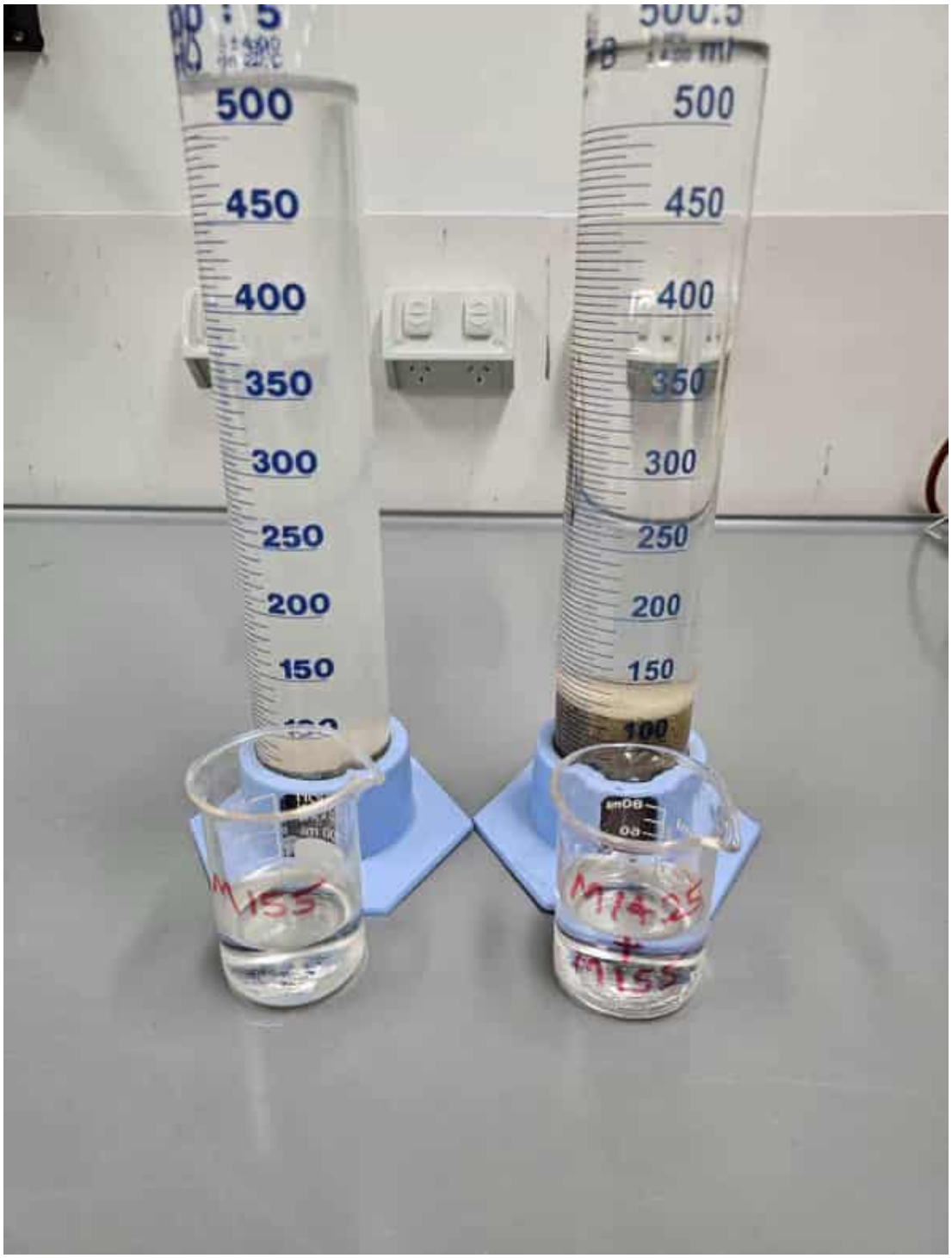


Chart 8: *Flocculant screening settling rates of the Trans Master Composite MC-20 sample in 500 mL static cylinder test*

Chart 8 depicts the flocculant screening rates of the Trans Master Composite MC-20 sample in a 500 mL static cylinder test.

Using the flocculant M 155 alone resulted in a poor overflow clarity. However, it was observed that when the coagulant M 1425 was used in conjunction with the flocculant M 155, it produced fast settling rates, robust aggregates and good supernatant overflow clarity. This performance was notably better compared to the sample that used only the flocculant M 155.

Picture 11 shows the flocculant screening of Trans Master Composite MC-20 sample with flocculant M 155 alone, as well as using coagulant M 1425 followed by flocculant M 155.



Picture 11: *Flocculant screening of the Chegue Trans Master Composite MC-20 with M 155 (left side), and with M1425 followed by M 155 (right side)*

6.4.2. Dynamic Thickening Tests

Two dynamic testing for the Trans MC-20 tailings sample were employed as follows:

1. Dynamic testing using flocculant M 155
2. Dynamic testing using coagulant M 1425 in conjunction with flocculant M 155

1. Dynamic Thickener Testing using Flocculant M 155

Doropo Gold Project MC-20 Trans Dynamic Thickening Testwork Results							
Run	Feed		Flocculant		Underflow		Overflow
	Flux ($t/(m^2 \cdot h)$)	Liquor RR (m/h)	Type	Dose (g/t)	Meas. Solids (% (w/w))	YS (Pa)	Solids (mg/L)
1	0.50	2.47	M 155	40	61.6	69	1150
2	0.50	2.47	M 155	100	58.2	50	1000

Table 4: *Dynamic thickening testwork results of the Trans Master Composite MC-20 sample using flocculant M 155*

Table 4 demonstrate the results of the dynamic thickening of the Trans Master Composite MC-20 tailings sample using the flocculant M 155.

The first run employed a flux rate of 0.50 $t/(m^2h)$ utilising a flocculant dose of 40 g/t of flocculant M 155. This achieved an underflow density of 61.6 % solids (w/w) with an accompanying yield stress measuring 69 Pa. This run resulted in a poor overflow measuring 1150 mg/l of total suspended solids.

The second run was conducted at the same conditions as the first run, though the flocculant dose was increased from 40 g/t to 100 g/t. This resulted in the decrease of underflow density from 61.6 % to 58.2 % solids (w/w) and the yield stress from 69 Pa to 50 Pa. The overflow measured 1000 mg/l of total suspended solids.

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system



Picture 12: Dynamic run 2 of *Chegue Trans Master Composite MC-20 sample with flocculant M 155*

2. Dynamic Thickener Testing using Coagulant M 1425 and Flocculant M 155

Doropo Gold Project MC-20 Trans Dynamic Thickening Testwork Results									
Run	Feed		Coagulant		Flocculant		Underflow		Overflow
	Flux	Liquor RR	Type	Dose	Type	Dose	Meas. Solids	YS	Solids
	(t/(m²·h))	(m/h)		(g/t)		(g/t)	(% (w/w))	(Pa)	(mg/L)
1	0.50	2.82	M 1425	550	M 155	5	61.5	50	<100
2	0.75	4.23	M 1425	550	M 155	5	59.5	33	<100
3	0.75	4.23	M 1425	450	M 155	5	60.2	38	<100
4	0.75	4.23	M 1425	350	M 155	5	61.2	37	<100
5	0.75	4.23	M 1425	150	M 155	5	62.4	35	130
6	0.75	4.23	M 1425	200	M 155	5	61.8	34	<100
7	1.00	5.64	M 1425	200	M 155	5	59.1	24	<100
8	0.50	2.82	M 1425	200	M 155	5	63.3	41	<100

Table 5: *Dynamic thickening testwork results of the Trans Master Composite MC-20 sample using coagulant M 1425 and flocculant M 155*

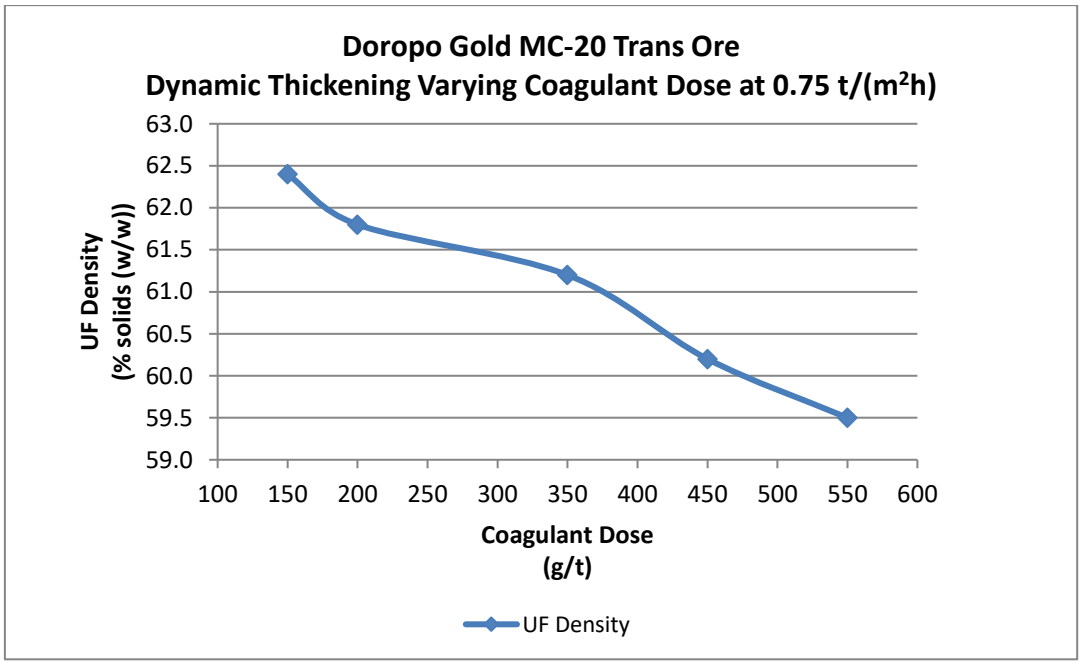


Chart 9: *Dynamic thickening varying Coagulant dose at 0.75 t/(m²h)*

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

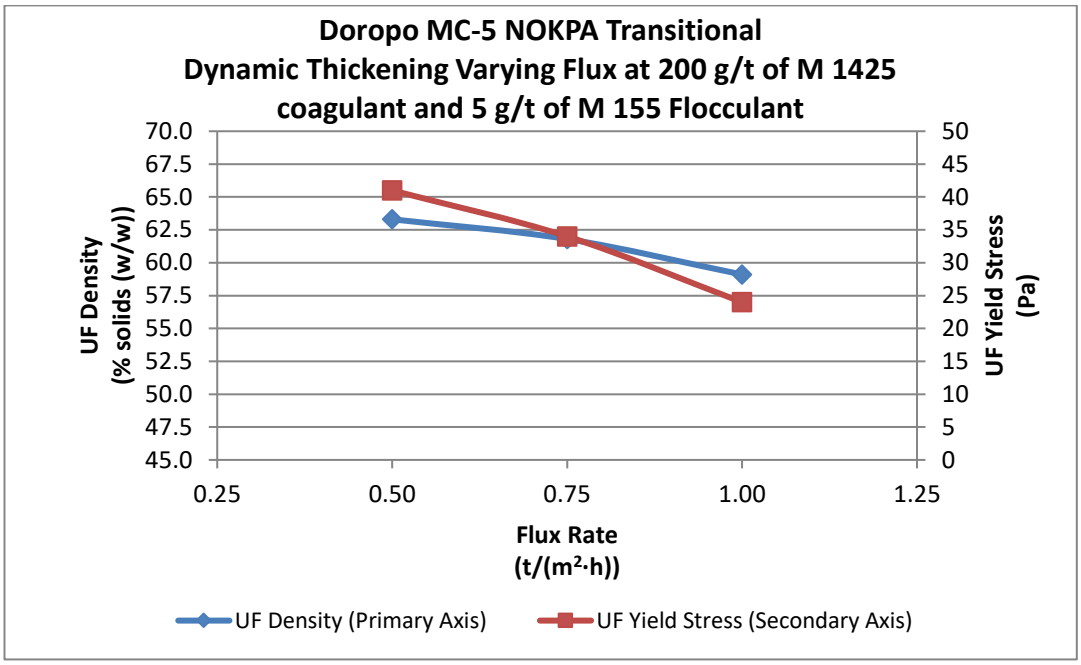


Chart 10: *Dynamic thickening varying flux at 200 g/t coagulant M1425 and 5 g/t flocculant M 155*

Table 5 and Chart 10 demonstrate the results of the dynamic thickening of the Trans Master Composite MC-20 tailings sample using the coagulant M 1425 with 5 g/t of flocculant M 155.

Chart 9 illustrates the results of the dynamic thickening varying coagulant dose at 0.75 t/(m^{2}h) for the MC-20 tailings sample.

The first run employed a flux rate of 0.50 t/(m^{2}h) utilising a coagulant dose of 550 g/t of M 1425 and a flocculant dose of 5 g/t of M 155. This achieved an underflow density of 61.5 % solids (w/w) with an accompanying yield stress measuring 50 Pa. This run resulted in a clean supernatant overflow measuring less than 100 mg/l of total suspended solids.

The second run was conducted at the same conditions as the first run, though the flux rate was increased from 0.50 t/(m^{2}h) to 0.75 t/(m^{2}h). This resulted in the decrease of underflow density from 61.5 % to 59.5 % solids (w/w) and the yield stress from 50 Pa to 33 Pa. The overflow measured less than 100 mg/l of total suspended solids.

The third run was conducted at the same conditions as the second run, though the coagulant dose was decreased from 550 g/t to 450 g/t. This resulted in the increase of underflow density from 59.5 % to 60.2 % solids (w/w) and the yield stress from 33 Pa to 38 Pa. The overflow measured less than 100 mg/l of total suspended solids.

The fourth run was conducted at the same conditions as the second run, though the coagulant dose was further decreased from 550 g/t to 350 g/t. This resulted in the increase of underflow density from 59.5 % to 61.2 % solids (w/w) and the yield stress from 33 Pa to 37 Pa. The overflow measured less than 100 mg/l of total suspended solids.

The fifth run was conducted at the same conditions as the second run, though the coagulant dose was decreased from 550 g/t to 150 g/t. This resulted in the increase of underflow density from 59.5 % to 62.4 % solids (w/w) and the yield stress from 33 Pa to 35 Pa. The overflow measured 130 mg/l of total suspended solids.

The sixth run was conducted at the same conditions as the second run, though the coagulant dose was decreased from 550 g/t to 200 g/t. This resulted in the increase of underflow density from 59.5 % to 61.8 % solids (w/w) and the yield stress from 33 Pa to 34 Pa. This run resulted in a clean supernatant overflow measuring less than 100 mg/l of total suspended solids.

The seventh run was conducted at the same conditions as the sixth run, though the flux rate was increased from 0.75 t/(m^2h) to 1.0 t/(m^2h). This resulted in the decrease of underflow density from 61.8 % to 59.1 % solids (w/w) and the yield stress from 34 Pa to 24 Pa. The overflow measured less than 100 mg/l of total suspended solids.

The eighth run was conducted at the same conditions as the sixth run, though the flux rate was decreased from 0.75 t/(m^2h) to 0.50 t/(m^2h). This resulted in the increase of underflow density from 61.8 % to 63.3 % solids (w/w) and the yield stress from 34 Pa to 41 Pa. This run resulted in a clean supernatant overflow measuring less than 100 mg/l of total suspended solids.



Picture 13: Dynamic run 6 of *Chegue Trans Master Composite MC-20 sample with M 1425 followed by M 155*

6.5. Enioda Oxide Master Composite MC-13

6.5.1. Flocculant Screening

The BASF product Magnafloc 155 was selected as flocculant and BASF product M 1425 was selected as coagulant for dynamic testing.

The sample employed screening with coagulant M 1425 followed by flocculant M 155 for good supernatant overflow clarity.

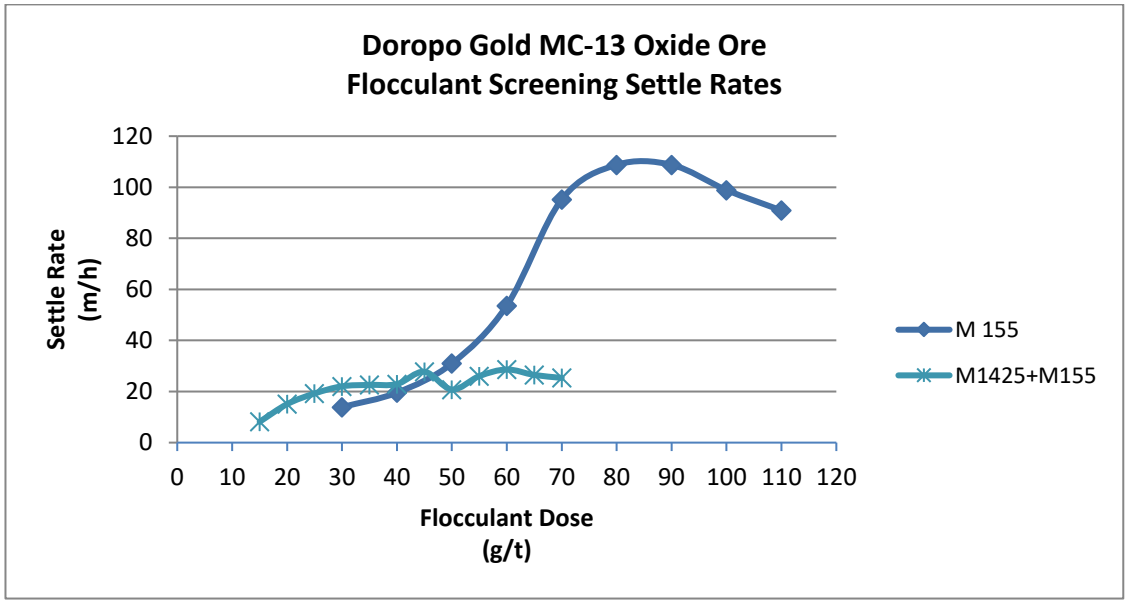
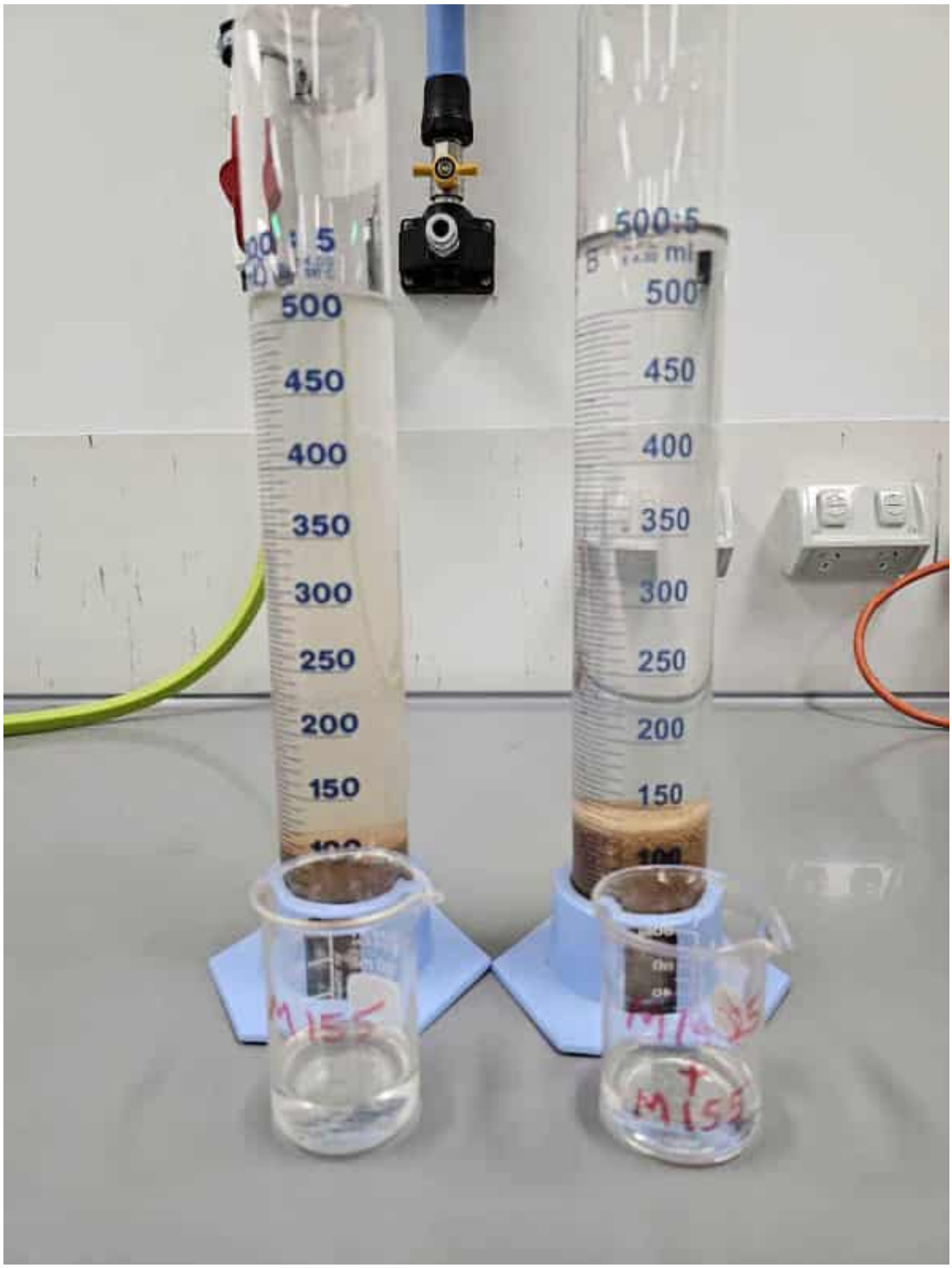


Chart 11: Flocculant screening settling rates of the Oxide Master Composite MC-13 sample in 500 mL static cylinder test

Chart 11 depicts the flocculant screening rates of the Oxide Master Composite MC-13 sample in a 500 mL static cylinder test.

Using the flocculant M 155 alone resulted in a poor overflow clarity. However, it was observed that when the coagulant M 1425 was used in conjunction with the flocculant M 155, it produced fast settling rates, robust aggregates and clean supernatant overflow clarity.

Picture 14 shows the flocculant screening of Oxide Master Composite MC-13 sample with flocculant M 155 alone, as well as using coagulant M 1425 followed by flocculant M 155.



Picture 14: *Flocculant screening of the Enioda Oxide Master Composite MC-13 with M 155 (left side), and with M1425 followed by M 155 (right side)*

6.5.2. Dynamic Thickening Tests

Two dynamic testing for the Oxide MC-13 tailings sample were employed as follows:

1. Dynamic testing using flocculant M 155
2. Dynamic testing using coagulant M 1425 in conjunction with flocculant M 155

3. Dynamic Thickener Testing using Flocculant M 155

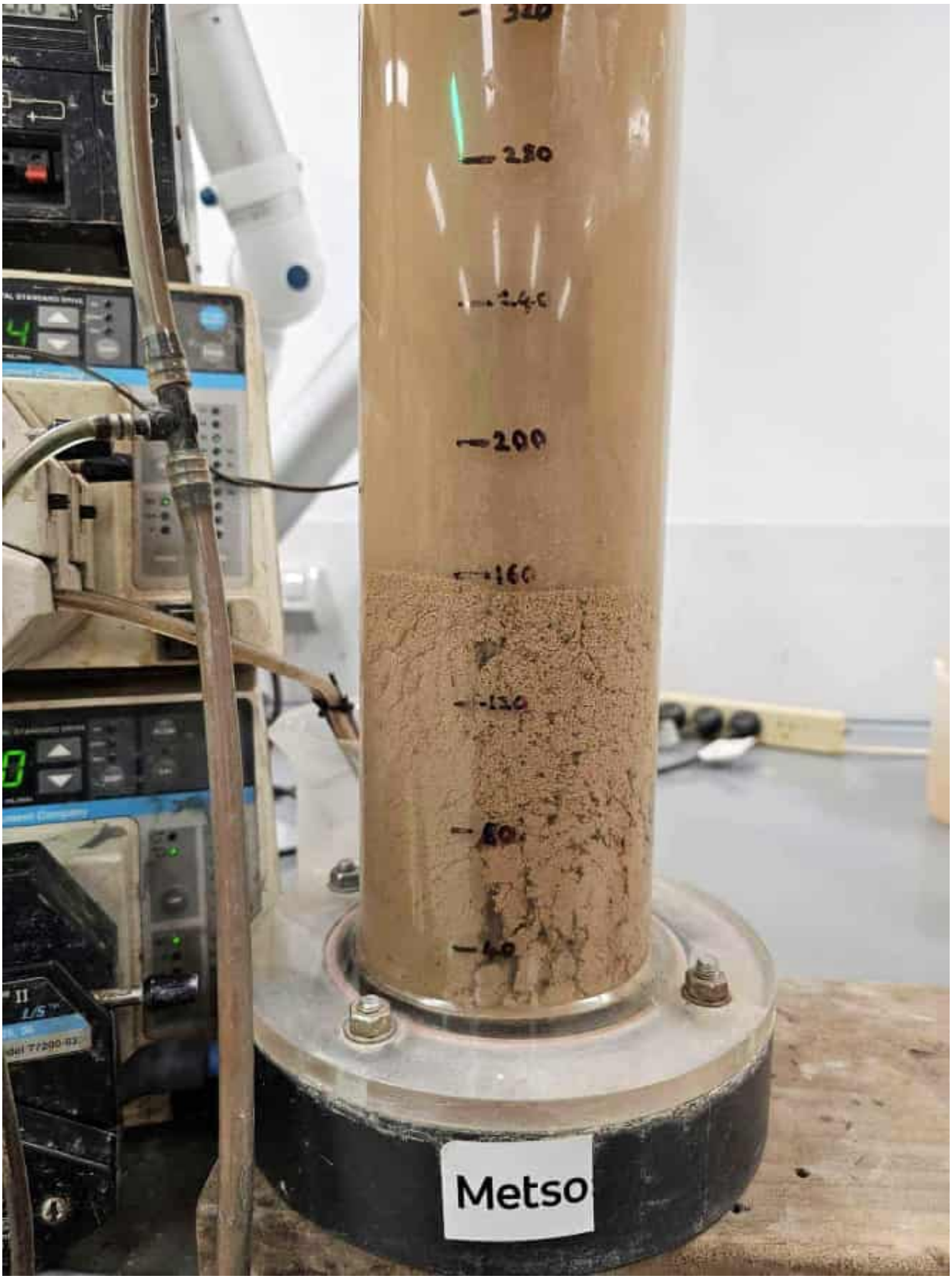
Doropo Gold Project MC-13 Enioda Oxide Dynamic Thickening Testwork Results							
Run	Feed		Flocculant		Underflow		Overflow
	Flux ($t/(m^2 \cdot h)$)	Liquor RR (m/h)	Type	Dose (g/t)	Meas. Solids (% (w/w))	YS (Pa)	Solids (mg/L)
1	0.50	2.47	M 155	90	51.2	50	1460
2	0.50	3.87	M 155	90	45.0	37	380

Table 6: *Dynamic thickening testwork results of the Oxide Master Composite MC-13 sample using flocculant M 155*

Table 6 demonstrate the results of the dynamic thickening of the Oxide Master Composite MC-13 tailings sample using the flocculant M 155.

The first run employed a flux rate of 0.50 $t/(m^2h)$ utilising a flocculant dose of 90 g/t of flocculant M 155 and a feedwell concentration of 18 %. This achieved an underflow density of 51.2 % solids (w/w) with an accompanying yield stress measuring 50 Pa. This run resulted in a poor overflow measuring 1460 mg/l of total suspended solids. During this dynamic run, a hindered unstable bed was observed in the rig.

The second run was conducted at the same conditions as the first run, though the feedwell concentration was decreased from 18 % to 12 %. This resulted in the decrease of underflow density from 51.2 % to 45.0 % solids (w/w) and the yield stress from 50 Pa to 37 Pa. The overflow measured 380 mg/l of total suspended solids. During this dynamic run, a hindered bed was observed in the rig. Further increasing the flocculant dosage resulted in the reduced underflow density.



Picture 15: Dynamic run 2 of *Enioda Oxide Master Composite MC-13 sample with flocculant M 155*

4. Dynamic Thickener Testing using Coagulant M 1425 and Flocculant M 155

Doropo Gold Project MC-13 Enioda Oxide Dynamic Thickening Testwork Results									
Run	Feed		Coagulant		Flocculant		Underflow		Overflow
	Flux	Liquor RR	Type	Dose	Type	Dose	Meas. Solids	YS	Solids
	(t/(m²·h))	(m/h)		(g/t)		(g/t)	(% (w/w))	(Pa)	(mg/L)
1	0.75	5.32	M 1425	800	M 155	20	45.7	33	<100
2	0.75	5.32	M 1425	400	M 155	20	42.7	14	<100
3	0.75	5.32	M 1425	750	M 155	20	43.9	25	<100
4	0.50	3.54	M 1425	800	M 155	20	50.4	65	<100
5	1.00	7.09	M 1425	800	M 155	20	37.4	10	<100

Table 7: *Dynamic thickening testwork results of the Oxide Master Composite MC-13 sample using coagulant M 1425 and flocculant M 155*

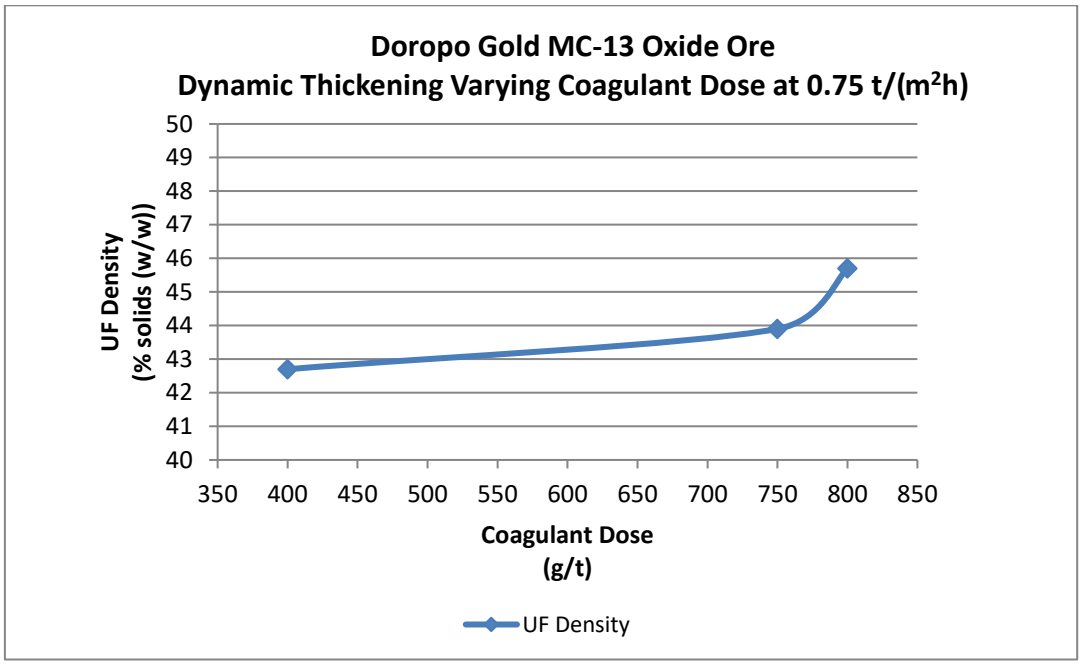


Chart 12: *Dynamic thickening varying Coagulant dose at 0.75 t/(m²h)*

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

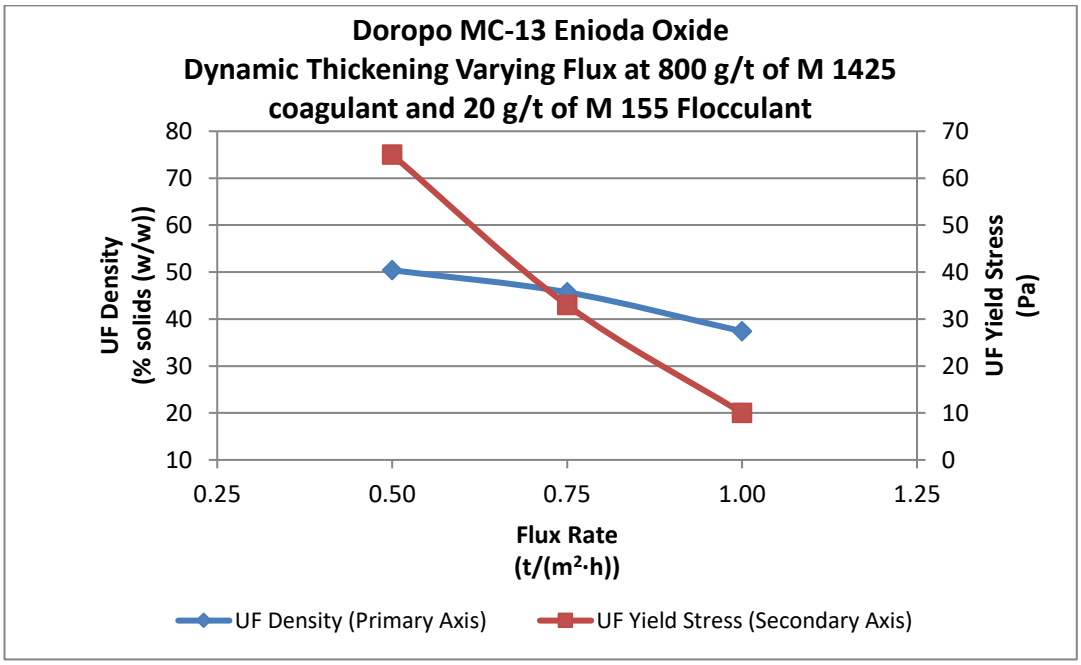


Chart 13: *Dynamic thickening varying flux at 800 g/t coagulant M1425 and 20 g/t flocculant M 155*

Table 7 and Chart 13 demonstrate the results of the dynamic thickening of the Oxide Master Composite MC-13 tailings sample using the coagulant M 1425 with 20 g/t of flocculant M 155.

Chart 12 illustrates the results of the dynamic thickening varying coagulant dose at 0.75 t/(m^{2}h) for the MC-13 tailings sample.

The first run employed a flux rate of 0.75 t/(m^{2}h) utilising a coagulant dose of 800 g/t of M 1425 and a flocculant dose of 20 g/t of M 155. This achieved an underflow density of 45.7 % solids (w/w) with an accompanying yield stress measuring 33 Pa. This run resulted in a clean supernatant overflow measuring less than 100 mg/l of total suspended solids. During this dynamic run, a hindered bed was observed in the rig.

The second run was conducted at the same conditions as the first run, though the coagulant dose was decreased from 800 g/t to 400 g/t. This resulted in the decrease of underflow density from 45.7 % to 42.7 % solids (w/w) and the yield stress from 33 Pa to 14 Pa. The overflow measured less than 100 mg/l of total suspended solids. A hindered bed was observed in the rig during this dynamic run.

The third run was conducted at the same conditions as the first run, though the coagulant dose was decreased from 800 g/t to 750 g/t. This resulted in the decrease of underflow density from 45.7 % to 43.9 % solids (w/w) and the yield stress from 33 Pa to 25 Pa. The overflow measured less than 100 mg/l of total suspended solids. During this test run, a hindered bed was observed in the rig.

The fourth run was conducted at the same conditions as the first run, though the flux rate was decreased from 0.75 t/(m^{2}h) to 0.50 t/(m^{2}h). This resulted in the increase of underflow density from 45.7 % to 50.4 % solids (w/w) and the yield stress from 33 Pa to 65 Pa. The overflow measured less than 100 mg/l of total suspended solids.

The fifth run was conducted at the same conditions as the first run, though the flux rate was increased from 0.75 t/(m^{2}h) to 1.0 t/(m^{2}h). This resulted in the decrease of underflow density from 45.7 % to 37.4 % solids (w/w) and the yield stress from 33 Pa to 10 Pa. This run resulted in a clean supernatant overflow measuring less than 100 mg/l of total suspended solids. During this test run, a hindered bed was observed in the rig.



Picture 16: Dynamic run 1 of *Enioda Oxide Master Composite MC-13 sample with M 1425 followed by M 155*

6.6. Enioda Trans Master Composite MC-14

6.6.1. Flocculant Screening

The BASF product Magnafloc 155 was selected as flocculant for dynamic testing.

Static cylinder tests were conducted with Magnafloc 155 (M 155) at 10 % slurry concentration in a 500mL static cylinder to obtain an optimal slurry concentration for the dynamic runs.

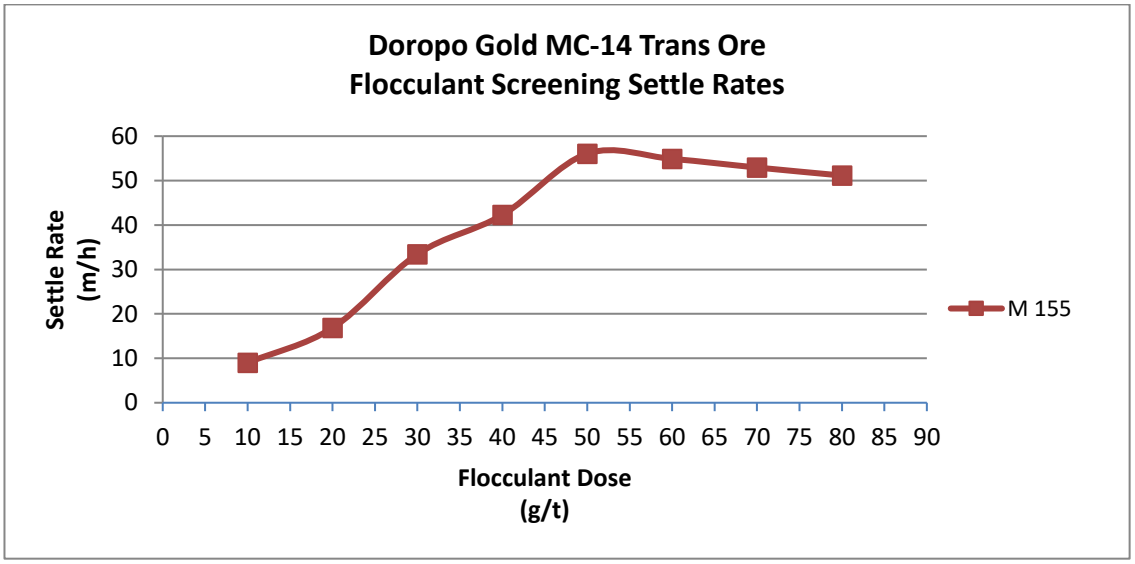
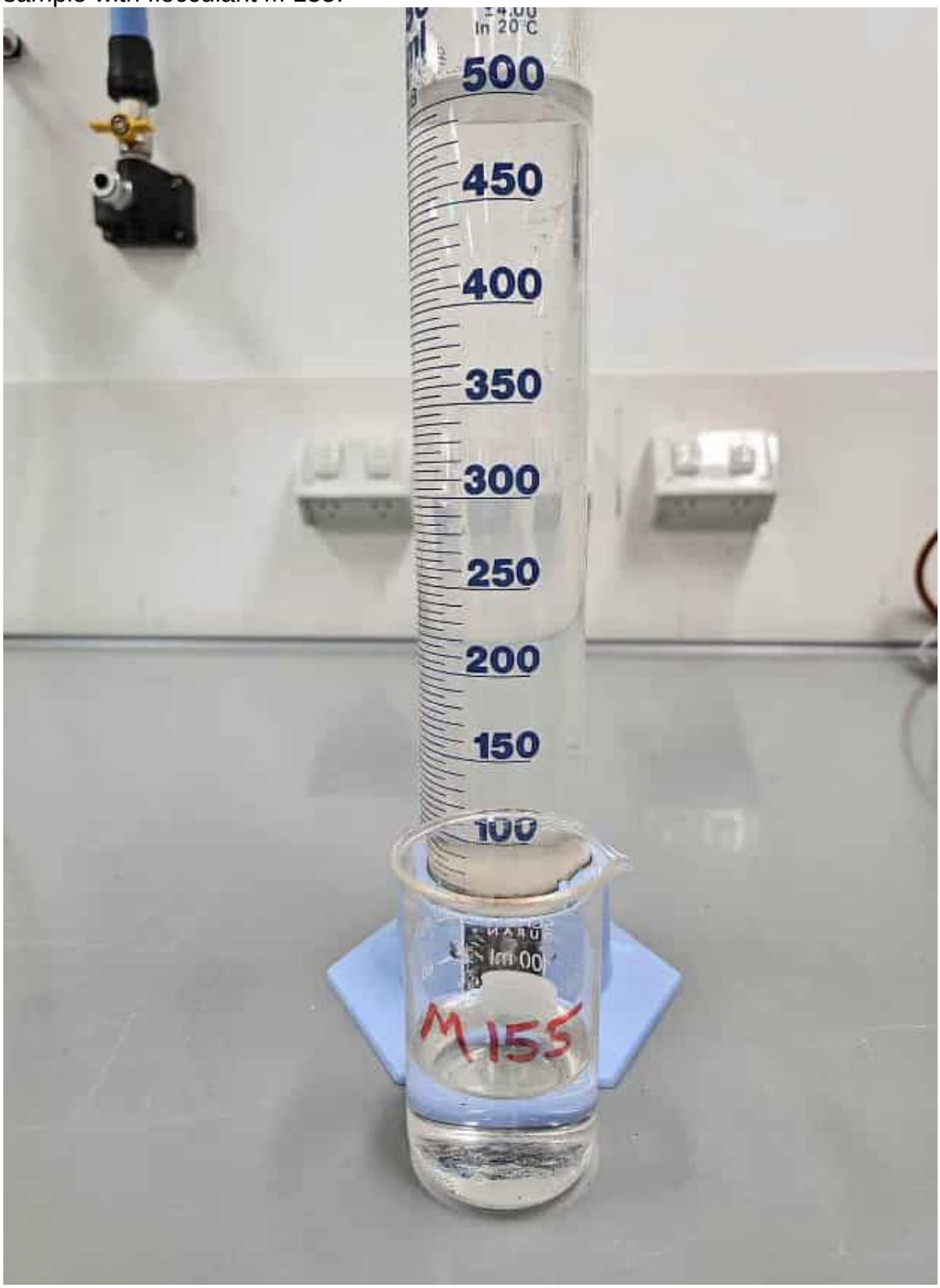


Chart 14: Flocculant screening settling rates of the Trans Master Composite MC-14 sample in 500 mL static cylinder test

Chart 14 depicts the flocculant screening rates of the Trans Master Composite MC-14 sample in a 500 mL static cylinder test.

It was observed that the flocculant Magnafloc 155 produced fast settling rates, robust aggregates and clean supernatant overflow clarity.

Picture 17 shows the flocculant screening of Trans Master Composite MC-14 sample with flocculant M 155.



Picture 17: *Flocculant screening of the Enioda Trans Master Composite MC-14 with M 155*

6.6.2. Dynamic Thickening Tests

Doropo Gold project MC-14 Trans Dynamic Thickening Testwork Results							
Run	Feed		Flocculant		Underflow		Overflow
	Flux	Liquor RR	Type	Dose	Meas. Solids	YS	Solids
	(t/(m²·h))	(m/h)		(g/t)	(% (w/w))	(Pa)	(mg/L)
1	0.75	4.54	M 155	50	58.0	44	110
2	0.75	3.71	M 155	50	57.6	50	180
3	0.75	3.71	M 155	60	53.0	26	160
4	0.50	2.47	M 155	50	59.8	75	140
5	1.00	4.94	M 155	50	54.9	27	190
6	0.75	3.71	M 155	40	57.3	42	290

Table 8: *Dynamic thickening testwork results of the Trans Master Composite MC-14 sample using flocculant M 155*

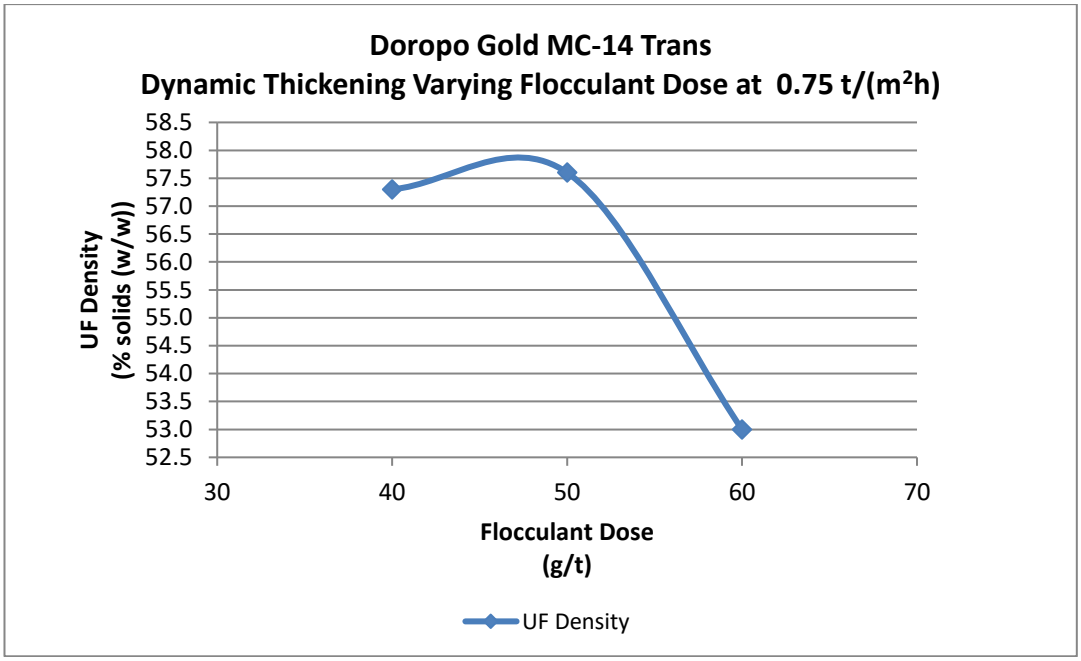


Chart 15: *Dynamic thickening varying Flocculant dose at 0.75 t/(m²h)*

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

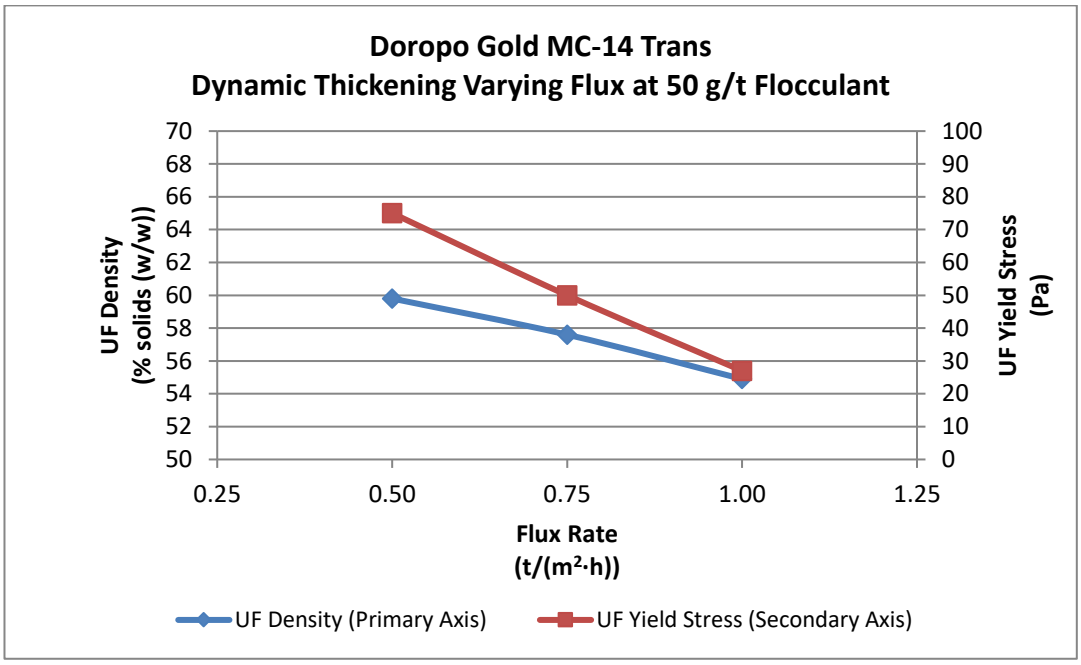


Chart 16: *Dynamic thickening varying flux at 50 g/t of flocculant M 155*

Table 8 and Chart 16 demonstrate the results of the dynamic thickening of the Trans Master Composite MC-14 tailings sample using the 50 g/t of flocculant M 155.

Chart 15 illustrates the results of the dynamic thickening varying flocculant dose at 0.75 t/(m^{2}h) for the MC-14 tailings sample.

The first run employed a flux rate of 0.75 t/(m^{2}h) utilising a flocculant dose of 50 g/t of M 155 and a feedwell concentration of 15 %. This achieved an underflow density of 58.0 % solids (w/w) with an accompanying yield stress measuring 44 Pa. The overflow measured 110 mg/l of total suspended solids. During this dynamic run, a full bed rotation was observed in the rig.

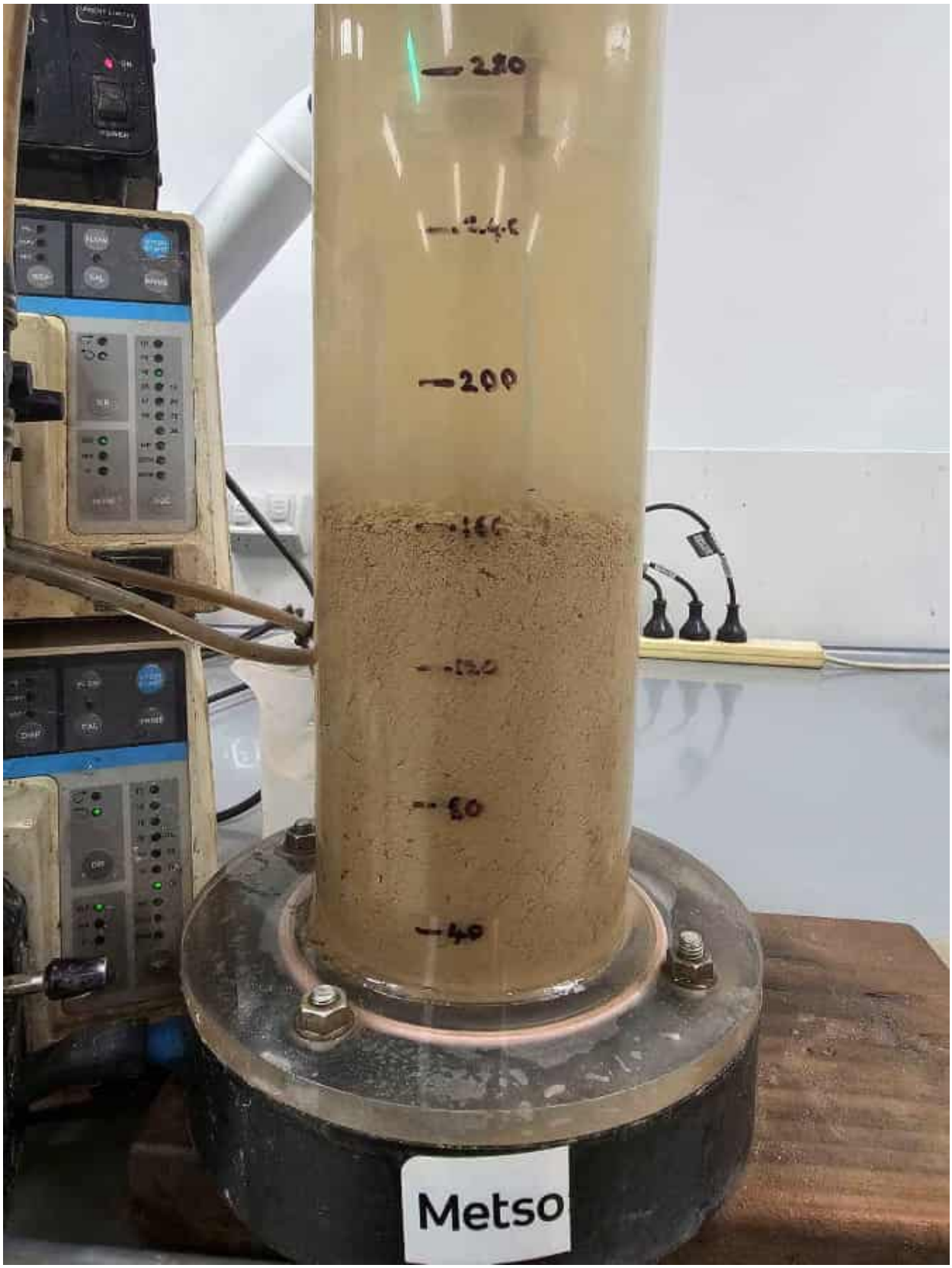
The second run was conducted at the same conditions as the first run, though the feedwell concentration was increased from 15 % to 18 %. This resulted in the slight decrease of underflow density from 58.0 % to 57.6 % solids (w/w) and the yield stress measured 50 Pa. The overflow measured 180 mg/l of total suspended solids. A full bed rotation was observed in the rig during this dynamic run.

The third run was conducted at the same conditions as the second run, though the flocculant dose was increased from 50 g/t to 60 g/t. This resulted in the decrease of underflow density from 57.6 % to 53.0 % solids (w/w) and the yield stress from 50 Pa to 26 Pa. The overflow measured 160 mg/l of total suspended solids. During this test run, a full bed rotation was observed in the rig.

The fourth run was conducted at the same conditions as the second run, though the flux rate was decreased from 0.75 t/(m^2h) to 0.50 t/(m^2h). This resulted in the increase of underflow density from 57.6 % to 59.8 % solids (w/w) and the yield stress from 50 Pa to 75 Pa. The overflow measured 140 mg/l of total suspended solids. During this dynamic run, a half bed rotation was observed in the rig.

The fifth run was conducted at the same conditions as the second run, though the flux rate was increased from 0.75 t/(m^2h) to 1.0 t/(m^2h). This resulted in the decrease of underflow density from 57.6 % to 54.9 % solids (w/w) and the yield stress from 50 Pa to 27 Pa. The overflow measured 190 mg/l of total suspended solids. During this dynamic run, a full bed rotation was observed in the rig.

The sixth run was conducted at the same conditions as the second run, though the flocculant dose was decreased from 50 g/t to 40 g/t. This resulted in the slight decrease of underflow density from 57.6 % to 57.3 % solids (w/w) and the yield stress from 50 Pa to 42 Pa. The overflow measured 290 mg/l of total suspended solids. During this test run, a full bed rotation was observed in the rig.



Picture 18: Dynamic run 2 of *Enioda Trans Master Composite MC-14 sample with M 155*

7. Conclusion

The testwork on the Kilosegui Fresh Master Composite MC-9, Kilosegui Trans Master Composite MC-8, Kilosegui Oxide Master Composite MC-7, Chegue Trans Master Composite MC-20, Enioda Oxide Master Composite MC-13 and Enioda Trans Master Composite MC-14 samples has shown that the material can be successfully thickened.

All the results are based on the samples as tested, with conditions specified in section 5 (test product data).

The sole purpose of this report (part A) is to provide the experimental results obtained from the testwork performed and the methods used to obtain them. The interpretation of the experimental results obtained, and any equipment recommendations made are provided in a separate report (Part B) marked commercial in confidence – property of Metso (Australia) Pty Ltd.

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

8. Contact Information

For further questions please contact:

Chris Greenwood
Technology Manager - Thickeners
Metso Australia Limited (MA APA)
Tel: 08 9211 2230
Mob: 0407 695 131
Email: chris.greenwood@metso.com
Web: www.metso.com

Giridhar Sankar
Testwork Engineer
Metso Australia Limited (MA APA)
Mob: 0459 045 389
Email: giridhar.sankar@metso.com
Web: www.metso.com

9. Appendix

Appendix 1 PSD for Kilosegui Fresh Master Composite MC-9

Appendix 2 PSD for Kilosegui Trans Master Composite MC-8

Appendix 3 PSD for Kilosegui Oxide Master Composite MC-7

Appendix 4 PSD for Chegue Trans Master Composite MC-20

Appendix 5 PSD for Enioda Oxide Master Composite MC-13

Appendix 6 PSD for Enioda Trans Master Composite MC-14

Appendix 7 Typical Rheological Curve for Kilosegui Fresh Master Composite MC-9

Appendix 8 Typical Rheological Curve for Kilosegui Trans Master Composite MC-8

Appendix 9 Typical Rheological Curve for Kilosegui Oxide Master Composite MC-7

Appendix 10 Typical Rheological Curve for Chegue Trans Master Composite MC-20

Appendix 11 Typical Rheological Curve for Enioda Oxide Master Composite MC-13

Appendix 12 Typical Rheological Curve for Enioda Trans Master Composite MC-14

APPENDIX 1

Particle Distribution Data with LASER for Kilosegui Fresh Master Composite MC-9

Particle Size Analysis Report

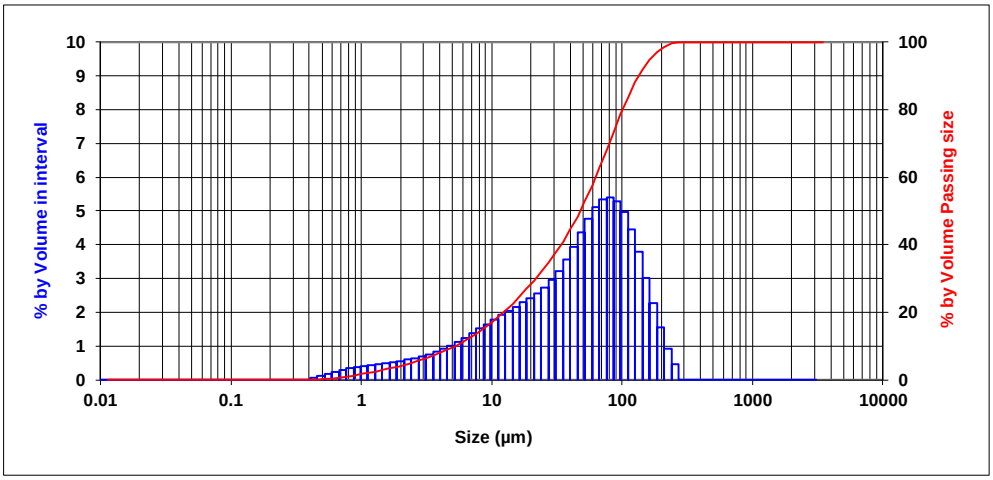
CSIRO

Particle Analysis Service

Sample Name:	3472031 MC9
Batch No:	R2416642
PAS ID No:	P90521

Dispersant:	Water	**RI/ABS:**	2.74 / 0.5
Additives:	0 ml Sodium hexametaphosphate	**Analysis Model:**	General Purpose
Sonication:	20 minutes in ultrasonic bath	**Result units:**	Volume

Concentration:	0.02 % vol	**Vol. Weighted Mean D[4,3]:**	60.38 µm	**d(0.1):**	5.28 µm
Obscuration:	14.28 %	**Surface Weighted Mean D[3,2]:**	11.22 µm	**d(0.5):**	47.89 µm
Weighted Residual:	0.25 %	**Specific Surface Area:**	0.53 m^2/cc	**P80:**	101.69 µm
				d(0.9):	135.47 µm



Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %
0.010	0.00	0.088	0.00	0.767	0.90	6.722	12.24	58.880	57.46	515.772	100.00
0.011	0.00	0.100	0.00	0.872	1.23	7.637	13.62	66.897	62.57	586.001	100.00
0.013	0.00	0.113	0.00	0.991	1.60	8.677	15.14	76.006	67.91	665.793	100.00
0.015	0.00	0.128	0.00	1.125	1.99	9.858	16.79	86.355	73.32	756.449	100.00
0.017	0.00	0.146	0.00	1.279	2.41	11.201	18.57	98.114	78.61	859.450	100.00
0.019	0.00	0.166	0.00	1.453	2.87	12.726	20.49	111.473	83.57	976.475	100.00
0.022	0.00	0.188	0.00	1.651	3.35	14.458	22.53	126.652	88.01	1109.435	100.00
0.024	0.00	0.214	0.00	1.875	3.87	16.427	24.69	143.897	91.79	1260.499	100.00
0.028	0.00	0.243	0.00	2.131	4.43	18.664	26.98	163.490	94.81	1432.133	100.00
0.032	0.00	0.276	0.00	2.421	5.03	21.205	29.39	185.752	97.07	1627.136	100.00
0.036	0.00	0.314	0.00	2.750	5.67	24.092	31.94	211.044	98.61	1848.692	100.00
0.041	0.00	0.357	0.00	3.125	6.37	27.373	34.67	239.780	99.54	2100.416	100.00
0.046	0.00	0.405	0.00	3.550	7.12	31.100	37.62	272.430	100.00	2386.415	100.00
0.053	0.00	0.460	0.06	4.034	7.95	35.335	40.84	309.525	100.00	2711.357	100.00
0.060	0.00	0.523	0.18	4.583	8.86	40.146	44.39	351.670	100.00	3080.544	100.00
0.068	0.00	0.594	0.37	5.207	9.87	45.613	48.33	399.555	100.00	3500.000	100.00
0.077	0.00	0.675	0.61	5.916	11.00	51.823	52.69	453.960	100.00		

22/07/2024

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

APPENDIX 2

Particle Distribution Data with LASER for Kilosegui Trans Master Composite MC-8

Particle Size Analysis Report

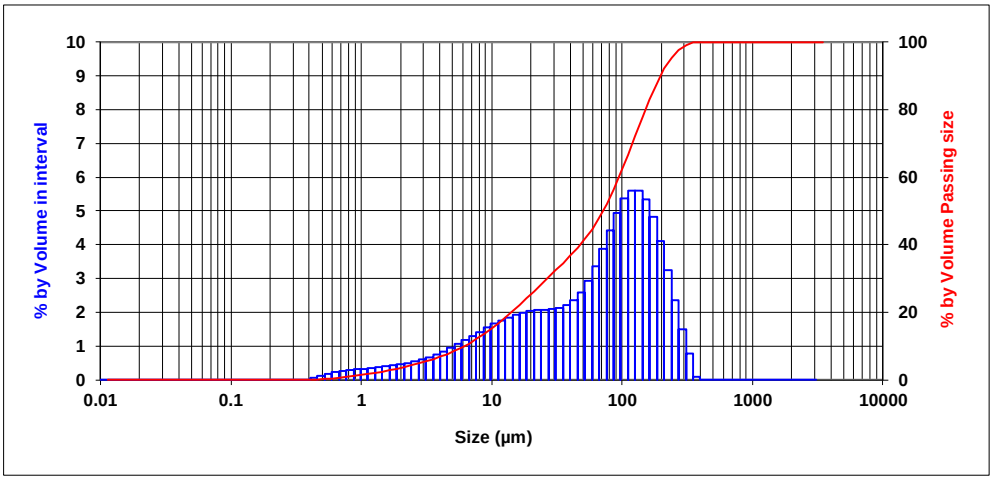
CSIRO

Particle Analysis Service

Sample Name:	3472031 MC8
Batch No:	R2416642
PAS ID No:	P90520

Dispersant:	Water	**RI/ABS:**	2.74 / 0.5
Additives:	0 ml Sodium hexametaphosphate	**Analysis Model:**	General Purpose
Sonication:	20 minutes in ultrasonic bath	**Result units:**	Volume

Concentration:	0.029 % vol	**Vol. Weighted Mean D[4,3]:**	87.50 µm	**d(0.1):**	6.19 µm
Obscuration:	17.71 %	**Surface Weighted Mean D[3,2]:**	12.90 µm	**d(0.5):**	71.56 µm
Weighted Residual:	0.24 %	**Specific Surface Area:**	0.46 m^2/cc	**P80:**	151.79 µm
				d(0.9):	198.08 µm



Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %
0.010	0.00	0.088	0.00	0.767	0.83	6.722	10.75	58.880	44.60	515.772	100.00
0.011	0.00	0.100	0.00	0.872	1.12	7.637	12.05	66.897	47.95	586.001	100.00
0.013	0.00	0.113	0.00	0.991	1.42	8.677	13.47	76.006	51.83	665.793	100.00
0.015	0.00	0.128	0.00	1.125	1.74	9.858	15.01	86.355	56.26	756.449	100.00
0.017	0.00	0.146	0.00	1.279	2.08	11.201	16.67	98.114	61.20	859.450	100.00
0.019	0.00	0.166	0.00	1.453	2.45	12.726	18.42	111.473	66.57	976.475	100.00
0.022	0.00	0.188	0.00	1.651	2.84	14.458	20.27	126.652	72.17	1109.435	100.00
0.024	0.00	0.214	0.00	1.875	3.26	16.427	22.20	143.897	77.77	1260.499	100.00
0.028	0.00	0.243	0.00	2.131	3.72	18.664	24.19	163.490	83.11	1432.133	100.00
0.032	0.00	0.276	0.00	2.421	4.22	21.205	26.22	185.752	87.93	1627.136	100.00
0.036	0.00	0.314	0.00	2.750	4.77	24.092	28.28	211.044	92.04	1848.692	100.00
0.041	0.00	0.357	0.00	3.125	5.37	27.373	30.36	239.780	95.29	2100.416	100.00
0.046	0.00	0.405	0.00	3.550	6.03	31.100	32.44	272.430	97.64	2386.415	100.00
0.053	0.00	0.460	0.07	4.034	6.77	35.335	34.56	309.525	99.14	2711.357	100.00
0.060	0.00	0.523	0.18	4.583	7.60	40.146	36.76	351.670	99.92	3080.544	100.00
0.068	0.00	0.594	0.36	5.207	8.53	45.613	39.10	399.555	100.00	3500.000	100.00
0.077	0.00	0.675	0.58	5.916	9.58	51.823	41.68	453.960	100.00		

22/07/2024

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

APPENDIX 3

Particle Distribution Data with LASER for Kilosegui Oxide Master Composite MC-7

Particle Size Analysis Report

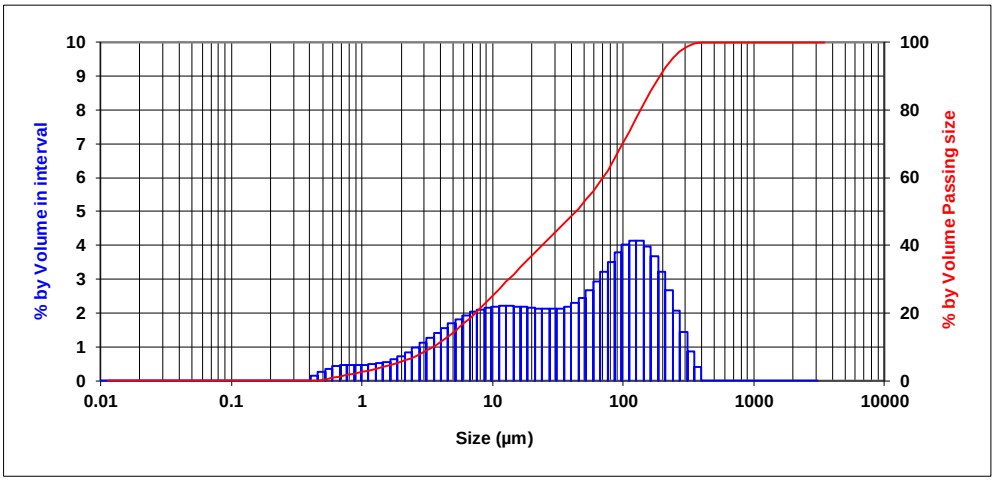
CSIRO

Particle Analysis Service

Sample Name:	3472031 MC-7
Batch No:	R2416658
PAS ID No:	P90570

Dispersant:	Water	**RI/ABS:**	2.74 / 0.1
Additives:	0 ml Sodium hexametaphosphate	**Analysis Model:**	General Purpose
Sonication:	20 minutes in ultrasonic bath	**Result units:**	Volume

Concentration:	0.017 % vol	**Vol. Weighted Mean D[4,3]:**	73.73 µm	**d(0.1):**	3.51	µm
Obscuration:	16.03 %	**Surface Weighted Mean D[3,2]:**	8.39 µm	**d(0.5):**	43.46	µm
Weighted Residual:	0.32 %	**Specific Surface Area:**	0.72 m^2/cc	**P80:**	136.56	µm
				d(0.9):	190.74	µm



Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %
0.010	0.00	0.088	0.00	0.767	1.60	6.722	18.50	58.880	55.97	515.772	100.00
0.011	0.00	0.100	0.00	0.872	2.07	7.637	20.53	66.897	58.89	586.001	100.00
0.013	0.00	0.113	0.00	0.991	2.54	8.677	22.63	76.006	62.10	665.793	100.00
0.015	0.00	0.128	0.00	1.125	3.01	9.858	24.79	86.355	65.62	756.449	100.00
0.017	0.00	0.146	0.00	1.279	3.48	11.201	26.98	98.114	69.41	859.450	100.00
0.019	0.00	0.166	0.00	1.453	3.99	12.726	29.18	111.473	73.43	976.475	100.00
0.022	0.00	0.188	0.00	1.651	4.54	14.458	31.38	126.652	77.57	1109.435	100.00
0.024	0.00	0.214	0.00	1.875	5.17	16.427	33.57	143.897	81.69	1260.499	100.00
0.028	0.00	0.243	0.00	2.131	5.90	18.664	35.74	163.490	85.66	1432.133	100.00
0.032	0.00	0.276	0.00	2.421	6.75	21.205	37.89	185.752	89.33	1627.136	100.00
0.036	0.00	0.314	0.00	2.750	7.73	24.092	40.02	211.044	92.55	1848.692	100.00
0.041	0.00	0.357	0.00	3.125	8.84	27.373	42.13	239.780	95.23	2100.416	100.00
0.046	0.00	0.405	0.00	3.550	10.10	31.100	44.25	272.430	97.29	2386.415	100.00
0.053	0.00	0.460	0.13	4.034	11.51	35.335	46.38	309.525	98.73	2711.357	100.00
0.060	0.00	0.523	0.38	4.583	13.06	40.146	48.57	351.670	99.59	3080.544	100.00
0.068	0.00	0.594	0.73	5.207	14.74	45.613	50.87	399.555	100.00	3500.000	100.00
0.077	0.00	0.675	1.15	5.916	16.56	51.823	53.32	453.960	100.00		

22/07/2024

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

APPENDIX 4

Particle Distribution Data with LASER for Chegue Trans Master Composite MC-20

Particle Size Analysis Report

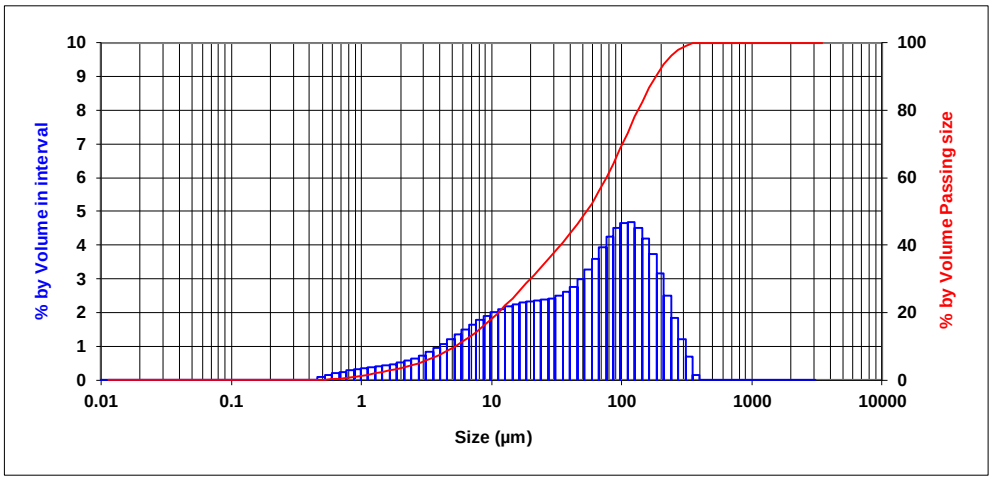
CSIRO

Particle Analysis Service

Sample Name:	3472031 MC-20
Batch No:	R2416649
PAS ID No:	P90543

Dispersant:	Water	**RI/ABS:**	2.74 / 0.1
Additives:	0 ml Sodium hexametaphosphate	**Analysis Model:**	General Purpose
Sonication:	20 minutes in ultrasonic bath	**Result units:**	Volume

Concentration:	0.025 % vol	**Vol. Weighted Mean D[4,3]:**	76.08 µm	**d(0.1):**	5.34	µm
Obscuration:	16.03 %	**Surface Weighted Mean D[3,2]:**	12.11 µm	**d(0.5):**	53.70	µm
Weighted Residual:	0.23 %	**Specific Surface Area:**	0.50 m^2/cc	**P80:**	134.11	µm
				d(0.9):	183.03	µm



Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %
0.010	0.00	0.088	0.00	0.767	0.65	6.722	12.57	58.880	52.36	515.772	100.00
0.011	0.00	0.100	0.00	0.872	0.93	7.637	14.21	66.897	55.95	586.001	100.00
0.013	0.00	0.113	0.00	0.991	1.24	8.677	15.99	76.006	59.88	665.793	100.00
0.015	0.00	0.128	0.00	1.125	1.58	9.858	17.89	86.355	64.13	756.449	100.00
0.017	0.00	0.146	0.00	1.279	1.94	11.201	19.90	98.114	68.64	859.450	100.00
0.019	0.00	0.166	0.00	1.453	2.33	12.726	22.01	111.473	73.30	976.475	100.00
0.022	0.00	0.188	0.00	1.651	2.75	14.458	24.19	126.652	77.97	1109.435	100.00
0.024	0.00	0.214	0.00	1.875	3.21	16.427	26.44	143.897	82.50	1260.499	100.00
0.028	0.00	0.243	0.00	2.131	3.72	18.664	28.74	163.490	86.70	1432.133	100.00
0.032	0.00	0.276	0.00	2.421	4.29	21.205	31.07	185.752	90.43	1627.136	100.00
0.036	0.00	0.314	0.00	2.750	4.94	24.092	33.43	211.044	93.59	1848.692	100.00
0.041	0.00	0.357	0.00	3.125	5.67	27.373	35.81	239.780	96.09	2100.416	100.00
0.046	0.00	0.405	0.00	3.550	6.50	31.100	38.24	272.430	97.94	2386.415	100.00
0.053	0.00	0.460	0.00	4.034	7.44	35.335	40.73	309.525	99.15	2711.357	100.00
0.060	0.00	0.523	0.08	4.583	8.52	40.146	43.33	351.670	99.84	3080.544	100.00
0.068	0.00	0.594	0.22	5.207	9.72	45.613	46.10	399.555	100.00	3500.000	100.00
0.077	0.00	0.675	0.41	5.916	11.08	51.823	49.09	453.960	100.00		

22/07/2024

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

APPENDIX 5

Particle Distribution Data with LASER for Enioda Oxide Master Composite MC-13

Particle Size Analysis Report

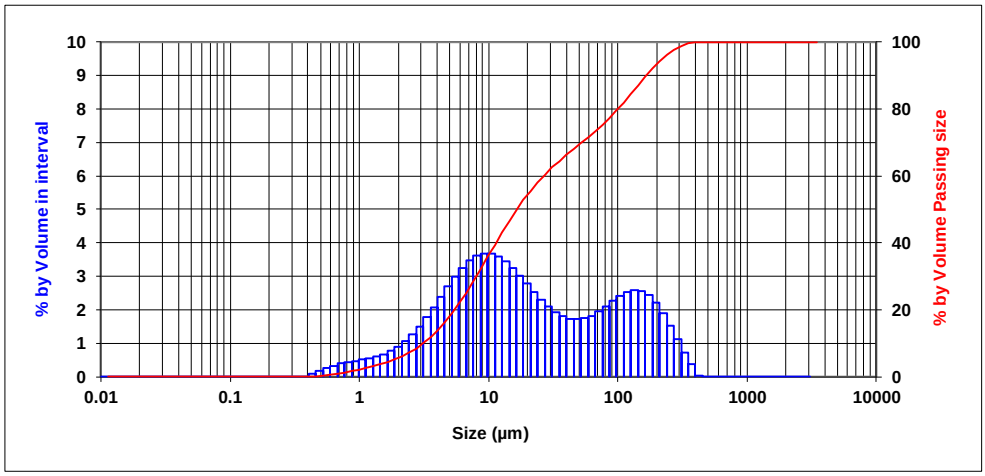
CSIRO

Particle Analysis Service

Sample Name:	3472031 MC-13
Batch No:	R2416658
PAS ID No:	P90571

Dispersant:	Water	**RI/ABS:**	2.74 / 0.1
Additives:	0 ml Sodium hexametaphosphate	**Analysis Model:**	General Purpose
Sonication:	20 minutes in ultrasonic bath	**Result units:**	Volume

Concentration:	0.012 % vol	**Vol. Weighted Mean D[4,3]:**	53.67 µm	**d(0.1):**	3.14	µm
Obscuration:	13.5 %	**Surface Weighted Mean D[3,2]:**	7.18 µm	**d(0.5):**	16.61	µm
Weighted Residual:	0.33 %	**Specific Surface Area:**	0.84 m^2/cc	**P80:**	100.63	µm
				d(0.9):	166.63	µm



Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %
0.010	0.00	0.088	0.00	0.767	1.21	6.722	25.07	58.880	71.40	515.772	100.00
0.011	0.00	0.100	0.00	0.872	1.65	7.637	28.53	66.897	73.22	586.001	100.00
0.013	0.00	0.113	0.00	0.991	2.12	8.677	32.14	76.006	75.17	665.793	100.00
0.015	0.00	0.128	0.00	1.125	2.63	9.858	35.81	86.355	77.26	756.449	100.00
0.017	0.00	0.146	0.00	1.279	3.17	11.201	39.47	98.114	79.52	859.450	100.00
0.019	0.00	0.166	0.00	1.453	3.76	12.726	43.05	111.473	81.94	976.475	100.00
0.022	0.00	0.188	0.00	1.651	4.42	14.458	46.49	126.652	84.47	1109.435	100.00
0.024	0.00	0.214	0.00	1.875	5.19	16.427	49.73	143.897	87.07	1260.499	100.00
0.028	0.00	0.243	0.00	2.131	6.09	18.664	52.75	163.490	89.64	1432.133	100.00
0.032	0.00	0.276	0.00	2.421	7.15	21.205	55.53	185.752	92.08	1627.136	100.00
0.036	0.00	0.314	0.00	2.750	8.42	24.092	58.06	211.044	94.30	1848.692	100.00
0.041	0.00	0.357	0.00	3.125	9.92	27.373	60.37	239.780	96.21	2100.416	100.00
0.046	0.00	0.405	0.00	3.550	11.70	31.100	62.48	272.430	97.74	2386.415	100.00
0.053	0.00	0.460	0.08	4.034	13.77	35.335	64.41	309.525	98.86	2711.357	100.00
0.060	0.00	0.523	0.24	4.583	16.14	40.146	66.22	351.670	99.58	3080.544	100.00
0.068	0.00	0.594	0.49	5.207	18.83	45.613	67.95	399.555	99.96	3500.000	100.00
0.077	0.00	0.675	0.82	5.916	21.82	51.823	69.66	453.960	100.00		

22/07/2024

APPENDIX 6

Particle Distribution Data with LASER for Enioda Trans Master Composite MC-14

Particle Size Analysis Report

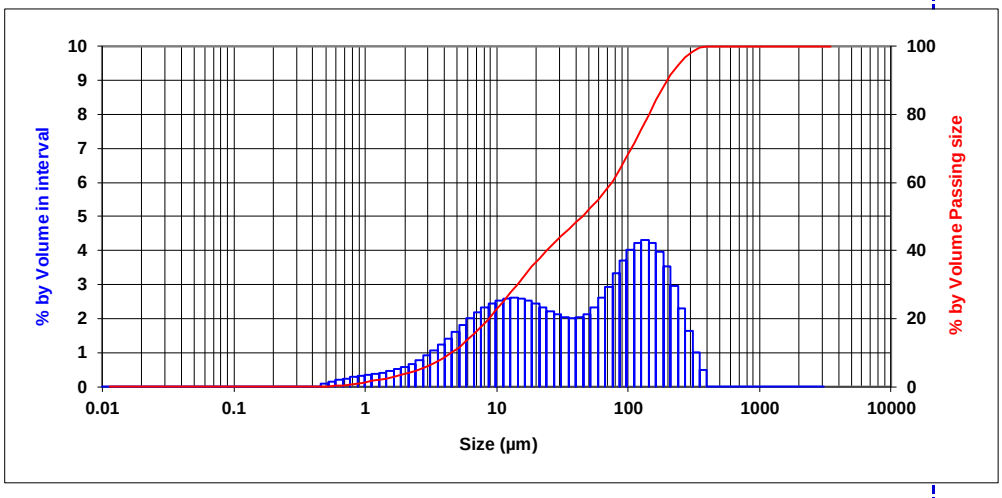
CSIRO

Particle Analysis Service

Sample Name:	3472031 MC-14
Batch No:	R2416665
PAS ID No:	P90606

Dispersant:	Water	**RI/ABS:**	2.74 / 0.1
Additives:	0 ml Sodium hexametaphosphate	**Analysis Model:**	General Purpose
Sonication:	20 minutes in ultrasonic bath	**Result units:**	Volume

Concentration:	0.017 % vol	**Vol. Weighted Mean D[4,3]:**	77.27 µm	**d(0.1):**	4.59	µm
Obscuration:	12.4 %	**Surface Weighted Mean D[3,2]:**	10.82 µm	**d(0.5):**	44.60	µm
Weighted Residual:	0.3 %	**Specific Surface Area:**	0.55 m^2/cc	**P80:**	144.15	µm
				d(0.9):	198.87	µm



Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %	Size (µm)	Vol Under %
0.010	0.00	0.088	0.00	0.767	0.67	6.722	15.42	58.880	54.82	515.772	100.00
0.011	0.00	0.100	0.00	0.872	0.96	7.637	17.60	66.897	57.42	586.001	100.00
0.013	0.00	0.113	0.00	0.991	1.27	8.677	19.93	76.006	60.37	665.793	100.00
0.015	0.00	0.128	0.00	1.125	1.62	9.858	22.39	86.355	63.69	756.449	100.00
0.017	0.00	0.146	0.00	1.279	1.99	11.201	24.93	98.114	67.38	859.450	100.00
0.019	0.00	0.166	0.00	1.453	2.39	12.726	27.51	111.473	71.39	976.475	100.00
0.022	0.00	0.188	0.00	1.651	2.84	14.458	30.12	126.652	75.63	1109.435	100.00
0.024	0.00	0.214	0.00	1.875	3.34	16.427	32.69	143.897	79.94	1260.499	100.00
0.028	0.00	0.243	0.00	2.131	3.92	18.664	35.21	163.490	84.16	1432.133	100.00
0.032	0.00	0.276	0.00	2.421	4.59	21.205	37.64	185.752	88.12	1627.136	100.00
0.036	0.00	0.314	0.00	2.750	5.37	24.092	39.97	211.044	91.64	1848.692	100.00
0.041	0.00	0.357	0.00	3.125	6.28	27.373	42.18	239.780	94.60	2100.416	100.00
0.046	0.00	0.405	0.00	3.550	7.34	31.100	44.30	272.430	96.90	2386.415	100.00
0.053	0.00	0.460	0.00	4.034	8.57	35.335	46.33	309.525	98.53	2711.357	100.00
0.060	0.00	0.523	0.09	4.583	9.99	40.146	48.33	351.670	99.52	3080.544	100.00
0.068	0.00	0.594	0.23	5.207	11.60	45.613	50.36	399.555	100.00	3500.000	100.00
0.077	0.00	0.675	0.43	5.916	13.42	51.823	52.49	453.960	100.00		

7/08/2024

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

APPENDIX 7

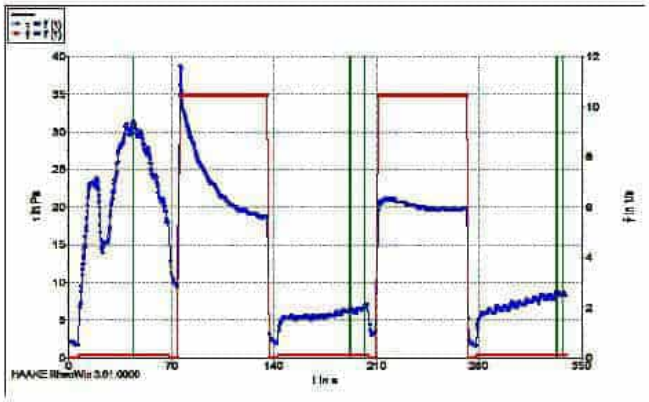
Typical Rheological Curve for Kilosegui Fresh Master Composite MC-9

HAAKE RheoWin3.61.0000 **Rheological Curve** Page 1

Company	Outokumpu Technology Pty Ltd	**Measure device**	VT550		
Operator	Outokumpu Technology Pty Ltd	**Temperature device**			
Date/Time	13.06.2024 / 15:56:37 PM	**Sensor**	OK600	**Gap**	1.000 mm
Substance	OK600 SD YS / Shear / YS / Shear / YS Progra	**A-factor**	21101.551 Pa/Nm		
Sample no	Bealier	**M-factor**	1.996 (1/s)/(rad/s)		
Description					

Comment

Rheology plot



Filename: ---
Job: C:\Program Files (x86)\RheoWin3\Jobs\OK600YIELDDOUBLESHEAR.rwj

---

Curve discussion:

Method	t in s	tau in Pa
Greatest value	43.83	31.44
Maximum	43.84	31.17

Curve discussion:

Method	t in s	tau in Pa
Greatest value	201.9	6.752
Maximum	192.5	6.474

Curve discussion:

Method	t in s	tau in Pa
Greatest value	337.9	8.652
Maximum	333.4	8.680

APPENDIX 8

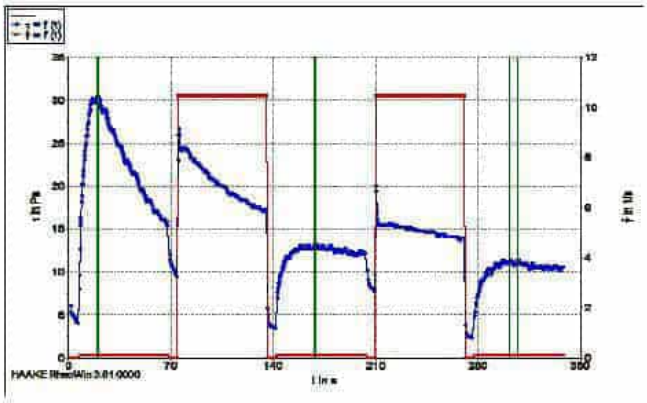
Typical Rheological Curve for Kilosegui Trans Master Composite MC-8

HAAKE RheoWin3.61.0000 **Rheological Curve** Page 1

Company	Outokumpu Technology Pty Ltd	**Measure device**	VT550		
Operator	Outokumpu Technology Pty Ltd	**Temperature device**			
Date/Time	18.06.2024 / 14:13:39 PM	**Sensor**	OK600	**Gap**	1.000 mm
Substance	OK600 SD YS / Shear / YS / Shear / YS Progra	**A-factor**	21101.551 Pa/Nm		
Sample no	Bealier	**M-factor**	1.996 (1/s)/(rad/s)		
Description					

Comment

Rheology plot



Filename: —
Job: C:\Program Files (x86)\RheoWin3\Jobs\OK600YIELDDOUBLESHEAR.rwj

—

Curve discussion:

Method	t in s	tau in Pa
Greatest value	20.41	30.39
Maximum	19.91	30.35

Curve discussion:

Method	t in s	tau in Pa
Greatest value	169.2	13.29
Maximum	168.9	13.23

Curve discussion:

Method	t in s	tau in Pa
Greatest value	307.4	11.39
Maximum	302.2	11.33

APPENDIX 9

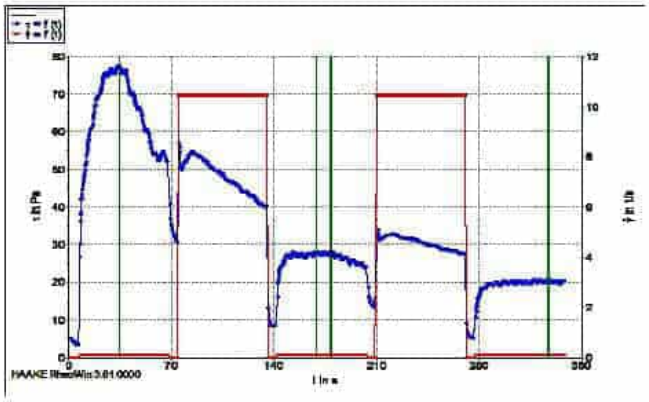
Typical Rheological Curve for Kilosegui Oxide Master Composite MC-7

HAAKE RheoWin3.61.0000 **Rheological Curve** Page 1

Company	Outokumpu Technology Pty Ltd	**Measure device**	VT550		
Operator	Outokumpu Technology Pty Ltd	**Temperature device**			
Date/Time	05.07.2024 / 15:22:29 PM	**Sensor**	OK600	**Gap**	1.000 mm
Substance	OK600 SD YS / Shear / YS / Shear / YS Progra	**A-factor**	21101.551 Pa/Nm		
Sample no	Bealer	**M-factor**	1.996 (1/s)/(rad/s)		
Description					

Comment

Rheology plot



Filename: —

Job: C:\Program Files (x86)\RheoWin3\Jobs\OK600YIELDDOUBLESHEAR.rwj

—

Curve discussion:

Method	t in s	tau in Pa
Greatest value	34.45	77.44

Curve discussion:

Method	t in s	tau in Pa
Greatest value	179.2	28.28
Maximum	169.0	28.30

Curve discussion:

Method	t in s	tau in Pa
Greatest value	328.4	20.68
Maximum	327.5	20.70

APPENDIX 10

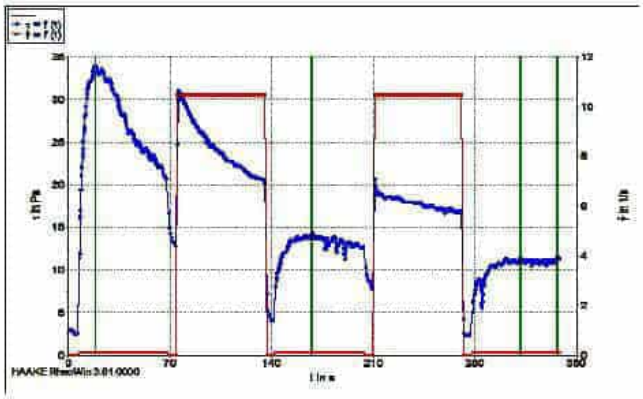
Typical Rheological Curve for Chegue Trans Master Composite MC-20

HAAKE RheoWin 3.61.0000 **Rheological Curve** Page 1

Company	Outokumpu Technology Pty Ltd	**Measure device**	VT550		
Operator	Outokumpu Technology Pty Ltd	**Temperature device**			
Date/Time	21.06.2024 / 14:56:40 PM	**Sensor**	OK600	**Gap**	1.000 mm
Substance	OK600 SD YS / Shear / YS / Shear / YS Progra	**A-factor**	21101.551 Pa/Nm		
Sample no	Bealer	**M-factor**	1.995 (1/s)/(rad/s)		
Description					

Comment

Rheology plot



Filename: —
Job: C:\Program Files (x86)\RheoWin3\Jobs\OK600YIELDDOUBLESHEAR.rwj

—
Curve discussion:

Method	t in s	tau in Pa
Greatest value	18.42	33.97
Maximum	18.43	33.86

Curve discussion:

Method	t in s	tau in Pa
Greatest value	167.8	14.35
Maximum	168.0	14.22

Curve discussion:

Method	t in s	tau in Pa
Greatest value	337.4	11.54
Maximum	311.6	11.33

APPENDIX 11

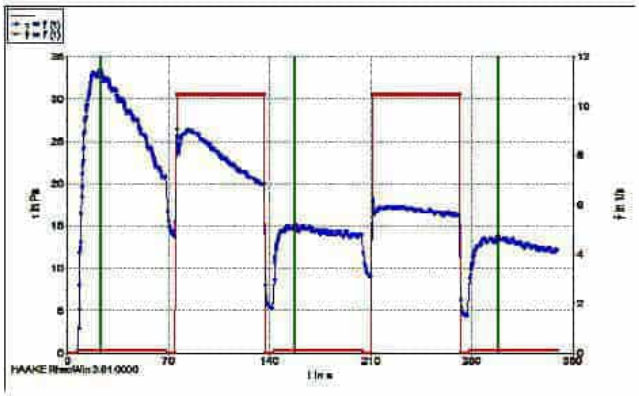
Typical Rheological Curve for Enioda Oxide Master Composite MC-13

HAAKE RheoWin 3.61.0000 **Rheological Curve** Page 1

Company	Outokumpu Technology Pty Ltd	**Measure device**	VT550		
Operator	Outokumpu Technology Pty Ltd	**Temperature device**			
Date/Time	01.07.2024 / 16:31:26 PM	**Sensor**	OK600	**Gap**	1.000 mm
Substance	OK600 SD YS / Shear / YS / Shear / YS Progra	**A-factor**	21101.551 Pa/Nm		
Sample no	Bealer	**M-factor**	1.996 (1/s)/(rad/s)		
Description					

Comment

Rheology plot



Filename: —
Job: C:\Program Files (x86)\RheoWin3\Jobs\OK600YIELDDOUBLESHEAR.rwj

—

Curve discussion:

Method	t in s	tau in Pa
Greatest value	22.44	33.34
Maximum	22.14	33.30

Curve discussion:

Method	t in s	tau in Pa
Greatest value	157.2	15.19
Maximum	157.4	15.07

Curve discussion:

Method	t in s	tau in Pa
Greatest value	298.6	13.72
Maximum	298.4	13.67

© Property of Metso – All rights reserved.
Only digital documents used directly from the Metso official document management system are valid and controlled.
Link to Metso document management system

APPENDIX 12

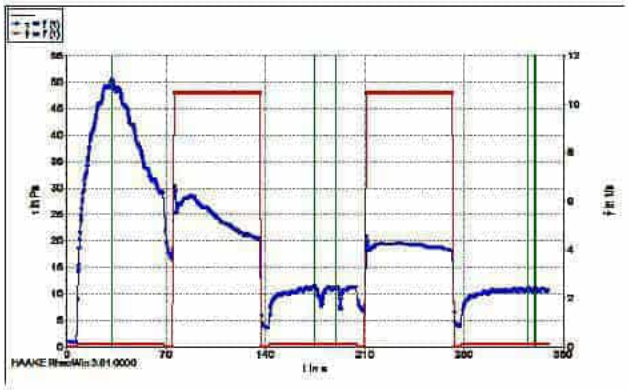
Typical Rheological Curve for Enioda Trans Master Composite MC-14

HAAKE RheoWin 3.61.0000 — Rheological Curve — Page 1

Company	Outokumpu Technology Pty Ltd	**Measure device**	VT 550		
Operator	Outokumpu Technology Pty Ltd	**Temperature device**			
Date/Time	16.07.2024 / 11:49:03 AM	**Sensor**	OK600	**Gap**	1.000 mm
Substance	OK600 SD YS / Shear / YS / Shear / YS Progra	**A-factor**	21101.551 Pa/Nm		
Sample no	Beaker	**M-factor**	1.986 (1/s)/(rad/s)		
Description					

Comment

Rheology plot



Filename: —

Job: C:\Program Files (x86)\RheoWin3\Jobs\OK600YIELDDOUBLESHEAR.rwj

—

Curve discussion:

Method	t in s	τ in Pa
Greatest value	31.80	50.43
Maximum	31.80	50.38

Curve discussion:

Method	t in s	τ in Pa
Greatest value	174.5	11.61
Maximum	189.6	11.45

Curve discussion:

Method	t in s	τ in Pa
Greatest value	330.4	11.18
Maximum	325.3	11.06

END OF REPORT

Project Name:	Doropo Gold Project
Customer:	ALS Metallurgy on behalf of Centamin Mining
Contact Person(s):	Grant Harding
Email:	gharding@indmetops.com.au
Country:	Cote d'Ivoire
Place:	Bounkani Region
Application:	Detoxed Gold Leach Tailings
Product of Test:	• Kilosegui Fresh Master Composite MC-9 • Kilosegui Trans Master Composite MC-8 • Kilosegui Oxide Master Composite MC-7 • Chegue Trans Master Composite MC-20 • Enioda Oxide Master Composite MC-13 • Enioda Trans Master Composite MC-14
Case. No.:	3472031
Case Manager:	Chris Greenwood
Test Case No.:	3472031
Test Performed by:	Giridhar Sankar
Date of Test:	13th, 14th and 20th June 2024 and 1st, 3rd and 16th July 2024
Location of Test:	Metso Perth Technology Centre Bayswater, Australia
Test Equipment:	99 mm Diameter High-Rate Thickener
Date of Test report:	7th August 2024

CONFIDENTIAL

Contents

1. Production Data Requirements 3
2. Feed Dilution Tests 4
3. Conclusion and Interpretation of Results 5
4. Recommendations 6
5. Contact Information 8
6. Appendix 9

CONFIDENTIAL

1. Production Data Requirements

Stream	Solids Quantity (t/h)	Underflow Density (% solids (w/w))	Overflow Quality (mg/L solids)
Kilosegui Fresh Master Composite MC-9	500	50	<250
Kilosegui Trans Master Composite MC-8	675	50	<250
Kilosegui Oxide Master Composite MC-7	675	50	<250
Chegue Trans Master Composite MC-20	675	50	<250
Enioda Oxide Master Composite MC-13	675	50	<250
Enioda Trans Master Composite MC-14	675	50	<250

CONFIDENTIAL

2. Feed Dilution Tests

Dilution tests were conducted using Metso's optimum dilution test method. Metso's optimum dilution method determines the maximum feed solids concentration for efficient flocculation with Metso's Feedwell.

The maximum feed solids concentration of the Kilosegui Fresh Master Composite MC-9 sample was found to be around 25 % solids (w/w), however the dynamic thickening testwork was performed at 18 % solids (w/w) for practical purposes.

The maximum feed solids concentration of the Kilosegui Trans Master Composite MC-8 sample was found to be around 16 % solids (w/w), therefore the dynamic thickening testwork was performed at 16 % solids (w/w).

The maximum feed solids concentration of the Kilosegui Oxide Master Composite MC-7 sample was found to be around 18 % solids (w/w), therefore the dynamic thickening testwork was performed at 18 % solids (w/w).

The maximum feed solids concentration of the Chegue Trans Master Composite MC-20 sample was found to be around 16 % solids (w/w), therefore the dynamic thickening testwork was performed at 16 % solids (w/w).

The maximum feed solids concentration of the Enioda Oxide Master Composite MC-13 sample was found to be around 13 % solids (w/w), therefore the dynamic thickening testwork was performed at 13 % solids (w/w).

The maximum feed solids concentration of the Enioda Trans Master Composite MC-14 sample was found to be around 22 % solids (w/w), however the dynamic thickening testwork was performed at 18 % solids (w/w) for practical purposes.

CONFIDENTIAL

3. Conclusion and Interpretation of Results

The testwork on the Kilosegui Fresh Master Composite MC-9, Kilosegui Trans Master Composite MC-8, Kilosegui Oxide Master Composite MC-7, Chegue Trans Master Composite MC-20, Enioda Oxide Master Composite MC-13 and Enioda Trans Master Composite MC-14 samples has shown that the material can be successfully thickened.

Over a flux range of 0.50 – 1.0 t/(m^2·h), the Kilosegui Fresh Master Composite MC-9 sample had densities of 67.6 % - 69.8 % solids (w/w) with yield stresses 31 – 42 Pa.

Over a flux range of 0.50 – 1.0 t/(m^2·h), the Kilosegui Trans Master Composite MC-8 sample had densities of 53.2 % - 66.2 % solids (w/w) with yield stresses 7 – 49 Pa.

Over a flux range of 0.50 – 1.0 t/(m^2·h), the Kilosegui Oxide Master Composite MC-7 sample had densities of 44.9 % - 57.2 % solids (w/w) with yield stresses 41 – 136 Pa.

Over a flux range of 0.50 – 1.0 t/(m^2·h), the Chegue Trans Master Composite MC-20 sample had densities of 59.1 % - 63.3 % solids (w/w) with yield stresses 24 – 50 Pa.

Over a flux range of 0.50 – 1.0 t/(m^2·h), the Enioda Oxide Master Composite MC-13 sample had densities of 37.4 % - 50.4 % solids (w/w) with yield stresses 10 – 65 Pa.

Over a flux range of 0.50 – 1.0 t/(m^2·h), the Enioda Trans Master Composite MC-14 sample had densities of 53.0 % - 59.8 % solids (w/w) with yield stresses 26 – 75 Pa.

All the results are based on the samples as tested, with conditions specified in section 5 of Part A (test product data.)

CONFIDENTIAL

4. Recommendations

From the results of the testwork conducted, the following thickener design specifications are recommended. These recommendations should be read in conjunction with the range of test results obtained in Part A of the test report.

The thickener recommendation is for a Metso High-Rate thickener with a Metso Feedwell.

CONFIDENTIAL

Process Stream	Kilosegui Fresh Master Composite MC-9	Kilosegui Trans Master Composite MC-8	Kilosegui Oxide Master Composite MC-7	Chegue Trans Master Composite MC-20	Enioda Oxide Master Composite MC-13	Enioda Trans Master Composite MC-14
Solids feed rate (t/h)	500	675	675	675	675	675
Solids loading (t/(m^2·h))	1.0	0.75	0.75	0.75	0.75	0.75
Reporting feed slurry density (% solids (w/w))	40	40	40	40	40	40
Diluted feedwell slurry density (% solids (w/w))	18	16	18	16	13	18
Slurry pH	8.6	8.5	9.2	8.6	9.2	8.7
Coagulant Dosage (g/t)	-	600	-	200	800	-
Flocculant dosage (g/t)	10	5	140	5	20	50
Underflow density (% solids (w/w))	68	62	55	62	46	58
Yield Stress (Pa)	31	28	77	34	33	50
Overflow clarity (mg/L)	140	150	120	< 100	< 100	180
Required thickener diameter (m)	26	34	34	34	34	34

CONFIDENTIAL

5. Contact Information

For further questions please contact:

Chris Greenwood
Technology Manager - Thickeners
Metso Australia Limited (MA APA)
Tel: 08 9211 2230
Mob: 0407 695 131
Email: chris.greenwood@metso.com
Web: www.metso.com

Giridhar Sankar
Testwork Engineer
Metso Australia Limited (MA APA)
Mob: 0459 045 389
Email: giridhar.sankar@metso.com
Web: www.metso.com

CONFIDENTIAL

6. Appendix

Appendix 1 Questionnaire for all Gold Tailings sample

CONFIDENTIAL

APPENDIX 1 – Questionnaire

Metso

Document title:
Thickener Questionnaire

Metso Project Number: _____

CUSTOMER INFORMATION

Project name:	Doropo Gold Project
Customer:	ALS Metallurgy
Invoicing address:	6 MacAdam Place, Balcatta, WA, 6021
Contact person (submitter):	Marjan Nikakhtar
Title/company:	Senior Metallurgist
Telephone:	+61 8 9344 2416
Email:	Marjan.Nikakhtar@alsglobal.com
Contact person (end client, if different to above):	Grant Harding
Title/company:	Consulting Metallurgist
Telephone:	0457344194
Email:	gharding@indmetops.com.au
Report recipient(s):	Grant Harding

GENERAL INFORMATION ABOUT MATERIAL TO BE THICKENED

Please complete a separate questionnaire for each sample type or application

Application:	
Sample name:	SOLIWA FRESH MASTER COMPOSITE (MC-3) (PW5100 Detoxed Tail)
Composition of solids:	Mineral slurry
Chemical formula:	
Composition of liquid:	
Chemical formula:	
Corrosive compounds:	
Hazards (also attach SDS):	
Estimated mass of solids available (kg):	~10 kg
Estimated volume of site water or liquor available (l):	*If site water/liquor is not available then tap water can be used, check box below*
Use tap water:	X If site water/liquor not available or critical
Other information:	

SAMPLE RETURN INFORMATION (sample to be returned to client at client's expense or waste treatment charges will apply)

Company name:	ALS Metallurgy
Address:	6 MacAdam Place, Balcatta, WA, 6021
Contact person:	Marjan Nikakhtar
Title:	Senior Metallurgist
Telephone:	+61 8 9344 2416
Email:	Marjan.Nikakhtar@alsglobal.com
Courier/transport details:	
Courier account number:	

Metso

Thickener Questionnaire

PURPOSE OF TESTWORK

To determine the size of the tailing's thickener in the Doropo gold processing plant and achievable underflow % solids and rheology

THICKENER CONDITIONS

Process Information	Client Information	Units	Example/units
Thickener feed description	Cyclone O/F (pre leach thickener)		CIL- CN detox tails
Process flow sheet	See attached		
Feed rate (Dry Solids)	675 tph		250 t/h
Feed concentration reporting to thickener	40 % Solids (w/w)		25 % solids (w/w)
Slurry pH	Unknown – please measure		pH 9.0
pH adjustment	Done – post thickening		Lime
Feed temperature	Unknown assume 25- 30°C		25°C
Particle size distribution (if available please send)	P80 75 um		P80 75µm
Estimated solids SG	2.58 t/m³		2.25 t/m³ = g/mL
Estimated liquid SG	1.00 t/m³		1.001 g/mL
Target underflow density	50 % solids (w/w)		60% solids (w/w). Please don't just request max.
Underflow reports to	Gold Leaching to CIL		TSF
Target overflow quality	Process water reuse. Presumed target <250 ppm solids, please define in testing		Process water reuse, 250mg/L (ppm) solids
Coagulant/Flocculant preference (if any)	Flocculant – unknown please screen and test		Type and supplier
Limitations on thickener size (if any)	None, tentatively stated as 35 m pending actual t/m²h results		m

PRESENT THICKENING EQUIPMENT X Does not exist

Process Information	Client Information	Units	Example/units
Type of thickener	High-rate thickener.		Metso High Rate Thickener (HRT)
Thickener diameter	tentatively stated as 35 m pending actual t/m²h results		30m
Underflow density being achieved	Unknown please test		62% solids (w/w)
Overflow quality being achieved	Unknown please test		150mg/L (ppm) solids

Metso

Thickener Questionnaire

Coagulant/Flocculant type	Unknown please test, assumed anionic polyacrylamide		Type and supplier
Coagulant/Flocculant dose	Assumed at 30 g/t – requires screening and testing		25g/t of solids

ADDITIONAL INFORMATION

There is no pre-existing thickening or settling test work for Dompo. The sample requires flocculant screening and testing for what can be achieved via dynamic thickening testing

Please send safety datasheets with sample.

CONFIDENTIAL

END OF REPORT

APPENDIX 6.6

DFS UPDATE TESTWORK MEMORANDUM

Lycopodium

M E M O R A N D U M

TO:	Rob Cicchini	**COMPANY:**	Resolute Mining
FROM:	Ryan Harrison	**DATE:**	8 August 2025
CC:	Stephan Buys, Alwyn Scholtz, Anton Gustavson	**JOB NO:**	2326.20
		E-MAIL:	**ryan.harrison@lycopodium.com**
SUBJECT:	**DOROPO DFS UPDATE TESTWORK**		

1.0 EXECUTIVE SUMMARY

Lycopodium has been engaged by Resolute to update the DFS for the Doropo Gold Project. In addition to updating the Project deliverables and cost estimates, the work includes a metallurgical testwork component to be completed in parallel.

This memorandum outlines the review of the PFS and DFS testwork, how the testwork data has been incorporated into the process design and a plan for the DFS update metallurgical testwork program.

The conclusions from the review by Lycopodium of the testwork information available for the Doropo Gold Project include:

- The two ALS programs for the PFS (2023) and DFS (2024) covered the various prospects and ore lithology types (oxide, fresh and transition) and are considered to adequately support the DFS.
- The testing was conducted on master and variability composites representing the various prospects and ore lithologies, but not on blends of prospects and/or lithologies.
- OMC conducted analysis and modelling during the PFS using the comminution parameters from the 2023 ALS program. No additional comminution design data has been generated.
- Recommendations for further work were made in the DFS NI 43-101 Report and in a list of concerns written by Resolute, some of which have since been addressed.
- Lycopodium reviewed the DFS PDC against the testwork and noted the following:
    - The DFS PDC does not contain all the latest testwork-derived values.
    - The testwork derived-values in the PDC are not well referenced beyond the designation of "Testwork" and some brief comments.

  - Many of the design criteria items with the source designated as "Testwork", do not match the values in the relevant original testwork reports.

  - This might be explained in the IMO report "Doropo DFS Metallurgical Test Work Report", Report #6599, August 2024, which was referenced in the NI 43-101 Report but was not available.

- An inventory of material left over from the programs at ALS was provided to Lycopodium. ALS confirmed that remnants from the 2023 PFS program were disposed so only the leftover material from the 2024 DFS is still in storage.

Lycopodium makes the following recommendations from the review of the testwork for the Doropo Gold Project DFS update:

- Confirm with Resolute and Oreology if the ore lithologies will be treated separately or if blends will be fed to the plant.

- Engage OMC to update their analysis and modelling to reflect the updated mine plan and ore lithology treatment philosophy.

- Check that the variability coverage is adequate in relation to the updated mine plan.

- Conduct a testwork program for the DFS update on samples of blended materials representing the updated mine plan as per the plan and proposed scope of work outlined in this memo.

- Continuous piloting testwork is not necessary for free milling gold processes such as the Doropo flowsheet.

- Approach a vendor (e.g. Gekko or Consep) about conducting eGRG analysis using the available data. Additional tests can be planned if required.

- Obtain a sample of site raw water for water quality analysis and possibly use it in testing.

- Resolute to provide the testwork report prepared by IMO about the DFS testwork program, referenced in the NI 43-101 Report.

- Update the testwork-related aspects of the DFS PDC using the following approach:

  - Verify the testwork data inputs and update assumed or superseded values with the latest testwork results. Some interpretation of the available results may be needed.

  - Do not incorporate any new testwork results into the PDC. Any testwork results that deviate from the PDC will be identified and captured in a list of recommended actions for the next phase of the Project.

  - Prepare a summary document explaining the background and any testwork interpretation done to derive inputs into the PDC.

2.0 INFORMATION REVIEWED

The information made available to Lycopodium that needs to be considered in developing the DFS update testwork program includes:

1. Doropo Gold Project Feasibility Study – Technical Report NI 43-101, GR Engineering Services, 3 September 2024. (NI 43-101 Report).

2. Project Diamond: Phase 2 Confirmatory Technical Due Diligence, The Mineral Corporation, 22 April 2025. (TMC Report).

3. "Doropo Concerns", Word document provided by Resolute Mining, received 17 July 2025.

4. Metallurgical Testwork conducted upon Doropo Cote d'Ivoire Samples, ALS Metallurgy, Report No, A23136, September 2023. (ALS Report 2023, referenced in NI 43-101 Report).

5. Metallurgical Testwork conducted upon Doropo Cote d'Ivoire Samples, ALS Metallurgy, Report No, A24862, November 2024. (ALS Report 2024, some results included in NI 43-101 Report).

6. Doropo Gold Project – Thickening Report – Part A and B, Case No 3456183 and 3472031, Metso, 22 May 2024 (Part A) and 7 August 2024 (Part B) (Metso Report, attached to ALS Report 2024).

3.0 TESTWORK GAPS

From reviewing the Mineral Processing and Metallurgical Testing section of the NI 43-101 Report, the testwork that has been completed adequately supports the DFS. This finding is echoed in the TMC report. In particular, comminution parameters, gravity and cyanide leaching have been tested extensively across the various lithologies and orebodies. However, there are several aspects of the design that could benefit from further testing to increase confidence and reduce Project risk.

It is noted that there was some testing that was completed after the NI 43-101 Report was published that needs to be reviewed and incorporated into the PDC.

Items requiring further testwork have been identified in the first three reference documents listed previously, plus some additional items that were noted during the Lycopodium review.

3.1 NI 43-101 Report

The further testwork outlined in the NI 43-101 Report was in progress when the report was published. These items are listed below, noting that were subsequently completed and reported in the ALS Report 2024:

1. Further dynamic thickening tests (additional tests completed).

2. Further cyanide detoxification tests including cyanide speciation (additional tests completed).

3. Pre-leach and CIL testwork (pre-leach oxygenation via sparging and the Mach™ technology were tested along with variability composites at optimised conditions).

4. Oxygen uptake testing (completed).

5. Slurry rheology characterisation (also noted in Doropo Concerns, completed).

6. Bulk CIL tests of main master composites under optimised conditions (completed)

7. Sequential CIP testing on all master composites for equilibrium carbon loading (completed).

8. Diagnostic leaching of CIL tails (completed)

3.2 Additional Gaps

Additional gaps from the Doropo Concerns, TMC Report and Lycopodium review are as follows:

9. Design is only based on lab scale batch tests, not continuous piloting tests (TMC Report and Doropo Concerns).

10. No testing conducted on a blend of oxide, transitional and fresh material (TMC Report).

11. The effect of water quality has not been checked (TMC Report).

12. Limited understanding of mineralogy and occurrence of swelling clays across the orebodies and lithologies (Doropo Concerns, QEMSCAN was conducted).

13. Only basic gravity recoverable gold (GRG) tests have been conducted, no extended GRG (eGRG) tests and modelling to optimise the design of the gravity circuit (Doropo Concerns).

14. Potential for acid mine drainage (AMD) for samples with appreciable sulphide content has not been evaluated (Doropo Concerns).

15. Effect of deleterious elements and preg robbing has not been analysed in depth (Doropo Concerns).

16. Insufficient variability coverage (Doropo Concerns, variability composites testing completed).

17. Solid material handling testwork has not been conducted (Lycopodium review).

4.0 COMMENTARY ON GAPS IDENTIFIED

Lycopodium has the following comments on the gaps that were identified:

- Lycopodium does not agree with TMC's recommendation about conducting continuous piloting for free milling gold processes like Doropo. There are numerous examples of similar successful projects that did not perform continuous pilot testing.

- Lycopodium agrees with TMC's recommendation to test samples of blended ore.

    - The blends should represent what is likely to be treated by the plant in the early years of the updated mine schedule.

  - Lycopodium needs confirm with Oreology about how the different lithologies will be delivered to the plant.
  - The target grind size for blends containing any fresh material should be P_{80} of 75 µm.
  - The treatment rate should be selected by prorating based on the blend proportion, e.g. 50:50 fresh:oxide would be 4.7 Mt/a.
  - OMC can verify that the DFS comminution circuit can achieve the target grind size at the calculated throughput for a range of blend scenarios.

- The comminution parameter testing conducted in the PFS testwork program is sufficient for OMC to update their modelling, including simulating scenarios of blended ore types.
- Metso should perform thickening tests by on blended samples of leach feed.
- Cyanide destruction tests used high reagent dosages and comfortably achieved the target of <10 mg/L CN_{WAD}, although the target in the design is <50 mg/L CN_{WAD}.
- Lycopodium agrees with conducting some eGRG analysis:
  - The main objective is to confirm that the current DFS configuration is suitable.
  - Provide the currently available results to a vendor such as Gekko or Consep for conducting eGRG modelling analysis.
  - If the vendor requests further testing, then it can be incorporated into the testwork program, the outcomes of which will be considered in the next phase.
- The updated optimised pits need to be cross-checked with the locations of the variability samples that were used in the PFS and DFS testwork programs. Additional sample drilling might be needed if any significant gaps are noted.
- Obtaining a sample of site water for water quality analysis is recommended. Using site water in the testwork program is preferred but not essential.
- Solids material handling testwork is recommended to support the design.

5.0 DFS UPDATE TESTWORK PROGRAM

5.1 Objective

The intention is for the DFS update testwork program to confirm the design. The program will be executed in parallel with the DFS update. Therefore there will not be enough time to incorporate the results into the design until the next Project phase. Given that the PFS and DFS programs were conducted by ALS, it makes sense to sole-source the DFS update testwork program to ALS.

5.2 DFS Testwork Program Scope

Lycopodium proposes the following scope for the DFS update testwork program:

- Head assays and characterisation for each blend.
- Confirmation of grind size (75 µm and 106 µm) vs gold recovery (gravity and direct cyanide leach) for each blend.
- Confirmation of optimised gravity and cyanide leaching conditions for each blend.
- Sequential CIP, equilibrium isotherm and oxygen uptake rate testing for each blend.
- Optimisation of cyanide destruction conditions.
- Thickening tests by Metso on the leach feed samples of each blend.
- Rheology testing on each blend.
- Solid material handling tests outsourced to a specialist such as Jenike Johanson or Tunra, including oxide/transition samples with clay content.
- eGRG tests (if required) based on input from a vendor such as Consep or Gekko.
- AMD tests based on acid-base accounting.

5.3 Plan Moving Forward

The proposed plan for the DFS update testwork program is as follows:

1. Agree on the proposed scope (Lycopodium/Resolute).
2. Estimate mass of samples required (ALS/Lycopodium).
3. Propose recipes to constitute samples based on the updated mine schedule and using sample remnants in storage at ALS (Lycopodium).
4. Prepare a scope of work and request for proposal for the testwork program (Lycopodium).
5. Provide proposal and quote (ALS).
6. Review proposal, revise if necessary and give approval to proceed (Lycopodium/Resolute).
7. Execute program, directing tests and reviewing results (ALS/Lycopodium).
8. Receive testwork program report from the laboratory (ALS).
9. Write a testwork report for the DFS update program, outlining how the results have been interpreted and used in the design (Lycopodium/Resolute).

10. Identify any outcomes from the DFS update testwork program that deviate from the design and recommend actions for the next phase of the Project (Lycopodium).

6.0 CONCLUSIONS

The conclusions from the review by Lycopodium of the testwork information available for the Doropo Gold Project include:

- The two ALS programs for the PFS (2023) and DFS (2024) covered the various prospects and ore lithology types (oxide, fresh and transition) and are considered to adequately support the DFS.
- The testing was conducted on master and variability composites representing the various prospects and ore lithologies, but not on blends of prospects and/or lithologies.
- OMC conducted analysis and modelling during the PFS using the comminution parameters from the 2023 ALS program. No additional comminution design data has been generated.
- Recommendations for further work were made in the DFS NI 43-101 Report and in a list of concerns written by Resolute, some of which have since been addressed.
- Lycopodium reviewed the DFS PDC against the testwork and noted the following:
    - The DFS PDC does not contain all the latest testwork-derived values.
    - The testwork derived-values in the PDC are not well referenced beyond the designation of "Testwork" and some brief comments.
    - Many of the design criteria items with the source designated as "Testwork", do not match the values in the relevant original testwork reports.
    - This might be explained in the IMO report "Doropo DFS Metallurgical Test Work Report", Report #6599, August 2024, which was referenced in the NI 43-101 Report but was not available.
- An inventory of material left over from the programs at ALS was provided to Lycopodium. ALS confirmed that remnants from the 2023 PFS program were disposed so only the leftover material from the 2024 DFS is still in storage.

7.0 RECOMMENDATIONS

Lycopodium makes the following recommendations from the review of the testwork for the Doropo Gold Project DFS update:

- Confirm with Resolute and Oreology if the ore lithologies will be treated separately or if blends will be fed to the plant.
- Engage OMC to update their analysis and modelling to reflect the updated mine plan and ore lithology treatment philosophy.

- Check that the variability coverage is adequate in relation to the updated mine plan.
- Conduct a testwork program for the DFS update on samples of blended materials representing the updated mine plan as per the plan and proposed scope of work outlined in this memo.
- Continuous piloting testwork is not necessary for free milling gold processes such as the Doropo flowsheet.
- Approach a vendor (e.g. Gekko or Consep) about conducting eGRG analysis using the available data. Additional tests can be planned if required.
- Obtain a sample of site raw water for water quality analysis and possibly use in testing.
- Resolute to provide the testwork report prepared by IMO about the DFS testwork program, referenced in the NI 43-101 Report.
- Update the testwork-related aspects of the DFS PDC using the following approach:
    - Verify the testwork data inputs and update assumed or superseded values with the latest testwork results. Some interpretation of the available results may be needed.
    - Do not incorporate any new results into the PDC. Any testwork results that deviate from the PDC will be identified and captured in a list of recommended actions for the next phase of the Project.
    - Prepare a summary document explaining the background and any testwork interpretation done to derive inputs into the PDC.

APPENDIX 6.7

DFS UPDATE TESTWORK INTERPRETATION MEMORANDUM

Lycopodium

MEMORANDUM

TO:	Lou Giancristafaro, Sarel Malan	**COMPANY:**	Resolute Mining
FROM:	Ryan Harrison	**DATE:**	23 September 2025
CC:	Stephan Buys, AJ Scholtz, Anton Gustavson	**JOB NO:**	2326.20
		E-MAIL:	**ryan.harrison@lycopodium.com**

SUBJECT: **DOROPO DFS UPDATE TESTWORK INTERPRETATION**

1.0 EXECUTIVE SUMMARY

Based on the review of the DFS testwork, process design criteria and updated mine schedule the following conclusions were made:

- The DFS plant design was based on separate treatment of oxide/transition ore at 5.4 Mt/a and a P_{80} of 106 µm, and fresh ore at 4 Mt/a and a P_{80} of 75 µm.
- The updated mine schedule revealed that ore blending will be unavoidable – fresh, transition and oxide ores will be treated together for most of the mine life.
- The DFS milling capacity needs to be increased to grind ore blends containing fresh material to the required P_{80} of 75 µm for acceptable gold recovery at the rates in the updated mine schedule.
- The DFS leach/CIL circuit capacity needs to be increased to accommodate the required 36-hours residence time when treating blends containing fresh ore at rates in the updated mine schedule.
- To maintain recoveries, a design case for the DFS update of 100% oxide/transition ore at 5.4 Mt/a and a P_{80} of 75 µm is proposed as the design basis for the milling circuit, so that grinding capacity will not be a constraint for any blend at the mine plan annual throughput rates
- OMC evaluated two options for this:
    - SAG and ball mill installed powers of 6.9 MW and 12.3 MW, with potential to treat an additional 0.2 Mt/a of fresh ore.
    - SAG and ball mill installed powers of 10 MW and 10 MW, with potential to treat an additional 0.9 Mt/a of fresh ore.
- The option with two 10 MW mills is preferred, mainly because of the upside associated with the potential to treat higher rates of fresh ore.

- The CIL circuit design basis is proposed to be a 40% fresh ore blend and 36-hours residence time, resulting in 4000 m^3 live volume for each leach and CIL tank.

- For blends with less than 40% fresh ore, the CIL residence time requirement of 36-hours can be relaxed noting that only 24-hours is required for oxide and transition ore types.

- A coarser P_{80} grind of 106 µm is only applicable when processing 100% oxide/transition ore, which is expected only in the first year. However, the larger milling circuit will be able to achieve the finer grind size.

- CIL tests are most representative of the flowsheet and should be the basis for updated PDC values for gold recovery and reagent consumptions, as summarised in Table 1:

Table 1 Revised recoveries and reagent consumptions

Parameter	Unit	DFS PDC Value	Value for Use in DFS Update	Comment/Impact
Overall Recovery	%	Oxide 94.8 Transition 94.8 Fresh 90.9	Oxide 96.1 Transition 92.6 Fresh 89.2	DFS values overstated for fresh & transition; updated values reflect CIL testwork at 36 hours and P_{80} of 75 µm.
Gravity Recovery	%	Oxide 30.5 Transition 30.5 Fresh 33.7	35 (all ore types)	Average across ore types recommended; not critical to overall economics.
NaCN Consumption	kg/t	Oxide 0.38 Transition 0.38 Fresh 0.35	Oxide 0.69 Transition 0.56 Fresh 0.57	Consumption from CIL tests more appropriate. Important for operating cost estimate.
Lime Consumption	kg/t	Oxide 1.33 Transition 1.33 Fresh 0.30	Oxide 1.08 Transition 0.58 Fresh 0.26	The CIL test values for lime consumption were used

2.0 OBJECTIVE

The objectives of this review were:

1. Verify and validate the values in the DFS PDC completed by GRES for Centamin in 2024 for:
    a. Overall gold recovery.
    b. Gravity gold recovery.
    c. Sodium cyanide (NaCN) consumption.
    d. Lime consumption.
2. If the DFS PDC values did not align with the testwork, new values were to be derived.
3. Confirm the DFS update design basis for the milling and CIL circuits.

3.0 DFS VALUES

The gold recovery and reagent consumption values in the DFS PDC (12936-DSC-PI-4907366_C) are presented in Table 2 and the sources listed for these inputs, along with any additional comments, are provided in Table 3. The basis for these values was separate treatment of oxide/transition and fresh ores at different rates, grind sizes and CIL residence times. The grinding circuit capacity was set by the fresh ore case with respect to power. The oxide/transition rate was determined calculating the throughput that was possible at the coarser grind size.

Table 2 DFS PDC Values

Parameter	Units	Oxide	Transition	Fresh
Annual Throughput	Mt/a	5.4	5.4	4
Product Size, P_{80}	µm	106	106	75
CIL Residence time	h	25	25	38
Gravity Recovery	%	30.5	30.5	33.7
Overall Recovery	%	94.8	94.8	90.9
NaCN Consumption	kg/t	0.38	0.38	0.35
Lime Consumption	kg/t	1.33	1.33	0.3

Table 3 DFS PDC Sources

Parameter	Source	Comment
Annual Throughput	Client	Dry tonnes
Product size, P_{80}	Client	-
CIL Residence Time	Calculated	DFS DCN leach testing
Design Gravity Gold Recovery	Testwork	DFS DCN leach testing average
Design Gold Extraction from Leach	Testwork	DFS DCN leach testing average
Calculated Gold Recovery (Overall Recovery)	Calculated	-
Adsorption efficiency	Assumption	-
NaCN Consumption – Leaching	Testwork	"85th Percentile, DFS DCN Leach Souwa/Nokpa/Kilosegui
Lime Consumption	Testwork	85th Percentile, DFS available DCN Leaches, small sample size

The "Gold Extraction from Leach" values represent the gold leached in the leach/CIL circuit relative to the feed to the leach/CIL circuit, after gravity gold has been removed. Additionally, an adsorption efficiency of 98% has been applied when calculating the overall recovery. These steps are broken down in Table 4.

Table 4 DFS Recovery Breakdown

Step	Ox/Trans %	Fresh %	Comment
Gravity recovery	30.5	33.7	
CIL feed	69.5	66.3	Feed - gravity
CIL extraction	94.4	88.1	Based on feed to CIL
Adsorption efficiency	98	98	% of Au extracted that is adsorbed onto carbon
CIL recovery (vs CIL feed)	92.5	86.3	CIL extraction x adsorption efficiency

Step	Ox/Trans %	Fresh %	Comment
CIL recovery (vs ore)	64.3	57.2	CIL recovery (vs CIL feed) x CIL feed
Overall recovery	94.8	90.9	Gravity recovery + CIL recovery (vs ore)

NaCN consumption is defined as the NaCN consumed in leach, excluding the residual concentration, i.e. the amount of NaCN added minus the amount of NaCN remaining at the end of the test, relative to the mass of feed solids. NaCN used in the gravity concentrate intensive cyanidation and the elution circuits are not included.

4.0 TESTWORK INTERPRETATION METHOD

The method for analysing and interpreting the testwork results (ALS Report A24862, November 2024) was as follows:

1. Group the testwork data into sets according to:
    - Ore types (oxide, transition and fresh).
    - Test type (DCN, CIL and bulk CIL)
    - Test conditions that match the optimum conditions
        - P_{80} of 106 µm for oxide and transition, and 75 µm for fresh
        - Use of oxygen sparging
        - NaCN initial and maintained concentrations of 0.05 and 0.025% w/v, respectively.
        - No pre-oxygenation, pre-leach or lead nitrate addition.
2. Try to reproduce the values in the DFS PDC.
3. Review the DFS PDC values and decide if they are the most appropriate to use in the DFS update.
4. Propose values to use in the DFS update, making adjustments if and as required.

5.0 ANALYSIS OF DFS VALUES

5.1 Data Reconciliation

The values used in the DFS could not be reproduced. The data for oxide/transition and fresh ore types from the DCN tests are shown in Table 5 and Table 6. The calculated average values that are meant to correspond with the PDC are emphasised in bold font.

Table 5 Oxide/Transition DCN Results

Test	Pit	Ore type	Gravity %	Leach %	Total %	NaCN kg/t	Lime kg/t
PW_8058	Souwa	Oxide	33.39	60.49	93.89	0.21	0.75
PW_8059	Souwa	Trans	24.06	67.60	91.66	0.21	0.54
PW_8529	Souwa	Oxide	42.95	51.77	94.73	0.61	0.91
PW_8530	Souwa	Trans	24.05	66.23	90.28	0.30	0.32
PW_7883	Nokpa	Trans	15.73	78.74	94.47	0.15	0.72
PW_8061	Nokpa	Trans	12.98	81.54	94.52	0.15	0.78
PW_8548	Nokpa	Oxide	14.40	78.09	92.50	0.12	1.18
PW_8532	Nokpa	Trans	11.91	84.48	96.38	0.21	0.53
PW_7889	Kilosegui	Oxide	37.82	59.24	97.06	0.21	0.75
PW_7892	Kilosegui	Trans	35.33	56.22	91.54	0.18	0.45
PW_8534	Kilosegui	Oxide	38.03	55.45	93.48	0.21	0.73
PW_8535	Kilosegui	Trans	31.60	58.60	90.20	0.18	0.38
PW_7898	Kekeda	Oxide	25.49	70.48	95.97	0.21	1.11
PW_7901	Kekeda	Trans	20.83	73.01	93.84	0.18	0.58
PW_8172	Kekeda	Trans	29.97	62.19	92.16	0.14	0.60
PW_7907	Enioda	Oxide	28.24	67.71	95.94	0.27	1.17
PW_7910	Enioda	Trans	36.70	58.68	95.38	0.24	0.69
PW_8174	Enioda	Oxide	29.82	65.57	95.39	0.12	1.42
PW_8175	Enioda	Trans	36.93	57.26	94.19	0.15	0.88
PW_7916	Han	Trans	43.73	50.59	94.33	0.18	0.42
PW_8177	Han	Trans	40.95	54.60	95.55	0.12	0.41
PW_7931	Chegue S.	Trans	27.02	65.21	92.23	0.15	0.50
PW_8181	Chegue S.	Trans	27.40	62.48	89.89	0.09	0.54
PW_8549	Chegue S.	Trans	26.30	67.79	94.09	0.61	0.53
Average			**28.98**	**64.75**	93.74	0.22	0.69
85th Percentile			38.76	78.25	95.95	0.28	**1.12**
85th Percentile Souwa/Nokpa/Kilosegui			38.27	81.69	96.42	**0.32**	0.92
PDC Values			**30.5**	**69.5**	**94.8**	**0.38**	**1.3**

Table 6 Fresh DCN Results

Test	Pit	Ore type	Gravity %	Leach %	Total %	NaCN kg/t	Lime kg/t
PW_8060	Souwa	Fresh	26.98	58.88	85.86	0.21	0.25
PW_8531	Souwa	Fresh	24.14	59.82	83.96	0.24	0.24
PW_7886	Nokpa	Fresh	29.10	57.14	86.24	0.14	0.22
PW_8062	Nokpa	Fresh	28.91	60.87	89.78	0.18	0.43
PW_8533	Nokpa	Fresh	27.71	65.23	92.94	0.24	0.17
PW_7895	Kilosegui	Fresh	40.33	43.69	84.02	0.14	0.31
PW_8536	Kilosegui	Fresh	29.99	54.65	84.64	0.27	0.28
PW_7904	Kekeda	Fresh	37.03	52.46	89.49	0.18	0.29
PW_8173	Kekeda	Fresh	33.19	59.76	92.95	0.02	0.67
PW_7913	Enioda	Fresh	32.89	53.06	85.95	0.27	0.34

Test	Pit	Ore type	Gravity %	Leach %	Total %	NaCN kg/t	Lime kg/t
PW_8176	Enioda	Fresh	29.27	56.76	86.03	0.14	0.32
PW_7919	Han	Fresh	44.71	42.21	86.92	0.20	0.26
PW_8178	Han	Fresh	47.74	40.35	88.09	0.15	0.31
PW_7934	Chegue S.	Fresh	40.44	39.20	79.65	0.12	0.30
PW_8182	Chegue S.	Fresh	32.51	48.27	80.79	0.12	0.32
PW_8550	Chegue S.	Fresh	33.98	47.32	81.31	0.61	0.30
Average			**33.68**	**52.48**	86.16	0.18	0.31
85th Percentile			42.36	60.30	91.20	0.27	**0.38**
85th Percentile Souwa/Nokpa/Kilosegui			38.26	64.36	92.31	**0.26**	0.40
PDC Values			**33.7**	**57.2**	**90.9**	**0.35**	**0.30**

5.2 Findings

There are several concerns with the validity of the DFS PDC values:

- The application of single values to both oxide and transition ores is questioned.
- Using only the results from DCN tests is not considered to be as representative as using results from the CIL tests, which incorporate activated carbon.
- Leach recovery values used in the DFS PDC are significantly higher than what were achieved in the testwork and overstate the total recovery.
- Although Souwa, Nokpa and Kilosegui account for approximately 85% of the life of mine (LOM) material, the other pits should be considered.
- The reagent consumptions do not precisely align with DCN testwork but are reasonably close.
- The difference between testwork and PDC lime consumption could be adjusting the laboratory CaO content of hydrated lime (70-72% w/w CaO) compared to quicklime (90% w/w CaO). However, this is not clearly stated.
- The recoveries considered are the values at the end of each of the 40-hour tests, whereas the design residence time for oxide/transition and fresh is 24 and 36 hours, respectively.
- The recoveries considered are for P_{80} grind sizes of 106 µm and 75 µm for oxide/transition and fresh ore, respectively, assuming that oxide/transition and fresh material will only ever be treated separately.
- The DFS milling circuit design basis was 4 Mt/a fresh ore type at a P_{80} of 75 µm. It was then determined that 5.4 Mt/a of oxide/transition could be milled to P_{80} of 106 µm using this circuit.
- Mixing fresh, oxide and transition ore types was not considered in the design. Separate processing limits the mine scheduling and will not be practical because different ore types will be presented to the plant over the entire mine life.

- The DFS milling circuit capacity was not large enough to process the rates in the updated mine schedule if ore types will be blended.

- The DFS leach/CIL circuit design basis was 36-hours residence time for 4 Mt/a fresh ore. This comfortably accommodates the required 24-hours residence time for 5.4 Mt/a oxide/transition ore. This only considered separate treatment of fresh and oxide/transition ore types.

- The DFS leach/CIL circuit capacity was not large enough to provide the 36-hours residence time required for fresh ore when processed as a blend with oxide/transition ore types.

6.0 ANALYSIS FOR DFS UPDATE

6.1 Data Selection

The testwork data that could be used for deriving recovery values comprised of three sets, each including gravity gold recovery before leaching:

1. Direct cyanidation tests (DCN).

2. CIL tests.

3. Bulk CIL tests.

Tests within these sets were excluded if they did not use the standard conditions.

Out of the three sets, the CIL tests were selected for deriving gold recovery and reagents consumption values. The reasons for this are as follows:

- Bulk CIL tests were done on a limited set of samples, not including Nokpa oxide, Enioda fresh, Kekeda or Han.

- Bulk CIL tests included a poor result for Kilosegui fresh, significantly impacting the average recoveries for fresh.

- Although the ALS report stated, "the results were mixed with no definitive benefit of using direct CIL in place of direct leach", the 24 and 40 h leach extractions were noticeably better for CIL, particularly for fresh samples.

- CIL tests with carbon replicate the full-scale CIL circuit more closely than DCN tests.

- NaCN consumption in CIL tests was higher because activated carbon is known to enhance the oxidation of NaCN. Therefore, NaCN consumption in DCN tests may understate the consumption in the full-scale CIL circuit.

6.2 DFS Update Mine Schedule

Oreology issued an updated mine schedule for the Project based on a higher gold price ("1128_RML_Doropo_Detailed_Schedule_V2_HM_250801_AJH"). This increased the size of the pits and

extended the mine life to 14 years. The schedule also revealed that all three ore types would be treated over the entire mine life. Oreology confirmed that processing blends of fresh and oxide/transition material will be unavoidable. The updated mine plan is provided in Table 7. Note that for the first half of the first year, it will be possible to process only oxide/transition ore types.

Table 7 DFS Update Mine Schedule

Year	Oxide %	Transition %	Fresh %	Total Mt/a
1	40.9	42.9	16.2	4.97
2	24.1	18.2	57.7	4.50
3	10.2	38.9	50.9	4.58
4	8.2	41.7	50.1	4.59
5	5.9	57.1	37.0	4.78
6	0.0	19.4	80.6	4.21
7	2.6	16.3	81.1	4.21
8	0.9	28.2	70.9	4.33
9	2.3	13.9	83.8	4.18
10	1.5	9.9	88.6	4.12
11	0.3	5.0	94.7	4.06
12	14.9	30.3	54.8	4.53
13	9.7	27.1	63.2	4.42
14	8.1	9.3	82.6	1.91
Total	**9.8**	**27.0**	**63.2**	**59.39**

6.3 Residence Time Adjustment

If a 36-hour leach/CIL residence time is adopted for fresh ore and blends containing fresh ore, then the 40-hour testwork gold recovery values need to be adjusted down. This was done by taking the gold recovery values at 24 and 40 hours for all the direct cyanidation tests (CIL tests did not record 24-hour values) at optimum conditions and using a simple linear interpolation to estimate the 36-hour gold recovery value.

Based on this data, the average adjustment factors applied to the 40-hour recovery values to estimate recovery at 36 hours are in Table 8.

Table 8 Residence Time Adjustment Factors

Ore Type	Adjustment Factor
Oxide	0.9967
Transition	0.9956
Fresh	0.9912

Figure 1, Figure 2 and Figure 3 illustrate the difference in recovery between 24 and 40 hours, and the interpolated 36-hour position.

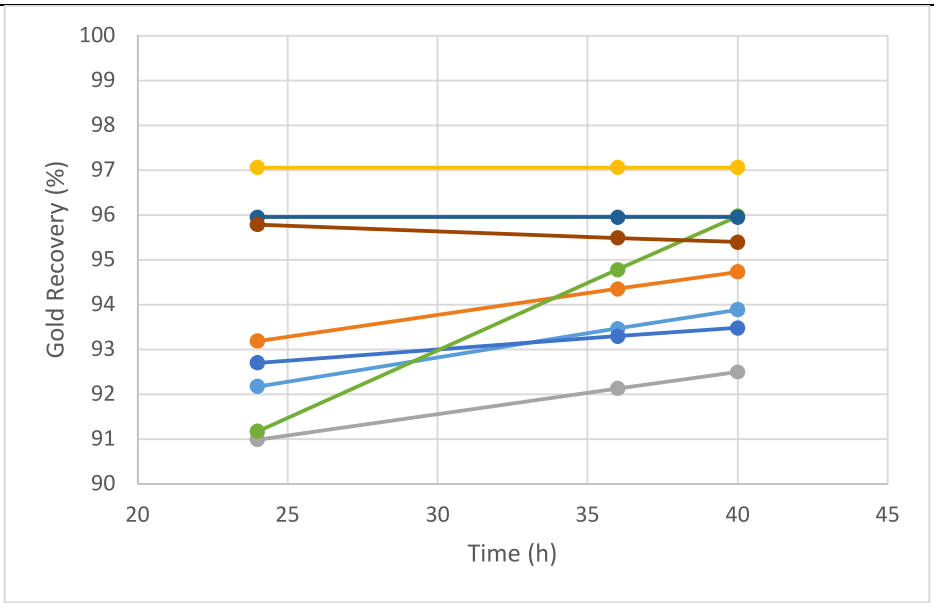


Figure 1 Oxide Gold Recovery vs Time

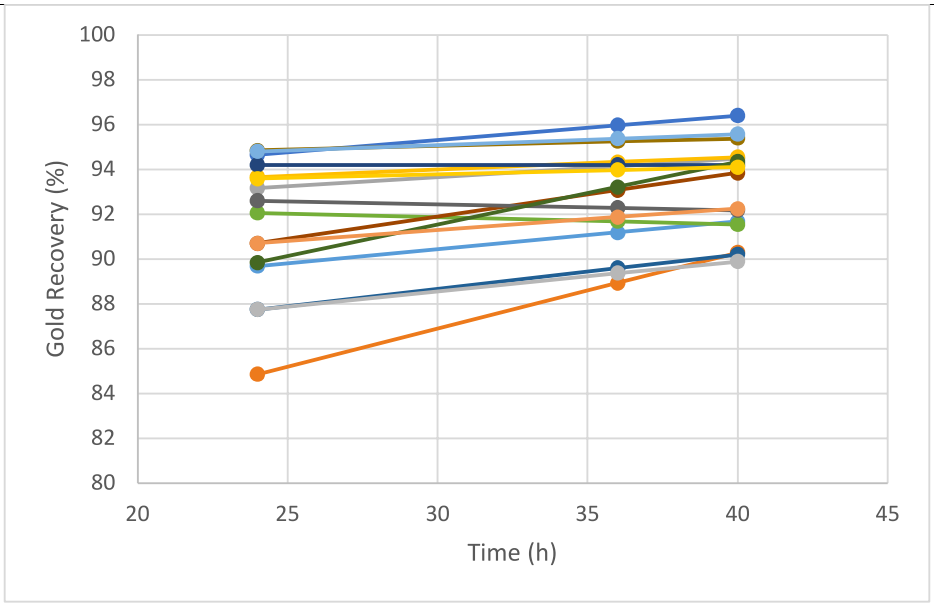


Figure 2 Transition Gold Recovery vs Time

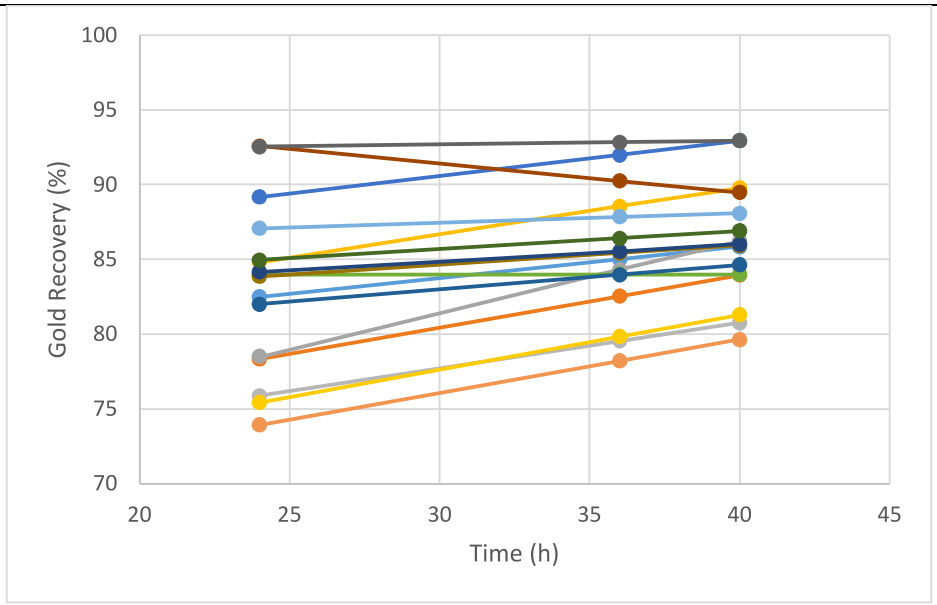


Figure 3 Fresh Gold Recovery vs Time

6.4 Grind Size Adjustment

Although 106 µm was identified as the optimum P_{80} grind size for oxide and transition ore, as previously outlined, if treated as a blend with fresh ore, the entire blend must be ground to a P_{80} of 75 µm. This will improve the gold recoveries for oxide and transition ore.

Based on this data, the average adjustment factors applied to the 106 µm recovery values to estimate recovery at P_{80} of 75 µm are presented in Table 9. Note that the fresh ore results were based on 75 µm so do not need to be adjusted.

Table 9 Grind Size Adjustment Factors

Ore Type	Adjustment Factor
Oxide	1.0120
Transition	1.0082
Fresh	1.0000

Figure 4 and Figure 5 show the recovery improvement from the grind optimisation test results, adjusted for 36-hours residence time.

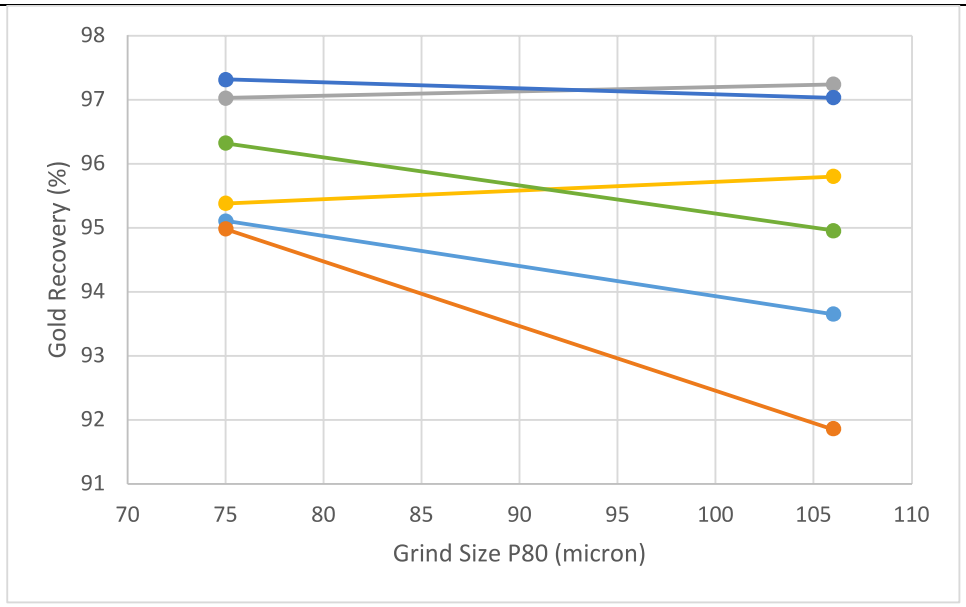


Figure 4 Oxide Gold Recovery vs Grind Size

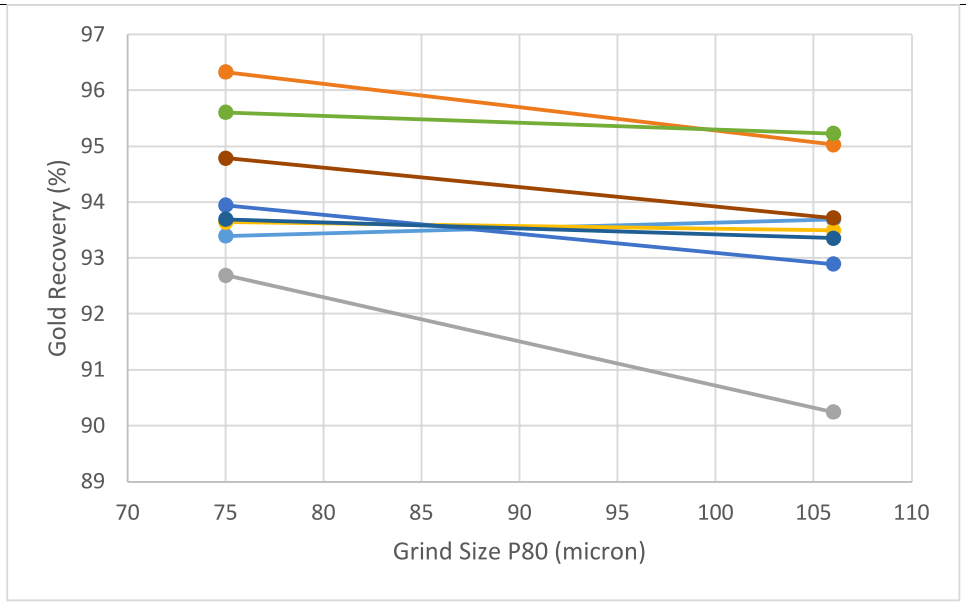


Figure 5 Transition Gold Recovery vs Grind Size

6.5 Gravity Recoverable Gold

These values are variable across ore types and grind size, as is typical for ore containing gravity gold. The DFS values are reasonably close to the values obtained for the different ore types, even at 75 µm. Furthermore, the GRG value used in design is not as critical as the overall gold recoveries. The GRG only really impacts the size of the gravity electrowinning circuit and, to a lesser extent, the size of the intensive cyanidation reactor. Therefore, the recommendation is to use the approximate average across all ore types at 75 and 106 µm of 35%.

6.6 Sodium Cyanide Consumption

The NaCN consumption was higher in the CIL tests compared to the direct cyanidation tests. ALS were queried about this, and their response was that activated carbon enhances the oxidation of cyanide to cyanate. Therefore, since the full-scale circuit will also have activated carbon, it is appropriate to use the NaCN consumptions from the CIL tests, not the lower values from the direct cyanidation tests. It's also better to use results from the same data set, not recoveries from one set and consumptions from another. The comparative values are provided in Table 10 for reference.

Table 10 Testwork NaCN Consumption

Ore Type	CIL Tests	Direct Cyanidation Tests
	kg NaCN/t	kg NaCN/t
Oxide	0.69	0.24
Transition	0.56	0.20
Fresh	0.57	0.20

ALS could not confirm the effect on NaCN consumption in batch CIL tests related to full-scale plant performance. Full-scale plant NaCN consumption may be marginally lower than laboratory scale because the laboratory scale tests used fresh carbon at a higher concentration (20 g/L vs 8-10 g/L). For the plant, the reactivated carbon is added into the final CIL stage, where the NaCN concentration is lowest. However, as there is no reliable data to support using a lower rate, the values derived from the CIL tests should be used directly.

6.7 Lime Consumption

The lime consumption values were consistent between CIL and direct cyanidation tests, as shown in Table 11. To be consistent with the gold recovery prediction and NaCN consumption, the CIL test values should be used to estimate the lime consumption.

Table 11 Testwork Lime Consumption

Ore Type	CIL Tests	Direct Cyanidation Tests
	kg lime/t	kg lime/t
Oxide	1.08	1.00
Transition	0.58	0.55
Fresh	0.26	0.31

ALS indicated that hydrated lime ($Ca(OH)_2$) assaying 70-72% w/w CaO was used in all tests. This may explain the difference between the testwork and DFS PDC lime consumption, which will be added as quicklime (90% w/w CaO). It is standard to base the design lime consumption rate and the operating cost estimate lime cost on the expected lime concentration delivered to the site.

6.8 Data Reconciliation

The CIL testwork data sets for oxide, transition and fresh ore types are shown in Table 12, Table 13 and Table 14. The leach gold recoveries shown are based on 40-hours and P_{80} grind sizes of 106 µm for oxide

and transition ore types and 75 µm for fresh ore type. Adjusted values for 36-hours residence time and 75 µm grind size are included in the tables.

Table 12 Oxide CIL Test Results

Test	Pit	Ore type	Gravity %	Leach %	Total %	NaCN kg/t	Lime kg/t
PW_8074	Souwa	Oxide	36.99	54.70	91.69	0.65	0.55
PW_8077	Nokpa	Oxide	61.97	33.10	94.97	0.71	0.80
PW_8354	Kilosegui	Oxide	57.66	41.69	97.01	0.57	0.91
PW_8356	Kekeda	Oxide	29.77	64.94	94.71	0.71	0.97
PW_8358	Enioda	Oxide	28.82	67.68	96.50	0.72	1.00
PW_8360	Han	Oxide	27.08	69.33	96.41	0.81	2.20
PW_8364	Chegue S.	Oxide	30.22	64.75	94.97	0.63	1.12
Average			**38.93**	**56.60**	**95.18**	**0.69**	**1.08**
Adjustment for residence time					**94.9**		
Adjustment for grind size					**96.0**		

Table 13 Transition CIL Test Results

Test	Pit	Ore type	Gravity %	Leach %	Total %	NaCN kg/t	Lime kg/t
PW_8075	Souwa	Transition	38.10	52.61	90.72	0.48	0.78
PW_8078	Nokpa	Transition	17.45	76.43	93.89	0.65	0.61
PW_8355	Kilosegui	Transition	41.53	57.90	89.40	0.36	0.73
PW_8357	Kekeda	Transition	37.02	57.74	94.76	0.60	0.61
PW_8359	Enioda	Transition	46.82	46.94	93.77	0.72	0.59
PW_8361	Han	Transition	33.19	60.11	93.30	0.53	0.33
PW_8365	Chegue S.	Transition	29.35	60.83	90.18	0.53	0.42
Average			**34.78**	**58.94**	**92.29**	**0.56**	**0.58**
Adjustment for residence time					**91.9**		
Adjustment for grind size					**92.6**		

Table 14 Fresh CIL Test Results

Test	Pit	Ore type	Gravity %	Leach %	Total %	NaCN kg/t	Lime kg/t
PW_8076	Souwa	Fresh	29.84	58.15	87.99	0.57	0.27
PW_8079	Nokpa	Fresh	28.91	63.19	92.10	0.45	0.25
PW_8348	Kilosegui	Fresh	43.19	46.83	90.03	0.59	0.25
PW_8349	Kekeda	Fresh	39.34	53.96	93.30	0.57	0.26
PW_8350	Enioda	Fresh	47.12	42.42	89.55	0.57	0.27
PW_8351	Han	Fresh	60.52	32.82	93.34	0.63	0.24
PW_8353	Chegue S.	Fresh	38.46	45.33	83.79	0.60	0.25
Average			**41.06**	**48.96**	**90.01**	**0.57**	**0.26**
Adjustment for residence time					**89.2**		
Adjustment for grind size					**89.2**		

6.9 DFS Update Values

Based on analysis and interpretation of the results from the DFS testwork program, the values presented in Table 15 are proposed for the DFS update PDC.

Table 15 DFS Update PDC Values

Parameter	Units	Oxide	Transition	Fresh
Grind Size, P_{80}	µm	75	75	75
Residence Time (>40% fresh blend)	h	36	36	36
Gravity Recovery	%	35	35	35
Overall Recovery	%	96.1	92.6	89.2
NaCN Consumption	kg/t	0.69	0.56	0.57
Lime Consumption	kg/t	1.08	0.58	0.26

The above "nominal" values are intended for deriving revenue and operating cost figures. Equipment design will be based on "design" values to ensure that the plant can handle short-term variations. The PDC will also list ranges of values based on the results of the CIL tests at optimum conditions.

7.0 DFS UPDATE DESIGN BASIS

7.1 Residence Time and Grind Size

As mentioned previously, the gold recovery values from testwork are based on test durations of 40-hours, whereas the DFS design residence times were 24-hours for oxide and transition ore and 36-hours for fresh ore. As well as different residence times, different target P_{80} grind sizes of 106 µm for oxide and transition and 75 µm for fresh were adopted.

Implicit in these different residence times and grind sizes was the limitation that fresh will be treated separately from oxide and transition ore types. The most recent mine scheduling by Oreology has shown that treating blends of oxide, transition, and fresh material is unavoidable, particularly considering that multiple pits will be mined simultaneously.

Therefore, given the significant impact that grind size and residence time have on gold recovery for fresh ore, any blends that are treated that contain fresh material as well as oxide/transition material need to be milled to a P_{80} of 75 µm and require 36-hours of residence time for cyanide leaching.

In the PFS comminution modelling (Report No. 7557.35-01, 2023), OMC predicted a milling rate of 4.6 Mt/a when processing oxide/transition material at a grind P_{80} of 75 µm. This rate was not used in the mine schedule. Instead, the rate of 5.4 Mt/a for oxide/transition was used, corresponding to a P_{80} grind size of 106 µm.

With respect to the design of the leach and CIL circuit, the proposed approach is to size the tanks for 36-hour residence time for blends of fresh, oxide and transition material. The treatment rate depends on the blend and simplistically is prorated based on the proportions and respective rates of 4 Mt/a and 5.4 Mt/a.

However, below a certain proportion of fresh, it makes sense to relax the residence time requirement given that the oxide/transition residence time required is 24-hours. Otherwise, the live volume of the CIL circuit will be oversized for most of the mine life.

According to the latest mine schedule, the year with the lowest proportion of fresh is year 5 with 37%. Oreology also provided the schedule by quarter, showing that there are 5 quarters in which the fresh proportion is less than 30%: Q1 to 3 in year 1, Q4 in Year 2 and Q1 in Year 5.

Therefore, 40% fresh is proposed as the design blend for sizing the leach/CIL circuit, with an assumed leach feed solids content of 48% w/w. Blends with less than 40% fresh can be considered as an oxide/transition blend that does not require a minimum of 36-hours residence time. The impact of all these parameters on the live volume of each of the leach and CIL feed tanks is shown in Table 16.

Table 16 Leach/CIL Circuit Capacity

Fresh %	P_{80} µm	Ox/Tr Basis Mt/a	Fresh Basis Mt/a	Total Rate Mt/a	Res. Time hours	Live Vol. Required m^3/tank	Comment
100	75	-	4	4	36	3,280	DFS design, selected size 3,300 m^3
0	75	5.4	-	5.4	36	4,520	Not realistic, 24 hours required for oxide only
0	106	5.4	-	5.4	24	3,014	Oxide only case, coarse grind
35	75	4.6	4	4.39	36	3,651	Current milling circuit capacity, doesn't align with mine schedule
40	75	5.4	4	4.84	36	3,997	Increased milling circuit capacity, aligned with mine schedule

7.2 Milling and CIL Circuits

Resolute has indicated that the preference is not to decrease processing rates in the mine schedule or to, sacrifice gold recovery by relaxing the grind size. Therefore, the best option is to increase the capacity of the milling circuit to be able to grind 5.4 Mt/a of oxide/transition ore to a P_{80} of 75 µm.

OMC evaluated this case and proposed two options for installed mill power:

- 6.9 MW SAG mill and 12.3 MW ball mill.
- 10 MW SAG mill and 10 MW ball mill.

The 10 MW ball mill option requires higher rates of cyclone underflow bleed back to the SAG mill when treating oxide/transition ore, which can be difficult to control precisely. It's also marginally less efficient in terms of power consumption. However, it provides additional capacity for treating fresh ore should Resolute wish to increase throughput during operation.

The 12.3 MW ball mill option is better from an operational and power efficiency perspective, but costs slightly more and provides less additional capacity for fresh ore because it's close to being SAG mill limited.

If the CIL circuit capacity is based on 40% fresh, this results in a live volume of 4,000 m^3 per leach/CIL tank. This live volume provides 36-hours residence time for all periods in the mine schedule apart from the five quarters where the fresh ore proportion is less than 30%. For these instances, the 36-hour requirement can be relaxed given the higher proportions of oxide and transition ore.

Increasing the milling capacity and CIL live volume together boosts gold production because of improved recovery associated with a finer grind and longer residence time for oxide/transition ore types. It also removes the restriction of separate treatment of fresh and oxide/transition ore types, which will not be practical and constrains the mine scheduling.

The two increased grinding capacity options with 4000 m^3 CIL tanks were compared to the DFS grinding and CIL circuits over the first 5 years of the DFS update mine plan, using the recoveries presented previously.

Parameter	Units	DFS Design	DFS Design	Case 1	Case 2
Processing	-	Separate	Blended	Blended	Blended
Grind Size, P_{80}					
- Oxide/Transition	µm	**106**	75	75	75
- Fresh	µm	75	75	75	75
Throughput					
- Oxide/Transition	Mt/a	5.4	**4.6**	5.4	5.4
- Fresh	Mt/a	4	4	4	4
CIL Residence Time					
- Oxide/Transition	h	24	~30	36	36
- Fresh	h	36	~30	36	36
SAG Mill Installed Power	MW	6.9	6.9	**6.9**	**10**
Ball Mill Installed Power	MW	9	9	**12.3**	**10**
CIL Live Volume	m^3/tank	3,300	3,330	4,000	4,000
Additional Gold Produced	oz t	0	-41,231	13,205	13,205
Additional Power	MWh	0	26,708	53,908	59,172
Additional Grinding Media	t	0	-1,293	586	586
Potential Additional Fresh Ore	Mt/a	-	-	0.2	0.9

The results for additional gold produced, power and grinding media were used in a trade-off study, which is captured in a separate memorandum. Resolute subsequently agreed to make this the DFS update design basis for the milling and CIL circuits, selecting case 1 with two 10 MW mills.

8.0 CONCLUSIONS

The following conclusions were drawn from the review of the Doropo Gold Project testwork and DFS PDC:

- The overall gold recovery and reagent consumption (NaCN and lime) values used in the DFS for oxide, transition and fresh ore types did not align with the DFS testwork results.

- It was not clear how the testwork data was interpreted when deriving the gold recovery and reagent consumption as inputs into the DFS PDC.

- Using a single set of gold recovery and reagent consumption values for oxide and transition ore types is questioned.

- Gold recovery, reagent consumption and the leach/CIL circuit capacity were based on treating oxide/transition and fresh ore types separately, whereas the latest mining schedule indicates that treating blends of all three ore types is unavoidable.

- The values in the DFS are provided in Table 17:

Table 17 DFS PDC Values

Parameter	Units	Oxide	Transition	Fresh
Gravity Recovery	%	30.5	30.5	33.7
Overall Recovery	%	94.8	94.8	90.9
NaCN Consumption	kg/t	0.38	0.38	0.35
Lime Consumption	kg/t	1.33	1.33	0.3

- The DFS testwork results for gold recovery require some adjustments to account for:

    - 40-hour test leach times vs the PDC residence times of 24 and 36 hours for oxide/transition and fresh material, respectively.

    - 106 µm P_{80} was used for oxide and transition ore types, but if these are treated in a blend with fresh material, then the entire blend will be milled to 75 µm P_{80}.

- Recovery and consumption values can possibly be based on either direction cyanidation tests, CIL tests or bulk CIL tests.

- The live volume of the DFS leach/CIL circuit is based on the following:

    - Separate treatment of oxide/transition and fresh ore types.

    - Residence times of 24 and 36 hours.

    - Ore rates of 5.4 Mt/a and 4 Mt/a.

    - P_{80} grind sizes of 106 µm and 75 µm.

    - Pre-leach thickener underflow density of 48% and 50% w/w solids.

- The live volume of the DFS leach/CIL circuit is insufficient to provide 36-hours of residence time when treating blends of fresh and other ore types.

- If the CIL live volume were to be increased, there would be a benefit to gold recovery for blends with oxide/transition ore type from the extended residence time.

- The mine scheduling optimisation is based on the DFS rates for oxide and transition of 5.4 Mt/a and fresh of 4 Mt/a.

- To enable blending and resolve the limitation on the mine schedule for separate processing, there are three options:
    - Increase the milling capacity of the grinding circuit to maintain a P_{80} of 75 µm for all blends and rates in the mine schedule. This also improves gold recovery relative to the 106 µm grind size target. Resolute has indicated that this is preferred.
    - Change the rate for treating oxide and transition ore types in the mine scheduling to 4.6 Mt/a, corresponding to a P_{80} grind size of 75 µm when processed in a blend with fresh ore.
    - Leave the mine schedule and milling circuit the same and relax grind size, thereby sacrificing gold recovery.
- OMC proposed two options for upgrading the milling circuit:
    - 6.9 MW SAG mill (unchanged from the DFS) and 12.3 MW ball mill.
    - 10 MW SAG mill and 10 MW ball mill.

9.0 RECOMMENDATIONS

The recommendations based on the review of the testwork and PDC for the Doropo Gold Project DFS update are:

- Select the CIL test data set as the basis for the DFS update PDC because:
    - The tests most closely resemble the leach/CIL flowsheet.
    - All pits in the mine schedule were covered.
    - Many tests for each lithology were conducted.
- Adjust the CIL test gold recoveries for 36-hour residence time and a P_{80} grind size of 75 µm.
- Adopt the following design basis for the capacity of the milling circuit to cover all periods of the mine schedule:
    - 100% oxide/transition ore.
    - 5.4 Mt/a throughput (aligned with the basis of the mine schedule).
    - Grind size P_{80} of 75 µm.
- Using the proposed basis, increase the mill installed powers:
    - From 6.9 MW to 10 MW for the SAG mill.

  - From 9 MW to 10 MW for the ball mill.

- The live volume of the leach/CIL circuit should be based on:
  - Minimum fresh ore blend of 40%.
  - Pre-leach thickener underflow density of 48% w/w solids.
  - 36-hours residence time.
  - For treating oxide/transition blends of less than 40% fresh the residence time requirement of 36-hours can be relaxed.
- Increase the live volume of each leach and CIL tank to 4,000 m^3 using the proposed basis.
- Revise the PDC values as per Table 18.

Table 18 DFS Update PDC Values

Parameter	Units	Oxide	Transition	Fresh
Grind Size, P_{80}	µm	75	75	75
Residence Time (>40% fresh blend)	h	36	36	36
Gravity Recovery	%	35	35	35
Overall Recovery	%	96.1	92.6	89.2
NaCN Consumption	kg/t	0.69	0.56	0.57
Lime Consumption	kg/t	1.08	0.58	0.26

APPENDIX 6.8

OMC REPORT A046-01

DOROPO GOLD PROJECT

Comminution Modelling

Lycopodium Minerals

Report No. A046-01 Rev 0 17 September 2025



CONTENTS

EXECUTIVE SUMMARY I

1.0 INTRODUCTION 1

2.0 MODELLING DESIGN CRITERIA 2

2.1 Comminution Testwork 2

2.2 Resolute Mining's Doropo Mine Schedule 2

2.3 Process Design Criteria 3

3.0 CRUSHING CIRCUIT MODELLING 5

4.0 GRINDING CIRCUIT MODELLING 9

4.1 Duty Throughput 9

4.2 Maximum Throughput 14

5.0 CONSUMABLES 17

6.0 CONCLUSIONS AND RECOMMENDATIONS 20

7.0 DISCLAIMER 23

8.0 STANDARD WARRANTY 23

9.0 OWNERSHIP 23

TABLES

Table 2.1 85th Percentile Ore Characteristics 2

Table 2.2 Mine Schedule by Ore Type 2

Table 2.3 Process Design Criteria 4

Table 2.4 Process Design Criteria – Ore Characteristics 4

Table 3.1 Primary Crusher Specifications 6

Table 4.1 Mill Power Utilisation - Duty 9

Table 4.2 SAG Mill Equipment Specification - Duty 10

Table 4.3 Ball Mill Equipment Specification - Duty 11

Table 4.4 Hydrocyclone Equipment Specification - Duty 12

Table 4.5 Pebble Crusher Equipment Specification 13

Table 4.6 Gravity Concentrator Equipment Specifications 13

Table 4.7 Mill Power Utilisation - Maximum 14

Table 4.8 SAG Mill Equipment Specification – Maximum 15
Table 4.9 Ball Mill Equipment Specification - Maximum 16
Table 4.10 Hydrocyclone Equipment Specification - Maximum 16
Table 5.1 Duty Consumables Estimate 18
Table 5.2 Maximum Consumables Estimate 19
Table 6.1 Design Criteria and Equipment 20
Table 6.2 Key Modelling Parameters – Duty 21
Table 6.3 Key Modelling Parameters – Maximum 22

FIGURES

Figure 2.1 Mine Schedule by Feed Blend 3
Figure 3.1 Primary Crusher Model Output – Fresh (left) and Transition/Oxide (right) 5
Figure 3.2 Primary Crusher Model Output – Duty 7
Figure 3.3 Primary Crusher Model Output – Maximum 8
Figure 4.1 Pebble Crusher Model Output – Design 12
Figure 6.1 Mine Schedule vs Modelling Throughput 22

APPENDICES

Appendix A – Comminution Testwork Results 24
Appendix B – Grinding Circuit Mass Balances 26

EXECUTIVE SUMMARY

Lycopodium Minerals requested Orway Mineral Consultants (WA) Pty Ltd (OMC) to assist with comminution modelling for the Doropo Gold Project, located in Cote d'Ivoire, West Africa. Lycopodium is preparing an updated DFS for Resolute Mining, who recently acquired the project from Anglogold Ashanti. OMC previously performed modelling on the Doropo project (refer to OMC Report 7557-01 Rev 3 – February 2023 and Report 7777 Rev 0 – May 2024). For the previous evaluations, the modelling was based on processing 4 Mt/a fresh ore at a grind size P_{80} of 75 µm and oxide ore at 5.4 Mt/a at P_{80} of 106 µm grind.

The 85th percentile ore characteristics for the fresh, transitional and oxide ore derived in OMC Report 7557-01 Rev 3 were utilised, with the addition of separating the transitional and oxide ore samples into separate parameters. These were then applied to year 1, 2, 3 and 4-14 in Resolute Mining's 14-year mine schedule proportions to develop the modelling feed blends. The SABC circuit was then designed based on processing fresh feed at 4.0 Mt/a for a P_{80} of 75 µm. The mine schedule suggests that the ore will be blended (not campaign milled) and hence, the plant was modelled at P_{80} of 75 µm for both fresh and oxide ore.

The following design criteria and equipment were adopted for the modelling scenarios:

Parameter	Unit	Fresh (Design)	Source
Annual Throughput	Mt/a	4.0	*Client*
Crushing Circuit Availability	%	80	*Calculation*
Grinding Circuit Availability	%	91.3	*Assumed*
Product Size, P_{80}	µm	75	*Client*
Primary Crusher – Model		C150	*OMC Report 7557-01 Rev 3*
– Motor	kW	200	*OMC Report 7557-01 Rev 3*
SAG Mill – Size		Ø 8.53m x 5.05m EGL	*OMC Report 7557-01 Rev 3*
– Motor & Drive		6,900kW, VSD Hi Speed	*OMC Report 7557-01 Rev 3*
– Speed	% Nc	65 – 80	*OMC Report 7557-01 Rev 3*
Pebble Crusher – Model		HP200	*OMC Report 7557-01 Rev 3*
– Motor	kW	132	*OMC Report 7557-01 Rev 3*
Ball Mill – Size		Ø 6.71m x 11.12m EGL	*OMC Report 7557-01 Rev 3*
– Motor & Drive		9,000kW, FSD WRIM + LRS	*OMC Report 7557-01 Rev 3*
– Speed	% Nc	75	*OMC Report 7557-01 Rev 3*
Classification		2 x KC-QS48 Concentrators (with 2 x Gravity Screens)	*Client*
		9 (duty) x Cavex 500 CVX-160	*OMC Report 7557-01 Rev 3*

The primary crushing circuit was modelled; a C150 jaw crusher or equivalent was selected based on fresh feed and was deemed suitable for duty throughputs for transition/oxide ore, and the duty and maximum throughputs at the specified blends. A static 800 mm grizzly and rock breaker have also been proposed by the client for the crushing circuit.

Grinding circuit modelling was undertaken to assess the following:

- SAB/C duty throughput.
- SAB/C maximum throughput.

A total of 8 models were undertaken for a grind size of P_{80} 75 µm and for the year 1, 2, 3 and 4-14 ore blends. The models for 100% transition/oxide ore at 75 µm and 106µm from OMC Report 7557-01 Rev 3 have also been included for comparison and completeness of operating scenarios; in quarter 1 and 2 of year 1 the transition/oxide ore is scheduled to be campaign fed and ground to a P_{80} of 106µm.

Parameter	Unit	Fresh (Design)	Year 1	Year 2	Year 3	Year 4-14	Transition/Oxide*	
Mine Schedule Target	Mt/a	N/A	4.97	4.50	4.58	4.31**	N/A	N/A
Fresh Proportion	%	100	16	58	51	70	0	0
Duty								
Feed Rate	Mt/a	4.0	4.7	4.2	4.4	4.3	4.6	5.4
	t/h***	500	583	527	551	539	574	679
Product Size, P_{80}	µm	75	75	75	75	75	75	106
Pebble Crushing	t/h	93	0	0	0	0	0	0
Bleed-Back to SAG Mill	% of UF	0	16	0	1	1	42	0
Maximum								
Feed Rate	Mt/a		5.2	4.8	4.9	4.7		
	t/h		654	595	618	589		
Product Size, P_{80}	µm	N/A	75	75	75	75	N/A	N/A
Pebble Crushing	t/h		0	0	0	0		
Bleed-Back to SAG Mill	% of UF		25	10	11	7		

* Extracted from OMC Report 7557-01 Rev 3.

** Excludes production tonnes in Year 14.

*** The feed rates in t/h have been calculated based on annual throughput and circuit availability (e.g.: 4,000,000 / 8,000 = 500 t/h).

It must be emphasized that the mine schedule appears to have been deduced based on calculated throughputs in previous OMC Report 7557-01 Rev 3, in which fresh ore was modelled at a grind size P_{80} of 75 µm for a throughput of 4.0 Mt/a, and oxide/transition ore at a P_{80} of 106 µm for a throughput of 5.4 Mt/a. Therefore, as the ore is to be milled as a blend and all of the ore ground to a P_{80} of 75 µm, the mine schedule can't be directly calculated based on proportions of these capacity throughputs. However, in OMC Report 7557-01 Rev 3, the oxide/transition ore was also modelled at P_{80} of 75 µm for a throughput of 4.6 Mt/a, which can be considered as the upper throughput limit for the circuit, without a bleed-back stream to the SAG mill.

Duty Throughput

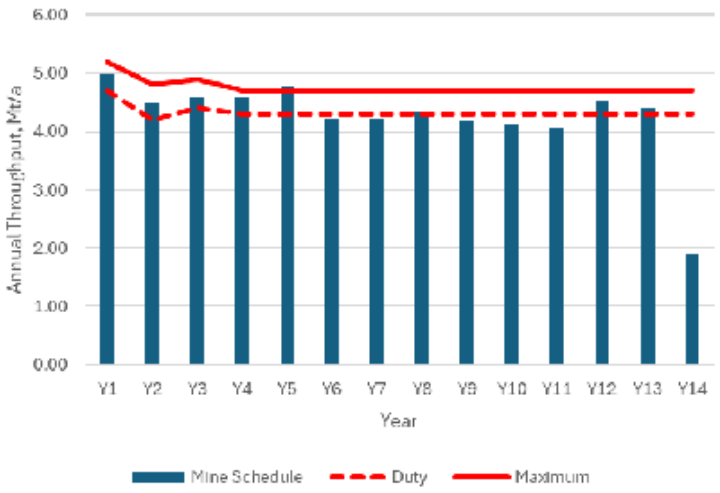
Power modelling at duty throughput for the grind size P_{80} of 75 µm indicates a minimum throughput of 4.2 Mt/a (year 2) to 4.7 Mt/a (year 1), assuming a bleed-back stream from the cyclone underflow (CUF) to the SAG mill is optimised, up to approximately 16%. The SAG mill is operated at a duty ball charge of 11% and a duty total load of 25% at varying speeds between 65% to 75% Nc, and the ball mill is operated at a duty ball charge of 29% at a speed of 75% Nc to achieve the duty throughputs. The mine schedule targets across all years are not achievable at the duty conditions, including the optimised bleed-back stream.

Maximum Throughput

Power modelling at maximum operating conditions for the grind size P_{80} of 75 µm indicates a throughput of 4.7 Mt/a (years 4-14) to 5.2 Mt/a (year 1), assuming a bleed-back stream from the CUF to the SAG mill is optimised, up to approximately 25%. The SAG mill is operating at a duty ball charge of 14% (i.e.: maximum) and a total load of 25% at a speed of 78% Nc for all scenarios. The ball mill is operated at a duty ball charge of 32% at a speed of 75% Nc to achieve the maximum throughputs.

While mine schedule targets across all years are achievable at the maximum conditions, with the exception of year 5 (i.e.: high proportion of transition ore is treated), it must be emphasized that the maximum scenarios are not sustainable averages and should be considered with caution; it does however provide a feasible operating envelope (as per below).

The Doropo DFS (update) mine schedule compared to the modelling duty and maximum throughputs can be seen below. In order to achieve the target throughputs specified in the mine schedule, at a duty throughput rate, an increased grind size would be required. Alternatively, if the grind P_{80} of 75 µm is to be targeted with the mine schedule ore proportions maintained, the reduced duty throughput rates should be targeted, or a larger ball mill size selected.



Other Comments

- The modelling cyclone overflow (COF) density was unconstrained for the fine grind. Hence, a leach feed thickener is required in the circuit design.
- The gravity circuit was modelled with an assumed 90% feed rate capacity.

1.0 INTRODUCTION

Stephan Buys, General Manager – Process at Lycopodium Minerals requested Orway Mineral Consultants (WA) Pty Ltd (OMC) to assist with comminution modelling for the Doropo Gold Project, located in Cote d'Ivoire, West Africa. Lycopodium is preparing an updated DFS for Resolute Mining, who recently acquired the project from Anglogold Ashanti.

OMC previously performed modelling on the Doropo project (refer to OMC Report 7557-01 Rev 3 – February 2023 and Report 7777 Rev 0 – May 2024). For the previous evaluations, the modelling was based on processing 4 Mt/a Fresh ore at a grind size P_{80} of 75 µm and Oxide ore at 5.4 Mt/a at P_{80} of 106 µm grind.

The following outlines the objectives of this comminution modelling report:

- A review of the historical and additional comminution testwork and interpretation of the results will be carried out. Major aspects will include deriving appropriate design ore characteristics and milling characteristics of the ore, including the likely behaviour in SABC configuration.
- Using OMC's proprietary power modelling programs, models of selected grinding circuit will be built. Data from testwork and relevant design criteria are required to populate the models. Vendor crusher modelling packages like Bruno and/or PlantDesigner will be utilised to confirm crushing equipment.
    - Note that only a primary crushed SABC circuit will be considered with no allowance for option assessments. OMC assumes that the equipment selection will be based on Fresh ore and the selected equipment will then be modelled to determine oxide blend throughput.
- Once the models are built, the circuit will be simulated and optimised to produce mass balanced flowsheets, detailing throughput, circulating load and major equipment configurations.
- An estimate of comminution consumables will be provided.

2.0 MODELLING DESIGN CRITERIA

2.1 Comminution Testwork

A detailed analysis of the ore characterisation test work was undertaken in OMC Report 7557-01 Rev 3, with the addition of separating the transitional and oxide ore samples into separate parameters. Table 2.1 provides a summary of the utilised comminution testwork.

Table 2.1 85th Percentile Ore Characteristics

Parameter	Ai, g	Average CWi, kWh/t	RWi, kWh/t	BWi, kWh/t	Ore SG	Axb
Fresh	0.200	13.0	18.5	18.4	2.67	37.2
Transitional	0.116	8.9	12.5	16.7	2.57	82.4
Oxide	0.242	3.8	14.9	20.4	2.47	89.7

2.2 Resolute Mining's Doropo Mine Schedule

Table 2.2 and Figure 2.1 provide a summary of the Resolute Mining's proposed DFS (update) mine schedule by ore type (i.e.: fresh, transitional and oxide) for each production year.

Table 2.2 Mine Schedule by Ore Type

Year	Tonnage, Mt				Proportion, %			
	Oxide	Transition	Fresh	Total	Oxide	Transition	Fresh	Total
Year 1	2.03	2.13	0.81	4.97	41%	43%	16%	100%
Year 2	1.09	0.82	2.60	4.50	24%	18%	58%	100%
Year 3	0.47	1.78	2.33	4.58	10%	39%	51%	100%
Year 4	0.38	1.92	2.30	4.59	8%	42%	50%	100%
Year 5	0.28	2.73	1.77	4.78	6%	57%	37%	100%
Year 6	0.00	0.82	3.39	4.21	0%	19%	81%	100%
Year 7	0.11	0.69	3.41	4.21	3%	16%	81%	100%
Year 8	0.04	1.22	3.07	4.33	1%	28%	71%	100%
Year 9	0.10	0.58	3.50	4.18	2%	14%	84%	100%
Year 10	0.06	0.41	3.65	4.12	2%	10%	89%	100%
Year 11	0.01	0.20	3.84	4.06	0%	5%	95%	100%
Year 12	0.68	1.37	2.48	4.53	15%	30%	55%	100%
Year 13	0.43	1.20	2.79	4.42	10%	27%	63%	100%
Year 14	0.16	0.18	1.57	1.91	8%	9%	83%	100%

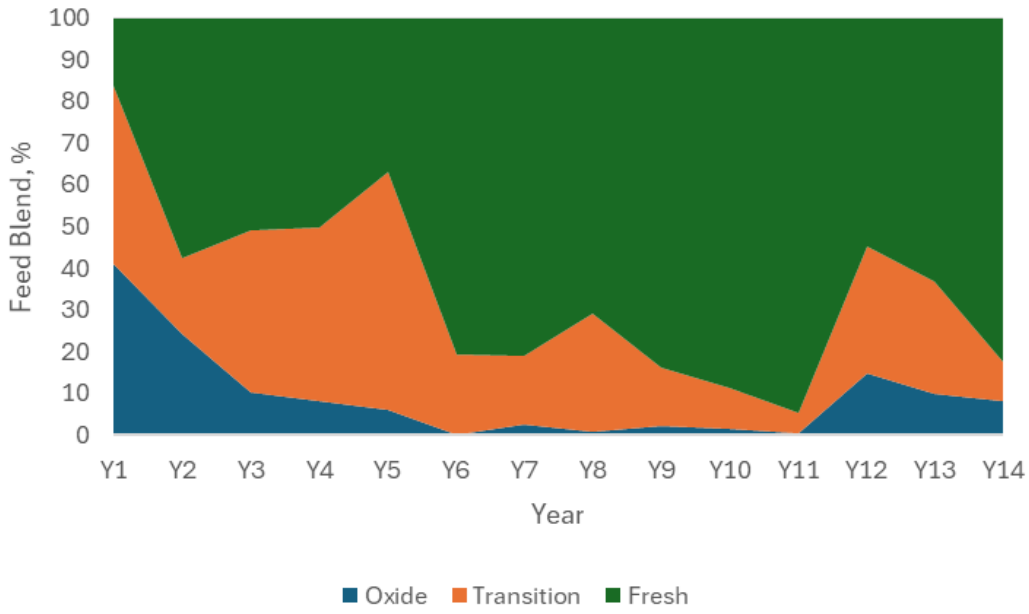


Figure 2.1 Mine Schedule by Feed Blend

It must be emphasized that the mine schedule above appears to be deduced based on calculated throughputs in previous OMC Report 7557-01 Rev 3, in which fresh ore was modelled at a grind size P_{80} of 75 µm for a throughput of 4.0 Mt/a, and oxide/transition ore at a P_{80} of 106 µm for a throughput of 5.4 Mt/a. Therefore, as the ore is to be milled as a blend and all the ore ground to a P_{80} of 75 µm, the mine schedule can't be directly calculated based on proportions of these throughputs. However, in OMC Report 7557-01 Rev 3, the oxide/transition ore was also modelled at P_{80} of 75 µm for a throughput of 4.6 Mt/a, which can be considered as the upper throughput limit for the circuit, without a bleed-back stream to the SAG mill.

2.3 Process Design Criteria

The circuit will be designed based on processing 4.0 Mt/a fresh ore at a grind size P_{80} of 75 µm. The expected ore blend throughputs will also be evaluated at P_{80} 75 µm grind, as the feed is not 100% transition/oxide ore (which would be evaluated at 106 µm). The process design criteria used in modelling is presented in Table 2.3, with the feed ore blend characteristics presented in Table 2.4. The design criteria are the same as those used in OMC Report 7557-01 Rev 3.

The design ore parameters are derived from fresh samples only and checked based on the 85th percentile specific energy requirement in SABC configuration. The feed ore blend characteristics are derived from the 85th percentiles for fresh, oxide and transition, in the specified mine schedule proportions. It should be noted that the ore parameters do not account for the differences between pits, but only the differences in ore type.

Table 2.3 Process Design Criteria

Parameter	Unit	Fresh (Design)	Source
Annual Throughput	Mt/a	4.0	*Client*
Crushing Circuit Availability	%	80	*Calculation*
Operating Hours	hours	7,000	*Client*
Crusher Throughput	t/h	571**	*Calculation*
Grinding Circuit Availability	%	91.3	*Assumed*
Operating Hours	hours	8,000	*Calculation*
Grinding Throughput	t/h	500**	*Calculation*
ROM Feed Size, F_{100}	mm	800*	*Assumed*
Product Size, P_{80}	µm	75	*Client*

* The ROM feed size, F_{100} accounts for the 800mm static grizzly to be installed.

** The feed rates in t/h have been calculated based on annual throughput and specific circuit availability (e.g.: 4,000,000 / 7,000 = 571 t/h for crushing, 4,000,000 / 8,000 = 500 t/h for grinding).

Table 2.4 Process Design Criteria – Ore Characteristics

Parameter	Unit	Fresh (Design)	Year 1	Year 2	Year 3	Year 4–14
Mine Schedule Target	Mt/a	N/A	4.97	4.50	4.58	4.31*
Blend						
Fresh	%	100	16	58	51	70
Transitional	%	0	43	18	39	25
Oxide	%	0	41	24	10	5
CWi	kWh/t	13.0	7.5	10.2	10.5	11.6
RWi	kWh/t	18.5	14.5	16.6	15.8	16.9
BWi	kWh/t	18.4	18.5	18.5	17.9	18.1
Axb		37.2	71.1	49.3	51.9	44.6
Ore SG	t/m^3	2.67	2.55	2.61	2.61	2.64
Ai	g	0.200	0.183	0.194	0.172	0.182

* Excludes the production tonnes in year 14.

3.0 CRUSHING CIRCUIT MODELLING

The primary crushing circuit was modelled using Metso's Bruno© software. The fresh and transition/oxide feed at duty throughput, as well as mine schedule blends at duty and maximum throughput model outputs are presented in Figure 3.1 to Figure 3.3, with equipment specifications in Table 3.1. A C150 jaw crusher or equivalent was selected based on fresh feed and was deemed suitable for duty throughputs with transition/oxide ore and the duty and maximum throughputs with the specified blends.

Note that a <800 mm ROM size distribution has been assumed for this modelling, in consideration of a static 800 mm grizzly and rock breaker having been proposed in the crushing circuit. The crusher circuit modelling also assumes that top size through the static grizzly is 800 mm; while in reality >800 mm slabby material, if orientated correctly, could pass through to the vibrating grizzly feeder and hence, mitigations should be considered.

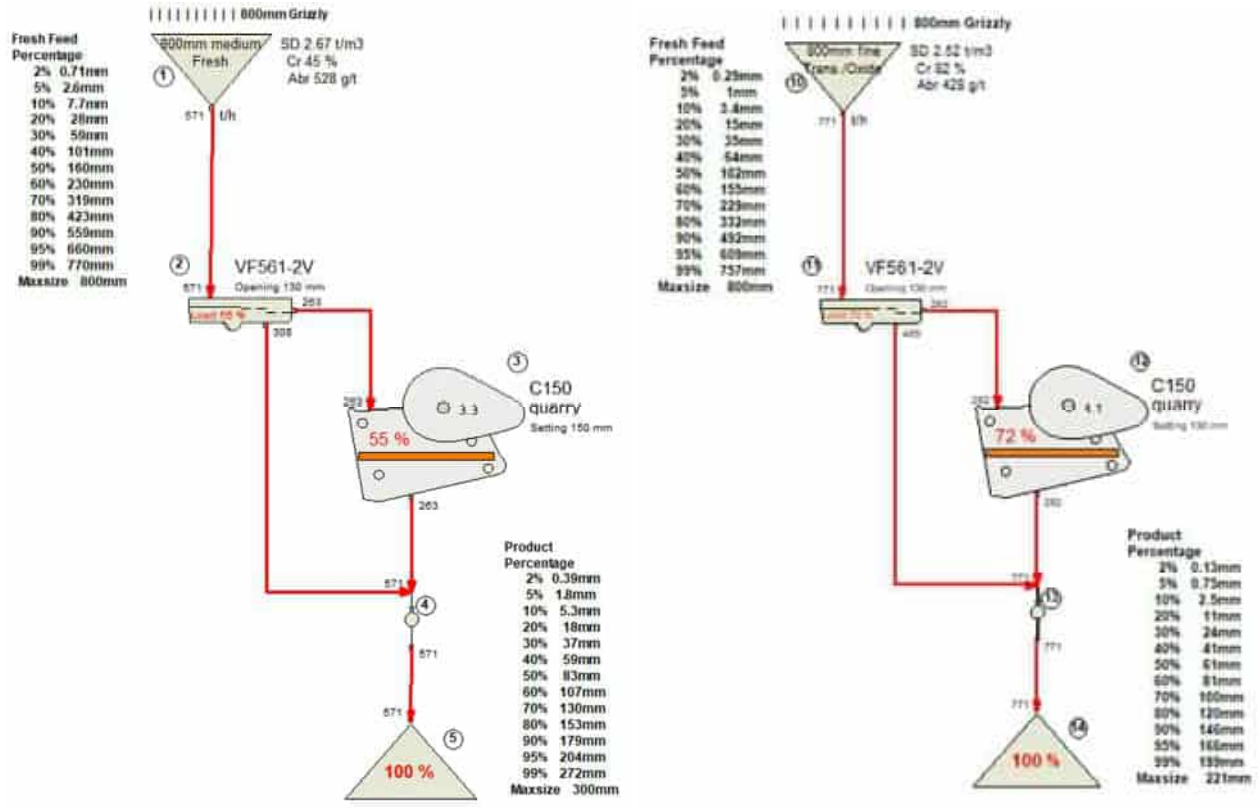


Figure 3.1 Primary Crusher Model Output – Fresh (left) and Transition/Oxide (right)

Table 3.1 Primary Crusher Specifications

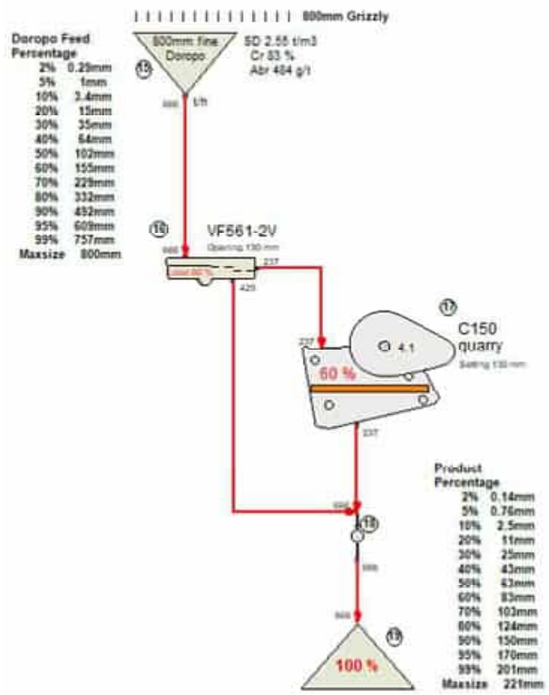
				Mine Schedule Blends	
Parameter	Unit	Fresh (Design)	Transition/Oxide	Duty	Maximum
Crusher Model		C150 or equivalent	C150 or equivalent	C150 or equivalent	C150 or equivalent
Number Required	qty	1	1	1	1
Closed Side Set	mm	150	130	130	130
Power Required – Per Unit	kW	62	56 - 77	50 - 57	52 - 61
Installed Power – Per Unit	kW	200	200	200	200

The duty throughput results indicate that based on the fresh feed design 4.0 Mt/a throughput, the primary crusher will be underloaded with a machine volumetric load of between 53 – 60%, in which 70% is typically targeted for primary crushers. This confirms that the jaw crusher can achieve the target throughput at lower utilisation in the later years, if required.

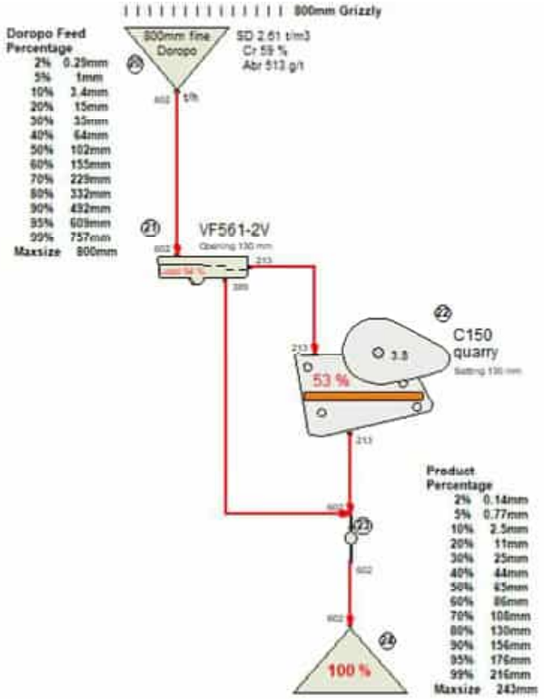
The maximum throughput results show that the primary crusher will still be slightly underloaded with a machine volumetric load of between 59 – 63%. This confirms that the jaw crusher can achieve the maximum throughputs, however the maximum scenarios area is not a sustainable average but rather provides a feasible operating envelope.

It is important to understand the materials handling nature of the oxide ore in the wet season as it may be sticky and give rise to issues processing with a jaw crusher. A separate primary sizer / sizer could be considered for instances in which 100% transition/oxide or oxide only is feed, such as during campaign feeding during quarter 1 and 2 of year 1.

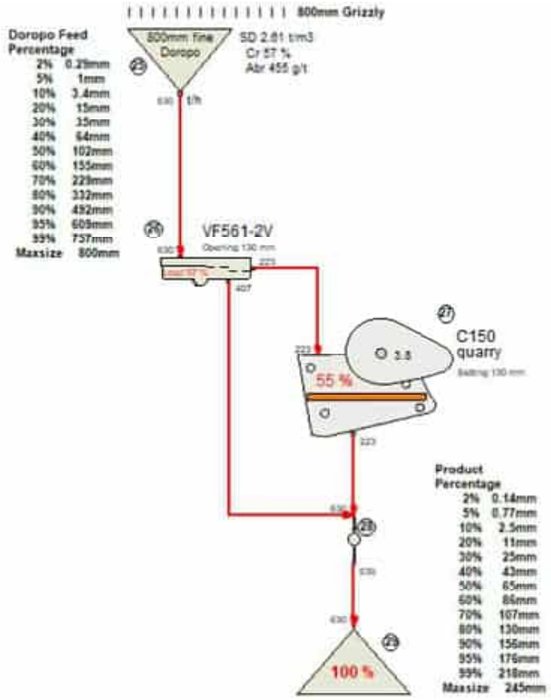
Year 1



Year 2



Year 3



Year 4–14

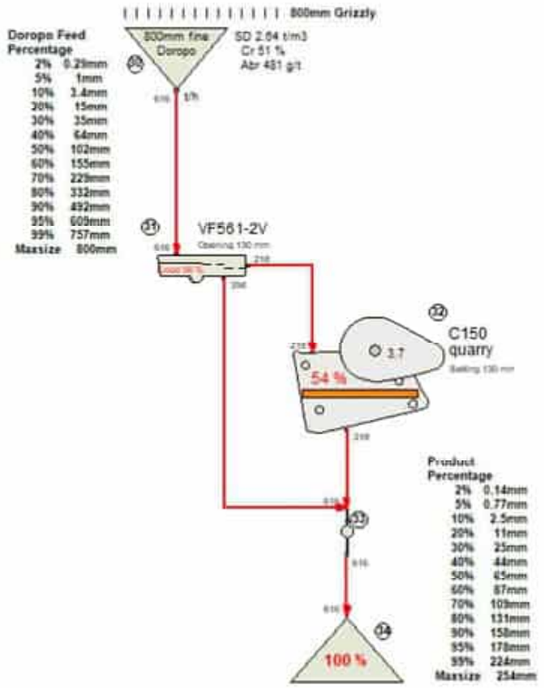
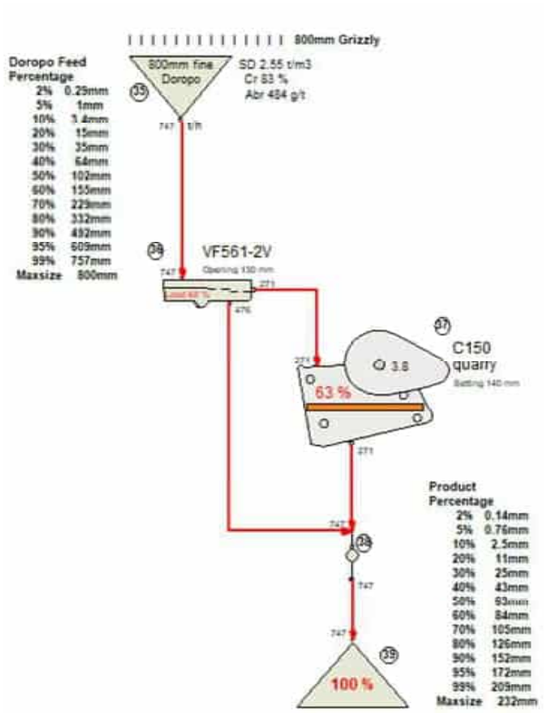
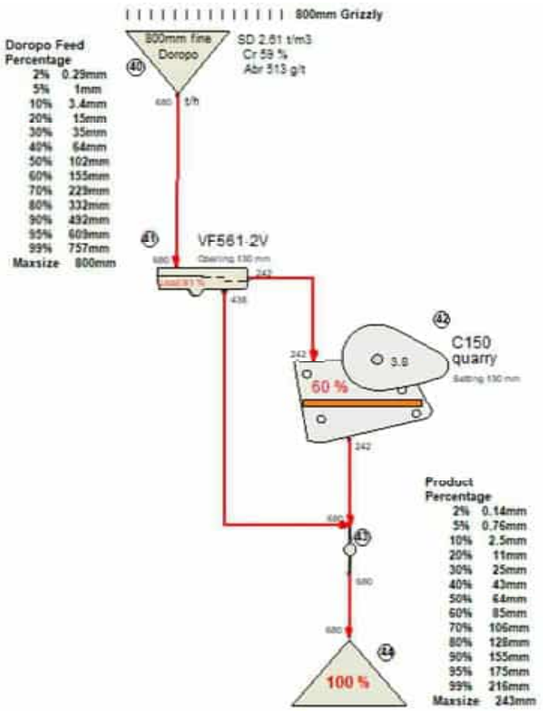


Figure 3.2 Primary Crusher Model Output – Duty

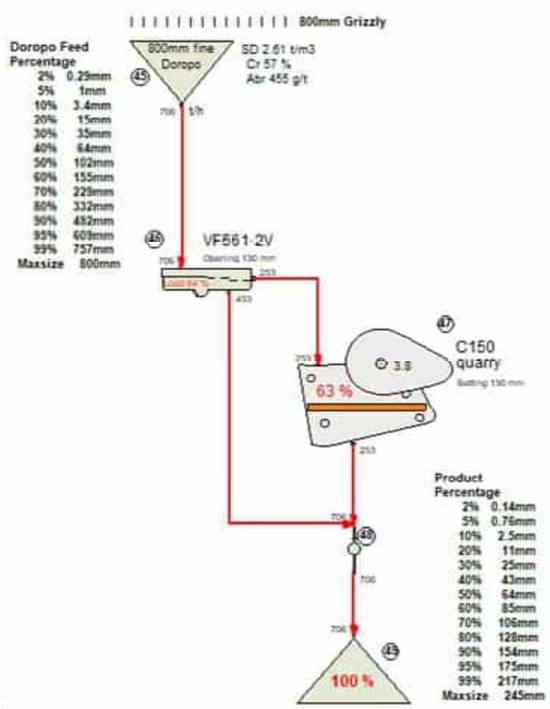
Year 1



Year 2



Year 3



Year 4–14

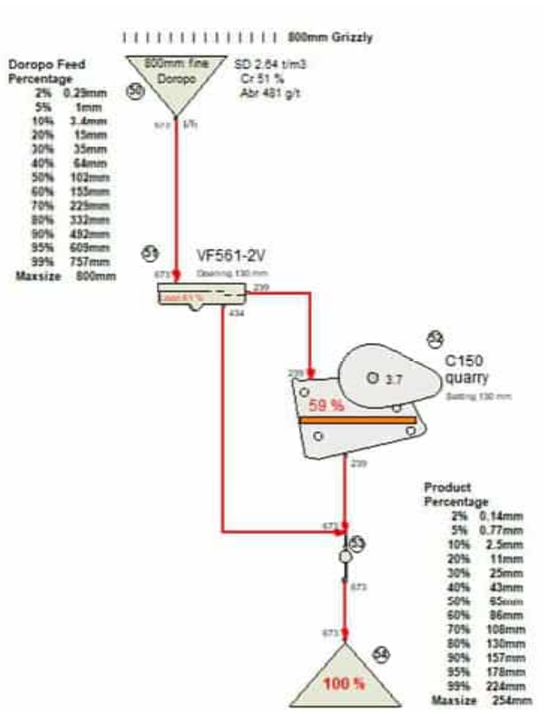


Figure 3.3 Primary Crusher Model Output – Maximum

4.0 GRINDING CIRCUIT MODELLING

4.1 Duty Throughput

The grinding circuit was modelled using OMC's proprietary power modelling software, based on the design criteria in Table 2.3. The duty power utilisation at a P_{80} 75 µm for the design fresh feed and specified ore blends are presented in Table 4.1. Based on the design power model suitable SAG and ball mills were sized, from which operating conditions were determined for the grind size and blend throughputs, which are presented in Table 4.2 and Table 4.3, respectively. The 100% transition/oxide at 106µm simulation from OMC report 7557-01 Rev 3 has been included for completeness of operating scenarios; in quarter 1 and 2 of year 1 the transition/oxide ore is scheduled to be campaign fed and ground to a P_{80} of 106µm.

Table 4.1 Mill Power Utilisation - Duty

Parameter	Unit	Fresh (Design)	Year 1	Year 2	Year 3	Year 4–14	Transition /Oxide*
Mine Schedule Target	Mt/a	N/A	4.97	4.50	4.58	4.31**	N/A
CWi	kWh/t	13.0	7.5	10.2	10.5	11.6	7.6
RWi	kWh/t	18.5	14.5	16.6	15.8	16.9	12.7
BWi	kWh/t	18.4	18.5	18.5	17.9	18.1	19.7
Axb		37.2	71.1	49.3	51.9	44.6	84.2
Ore SG		2.67	2.55	2.61	2.61	2.64	2.52
Feed Rate	Mt/a	4.0	4.7	4.2	4.4	4.3	5.4
	t/h	500	583	527	551	539	679
Product Size, P_{80}	µm	75	75	75	75	75	106
Pebble Crushing Rate	% Feed	19	0	0	0	0	4
	tph	93	0	0	0	0	0
Bleed-Back to SAG Mill	% of UF	0	16	0	1	1	0
SAG Mill Specific Energy	kWh/t	10.1	8.2	9.2	8.8	9.6	6.1
Ball Mill Specific Energy	kWh/t	15.6	13.3	14.6	14.1	14.5	11.5
Pebble Crusher Specific Energy	kWh/t	0.2	-	-	-	-	-
Total Specific Energy	kWh/t	25.8	21.6	23.8	22.9	24.1	17.6
SAG Mill Pinion Power	kW	5,043	4,790	4,832	4,838	5,199	4,163
Ball Mill Pinion Power	kW	7,781	7,779	7,705	7,792	7,792	7,781

* Extracted from OMC Report 7557-01 Rev 3.

** Excludes production tonnes in year 14.

For the SABC circuit power utilisation modelling, the duty throughput tonnages of between 4.2 and 4.7 Mt/a across the production years were achieved. The SAG mill is suitable for the mine schedule feed blends, but due to higher oxide BWi values, the circuit becomes ball mill limited, hence, to maintain the required grind size and balance the power utilisation across the circuit, a partial bleed-back of the cyclone underflow (CUF) stream to the SAG mill is required. The bleed-back should be carefully designed and controlled to be effective, the optimal bleed-back percentages have been utilised in the modelling, as per Table 4.1.

The pinion power required for the SAG mill is estimated between 4,790kW to 5,199kW, and for the ball mill between 7,705kW to 7,792kW, with the mill pinion powers being balanced by the bleed-back stream. However, the mine schedule targets across all years are not achievable at the duty conditions, including an optimised bleed-back stream. It is suggested that a larger ball mill be installed in order to treat the mine schedule blends at the specified rates and P_{80} grind of 75um. Further comminution modelling would be required to confirm the specifications of the ball mill.

It should be noted that pebble crushing is not required in the presence of oxide/transition ore and the feed percentage is 0%. Pebble crushing was utilised in the fresh feed design grinding circuit for SAG mill load control due to the hardness of the rock. However, it is important to retain the lump rock as grinding media and therefore pebble crushing will be detrimental for the oxide-containing feed blends. Whether the ported grates are retained or replaced with smaller aperture grates, the scats ejected from the mill will need to be recycled back to the SAG mill feed.

The four operating sets of conditions for the SAG and ball mills were modelled to determine the conditions needed to draw the duty pinion powers (Table 4.2). The associated SABC circuit mass balances for grind P_{80} of 75 µm, for production years 1, 2, 3 and 4–14 is presented in Appendix B.

Table 4.2 SAG Mill Equipment Specification - Duty

Parameter	Unit	Fresh (Design)	Year 1	Year 2	Year 3	Year 4–14	Transition /Oxide*
Number of Mills	qty	1	1	1	1	1	1
Mill Diameter (Inside Shell)	m	8.53	8.53	8.53	8.53	8.53	8.53
Effective Grinding Length (EGL)	m	5.05	5.05	5.05	5.05	5.05	5.05
Imperial	ft x ft	28 x 16.6	28 x 16.6	28 x 16.6	28 x 16.6	28 x 16.6	28 x 16.6
L : D Ratio		0.59	0.59	0.59	0.59	0.59	0.59
Discharge Configuration		Grate	Grate	Grate	Grate	Grate	Grate
Grinding Media Size	mm	125	125	125	125	125	125
New Liner Thickness	mm	100	100	1000	100	100	100
Mill Speed	%Nc	75	70	70	70	75	65
	rpm	11.0	10.3	10.3	10.3	11.0	9.5
	Max %Nc	80	80	80	80	80	80
Ball Charge - Duty	%Vol	10	11	11	11	11	13
- Max	%Vol	14	14	14	14	14	14
Total Load - Duty	%Vol	25	25	25	25	25	18
- Max	%Vol	35	35	35	35	35	35
Pinion Power - Duty	kW	5,043	4,789	4,832	4,836	5,199	4,163
- Max	kW	6,167	5,652	5,703	5,707	6,137	4,826
- Max @ 80% Nc	kW	6,578	6,459	6,517	6,522	6,546	6,434
Motor Power Output - Duty	kW	5,273	5,008	5,053	5,056	5,436	4,353
- Max	kW	6,448	5,909	5,962	5,967	6,417	5,046
- Max @ 80% Nc	kW	6,878	6,753	6,814	6,819	6,845	6,728
Motor Type		VSD Hi Speed	VSD Hi Speed	VSD Hi Speed	VSD Hi Speed	VSD Hi Speed	VSD Hi Speed
Selected Motor Size	kW	6,900	6,900	6,900	6,900	6,900	6,900

* Extracted from OMC Report 7557-01 Rev 3.

Table 4.3 Ball Mill Equipment Specification - Duty

Parameter	Unit	Fresh (Design)	Year 1	Year 2	Year 3	Year 4–14	Transition /Oxide*
Number of Mills	qty	1	1	1	1	1	1
Mill Diameter (Inside Shell)	m	6.71	6.71	6.71	6.71	6.71	6.71
Effective Grinding Length (EGL)	m	11.12	11.12	11.12	11.12	11.12	11.12
Imperial	ft x ft	22 x 36.5	22 x 36.5	22 x 36.5	22 x 36.5	22 x 36.5	22 x 36.5
L : D Ratio		1.66	1.66	1.66	1.66	1.66	1.66
Discharge Configuration		Overflow	Overflow	Overflow	Overflow	Overflow	Overflow
Grinding Media Size	mm	50	50	50	50	50	50
New Liner Thickness	mm	100	100	100	100	100	100
Mill Speed	%Nc	75	75	75	75	75	75
	rpm	12.4	12.4	12.4	12.4	12.4	12.4
	Max %Nc	75	75	75	75	75	75
Ball Charge - Duty	%Vol	29	29	29	29	29	30
- Max	%Vol	34	34	34	34	34	34
Pinion Power - Duty	kW	7,781	7,778	7,706	7,788	7,793	7,781
- Max @ 75% Nc	kW	8,580	8,557	8,568	8,569	8,574	8,553
Motor Power Output - Duty	kW	8,136	8,132	8,057	8,143	8,148	8,136
- Max @ 75% Nc	kW	8,971	8,947	8,959	8,960	8,965	8,942
Motor Type		FSD WRIM+ LRS	FSD WRIM+ LRS	FSD WRIM+ LRS	FSD WRIM+ LRS	FSD WRIM+ LRS	FSD WRIM+ LRS
Selected Motor Size	kW	9,000	9,000	9,000	9,000	9,000	9,000

* Extracted from OMC Report 7557-01 Rev 3.

For the SABC circuit duty throughput scenarios, the SAG mill is operated with a ball charge of 11% and total load of 25% at 70–75% Nc, and a ball mill charge of 29% across all production years.

For the duty throughput modelling, the cyclone overflow (COF) density was unconstrained. For gold leaching, a leach feed thickener may be required to increase the leaching density. Suitable cyclones for all ore blend scenarios are presented in Table 4.4. It should be noted that a maximum of 9 duty cyclones is required for operation across the production years.

Table 4.4 Hydrocyclone Equipment Specification - Duty

Parameter	Unit	Fresh (Design)	Year 1	Year 2	Year 3	Year 4–14	Transition /Oxide*,**
Make		Cavex	Cavex	Cavex	Cavex	Cavex	Cavex
Model		500 CVX-160	500 CVX-160	500 CVX-160	500 CVX-160	500 CVX-160	500 CVX-160
Number of Cyclones - Duty	qty	9	9	8	9	9	10
Cyclone Diameter	mm	500	500	500	500	500	500
Op. Pressure	kPa	110	110	110	110	110	110
Vortex Finder	mm	185	185	185	185	185	170
Spigot	mm	130	115	115	110	115	110
Cyclone Feed Density	%solids	53	53	53	53	53	56
Cyclone Overflow Density	%solids	29	30	30	30	28	34
Circulating Load at Cyclones	%	273	264	260	269	298	250
Circulating Load at Ball Mill	%	273	222	260	266	295	250

* Extracted from OMC Report 7557-01 Rev 3.

** This scenario was modelled without a gravity circuit.

The pebble crusher was modelled using Metso Bruno© software presented in Figure 4.1 with equipment specifications in Table 4.5. A HP200e cone crusher or equivalent was selected based on a fresh feed; however, pebble crushing will not be required for processing with blends containing transition/oxide ore (due to ball milling constraints). It should be noted that there is a risk associated with potential for transition/oxide ore to be harder than the comminution testwork has indicated, hence, some pebble crushing may be required for fresh and transition/oxide blend. However, this modelling cannot quantify the possible risk.

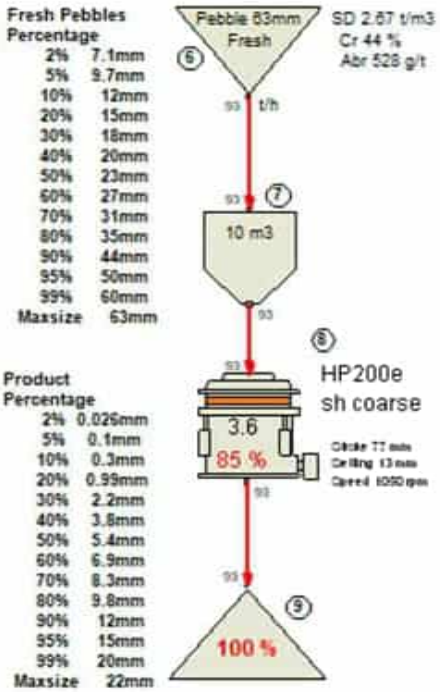


Figure 4.1 Pebble Crusher Model Output – Design

Table 4.5 Pebble Crusher Equipment Specification

Parameter	Unit	Fresh (Design)
Crusher Model		HP200e or equivalent
Cavity		SH Coarse
Number Required	qty	1
Closed Side Set	mm	13
Power Required – Per Unit	kW	75
Installed Power – Per Unit	kW	132

The gravity circuit was modelled as 2 x Knelson KC-QS48 with 2 x gravity screens, which are fed from the SAG mill discharge hopper by a single separate pump. From which the screen oversize and gravity tails are directed back to the SAG mill discharge hopper. The gravity circuit is fed at 90% capacity of the two gravity concentrators (i.e.: 400 tph x 90% = 720 tph). The gravity concentrator specifications can be seen below in Table 4.6.

Table 4.6 Gravity Concentrator Equipment Specifications

Parameter	Unit	Fresh (Design)
Manufacturer		Knelson
Model		KC-QS48
Number Installed	qty	2
Modelled Capacity (per unit)	t/h	360
Maximum Capacity (per unit)	t/h	400

4.2 Maximum Throughput

The grinding circuit was modelled for maximum throughput, based on the fresh feed design criteria and equipment sizing. The maximum power utilisation at a P_{80} 75 µm for the specified ore blends are presented in Table 4.7. Based on the duty design SAG and ball mills, operating conditions were determined for the grind size and blend throughputs which are presented in Table 4.8 and Table 4.9, respectively.

Table 4.7 Mill Power Utilisation - Maximum

Parameter	Unit	Year 1	Year 2	Year 3	Year 4–14
Mine Schedule Target	Mt/a	4.97	4.50	4.58	4.31*
CWi	kWh/t	7.5	10.2	10.5	11.6
RWi	kWh/t	14.5	16.6	15.8	16.9
BWi	kWh/t	18.5	18.5	17.9	18.1
Axb		71.1	49.3	51.9	44.6
Ore SG		2.55	2.61	2.61	2.64
Feed Rate	Mt/a	5.2	4.8	4.9	4.7
	tph	654	595	618	589
Product Size, P_{80}	µm	75	75	75	75
Pebble Crushing Rate	% Feed	0	0	0	0
	tph	0	0	0	0
Bleed-Back to SAG Mill	% of UF	25	10	11	7
SAG Mill Specific Energy	kWh/t	9.2	10.1	9.8	10.3
Ball Mill Specific Energy	kWh/t	12.5	13.7	13.2	13.9
Pebble Crusher Specific Energy	kWh/t	0.0	0.0	0.0	0.0
Total Specific Energy	kWh/t	21.7	23.9	23.0	24.1
SAG Mill Pinion Power	kW	6,016	6,039	6,046	6,059
Ball Mill Pinion Power	kW	8,165	8,155	8,161	8,161

* Excludes production tonnes in year 14.

For the SABC circuit power utilisation modelling, the maximum throughput tonnages of between 4.7 and 5.2 Mt/a across the production years were achieved. Once again, a partial bleed-back of the CUF stream to the SAG mill is required, with the optimal percentages as per Table 4.7. The pinion power required for the SAG mill is estimated between 6,016kW to 6,059kW, and for the ball mill between 8,155kW to 8,165kW, which have been balanced by an optimal bleed-back stream.

While the mine schedule targets across all the average years are achievable at the maximum conditions, it must be emphasized that the maximum scenarios are not sustainable averages and should be considered with caution; it does however provide a feasible operating envelope.

It should be noted that pebble crushing is not required in the presence of oxide/transition ore and the feed percentage is 0%, as per the duty throughput modelling. However, similar to the duty throughput modelling,

a pebble recycle stream has been included and the pebble crusher will be required for periods when fresh only material is processed.

The four operating sets of conditions for the SAG and ball mills were modelled to determine the conditions needed to draw the maximum pinion powers. These are presented in Table 4.8. The associated SABC circuit mass balances for grind P_{80} of 75 µm, for production years 1, 2, 3 and 4–14 is presented in Appendix B.

Table 4.8 SAG Mill Equipment Specification – Maximum

Parameter	Unit	Year 1	Year 2	Year 3	Year 4–14
Number of Mills	qty	1	1	1	1
Mill Diameter (Inside Shell)	m	8.53	8.53	8.53	8.53
Effective Grinding Length (EGL)	m	5.05	5.05	5.05	5.05
Imperial	ft x ft	28 x 16.6	28 x 16.6	28 x 16.6	28 x 16.6
L : D Ratio		0.59	0.59	0.59	0.59
Discharge Configuration		Grate	Grate	Grate	Grate
Grinding Media Size	mm	125	125	125	125
New Liner Thickness	mm	100	100	100	100
Mill Speed	%Nc	78	78	78	78
	rpm	11.4	11.4	11.4	11.4
	Max %Nc	80	80	80	80
Ball Charge - Duty	%Vol	14	14	14	14
- Max	%Vol	14	14	14	14
Total Load - Duty	%Vol	25	25	25	25
- Max	%Vol	35	35	35	35
Pinion Power - Duty	kW	6,042	6,045	6,061	6,005
- Max	kW	6,354	6,359	6,383	6,298
- Max @ 80% Nc	kW	6,517	6,522	6,546	6,459
Motor Power Output - Duty	kW	6,318	6,321	6,337	6,279
- Max	kW	6,644	6,649	6,674	6,585
- Max @ 80% Nc	kW	6,814	6,819	6,845	6,753
Motor Type		VSD Hi Speed	VSD Hi Speed	VSD Hi Speed	VSD Hi Speed
Selected Motor Size	kW	6,900	6,900	6,900	6,900

Table 4.9 Ball Mill Equipment Specification - Maximum

Parameter	Unit	Year 1	Year 2	Year 3	Year 4–14
Number of Mills	qty	1	1	1	1
Mill Diameter (Inside Shell)	m	6.71	6.71	6.71	6.71
Effective Grinding Length (EGL)	m	11.12	11.12	11.12	11.12
Imperial	ft x ft	22 x 36.5	22 x 36.5	22 x 36.5	22 x 36.5
L : D Ratio		1.66	1.66	1.66	1.66
Discharge Configuration		Overflow	Overflow	Overflow	Overflow
Grinding Media Size	mm	50	50	50	50
Liner Thickness	mm	100	100	100	100
Mill Speed	%Nc	75	75	75	75
	rpm	12.4	12.4	12.4	12.4
	Max %Nc	75	75	75	75
Ball Charge - Duty	%Vol	32	32	32	32
- Max	%Vol	34	34	34	34
Pinion Power - Duty	kW	8,150	8,160	8,160	8,164
- Max @ 75% Nc	kW	8,557	8,568	8,569	8,574
Motor Power Output - Duty	kW	8,522	8,531	8,532	8,536
- Max @ 75% Nc	kW	8,947	8,959	8,960	8,965
Motor Type		FSD WRIM+ LRS	FSD WRIM+ LRS	FSD WRIM+ LRS	FSD WRIM+ LRS
Selected Motor Size	kW	9,000	9,000	9,000	9,000

For the SABC circuit maximum throughput scenarios, the SAG mill is operated at the maximum ball charge of 14% and total load of 25% at 78% Nc with a ball mill charge of 32% across all years.

For the maximum throughput modelling, the COF density was unconstrained. Suitable cyclones for all ore blend scenarios are presented in Table 4.10. It should be noted that a maximum of 11 duty cyclones is required for operation across the production years.

Table 4.10 Hydrocyclone Equipment Specification - Maximum

Parameter	Unit	Year 1	Year 2	Year 3	Year 4–14
Make		Cavex	Cavex	Cavex	Cavex
Model		500 CVX-160	500 CVX-160	500 CVX-160	500 CVX-160
Number of Cyclones - Duty	qty	11	10	10	10
Cyclone Diameter	mm	500	500	500	500
Op. Pressure	kPa	110	110	110	110
Vortex Finder	mm	185	185	185	185
Spigot	mm	115	115	115	110
Cyclone Feed Density	%solids	53	53	53	53
Cyclone Overflow Density	%solids	28	28	29	29
Circulating Load at Cyclones	%	296	299	284	284
Circulating Load at Ball Mill	%	222	269	253	284

The gravity circuit was modelled as 2 x Knelson KC-QS48 with 2 x gravity screens, with the same flowsheet and feed capacity of 90% as per the duty throughput scenarios. The gravity concentrator specifications can be seen above in Table 4.6.

5.0 CONSUMABLES

Brief consumable estimates for duty and maximum throughput operations are show below in Table 5.1 and Table 5.2, for all major equipment.

The following notes apply to the consumable estimates provided:

- Crusher power estimates include an allowance of 13% of the installed power for no-load power.
- Mill liner estimates exclude wastage, which could account for as much as 30% of the original liner weight. Adjustments to wear life should be made in consultation with the mill liner suppliers for composite liners.
- The liner consumption estimates provided are for steel liners only.
- The consumption rates given are representative of good quality forged steel balls sourced from a reputable supplier.
- Grinding power consumption are based on specific energy predictions using the average of available testwork, which differs from the 85th percentile specific energy predictions used in power modelling. These values are inclusive of power losses through transformers, variable speed drives, drive trains and motors.

Table 5.1 Duty Consumables Estimate

		Fresh (Design)		Year 1		Year 2		Year 3		Year 4–14	
Equipment	Unit	Duty									
Mine Schedule	Mt/a	N/A		4.97		4.50		4.58		4.31*	
Primary Crusher											
Fixed Jaw Consumption	kg/t milled	0.016	6.9 Set/yr	0.019	9.5 Set/yr	0.020	8.8 Set/yr	0.018	8.5 Set/yr	0.019	8.8 Set/yr
Moving Jaw Consumption	kg/t milled	0.009	4.7 Set/yr	0.011	6.4 Set/yr	0.011	5.9 Set/yr	0.010	5.7 Set/yr	0.011	5.9 Set/yr
Gross Power	kWh/t	0.11		0.08		0.09		0.09		0.09	
Pebble Crusher											
Liner Consumption	kg/t milled	0.028	46.1 Set/yr	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gross Power	kWh/t	0.80		N/A		N/A		N/A		N/A	
SAG Mill											
125mm Ball Consumption	kg/t milled	0.348		0.300		0.343		0.314		0.353	
Steel Liner Consumption	kg/t milled	0.072	2.0 Set/yr	0.057	1.9 Set/yr	0.065	1.9 Set/yr	0.059	1.9 Set/yr	0.067	2.0 Set/yr
Gross Power	kWh/t	11.2		9.1		10.2		9.8		10.7	
Ball Mill											
50mm Ball Consumption	kg/t milled	0.836		0.693		0.777		0.718		0.751	
Steel Liner Consumption	kg/t milled	0.055	1.0 Set/yr	0.046	1.0 Set/yr	0.051	1.0 Set/yr	0.048	1.0 Set/yr	0.050	1.0 Set/yr
Gross Power	kWh/t	16.9		14.5		15.9		15.3		15.7	
Crushing Auxiliary Specific Energy	kWh/t	1.0		1.0		1.0		1.0		1.0	
Milling Auxiliary Specific Energy	kWh/t	1.1		0.9		0.8		0.9		1.0	
Total Energy Consumption	kWh/t	31.1		25.6		28.0		27.1		28.5	

* Excludes production tonnes in year 14.

Table 5.2 Maximum Consumables Estimate

		Year 1		Year 2		Year 3		Year 4–14	
Equipment	Unit	Consumables							
Mine Schedule	Mt/a	4.97		4.50		4.58		4.31*	
Primary Crusher									
Fixed Jaw Consumption	kg/t milled	0.017	9.5 Set/yr	0.020	9.9 Set/yr	0.018	9.5 Set/yr	0.019	9.6 Set/yr
Moving Jaw Consumption	kg/t milled	0.010	6.4 Set/yr	0.011	6.7 Set/yr	0.010	6.4 Set/yr	0.011	6.5 Set/yr
Gross Power	kWh/t	0.07		0.08		0.08		0.09	
SAG Mill									
125mm Ball Consumption	kg/t milled	0.382		0.431		0.397		0.427	
Steel Liner Consumption	kg/t milled	0.064	2.3 Set/yr	0.071	2.4 Set/yr	0.066	2.3 Set/yr	0.071	2.4 Set/yr
Gross Power	kWh/t	10.2		11.3		10.9		11.4	
Ball Mill									
50mm Ball Consumption	kg/t milled	0.649		0.729		0.671		0.720	
Steel Liner Consumption	kg/t milled	0.043	1.1 Set/yr	0.048	1.1 Set/yr	0.045	1.0 Set/yr	0.048	1.1 Set/yr
Gross Power	kWh/t	13.5		14.9		14.3		15.0	
Crushing Auxiliary Specific Energy	kWh/t	1.0		1.0		1.0		1.0	
Milling Auxiliary Specific Energy	kWh/t	1.2		1.1		1.0		1.0	
Total Energy Consumption	kWh/t	26.0		28.3		27.3		28.5	

* Excludes production tonnes in year 14.

6.0 CONCLUSIONS AND RECOMMENDATIONS

OMC completed comminution modelling for the Doropo Gold Project, to assist Lycopodium with an updated DFS for Resolute Mining, who recently acquired the project from Anglogold Ashanti. The 85th percentile ore characteristics for the fresh, transitional and oxide ore were utilised (as derived in OMC Report 7557), with the addition of separating the transitional and oxide ore samples into separate parameters. These were then applied to year 1, 2, 3 and 4-14 in the 14-year mine schedule to develop the modelling feed blends.

The SABC circuit was designed based on processing fresh feed at 4.0 Mt/a for a P_{80} of 75 µm. Table 6.1 details the design criteria and equipment adopted for the modelling.

Table 6.1 Design Criteria and Equipment

Parameter	Unit	Fresh (Design)	Source
Annual Throughput	Mt/a	4.0	*Client*
Crushing Circuit Availability	%	80	*Calculation*
Grinding Circuit Availability	%	91.3	*Assumed*
Product Size, P_{80}	µm	75	*Client*
Primary Crusher – Model		C150	*OMC Report 7557-01 Rev 3*
– Motor	kW	200	*OMC Report 7557-01 Rev 3*
SAG Mill – Size		Ø 8.53m x 5.05m EGL	*OMC Report 7557-01 Rev 3*
– Motor & Drive		6,900kW, VSD Hi Speed	*OMC Report 7557-01 Rev 3*
– Speed	% Nc	65 – 80	*OMC Report 7557-01 Rev 3*
Pebble Crusher – Model		HP200	*OMC Report 7557-01 Rev 3*
– Motor	kW	132	*OMC Report 7557-01 Rev 3*
Ball Mill – Size		Ø 6.71m x 11.12m EGL	*OMC Report 7557-01 Rev 3*
– Motor & Drive		9,000kW, FSD WRIM + LRS	*OMC Report 7557-01 Rev 3*
– Speed	% Nc	75	*OMC Report 7557-01 Rev 3*
Classification		2 x KC-QS48 Concentrators (with 2 x Gravity Screens)	*Client*
		9 (duty) x Cavex 500 CVX-160	*OMC Report 7557-01 Rev 3*

All modelling scenarios was undertaken at a grind size of P_{80} 75 µm for an unconstrained COF density. The duty models for 100% transition/oxide ore at 75 µm and 106µm from OMC Report 7557-01 Rev 3 have also been included for comparison and completeness of operating scenarios; in quarter 1 and 2 of year 1 the transition/oxide ore is scheduled to be campaign fed and ground to a P_{80} of 106µm.

The key findings for the comminution modelling assessment are as follows:

- It must be emphasized that the mine schedule appears to have been deduced based on calculated throughputs in previous OMC Report 7557-01 Rev 3, in which fresh ore was modelled at a grind size P_{80} of 75 µm for a throughput of 4.0 Mt/a, and oxide/transition ore at a P_{80} of 106 µm for a throughput

of 5.4 Mt/a. Therefore, as the ore is to be milled as a blend and all the ore ground to a P_{80} of 75 µm, the mine schedule can't be directly calculated based on proportions of these capacity throughputs unless the overall grind can be scaled as well. However, in OMC Report 7557-01 Rev 3, the oxide/transition ore was also modelled at P_{80} of 75 µm for a throughput of 4.6 Mt/a, which can be considered as the upper throughput limit for the circuit, without a bleed-back stream to the SAG mill.

- For the crushing circuit:

  A primary crushed configuration was modelled, in which a C150 jaw crusher or equivalent was selected based on fresh feed, and was deemed suitable for duty throughputs for transition/oxide ore, and the duty and maximum throughputs at the specified blends. A static 800 mm grizzly and rock breaker have also been proposed by the client for the crushing circuit.

- For the duty throughput scenarios:

  Power modelling at duty throughput for the grind size P_{80} of 75µm indicates a throughput of 4.2 Mt/a (year 2) to 4.7 Mt/a (year 1), assuming a bleed-back stream from the CUF to the SAG mill is optimised, up to approximately 16%. The SAG mill is operated at a duty ball charge of 11% with a maximum ball charge of 14%, and duty total load of 25% with a maximum total load of 35% with varying speeds between 70-75% Nc, and the ball mill is operated at a duty ball charge of 29% with maximum of 34% at a speed of 75% Nc across all scenarios, to achieve the duty throughputs.

  The mine schedule targets across all years are not achievable at the duty conditions, including an optimised bleed-back stream from the CUF to the SAG mill. The key modelling parameters for the duty throughput scenarios are summarised in Table 6.2 below.

Table 6.2 Key Modelling Parameters – Duty

Parameter	Unit	Fresh (Design)	Year 1	Year 2	Year 3	Year 4-14	Transition/Oxide*	
Mine Schedule Target	**Mt/a**	N/A	4.97	4.50	4.58	4.31**	N/A	N/A
Duty								
Feed Rate	Mt/a	4.0	4.7	4.2	4.4	4.3	4.6	5.4
	t/h	500	583	527	551	539	574	679
Product Size, P_{80}	µm	75	75	75	75	75	75	106
Pebble Crushing	t/h	93	0	0	0	0	0	0
Bleed-Back to SAG Mill	% of UF	0	16	0	1	1	42	0

* Extracted from OMC Report 7557-01 Rev 3.

** Excludes production tonnes in year 14.

- For the maximum throughput scenarios:

  Power modelling at maximum throughput for the grind size P_{80} of 75µm indicates a throughput of 4.7 Mt/a (years 4-14) to 5.2 Mt/a (year 1), assuming a bleed-back stream from the CUF to the SAG mill is optimised, up to approximately 25%. The SAG mill is operated with a duty ball charge at the maximum ball charge of 14% and a duty total load of 25% with maximum total load of 35% at a

speed of 78% Nc for all scenarios, and the ball mill is operated at a duty ball charge of 32% with a maximum of 34% at a speed of 75% Nc across all scenarios, to achieve the maximum throughputs.

While the mine schedule targets across all years are achievable at the maximum conditions, with the exception of year 5, it must be emphasized that the maximum scenarios are not sustainable averages and should be considered with caution; it does however provide a feasible operating envelope. The key modelling parameters for the maximum throughput scenarios are summarised in Table 6.3 below.

Table 6.3 Key Modelling Parameters – Maximum

Parameter	Unit	Year 1	Year 2	Year 3	Year 4-14
Mine Schedule Target	Mt/a	4.97	4.50	4.58	4.31*
Maximum					
Feed Rate	Mt/a	5.2	4.8	4.9	4.7
	tph	654	595	618	589
Product Size, P_{80}	µm	75	75	75	75
Pebble Crushing	tph	0	0	0	0
Bleed-Back to SAG Mill	% of UF	25	10	11	7

* Excludes production tonnes in Year 14.

- The Doropo DFS (update) mine schedule compared to the modelling duty and maximum throughputs can be seen in Figure 6.1. In order to achieve the target throughputs specified in the mine schedule, at a duty throughput rate, an increased grind size would be required. Alternatively, if the grind P_{80} of 75 µm is to be targeted with the mine schedule ore proportions maintained, the reduced duty throughput rates should be targeted, or a larger ball mill size selected.

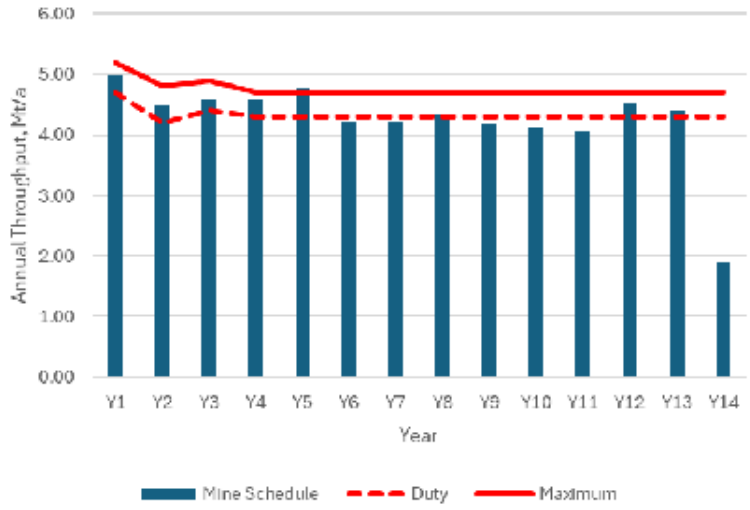


Figure 6.1 Mine Schedule vs Modelling Throughput

Other Comments

- The modelling cyclone density was unconstrained for the fine grind. Hence, a leach feed thickener will be required in the circuit design.

- The gravity circuit was modelled for an assumed 90% feed rate capacity.

7.0 DISCLAIMER

The material and advice produced by OMC as contained in this report is for the internal use of the client only and OMC takes no responsibility and accepts no liability for the use of or reliance upon any such material or advice by any third party. Should a third party suffer any loss or damage as a result of using or relying upon such material or advice, OMC shall in no way be liable to the client or the third party.

8.0 STANDARD WARRANTY

Orway Mineral Consultants warrants that it will perform the Services in accordance with standards of care and diligence normally practised by recognised engineering consulting firms in performing services of a similar nature. If during the one (1) year period following completion or termination of the Services, it is shown that there is error in the report or Services as a result of those standards not having been met, and you have promptly notified Orway Mineral Consultants in writing of such error, Orway Mineral Consultants shall perform on a reimbursable basis but without any additional fees, such corrective services as may be necessary within the original scope of Orway Mineral Consultants Services to remedy such error. This warranty shall constitute Orway Mineral Consultants sole liability with respect to the Services or any information or report supplied to you. Acceptance of our report or use of any of the Services or information shall constitute a release and agreement to defend and indemnify Orway Mineral Consultants from and against all other liabilities arising.

9.0 OWNERSHIP

This report, together with all intellectual property contained or embodied therein remains the property of Orway Mineral Consultants, subject only to an express written agreement with the client to the contrary.

Prepared by ORWAY MINERAL CONSULTANTS (WA) PTY LTD:

Chloe Thiel

Project Metallurgist

Countersigned by:

Fred Kock

Principal Metallurgist

©-Orway Mineral Consultants (WA) Pty Ltd 2023

Appendix A – Comminution Testwork Results

- Table A.1 Doropo Testwork Results

Table A–1 Doropo Testwork Results

Deposit	Sample Name	Average UCS, MPa	Ai, g	Average CWi, kWh/t	RWi, kWh/t	BWi, kWh/t	Ore SG	Axb
Souwa	Souwa Oxide	-	0.136	-	11.9	17.5	2.32	304.4
	Souwa Transition	-	0.148	2.9	12.7	13.6	2.56	99.5
	Souwa Fresh 1	22	0.223	4.8	16.6	15.9	2.67	45.8
	Souwa Fresh 2	30	0.267	9.3	17.9	17.8	2.69	39.7
	Souwa Fresh 3	54	0.255	10.0	18.8	17.7	2.68	36.4
	Souwa Fresh 4	54	0.169	6.9	16.5	16.9	2.67	64.2
	Souwa Fresh 5	54	0.145	5.3	16.3	17.0	2.67	74.0
Nokpa	Nokpa Transition	-	0.326	-	15.9	19.7	2.58	83.6
	Nokpa Fresh 1	-	0.018	3.1	15.7	18.3	2.66	85.2
	Nokpa Fresh 2	22	0.122	5.6	16.0	17.9	2.67	56.8
	Nokpa Fresh 3	22	0.113	4.6	18.4	19.6	2.65	52.0
Chegue Main	Chegue Main Oxide	-	-	-	-	19.8	-	-
	Chegue Main Transition	-	0.045	1.6	7.2	12.6	2.48	480.3
	Chegue Main Fresh 1	60	0.120	8.8	18.2	17.7	2.68	38.9
	Chegue Main Fresh 2	44	0.347	11.0	18.7	16.8	2.67	41.8
	Chegue Main Fresh 3	-	0.125	2.1	17.2	16.9	2.65	43.7
	Chegue Main Fresh 4	40	0.380	12.3	17.4	17.7	2.68	46.4
	Chegue Main Fresh 5	40	0.191	6.5	17.3	17.8	2.67	46.1
Chegue South	Chegue South Transition	14	0.214	1.8	11.9	16.1	2.56	79.1
	Chegue South Fresh 1	38	0.291	13.3	17.9	19.4	2.68	37.3
	Chegue South Fresh 2	85	0.161	10.7	19.4	18.5	2.72	36.9
Kekeda	Kekeda Transition 1	34	0.135	4.1	10.6	14.0	2.58	168.2
	Kekeda Transition 2	37	0.119	12.1	12.5	15.2	2.58	91.6
	Kekeda Fresh 1	106	0.217	13.8	18.1	16.4	2.70	44.1
	Kekeda Fresh 2	83	0.162	7.1	14.3	17.1	2.68	59.5
	Kekeda Fresh 3	93	0.172	15.8	17.4	17.3	2.72	47.5
	Kekeda Fresh 4	93	0.163	6.2	13.3	16.1	2.63	72.0
Han	Han Transition	88	0.168	7.8	11.8	17.0	2.65	82.8
	Han Fresh 1	98	0.251	14.6	16.3	19.4	2.67	46.5
	Han Fresh 2	99	0.223	10.6	17.4	17.8	2.70	36.8
	Han Fresh 3	94	0.262	9.1	15.3	17.2	2.69	47.0
Enioda	Enioda Oxide 1	-	0.360	3.9	-	18.3	2.29	91.9
	Enioda Oxide 2	-	-	-	-	22.2	-	-
	Enioda Fresh 1	134	0.244	13.5	21.4	16.9	2.70	31.3
	Enioda Fresh 2	56	0.155	7.9	17.8	16.6	2.73	39.7
Attire	Attire Transition	-	0.072	5.0	12.8	16.6	2.57	112.8
	Attire Fresh 1	73	0.122	11.3	17.4	17.2	2.69	39.7
	Attire Fresh 2	87	0.116	10.8	18.6	18.7	2.71	36.8
Kilosegui	Kilosegui Transition	-	0.062	-	12.3	11.0	2.60	100.6
	Kilosegui Fresh 1	60	0.315	9.9	16.5	16.5	2.57	53.4
	Kilosegui Fresh 2	128	0.309	10.4	12.7	16.1	2.63	61.2
	Kilosegui Fresh 3	96	0.183	10.3	16.4	16.7	2.68	52.9
	Kilosegui Fresh 4	82	0.193	10.4	17.3	16.7	2.58	46.8

Appendix B – Grinding Circuit Mass Balances

- Figure A-1 Design SABC Circuit Mass Balance
- Figure A-2 Duty Throughput SABC Circuit Mass Balance – Year 1
- Figure A-3 Duty Throughput SABC Circuit Mass Balance – Year 2
- Figure A-4 Duty Throughput SABC Circuit Mass Balance – Year 3
- Figure A-5 Duty Throughput SABC Circuit Mass Balance – Year 4-14
- Figure A-6 Maximum Throughput SABC Circuit Mass Balance – Year 1
- Figure A-7 Maximum Throughput SABC Circuit Mass Balance – Year 2
- Figure A-8 Maximum Throughput SABC Circuit Mass Balance – Year 3
- Figure A-9 Maximum Throughput SABC Circuit Mass Balance – Year 4-14

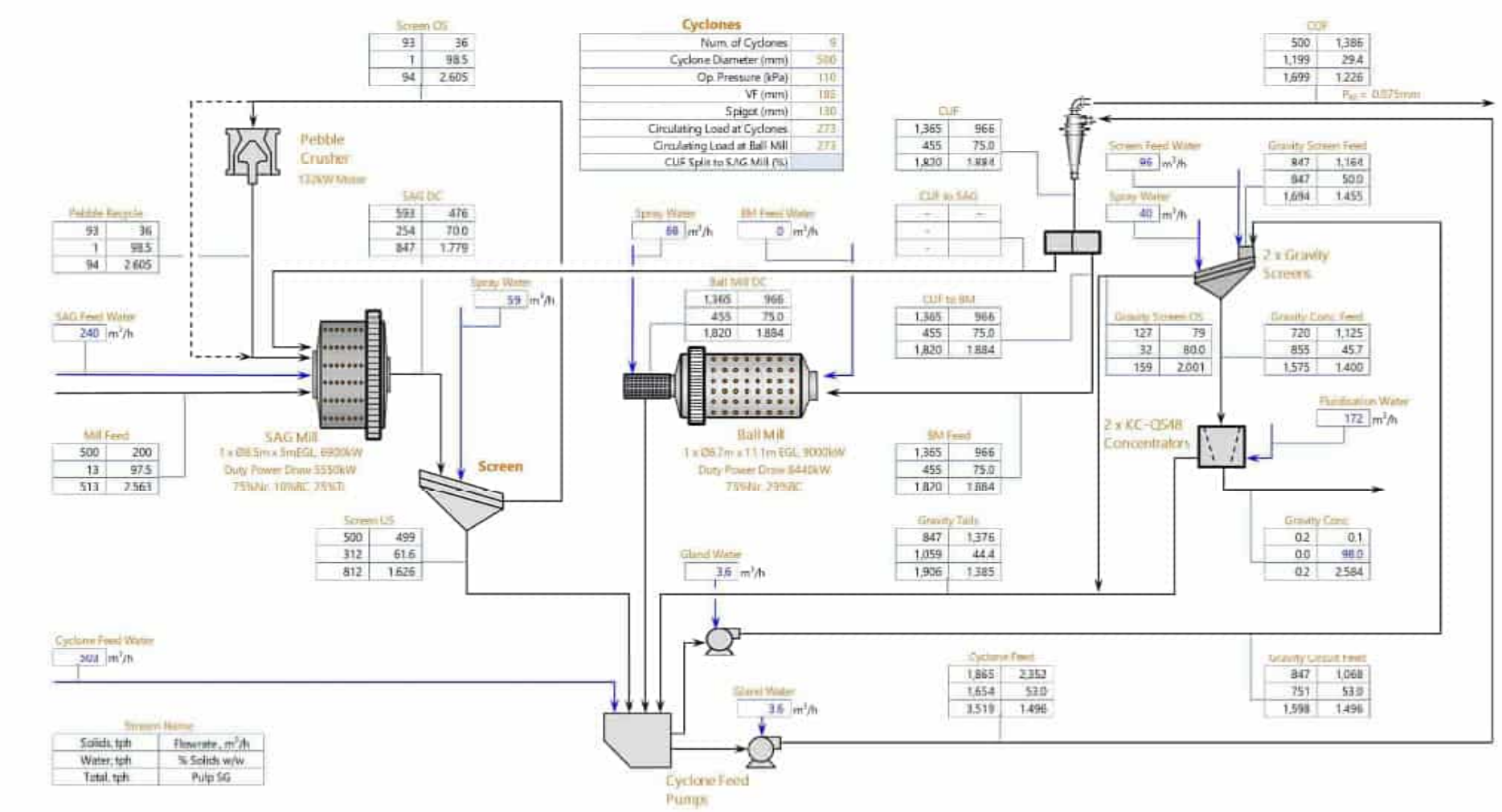


Figure A-1 Design SABC Circuit Mass Balance

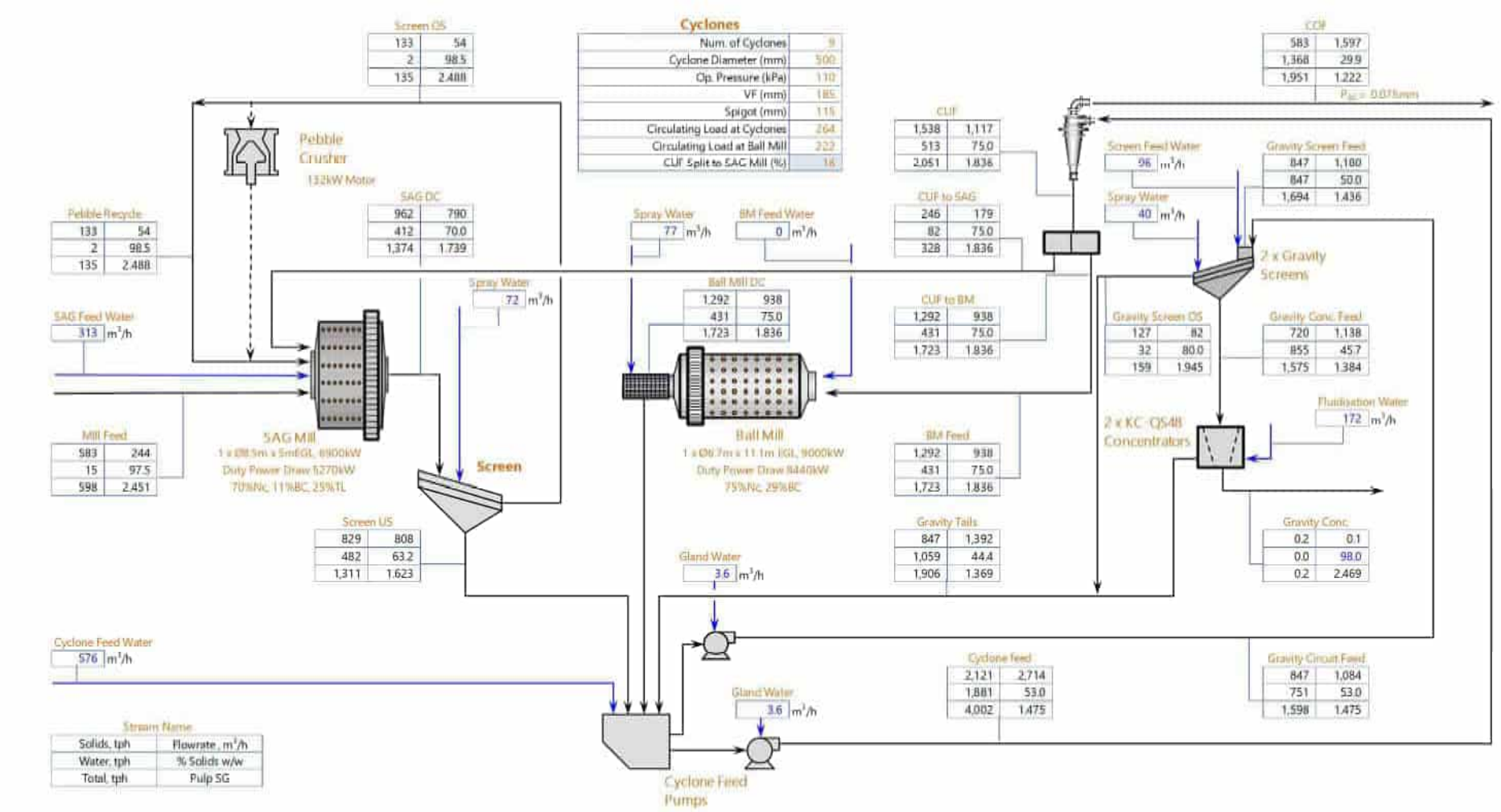


Figure A-2 Duty Throughput SABC Circuit Mass Balance – Year 1

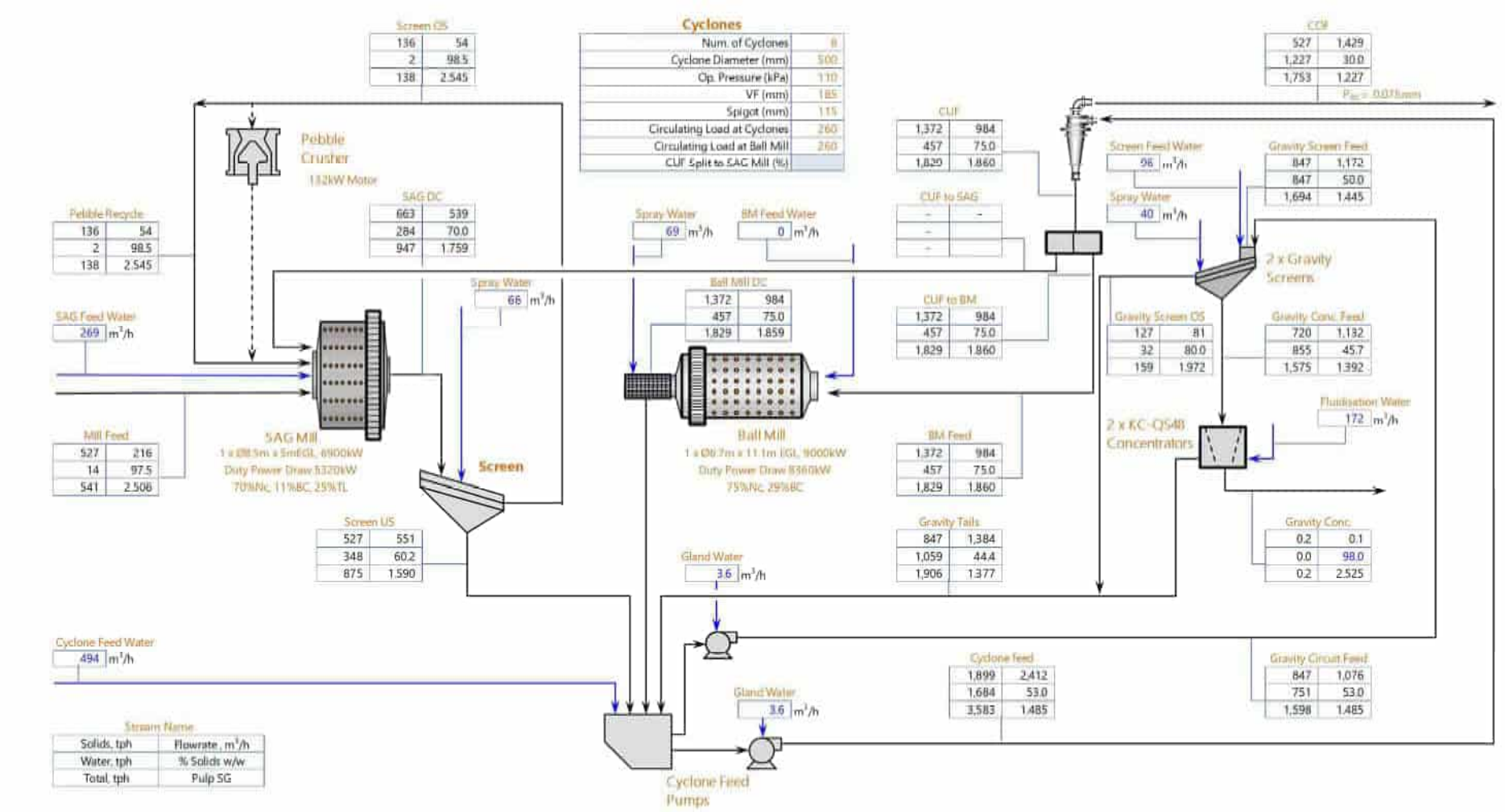


Figure A-3 Duty Throughput SABC Circuit Mass Balance – Year 2

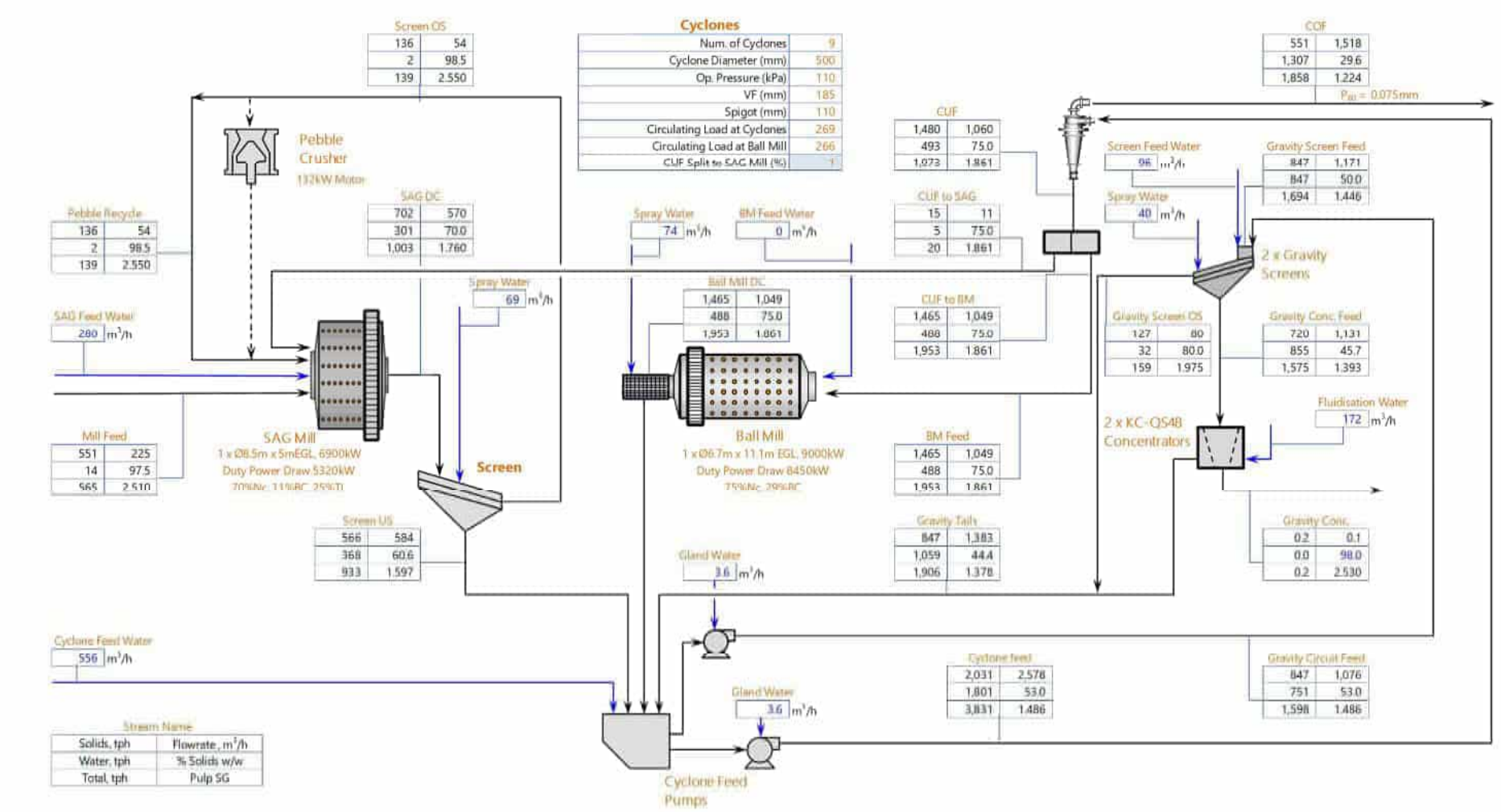


Figure A-4 Duty Throughput SABC Circuit Mass Balance – Year 3

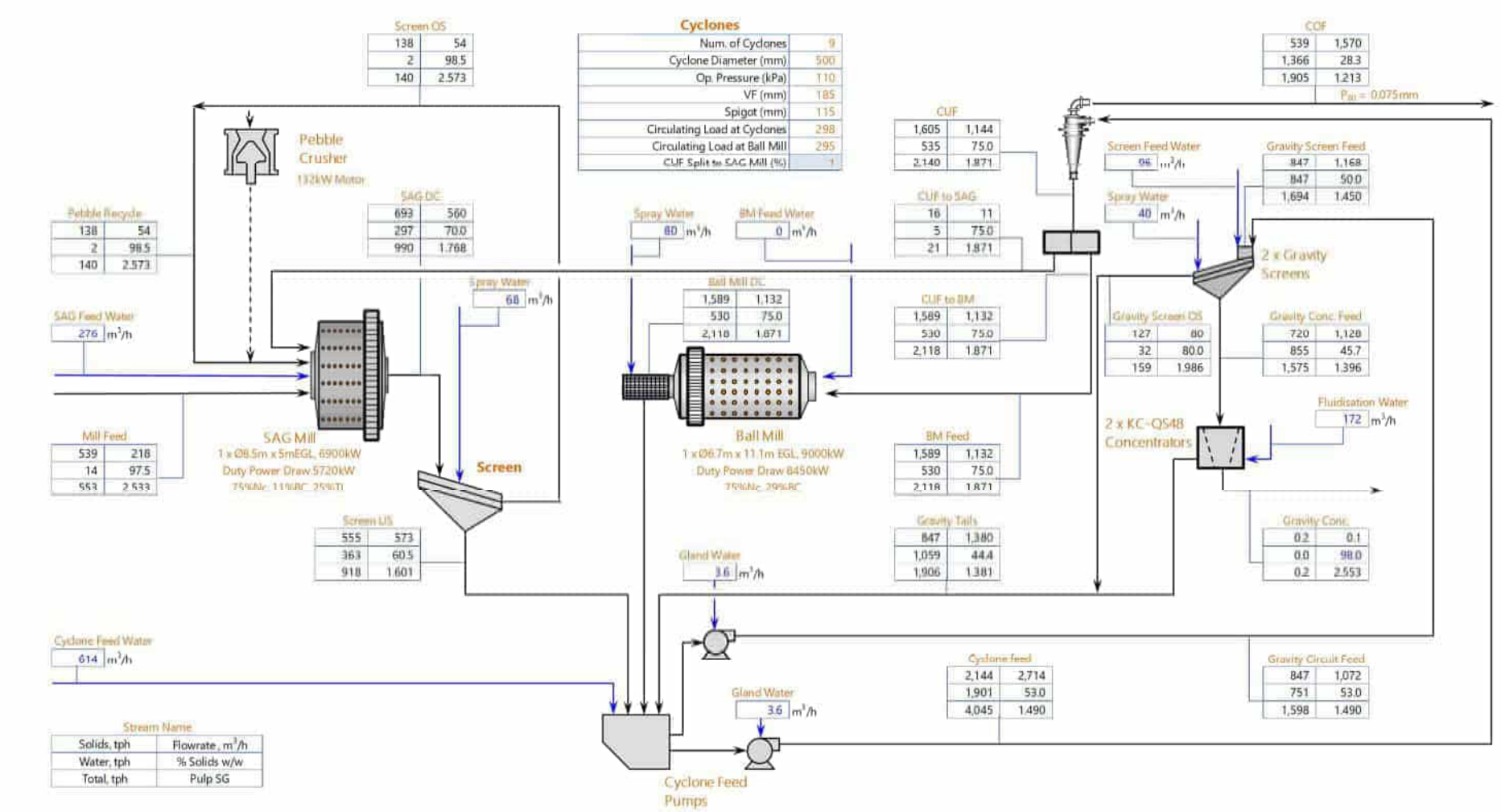


Figure A-5 Duty Throughput SABC Circuit Mass Balance – Year 4-14

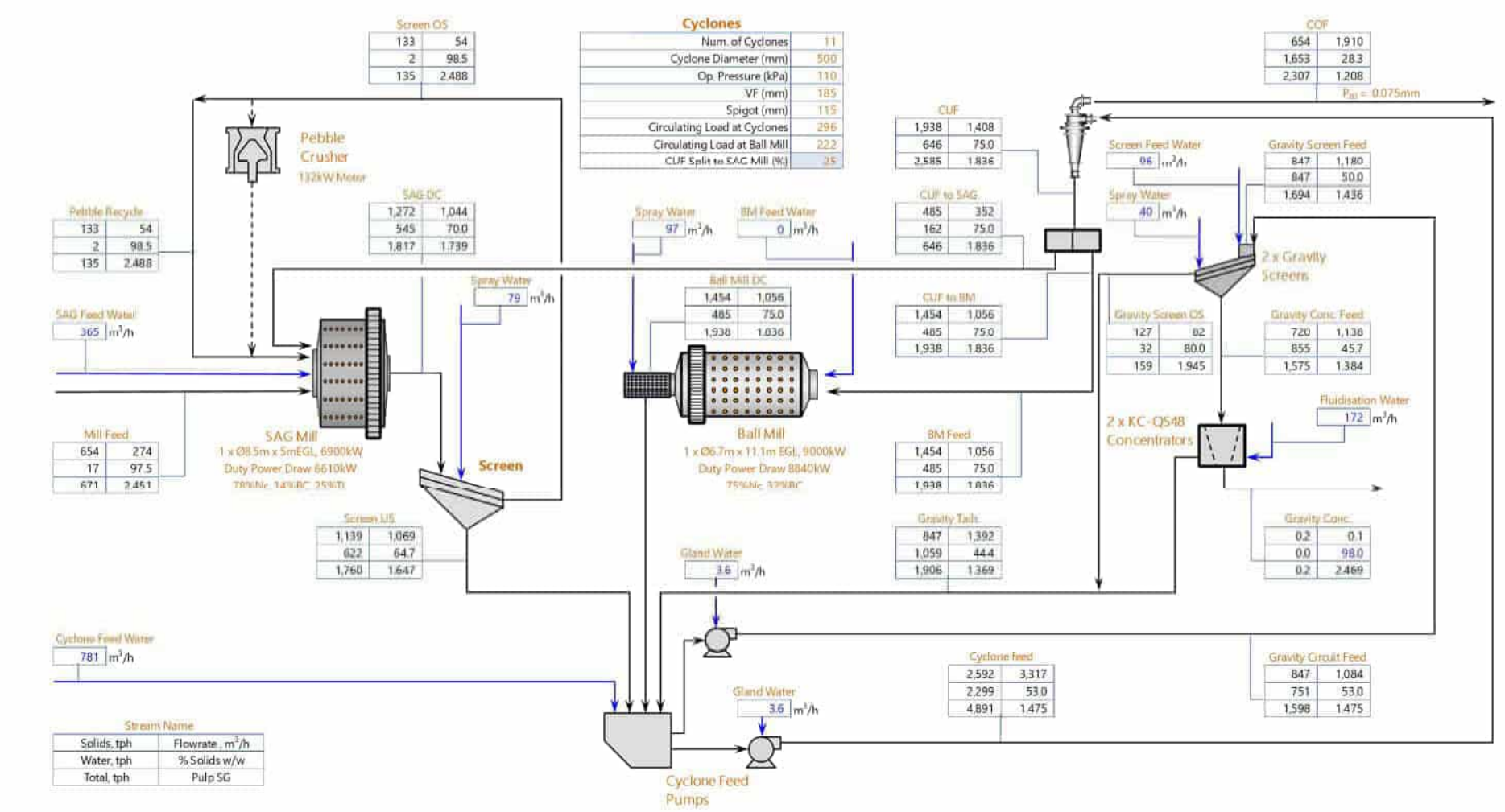


Figure A-6 Maximum Throughput SABC Circuit Mass Balance – Year 1

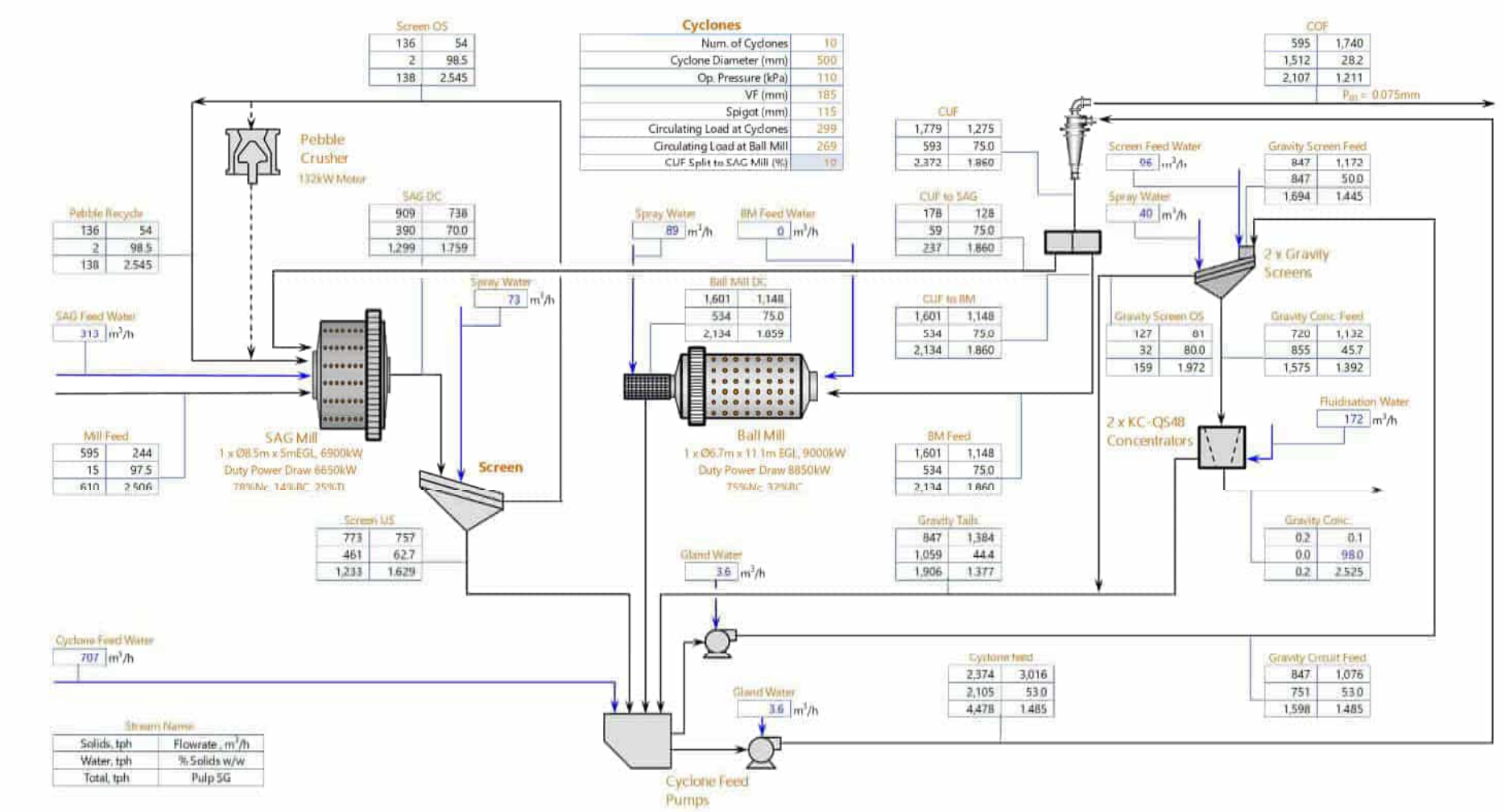


Figure A-7 Maximum Throughput SABC Circuit Mass Balance – Year 2

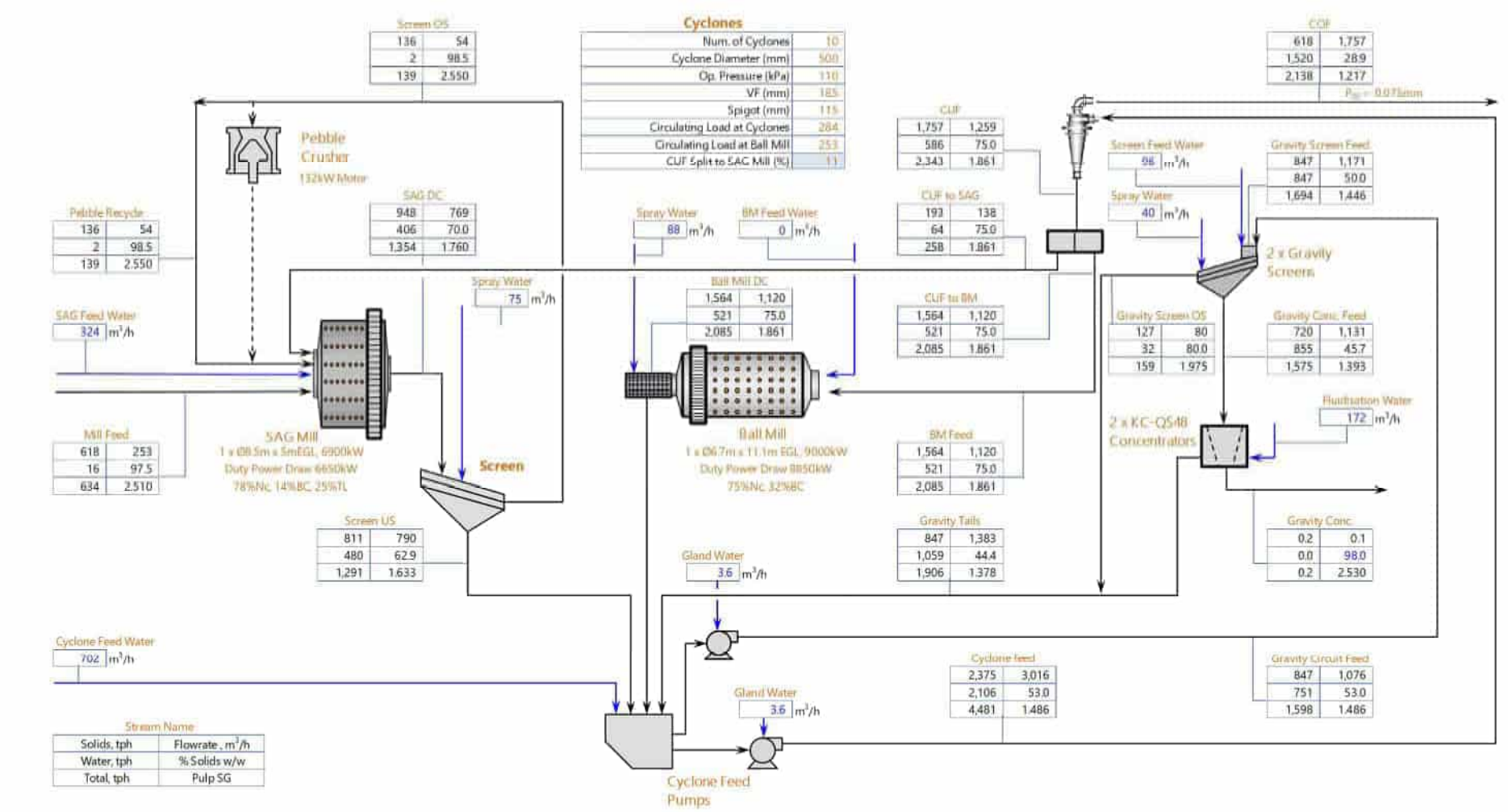


Figure A-8 Maximum Throughput SABC Circuit Mass Balance – Year 3

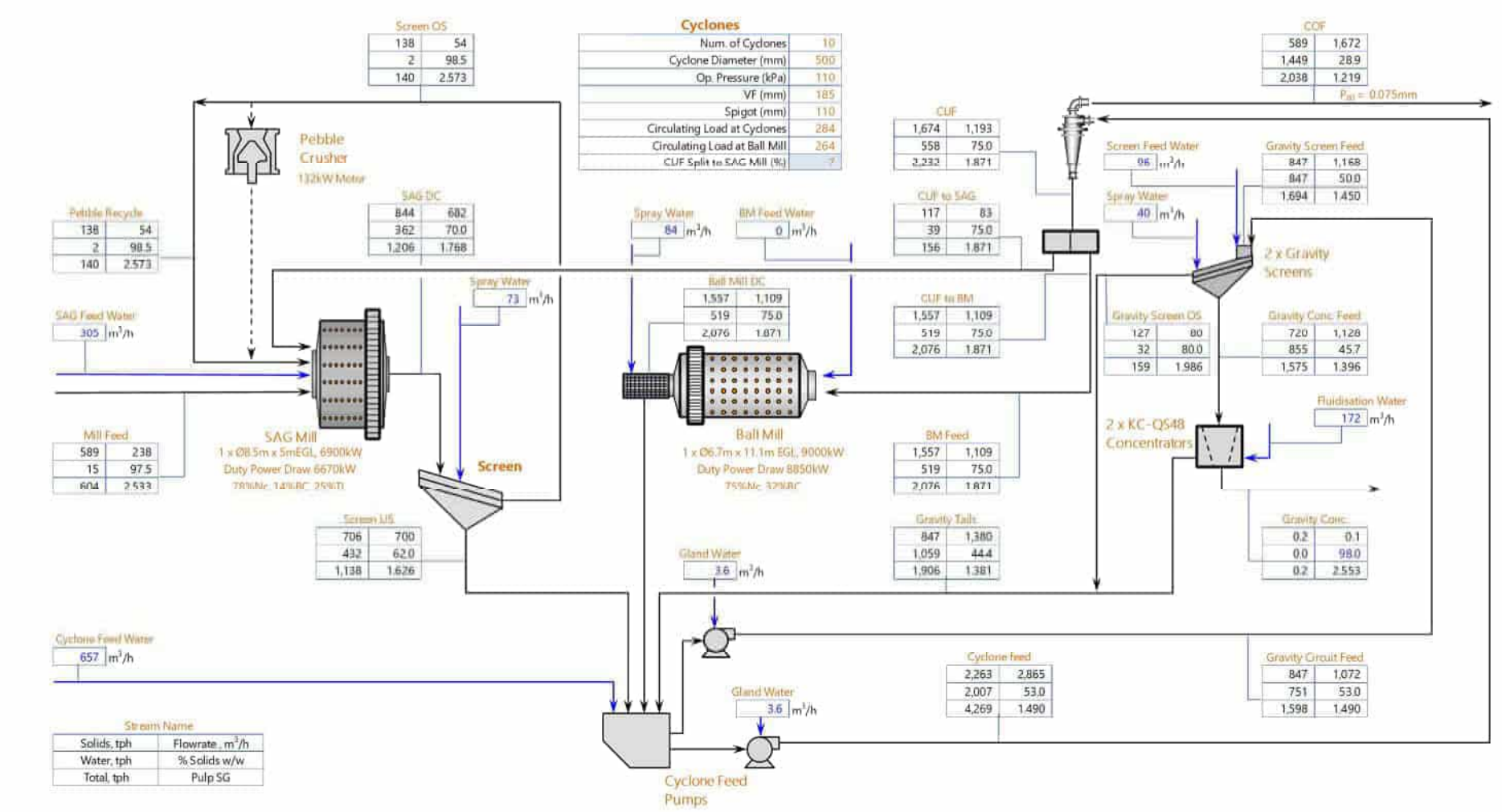


Figure A-9 Maximum Throughput SABC Circuit Mass Balance – Year 4-14

APPENDIX 6.9

OMC REPORT A046-02

MEMORANDUM

TO	Ryan Harrison, Anton Gustavson	COMPANY:	Orway Mineral Consultants
FROM:	Chloe Thiel	DATE:	10th September 2025
CC:	Fred Kock	REPORT NO	A046-02 (Rev 0)
SUBJECT:	Doropo DFS Update – Design Options		

1.0 INTRODUCTION

This document summarises the proposed SAB/C grinding circuits, specifically SAG and ball mill sizes for the Doropo DFS update.

Based on the preliminary findings in *OMC Report A046-01 Rev 0,* three design cases have been modelled:

- 100% Fresh Feed: SABC circuit; consisting of Ø 8.53m x 5.05m EGL, 6.9MW single-pinion SAG mill and Ø 6.71m x 11.12m EGL, 9.0MW single-pinion ball mill.
- 100% Transition/Oxide Feed – Option 1: SAB circuit; consisting of Ø 8.53m x 5.05m EGL, 6.9MW single-pinion SAG mill and Ø 7.32m x 12.04m EGL, 12.3MW dual-pinion ball mill.
- 100% Transition/Oxide Feed – Option 2: SAB circuit; consisting of Ø 9.75m x 5.26m EGL, 10.0MW single-pinion SAG mill and Ø 6.71m x 11.58m EGL, 10.0MW single-pinion ball mill.

Figure 1–1 to Figure 1–3 below shows the grinding specific energies for the each of the circuits, across the mine production years.

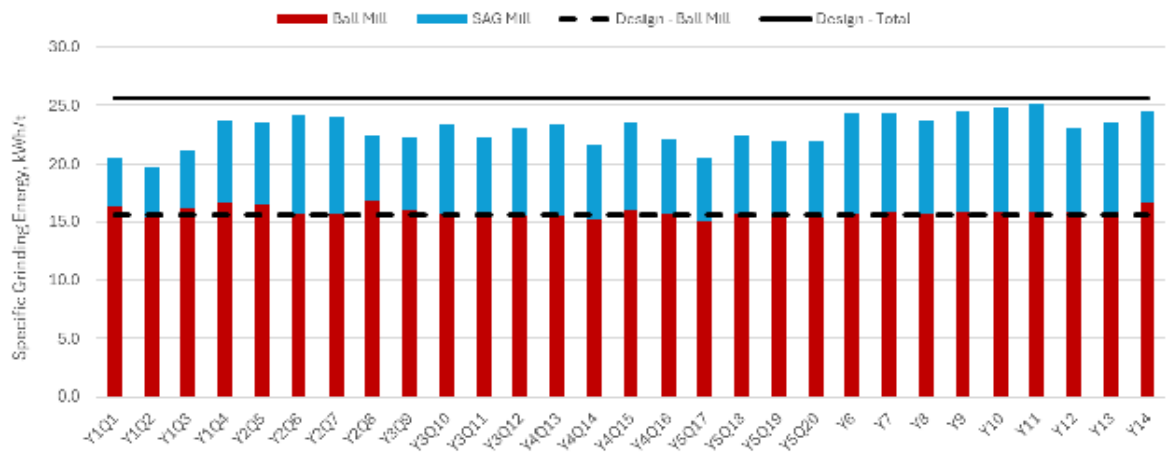


Figure 1–1 Specific Grinding Energies for 100% Fresh Feed across Mine Plan

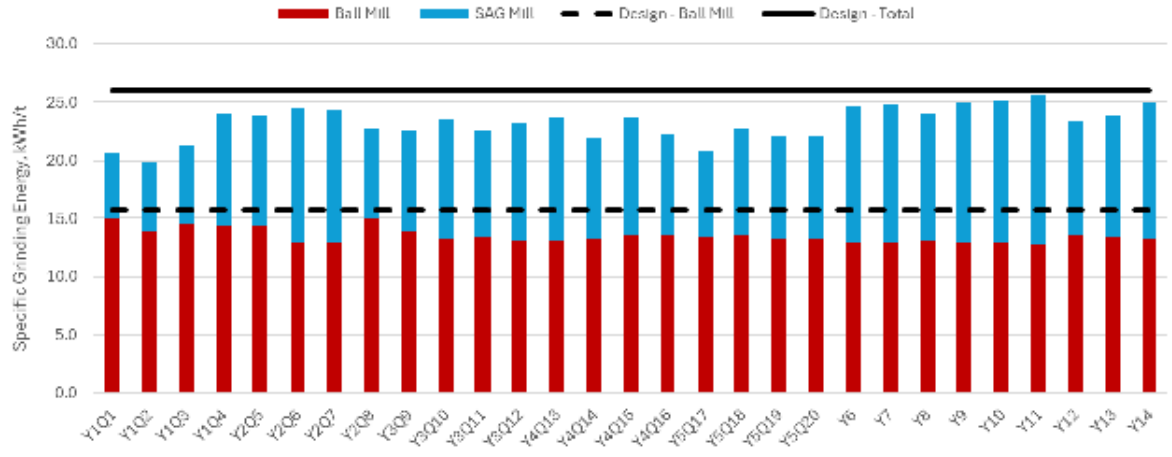


Figure 1–2 Specific Grinding Energies for 100% Transition/Oxide Feed (Option 1) across Mine Plan

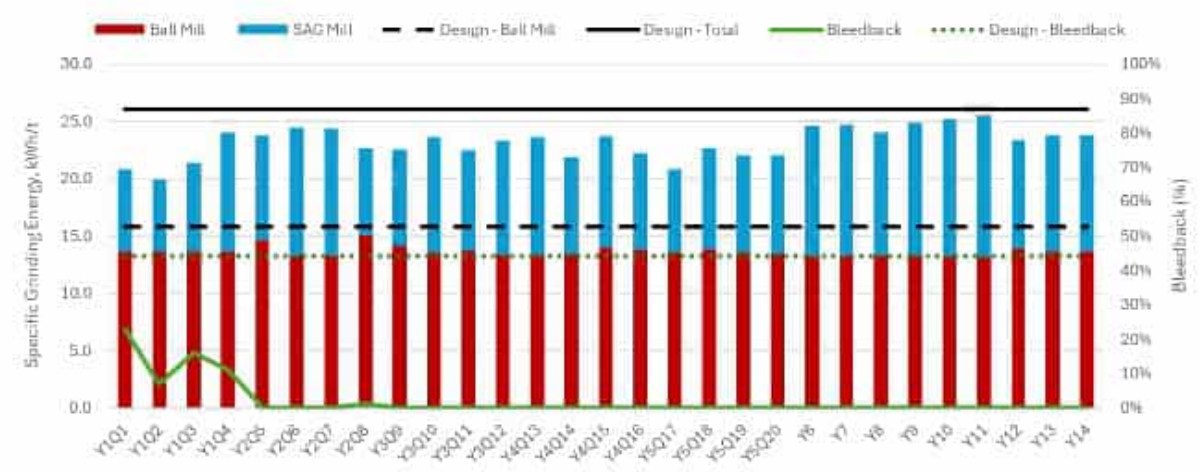


Figure 1–3 Specific Grinding Energies for 100% Transition/Oxide Feed (Option 2) across Mine Plan

2.0 GRINDING CIRCUIT MODELLING

The grinding circuits were modelled using OMC's proprietary power modelling software. The power utilisation at a P_{80} 75 µm for the design feeds are presented in Table 2–1. Based on the design power model suitable SAG and ball mills were sized, from which operating conditions were determined as presented in Table 2–2 and Table 2–3, respectively. The associated SAB/C circuit mass balances for grind P_{80} of 75 µm are presented in Figure 2–1 to Figure 2–3. All modelling has utilised the process design criteria as per *OMC Report A046-01 Rev 0*.

Table 2–1 Mill Power Utilisations

Parameter	Unit	Fresh	Transition/ Oxide - Option 1	Transition/ Oxide - Option 2
CWi	kWh/t	13.0	7.6	7.6
RWi	kWh/t	18.5	12.7	12.7
BWi	kWh/t	18.4	19.7	19.7
Axb		37.2	84.2	84.2
Ore SG		2.67	2.52	2.52
Feed Rate	Mt/a	4.0	5.4	5.4
	t/h	500	675	675
Product Size, P_{80}	µm	75	75	75
Pebble Crushing/Recycle Rate	% Feed	19	13	14
	tph	93	88	97
Bleed-Back to SAG Mill	% of UF	0	0	44
SAG Mill Specific Energy	kWh/t	10.1	5.8	10.1
Ball Mill Specific Energy	kWh/t	15.6	15.7	11.8
Pebble Crusher Specific Energy	kWh/t	0.2	-	-
Total Specific Energy	kWh/t	25.8	21.5	21.9
SAG Mill Pinion Power	kW	5,043	3,948	6,785
Ball Mill Pinion Power	kW	7,781	10,579	7,966

Table 2–2 SAG Mill Equipment Specifications

Parameter	Unit	Fresh	Transition/ Oxide - Option 1	Transition/ Oxide - Option 2
Number of Mills	qty	1	1	1
Mill Diameter (Inside Shell)	m	8.53	8.53	9.75
Effective Grinding Length (EGL)	m	5.05	5.05	5.26
Imperial	ft x ft	28 x 16.6	28 x 16.6	32 x 17.2
L : D Ratio		0.59	0.59	0.54
Discharge Configuration		Grate	Grate	Grate
Grinding Media Size	mm	125	125	125
Mill Speed	%Nc	75	65	65
	rpm	11.0	9.5	8.9
	Max %Nc	80	80	80
Ball Charge - Duty	%Vol	10	8	14
- Max	%Vol	14	14	15
Total Load - Duty	%Vol	25	25	19
- Max	%Vol	35	35	35
Pinion Power - Duty	kW	5,043	3,949	6,785
- Max	kW	6,167	5,228	8,011
- Max @ 80% Nc	kW	6,578	6,434	9,859
Motor Power Output - Duty	kW	5,273	4,129	6,881
- Max	kW	6,448	5,466	8,124
- Max @ 80% Nc	kW	6,878	6,728	9,999
Motor Type		VSD Hi Speed	VSD Hi Speed	VSD Lo Speed
Selected Motor Size	kW	6,900	6,900	10,000

Table 2–3 Ball Mill Equipment Specifications

Parameter	Unit	Fresh	Transition/ Oxide - Option 1	Transition/ Oxide - Option 2
Number of Mills	qty	1	1	1
Mill Diameter (Inside Shell)	m	6.71	7.32	6.71
Effective Grinding Length (EGL)	m	11.12	12.04	11.58
Imperial	ft x ft	22 x 36.5	24 x 39.5	22 x 38
L : D Ratio		1.66	1.64	1.73
Discharge Configuration		Overflow	Overflow	Overflow
Grinding Media Size	mm	50	50	80
Mill Speed	%Nc	75	75	75
	rpm	12.4	11.9	12.4
	Max %Nc	75	78	78
Ball Charge - Duty	%Vol	29	29	27
- Max	%Vol	34	34	34
Pinion Power - Duty	kW	7,781	10,577	7,966
- Max	kW	8,580	11,668	9,317
Motor Power Output - Duty	kW	8,136	10,728	8,079
- Max	kW	8,971	11,834	9,449
Motor Type		FSD WRIM+LRS	VSD Lo Speed	VSD Lo Speed
Selected Motor Size	kW	9,000	12,300	10,000

The modelling assumed the cyclone overflow (COF) density to be unconstrained; suitable cyclones for all designs are presented in Table 2–4.

Table 2–4 Hydrocyclone Equipment Specifications

Parameter	Unit	Fresh	Transition/ Oxide - Option 1	Transition/ Oxide - Option 2
Make		Cavex	Cavex	Cavex
Model		500 CVX-160	500 CVX-160	500 CVX-160
Number of Cyclones - Duty	qty	9	11	11
Cyclone Diameter	mm	500	500	500
Op. Pressure	kPa	110	110	110
Vortex Finder	mm	185	185	185
Spigot	mm	145	140	140
Cyclone Feed Density	%solids	53	53	53
Cyclone Overflow Density	%solids	29	29	29
Circulating Load at Cyclones	%	273	283	283
Circulating Load at Ball Mill	%	273	283	158

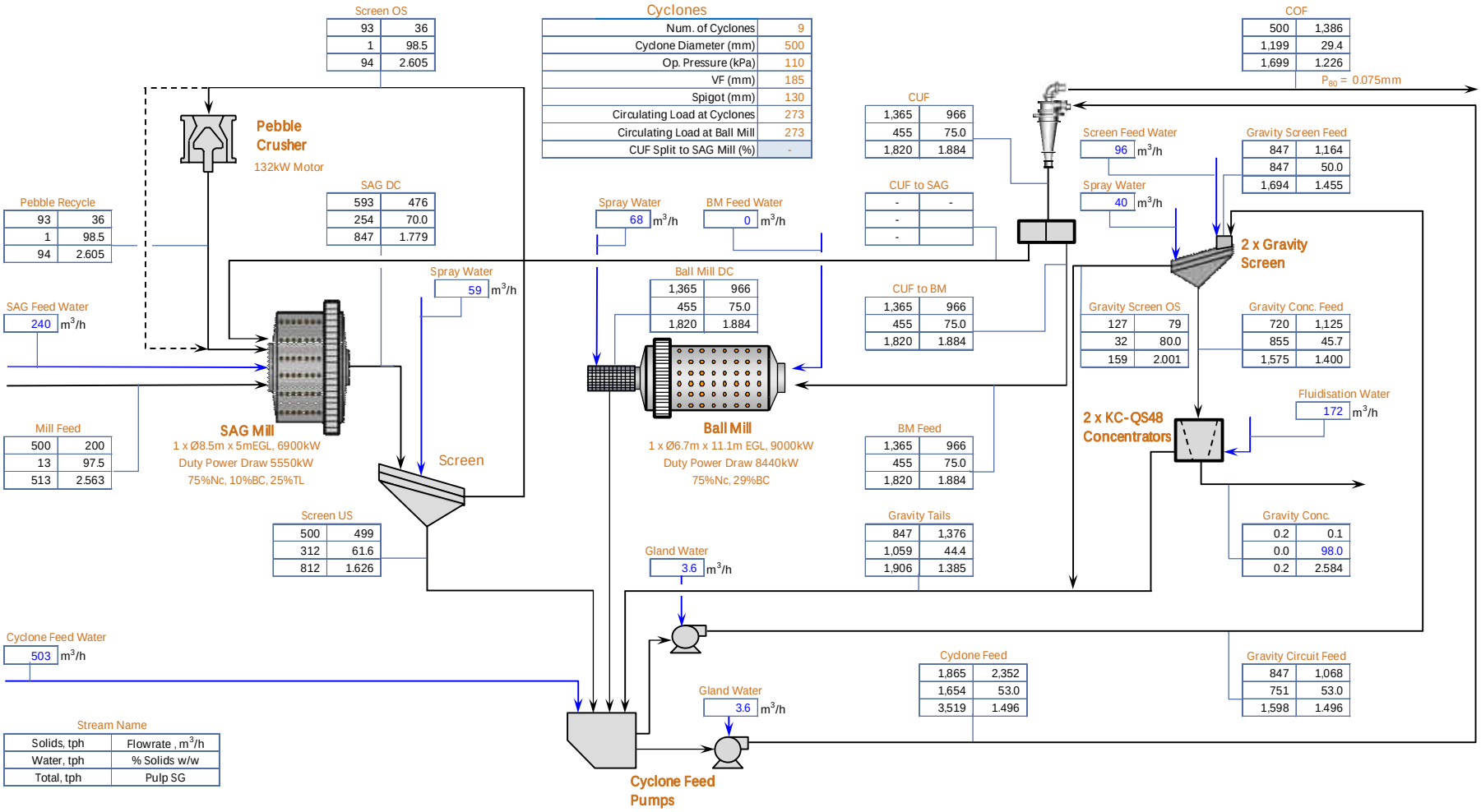


Figure 2–1 Mass Balance - Fresh

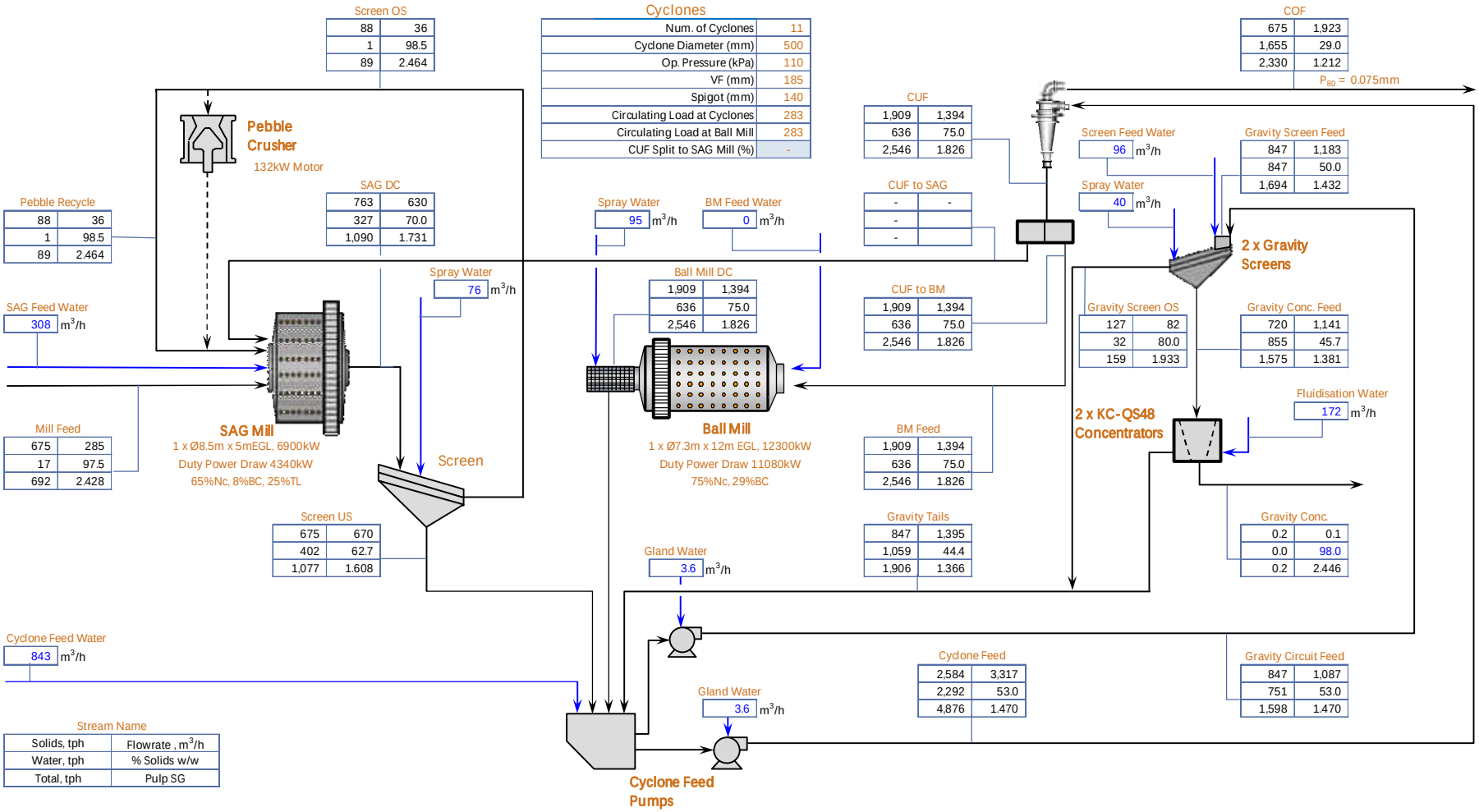


Figure 2–2 Mass Balance - Transition/Oxide Option 1

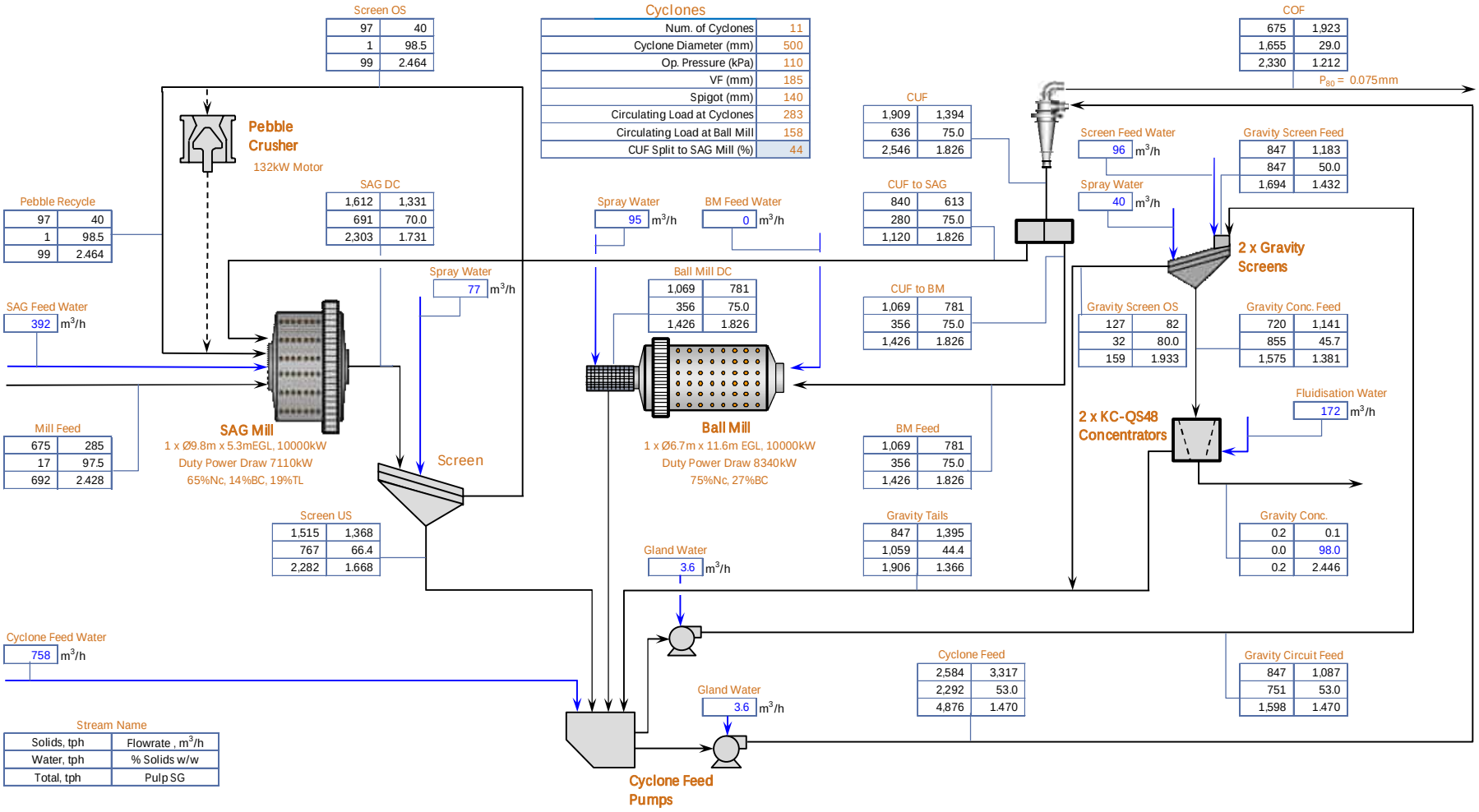


Figure 2–3 Mass Balance - Transition/Oxide Option 2

APPENDIX 6.10

OMC REPORT A046-03

DOROPO GOLD PROJECT

Comminution Modelling

Lycopodium Minerals

Report No. A046-03 Rev 0 16 October 2025



CONTENTS

EXECUTIVE SUMMARY i

1.0 INTRODUCTION 1

2.0 MODELLING DESIGN CRITERIA 3

2.1 Comminution Testwork 3

2.2 Process Design Criteria 3

3.0 GRINDING CIRCUIT MODELLING 4

4.0 CRUSHING CIRCUIT MODELLING 11

5.0 CONSUMABLES 18

6.0 CONCLUSIONS AND RECOMMENDATIONS 21

7.0 DISCLAIMER 24

8.0 STANDARD WARRANTY 24

9.0 OWNERSHIP 24

TABLES

Table 1–1 Original vs Updated Mine Schedule by Ore Type 1

Table 2–1 85th Percentile Ore Characteristics 3

Table 2–2 Process Design Criteria 3

Table 3–1 Mill Power Utilisation 4

Table 3–2 SAG Mill Equipment Specifications 6

Table 3–3 Ball Mill Equipment Specifications 7

Table 3–4 SAG Mill Discharge Screen Specifications 8

Table 3–5 Pebble Crusher Specification 9

Table 3–6 Hydrocyclone Equipment Specification 10

Table 3–7 Gravity Concentrator Equipment Specifications 10

Table 4–1 Primary Jaw Crusher Specifications – C150 and C160 14

Table 4–2 Primary Gyratory Crusher Specifications 17

Table 4–3 Primary Sizer Specifications 17

Table 5–1 Crushing Circuit Consumables Estimate 19

Table 5–2 Grinding Circuit Consumables Estimate – Option 1 and 2 20

Table 6–1 Design Criteria and Equipment – Option 1 and 2 21

Table 6–2 Grinding Circuit Modelling Outputs – Option 1 and 2 22

Table 6–3 Specific Energy – Crushing and Grinding Circuit Options 23

FIGURES

Figure 3–1 Pebble Crusher Model Output – Fresh Option 1 9
Figure 4–1 Primary C150 Jaw Crusher Model Output – Fresh Option 1 (left) and Option 2 (right) 11
Figure 4–2 Primary C150 Jaw Crusher Model Output – Transition Duty (left) and Sticky Ore (right) 12
Figure 4–3 Primary C150 Jaw Crusher Model Output – Oxide Duty (left) and Sticky Ore (right) 12
Figure 4–4 Primary C160 Jaw Crusher Model Output – Fresh Option 1 (left) and Option 2 (right) 13
Figure 4–5 Primary C160 Jaw Crusher Model Output – Transition Duty (left) and Sticky Ore (right) 13
Figure 4–6 Primary Jaw Crusher Model Output – Oxide Duty (left) and Sticky Ore (right) 14
Figure 4–7 Primary Gyratory Crusher Model Output – Fresh Option 1 (left) and Option 2 (right) 15
Figure 4–8 Primary Gyratory Crusher Model Output – Transition Duty 16
Figure 4–9 Primary Gyratory Crusher Model Output – Oxide Duty 16

APPENDICES

Appendix A – Grinding Circuit Mass Balances 25

EXECUTIVE SUMMARY

Lycopodium Minerals requested Orway Mineral Consultants (WA) Pty Ltd (OMC) to assist with comminution modelling for the Doropo Gold Project, located in Cote d'Ivoire, West Africa. Lycopodium is preparing an updated DFS for Resolute Mining, who recently acquired the project from Anglogold Ashanti.

OMC previously completed report A046-01 Rev 0 which investigated the previously proposed PFS/DFS design SAG and ball mills (OMC Report 7557-01 Rev 3) for utilisation with Resolute Mining's mine schedule. Various annual feed blends based on fresh, transition and oxide ores (i.e.: year 1, 2, 3 and 4-14) were modelled at duty and maximum throughputs. This modelling highlighted issues with the grinding circuit being ball mill constrained as well as issues managing increasing stockpiled ore. Following on from this work, OMC issued memo A046-02 Rev 0 proposing two additional SAB/C grinding circuit design options based on 100% transition/oxide feed to overcome the ball mill constraint. This report details the modelling of fresh, transition and oxide ore processing through the 2 proposed crushing and grinding circuit options.

The 85th percentile ore characteristics for the fresh, transitional and oxide ore derived in OMC Report 7557-01 Rev 3 were utilised, separating the transitional and oxide ore into separate parameters. The SAB/C circuits were designed based on processing transition/oxide feed at 5.4 Mt/a for a P_{80} of 75 µm. The following design criteria and equipment were adopted for the modelling scenarios:

Parameter	Unit	Option 1	Option 2
Annual Throughput	Mt/a	5.4 (Transition/Oxide)	5.4 (Transition/Oxide)
Crushing Circuit Availability	%	80	80
Grinding Circuit Availability	%	91.3	91.3
Product Size, P_{80}	µm	75	75
Primary Crusher – Models		C150 / C160 / MK-III 42-65 / (MMD625)*	
– Motors	kW	200 / 250 / 450 / (260)	
SAG Mill – Size		Ø 8.53m x 5.05m EGL	Ø 9.75m x 5.26m EGL
– Motor & Drive		6,900kW, VSD Hi Speed	10,000kW, VSD Hi Speed
– Speed	% Nc	60 – 80	60 – 80
SAG Mill DC Screen – Size	m x m	2.4 x 7.3	3.0 x 7.3
– Aperture		12mm slots	12mm slots
Pebble Crusher – Model		HP350e	N/A
– Motor	kW	220	N/A
Ball Mill – Size		Ø 7.32m x 12.04m EGL	Ø 6.71m x 11.58m EGL
– Motor & Drive		12,300kW, VSD Lo Speed	10,000kW, VSD Lo Speed
– Speed	% Nc	60-80	60-80
Classification		2 x KC-QS48 Concentrators (with 2 x Gravity Screens) 11 (duty) x Cavex 500 CVX-160	2 x KC-QS48 Concentrators (with 2 x Gravity Screens) 11 (duty) x Cavex 500 CVX-160

*A primary crushing option is a jaw / sizer combination, with 100% transition/oxide or oxide only feed through a MMD625 mineral sizer.

The modelling indicates that the C150 primary crusher is marginal with a machine volumetric load of between 67 – 75% on the fresh feed, transition and oxide throughputs. 70% is typically targeted for design. For the C160 primary crusher, the modelling suggests for duty operation that the machine could be more suitable. For the sticky transition and oxide blocked vibrating grizzly scenarios, the jaw crushers become significantly volumetrically overloaded. This suggests that the C150 jaw crusher only just achieves the target throughputs for both options. Even on the fresh ore, the jaw is highly loaded. While both the C150 and C160 may potentially struggle during the wet season if the oxide materials handling characteristics is typical for the region. The throughput of +4 Mt/a nameplate is typically the capacity that clients start considering the use of a gyratory crusher. The gyratory option was modelled as a MK-III 42-65. An alternative option (depending on how sticky the oxide and transition ore is expected to be) in this case, may be a combination jaw crusher and MMD625 mineral sizer which could be considered to reduce risk.

Grinding circuit modelling was undertaken to assess the following:

- Option 1 SAB/C circuit for 5.4 Mt/a of transition and oxide ore, with fresh ore throughput determined
- Option 2 SAB/C circuit for 5.4 Mt/a of transition and oxide ore, with fresh ore throughput determined

A total of 7 models were undertaken for a grind size of P_{80} 75 µm; the outputs can be seen below.

		Option 1			Option 2			
Parameter	Unit	Fresh	Transition	Oxide	Fresh		Transition	Oxide
Feed Rate	Mt/a	4.5	5.4	5.4	4.9*	5.1	5.4	5.4
	t/h	557	675	675	615	635	675	675
Product Size, P_{80}	µm	75	75	75	75	75	75	75
Pebble Crushing/Recycle Rate	% Feed	29	13	13	7	10	6	6
	tph	160	90	86	44	63	43	41
Bleed-Back to SAG Mill	% of UF	0	0	13	8	10	15	39

*For Option 2, the fresh feed rate has been constrained to 4.9 Mt/a due to the limited volumetric capacity of the primary C150 jaw crusher.

SAB/C Circuit - Option 1

- For the SAB/C circuit power utilisation modelling, Option 1 can achieve the 5.4 Mt/a target for transition and oxide feeds only. However, due to higher oxide BWi values for Option 1, the circuit becomes ball mill limited. Hence, to maintain the required grind size and balance the power utilisation across the circuit, partial bleed-back of the cyclone underflow (CUF) stream to the SAG mill was required. An optimal percentage bleed-back of 13% for oxide only feed is required.
    - It should be noted that typically, the bleed-back rate is set and not adjusted continuously. The main aim of bleed-back streams is to achieve some cushioning of the breakage of coarse rock and to undertake additional slurry grinding.
- For the fresh feed, Option 1 can achieve a throughput of 4.5 Mt/a.

SAB/C Circuit - Option 2

- For the Option 2 circuit, the 5.4 Mt/a target is achievable for transition and oxide only feeds. Due to higher transition and oxide values for Option 2, the circuit also becomes ball mill limited. Option 2

would require bleed-back in all feed scenarios, with the bleed-back percentage reaching up to 39% in the instance of oxide only ore.

  - Slurry pooling has been identified in this scenario. This risk can be offset by the use of a high efficiency pulp lifter system, grate design, both combined with the operation of a potentially high ball charge. To enable operation of a higher ball charge, the SAG mill should be structurally designed with a ball charge around 4% higher than the modelled maximum.

- For the fresh feed, Option 2 has an uplift in the achievable throughput of 4.9 Mt/a (with crushing constraint) to 5.1 Mt/a, when compared to Option 1. The Option 2 fresh ore throughput is likely constrained by the volumetric capacity with use of the primary C150 jaw crusher.

  - In this instance of Option 2, the need for pebble crushing is not indicated but some bleed-back to optimise utilisations of both mills would be beneficial.

In order to achieve the maximised throughputs of 5.1 – 5.4 Mt/a across all ore types, Option 2 with either a 42-65 gyratory crusher or a C160 jaw crusher is recommended. If the oxide is expected to be very sticky, the MMD625 primary crushing combination is recommended. With high quantities of oxide / transition ore in year 1, problematic plant feed could impact ramp-up schedules severely.

Other Comments

- The modelling cyclone overflow (COF) density was unconstrained for the fine grind. Hence, a leach feed thickener is required in the circuit design.

- The gravity circuit was modelled with an assumed 90% feed rate capacity.

- Consumables estimate for power, wear liners and grinding media was conducted for both options. For Option 1, across the ore types, a total grinding circuit energy consumption is between 21.6 to 28.9 kWh/t, while for Option 2, it's between 21.4 to 28.4 kWh/t.

1.0 INTRODUCTION

Stephan Buys, General Manager – Process at Lycopodium Minerals requested Orway Mineral Consultants (WA) Pty Ltd (OMC) to assist with comminution modelling for the Doropo Gold Project, located in Cote d'Ivoire, West Africa. Lycopodium is preparing an updated DFS for Resolute Mining, who recently acquired the project from Anglogold Ashanti.

OMC previously performed modelling on the Doropo project (refer to OMC Report 7557-01 Rev 3 – February 2023 and Report 7777 Rev 0 – May 2024). For the previous evaluations, the modelling was based on processing 4 Mt/a fresh ore at a grind size P_{80} of 75 µm and oxide ore at 5.4 Mt/a at P_{80} of 106 µm grind.

More recently, OMC have completed report A046-01 Rev 0 and memo A046-02 Rev 0 which has led to proposed changes to the major equipment that are investigated in detail in this report. Report A046-01, investigated the previously proposed PFS/DFS design SAG and ball mills (OMC Report 7557-01 Rev 3) for utilisation with Resolute Mining's mine schedule. The SAB/C circuit including a Ø 8.53m x 5.05m EGL, 6.9MW single-pinion SAG mill and Ø 6.71m x 11.12m EGL, 9.0MW single-pinion ball mill. This design was based on separate treatment of fresh and transition/oxide ore, however, the mine plan indicated that separate treatment was not possible, and processing blends was required. Various annual feed blends based on fresh, transition and oxide ores (i.e.: year 1, 2, 3 and 4-14 based on the original schedule) were modelled at duty and maximum throughputs (to indicate the possible operating envelope) which highlighted issues with the grinding circuit being ball mill constrained., In addition to this issue, management of increasing quantities of stockpiled ore (both fresh and transition/oxide) with the proposed mine schedule, was also an issue.

Subsequently, an updated mine schedule was provided to OMC as outlined in Table 1–1. The latest schedule indicates 100% oxide / transition ore in year 1, which places more emphasis on understanding the materials handling characteristics of these ore types as it is critical in the ramp-up period.

Table 1–1 Original vs Updated Mine Schedule by Ore Type

	Original (OMC Report A046-01)		Updated	
Year	Transition / Oxide (%)	Fresh (%)	Transition / Oxide (%)	Fresh (%)
1	84	16	100	0
2	42	58	29	71
3	49	51	12	88
4	50	50	39	61
5	63	37	42	58
6	19	81	24	76
7	19	81	35	65
8	29	71	25	75
9	16	84	24	76
10	11	89	57	43
11	5	95	38	62
12	45	55	16	84
13	37	63	5	95
14	17	83	0	0

OMC memo A046-02 Rev 0 proposed two additional SAB/C grinding circuit designs based on 100% transition/oxide feed to overcome the fine grinding ball mill constraint. Taking this approach meant that any blend could be processed at the respective annual rates and the target grind size. Option 1 includes a Ø 8.53m x 5.05m EGL, 6.9MW single-pinion SAG mill and a Ø 7.32m x 12.04m EGL, 12.3MW dual-pinion ball mill with no requirement for bleed-back from the cyclone underflow (CUF) to the SAG mill. Option 2 includes a Ø 9.75m x 5.26m EGL, 10.0MW single-pinion SAG mill and Ø 6.71m x 11.58m EGL, 10.0MW single-pinion ball mill with 44% bleed-back to the SAG mill. This report details the modelling of fresh, transition and oxide ore feed through the 2 proposed crushing and grinding circuit options. The objectives are as follows:

- A brief review of the comminution testwork.
- Using OMC's proprietary power modelling programs, models of the two grinding circuit options will be built. Data from testwork and design criteria from OMC Report A046-01 Rev 0 are required to populate the models. Vendor crusher modelling package Bruno was utilised for the crushing equipment selection.
    - Note that only the two primary crushed SAB/C circuits will be considered in this option assessment. Equipment selection was previously based on transition/oxide ore and has now been modelled for fresh, transition and oxide ore.
- After the models were built, the circuits were simulated and optimised to produce mass balanced flowsheets, detailing throughput, circulating load and major equipment configurations for each ore type, totalling 7 simulations.
- An estimate of comminution consumables will be provided for each ore type for the primary crusher options and grinding circuit Option 1 and 2.

2.0 MODELLING DESIGN CRITERIA

2.1 Comminution Testwork

The derived ore characteristics previously utilised in OMC Report A046-01 Rev 0 are summarised in Table 2–1. The design ore parameters are derived from fresh, transition and oxide samples with the ore characteristics determined based on the 85th percentile specific energy requirement in SABC configuration for the datasets.

Table 2–1 85th Percentile Ore Characteristics

Parameter	Unit	Fresh	Transition	Oxide
Ai	g	0.2	0.116	0.242
CWi, (Average)	kWh/t	13.0	8.9	3.8
RWi	kWh/t	18.5	12.5	14.9
BWi	kWh/t	18.4	16.7	20.4
Ore SG		2.67	2.57	2.47
Axb		37.2	82.4	89.7

2.2 Process Design Criteria

The circuit options were designed based on processing 5.4 Mt/a transition/oxide ore, at a grind size P_{80} of 75 µm (as per OMC Memo A046-02). The process design criteria used in modelling fresh, transition and oxide ores are presented in Table 2–2, with the ore characteristics presented in Table 2–1 above. The design criteria are the same as those used in OMC Report A046-01.

Table 2–2 Process Design Criteria

Parameter	Unit	Fresh	Transition	Oxide	Source
Annual Throughput	Mt/a	TBC	5.4	5.4	*Client*
Crushing Circuit Availability	%	80	80	80	*Calculation*
Operating Hours	hours	7,000	7,000	7,000	*Client*
Crusher Throughput	t/h	TBC	771	771	*Calculation*
Grinding Circuit Availability	%	91.3	91.3	91.3	*Assumed*
Operating Hours	hours	8,000	8,000	8,000	*Calculation*
Grinding Throughput	t/h	TBC	675	675	*Calculation*
ROM Feed Size, F_{100}	mm	800*	800*	800*	*Assumed*
Product Size, P_{80}	µm	75	75	75	*Client*

*This is assuming the proposed installation of a 800mm static grizzly on the ROM.

3.0 GRINDING CIRCUIT MODELLING

The grinding circuits were modelled using OMC's proprietary power modelling software, using the design criteria in Table 2–2. Based on the design power model suitable SAG and ball mills were sized based on 5.4 Mt/a transition/oxide ore, from which 2 options were derived (as per OMC memo A046-02 Rev 0), as follows:

- Option 1: SAB/C circuit; consisting of Ø 8.53m x 5.05m EGL, 6.9MW single-pinion SAG mill and Ø 7.32m x 12.04m EGL, 12.3MW dual-pinion ball mill.

Option 2: SAB/C circuit; consisting of Ø 9.75m x 5.26m EGL, 10.0MW single-pinion SAG mill and Ø 6.71m x 11.58m EGL, 10.0MW single-pinion ball mill.

The duty power utilisation and associated throughputs at a P_{80} 75 µm for fresh, transition and oxide feed are presented in Table 3–1. The associated operating conditions were determined for the grind size, which are presented in Table 3–2 and Table 3–3, respectively.

Table 3–1 Mill Power Utilisation

		Option 1			Option 2			
Parameter	Unit	Fresh	Transition	Oxide	Fresh		Transition	Oxide
CWi	kWh/t	13.0	8.9	3.8	13.0	13.0	8.9	3.8
RWi	kWh/t	18.5	12.5	14.9	18.5	18.5	12.5	14.9
BWi	kWh/t	18.4	16.7	20.4	18.4	18.4	16.7	20.4
Axb		37.2	82.4	89.7	37.2	37.2	82.4	89.7
Ore SG		2.67	2.57	2.47	2.67	2.67	2.57	2.47
Feed Rate	Mt/a	4.5	5.4	5.4	4.9*	5.1	5.4	5.4
	t/h	557	675	675	615	635	675	675
Product Size, P_{80}	µm	75	75	75	75	75	75	75
Pebble Crushing/Recycle Rate	% Feed	29	13	13	7	10	6	6
	tph	160	90	86	44	63	43	41
Bleed-Back to SAG Mill	% of UF	0	0	13	8	10	15	39
SAG Mill Specific Energy	kWh/t	9.5	6.0	6.1	12.3	12.5	6.7	9.4
Ball Mill Specific Energy	kWh/t	16.1	13.2	15.7	13.6	13.4	12.6	12.7
Pebble Crusher Specific Energy	kWh/t	0.4	-	-	-	-	-	-
Total Specific Energy	kWh/t	25.8	19.2	21.8	25.9	25.9	19.2	22.1
SAG Mill Pinion Power	kW	5,303	4,038	4,146	7,551	7,961	4,497	6,336
Ball Mill Pinion Power	kW	8,986	8,909	10,566	8,376	8,483	8,479	8,548

*For Option 2, a fresh feed rate has been constrained to 4.9 Mt/a due to the limited volumetric capacity of the primary C150 jaw crusher.

For the SAB/C circuit power utilisation modelling, Option 1 and 2 can achieve the 5.4 Mt/a target for transition and oxide feeds. While the target throughputs are achievable, the high transition and oxide BWi values results in Option 1 becoming ball mill limited for oxide ore, and Option 2 for transition and oxide ore. To maintain the

required grind size and balance the power utilisation across the circuit, partial bleed-back of the cyclone underflow (CUF) stream to the SAG mill is recommended. The bleed-back should be designed so it can provide the optimal power balance, as per Table 3–1

Option 1 requires a bleed-back in the oxide case, while Option 2 is predicted to benefit from bleed-back in all feed scenarios, with a bleed-back percentage reaching up to 39% predicted for the oxide ore. Typically, the bleed rate is set and in not adjusted continuously. The main aim is to achieve some cushioning of the breakage of coarse rock and to undertake additional slurry grinding. The slurry amount for slurry grinding is less important as the circuit become self-balancing. If you send more to the SAG mill, that slurry is ground less but because you then sent less slurry to the ball mill, that slurry is ground more and vice versa.

For the fresh feed, Option 2 has an uplifted throughput of 4.9 Mt/a (with C150 primary crusher) to 5.1 Mt/a compared to Option 1 at only 4.5 Mt/a. In the instance of Option 2, the fresh scenario, the need for pebble crushing is not indicated and in fact some bleed-back to optimise utilisations of both mills could be beneficial.

In the bleed-back cases, a slurry pool may develop which may reduce power draw. The slurry pool is in fact beneficial in some ways as it reduces coarse rock breakage, providing more autogenous media, while the loss in power is not excessive. This is typically overcome by operating at a higher ball charge, if the mill is structurally capable. To facilitate this capability, the mill should be structurally designed at a ball charge, 3 to 4% higher than the normal operating conditions for the nominated process ball charge. In this case the maximum process ball charge is 16% and therefore the structural design should be based on 19-20% ball charge. Ensuring there is sufficient discharge capacity in the grate configuration is also important to maintain suitable conditions in the mill. To achieve this a high efficiency pulp lifter system like turbo pulp lifters (TPLs) are typically installed.

It should be noted that pebble crushing is not required in the presence of oxide/transition ore in both cases. The SAG mill in both cases would be commissioned without any pebble ports. Furthermore, pebble crushing is not indicated to be required for treating fresh ore for Option 2. OMC always recommend that a pebble crushing circuit design and space be provided to meet changes for the future requirements but could be deferred in the case of Option 2 with only low height recycle conveyors installed, particularly given the high portion of oxide planned to be treated during the first 5 years of the project.

The pebble rate in SAB configuration is related to the relationship between mill grate aperture size and that of the discharge screen and can be managed to a degree. As starting point for design OMC typically suggest that recycle conveyors in SAB configuration be designed for a minimum 10% pebble recycle. However, as the SAG mill has the potential for future pebble crushing, it is recommended that it be designed based on the maximum pebble rate.

For each option, three operating sets of conditions for the SAG and ball mills were modelled to determine the conditions needed to draw the duty pinion powers (Table 3–2, Table 3–3). The associated SAB/C circuit mass balances for the fresh, transition and oxide feed through each design option are presented in Appendix A.

Table 3–2 SAG Mill Equipment Specifications

		Option 1			Option 2			
Parameter	Unit	Fresh	Transition	Oxide	Fresh		Transition	Oxide
Throughput	Mt/a	4.5	5.4	5.4	4.9	5.1	5.4	5.4
Number of Mills	qty	1	1	1	1	1	1	1
Mill Diameter (Inside Shell)	m	8.53	8.53	8.53	9.75	9.75	9.75	9.75
Effective Grinding Length (EGL)	m	5.05	5.05	5.05	5.26	5.26	5.26	5.26
Imperial	ft x ft	28 x 16.6	28 x 16.6	28 x 16.6	32 x 17.2	32 x 17.2	32 x 17.2	32 x 17.2
L : D Ratio		0.59	0.59	0.59	0.54	0.54	0.54	0.54
Discharge Configuration		Grate	Grate	Grate	Grate	Grate	Grate	Grate
Grinding Media Size	mm	125	125	125	125	125	125	125
New Liner Thickness	mm	100	100	100	100	100	100	100
Mill Speed	%Nc	75	65	65	75	75	60	60
	rpm	11.0	9.5	9.5	10.3	10.3	8.2	8.3
	Max %Nc	80	80	80	78	78	79	80
Ball Charge - Duty	%Vol	11	8	9	11	12	6	14
- Max	%Vol	14	14	14	16	16	16	16
Total Load - Duty	%Vol	25	25	25	25	25	19	19
- Max	%Vol	35	35	35	35	35	35	35
Pinion Power - Duty	kW	5,303	4,038	4,147	7,559	7,961	4,497	6,336
- Max	kW	6,167	5,267	5,189	9,428	9,428	7,444	7,406
- Max @ 80% Nc	kW	6,578	6,483	6,386	9,805	9,805	9,801	9,793
Motor Power Output - Duty	kW	5,545	4,222	4,336	7,666	8,074	4,561	6,426
- Max	kW	6,448	5,507	5,425	9,562	9,562	7,550	7,511
- Max @ 80% Nc	kW	6,878	6,778	6,677	9,944	9,944	9,940	9,932
Motor Type		VSD Hi Speed	VSD Hi Speed	VSD Hi Speed	VSD Lo Speed	VSD Lo Speed	VSD Lo Speed	VSD Lo Speed
Selected Motor Size	kW	6,900	6,900	6,900	10,000	10,000	10,000	10,000

Table 3–3 Ball Mill Equipment Specifications

		Option 1			Option 2			
Parameter	Unit	Fresh	Transition	Oxide	Fresh		Transition	Oxide
Throughput	Mt/a	4.5	5.4	5.4	4.9	5.1	5.4	5.4
Number of Mills	qty	1	1	1	1	1	1	1
Mill Diameter (Inside Shell)	m	7.32	7.32	7.32	6.71	6.71	6.71	6.71
Effective Grinding Length (EGL)	m	12.04	12.04	12.04	11.58	11.58	11.58	11.58
Imperial	ft x ft	24 x 39.5	24 x 39.5	24 x 39.5	22 x 38	22 x 38	22 x 38	22 x 38
L : D Ratio		1.64	1.64	1.64	1.73	1.73	1.73	1.73
Discharge Configuration		Overflow	Overflow	Overflow	Overflow	Overflow	Overflow	Overflow
Grinding Media Size	mm	50	50	50	80	80	50	50
Liner Thickness	mm	100	100	100	100	100	100	100
Mill Speed	%Nc	65	70	75	75	75	75	75
	rpm	10.3	11.1	11.9	12.4	12.4	12.4	12.4
	Max %Nc	78	78	78	78	78	78	78
Ball Charge - Duty	%Vol	29	25	29	29	30	30	30
- Max	%Vol	34	34	34	34	34	34	34
Pinion Power - Duty	kW	8,972	8,909	10,566	8,380	8,483	8,479	8,548
- Max	kW	10,102	10,881	11,655	9,345	9,345	9,326	9,307
Motor Power Output - Duty	kW	9,100	9,035	10,716	8,499	8,604	8,600	8,670
- Max	kW	10,245	11,035	11,821	9,478	9,478	9,459	9,439
Motor Type		VSD Lo Speed	VSD Lo Speed	VSD Lo Speed	VSD Lo Speed	VSD Lo Speed	VSD Lo Speed	VSD Lo Speed
Selected Motor Size	kW	12,300	12,300	12,300	10,000	10,000	10,000	10,000

For the Option 1 circuit scenarios, the SAG mill is operated with a ball charge of between 8-11% and a consistent total load of 25% at 65–75% Nc. For Option 2, the SAG mill is operated with a ball charge of between 6-14% and a total load of 19-25% at 60–75% Nc. For transition ore fed through Option 2, the SAG mill is notably underutilised with a ball charge of 6% and speed of 60% Nc.

For the Option 1 circuit scenarios, the ball mill is operated with a ball charge of between 25-29% at 65–75% Nc. For Option 2, the SAG mill is operated with a consistent ball charge of 29-30% at 75% Nc.

The SAG mill discharge screen in Option 1 is sized for the pebble oversize rate to assure clean pebbles are presented to the pebble crusher. Based on the drainage rate in the oxide case, a smaller screen could be used. The larger screen area will also allow use of smaller screen apertures, if beneficial for optimisation.

In Option 2, a larger screen is sized for the potential pebble extraction if the SAG mill was fully ported, circa 300 t/h. A 3.0 m wide screen would be the minimum width for this duty. It should be noted that the 3.05 m W x 6.1 m L SAG mill discharge screen proposed for Nyanzaga (OMC Report 7897 Rev 0) was investigated, and while it has not been recommended as the screen was predicted to be close to the duty upper limit for oxide feed; for the blended feed in the mine schedule, it could be considered and investigated further. The recommended, larger 3.0 m W x 7.3 m L screen would allow for more operational flexibility.

Table 3–4 SAG Mill Discharge Screen Specifications

Parameter	Unit	Option 1			Option 2		
		Fresh	Transition	Oxide	Fresh	Transition	Oxide
Number of Screens		1			1		
Width	m	2.4			3.0		
Length	m	7.3			7.3		
Aperture Size	mm	12 mm slots			12 mm Slots		

The pebble crusher for Option 1 was modelled using Metso Bruno© software presented in Figure 3–1 with equipment specifications in

Table 3–5. A HP350e cone crusher or equivalent was selected based on a fresh feed; however, pebble crushing will not be required for processing with feed containing significant transition/oxide ore (due to ball milling constraints).

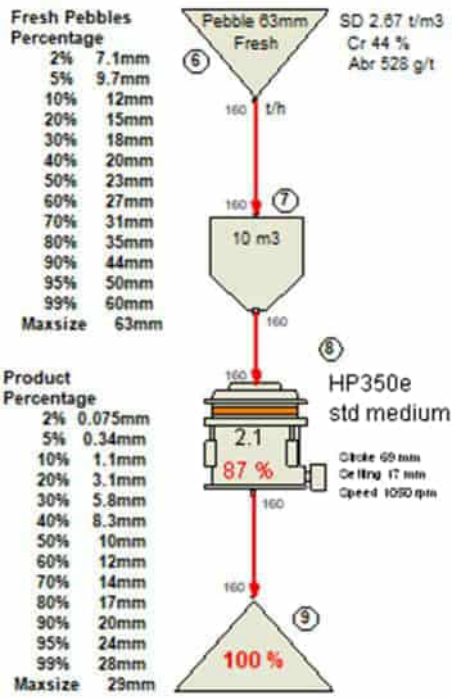


Figure 3–1 Pebble Crusher Model Output – Fresh Option 1

Table 3–5 Pebble Crusher Specification

Parameter	Unit	Fresh
		Option 1
Crusher Model		HP350e or equivalent
Number Required	qty	1
Closed Side Set	mm	17
Volumetric Loading	%	87
Power Required – Per Unit	kW	66
Installed Power – Per Unit	kW	220

As discussed, the pebble crushing circuit can be deferred in Option 2. However, the mill has the potential for extracting circa 300 t/h of pebbles. Ideally in this case and it is the recommendation that 2 off HP350e pebble crushers (configured to be able to operate as duty / stand-by or as duty / duty) would be designed to provide flexibility and would then be deferred, with simple scats recycle belts installed instead. Alternatively, a single cone crusher in the range of a HP600e could be utilised.

For the duty throughput modelling, the cyclone overflow (COF) density was unconstrained. For gold leaching, a leach feed thickener may be required to increase the leaching density. Suitable cyclones for all ore scenarios are presented in Table 3–6. It should be noted that a maximum of 11 duty cyclones is required for Option 1 and 2.

Table 3–6 Hydrocyclone Equipment Specification

		Option 1			Option 2			
Parameter	Unit	Fresh	Transition	Oxide	Fresh		Transition	Oxide
Throughput	Mt/a	4.5	5.4	5.4	4.9	5.1	5.4	5.4
Make		Cavex	Cavex	Cavex	Cavex	Cavex	Cavex	Cavex
Model		500 CVX-160	500 CVX-160	500 CVX-160	500 CVX-160	500 CVX-160	500 CVX-160	500 CVX-160
Number of Cyclones - Duty	qty	9	11	11	10	10	11	11
Cyclone Diameter	mm	500	500	500	500	500	500	500
Op. Pressure	kPa	110	110	110	110	110	110	110
Vortex Finder	mm	185	185	185	185	185	185	185
Spigot	mm	140	140	140	140	140	140	140
Cyclone Feed Density	%solids	53	53	53	53	53	53	53
Cyclone Overflow Density	%solids	29	29	29	29	29	29	29
Circulating Load at Cyclones	%	286	285	280	289	277	285	280
Circulating Load at Ball Mill	%	286	285	244	264	248	244	170

The gravity circuit was modelled with 2 x Knelson KC-QS48 and 2 x gravity screens, which are fed from the SAG mill discharge hopper by a single separate pump. The screen oversize and gravity tails are then directed back to the SAG mill discharge hopper. The gravity circuit is fed at 90% capacity of the two gravity concentrators (i.e.: 400 tph x 90% = 720 tph). The gravity concentrator specifications can be seen below in Table 3–7.

Table 3–7 Gravity Concentrator Equipment Specifications

Parameter	Unit	Fresh (Design)
Manufacturer		Knelson
Model		KC-QS48
Number Installed	qty	2
Modelled Capacity (per unit)	t/h	360
Maximum Capacity (per unit)	t/h	400

4.0 CRUSHING CIRCUIT MODELLING

Based on the throughputs determined in the grinding circuit modelling, the primary crushing circuit was modelled using Metso's Bruno© software. The fresh, transition and oxide ores were initially modelled through C150 and C160 jaw crushers which are presented in Figure 4–1 to Figure 4–6, with equipment specifications in Table 4–1.

It should be noted that the client has indicated that the actual ROM feed may reach up to <1,200mm, however, a <800 mm ROM size distribution has been assumed for this modelling in consideration of an 800 mm static grizzly and rock breaker having been proposed in the crushing circuit. Consideration should be given to the rehandling the oversize material. The circuit modelling also assumes that top size through the static grizzly is 800 mm; while in reality >800 mm slabby material, if orientated correctly, could pass through to the vibrating grizzly feeder and hence, mitigations should be considered.

It is important to understand the materials handling nature of the transition/oxide ore in the wet season, as it may be sticky and give rise to issues processing with a jaw crusher. Figure 4–2, Figure 4–3, Figure 4–5 and Figure 4–6 also show the instances in which the vibrating feeder becomes blinded with sticky ore and 100% of the ore reports to the crusher. The jaw CSS would be opened up in this scenario but even then the jaw crusher would struggle to maintain throughput. A separate primary sizer could be considered for instances in which 100% transition/oxide or oxide only is feed during campaign feeding.

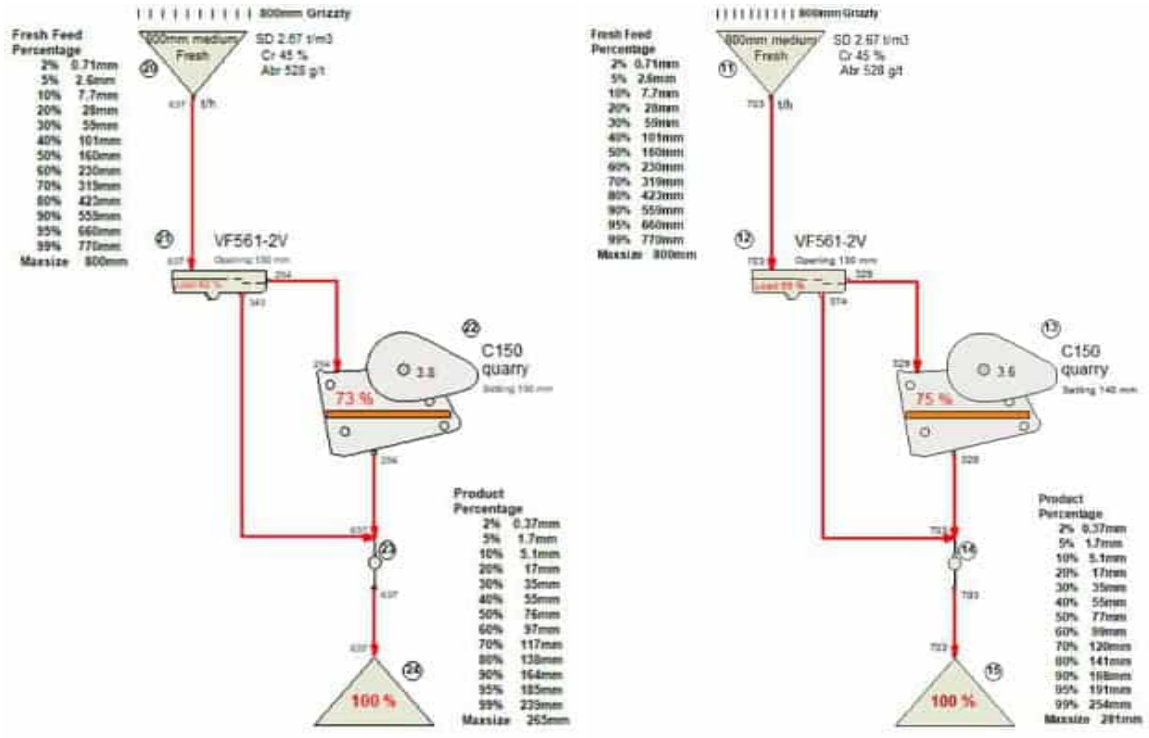


Figure 4–1 Primary C150 Jaw Crusher Model Output – Fresh Option 1 (left) and Option 2 (right)

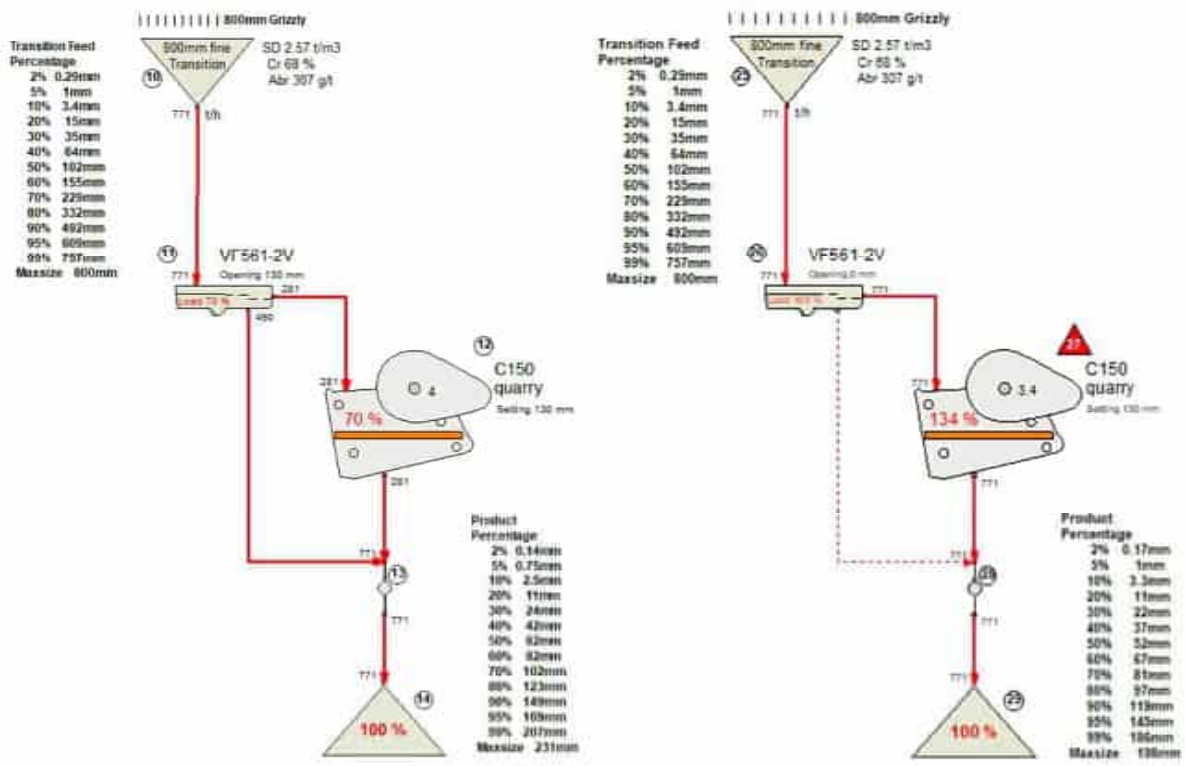


Figure 4–2 Primary C150 Jaw Crusher Model Output – Transition Duty (left) and Sticky Ore (right)

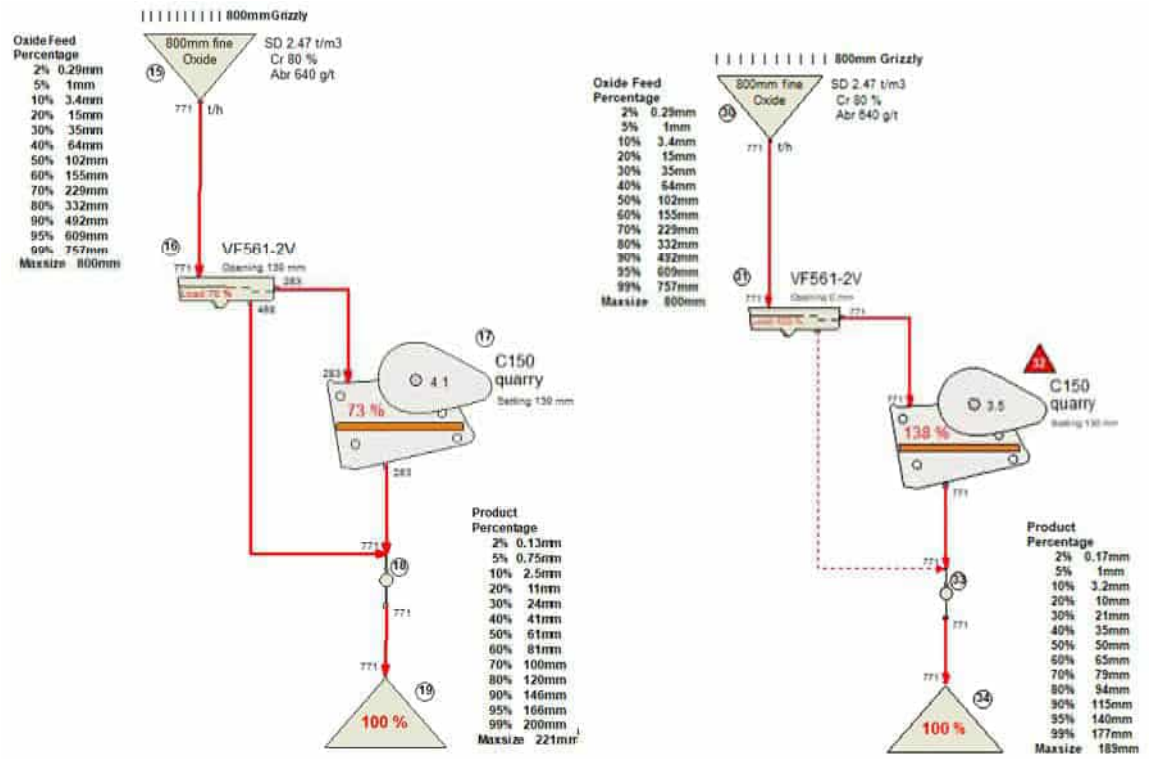


Figure 4–3 Primary C150 Jaw Crusher Model Output – Oxide Duty (left) and Sticky Ore (right)

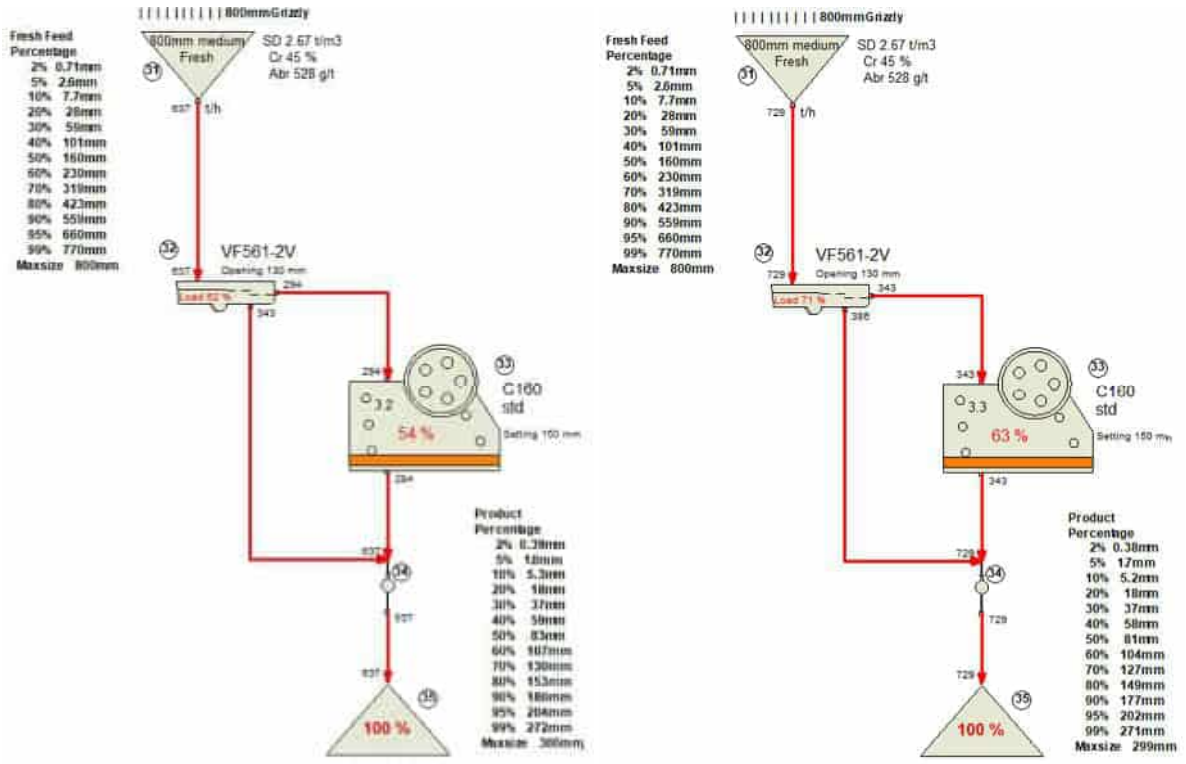


Figure 4–4 Primary C160 Jaw Crusher Model Output – Fresh Option 1 (left) and Option 2 (right)

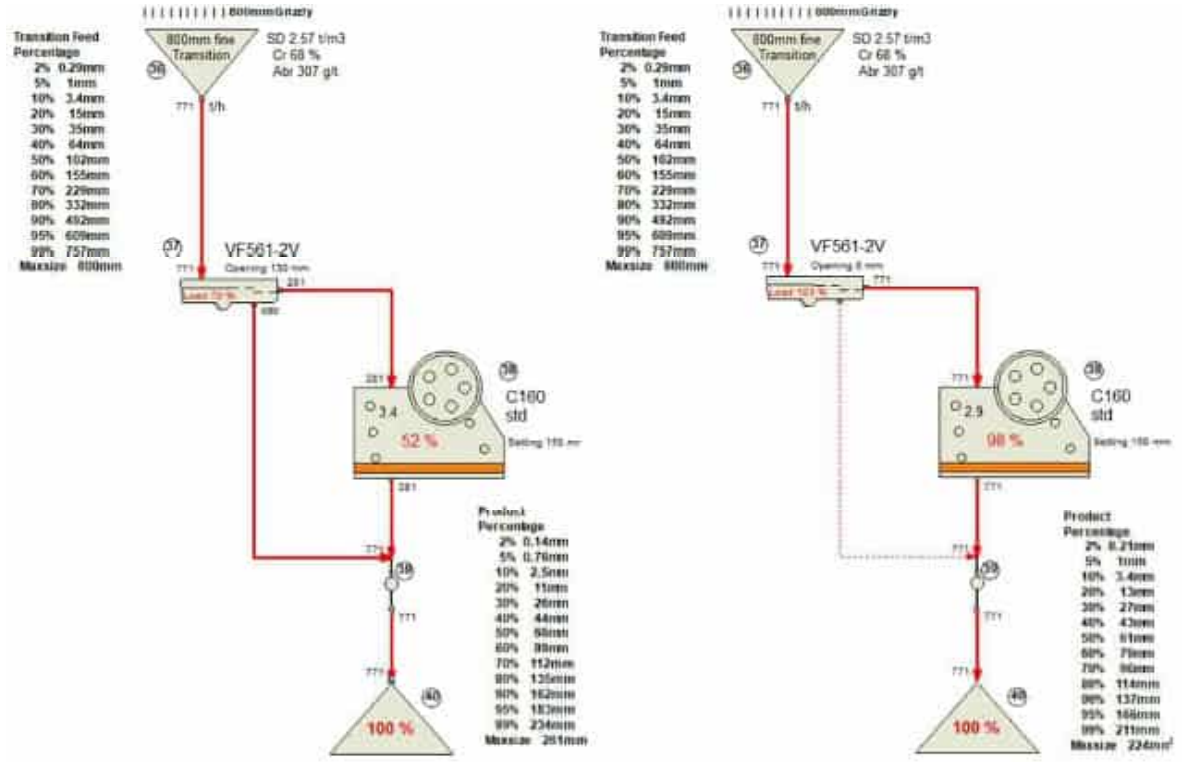


Figure 4–5 Primary C160 Jaw Crusher Model Output – Transition Duty (left) and Sticky Ore (right)

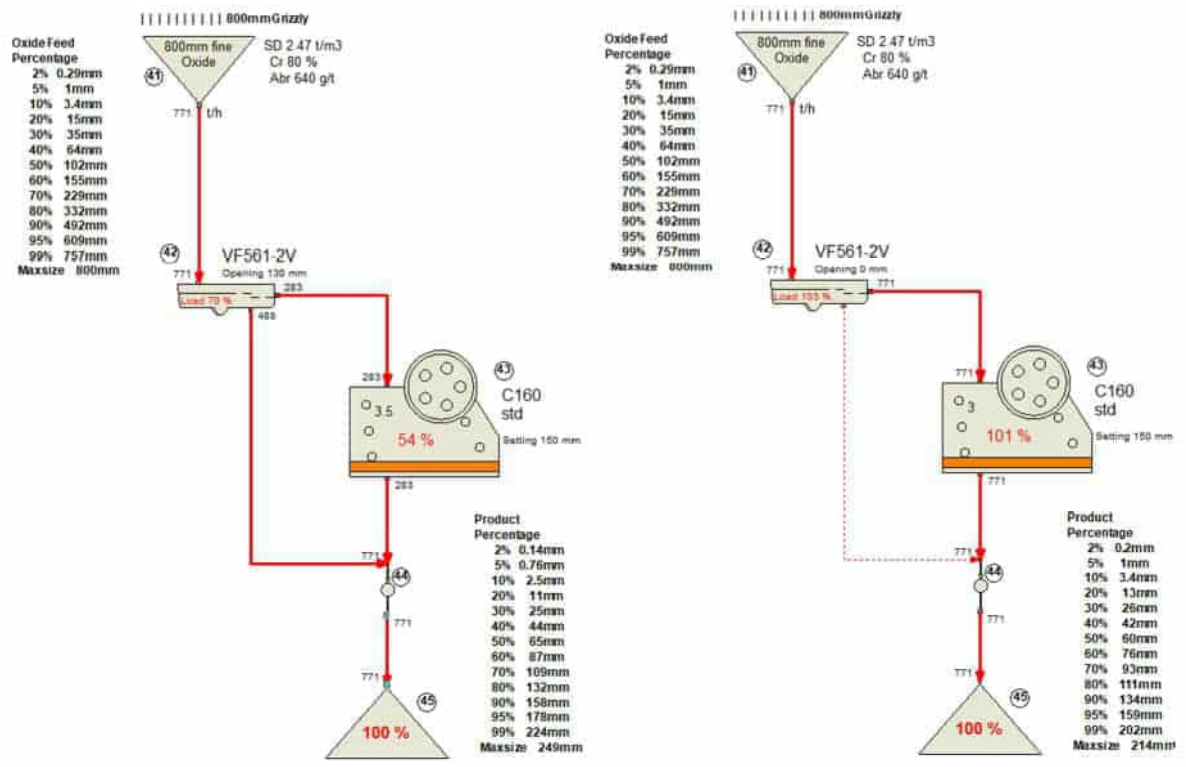


Figure 4–6 Primary Jaw Crusher Model Output – Oxide Duty (left) and Sticky Ore (right)

Table 4–1 Primary Jaw Crusher Specifications – C150 and C160

Parameter	Unit	Fresh		Transition	Oxide
		Option 1	Option 2	Option 1 & 2	Option 1 & 2
C150 or equivalent					
Throughput	Mt/a	4.5	4.9	5.4	5.4
	t/h	637	703	771	771
Number Required	qty	1	1	1	1
Closed Side Set	mm	130	140	130	130
Volumetric Loading	%	73	75	70	73
Power Required – Per Unit	kW	74	77	60	41
Installed Power – Per Unit	kW	200	200	200	200
C160 or equivalent					
Throughput	Mt/a	4.5	5.1	5.4	5.4
	t/h	637	729	771	771
Number Required	qty	1	1	1	1
Closed Side Set	mm	150	150	150	150
Volumetric Loading	%	54	63	52	54
Power Required – Per Unit	kW	73	81	61	45
Installed Power – Per Unit	kW	250	250	250	250

The modelling indicates that the C150 primary crusher is marginal with a machine volumetric load of between 67 – 75% on the fresh feed, transition and oxide throughputs. 70% is typically targeted for design. For the C160 primary crusher, the modelling suggests for duty operation that the machine is more suitable with between 52 – 63% volumetric load.

For the sticky transition and oxide blocked vibrating grizzly scenarios, the jaw crushers become significantly volumetrically overloaded. Opening the crusher gap setting would partially offset this but would result in an increased grinding circuit feed PSD. This suggests that the C150 jaw crusher only just achieves the target throughputs for all duty scenarios. Even on the fresh ore, the jaw is highly loaded and the C150 and C160 may potentially struggle during the wet season with sticky ore.

The throughput of +4 Mt/a nameplate is typically about the capacity that clients start considering the use of a gyratory crusher. The fresh, transition and oxide ore have been modelled through a gyratory crusher which is presented in Figure 4–7 to Figure 4–9Figure 4–3, with equipment specifications in Table 4–2. A Superior MK-III 42-65 gyratory crusher or equivalent was selected for the fresh, transition and oxide feed, with notable volumetric capacity available.

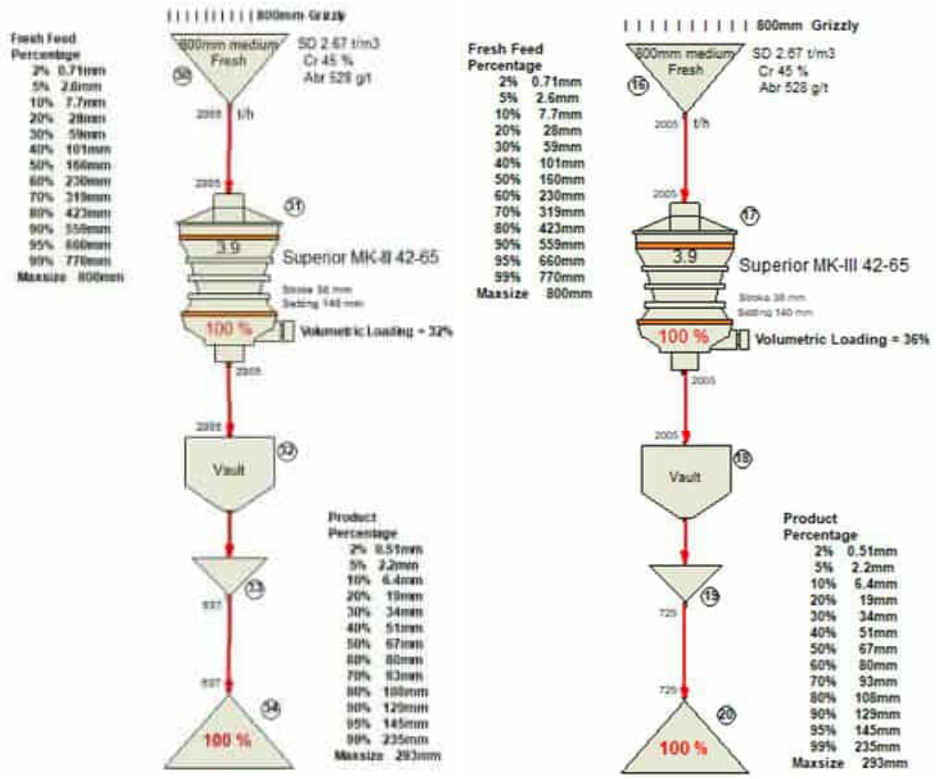


Figure 4–7 Primary Gyratory Crusher Model Output – Fresh Option 1 (left) and Option 2 (right)

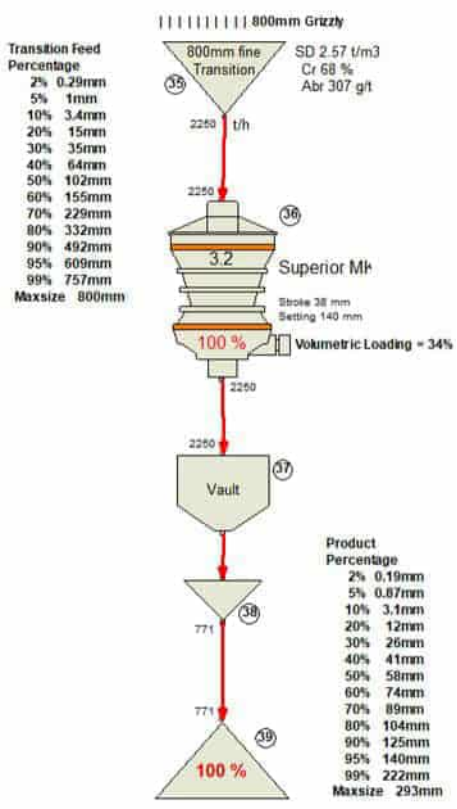


Figure 4–8 Primary Gyratory Crusher Model Output – Transition Duty

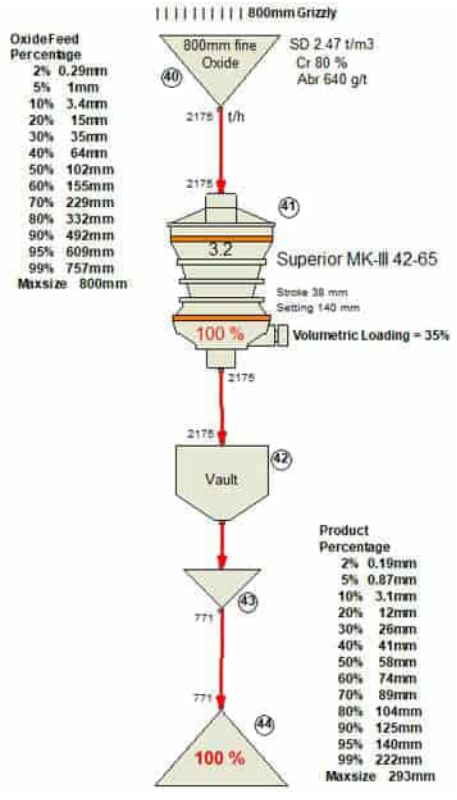


Figure 4–9 Primary Gyratory Crusher Model Output – Oxide Duty

Table 4–2 Primary Gyratory Crusher Specifications

Parameter	Unit	Fresh		Transition	Oxide
		Option 1	Option 2	Option 1 & 2	Option 1 & 2
MK-III 42-65 or equivalent					
Throughput	Mt/a	4.5	5.1	5.4	5.4
	t/h	637	729	771	771
Number Required	qty	1	1	1	1
Closed Side Set	mm	140	140	140	140
Volumetric Loading	%	32	36	34	35
Power Required – Per Unit	kW	183	201	152	99
Installed Power – Per Unit	kW	450	450	450	450

The modelling indicates that the MK-III 42-65 gyratory crusher would be underutilised with a machine volumetric load of between 32 – 36%. The available volumetric capacity may assist in navigating varying operating conditions. In the wet season if the transition/oxide ore becomes sticky, the gyratory crusher may still give rise to throughput issues. One advantage of a gyratory crusher is dealing with slabby and slightly bigger top-size ore. It is not known if the Doropo ore is as slabby in nature as other operations in the area.

For sticky ore, a combination jaw / sizer is recommended to reduce risk for instances in which 100% transition/oxide or oxide only is fed during campaign feeding periods (Year 1 in the updated mine schedule). A MMD 625 series mineral sizer was selected for the duty transition and oxide ore. Table 4–3 below details the specifications of the primary sizer.

Table 4–3 Primary Sizer Specifications

Parameter	Unit	Transition/Oxide
		Option 1 & 2
Number Required	qty	1
Crusher Make		MMD
Crusher Model		625
Installed Power	kW	260
Feed Top Size	mm	800
Product Top Size	mm	200 – 250
Maximum Throughput	t/h	771

It should be noted that the crusher model, including optimal grizzly spacing (for maintaining feed top size), as well as teeth and row configuration should be confirmed/determined in line with manufacturer recommendations to ensure suitability and optimal grip of the ore. The selected mineral sizer should be capable of reducing the ore from an 800mm top size down to a product top size of approximately 200 – 250mm, consistent with the primary jaw crusher operation. The mineral sizer product conveyor should also be positioned such that it can be fed directly to a SAG mill feed stockpile or conveyor.

5.0 CONSUMABLES

Brief consumable estimates for the crushing circuit, including the C150, C160 and MK-III 42-65 crusher options and the grinding circuit Option 1 and 2 with fresh, transition and oxide throughput scenarios are show below in Table 5–1 and Table 5–2, for all major equipment.

The following notes apply to the consumable estimates provided:

- Crusher power estimates include an allowance of 13% of the installed power for no-load power.
- Mill liner estimates exclude wastage, which could account for as much as 30% of the original liner weight. Adjustments to wear life should be made in consultation with the mill liner suppliers for composite liners.
- The liner consumption estimates provided are for steel liners only.
- The consumption rates given are representative of good quality forged steel balls sourced from a reputable supplier.
- Grinding power consumption are based on specific energy predictions using the average of available testwork, which differs from the 85th percentile specific energy predictions used in power modelling. These values are inclusive of power losses through transformers, variable speed drives, drive trains and motors.

Table 5–1 Crushing Circuit Consumables Estimate

		Fresh						Transition		Oxide	
Equipment	Unit	Consumables									
Throughput	Mt/a	4.5		4.9		5.1		5.4		5.4	
C150 Primary Jaw											
Fixed Jaw Consumption	kg/t milled	0.016	7.7 Set/yr	0.018	9.4 Set/yr	0.018	9.7 Set/yr	0.015	8.8 Set/yr	0.023	13.1 Set/yr
Moving Jaw Consumption	kg/t milled	0.009	5.2 Set/yr	0.010	6.4 Set/yr	0.010	6.6 Set/yr	0.009	5.9 Set/yr	0.013	8.8 Set/yr
Gross Power	kWh/t	0.27		0.28		0.28		0.30		0.16	
Crushing Auxiliary Specific Energy	kWh/t	1.0		1.0		1.0		1.0		1.0	
Crushing Circuit Energy Consumption	kWh/t	1.3		1.3		1.3		1.3		1.2	
C160 Primary Jaw											
Fixed Jaw Consumption	kg/t milled	0.020	6.6 Set/yr	N/A		0.020	7.5 Set/yr	0.015	6.1 Set/yr	0.022	9.1 Set/yr
Moving Jaw Consumption	kg/t milled	0.012	4.9 Set/yr			0.012	5.6 Set/yr	0.009	4.5 Set/yr	0.013	6.7Set/yr
Gross Power	kWh/t	0.28				0.28		0.29		0.13	
Crushing Auxiliary Specific Energy	kWh/t	1.0				1.0		1.0		1.0	
Crushing Circuit Energy Consumption	kWh/t	1.3				1.3		1.3		1.2	
MK-III 42-65 Primary Gyratory											
Mantle Consumption	kg/t milled	0.005	1.9 Set/yr	N/A		0.005	2.2 Set/yr	0.003	1.8 Set/yr	0.005	2.7 Set/yr
Concave Consumption	kg/t milled	0.003	1.3 Set/yr			0.003	1.5 Set/yr	0.003	1.2 Set/yr	0.004	1.8 Set/yr
Gross Power	kWh/t	0.34				0.33		0.33		0.19	
Crushing Auxiliary Specific Energy	kWh/t	1.0				1.0		1.0		1.0	
Crushing Circuit Energy Consumption	kWh/t	1.3				1.3		1.3		1.2	

Table 5–2 Grinding Circuit Consumables Estimate – Option 1 and 2

		Fresh				Transition		Oxide	
Equipment	Unit	Consumables							
Option 1									
Throughput	Mt/a	4.5				5.4		5.4	
Pebble Crusher									
Liner Consumption	kg/t milled	0.012		12.5 Set/yr		N/A	N/A	N/A	N/A
Gross Power	kWh/t	0.18				N/A		N/A	
SAG Mill									
125mm Ball Consumption	kg/t milled	0.374				0.140		0.214	
Steel Liner Consumption	kg/t milled	0.068				0.035		0.046	
Gross Power	kWh/t	10.6				6.6		6.8	
Ball Mill									
50mm Ball Consumption	kg/t milled	0.868				0.577		0.902	
Steel Liner Consumption	kg/t milled	0.057				0.039		0.059	
Gross Power	kWh/t	17.1				13.9		16.5	
Milling Auxiliary Specific Energy	kWh/t	1.0				1.1		1.1	
Grinding Circuit Energy Consumption	kWh/t	28.9				21.6		24.4	
Option 2									
Throughput	Mt/a	4.9		5.1		5.4		5.4	
Pebble Crusher									
Liner Consumption	kg/t milled	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gross Power	kWh/t	N/A		N/A		N/A		N/A	
SAG Mill									
125mm Ball Consumption	kg/t milled	0.461		0.539		0.120		0.432	
Steel Liner Consumption	kg/t milled	0.087		0.089		0.040		0.071	
Gross Power	kWh/t	13.0		13.3		7.0		9.9	
Ball Mill									
50mm Ball Consumption	kg/t milled	0.732		0.719		0.550		0.730	
Steel Liner Consumption	kg/t milled	0.048		0.048		0.037		0.048	
Gross Power	kWh/t	14.4		14.1		13.3		13.4	
Milling Auxiliary Specific Energy	kWh/t	1.1		1.0		1.1		1.2	
Grinding Circuit Energy Consumption	kWh/t	28.5		28.4		21.4		24.5	

6.0 CONCLUSIONS AND RECOMMENDATIONS

Lycopodium Minerals requested Orway Mineral Consultants (WA) Pty Ltd (OMC) to assist with comminution modelling for the Doropo Gold Project, located in Cote d'Ivoire, West Africa. Lycopodium is preparing an updated DFS for Resolute Mining, who recently acquired the project from Anglogold Ashanti.

Recently, OMC completed memo A046-02 which proposed two new SAB/C grinding circuit designs based on 100% transition/oxide feed to overcome the identified fine grinding ball mill constraint with the PFS/DFS design. This report details the modelling of fresh, transition and oxide ore feed through the 2 proposed crushing and grinding circuit options. The 85th percentile ore characteristics for the fresh, transitional and oxide ore derived in OMC Report 7557-01 Rev 3 were utilised, with the addition of separating the transitional and oxide ore samples into separate parameters.

The SAB/C circuits were designed based on processing transition/oxide feed at 5.4 Mt/a for a P_{80} of 75 µm. The design criteria and equipment adopted for the modelling scenarios are presented in Table 6–1.

Table 6–1 Design Criteria and Equipment – Option 1 and 2

Parameter	Unit	Option 1	Option 2
Annual Throughput	Mt/a	5.4 (Transition/Oxide)	5.4 (Transition/Oxide)
Crushing Circuit Availability	%	80	80
Grinding Circuit Availability	%	91.3	91.3
Product Size, P_{80}	µm	75	75
Primary Crushers – Models		C150 / C160 / MK-III 42-65 / (MMD625)*	
– Motors	kW	200 / 250 / 450 / (260)	
SAG Mill – Size		Ø 8.53m x 5.05m EGL	Ø 9.75m x 5.26m EGL
– Motor & Drive		6,900kW, VSD Hi Speed	10,000kW, VSD Hi Speed
– Speed	% Nc	60 – 80	60 – 80
SAG Mill DC Screen – Size	m x m	2.4 x 7.3	3.0 x 7.3
– Aperture		12mm slots	12mm slots
Pebble Crusher – Model		HP350e	N/A
– Motor	kW	220	N/A
Ball Mill – Size		Ø 7.32m x 12.04m EGL	Ø 6.71m x 11.58m EGL
– Motor & Drive		12,300kW, VSD Lo Speed	10,000kW, VSD Lo Speed
– Speed	% Nc	60-80	60-80
Classification		2 x KC-QS48 Concentrators (with 2 x Gravity Screens) 11 (duty) x Cavex 500 CVX-160	2 x KC-QS48 Concentrators (with 2 x Gravity Screens) 11 (duty) x Cavex 500 CVX-160

*A primary crushing option is a jaw / sizer combination, with 100% transition/oxide or oxide only feed through a MMD625 mineral sizer.

The modelling indicates that the C150 primary crusher is marginal with a machine volumetric load of between 67 – 75% on the fresh feed, transition and oxide throughputs. 70% is typically targeted for design. For the C160

primary crusher, the modelling suggests for duty operation that the machine could be more suitable. For the sticky transition and oxide blocked vibrating grizzly scenarios, the jaw crushers become significantly volumetrically overloaded. This suggests that the C150 jaw crusher only just achieves the target throughputs for both options. Even on the fresh ore, the jaw is highly loaded. While both the C150 and C160 may potentially struggle during the wet season, if the oxide materials handling characteristics is typical for the region. The throughput of +4 Mt/a nameplate is typically the capacity that clients start considering the use of a gyratory crusher. The gyratory option was modelled as a MK-III 42-65. An alternative option (depending on how sticky the oxide and transition ore is expected to be) in this case, may be a combination jaw crusher and MMD625 mineral sizer which could be considered to reduce risk.

Grinding circuit modelling was undertaken to assess the following:

- Option 1 SAB/C circuit for 5.4 Mt/a of transition and oxide ore, with fresh ore throughput determined
- Option 2 SAB/C circuit for 5.4 Mt/a of transition and oxide ore, with fresh ore throughput determined

A total of 7 models were undertaken for a grind size of P_{80} 75 µm; the outputs can be seen in Table 6–2.

Table 6–2 Grinding Circuit Modelling Outputs – Option 1 and 2

		Option 1			Option 2			
Parameter	Unit	Fresh	Transition	Oxide	Fresh	Fresh	Transition	Oxide
Feed Rate	Mt/a	4.5	5.4	5.4	4.9*	5.1	5.4	5.4
	t/h	557	675	675	615	635	675	675
Product Size, P_{80}	µm	75	75	75	75	75	75	75
Pebble Crushing/Recycle Rate	% Feed	29	13	13	7	10	6	6
	tph	160	90	86	44	63	43	41
Bleed-Back to SAG Mill	% of UF	0%	0%	13%	8%	10%	15%	39%

*For Option 2, a fresh feed rate has been constrained to 4.9 Mt/a due to the volumetric capacity of the primary C150 jaw crusher.

SAB/C Circuit - Option 1

- For the SAB/C circuit power utilisation modelling, Option 1 can achieve the 5.4 Mt/a target for transition and oxide feeds only. However, due to higher oxide BWi values for Option 1, the circuit becomes ball mill limited. Hence, to maintain the required grind size and balance the power utilisation across the circuit, partial bleed-back of the cyclone underflow (CUF) stream to the SAG mill was required. An optimal percentage bleed-back of 13% for oxide only feed is required.
    - It should be noted that typically, the bleed-back rate is set and not adjusted continuously. The main aim of bleed-back streams is to achieve some cushioning of the breakage of coarse rock and to undertake additional slurry grinding.
- For the fresh feed, Option 1 can achieve a throughput of 4.5 Mt/a.

SAB/C Circuit - Option 2

- For the Option 2 circuit, the 5.4 Mt/a target is achievable for transition only and oxide only feeds. Due to higher transition and oxide values for Option 2, the circuit also becomes ball mill limited. Option 2 was modelled with the bleed-back percentage at 39% in the instance of oxide only ore.

  - Slurry pooling has been identified in this scenario. This risk can be offset by the use of a high efficiency pulp lifter system, grate design, both combined with the operation of a potentially high ball charge. To enable operation of a higher ball charge, the SAG mill should be structurally designed with a ball charge around 4% higher than the modelled maximum.

- For the fresh feed, Option 2 has an uplift in the achievable throughput of 4.9 Mt/a (with crushing constraint) to 5.1 Mt/a, when compared to Option 1. The Option 2 fresh ore throughput is constrained by the volumetric capacity with use of the primary C150 jaw crusher.

  - In this instance of Option 2, the need for pebble crushing is not indicated but some bleed-back to optimise utilisations of both mills could be beneficial.

In order to achieve the maximised throughputs of 5.1 – 5.4 Mt/a across all ore types, Option 2 with either a 42-65 gyratory crusher or a C160 jaw crusher is recommended. If the oxide is expected to be very sticky, the MMD625 primary crushing combination is recommended. With high quantities of oxide / transition ore in year 1, problematic plant feed could impact ramp-up schedules severely.

Other Comments

- The modelling cyclone overflow (COF) density was unconstrained for the fine grind. Hence, a leach feed thickener is required in the circuit design.

- The gravity circuit was modelled with an assumed 90% feed rate capacity.

- Consumables estimate for power, wear liners and grinding media was conducted for all crushing and grinding circuit options. For all the options, across the ore types, the total energy consumptions has been summarised in Table 6–3 below.

Table 6–3 Specific Energy – Crushing and Grinding Circuit Options

Equipment	Unit	Consumables				
		Fresh			Transition	Oxide
Throughput	Mt/a	4.5	4.9	5.1	5.4	5.4
Primary Crusher						
C150 Jaw - Gross Power	kWh/t	0.27	0.28	0.28	0.30	0.16
C160 Jaw - Gross Power		0.28	N/A	0.28	0.29	0.13
MK-III 42-65 Gyratory - Gross Power		0.34	N/A	0.33	0.33	0.19

		Option 1			Option 2			
		Fresh	Transition	Oxide	Fresh		Transition	Oxide
Throughput	Mt/a	4.5	5.4	5.4	4.9	5.1	5.4	5.4
Pebble Crusher - Gross Power	kWh/t	0.18	N/A	N/A	N/A	N/A	N/A	N/A
SAG Mill - Gross Power	kWh/t	10.6	6.6	6.8	13.0	13.3	7.0	9.9
Ball Mill - Gross Power	kWh/t	17.1	13.9	16.5	14.4	14.1	13.3	13.4
Milling Auxiliary Specific Energy	kWh/t	1.0	1.1	1.1	1.1	1.0	1.1	1.1
Grinding Circuit Energy Consumption	kWh/t	28.9	21.6	24.4	28.5	28.4	21.4	24.2

7.0 DISCLAIMER

The material and advice produced by OMC as contained in this report is for the internal use of the client only and OMC takes no responsibility and accepts no liability for the use of or reliance upon any such material or advice by any third party. Should a third party suffer any loss or damage as a result of using or relying upon such material or advice, OMC shall in no way be liable to the client or the third party.

8.0 STANDARD WARRANTY

Orway Mineral Consultants warrants that it will perform the Services in accordance with standards of care and diligence normally practised by recognised engineering consulting firms in performing services of a similar nature. If during the one (1) year period following completion or termination of the Services, it is shown that there is error in the report or Services as a result of those standards not having been met, and you have promptly notified Orway Mineral Consultants in writing of such error, Orway Mineral Consultants shall perform on a reimbursable basis but without any additional fees, such corrective services as may be necessary within the original scope of Orway Mineral Consultants Services to remedy such error. This warranty shall constitute Orway Mineral Consultants sole liability with respect to the Services or any information or report supplied to you. Acceptance of our report or use of any of the Services or information shall constitute a release and agreement to defend and indemnify Orway Mineral Consultants from and against all other liabilities arising.

9.0 OWNERSHIP

This report, together with all intellectual property contained or embodied therein remains the property of Orway Mineral Consultants, subject only to an express written agreement with the client to the contrary.

Prepared by ORWAY MINERAL CONSULTANTS (WA) PTY LTD:

Chloe Thiel

Project Metallurgist

Countersigned by:

Fred Kock

Principal Metallurgist

©-Orway Mineral Consultants (WA) Pty Ltd 2025

Appendix A – Grinding Circuit Mass Balances

- Figure A-1 Option 1 SAB/C Circuit Mass Balance - Fresh
- Figure A-2 Option 1 SAB/C Circuit Mass Balance - Transition
- Figure A-3 Option 1 SAB/C Circuit Mass Balance - Oxide
- Figure A-4 Option 2 SAB/C Circuit Mass Balance – Fresh (Constrained to 4.9 Mt/a)
- Figure A-5 Option 2 SAB/C Circuit Mass Balance – Fresh
- Figure A-6 Option 2 SAB/C Circuit Mass Balance - Transition
- Figure A-7 Option 2 SAB/C Circuit Mass Balance - Oxide

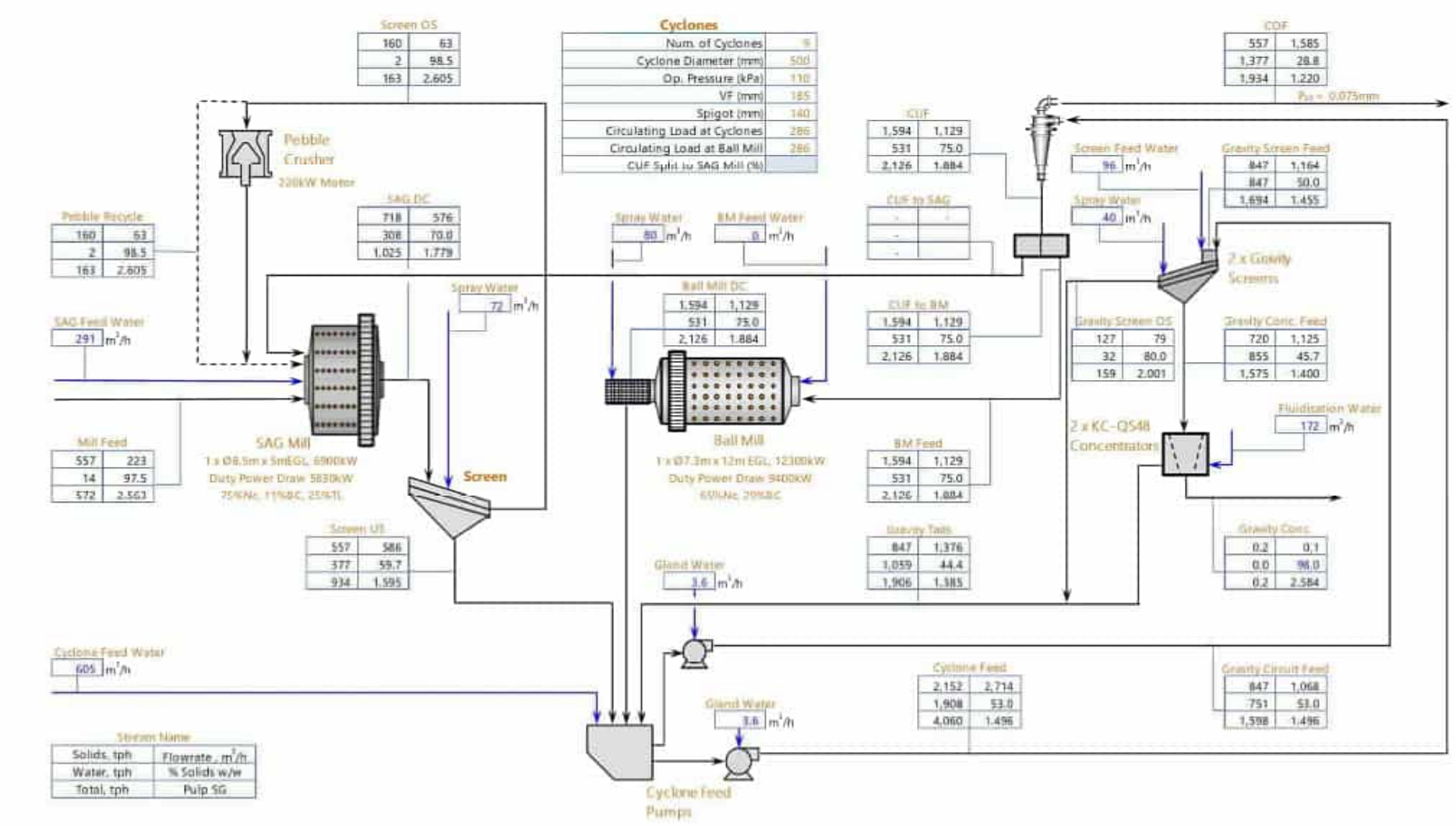


Figure A-1 Option 1 SAB/C Circuit Mass Balance - Fresh

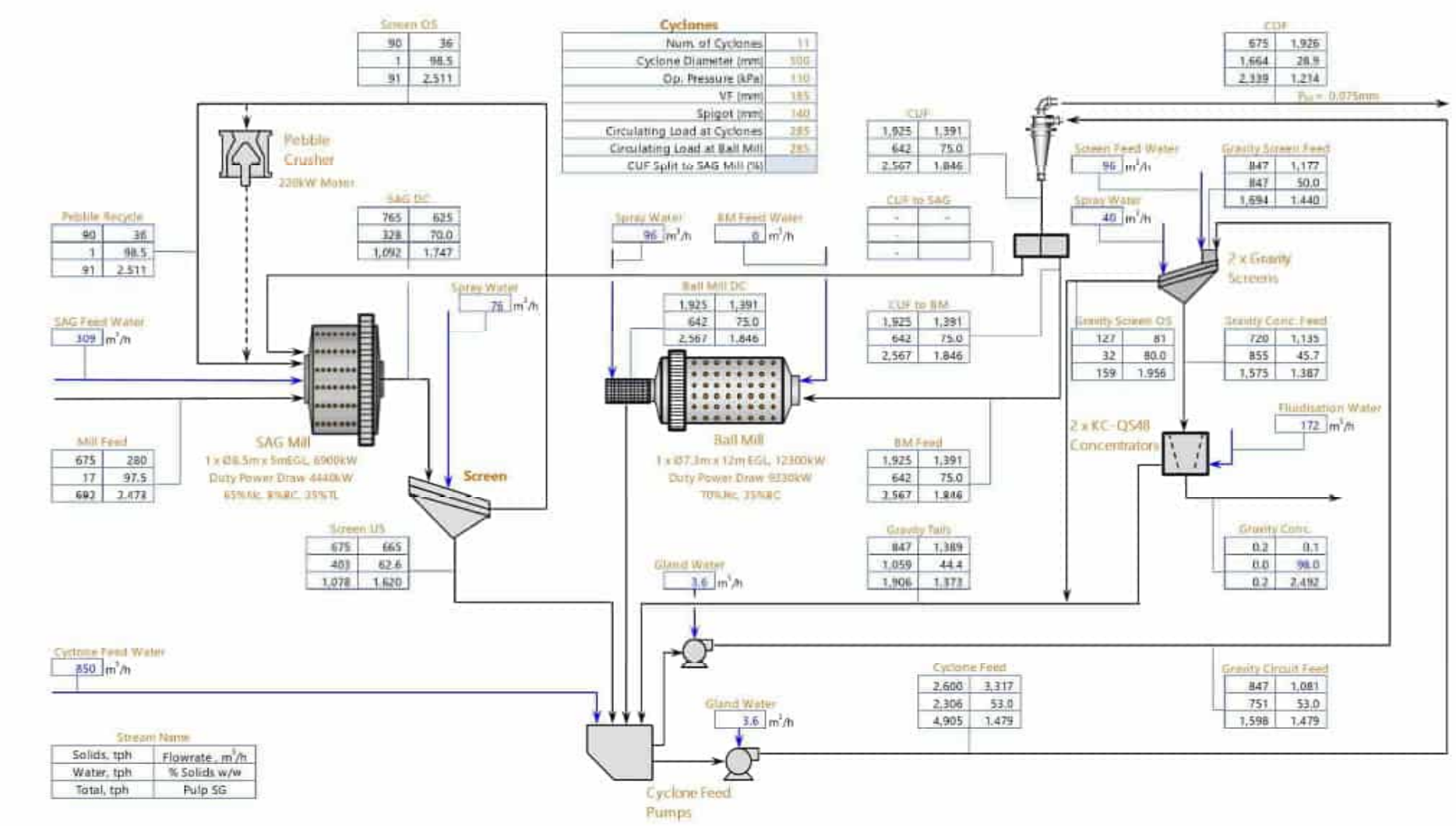


Figure A-2 Option 1 SAB/C Circuit Mass Balance – Transition

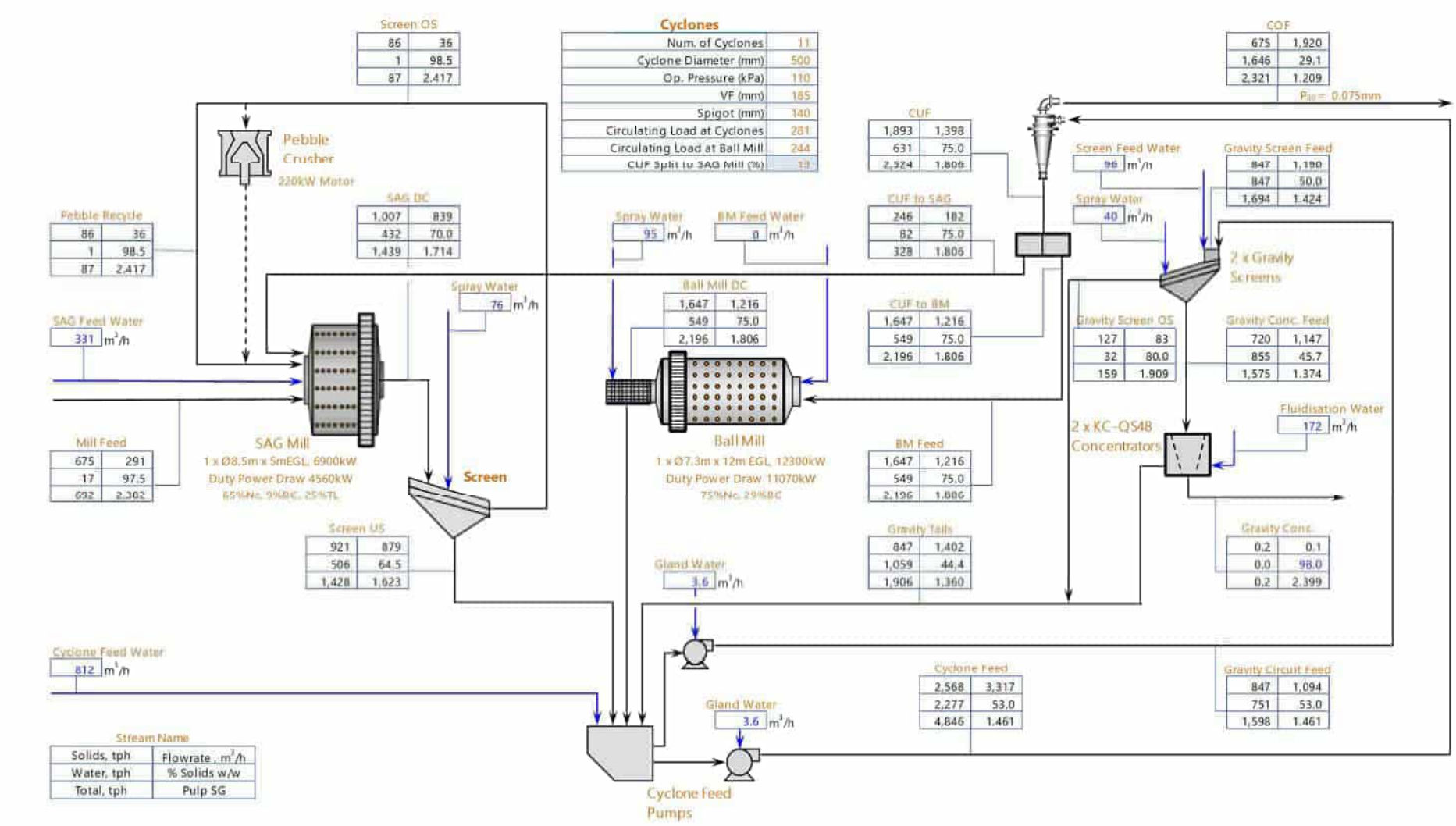


Figure A-3 Option 1 SAB/C Circuit Mass Balance – Oxide

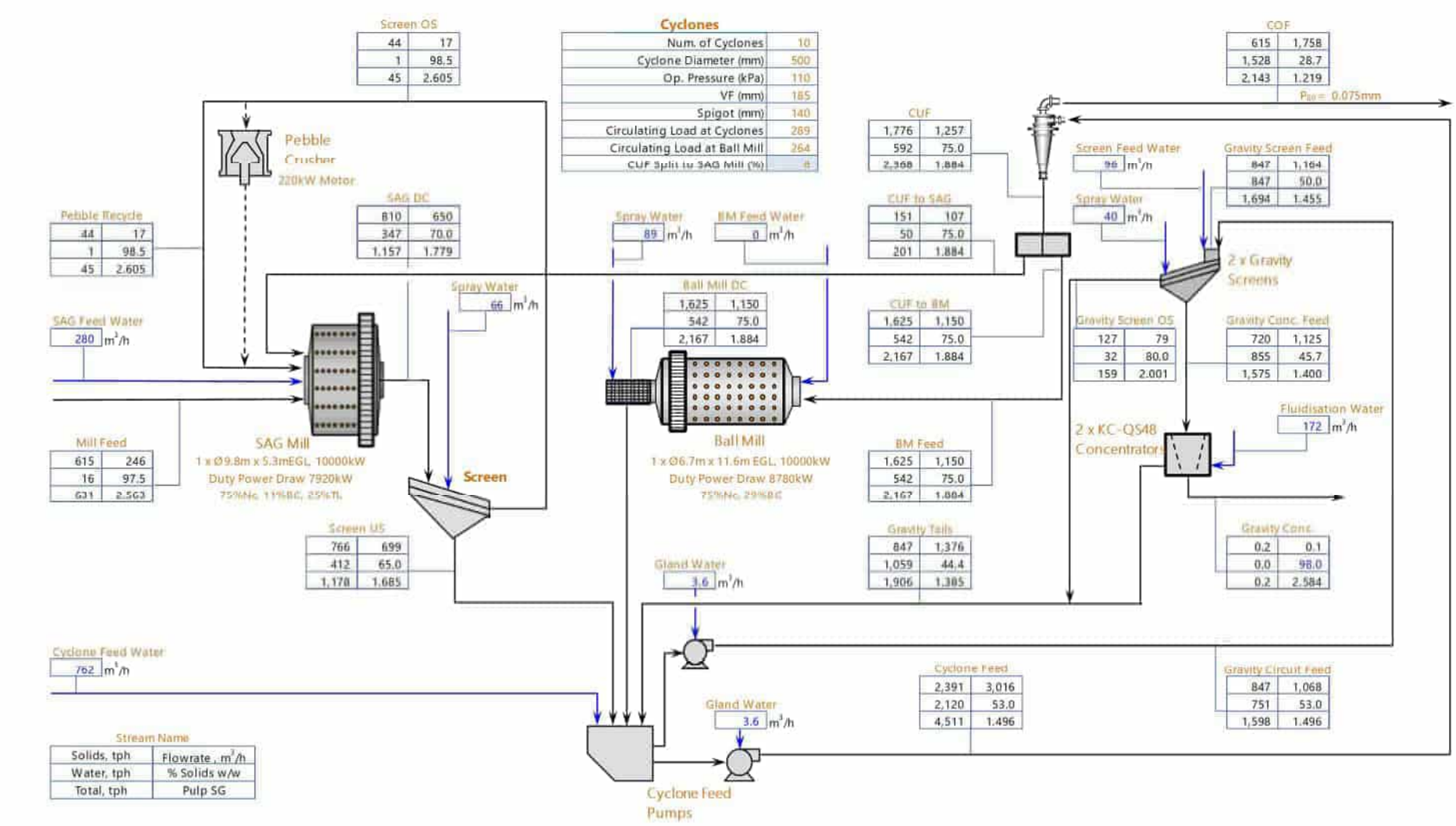


Figure A-4 Option 2 SAB/C Circuit Mass Balance – Fresh (Constrained to 4.9 Mt/a)

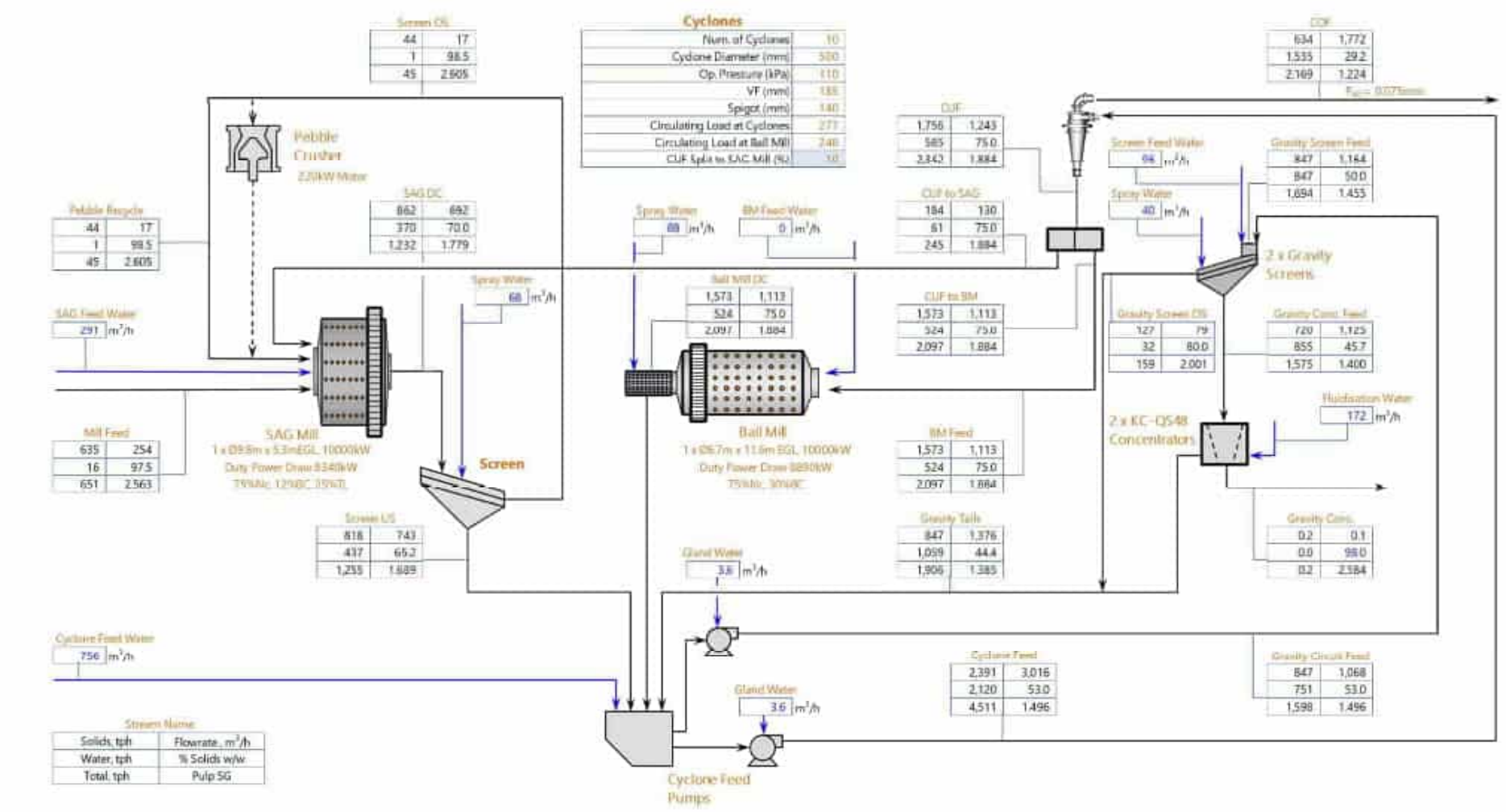


Figure A-5 Option 2 SAB/C Circuit Mass Balance – Fresh

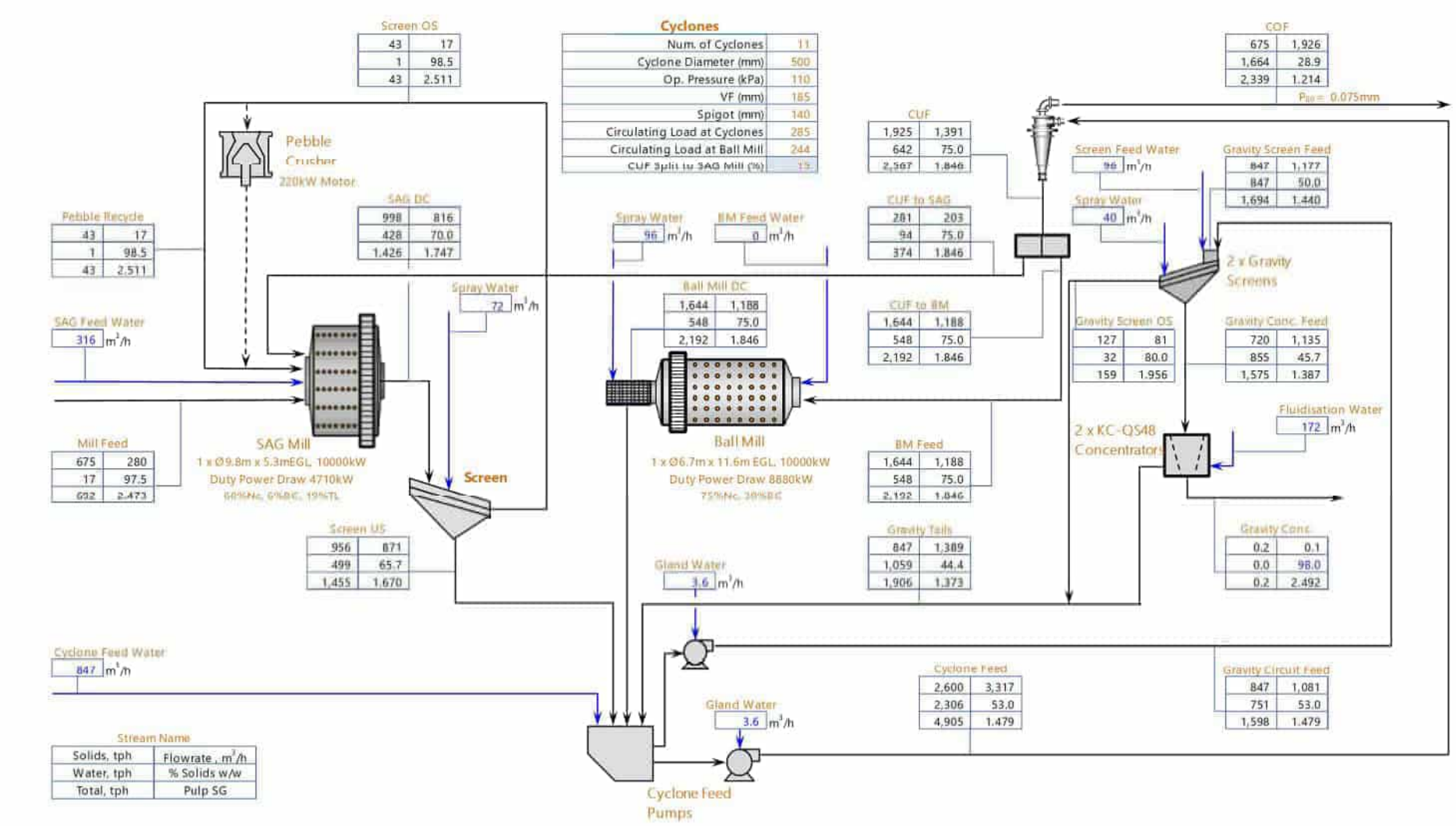


Figure A-6 Option 2 SAB/C Circuit Mass Balance – Transition

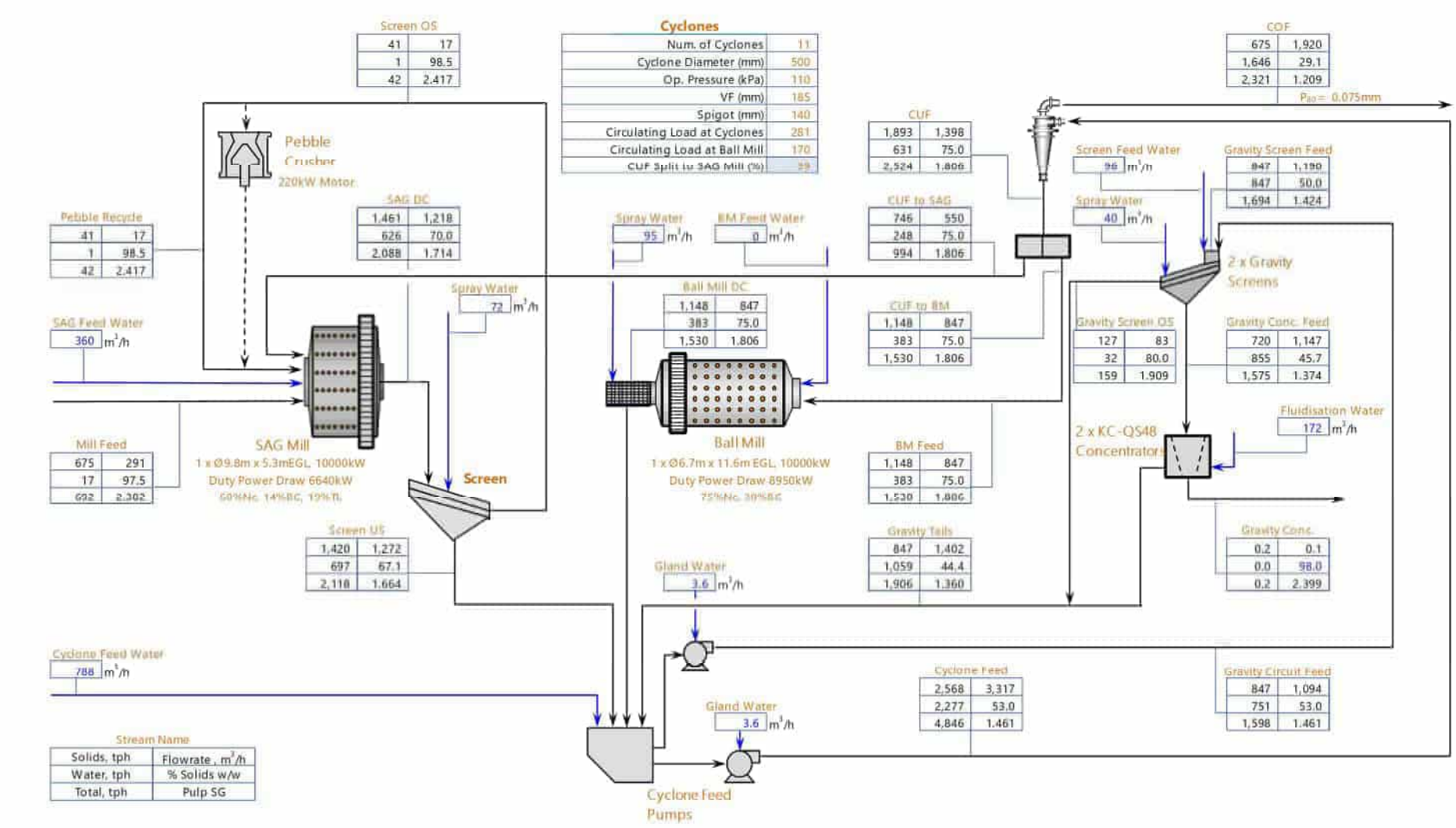


Figure A-7 Option 2 SAB/C Circuit Mass Balance – Oxide

APPENDIX 7.1

PROCESS DESIGN CRITERIA

Resolute Mining Limited

Doropo Gold Project FS

Process Design Criteria

2326-FPDC-001

November 2025

REV NO.	DATE	DESCRIPTION OF REVISION	BY	DESIGN APPROVED	PROJECT APPROVED	CLIENT APPROVED
C	19.11.25	ISSUED FOR STUDY		Ryan Harrison	Alwyn Scholtz	
B	29.10.25	ISSUED FOR CLIENT REVIEW	AG	RH	AS	
A	22.10.25	ISSUED FOR INTERNAL REVIEW	AG	RH	AS	

This document is the property of Lycopodium. It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium.

Lycopodium

Client	Resolute Mining Limited				Date	19-Nov-25	Revision	C	
Project	Doropo Gold DFS						Prepared	AG	
Document	PROCESS DESIGN CRITERIA (2326-FPDC-001)				Job Number	2326	Checked	RH	

#	PARAMETERS	UNITS				DESIGN	REV	SOURCE	REF

The design criteria presented below are Based on the following sources:

1	Client	Client instruction, advice or client supplied data
2	Agreed	Agreed by Client and Lycopodium Minerals Pty Ltd
3	Test	Design parameters derived from testwork designed and supervised by Client
4	Cons	External Consultants. **e.g. OMC / Knight Piesold.**
5	Lyco	Generally accepted practice or recommended by Lycopodium Minerals Pty Ltd
6	Industry	Industry standard specification
7	Calc	Calculation or Mass Balance
8	Vendor	Vendor specification
9	Assume	Input assumed, to be confirmed

Disclaimer:

Any recovery or similar data stated in the Process Design Criteria is used for design purposes only and is not a statement of predicted plant performance.
Whilst it is intended that the plant shall be operated at conditions approximating the mass balance, no contractual commitment to this effect is implied or intended.
Note: The SI system of units is used throughout the Process Design Criteria.
Note: Gas flow rates in Nm^3/h are based on a molar volume of 22.41515 m^3/kg mol (at 273.15 K and 101.325 kPa(A)).

1 SITE CHARACTERISTICS

Reference						Refer to site datasheet 2326-GDAS-001	A	Lyco	

2 OPERATING SCHEDULE

			Oxide	Transition	Fresh	Design			
ROM Ore Throughput		dry t/a	5,400,000	5,400,000	4,920,000		A	Client	29
Hydraulic Design Basis				100% transition / oxide material at P_{80} of 75 µm			A	Client	29
Comminution (Power) Design Basis					100% fresh material at P_{80} of 75 µm		A	Client	29
Processing Method				Blending of transition, oxide and fresh material			A	Client	29
Crushing Operation									
Operating Days		d/a				365	A	Client	36
Operating Shifts per Day		#				2	A	Client	36
Operating Hours per Shift		hours				12	A	Client	36
Operating Hours		h/d				24		Calc	
Utilisation		%				80	A	Client	2
Operating Hours		h/a				7,008		Calc	
Feedrate	Nominal	dry t/h	771	771	702	771		Calc	
	Nominal	wet t/h	907	907	739	907		Calc	
Milling & Plant Operation									
Operating Days		d/a				365	A	Client	36
Operating Shifts per Day		#				2	A	Client	36
Operating Hours per Shift		hours				12	A	Client	36
Operating Hours		h/d				24		Calc	
Utilisation		%				91.3	A	Client	2
Operating Hours		h/a				8,000		Calc	
Feedrate	Nominal New Feed	dry t/h	675	675	615	675		Calc	
	Nominal	wet t/h	794	794	647	794		Calc	
Mine Plan									
LOM Schedule by Ore Type & Pit		Pit	Oxide	Transition	Fresh	Total			
	% Mass Split, LOM	Souwa	5.9	7.3	13.2	26.4	A	Cons	10
	% Mass Split, LOM	Nokpa	0.0	1.3	6.1	7.5	A	Cons	10
	% Mass Split, LOM	Chegue	1.6	5.0	8.0	14.6	A	Cons	10
	% Mass Split, LOM	Kilosegue	0.4	7.5	27.6	35.6	A	Cons	10
	% Mass Split, LOM	Kekeda	0.2	2.9	2.3	5.5	A	Cons	10
	% Mass Split, LOM	Enioda	1.3	1.8	1.0	4.1	A	Cons	10
	% Mass Split, LOM	Han	0.0	0.7	5.6	6.3	A	Cons	10
	% Mass Split, LOM	**Total**	9.4	26.5	64.0	100.0	A	Cons	10
LOM Schedule by Ore Type		Year	Oxide	Transition	Fresh	Total			
	% Mass Split, LOM	Year 1	48.0	52.0	0.0	100.0	A	Cons	10
	% Mass Split, LOM	Year 2	2.8	25.9	71.3	100.0	A	Cons	10
	% Mass Split, LOM	Year 3	0.0	11.6	88.4	100.0	A	Cons	10
	% Mass Split, LOM	Year 4	13.0	25.6	61.4	100.0	A	Cons	10
	% Mass Split, LOM	Year 5	12.7	29.4	57.9	100.0	A	Cons	10
	% Mass Split, LOM	Year 6	3.2	20.5	76.2	100.0	A	Cons	10
	% Mass Split, LOM	Year 7	5.2	29.9	64.9	100.0	A	Cons	10
	% Mass Split, LOM	Year 8	0.4	25.0	74.6	100.0	A	Cons	10
	% Mass Split, LOM	Year 9	2.6	21.1	76.3	100.0	A	Cons	10
	% Mass Split, LOM	Year 10	20.7	35.9	43.4	100.0	A	Cons	10
	% Mass Split, LOM	Year 11	4.0	34.4	61.6	100.0	A	Cons	10
	% Mass Split, LOM	Year 12	1.3	14.5	84.2	100.0	A	Cons	10
	% Mass Split, LOM	Year 13	0.4	4.5	95.1	100.0	A	Cons	10
			Oxide	Transition	Fresh	Total			
LOM Weighted Average by Ore Type	% Mass Split, LOM	LOM Average	9.4	26.5	64.0	100.0	A	Cons	10

3 ORE MATERIAL CHARACTERISTICS

Physical Characteristics			Oxide	Transition	Fresh	Design			
Moisture Content	Range	% w/w	5 - 10	5 - 10	2 - 5		A	Client	36
	Design	% w/w	15	15	5		A	Client	36
Solution Density		t/m^3				1.00	A	Industry	
Solids Dry SG	Range	SG	2.29 - 2.32	2.48 - 2.65	2.57 - 2.73		A	Cons	7
	Design	SG	2.47	2.57	2.67		A	Cons	7
Bulk Density		t/m^3	1.48	1.54	1.60	1.60	A	Industry	
Angle of Repose		degrees				37	A	Assume	
Angle of Drawdown		degrees				60	A	Assume	
Angle of Surcharge		degrees				20	A	Assume	
Comminution Parameters			Oxide	Transition	Fresh	Design			
Unconfined Compressive Strength	Range (Average)	MPa	n/a	14 - 88	22 - 134		A	Test	7,8
Crushing Work Index	Range	kWh/t	3.8	1.6 - 12.1	2.1 - 15.8		A	Test	7,8
	Design (85th percentile)	kWh/t	3.8	8.9	13.0	13.0	A	Cons	7
Bond Rod Mill Work Index	Closing Screen	µm	1,180	1,180	1,180		A	Test	7,8
	Range	kWh/t	11.9	7.2 - 15.9	12.7 - 21.4		A	Test	7,8
	Design (85th percentile)	kWh/t	14.9	12.5	18.5	18.5	A	Cons	7
Bond Ball Mill Work Index	Closing Screen	µm	106	106	106		A	Test	7,8
	Range	kWh/t	17.5 - 22.2	11 - 19.7	15.9 - 19.6		A	Test	7,8
	Design (85th percentile)	kWh/t	20.4	16.7	18.4	18.4	A	Cons	7
SMC Test Axb	Range		91.9 - 304.4	79.1 - 480.3	31.3 - 85.2		A	Test	7,8
	Design (85th percentile)		89.7	82.4	37.2	37.2	A	Cons	7
Abrasion Index	Range	g	0.136 - 0.36	0.045 - 0.326	0.018 - 0.38		A	Test	7,8
	Design (85th percentile)	g	0.242	0.116	0.200	0.200	A	Cons	7

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any
third party without written authority from Lycopodium Minerals Pty Ltd.

Client	Resolute Mining Limited				Date	19-Nov-25	Revision	C	
Project	Doropo Gold DFS						Prepared	AG	
Document	PROCESS DESIGN CRITERIA (2326-FPDC-001)				Job Number	2326	Checked	RH	
#	PARAMETERS	UNITS					DESIGN	REV	SOURCE	REF

Carbon Adsorption Parameters

				Oxide	Transition	Fresh	Design			
Fleming Kinetic Constants - Au										
k	Range	h^{-1}		51 - 206	152 - 213	161 - 229		A	Test	9
	Design	h^{-1}					150	A	Lyco	
n	Range			0.52 - 1.09	0.70 - 0.90	0.62 - 0.78		A	Test	9
	Design						0.60	A	Lyco	
Fleming Kinetic Constants - Ag										
k	Design	h^{-1}					150	A	Lyco	
n	Design						0.60	A	Lyco	

Viscosity

Sample and Oxidation	% w/w	Apparent Viscosity (cP) at Shear Rate (s^{-1})											
		4.2	7.4	13.1	21.9	38.9	67.4	119.2	209.5				
Souwa Oxide	60	749.0	616.0	432.0	301.0	202.0	161.0	153.0	156.0	A	Test	9
	55	337.0	212.0	144.0	100.0	89.0	89.0	90.0	108.0	A	Test	9
	50	0.0	0.0	84.0	65.0	61.0	56.0	63.0	79.0	A	Test	9
	45	0.0	0.0	0.0	57.0	40.0	42.0	50.0	62.0	A	Test	9
Souwa Transition	60	336.9	233.7	168.0	129.2	109.1	114.3	118.7	134.3	A	Test	9
	55	0.0	169.9	108.0	86.1	80.8	74.6	80.4	99.8	A	Test	9
	50	0.0	0.0	0.0	50.2	48.5	49.0	56.7	74.3	A	Test	9
	45	0.0	0.0	0.0	0.0	32.3	32.7	44.8	60.0	A	Test	9
Souwa Fresh	60	486.6	297.4	192.0	157.9	121.2	109.6	118.7	140.3	A	Test	9
	55	374.3	233.7	144.0	100.5	68.7	67.6	76.5	93.8	A	Test	9
	50	0.0	0.0	0.0	57.4	44.5	49.0	59.3	79.5	A	Test	9
	45	0.0	0.0	0.0	50.2	36.4	39.6	47.5	60.8	A	Test	9
Nopka Transition	60	1,422.3	849.7	552.0	358.9	230.3	158.6	151.7	153.8	A	Test	9
	55	673.7	424.9	288.0	208.2	133.4	107.3	104.2	106.6	A	Test	9
	50	299.4	233.7	144.0	100.5	72.7	63.0	69.9	81.8	A	Test	9
	45	0.0	148.7	96.0	71.8	52.5	49.0	55.4	66.8	A	Test	9
Nopka Fresh	60	336.9	212.4	204.0	143.6	113.2	109.6	118.7	141.1	A	Test	9
	55	262.0	169.9	120.0	107.7	76.8	65.3	75.2	87.8	A	Test	9
	50	0.0	0.0	0.0	0.0	40.4	44.3	58.0	74.3	A	Test	9
	45	0.0	0.0	0.0	0.0	32.3	39.6	50.1	66.0	A	Test	9
Kilosegui Oxide	60	8,720.9	4,970.9	2,988.0	1,873.5	1,131.5	706.7	439.2	291.9	A	Test	9
	55	3,668.0	2,166.8	1,284.0	818.3	509.2	317.2	197.8	172.6	A	Test	9
	50	1,908.9	1,189.6	744.0	473.8	286.9	186.6	131.9	129.8	A	Test	9
	45	935.7	552.3	336.0	229.7	149.5	98.0	91.0	97.5	A	Test	9
Kilosegui Transition	60	0.0	148.7	108.0	93.3	80.8	84.0	93.6	119.3	A	Test	9
	55	0.0	0.0	96.0	79.0	60.6	58.3	71.2	83.3	A	Test	9
	50	0.0	0.0	0.0	64.6	44.5	46.6	54.1	70.5	A	Test	9
	45	0.0	0.0	0.0	0.0	32.3	35.0	46.2	63.0	A	Test	9
Kilosegui Fresh	60	0.0	0.0	0.0	86.1	80.8	81.6	93.6	115.6	A	Test	9
	55	0.0	0.0	0.0	71.8	64.7	60.6	65.9	91.5	A	Test	9
	50	0.0	0.0	0.0	0.0	48.5	46.6	55.4	72.0	A	Test	9
	45	0.0	0.0	0.0	0.0	28.3	32.7	47.5	66.0	A	Test	9
Kekeda Oxide	60	2,620.0	1,550.8	900.0	552.7	331.4	207.6	171.4	166.6	A	Test	9
	55	1,160.3	743.5	504.0	323.0	189.9	121.3	121.3	117.8	A	Test	9
	50	711.1	424.9	276.0	179.5	117.2	91.0	84.4	89.3	A	Test	9
	45	0.0	169.9	120.0	93.3	56.6	53.6	59.3	67.5	A	Test	9
Kekeda Transition	60	898.3	573.6	396.0	279.9	185.9	128.3	135.8	144.1	A	Test	9
	55	262.0	191.2	132.0	100.5	76.8	70.0	77.8	95.3	A	Test	9
	50	0.0	0.0	0.0	50.2	40.4	44.3	58.0	75.0	A	Test	9
	45	0.0	0.0	0.0	0.0	28.3	28.0	43.5	61.5	A	Test	9
Kekeda Fresh	60	0.0	0.0	96.0	93.3	97.0	107.3	120.0	141.1	A	Test	9
	55	0.0	0.0	0.0	0.0	36.4	46.6	65.9	93.8	A	Test	9
	50	0.0	0.0	0.0	0.0	0.0	30.3	46.2	65.3	A	Test	9
	45	0.0	0.0	0.0	0.0	0.0	23.3	36.9	55.5	A	Test	9
Chegue Main Oxide	60	6,213.1	3,590.1	2,100.0	1,327.9	808.2	501.5	317.8	247.6	A	Test	9
	55	2,358.0	1,487.0	960.0	610.1	383.9	230.9	170.1	157.6	A	Test	9
	50	1,459.7	849.7	516.0	323.0	194.0	128.3	109.5	108.8	A	Test	9
	45	486.6	339.9	240.0	179.5	113.2	81.6	79.1	79.5	A	Test	9
Chegue Main Transition	60	486.6	339.9	228.0	150.7	109.1	105.0	112.1	131.3	A	Test	9
	55	262.0	191.2	132.0	93.3	72.7	70.0	79.1	93.8	A	Test	9
	50	0.0	0.0	0.0	50.2	44.5	46.6	58.0	73.5	A	Test	9
	45	0.0	0.0	0.0	0.0	32.3	35.0	43.5	60.0	A	Test	9
Chegue Main Fresh	60	299.4	212.4	156.0	122.0	101.0	100.3	109.5	126.1	A	Test	9
	55	0.0	0.0	84.0	71.8	60.6	58.3	68.6	87.8	A	Test	9
	50	0.0	0.0	0.0	50.2	48.5	46.6	52.8	72.0	A	Test	9
	45	0.0	0.0	0.0	0.0	32.3	32.7	44.8	60.0	A	Test	9
Chegue South Trans	60	299.4	254.9	168.0	129.2	121.2	118.9	124.0	139.6	A	Test	9
	55	0.0	0.0	96.0	79.0	72.7	70.0	75.2	93.8	A	Test	9
	50	0.0	0.0	0.0	50.2	52.5	51.3	58.0	72.8	A	Test	9
	45	0.0	0.0	0.0	0.0	40.4	42.0	47.5	60.0	A	Test	9
Chegue South Fresh	60	336.9	233.7	192.0	157.9	129.3	128.3	131.9	146.3	A	Test	9
	55	0.0	148.7	96.0	79.0	72.7	70.0	79.1	94.5	A	Test	9
	50	0.0	0.0	0.0	0.0	40.4	44.3	56.7	73.5	A	Test	9
	45	0.0	0.0	0.0	0.0	32.3	32.7	44.8	58.5	A	Test	9
Enioda Oxide	60	6,587.4	4,078.7	2,496.0	1,615.1	998.2	648.4	428.6	321.9	A	Test	9
	55	2,545.1	1,614.5	1,044.0	674.7	416.2	268.2	193.9	178.6	A	Test	9
	50	898.3	594.8	360.0	236.9	153.6	112.0	102.9	108.1	A	Test	9
	45	299.4	254.9	180.0	136.4	92.9	74.6	73.9	80.3	A	Test	9
Enioda Transition	60	1,122.9	786.0	528.0	351.7	238.4	160.9	162.2	161.3	A	Test	9
	55	336.9	212.4	156.0	122.0	97.0	88.6	85.7	97.5	A	Test	9
	50	0.0	0.0	0.0	57.4	44.5	51.3	56.7	72.0	A	Test	9
	45	0.0	0.0	0.0	0.0	32.3	37.3	47.5	59.3	A	Test	9
Enioda Fresh	60	262.0	212.4	168.0	129.2	109.1	105.0	112.1	131.3	A	Test	9
	55	0.0	0.0	0.0	57.4	56.6	58.3	67.3	87.0	A	Test	9
	50	0.0	0.0	0.0	0.0	32.3	35.0	46.2	66.0	A	Test	9
	45	0.0	0.0	0.0	0.0	28.3	28.0	38.2	54.8	A	Test	9
Han Transition	60	486.6	403.6	276.0	201.0	141.4	121.3	121.3	138.1	A	Test	9
	55	0.0	0.0	96.0	71.8	64.7	67.6	75.2	92.3	A	Test	9
	50	0.0	0.0	0.0	0.0	40.4	46.6	51.4	69.8	A	Test	9
	45	0.0	0.0	0.0	0.0	28.3	28.0	38.2	55.5	A	Test	9
Han Fresh	60	486.6	297.4	204.0	143.6	117.2	114.3	120.0	135.1	A	Test	9
	55	0.0	0.0	84.0	64.6	60.6	60.6	75.2	93.8	A	Test	9
	50	0.0	0.0	0.0	0.0	28.3	37.3	52.8	67.5	A	Test	9
	45	0.0	0.0	0.0	0.0	0.0	28.0	39.6	57.0	A	Test	9

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Client	Resolute Mining Limited				Date	19-Nov-25	Revision	C		
Project	Doropo Gold DFS						Prepared	AG		
Document	PROCESS DESIGN CRITERIA (2326-FPDC-001)				Job Number	2326	Checked	RH		
#	PARAMETERS	UNITS					DESIGN	REV	SOURCE	REF

Water

Specific Gravity		SG					1.00	A	Industry	
Sample Location		type				Surface water testwork at local catchments		A	Test	11
Sample Date		date				August 2022		A	Test	11
					Minimum	Maximum	Average			
pH		pH			6.45	7.36	6.88	A	Test	11
Analysis	Aluminium, Al	µg/L			2.5	5,780	852	A	Test	11
	Antimony, Sb	µg/L			0.50	0.50	0.50	A	Test	11
	Arsenic, As	µg/L			0.50	0.50	0.50	A	Test	11
	Barium, Ba	µg/L			29.0	112.0	54.4	A	Test	11
	Beryllium, Be	µg/L			0.10	0.25	0.11	A	Test	11
	Bismuth, Bi	µg/L			0.50	2.50	1.08	A	Test	11
	Boron, B	µg/L			5.00	33.00	12.73	A	Test	11
	Cadmium, Cd	µg/L			0.05	0.05	0.05	A	Test	11
	Calcium, Ca	µg/L			2,030	12,600	6,166	A	Test	11
	Chromium, Cr	µg/L			0.50	3.30	0.87	A	Test	11
	Cobalt, Co	µg/L			0.25	1.61	0.47	A	Test	11
	Copper, Cu	µg/L			1.00	6.60	1.78	A	Test	11
	Iron, Fe	µg/L			72	2,660	1,020	A	Test	11
	Lead, Pb	µg/L			0.25	1.10	0.40	A	Test	11
	Lithium, Li	µg/L			0.50	2.50	1.08	A	Test	11
	Magnesium, Mg	µg/L			551	3,490	1,661	A	Test	11
	Manganese, Mn	µg/L			0.63	1,030	140	A	Test	11
	Mercury, Hg (inorganic)	µg/L			0.0000	0.0100	0.0050	A	Test	11
	Molybdenum, Mo	µg/L			0.50	2.50	1.08	A	Test	11
	Nickel, Ni	µg/L			1.00	9.80	1.36	A	Test	11
	Potassium, K	µg/L			1,680	11,500	5,079	A	Test	11
	Selenium, Se	µg/L			0.50	0.50	0.50	A	Test	11
	Silver, Ag	µg/L			0.50	2.50	1.08	A	Test	11
	Sodium, Na	µg/L			1,350	14,500	6,296	A	Test	11
	Strontium, Sr	µg/L			30.0	196.0	93.0	A	Test	11
	Tellurium, Te	µg/L			2.50	2.50	2.50	A	Test	11
	Thallium, Tl	µg/L			0.25	1.25	0.54	A	Test	11
	Tin, Sn	µg/L			0.50	14.00	2.10	A	Test	11
	Titanium, Ti	µg/L			1.0	148.0	26.2	A	Test	11
	Uranium, U	µg/L			0.05	0.25	0.11	A	Test	11
	Vanadium, V	µg/L			0.50	5.20	1.45	A	Test	11
	Zinc, Zn	µg/L			1.00	42.60	9.08	A	Test	11
	Acid Neutralising Capacity (alkalinity) pH 4.5	mmol/L			0.23	1.62	0.71	A	Test	11
	Acid Neutralising Capacity (alkalinity) pH 8.3	mmol/L			0.08	0.08	0.08	A	Test	11
	Base Neutralising Capacity (acidity) pH 4.5	mmol/L			0.08	0.08	0.08	A	Test	11
	Base Neutralising Capacity (acidity) pH 8.3	mmol/L			0.08	0.30	0.15	A	Test	11
	Chloride	mg/L			0.50	8.37	2.97	A	Test	11
	Fluoride	mg/L			0.10	0.10	0.10	A	Test	11
	Nitrate as N	mg/L			0.25	0.25	0.25	A	Test	11
	Nitrates	mg/L			1.00	1.00	1.00	A	Test	11
	Orthophosphate	mg/L			0.02	0.41	0.09	A	Test	11
	Orthophosphate as P	mg/L			0.01	0.13	0.03	A	Test	11
	Sulphate as $SO4^{2-}$	mg/L			2.50	2.50	2.50	A	Test	11
	TSS	mg/L			6.30	91.2	39.86	A	Test	11
	Total Cyanide	mg/L			0.0025	0.0060	0.0027	A	Test	11
	Conductivity at 25°C	mS/m			3.37	19.0	7.93	A	Test	11

4 GRADE AND RECOVERY

				Oxide	Transition	Fresh	Design			
Ore Grade										
Gold	Range, testwork	g/t		0.68 - 3.70	0.85 - 2.81	1.20 - 2.37		A	Test	9
	Range, mine plan (yearly)	g/t					0.92 - 1.66	A	Cons	10
	Design	g/t					2.00	A	Client	2
Silver	Range	g/t		0.20 - 12.00	0.50 - 2.00	0.40 - 4.00		A	Test	9
	Design	g/t					1.70	A	Client	36
Tailings Grade										
Gold	Range	g/t		0.01 - 0.40	0.01 - 0.17	0.11 - 0.25		A	Test	9
	Design	g/t					0.08		Calc	
Silver	Range	g/t		0.002 - 0.06	0.12 - 0.47	0.08 - 0.80			Calc	
	Design	g/t					0.25		Calc	
Recovery										
Gravity Gold Recovery	Range	%		14.4 - 62.0	11.9 - 52.5	23.3 - 60.5		A	Test	9
	Design	%		35.0	35.0	35.0	35.0	A	Agreed	29
Overall Gold Recovery	Range	%		91.7 - 97.0	89.4 - 94.8	88.0 - 93.3		A	Test	9
	Design	%		96.1	92.6	89.2	96.1	A	Agreed	29
Gravity Silver Recovery	Range	%		3.5 - 20.1	7.1 - 20.1	10.9 - 98.9		A	Test	9
	Design	%		25.2	25.2	25.2	25.2	A	Agreed	36
Overall Silver Recovery	Range	%		58.8 - 97.3	68.5 - 91.8	69.4 - 96.1		A	Test	9
	Design	%		85.4	76.7	79.9	85.4	A	Agreed	36
Deleterious Elements	Levels of mercury (assumed) and arsenic (testwork) are below levels requiring dedicated treatment circuits							A	Test	9

5 CRUSHING

Run of Mine (ROM) ore will be trucked to the ROM pad and reclaimed by FEL to the ROM bin or direct tipped. The ore will be crushed by a primary jaw crusher and conveyed to the coarse ore stockpile. A Lyco

ROM Ore

				Oxide	Transition	Fresh	Design			
Throughput	Nominal	dry t/h		771	771	702	771		Calc	
		wet t/h		907	907	739	907		Calc	
Ore Delivery		type				Direct tip from mine truck or from ROM pad using ROM FEL		A	Client	22
Trucks Used for Direct Tipping		type					CAT 785, or similar	A	Client	35
Tipping Directions		type					Double direct tip	A	Client	22
Payload Design	Truck Tray	wet t					147	A	Vendor	12
FEL Used for Direct Tipping		type					CAT 992K, or similar	A	Client	35
Payload Design	FEL Bucket Size	wet t					23.1	A	Vendor	13
Design Capacity	Selected	wet t					147	A	Lyco	
Loads Frequency	Nominal	minutes					10		Calc	
ROM Sizing (Unscalped)	Maximum Topsize	mm					1,250	A	Cons	31
ROM Sizing (Scalped)	Maximum Topsize	mm		800	800	800	800	A	Cons	7
	F_{99}	mm		757	757	770	770	A	Cons	7
	F_{80}	mm		332	332	423	423	A	Cons	7
	F_{50}	mm		102	102	160	160	A	Cons	7
	F_{20}	mm		15	15	28	28	A	Cons	7
	F_{10}	mm		3.4	3.4	7.7	8	A	Cons	7

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Quicklime Addition - pH Control				**Oxide**	**Transition**	**Fresh**	**Design**			
	Testwork Lime Consumption @ 70% CaO	Range	dry kg/t ore	**0.55 - 2.20**	**0.33 - 0.78**	**0.24 - 0.27**		**A**	**Test**	**9**
		Nominal	dry kg/t ore	**1.08**	**0.58**	**0.26**		**A**	**Agreed**	**29**
		Maximum	dry kg/t ore	**2.20**	**0.78**	**0.27**		**A**	**Test**	**9**
	Lime Consumption @ 90% CaO	Nominal	dry kg/t ore	0.84	0.45	0.20			**Calc**	
		Maximum	dry kg/t ore	1.71	0.61	0.21			**Calc**	
	Addition Method					**Bin Activator and Rotary Valve**		**A**	**Lyco**	
	Addition Rate	Nominal	dry kg/h	567	305	124	567		**Calc**	
		Maximum	dry kg/h	1,052	410	142	1,052		**Calc**	
SAG Mill Ball Addition										
	Feeder Method					**Ball Indexer / Feeder on to Mill Feed Conveyor**		**A**	**Lyco**	

7 MILLING CIRCUIT

A SAB circuit will be utilised. Primary crushed ore will be reclaimed from the crushed ore stockpile and fed to the SAG mill. The SAG mill discharge screen oversize (pebbles) will be conveyed back to the SAG Mill via the SAG mill feed conveyor. There will be provision in the design for a future pebble crusher circuit. Undersize slurry from the SAG mill discharge screen will gravitate to the common mill discharge hopper, shared with the ball mill product, for subsequent pumping to the cyclone classification circuit. The SAG mill will operate in open circuit and the ball mill will operate in closed circuit with the hydrocyclones. The cyclone underflow will gravitate to the feed spout of the ball mill. The ball mill discharge trommel undersize slurry will combine with the SAG mill discharge in the mill discharge hopper for subsequent re-classification. The cyclone overflow product will gravitate to the trash removal screen for grit and woodchip removal ahead of the pre-leach thickener. A portion of the cyclone underflow wiill be recyled back to the SAG mill. **A** **Lyco**

Circuit Design				**Oxide**	**Transition**	**Fresh**	**Design**			
	Type						**SAG and ball milling with recycled pebbles (SAB)**	**A**	**Cons**	**7**
	Mill Feed Size	F_{80}	mm	132	135	149			**Calc**	
	Target Product Size	P_{80}	µm	**75**	**75**	**75**	**75**	**A**	**Cons**	**7**
	Capacity	New Feed	dry t/h	675	675	615	675		**Calc**	
Primary Mill				**Oxide**	**Transition**	**Fresh**	**Design**			
	Number of Primary Mills		#				**1**	**A**	**Cons**	**7**
	Primary Mill Type		type				**Grate discharge SAG mill with high efficiency pulp lifters**	**A**	**Cons**	**7**
	Mill Size	Dia (Inside Shell)	m				**9.75**	**A**	**Cons**	**7**
		EGL	m				**5.26**	**A**	**Cons**	**7**
		Dia (Inside Shell)	ft				32.0		**Calc**	
		EGL	ft				17.3		**Calc**	
	Mill Motor	Installed	kW				**10,000**	**A**	**Cons**	**7**
		Pinion Nominal	kW	**6,336**	**4,497**	**7,559**	7,559	**A**	**Cons**	**7**
		Pinion Maximum	kW	**9,793**	**9,801**	**9,805**	9,805	**A**	**Cons**	**7**
	SAG Mill Specific Energy	Nominal	kWh/t	9.4	6.7	12.3	12.3		**Calc**	
	Mill Drive		kW				**1 x 10,000 kW**	**A**	**Cons**	**7**
			type				**VSD, Lo Speed**	**A**	**Cons**	**7**
	Mill Speed	Range	%Nc				**60 - 80**	**A**	**Cons**	**7**
		Nominal	%Nc	**60**	**60**	**75**	75	**A**	**Cons**	**7**
	Grinding Media Type		type				**Forged**	**A**	**Cons**	**7**
	Grinding Media Size	Topsize	mm				**125**	**A**	**Cons**	**7**
	Grinding Media Load	Nominal	% v/v	**14**	**6**	**11**	14	**A**	**Cons**	**7**
		Maximum	% v/v				**16**	**A**	**Cons**	**7**
		Structural	% v/v				**20**	**A**	**Cons**	**7**
	Grinding Media Consumption		kg/t	**0.432**	**0.120**	**0.461**	0.46	**A**	**Cons**	**7**
	Total Mill Load	Nominal	% v/v	**19**	**19**	**25**	25	**A**	**Cons**	**7**
		Maximum	% v/v				**35**	**A**	**Cons**	**7**
	Liner Type		type				**Steel**	**A**	**Cons**	**7**
	Liner Thickness		mm				**100**	**A**	**Cons**	**7**
	Liner Consumption		kg/t	**0.07**	**0.04**	**0.09**	0.09	**A**	**Cons**	**7**
	Mill Discharge Density		% w/w				**70**	**A**	**Cons**	**7**
	Mill Seal Water	**Filtered Water**	m^3/h				**1**	**A**	**Assume**	
	Pebble Production	Range	% of new feed				**6.1 - 7.2**	**A**	**Cons**	**7**
		Nominal	% of new feed	**6.1**	**6.4**	**7.2**	7.2	**A**	**Cons**	**7**
		Nominal	dry t/h	41	43	44	44		**Calc**	
	Pebble Bulk Density		t/m^3				1.60	**A**	**Lyco**	
	Pebble Size	P_{100}	mm				**63**	**A**	**Cons**	**7**
		P_{80}	mm				**35**	**A**	**Cons**	**7**
Pebble Dewatering Screen				**Oxide**	**Transition**	**Fresh**	**Design**			
	Number of Screens		#				**1**	**A**	**Cons**	**7**
	Screen Configuration		type				**1 duty, 0 standby**	**A**	**Cons**	**7**
	Screen Type		type			**Single Deck, Horizontal, Vibrating**		**A**	**Lyco**	
	Screen Capacity		$m^3/h.m^2$				**177**	**A**	**Lyco**	
	Screen Area	Minimum Required	m^2/screen	6.9	4.7	3.6			**Calc**	
		Selected	m^2/screen				**22.3**	**A**	**Cons**	**7**
	Screen Size	Width x Length	m				**3.05 x 7.32**	**A**	**Cons**	**7**
	Screen Deck									
	Material		type				**Rubber**	**A**	**Lyco**	
	Aperture Size		mm				**12 x 42 slots SWF**	**A**	**Cons**	**7**
	Panel Open Area		%				**31**	**A**	**Lyco**	
	Spray Water	**Process Water**	m^3/h.screen				**72**	**A**	**Cons**	**7**
			$m^3/h.m^2$				3		**Calc**	
	Oversize Split		% of feed	3	4	6			**Calc**	
	Oversize Moisture		% w/w				**5**	**A**	**Lyco**	
Pebble Feed Conveyor				**Oxide**	**Transition**	**Fresh**	**Design**			
	Capacity	Nominal	dry t/h	41	43	44	44		**Calc**	
			wet t/h	43	45	47	47		**Calc**	
		Maximum	dry t/h			Future	169		**Calc**	
			wet t/h			Future	178		**Calc**	
	Maximum Lump Size	Maximum Topsize	mm			Future	63		**Calc**	
Pebble Crusher										
	Type		type				**Future Installation: Two Cone Crushers**	**A**	**Cons**	**7**
	Notes						**Not required but it is recommended to allow for a future pebble crusher circuit**	**A**	**Cons**	**7**
Pebble Return Conveyor				**Oxide**	**Transition**	**Fresh**	**Design**			
	Capacity	Nominal	dry t/h	41	43	44	44		**Calc**	
			wet t/h	43	45	47	47		**Calc**	
		Maximum	dry t/h			Future	169		**Calc**	
			wet t/h			Future	178		**Calc**	
	Maximum Lump Size	Maximum Topsize	mm			Future	63		**Calc**	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Client	Resolute Mining Limited				Date	19-Nov-25	Revision	C		
Project	Doropo Gold DFS						Prepared	AG		
Document	PROCESS DESIGN CRITERIA (2326-FPDC-001)				Job Number	2326	Checked	RH		

#	PARAMETERS		UNITS				DESIGN	REV	SOURCE	REF
Secondary Mill				**Oxide**	**Transition**	**Fresh**	**Design**			
	Number of Secondary Mills		#				**1**	**A**	**Cons**	**7**
	Secondary Mill Type		type				**Overflow Ball Mill**	**A**	**Cons**	**7**
	Mill Size	Dia (Inside Shell)	m				**6.71**	**A**	**Cons**	**7**
		EGL	m				**11.58**	**A**	**Cons**	**7**
		Dia (Inside Shell)	ft				22.0		**Calc**	
		EGL	ft				38.0		**Calc**	
	Mill Motor	Installed	kW				**10,000**	**A**	**Cons**	**7**
		Pinion Nominal	kW	**8,548**	**8,479**	**8,376**	8,548	**A**	**Cons**	**7**
		Pinion Maximum	kW	**9,307**	**9,326**	**9,345**	9,345	**A**	**Cons**	**7**
	Ball Mill Specific Energy	Nominal	kWh/t	12.7	12.6	13.6	13.6		**Calc**	
	Mill Drive		kW				**1 x 10,000 kW**	**A**	**Cons**	**7**
			type				**VSD Lo Speed**	**A**	**Cons**	**7**
	Mill Speed	Range	%Nc				**75-78**	**A**	**Cons**	**7**
		Nominal	%Nc	**75**	**75**	**75**	75	**A**	**Cons**	**7**
	Grinding Media Type		type				**Forged**	**A**	**Cons**	**7**
	Grinding Media Size	Topsize	mm				**50**	**A**	**Cons**	**7**
	Grinding Media Load	Nominal	% v/v	**30**	**30**	**29**	30	**A**	**Cons**	**7**
		Maximum	% v/v				**34**	**A**	**Cons**	**7**
	Grinding Media Consumption		kg/t	**0.73**	**0.55**	**0.73**	0.73	**A**	**Cons**	**7**
	Liner Type		type				**Steel**	**A**	**Cons**	**7**
	Liner Thickness		mm				**100**	**A**	**Cons**	**7**
	Liner Consumption		kg/t	**0.05**	**0.04**	**0.05**	0.05	**A**	**Cons**	**7**
	Mill Discharge Density		% w/w				**75**	**A**	**Cons**	**7**
	Mill Seal Water	**Filtered Water**	m^3/h				**1**	**A**	**Assume**	
	Ball Mill Trommel Spray Water	**Process Water**	m^3/h				**96**	**A**	**Cons**	**7**
Mill Drive Cooling Water										
	Type						**Closed Circuit Chillers**	**A**	**Lyco**	
	Water Source for Closed Circuit Make Up						**Potable**	**A**	**Lyco**	
Ball Mill Ball Addition										
	Feed Method		type				**Indexer to Kibble, then hoist to feed chute**	**A**	**Lyco**	
	Indexer Hopper Capacity		t				**10**	**A**	**Lyco**	
	Kibble Capacity		t				**2**	**A**	**Lyco**	
Cyclone Feed Pumps				**Oxide**	**Transition**	**Fresh**	**Design**			
	Pump Feed (Nominal)	Solids	dry t/h	**2,570**	**2,601**	**2,392**			**Calc**	
		% Solids	% w/w	**53**	**53**	**53**			**Calc**	
		Solids	SG	**2.47**	**2.57**	**2.67**			**Calc**	
		Solution	t/h	**2,278**	**2,303**	**2,120**			**Calc**	
		Solution	SG	**1.00**	**1.00**	**1.00**			**Calc**	
		Total Stream	wet t/h	**4,847**	**4,905**	**4,512**			**Calc**	
		Volumetric Flow	m^3/h	**3,318**	**3,316**	**3,016**			**Calc**	
		Slurry	SG	**1.46**	**1.48**	**1.50**			**Calc**	
	Number of Pumps	Installed	#				**2**	**A**	**Lyco**	
	Pump Configuration		type				**1 duty, 1 standby**	**A**	**Lyco**	
	Pump Flowrate	Nominal	m^3/h	3,318	3,316	3,016			**Calc**	
	Gland Seal Water	**Filtered Water**	m^3/h				**3.5**	**A**	**Lyco**	
Classification Cyclones				**Oxide**	**Transition**	**Fresh**	**Design**			
	Target Product Size		P_{80} µm				75		**Calc**	
	Circulating Load, % of New Mill Feed	Nominal	%	**280**	**285**	**289**		**A**	**Cons**	**7**
	Underflow Bleed Facility to SAG Mill	with Ball Mill Operating	%	**39**	**15**	**8**		**A**	**Cons**	**7**
	Classification % Solids	Overflow	% w/w	**29**	**29**	**29**		**A**	**Cons**	**7**
		Underflow	% w/w	**75**	**75**	**75**		**A**	**Cons**	**7**
		Feed	% w/w	**53**	**53**	**53**			**Calc**	
	Cyclone Size		mm				**400**	**A**	**Vendor**	**40**
	Cyclone Operating Pressure		kPa(g)	**128**	**128**	**83**	128	**A**	**Vendor**	**40**
	Number of Cyclones	Nominal Duty	#	**15**	**15**	**17**	17	**A**	**Vendor**	**40**
		Minimum Standby	#				4		**Calc**	
		Blanked-off Ports	#				**1**	**A**	**Lyco**	
		Installed Cyclones	#				**22**	**A**	**Vendor**	**40**
		Total Ports on Cluster	#				22		**Calc**	
		Nominal Standby	#	7	7	5	7		**Calc**	

8 GRAVITY CIRCUIT

A portion of the outlet from the mill discharge hopper will be pumped to the gravity recoverable gold (GRG) circuit, which will consist of two scalping screens and two batch centrifugal gravity concentrators. Gravity scalping screen oversize will return to the mill discharge hopper, with screen undersize reporting to the corresponding gravity concentrator. Gravity concentrator tailings will also return to the mill discharge hopper. Gravity concentrate will periodically be dumped from the gravity concentrators and report to the intensive cyanidation reactor. Gravity concentrate will be processed using intensive cyanidation. Once per day, pregnant solution will be pumped to the gravity pregnant solution tank near the goldroom for gold recovery in a dedicated electrowinning circuit and intensive cyanidation tailings will be pumped back to the mill discharge hopper. Fluidising water will be supplied from a dedicated pump set off the process water system, and filtered inline to remove particulates. **B** **Lyco**

Gravity Circuit Feed				**Oxide**	**Transition**	**Fresh**	**Design**			
	Gravity Circuit Feed Source		type				**Pumped from Mill Discharge Hopper**	**A**	**Agreed**	**26**
	Feed Density (Screen)	% Solids	% w/w				**50**	**A**	**Cons**	**7**
	Feed to Gravity Circuit		% of new feed	119	119	130			**Calc**	
	Design Margin		%	19	19	30			**Calc**	
Gravity Feed Pumps				**Oxide**	**Transition**	**Fresh**	**Design**			
	Pump Feed (Nominal)	Solids	dry t/h	**800**	**800**	**800**			**Calc**	
		% Solids	% w/w	**53**	**53**	**53**			**Calc**	
		Solids	SG	**2.47**	**2.57**	**2.67**			**Calc**	
		Solution	t/h	**708**	**707**	**708**			**Calc**	
		Solution	SG	**1.00**	**1.00**	**1.00**			**Calc**	
		Total Stream	wet t/h	**1,508**	**1,507**	**1,508**			**Calc**	
		Volumetric Flow	m^3/h	**1,032**	**1,019**	**1,008**			**Calc**	
		Slurry	SG	**1.46**	**1.48**	**1.50**			**Calc**	
	Number of Pumps	Installed	#				**1**	**A**	**Lyco**	
	Pump Configuration		type				**1 duty, 0 standby**	**A**	**Lyco**	
	Pump Flowrate	Nominal	m^3/h	1,032	1,019	1,008			**Calc**	
	Gland Seal Water	**Filtered Water**	m^3/h				**3.5**	**A**	**Lyco**	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Client	Resolute Mining Limited					Date	19-Nov-25	Revision	C		
Project	Doropo Gold DFS							Prepared	AG		
Document	PROCESS DESIGN CRITERIA (2326-FPDC-001)					Job Number	2326	Checked	RH		
#	PARAMETERS		UNITS					DESIGN	REV	SOURCE	REF
Gravity Scalping Screen				Oxide	Transition	Fresh	Design				
	Number of Screens		#				2	A	Agreed	26
	Screen Configuration		type				2 duty, 0 standby	A	Agreed	26
	Screen Type		type				Single deck, Vibrating, Horizontal	A	Lyco	
	Screen Capacity		$m^3/h.m^2$				80	A	Lyco	
	Screen Area	Minimum Required	m^2/screen	6	6	6			Calc	
		Selected	m^2/screen				12	A	Lyco	
	Screen Size	Width x Length	m				2.44 x 4.88	A	Lyco	
	Screen Deck									
	Material		type				Polyurethane	A	Lyco	
	Aperture Size		mm				2 x 11.5 slots SWF	A	Lyco	
	Panel Open Area		%				16.9	A	Lyco	
	Spray Water	Process Water	m^3/h.screen				20	A	Cons	7
			$m^3/h.m^2$				2		Calc	
	Oversize Split		% of feed				15	A	Cons	7
	Oversize Moisture		% w/w				80	A	Cons	7
Gravity Concentrator				Oxide	Transition	Fresh	Design				
	Gravity Concentrator Type		type				Centrifugal Gravity Concentrator	A	Agreed	26
	Number of Concentrators		#				2	A	Agreed	26
	Gravity Concentrator Model		type				KC-QS48 or equivalent	A	Agreed	26
	Gravity Concentrator Bowl		type				GX10 Cone	A	Vendor	16
	Maximum Recommended Feed	Solids	dry t/h.unit				400	A	Vendor	16
		Slurry	m^3/h.unit				545	A	Vendor	16
	Design Feed	Nominal	% of max feed				85	A	Lyco	
			dry t/h.unit				340		Calc	
	Fluidisation Water	Range	m^3/h.unit				35 - 55	A	Vendor	16
		Process Water	m^3/h.unit				55	A	Vendor	16
	Fluidisation Water Filter		type				In-line with auto backwash	A	Lyco	
	Gravity Concentrators Filters Backwash	Process Water	m^3/h.unit				0.04	A	Vendor	16
	Concentrate Discharge Frequency per Cycle	Range	minutes				30 - 240	A	Vendor	16
		Nominal	minutes				45	A	Lyco	
	Concentrate SG						3.4	A	Lyco	
	Concentrate % Solids		% w/w				10	A	Lyco	
	Mass of Concentrate	Range	dry kg/cycle.unit				65 - 80	A	Vendor	16
		Nominal	dry kg/cycle.unit				80	A	Lyco	
	Gravity Concentrate Produced	Total	dry kg/d				5,120		Calc	
Gravity Concentrate Treatment										
	Gravity Concentrate Produced	Total	dry kg/d				5,120		Calc	
	Gravity Gold Recovery Method		type				Intensive Cyanidation	A	Lyco	
	Number of Circuits		#				1	A	Lyco	
	Treatment Cycle		type				Batch	A	Vendor	17
	Treatment Model		type				Gekko ILR2000BA or equivalent	A	Vendor	17
	Treatment Capacity	Maximum	dry kg/batch				5,900 @ 4.0 SG	A	Vendor	17
			batches/d				1	A	Lyco	
	Leach Run Time		hours				20	A	Lyco	
	Feed Cone		m^3				7.5	A	Vendor	18
	ILR Solution Storage		m^3				10.0	A	Vendor	18
	Recovery	Au	%				99	A	Assume	
		Ag	%				98	A	Assume	
	Feed Density		% w/w				60	A	Lyco	
	Leaching Solution		m^3				10.0	A	Vendor	18
	Cyanide Solution Concentration	Range	% w/v				0.5 - 5.0	A	Vendor	18
			% w/v				3.0	A	Lyco	
	Caustic Solution Concentration	Range	% w/v				0 - 3.0	A	Vendor	17
			% w/v				3.0	A	Lyco	
	Flocculant Solution Concentration	Range	% w/v				0.1 - 0.3	A	Vendor	18
			% w/v				0.25	A	Lyco	
	Cyanide Required	100% w/w NaCN	dry kg/t conc				59		Calc	
	Caustic Required	100% w/w NaOH	dry kg/t conc				59		Calc	
	Flocculant Required	100% w/w	dry g/t conc				50	A	Vendor	18
	Cyanide Required per Batch	100% w/w NaCN	dry kg/batch				300		Calc	
	Caustic Required per Batch	100% w/w NaOH	dry kg/batch				300		Calc	
	Flocculant Requirement per Batch	100% w/w	dry g/batch				256		Calc	
	Oxygen Requirement per Batch	100% w/w Oxygen	kg/batch				114		Calc	
		Range	Nm^3/batch				20 - 80	A	Vendor	17
		100% w/w Oxygen	Nm^3/batch				80	A	Lyco	
			kPa(g)				110	A	Vendor	17
	Flocculant per Batch	Filtered Water	m^3/batch				0.10		Calc	
	Fluidisation per Cycle	Filtered Water	m^3/batch				2.0	A	Lyco	
	Rinse Water to EW	Filtered Water	m^3/batch				10.0	A	Lyco	
	Rinse Water to CIL	Process Water	m^3/batch				5.0	A	Lyco	
	Tails Flush Water to Mill Discharge	Process Water	m^3/batch				10.0	A	Lyco	
Gravity Electrowinning										
	Pregnant Eluate Tank	Minimum Live	m^3				20		Calc	
	Pregnant Solution to Electrowinning	per Cell	m^3/h				24.0		Calc	
		Total	m^3/h				24.0		Calc	
	Electrowinning Cell Linear Velocity	Maximum	m/minute				0.40	A	Lyco	
	Electrowinning Time	Target	hours				10	A	Lyco	
		Range	hours				6 - 12	A	Lyco	
	Pregnant Eluate Grade	Gold	g/m^3				567		Calc	
		Silver	g/m^3				347		Calc	
	Target Barren Eluate Grade	Gold	g/m^3				5	A	Lyco	
	Number of Electrowinning Cells		#				1	A	Lyco	
	Type of Cathode		type				Stainless Steel Woven Stocking	A	Lyco	
	Number of Cathodes per Cell		#				22	A	Lyco	
	Cathode Size	Width x Height	mm				1,000 x 1,000	A	Lyco	
	Cathode Area Installed		m^2				1	A	Lyco	
	Current Efficiency		%				15.0	A	Lyco	
	Pass Efficiency		%				95.4	A	Lyco	
	Rectifier Size	Required	Amps/cell				3,278	A	Lyco	
		Selected	Amps/cell				4,500	A	Lyco	
			Volts				0 - 7	A	Lyco	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any
third party without written authority from Lycopodium Minerals Pty Ltd.

Client	Resolute Mining Limited				Date	19-Nov-25	Revision	C		
Project	Doropo Gold DFS						Prepared	AG		
Document	PROCESS DESIGN CRITERIA (2326-FPDC-001)				Job Number	2326	Checked	RH		
#	PARAMETERS	UNITS					DESIGN	REV	SOURCE	REF

9 TRASH SCREENING & PRE-LEACH THICKENER

Overflow from the hydrocyclones will report to the trash screen. Trash screen oversize will gravitate to a bunker. Trash screen undersize will report to the pre-leach thickener. Thickener underflow will be pumped to the leaching / adsorption circuit. Thickener overflow will gravitate to the pre-leach thickener overflow tank. A Lyco

Trash Screen

			Oxide	Transition	Fresh	Design			
Circuit Feed (Nominal)	Solids	dry t/h	676	675	615			Calc	
	% Solids	% w/w	29	29	29			Calc	
	Solids	SG	2.47	2.57	2.67			Calc	
	Solution	t/h	1,646	1,661	1,528			Calc	
	Solution	SG	1.00	1.00	1.00			Calc	
	Total Stream	wet t/h	2,322	2,337	2,143			Calc	
	Volumetric Flow	m^3/h	1,956	1,960	1,795			Calc	
	Slurry	SG	1.21	1.21	1.22			Calc	
Number of Screens		#				1	A	Lyco	
Screen Configuration		type				1 duty, 0 standby	A	Lyco	
Screen Type		type				Single deck, vibrating, horizontal	A	Lyco	
Screen Capacity		$m^3/h.m^2$				78	A	Lyco	
Screen Area	Minimum Required	m^2/screen	25	25	23	25		Calc	
	Selected	m^2/screen				26	A	Lyco	
Screen Size	Width x Length	m				3.60 x 7.32	A	Lyco	
Screen Deck									
Material		type				Polyurethane	A	Lyco	
Aperture Size		mm				0.63 x 8.8 mm SWF	A	Lyco	
Spray Water	Process Water	m^3/h.screen				36	A	Lyco	
		$m^3/h.m^2$				1.4		Calc	

Pre-Leach Thickener

			Oxide	Transition	Fresh	Design			
Circuit Feed (Nominal)	Solids	dry t/h	676	675	615			Calc	
	% Solids	% w/w	27	27	28			Calc	
	Solids	SG	2.47	2.57	2.67			Calc	
	Solution	t/h	1,817	1,833	1,589			Calc	
	Solution	SG	1.00	1.00	1.00			Calc	
	Total Stream	wet t/h	2,493	2,508	2,204			Calc	
	Volumetric Flow	m^3/h	2,091	2,095	1,819			Calc	
	Slurry	SG	1.19	1.20	1.21			Calc	
Number of Thickeners		#				1	A	Agreed	37
Thickener Type		type				High Rate	A	Test	19
Thickener Overflow	Nominal	m^3/h	1,085	1,101	974	1,101		Calc	
	Suspended Solids	ppm	<100 - 1,060	<100 - 180	<100 - 140		A	Test	19
Settling Flux	Range	$t/m^2.h$	0.50 - 1.00	0.50 - 1.00	0.50 - 1.00		A	Test	19
	Nominal	$t/m^2.h$	0.75	0.75	1.00		A	Test	19
Thickener Sizing Basis						Settling Rate	A	Lyco	
Nominal Throughput	Area	m^2	901	900	615			Calc	
	Diameter	m	33.9	33.9	28.0			Calc	
Selected Thickener Diameter		m				38	A	Lyco	
Thickener Underflow	Range	% w/w	45.7 - 55.0	48.4 - 62.1	62.3 - 67.6		A	Test	19
	Nominal	% w/w	48.0	48.0	50.0		A	Agreed	37
Flocculant Addition (Based on Thickener Feed)	Range	g/t solids feed	20 - 140	5 - 50	10 - 30		A	Test	19
	Nominal	g/t solids feed	50	50	10	50	A	Agreed	37
	Maximum	g/t solids feed	140	50	30	140	A	Test	19
	Nominal	dry kg/h	34	34	6	34		Calc	
	Maximum	dry kg/h	95	34	18	95		Calc	
	Mix Concentration	% w/v				0.25		Calc	
	Diluted Concentration	% w/v				0.025		Calc	
	Nominal Dosage Rate	m^3/h	14	14	2	14		Calc	
	Nominal Dilution Water Required	m^3/h	122	122	22	122		Calc	
	Maximum Dosage Rate	m^3/h	38	14	7	38		Calc	
	Maximum Dilution Water Required	m^3/h	341	122	66	341		Calc	
Coagulant Addition (Based on Thickener Feed)	Range	g/t solids feed	800	200 - 600	0		A	Test	19
	Nominal	g/t solids feed	300	300	0	300	A	Agreed	37
	Maximum	g/t solids feed	800	600	0	800	A	Test	19
	Nominal	dry kg/h	203	203	0	203		Calc	
	Maximum	dry kg/h	540	405	0	540		Calc	
	Mix Concentration	% w/w				40		Calc	
	Nominal Dosage Rate	m^3/h	0.5	0.5	0.0	0.5	A	Industry	
	Maximum Dosage Rate	m^3/h	1.2	0.9	0.0	1.2	A	Industry	

Pre-Leach Thickener Underflow Pumps

			Oxide	Transition	Fresh	Design			
Pump Feed (Nominal)	Solids	dry t/h	676	675	615			Calc	
	% Solids	% w/w	48	48	50			Calc	
	Solids	SG	2.47	2.57	2.67			Calc	
	Solution	t/h	734	734	618			Calc	
	Solution	SG	1.00	1.00	1.00			Calc	
	Total Stream	wet t/h	1,410	1,409	1,233			Calc	
	Volumetric Flow	m^3/h	1,008	997	848			Calc	
	Slurry	SG	1.40	1.41	1.45			Calc	
Number of Pumps	Installed	#				2	A	Lyco	
Pump Configuration		type				1 duty, 1 standby	A	Lyco	
Pump Flowrate	Nominal	m^3/h	1,008	997	848			Calc	
Gland Seal Water		m^3/h				2.4	A	Lyco	

Pre-Leach Thickener Overflow Tank

Number of Tanks		#				1	A	Lyco	
Tank Type		type				Flat bottom	A	Lyco	
Tank Residence Time		minutes				2	A	Lyco	
Tank Live Volume Required		m^3				58		Calc	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any
third party without written authority from Lycopodium Minerals Pty Ltd.

10 LEACH & ADSORPTION

Pre-leach thickener underflow will be pumped to the leach feed sampling station and then to the leach/adsorption circuit. The leach/adsorption circuit will consist of 8 tanks; 2 leach tanks and 6 CIL tanks. The CIL tanks will have intertank / interstage screens and carbon advance pumps for carbon handling. Sodium cyanide solution will be dosed into the leach tanks and some of the CIL tanks, while all tanks will be supplied with oxygen. | A | Lyco

Parameters

			Oxide	Transition	Fresh	Design			
Circuit Feed (Nominal)	Solids	dry t/h	676	675	615			Calc	
	% Solids	% w/w	47.9	47.9	49.9			Calc	
	Solids	SG	2.47	2.57	2.67			Calc	
	Solution	t/h	734	734	618			Calc	
	Solution	SG	1.00	1.00	1.00			Calc	
	Total Stream	wet t/h	1,410	1,409	1,233			Calc	
	Volumetric Flow	m^3/h	1,008	997	848			Calc	
	Slurry	SG	1.40	1.41	1.45			Calc	
Solids Head Grade	Gold	g/t	2.00	2.00	2.00	2.00		Calc	
Solids Tailings Grade	Gold	g/t	0.08	0.08	0.08	0.08		Calc	
Metal Leached	Gold	dry g/h	1,298	1,298	1,182	1,298		Calc	
Leach Solution Grade	Gold	g/m^3	1.77	1.77	1.91	1.91		Calc	
Target Tailings Solution Grade	Gold	g/m^3				0.015	A	Lyco	
Solids Head Grade	Silver	g/t	1.70	1.70	1.70	1.70		Calc	
Solids Tailings Grade	Silver	g/t	0.25	0.25	0.25	0.25		Calc	
Metal Leached	Silver	dry g/h	981	980	893	981		Calc	
Leach Solution Grade	Silver	g/m^3	1.34	1.34	1.45	1.45		Calc	
Target Tailings Solution Grade	Silver	g/m^3				0.030	A	Lyco	

Circuit

			Oxide	Transition	Fresh	Design			
Type		type				Leach / CIL	A	Agreed	29
Number of Tanks	Leach	#				2	A	Agreed	29
	CIL	#				6	A	Agreed	29
	CIL - Future	#			Future	1	A	Agreed	29
	Total	#				8		Calc	
	Total - Future	#			Future	9		Calc	
Required Residence Time		hours	24	24	36	36	A	Agreed	9,29
Live Volume Required	Total	m^3	24,188	23,923	30,526	30,526		Calc	
	per Tank	m^3	3,023	2,990	3,816	3,816		Calc	
	Selected Size	m^3				4,000	A	Agreed	29
Residence Time	Actual	hours	31.8	32.1	37.7			Calc	
	Design Margin	%	32	34	5			Calc	
Operating pH		pH				>10.5	A	Test	9
pH Modification Method		type				Quicklime on Mill Feed Conveyor	A	Lyco	
Aeration Method	No. 1	type				Down Agitator Shaft	A	Lyco	
Aeration Method	No. 2	type				High Shear Oxygenation Devices (Future)	A	Agreed	38
Slurry Oxygen Concentration	Starting DO	mg/L				8	A	Test	9
	Target DO	mg/L				20	A	Test	9

Aeration

			Oxide	Transition	Fresh	Design			
Gas Addition		type				Oxygen	A	Industry	
Oxygen Uptake Rate	Leach Tank 1	mg/L.minute				0.0050	A	Test	9
	Leach Tank 2	mg/L.minute				0.0033	A	Test	9
	CIL Tank 1	mg/L.minute				0.0027	A	Test	9
	CIL Tank 2	mg/L.minute				0.0024	A	Test	9
	CIL Tank 3	mg/L.minute				0.0022	A	Test	9
	CIL Tank 4	mg/L.minute				0.0020	A	Test	9
	CIL Tank 5	mg/L.minute				0.0019	A	Test	9
	CIL Tank 6	mg/L.minute				0.0018	A	Test	9
Uptake Efficiency	Leach Tank	%				15	A	Lyco	
	CIL Tanks	%				15	A	Lyco	
Nominated Oxygen Purity		% v/v				90		Calc	
Oxygen Addition at Nominated Transfer Efficiency									
	Initial Addition to target DO	kg/h				8.8		Calc	
	Leach Tank 1	kg/h				16.8		Calc	
	Leach Tank 2	kg/h				5.2		Calc	
	CIL Tank 1	kg/h				4.4		Calc	
	CIL Tank 2	kg/h				3.9		Calc	
	CIL Tank 3	kg/h				3.5		Calc	
	CIL Tank 4	kg/h				3.3		Calc	
	CIL Tank 5	kg/h				3.1		Calc	
	CIL Tank 6	kg/h				2.9		Calc	
Total Consumption	100% w/w Oxygen	kg/h				43.0		Calc	
	100% w/w Oxygen	t/d				1.0		Calc	
	100% w/w Oxygen	Nm^3/h				30.1		Calc	
	100% w/w Oxygen	kg/t				0.06		Calc	
	100% w/w Oxygen	Nm^3/t				0.04		Calc	

Loaded Carbon Movement

			Oxide	Transition	Fresh	Design			
Carbon Loading Factor	Gold	factor				1,250	A	Lyco	
Barren Carbon Grade	Gold	g/t carbon				100	A	Industry	
Carbon Loading incl Barren	Gold	g/t carbon	2,310	2,310	2,493	2,493		Calc	
Selected Loading	Gold Nominal	g/t carbon				2,500	A	Agreed	38
	Gold Maximum	g/t carbon				2,600	A	Agreed	38
Carbon Loading Factor	Silver	factor				1,000	A	Lyco	
Barren Carbon Grade	Silver	g/t carbon				100	A	Industry	
Carbon Loading incl Barren	Silver	g/t carbon	1,436	1,436	1,546	1,546		Calc	
Selected Loading	Silver Nominal	g/t carbon				1,600	A	Agreed	38
	Silver Maximum	g/t carbon				1,700	A	Agreed	38
Required Carbon Advance Rate									
Based on Gold	at Nominal Loadings	dry t/d	13.0	13.0	11.8	13.0		Calc	
	at Maximum Loadings	dry t/d	12.5	12.5	11.4	12.5		Calc	
Based on Silver	at Nominal Loadings	dry t/d	15.7	15.7	14.3	15.7		Calc	
	at Maximum Loadings	dry t/d	14.7	14.7	13.4	14.7		Calc	
Selected Carbon Advance Rate		dry t/d				16.0		Calc	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

	Carbon Concentration in CIL	Range	dry g/L					5 - 15	A	Industry	
		Nominal	dry g/L					10	A	Lyco	
	Total Carbon Inventory in CIL		dry t					240		Calc	
	Carbon Consumption Rate		dry kg/t					0.030	A	Industry	
			dry kg/d	486	486	443	486			Calc	
	Loaded Carbon Recovery										
	Method		type					Recessed Impeller Pump	A	Lyco	
	Transfer Time		h/d					6	A	Lyco	
	Total Slurry Flow		m^3/h					267		Calc	
	Slurry Flow per Pump		m^3/h					267		Calc	
	Intertank Transfer										
	Method		type					Recessed Impeller Pump	A	Lyco	
	Transfer Time		h/d					8	A	Lyco	
	Total Slurry Flow		m^3/h					200		Calc	
	Slurry Flow per Pump		m^3/h					200		Calc	
Intertank Screen				**Oxide**	**Transition**	**Fresh**	**Design**				
	Number of Screens per Tank	Installed	#				1	A	Lyco		
		Operating	#				1	A	Lyco		
	Screen Type		type				Vertical, Mech. Swept	A	Lyco		
	Cloth Type		type				Wedge Wire - PW63	A	Lyco		
	Aperture Size		mm				0.83	A	Lyco		
	Flowrate	Nominal CIL Slurry	m^3/h	1,008	997	848			Calc		
		Carbon Advancement	m^3/h	267	267	267			Calc		
		Miscellaneous Flows	m^3/h	50	50	50		A	Lyco		
		Total	m^3/h	1,324	1,313	1,165	1,324		Calc		
	Screen Size	Diameter x Height	m x m				2.40 x 3.44	A	Lyco		
	Screen Area		m^2				26	A	Lyco		
	Screening Capacity	Installed	$m^3/h.m^2$	51	51	45	51		Calc		
		Maximum	$m^3/h.m^2$				60	A	Industry		
	Screen Cleaning Method	High Pressure Wash	kPa(g)				25,000	A	Industry		
Loaded Carbon Recovery Screen				**Oxide**	**Transition**	**Fresh**	**Design**				
	Number of Screens		#				1	A	Lyco		
	Screen Configuration		type				1 duty, 0 standby	A	Lyco		
	Screen Type		type				Single Deck, Horizontal, Vibrating	A	Lyco		
	Screen Capacity		$m^3/h.m^2$				68	A	Lyco		
	Screen Area	Minimum Required	m^2/screen	4	4	4	4		Calc		
		Selected	m^2/screen				6.7		Calc		
	Screen Size	Width x Length	m				1.83 x 3.66	A	Lyco		
	Screen Deck										
	Material		type				Polyurethane	A	Lyco		
	Aperture Size		mm				0.75 x 13 mm SWF	A	Lyco		
	Panel Open Area		%				13	A	Lyco		
	Spray Water	Process Water	m^3/h.screen				12	A	Lyco		
			$m^3/h.m^2$				2		Calc		
CIL Tailings Sampling				**Oxide**	**Transition**	**Fresh**	**Design**				
	Sample Type		type				Metallurgical Accounting	A	Lyco		
	Sampler Type		type				Thermo Fisher Multistage Sampler, or similar	A	Lyco		
	Number of Sampler Stages		#				2	A	Lyco		
	Sample Location		type				Delivery to Carbon Safety Screen Feed Distribution Box	A	Lyco		
	Primary Sampler		type				Cross Cut	A	Lyco		
	Secondary Sampler		type				Rotary Vezin	A	Lyco		
Carbon Safety Screen				**Oxide**	**Transition**	**Fresh**	**Design**				
	Number of Screens		#				1	A	Lyco		
	Screen Configuration		type				1 duty, 0 standby	A	Lyco		
	Screen Type		type				Single Deck, Horizontal, Vibrating	A	Lyco		
	Screen Capacity		$m^3/h.m^2$				74	A	Lyco		
	Screen Area	Minimum Required	m^2/screen	14	14	12	14		Calc		
		Selected	m^2/screen				17.9		Calc		
	Screen Size	Width x Length	m				2.44 x 7.32	A	Lyco		
	Screen Deck										
	Material		type				Polyurethane	A	Lyco		
	Aperture Size		mm				1 x 8.8 mm SWF	A	Lyco		
	Panel Open Area		%				16.4	A	Lyco		
	Spray Water	Process Water	m^3/h.screen				36	A	Lyco		
			$m^3/h.m^2$				2.0		Calc		
Cyanide Addition				**Oxide**	**Transition**	**Fresh**	**Design**				
	Testwork NaCN Consumption	Range	dry kg/t	0.57 - 0.81	0.48 - 0.72	0.45 - 0.63		A	Test	9	
		Nominal	dry kg/t	0.69	0.56	0.57		A	Agreed	29	
		Maximum	dry kg/t	0.81	0.72	0.63	0.81	A	Test	9	
	Residual NaCN in CIL Tailings Solution	Nominal	g/m^3				250	A	Test	9	
		NaCN	dry kg/t	0.27	0.27	0.25	0.27		Calc		
	NaCN Addition Rate	Nominal	dry kg/t	0.96	0.83	0.82	0.96		Calc		
		100% w/w NaCN	dry kg/h	649	561	505	649		Calc		
		Maximum	dry kg/t	1.08	0.99	0.88	1.08		Calc		
		100% w/w NaCN	dry kg/h	730	669	542	730		Calc		
Cyanide Analyser											
	Number of Cyanide Analysers		#				1	A	Lyco		
	Analysis Required		type				Free CN, pH & Dissolved Oxygen	A	Lyco		
	Analyser Type		type				Silver Nitrate Potentiometric Titration	A	Lyco		
	Analyser Model		type				OCM5500, or similar	A	Lyco		
	Wash Water Required	Potable	m^3/h				0.002	A	Vendor	33	
		Maximum	kpa				500	A	Vendor	33	
	Sample Stream Flow	Recommended	L/minute				Flow Controlled by Analyser Pump	A	Vendor	33	
	Stream No. 1		type				Leach Tank 2	A	Lyco		
	Stream No. 2		type				CIL Tank 2	A	Lyco		

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

11 ELUTION, ELECTROWINNING, CARBON REACTIVATION

Loaded carbon will be stripped using a split AARL elution circuit. Acid wash and elution will be carried out in separate columns. Carbon will be washed with a dilute hydrochloric acid solution, rinsed with water and transferred to the elution column. Carbon will then be eluted at temperature with a solution of sodium cyanide and caustic, followed by water. Pregnant solution will be pumped to electrowinning cells, where gold and silver will be deposited onto stainless steel mesh cathodes. Eluted carbon will be thermally reactivated before returning to the CIL circuit. The loaded stainless steel cathodes will be washed with high pressure water. Gold sludge will be filtered, dried and mixed with fluxes, and smelted to produce doré bars.

					A	Lyco		
Elution Circuit								
	Elution Type		type	Split AARL	A	Agreed	3	
	Carbon Movement	Nominal Loading	dry t/week	91		Calc		
		Maximum Loading	dry t/week	87		Calc		
	Strip Schedule		strip/d	1	A	Agreed	3	
			strip/week	6	A	Agreed	3	
	Elution Circuit Size	Nominal Loading	dry t/strip	15		Calc		
		Maximum Loading	dry t/strip	15		Calc		
		Selected	dry t/strip	16	A	Agreed	3	
		Design Margin	%	10		Calc		
	Carbon Bulk Density		t/m^3	0.47	A	Industry		
	Carbon Wetted Density		t/m^3	1.40	A	Lyco		
	Carbon Batch Volume (Bed Volume)		m^3	34.0		Calc		
	Carbon	Loaded Gold	g/t	2,500		Calc		
		Barren Gold	g/t	100		Calc		
		Loaded Silver	g/t	1,600		Calc		
		Barren Silver	g/t	100		Calc		
		Loaded Gold and Silver	g/t	4,100		Calc		
		Barren Gold and Silver	g/t	200		Calc		
	Solution Flowrate		BV/h	2.0	A	Lyco		
			m^3/h	68.1		Calc		
Acid Wash								
	Acid Type		type	HCl	A	Industry		
	Acid Solution Concentration		% w/v	3		Calc		
	Acid Soak Volume		BV	0.67	A	Industry		
		Total	m^3	22.8		Calc		
		100% w/w HCl	kg/strip	684		Calc		
		32% w/w HCl	kg/strip	2,138		Calc		
		Filtered Water	m^3	22.1		Calc		
	Acid Soak Time		hours	0.5	A	Industry		
	Time to Fill Column		hours	0.5	A	Industry		
	Acid Rinse Volume		BV	4.0	A	Industry		
		Filtered Water	m^3	136		Calc		
	Acid Rinse Time		hours	2.0		Calc		
	Carbon Transfer to Elution		hours	1	A	Industry		
	Carbon Transferred	Solid Carbon	m^3	34.0		Calc		
	Carbon Transfer Water		BV	2.0		Calc		
		Filtered Water	m^3	68.1		Calc		
	Total Volume	Carbon + Water	m^3	102		Calc		
			m^3/h	102		Calc		
Solution Presoak								
	Cyanide Solution Concentration		% w/v	2.0	A	Industry		
	Caustic Solution Concentration		% w/v	3.0	A	Industry		
	Presoak Solution Volume		BV	0.67	A	Industry		
			m^3	22.8		Calc		
	Presoak Time		hours	0.5	A	Industry		
	Time to Fill Column		hours	0.3		Calc		
	Cyanide Required	100% w/w NaCN	dry kg/strip	456		Calc		
		20% w/v NaCN	m^3/strip	2.3		Calc		
	Caustic Required	100% w/w NaOH	dry kg/strip	684		Calc		
		20% w/v NaOH	m^3/strip	3.4		Calc		
	Water Required	Filtered Water	m^3	17.1		Calc		
Elution								
	Total Elution Cycle (including Presoak)		BV	10	A	Industry		
			m^3	340		Calc		
			hours	5		Calc		
	Pregnant Eluate Cycle		BV	5	A	Industry		
			m^3	170		Calc		
	Pregnant Eluate Tank		BV	6	A	Lyco		
			m^3	204		Calc		
			#	2	A	Lyco		
	Lean Eluate Cycle		BV	5		Calc		
		Filtered Water	m^3	170		Calc		
	Lean Eluate Tank		BV	6	A	Lyco		
			m^3	204		Calc		
			#	1	A	Lyco		
	Strip Water Cycle	Rinse Volume	BV	3	A	Industry		
		Cooling Volume	BV	2		Calc		
		Filtered Water	m^3	170		Calc		
	Strip Water Tank		BV	6	A	Lyco		
			m^3	204		Calc		
			#	1	A	Lyco		
	Temperature	Preheat	°C	95	A	Industry		
		Elution	°C	140	A	Industry		
		Recovery HX exit	°C	70	A	Industry		
	Elution Heater	Fuel Type	type	Diesel	A	Client	38	
		Energy Requirement	kW/t carbon	320	A	Lyco		
		Calculated Rating	kW	5,120		Calc		
		Fuel Consumption	L/h	489		Calc		
		Utilisation	h/strip	5		Calc		
	Diesel		L/strip	2,610		Calc		
	Carbon Transfer to Reactivation		hours	1	A	Industry		
	Carbon Transferred	Solid Carbon	m^3	11.4		Calc		
	Carbon Transfer Water		BV	2.0		Calc		
		Filtered Water	m^3	68.1		Calc		
	Total Volume	Carbon + Water	m^3	80		Calc		

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Client	Resolute Mining Limited				Date	19-Nov-25	Revision	C	
Project	Doropo Gold DFS						Prepared	AG	
Document	PROCESS DESIGN CRITERIA (2326-FPDC-001)				Job Number	2326	Checked	RH	

#	PARAMETERS		UNITS				DESIGN	REV	SOURCE	REF
Elution Electrowinning										
	Target Caustic Concentration in Pregnant Eluate		% w/v				0.5	A	Industry	
	Caustic Required	100% w/w NaOH	dry kg/strip				167		Calc	
		20% w/v NaOH	m^3/strip				0.8		Calc	
		Dosage Time	hours				2.5		Calc	
	Pregnant Solution to Electrowinning	per Cell	m^3/h				24.0		Calc	
		Total	m^3/h				72.0		Calc	
	Electrowinning Cell Linear Velocity	Maximum	m/minute				0.40	A	Lyco	
	Electrowinning Time	Target	hours				10	A	Lyco	
		Range	hours				6 - 12	A	Lyco	
	Pregnant Eluate Grade	Gold	g/m^3				226		Calc	
		Silver	g/m^3				141		Calc	
	Target Barren Eluate Grade	Gold	g/m^3				5	A	Lyco	
	Number of Electrowinning Cells		#				3	A	Lyco	
	Type of Cathode		type				Stainless Steel Woven Stocking	A	Lyco	
	Number of Cathodes per Cell		#				22	A	Lyco	
	Cathode Size	Width x Height	mm				1,000 x 1,000	A	Lyco	
	Cathode Area Installed		m^2				1	A	Lyco	
	Current Efficiency		%				15.0	A	Lyco	
	Pass Efficiency		%				95.4	A	Lyco	
	Rectifier Size	Required	Amps/cell				3,278	A	Lyco	
		Selected	Amps/cell				4,500	A	Lyco	
			Volts				0 - 7	A	Lyco	
Sludge Recovery										
	Recovery Method	High Pressure Wash	kPa(g)				25,000	A	Industry	
	Wash Water		type				Potable	A	Industry	
	Sludge Bulk Density		t/m^3				4	A	Industry	
	Sludge Precious Metal Content		% w/w				80	A	Industry	
	Sludge Hopper	Live Capacity	m^3				1.5	A	Lyco	
	Sludge Filter Type		type				Vacuum Filter	A	Lyco	
	Sludge Drying		type				Electric Drying Oven	A	Lyco	
		Temperature	°C				150	A	Industry	
		Cycle Time	hours				12	A	Industry	
Sludge Drying				Oxide	Transition	Fresh	Design			
	Sludge Moisture Content		% w/w				20	A	Assume	
	Gold & Silver Metal Production	Nominal	dry kg/a	18,219	18,219	16,599	18,219		Calc	
	Sludge Metal Content		% w/w				80	A	Assume	
			wet kg/a	28,466	28,466	25,936	28,466		Calc	
	Feed to Oven		wet kg/week	547	547	499	547		Calc	
Flux Mixer										
	Flux to Sludge Ratio (Dry Basis)		:1				0.25	A	Lyco	
	Flux Bulk Density	Nominal	t/m^3				1.1	A	Assume	
	Flux Blend	Borax	%				60	A	Assume	
		Soda Ash	%				10	A	Assume	
		Silica Sand	%				15	A	Assume	
		Potassium Nitrate	%				15	A	Assume	
Smelting Furnace				Oxide	Transition	Fresh	Design			
	Smelting Frequency		smelts/week				4	A	Client	38
			pours/smelt				1	A	Client	38
	Smelting Frequency		pours/a				208		Calc	
	Gold & Silver Smelted	Nominal	dry kg/smelt	88	88	80	88		Calc	
	Sludge Charge		dry kg/smelt	109	109	100	109		Calc	
	Sludge Charge		L/smelt	27	27	25	27		Calc	
	Flux Charge		dry kg/smelt	27	27	25	27		Calc	
	Flux Charge		L/smelt	25	25	23	25		Calc	
	Total Charge Volume	Nominal	L				52		Calc	
	Furnace Size	Crucible Size	type				TEX70R	A	Agreed	38
		Crucible Volume	L				72	A	Vendor	32
	Furnace Type		type				Induction	A	Client	38
	Operation		h/d				5	A	Industry	
	Installed Power		kW				150	A	Vendor	32
	Inverter Water Required	De-ionised Water	type				Closed loop	A	Vendor	32
	External Cooling Tower	Filtered Water	type				Open circuit	A	Vendor	32
			L/min				150	A	Vendor	32
			source				Emergency water tank in goldroom	A	Vendor	32
Carbon Dewatering Screen										
	Circuit Feed (Nominal)	Solids	dry t/h				16		Calc	
		% Solids	% w/w				19		Calc	
		Solution	t/h				68		Calc	
		Total Stream	wet t/h				84		Calc	
		Volumetric Flow	m^3/h				80		Calc	
	Number of Screens		#				1	A	Lyco	
	Screen Configuration		type				1 duty, 0 standby	A	Lyco	
	Screen Type		type				Single Deck, Horizontal, Vibrating	A	Lyco	
	Screen Capacity		$m^3/h.m^2$				84	A	Lyco	
	Screen Area	Minimum Required	m^2/screen				0.9		Calc	
		Selected	m^2/screen				3.0	A	Lyco	
	Screen Size	Width x Length	m				1.22 x 2.44	A	Lyco	
	Screen Deck									
	Material		type				Polyurethane	A	Lyco	
	Aperture Size		mm				0.8 x 8.8 mm SWF	A	Lyco	
	Panel Open Area		%				19	A	Lyco	
	Spray Water	Process Water	m^3/h.screen				0	A	Lyco	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any
third party without written authority from Lycopodium Minerals Pty Ltd.

#	PARAMETERS		UNITS				DESIGN	REV	SOURCE	REF
Carbon Reactivation										
	Kiln Feed Hopper	Live Capacity	batch				1.5	A	Lyco	
			dry t				24		Calc	
			m^3				51		Calc	
	Kiln Type		type				Horizontal	A	Lyco	
	Carbon Regenerated		% of eluted				100	A	Industry	
	Processing Time		hours				20	A	Industry	
	Kiln Capacity	Nominal	dry kg/h				800		Calc	
	Operating Temperature		°C				750	A	Industry	
	Retention Time	at Operating Temperature	minutes				20	A	Industry	
	Fuel Type		type				Diesel	A	Client	39
			L/strip				2,880		Calc	
			L/h				144		Calc	
			L/t carbon				180	A	Industry	
Carbon Quench										
	Quench Hopper	Minimum	m^3				15	A	Lyco	
			BV				0.44		Calc	
	Quench/Transfer Water		type				Raw Water	A	Lyco	
	Carbon Particle Density		t/m^3				1.40		Calc	
	Transfer	Time	hours				20		Calc	
		Minimum Slurry Flowrate	m^3/h				20	A	Lyco	
		Carbon Transfer Rate	t/h				0.80		Calc	
			m^3/h				0.6		Calc	
		Required Transfer Water	m^3/h				19		Calc	
		Transfer % Solids	% w/w				4		Calc	
	Quench Water	Required	m^3/h				389		Calc	
		Bleed	%				50	A	Lyco	
		Raw Water	m^3/batch				194		Calc	

Carbon Sizing Screen				Kiln Bypass	Nominal	Design			
Screen Feed	Transfer Rate	hours		1	20			Calc	
	Solids	dry t/h		16	0.8			Calc	
	Volumetric Flow	m^3/h		80	20	80		Calc	
	Number of Screens	#				1	A	Lyco	
	Screen Configuration	type				1 duty, 0 standby	A	Lyco	
	Screen Type	type				Single Deck, Horizontal, Vibrating	A	Lyco	
	Screen Capacity	$m^3/h.m^2$				74	A	Lyco	
	Screen Area	Minimum Required	m^2/screen			1.1		Calc	
		Selected	m^2/screen			3	A	Lyco	
	Screen Size	Width x Length	m			1.22 x 2.44	A	Lyco	
	Screen Deck								
	Material		type			Polyurethane	A	Lyco	
	Aperture Size		mm			1.0 x 8.8, SWF	A	Lyco	
	Panel Open Area		%			16.4	A	Lyco	
	Spray Water	Process Water	m^3/h.screen			4	A	Lyco	
			$m^3/h.m^2$			1		Calc	

12 CYANIDE DESTRUCTION

A cyanide destruction circuit will be installed. Sodium metabisulphite, copper sulphate and oxygen will be used with caustic for pH modification. Cyanide destruction discharge slurry will gravitate to the tailings hopper. A Lyco

				Oxide	Transition	Fresh	Design			
	Circuit Feed (Nominal)	Solids	dry t/h	676	675	615			Calc	
		% Solids	% w/w	45	45	47			Calc	
		Solids	SG	2.47	2.57	2.67			Calc	
		Solution	t/h	820	819	702			Calc	
		Solution	SG	1.00	1.00	1.00			Calc	
		Total Stream	wet t/h	1,495	1,494	1,317			Calc	
		Volumetric Flow	m^3/h	1,093	1,081	932			Calc	
		Slurry	SG	1.37	1.38	1.41			Calc	
	Residual NaCN in CIL Tailings Solution	Nominal	g/m^3	250	250	250			Calc	
	Residual NaCN in Cyanide Destruction Feed	Nominal	g/m^3	239	239	237			Calc	
		Design	g/m^3				300	A	Agreed	4
	CN_{WAD} in Cyanide Destruction Feed	Nominal	g/m^3	127	127	126			Calc	
		Design	g/m^3				159		Calc	
		Associated with Cu and Fe	g/m^3				10	A	Test	9
		Total Nominal	g/m^3	137	137	136	137		Calc	
		Total Design	g/m^3				169		Calc	
	Total CN_{WAD} in Cyanide Destruction Feed	Nominal	g/m^3				137		Calc	
		Design	g/m^3				169		Calc	
	CN_{WAD} in Discharge at TSF	Maximum	g/m^3				50	A	Industry	
	CN_{WAD} in Discharge	Nominal	g/m^3				50	A	Client	4

Cyanide Destruction				Oxide	Transition	Fresh	Design			
	Cyanide Destruction Process		type				INCO Process (Oxygen/SO_2)	A	Client	4
	Operating pH		pH				9	A	Industry	
	Required Residence Time		minutes				90	A	Industry	
	Number of Reactors		#				2	A	Lyco	
	Air Holdup Allowance		%				15	A	Lyco	
	Live Volume Required	Total	m^3	1,929	1,908	1,645			Calc	
		per Reactor	m^3	964	954	823			Calc	
		Selected Size	m^3				1,000	A	Lyco	
	Residence Time		minutes	110	111	129			Calc	
	Total Cyanide in Reactor		g/m^3	137	137	136	169		Calc	
	Copper In Cyanide Destruction Feed	Minimum	g/m^3				4	A	Test	9
	Iron in Cyanide Destruction Feed	Minimum	g/m^3				2	A	Test	9
	Cyanide Load	Feed	kg/h	112	112	95	139		Calc	
		Target Discharge	kg/h	41	41	35	41		Calc	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

				Oxide	Transition	Fresh	Design			
Sodium Metabisulphite (SMBS)										
Reagent Type			type				$SMBS (Na_2S_2O_5)$	A	Industry	
SO_2/CN_{WAD} Weight Ratio	Maximum		kg/kg				3.5	B	Industry	
	100% Stoichiometric		kg/kg				2.5		Calc	
Stoichiometric Percentage			%				142		Calc	
Equivalent SO_2 in SMBS			%				67.4	A	Industry	
$SMBS/CN_{WAD}$ Weight Ratio			kg/kg				5.2		Calc	
Required SMBS Addition	100% w/w $Na_2S_2O_5$		kg/h	369	369	313	507		Calc	
	100% w/w $Na_2S_2O_5$		kg/t	0.55	0.55	0.51	0.55		Calc	

				Oxide	Transition	Fresh	Design			
Copper Sulphate										
Reagent Type			type				$Copper Sulphate Pentahydrate (CuSO_4.5H_2O)$	A	Industry	
Existing Copper Flowrate			dry g/h	3,605	3,602	3,089			Calc	
Copper Required for Iron Precipitation			dry g/h	3,730	3,726	3,195			Calc	
Additional Copper Required			dry g/h	124	124	106			Calc	
Selected Copper Excess			g/m^3				50	A	Industry	
Copper Required for Excess			dry g/h	40,971	40,935	35,097	40,971		Calc	
Total Copper Required			dry g/h	41,095	41,059	35,204	41,095		Calc	
Copper Sulphate Required	100% w/w $CuSO_4.5H_2O$		kg/h	161	161	138	161		Calc	
	100% w/w $CuSO_4.5H_2O$		kg/t	0.24	0.24	0.22	0.24		Calc	

				Oxide	Transition	Fresh	Design			
pH Modification										
Reagent Type			type				Sodium Hydroxide (NaOH) Caustic	A	Industry	
pH Modifier Molecular Weight			g/mol				40	A	Industry	
Moles Reagent per Mole SMBS			ratio				2	A	Industry	
SMBS Molecular Weight			g/mol				190	A	Industry	
SMBS Addition			mol/h	1,944	1,943	1,647	2,667		Calc	
Caustic used by Cu^{2+}			mol/h	323	323	277	323		Calc	
Caustic Addition			mol/h	4,212	4,208	3,571	5,657		Calc	
	100% w/w NaOH		kg/h	168	168	143	226		Calc	
	100% w/w NaOH		kg/t	0.25	0.25	0.23	0.34		Calc	
Caustic/SMBS Weight Ratio			kg/kg	0.46	0.46	0.46	0.45		Calc	

				Oxide	Transition	Fresh	Design			
Aeration										
Gas Addition			type				Oxygen	A	Industry	
Addition Method			type				Down Agitator Shaft	A	Lyco	
CN_{WAD} Flowrate			kg/h	71	71	60	98		Calc	
Oxygen Required by CN_{WAD}			kg/h	88	87	74	120		Calc	
Cu^{1+} Flowrate			kg/h	3.6	3.6	3.1	0.0		Calc	
Oxygen Required by Cu^{1+}			kg/h	0.9	0.9	0.8	0.0		Calc	
SO_2 Input			kg/h	249	249	211	341		Calc	
SO_2 used by CN_{WAD}			kg/h	175	175	148	240		Calc	
SO_2 used by Cu^{1+}			kg/h	3.6	3.6	3.1	0.0		Calc	
SO_2 used by CN_{WAD} and Cu^{1+}			kg/h	179	179	151	240		Calc	
SO_2 Excess			kg/h	70	70	59	101		Calc	
Oxygen Required by Excess SO_2			kg/h	35	35	30	51		Calc	
Total Oxygen Required			kg/h	124	123	105	171		Calc	
Oxygen Transfer Efficiency			%				40	A	Lyco	
Oxygen Consumption at Nominated Transfer Efficiency	100% w/w Oxygen		kg/h	309	309	262	427		Calc	
	100% w/w Oxygen		Nm^3/h	216	216	183	299		Calc	
	100% w/w Oxygen		kg/t	0.46	0.46	0.43	0.63		Calc	
	100% w/w Oxygen		Nm^3/t	0.32	0.32	0.30	0.44		Calc	

WAD Cyanide Analyser										
Number of Cyanide Analysers			#				1	A	Lyco	
Analysis Required			type				WAD CN, pH & Dissolved Oxygen	A	Lyco	
Analyser Type			type				WAD Dissociation and Potentiometric Titration	A	Lyco	
Analyser Model			type				OCM6500, or similar	A	Lyco	
Wash Water Required	Potable		m^3/h				0.002	A	Vendor	34
	Maximum		kpa				500	A	Vendor	34
Sample Stream Flow	Recommended		L/minute				Flow Controlled by Analyser Pump	A	Vendor	34
Stream No. 1			type				Cyanide Destruction Distribution Box	A	Lyco	
Stream No. 2			type				Cyanide Destruction Tank Discharge	A	Lyco	

13 TAILINGS

Tailings slurry from cyanide destruction will report to the tailings hopper before being pumped to the TSF. A Lyco

Tailings Pumps

			Oxide	Transition	Fresh	Design			
Pump Feed (Nominal)	Solids	dry t/h	676	675	615				Calc
	% Solids	% w/w	45	45	46				Calc
	Solids	SG	2.47	2.57	2.67				Calc
	Solution	t/h	830	829	712				Calc
	Solution	SG	1.00	1.00	1.00				Calc
	Total Stream	wet t/h	1,505	1,504	1,327				Calc
	Volumetric Flow	m^3/h	1,103	1,092	943				Calc
	Slurry	SG	1.36	1.38	1.41				Calc
Number of Pumps	Installed	#				2	A	Lyco	
Pump Configuration		type				1 duty, 1 standby	A	Lyco	
Pump Flowrate	Nominal	m^3/h	1,103	1,092	943				Calc
Gland Seal Water	Filtered Water	m^3/h				2.4	A	Lyco	

14 REAGENTS

Quicklime (CaO)

Quicklime powder will be delivered in bulk by road tankers and offloaded into a silo. A facility will also be provided to enable quicklime to be added to the silo from bulk bags as an emergency. Powdered dry lime will be added to the SAG mill conveyor for pH control in the CIL. A Lyco

Reagent Type		type				Quicklime	A	Agreed	30
Transport Form		type				Powder	A	Agreed	30
Supply Packaging		type				Tanker	A	Agreed	30
Supply Volume		m^3				47		Calc	
Supply Mass		dry t				42	A	Industry	
Supply Concentration	CaO	% w/w				90	A	Agreed	30
Testwork Lime Supply Concentration	CaO	% w/w				70	A	Test	20
Bulk Density	Aerated	t/m^3				0.90	A	Industry	
Specific Gravity		t/m^3				3.30	A	Industry	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

				Oxide	Transition	Fresh	Design			
Solids Consumption										
Design Margin			%				20	A	Lyco	
Mill Feed Conveyor	90% w/w CaO		dry kg/t ore	0.84	0.45	0.20			Calc	
Nominal	90% w/w CaO		dry kg/h	567	305	124	567		Calc	
Maximum - Dosing System	90% w/w CaO		dry kg/h	1,052	410	142	1,052		Calc	
	90% w/w CaO and Design Margin		dry kg/h	680	365	149	680		Calc	
	90% w/w CaO and Design Margin		dry t/d	16	9	4	16		Calc	
Bulk Reagent Storage Required at Nominal - 90% w/w CaO										
Storage Capacity			days				14	A	Lyco	
		Minimum Live	dry t				229		Calc	
		Storage Method	type				Silo	A	Agreed	30
		Selected Size	dry t				250	A	Lyco	
Emergency Reagent Storage Required at Nominal - 90% w/w CaO										
Supply Packaging			type				Bulk Bags	A	Agreed	30
Supply Size			dry t				1.0	A	Agreed	30
Storage Capacity			days				30	A	Agreed	30
			dry t				490		Calc	
		Bulk Bags	#				490		Calc	

Sodium Cyanide (NaCN)

Sodium cyanide briquettes will be delivered in bags in boxes, dissolved in water and transferred to a storage tank. Sodium cyanide will be used in the CIL, gravity leaching and elution circuits. A Lyco

Reagent Type		type				NaCN	A	Test	9
Transport Form		type				Solids Dry Briquettes	A	Agreed	6
Supply Packaging		type				Bulk Bag in Wooden Box	A	Agreed	30
Supply Package Size		dry t				1	A	Agreed	30
Supply Concentration	NaCN	% w/w				98	A	Vendor	28

			Oxide	Transition	Fresh	Design			
Solids Consumption									
Design Margin		%				20	A	Lyco	
Intensive Cyanidation	100% w/w NaCN	dry kg/batch				300		Calc	
	100% w/w NaCN	dry kg/h				13		Calc	
	98% w/w NaCN	dry kg/h				13		Calc	
	98% w/w NaCN and Design Margin	dry kg/h				15		Calc	
CIL	100% w/w NaCN	dry kg/h	649	561	505	649		Calc	
	98% w/w NaCN	dry kg/h	662	573	515	662		Calc	
	98% w/w NaCN and Design Margin	dry kg/h				795		Calc	
Elution	100% w/w NaCN	dry kg/strip				456		Calc	
	100% w/w NaCN	dry kg/h				16		Calc	
	98% w/w NaCN	dry kg/h				17		Calc	
	98% w/w NaCN and Design Margin	dry kg/h				20		Calc	
Total Consumption	100% w/w NaCN	dry kg/h	678	590	534	678		Calc	
	98% w/w NaCN	dry kg/h	692	602	545	692		Calc	
	98% w/w NaCN and Design Margin	dry kg/h	830	723	654	830		Calc	
	98% w/w NaCN and Design Margin	dry t/d	20	17	16	20		Calc	
Solution Addition Rate at Nominal - 20% w/v NaCN									
Solution Concentration	20% w/v NaCN	% w/v				20	A	Lyco	
Intensive Cyanidation	20% w/v NaCN	m^3/h				0.06		Calc	
CIL	20% w/v NaCN	m^3/h	3.2	2.8	2.5	3.2		Calc	
Elution	20% w/v NaCN	m^3/h				0.08		Calc	
Total Solution Addition Rate	20% w/v NaCN	m^3/h				3.4		Calc	
	20% w/v NaCN	m^3/d				81		Calc	
Water Addition	Filtered Water	m^3/d				72		Calc	
Solution Addition Rate at Maximum - 20% w/v NaCN									
Intensive Cyanidation	20% w/v NaCN	m^3/h				0.08		Calc	
CIL	20% w/v NaCN	m^3/h				3.9		Calc	
Elution	20% w/v NaCN	m^3/h				0.10		Calc	
Total Solution Addition Rate	20% w/v NaCN	m^3/h				4.1		Calc	
	20% w/v NaCN	m^3/d				98		Calc	

			Oxide	Transition	Fresh	Design			
Solution Pump Requirements									
Intensive Cyanidation	Minimum Flow per Batch	m^3/h				5	A	Vendor	17
CIL	Minimum Flow	m^3/h	3.2	2.8	2.5			Calc	
Elution	Minimum Flow per Strip	m^3/h				6.8		Calc	
Reagent Mixing Tank at Maximum - 20% w/v NaCN									
Tank Type		type				Mechanically Agitated Tank	A	Lyco	
Water Used for Mixing		type				Filtered Water	A	Lyco	
Solution Specific Gravity		t/m^3				1.08	A	Industry	
Bags Added per Mix		#				6	A	Lyco	
		dry t/mix				6		Calc	
Number of Mixes per Day		#				2.2		Calc	
Mixing Tank Volume	Minimum Live	m^3				30		Calc	
	Selected	m^3				45	A	Lyco	
Reagent Storage Tank at Maximum - 20% w/v NaCN									
Tank Type		type				Sloping Bottom Tank	A	Lyco	
Residence Time	Minimum	hours				24	A	Lyco	
Storage Tank Volume	Minimum Live	m^3				98		Calc	
	Selected	m^3				110	A	Lyco	
Bulk Reagent Storage Required at Maximum - 98% w/w NaCN and Design Margin									
Storage Capacity		days				30	A	Agreed	30
		dry t				598		Calc	
	Bulk Bag in Wooden Box	#				598		Calc	

Sodium Hydroxide (NaOH)

Solid sodium hydroxide pearl will be delivered in bulk bags, dissolved in water and transferred to a storage tank. Sodium hydroxide solution will be used in the gravity concentrate leaching, elution, electrowinning and cyanide destruction circuits. A Lyco

Reagent Type		type			NaOH	A	Test	9
Transport Form		type			Solid Pearls	A	Industry	
Supply Packaging		type			Bulk Bags	A	Agreed	30
Supply Package Size		dry t			1.20	A	Agreed	30
Supply Concentration	NaOH	% w/w			98	A	Industry	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

				Oxide	Transition	Fresh	Design			
Solids Consumption										
Design Margin			%				20	A	Lyco	
Intensive Cyanidation	100% w/w NaOH		dry kg/batch				300		Calc	
	100% w/w NaOH		dry kg/h				13		Calc	
	98% w/w NaOH		dry kg/h				13		Calc	
	98% w/w NaOH and Design Margin		dry kg/h				15		Calc	
Elution	100% w/w NaOH		dry kg/strip				684		Calc	
	100% w/w NaOH		dry kg/h				24		Calc	
	98% w/w NaOH		dry kg/h				25		Calc	
	98% w/w NaOH and Design Margin		dry kg/h				30		Calc	
Electrowinning	100% w/w NaOH		dry kg/strip				167		Calc	
	100% w/w NaOH		dry kg/h				6		Calc	
	98% w/w NaOH		dry kg/h				6		Calc	
	98% w/w NaOH and Design Margin		dry kg/h				7		Calc	
Cyanide Destruction	100% w/w NaOH		dry kg/h	168	168	143	168		Calc	
	98% w/w NaOH		dry kg/h	172	172	146	172		Calc	
	98% w/w NaOH and Design Margin		dry kg/h				206		Calc	
Total Consumption	100% w/w NaOH		dry kg/h	211	211	186	211		Calc	
	98% w/w NaOH		dry kg/h	216	216	190	216		Calc	
	98% w/w NaOH and Design Margin		dry kg/h				259		Calc	
	98% w/w NaOH and Design Margin		dry t/d				6		Calc	
Solution Addition Rate at Nominal - 20% w/v NaOH										
Solution Concentration	20% w/v NaOH		% w/v				20	A	Lyco	
Intensive Cyanidation	20% w/v NaOH		m^3/h				0.06		Calc	
Elution	20% w/v NaOH		m^3/h				0.12		Calc	
Electrowinning	20% w/v NaOH		m^3/h				0.03		Calc	
Cyanide Destruction	20% w/v NaOH		m^3/h	0.84	0.84	0.71	0.84		Calc	
Total Solution Addition Rate	20% w/v NaOH		m^3/h				1.06		Calc	
	20% w/v NaOH		m^3/d				25		Calc	
Water Addition	Filtered Water		m^3/d				25		Calc	
Solution Addition Rate at Maximum - 20% w/v NaOH										
Intensive Cyanidation	20% w/v NaOH		m^3/h				0.08		Calc	
Elution	20% w/v NaOH		m^3/h				0.15		Calc	
Electrowinning	20% w/v NaOH		m^3/h				0.04		Calc	
Cyanide Destruction	20% w/v NaOH		m^3/h	1.01	1.01	0.86	1.01		Calc	
Total Solution Addition Rate	20% w/v NaOH		m^3/h				1.27		Calc	
	20% w/v NaOH		m^3/d				30		Calc	

			Oxide	Transition	Fresh	Design			
Solution Pump Requirements									
Intensive Cyanidation	Minimum Flow per Batch	m^3/h				5	A	Vendor	17
Elution	Minimum Flow per Strip	m^3/h				10.2		Calc	
Electrowinning	Minimum Flow per Strip	m^3/h				0.3		Calc	
Cyanide Destruction	Nominal	m^3/h	0.84	0.84	0.71	0.84		Calc	
	Maximum	m^3/h				1.13		Calc	
Reagent Mixing Tank at Maximum - 20% w/v NaOH									
Tank Type		type				Mechanically Agitated Tank	A	Lyco	
Water Used for Mixing		type				Filtered Water	A	Lyco	
Solution Specific Gravity	20% w/v NaOH	t/m^3				1.19	A	Industry	
Bags Added per Mix		#				6	A	Lyco	
		dry t/mix				7		Calc	
Number of Mixes per Day		#				0.7		Calc	
Mixing Tank Volume	Minimum Live	m^3				36		Calc	
	Selected	m^3				45	A	Lyco	
Reagent Storage Tank at Maximum - 20% w/v NaOH									
Tank Type		type				Sloping Bottom Tank	A	Lyco	
Residence Time	Minimum	hours				24	A	Lyco	
Storage Tank Volume	Minimum Live	m^3				30		Calc	
	Selected	m^3				60	A	Lyco	
Bulk Reagent Storage Required at Maximum - 98% w/w NaOH and Design Margin									
Storage Capacity		days				30	A	Agreed	30
		dry t				186		Calc	
	Bulk Bags	#				156		Calc	

Hydrochloric Acid (HCl)

Concentrated hydrochloric acid will be delivered in bulk IBCs by trucks and stored in a warehouse. Concentrated hydrochloric acid will be mixed with filtered water in a mixing tank to prepare a dilute hydrochloric acid solution. Dilute hydrochloric acid will be used in the acid wash circuit. A Lyco

Reagent Type		type	HCl	A	Test	9
Transport Form		type	Concentrated Solution	A	Industry	
Supply Packaging		type	IBC	A	Agreed	30
Supply Package Size		m^3	1	A	Agreed	30
Supply Concentration	HCl	% w/w	32	A	Vendor	28
Supply Bulk Density		t/m^3	1.16	A	Vendor	28
Mass Consumption						
Design Margin		%	20	A	Lyco	
Acid Wash	100% w/w HCl	dry kg/strip	684		Calc	
Acid Wash	100% w/w HCl	dry kg/h	24		Calc	
	32% w/w HCl	kg/h	76		Calc	
	32% w/w HCl and Design Margin	kg/h	92		Calc	
	32% w/w HCl and Design Margin	t/d	2.2		Calc	
Solution Addition Rate at Nominal - 32% w/w HCl						
Acid Wash		m^3/h	0.07		Calc	
		m^3/d	1.6		Calc	
Solution Addition Rate at Maximum - 32% w/w HCl and Design Margin						
Acid Wash		m^3/h	0.08		Calc	
		m^3/d	1.9		Calc	
Solution Addition Rate at Maximum - 3% w/v HCl						
Solution HCl Concentration		%w/v	3	A	Lyco	
Acid Wash	3% w/v HCl	m^3/strip	23		Calc	
	100% w/w HCl	kg/strip	684		Calc	
	32% w/w HCl	m^3/strip	1.84		Calc	
Water Addition	Filtered Water	m^3/d	21		Calc	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Solution Pump Requirements

	Acid Wash	Minimum Flow per Batch	m^3/h				45.6		Calc	

Reagent Mixing Tank at Maximum - 3% w/v HCl

	Tank Type		type				Mechanically Agitated Tank	A	Lyco	
	Water Used for Mixing		type				Filtered Water	A	Lyco	
	Solution Specific Gravity	3% w/v HCl	t/m^3				1.02	A	Industry	
	IBCs Added per Mix		#				3	A	Lyco	
			dry t/mix				1,114		Calc	
	Number of Mixes per Day		#				1.6		Calc	
	Mixing Tank Volume	Minimum Live	m^3				37		Calc	
		Selected	m^3				45	A	Lyco	
	Residence Time	Minimum	hours				39		Calc	

Bulk Reagent Storage Required at Maximum - 32% w/w HCl and Design Margin

	Storage Capacity		days				30	A	Client	30
			m^3				57		Calc	
		IBC	#				57		Calc	

Sodium Metabisulphite (SMBS)

Sodium metabisulphite (SMBS) powder will be delivered in bulk bags by trucks and stored in a warehouse. SMBS powder will be mixed with filtered water to prepare SMBS solution for use in the cyanide destruction circuit. A Lyco

	Reagent Type		type				SMBS	A	Lyco	
	Transport Form		type				Powder	A	Industry	
	Supply Packaging		type				Bulk Bags	A	Agreed	30
	Supply Package Size		dry t				1.0	A	Agreed	30
	Supply Concentration	$Na_2S_2O_5$	% w/w				100	A	Vendor	28

Solids Consumption			Oxide	Transition	Fresh	Design			
Design Margin		%				20	A	Lyco	
Cyanide Destruction	100% w/w $Na_2S_2O_5$	dry kg/h	369	369	313	369		Calc	
	100% w/w $Na_2S_2O_5$ and Design Margin	dry kg/h	443	443	376	443		Calc	
	100% w/w $Na_2S_2O_5$ and Design Margin	dry t/d	11	11	9	11		Calc	

Solution Addition Rate at Nominal - 20% w/v $Na_2S_2O_5$

	Solution Concentration	20% w/v $Na_2S_2O_5$	% w/v				20	A	Lyco	
	Cyanide Destruction	20% w/v $Na_2S_2O_5$	m^3/h	1.85	1.85	1.56	1.85		Calc	
		20% w/v $Na_2S_2O_5$	m^3/d	44	44	38	44		Calc	
	Water Addition	Filtered Water	m^3/d	42	42	36	42		Calc	

Solution Addition Rate at Maximum - 20% w/v $Na_2S_2O_5$

	Cyanide Destruction	20% w/v $Na_2S_2O_5$	m^3/h	2.22	2.21	1.88	2.22		Calc	
		20% w/v $Na_2S_2O_5$	m^3/d	53	53	45	53		Calc	

Solution Pump Requirements			Oxide	Transition	Fresh	Design			
Cyanide Destruction	Nominal	m^3/h	1.85	1.85	1.56	1.85		Calc	
	Maximum	m^3/h				2.53		Calc	

Reagent Mixing Tank at Maximum - 20% w/v $Na_2S_2O_5$

	Tank Type		type				Mechanically Agitated Tank	A	Lyco	
	Water Used for Mixing		type				Filtered Water	A	Lyco	
	Solution Specific Gravity	20% w/v $Na_2S_2O_5$	t/m^3				1.15	A	Industry	
	Bags Added per Mix		#				7	A	Lyco	
			dry t/mix				7		Calc	
	Number of Mixes per Day		#				1.2		Calc	
	Mixing Tank Volume	Minimum Live	m^3				35		Calc	
		Selected	m^3				45	A	Lyco	

Reagent Storage Tank at Maximum - 20% w/v $Na_2S_2O_5$

	Tank Type		type				Sloping Bottom Tank	A	Lyco	
	Residence Time	Minimum	hours				24	A	Lyco	
	Storage Tank Volume	Minimum Live	m^3				53		Calc	
		Selected	m^3				100	A	Lyco	

Bulk Reagent Storage Required at Maximum - 100% w/w $Na_2S_2O_5$ and Design Margin

	Storage Capacity		days				30	A	Agreed	30
			dry t				319		Calc	
		Bulk Bags	#				320		Calc	

Copper Sulphate Pentahydrate ($CuSO_4.5H_2O$)

Copper sulphate pentahydrate crystals will be delivered in bulk bags by trucks and stored in a warehouse. Copper sulphate pentahydrate crystals will be mixed with filtered water to prepare copper sulphate solution for use in the cyanide destruction circuit. A Lyco

	Reagent Type		type				$CuSO_4.5H_2O$	A	Lyco	
	Transport Form		type				Crystal	A	Industry	
	Supply Packaging		type				Bulk Bags	A	Agreed	30
	Supply Package Size		dry t				1.0	A	Agreed	30
	Supply Concentration	$CuSO_4.5H_2O$	% w/w				98	A	Vendor	28

Solids Consumption			Oxide	Transition	Fresh	Design			
Design Margin		%				20	A	Lyco	
Cyanide Destruction	100% w/w $CuSO_4.5H_2O$	dry kg/h	161	161	138	161		Calc	
	98% w/w $CuSO_4.5H_2O$	dry kg/h	165	165	141	165		Calc	
	98% w/w $CuSO_4.5H_2O$ and Design Margin	dry kg/h	198	198	169	198		Calc	
	98% w/w $CuSO_4.5H_2O$ and Design Margin	dry t/d	5	5	4	5		Calc	

Solution Addition Rate at Nominal - 20% w/v $CuSO_4.5H_2O$

	Solution Concentration	20% w/v $CuSO_4.5H_2O$	% w/v				20	A	Lyco	
	Cyanide Destruction	20% w/v $CuSO_4.5H_2O$	m^3/h	0.81	0.81	0.69	0.81		Calc	
		20% w/v $CuSO_4.5H_2O$	m^3/d	19	19	17	19		Calc	
	Water Addition	Filtered Water	m^3/d	18	18	16	18		Calc	

Solution Addition Rate at Maximum - 20% w/v $CuSO_4.5H_2O$

	Cyanide Destruction	20% w/v $CuSO_4.5H_2O$	m^3/h	0.97	0.97	0.83	0.97		Calc	
		20% w/v $CuSO_4.5H_2O$	m^3/d	23	23	20	23		Calc	

Solution Pump Requirements									
Cyanide Destruction	Nominal	m^3/h	0.81	0.81	0.69	0.81		Calc	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Reagent Mixing Tank at Maximum - 20% w/v $CuSO_4.5H_2O$									
Tank Type		type				Mechanically Agitated Tank	A	Lyco	
Water Used for Mixing		type				Filtered Water	A	Lyco	
Solution Specific Gravity	20% w/v $CuSO_4.5H_2O$	t/m^3				1.145	A	Industry	
Bags Added per Mix		#				3	A	Lyco	
		dry t/mix				3		Calc	
Number of Mixes per Day		#				1.3		Calc	
Mixing Tank Volume	Minimum Live	m^3				15		Calc	
	Selected	m^3				18	A	Lyco	
	Design Margin	%				20		Calc	
Reagent Storage Tank at Maximum - 20% w/v $CuSO_4.5H_2O$									
Tank Type		type				Sloping Bottom Tank	A	Lyco	
Residence Time	Minimum	hours				24	A	Lyco	
Storage Tank Volume	Minimum Live	m^3				23		Calc	
	Selected	m^3				30	A	Lyco	
	Design Margin	%				29		Calc	
Bulk Reagent Storage Required at Maximum - 98% w/w $CuSO_4.5H_2O$ and Design Margin									
Storage Capacity		days				30	A	Agreed	30
		dry t				142		Calc	
	Bulk Bags	#				143		Calc	

Flocculant

Flocculant powder will be delivered in bulk bags by trucks and offloaded into a storage hopper. Flocculant powder will be mixed with filtered water to prepare flocculant solution for subsequent dosing to the pre-leach thickener and intensive cyanidation reactor. Flocculant solution will be further diluted with process water before being dosed to the thickener. — A — Lyco

Reagent Type		type				Magnafloc 155 or equivalent	A	Test	19
Transport Form		type				Powder	A	Vendor	28
Supply Packaging		type				Bulk Bags	A	Agreed	30
Supply Package Size		dry t				0.70	A	Agreed	30

Flocculant Consumption			Oxide	Transition	Fresh	Design			
Design Margin		%				100	A	Lyco	
Intensive Cyanidation	Nominal	dry kg/batch				0.26		Calc	
	Nominal	dry kg/h				0.01		Calc	
	Nominal and Design Margin	dry kg/h				0.02		Calc	
Pre-Leach Thickener	Nominal	dry g/t ore	50	50	10			Calc	
	Nominal	dry kg/h	34	34	6	34		Calc	
	Maximum	dry g/t ore	140	50	30			Calc	
	Maximum	dry kg/h	95	34	18	95		Calc	
	Nominal and Design Margin	dry kg/h	68	68	12	68		Calc	
Total Consumption	Nominal and Design Margin	dry kg/h	68	68	12	68		Calc	
	Nominal and Design Margin	dry t/d	1.62	1.62	0.30	1.62		Calc	
Mixed Flocculant Solution Rate									
Mixed Solution Concentration		% w/v				0.25	A	Industry	
Intensive Cyanidation		m^3/h				0.009		Calc	
Pre-Leach Thickener	Nominal	m^3/h	27	27	5	27		Calc	
	Maximum	m^3/h	38	14	7	38		Calc	
Total Solution Addition Rate	Filtered Water	m^3/h	27	27	5	27		Calc	
		m^3/d	649	649	118	649		Calc	
Flocculant Dilution Water Rate									
Dosing Concentration		% w/v				0.025	A	Industry	
Pre-Leach Thickener	Nominal	m^3/h	243	243	44	243		Calc	
	Maximum	m^3/h	341	122	66	341		Calc	
Total Solution Addition Rate	Process Water	m^3/h	243	243	44	243		Calc	
		m^3/d	5,837	5,835	1,063	5,837		Calc	
Solution Pump Requirements									
Intensive Cyanidation	Nominal	m^3/h				0.01		Calc	
Pre-Leach Thickener	Nominal	m^3/h	27	27	5	27		Calc	
	Maximum	m^3/h	38	14	7	38		Calc	
Flocculant Mixing Tank									
Tank Type		type				Mechanically agitated tank	A	Lyco	
Water Used for Mixing		type				Filtered Water	A	Lyco	
Number of Mixes per Day		#	9	9	5		A	Lyco	
Bags Added per Mix		#	0.257	0.257	0.085			Calc	
		dry t/mix	0.180	0.180	0.059			Calc	
Mixing Tank Volume	Minimum Live	m^3	72	72	24			Calc	
	Selected	m^3				80	A	Lyco	
Flocculant Storage Tank									
Tank Type		type				Sloping bottom tank	A	Lyco	
Residence Time	Minimum	hours	12	12	24		A	Lyco	
Storage Tank Volume	Minimum Live	m^3	324	324	118			Calc	
	Selected	m^3				350	A	Lyco	
Bulk Flocculant Storage Required									
Storage Capacity	at Nominal	days				30	A	Client	30
		dry t				49		Calc	
	Bulk Bags	#				70		Calc	

Coagulant

Coagulant will be delivered in bulk IBCs by trucks and stored in a warehouse. Coagulant will be dosed to the pre-leach thickener intermittently and will only be typically used for oxide and transitional material when required. — A — Lyco

Reagent Type		type				Magnafloc 1425 or equivalent	A	Test	19
Transport Form		type				Liquid	A	Vendor	28
Supply Packaging		type				IBC	A	Agreed	30
Supply Package Size		m^3				1	A	Agreed	30
Supply Concentration	Coagulant	% w/w				40	A	Vendor	28
Supply Specific Gravity		t/m^3				1.10	A	Vendor	28

Mass Consumption - 100% w/w Coagulant			Oxide	Transition	Fresh	Design			
Design Margin		%				20	A	Lyco	
Pre-Leach Thickener	Nominal	dry g/t ore	300	300	0	300		Calc	
		dry kg/h	203	203	0	203		Calc	
	Maximum	dry g/t ore	800	600	0	800		Calc	
		dry kg/h	540	405	0	540		Calc	
Mass Consumption - 40% w/w Coagulant									
	Nominal	kg/h	507	507	0	507		Calc	
	Nominal and Design Margin	kg/h	608	608	0	608		Calc	
	Maximum	kg/h	1,351	1,013	0	1,351		Calc	
	Nominal and Design Margin	t/d	14.6	14.6	0	14.6		Calc	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Solution Addition Rate at Nominal										
	Pre-Leach Thickener		L/h	461	460	0	461		Calc	
			L/d	11,055	11,051	0	11,055		Calc	
Solution Addition Rate at Nominal and Design Margin										
	Pre-Leach Thickener		L/h	553	553	0	553		Calc	
			L/d	13,266	13,261	0	13,266		Calc	
Solution Pump Requirements										
	Pre-Leach Thickener	Nominal	L/h	461	460	0	461		Calc	
		Maximum	L/h	1,228	921	0	1,228		Calc	
Bulk Reagent Storage Required at Nominal and Design Margin										
	Storage Capacity		days				30	A	Client	30
			m^3				398		Calc	
		IBC	#				398		Calc	

Activated Carbon

Granular activated carbon will be delivered in bulk bags by trucks and stored inside the warehouse. Activated carbon will be manually added into the CIL circuit.								A	Lyco	
Reagent Type			type				Activated Carbon, Pica G210 Ultima or Equivalent	A	Lyco	
Transport Form			type				Granulated	A	Vendor	27
Supply Packaging			type				Bulk Bag	A	Agreed	30
Supply Package Size			dry t				0.50	A	Agreed	30
Supply Concentration		C	% w/w				100	A	Vendor	27
Carbon Size			Mesh				6 x 12	A	Industry	
Carbon Bulk Density			t/m^3				0.47	A	Industry	
Carbon Particle Density		Soaked	t/m^3				1.46	A	Industry	
Carbon Interstitial Volume			%				45	A	Industry	
Solids Consumption										
	Design Margin		%				20	A	Lyco	
	CIL	100% w/w C	dry kg/h				20		Calc	
		100% w/w C and Design Margin	dry kg/h				24		Calc	
		100% w/w C and Design Margin	dry t/d				0.58		Calc	
Bulk Reagent Storage Required at Maximum - 100% w/w C and Design Margin										
	Storage Capacity		days				30	A	Client	30
			dry t				17		Calc	
		Bulk Bag	#				35		Calc	

Borax

Borax powder will be delivered in bags and stored inside the gold room storage area. Borax will be manually added into the flux mixer as part of the gold smelting circuit.								A	Lyco	
Reagent Type			type				Anhydrous Sodium Borate	A	Lyco	
Transport Form			type				Powder	A	Industry	
Supply Packaging			type				Bags	A	Industry	
Supply Package Size			dry kg				25	A	Industry	
Supply Concentration		$Na_2B_4O_7$	% w/w				100	A	Industry	
Solids Consumption										
	Design Margin		%				20	A	Lyco	
	Gold Smelting	100% w/w $Na_2B_4O_7$	dry kg/h				0.39		Calc	
		100% w/w $Na_2B_4O_7$ and Design Margin	dry kg/h				0.47		Calc	
		100% w/w $Na_2B_4O_7$ and Design Margin	dry kg/d				11		Calc	
Bulk Reagent Storage Required at Maximum - 100% w/w $Na_2B_4O_7$ and Design Margin										
	Storage Capacity		days				30	A	Agreed	30
			dry kg				338		Calc	
		Bags	#				14		Calc	

Soda Ash

Soda ash powder will be delivered in bags and stored inside the gold room storage area. Soda ash will be manually added into the flux mixer as part of the gold smelting circuit.								A	Lyco	
Reagent Type			type				Sodium Carbonate	A	Lyco	
Transport Form			type				Powder	A	Industry	
Supply Packaging			type				Bags	A	Industry	
Supply Package Size			dry kg				25	A	Industry	
Supply Concentration		Na_2CO_3	% w/w				100	A	Industry	
Solids Consumption										
	Design Margin		%				20	A	Lyco	
	Gold Smelting	100% w/w Na_2CO_3	dry kg/h				0.07		Calc	
		100% w/w Na_2CO_3 and Design Margin	dry kg/h				0.08		Calc	
		100% w/w Na_2CO_3 and Design Margin	dry kg/d				1.9		Calc	
Bulk Reagent Storage Required at Maximum - 100% w/w Na_2CO_3 and Design Margin										
	Storage Capacity		days				30	A	Agreed	30
			dry kg				56		Calc	
		Bags	#				3		Calc	

Silica Sand

Silica sand powder will be delivered in bags and stored inside the gold room storage area. Silica sand will be manually added into the flux mixer as part of the gold smelting circuit.								A	Lyco	
Reagent Type			type				Silica Sand	A	Lyco	
Transport Form			type				Powder	A	Industry	
Supply Packaging			type				Bags	A	Industry	
Supply Package Size			dry kg				25	A	Industry	
Supply Concentration		SiO_2	% w/w				100	A	Industry	
Solids Consumption										
	Design Margin		%				20	A	Lyco	
	Gold Smelting	100% w/w SiO_2	dry kg/h				0.10		Calc	
		100% w/w SiO_2 and Design Margin	dry kg/h				0.12		Calc	
		100% w/w SiO_2 and Design Margin	dry kg/d				2.8		Calc	
Bulk Reagent Storage Required at Maximum - 100% w/w SiO_2 and Design Margin										
	Storage Capacity		days				30	A	Agreed	30
			dry kg				84		Calc	
		Bags	#				4		Calc	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Potassium Nitrate

Potassium nitrate powder will be delivered in bags and stored inside the gold room storage area. Potassium nitrate will be manually added into the flux mixer as part of the gold smelting circuit. — A — Lyco

Reagent Type			type			Potassium Nitrate	A	Lyco	
Transport Form			type			Powder	A	Industry	
Supply Packaging			type			Bags	A	Industry	
Supply Package Size			dry kg			25	A	Industry	
Supply Concentration		KNO_3	% w/w			100	A	Industry	
Solids Consumption									
Design Margin			%			20	A	Lyco	
Gold Smelting		100% w/w KNO_3	dry kg/h			0.10		Calc	
		100% w/w KNO_3 and Design Margin	dry kg/h			0.12		Calc	
		100% w/w KNO_3 and Design Margin	dry kg/d			2.8		Calc	
Bulk Reagent Storage Required at Maximum - 100% w/w KNO_3 and Design Margin									
Storage Capacity			days			30	A	Agreed	30
			dry kg			84		Calc	
		Bags	#			4		Calc	

Grinding Media

Grinding media will be delivered in drums by trucks and offloaded by forklift into local bunkers. The media will be reclaimed by from the bunkers by FEL before being indexed to the SAG and ball mills by automatic ball chargers. — A — Lyco

Grinding Media Type			type			Forged	A	Lyco	
Grinding Media Size		SAG Mill	mm			125		Calc	
		Ball Mill	mm			50		Calc	
Supply Packaging			type			Drums	A	Agreed	30
Supply Package Size			dry t			0.85	A	Agreed	30

Grinding Media Consumption			Oxide	Transition	Fresh	Design			
Design Margin		%				20	A	Lyco	
SAG Mill		kg/t	0.43	0.12	0.46	0.46		Calc	
		kg/h	292	81	311	311		Calc	
	incl Design Margin	kg/h	350	97	373	373		Calc	
	incl Design Margin	t/day	8.4	2.3	9.0	9.0		Calc	
Ball Mill		kg/t	0.73	0.55	0.73	0.73		Calc	
		kg/h	493	371	493	493		Calc	
	incl Design Margin	kg/h	591	446	591	591		Calc	
	incl Design Margin	t/day	14.2	10.7	14.2	14.2		Calc	

Grinding Media Ready Use Storage - incl Design Margin								
SAG Mill								
Storage Type						Bunker	A	Lyco	
Storage Capacity		days				7	A	Lyco	
	Minimum	t				63		Calc	
Ball Mill								
Storage Type						Bunker	A	Lyco	
Storage Capacity		days				7	A	Lyco	
	Minimum	t				99		Calc	
Bulk Grinding Media Storage - incl Design Margin								
Storage Capacity		days				30	A	Client	30
		t				695		Calc	
	Drums	#				818		Calc	

Diesel

Diesel will be delivered in bulk by tanker trucks and stored in diesel storage tanks (by others). Diesel will distributed by pumps to the MSA and self bunded plant diesel header tank. Diesel will gravitate from the plant diesel header tank to the elution heater and carbon reactivation kiln. — A — Lyco

Reagent Type			type			Diesel	A	Industry	
Transport Form			type			Liquid	A	Industry	
Supply Packaging			type			Tanker	A	Industry	
Supply Package Size			m^3			5	A	Industry	
Specific Gravity			t/m^3			0.83	A	Industry	
Calorific Value			MJ/kg			45.4	A	Industry	
Consumption (Averaged on Weekly Basis)									
Design Margin			%			20	A	Lyco	
Elution Heater			L/strip			2,610		Calc	
			L/h			127		Calc	
Carbon Reactivation Kiln			L/strip			2,880		Calc	
			L/h			140		Calc	
Total Consumption			L/h			267		Calc	
	incl Design Margin		L/h			320		Calc	
			L/day			7,685		Calc	
Plant Diesel Header Tank									
Storage Capacity			days			1.0	A	Lyco	
	Minimum		m^3			8		Calc	

15 AIR SERVICES

Plant and Instrument Air

Air compressors, operating in lead-lag configuration will be installed. The entire air supply will be filtered and dried to satisfy both plant air and instrument air demands. Air will be stored in a primary air receiver before being distributed throughout the plant. Additional air receivers will be located throughout the plant as required. — A — Lyco

Number of Compressors	Installed	#				2	A	Agreed	39
Compressor Configuration		type				Lead / Lag	A	Agreed	39
Air Pressure		kPa(g)				650	A	Industry	
Dewpoint		°C				3	A	Lyco	
Dryer Type		type				Refrigerated	A	Lyco	
Filtration		type				Particulates and Oil	A	Industry	

Oxygen

Oxygen will be supplied by non-cryogenic (adsorption) type plants. Oxygen gas will be generated to a pressure suitable for operation in ICR, CIL and cyanide destruction. — A — Lyco

Supplied Oxygen Purity		% v/v				90	B	Vendor	39
		% w/w				91.1		Calc	
Oxygen Density	STP	kg/Nm^3				1.43	A	Industry	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

				Oxide	Transition	Fresh	Design			
Oxygen Consumption										
	Intensive Cyanidation	100% w/w Oxygen	kg/h				5		Calc	
	CIL	100% w/w Oxygen	kg/h				43		Calc	
	Cyanide Destruction	100% w/w Oxygen	kg/h	309	309	262	427		Calc	
	Total Required	100% w/w Oxygen	kg/h	357	356	309	474		Calc	
		100% w/w Oxygen	Nm^3/h	250	250	217	332		Calc	
		100% w/w Oxygen	t/d	9	9	7	11		Calc	
		90% v/v Oxygen	t/d	9	9	8	12		Calc	
Number of Oxygen Plants			#				2	B	Agreed	43
Oxygen Plant Type			type				Non-Cryogenic (VSA or PSA)	A	Agreed	39
Design Temperature			°C				45	B	Lyco	45
Derating Factor		At Design Temperature	#				0.85	B	Vendor	44
Oxygen Plant Capacity		Each	t/d				10	B	Agreed	43
		Total	t/d				20		Calc	
		Total, Derated for Design Temperature	t/d				17		Calc	
Delivery Pressure (at Oxygen Plant)		Maximum	kPa(g)				400	A	Lyco	

16 WATER

Water will be sourced from the water harvest dam (dam by others) and pumped to the water storage dam (dam by others). Water will be pumped from the water storage dam to the raw water tank at the plant. Raw water will used for dust suppression, fire water and for producing filtered water. Filtered water will be used for producing potable water, slurry pump gland seal water, cooling water make-up, reagent mixing and in the elution circuit. Thickener overflow and TSF decant will be re-used as process water with raw water used as make-up. Process water will be used in the grinding and CIL circuits.

A Lyco

				Oxide	Transition	Fresh	Design			
Raw Water Supply										
Raw Water Source							Water Harvest Dam & Water Storage Dam (both by others)	A	Agreed	39
Raw Water Required		Nominal	m^3/h	427	427	456	456		Calc	
		Startup (First 6 Months)	m^3/h	760	759	742	760		Calc	
Water Harvest Dam Pumps										
Number of Pumps		Installed	#				2	A	Lyco	
Pump Configuration			type				1 duty, 1 standby	A	Lyco	
Pump Flowrate		Nominal	m^3/h	427	427	456	456		Calc	
		Maximum	m^3/h	760	759	742	760		Calc	
Water Storage Dam Pumps										
Number of Pumps		Installed	#				2	A	Lyco	
Pump Configuration			type				1 duty, 1 standby	A	Lyco	
Pump Flowrate		Nominal	m^3/h	427	427	456	456		Calc	
		Maximum	m^3/h	760	759	742	760		Calc	
Raw Water Tank										
Number of Raw Water Storage Facilities			#				1	A	Client	39
Source			type				Water Storage Dam (by others)	A	Client	39
Storage Type			type				Tank	A	Client	39
Residence Time		Minimum	h				4	A	Agreed	39
Water Required		Total	m^3/h				459		Calc	
Volume Required incl Fire Water Requirement (each)		Minimum (Live)	m^3				2,411		Calc	
		Selected	m^3				2,500	A	Lyco	
Fire Water Reserve										
Source			type				Bottom reserve capacity on raw water tank	A	Lyco	
Number of Hydrants			#				4	A	Lyco	
Hydrant Flowrate			m^3/h				36	A	Lyco	
Supply Duration			hours				4	A	Lyco	
Fire Water Reserve Volume		Minimum (Live)	m^3				576		Calc	
Raw Water Pumps				Oxide	Transition	Fresh	Design			
Number of Pumps		Installed	#				2	A	Lyco	
Pump Configuration			type				1 duty, 1 standby	A	Lyco	
Pump Flowrate		Nominal	m^3/h	370	370	398	398		Calc	
		Maximum	m^3/h	703	703	684	703		Calc	
Mining Services Area Water		Allowance	m^3/h				24.5	A	Client	42
Camp Raw Water Pumps										
Number of Pumps		Installed	#				1	B	Lyco	
Pump Configuration			type				1 duty	B	Lyco	
Camp Raw Water Demand		Allowance	m^3/h				6.7		Calc	
Pump Flowrate		Nominal	m^3/h				8.1		Calc	
Water Filtration Feed Pumps										
Number of Pumps		Installed	#				2	A	Lyco	
Pump Configuration			type				1 duty, 1 standby	A	Lyco	
Pump Flowrate		Nominal	m^3/h				96		Calc	
Process Water Pond										
Number of Process Water Storage Facilities			#				1	A	Lyco	
Source			type				Pre-Leach Thickener O/F, TSF Decant Return Water	A	Lyco	
Storage Type			type				Pond	A	Lyco	
Residence Time		Minimum	h				2.5	A	Agreed	39
Water Required		Total	m^3/h				1,746		Calc	
Volume Required (each)		Minimum (Live)	m^3				4,364		Calc	
		Selected	m^3				4,500	A	Lyco	
LP Process Water Pumps				Oxide	Transition	Fresh	Design			
Number of Pumps		Installed	#				2	A	Lyco	
Pump Configuration			type				1 duty, 1 standby	A	Lyco	
Pump Flowrate		Nominal	m^3/h	1,314	1,330	1,184	1,330	A	Lyco	
Gland Seal Water		Filtered Water	m^3/h				2.4	A	Lyco	
HP Process Water Pumps										
Number of Pumps		Installed	#				2	A	Lyco	
Pump Configuration			type				1 duty, 1 standby	A	Lyco	
Pump Flowrate		Nominal	m^3/h	306	306	306	306	A	Lyco	
Gland Seal Water		Filtered Water	m^3/h				2.4	A	Lyco	
Plant Washdown Water		Allowance	m^3/h				10	A	Lyco	
Fluidisation Water Pump										
Number of Pumps		Installed	#				1	A	Lyco	
Pump Configuration			type				1 duty, 0 standby	A	Lyco	
Pump Flowrate		Nominal	m^3/h				110	A	Lyco	
Gland Seal Water		Filtered Water	m^3/h				2.4	A	Lyco	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Client	Resolute Mining Limited					Date	19-Nov-25	Revision	C		
Project	Doropo Gold DFS							Prepared	AG		
Document	PROCESS DESIGN CRITERIA (2326-FPDC-001)					Job Number	2326	Checked	RH		

#	PARAMETERS		UNITS				DESIGN	REV	SOURCE	REF
	TSF Decant Return Water			Oxide	Transition	Fresh	Design			
	Source		type				Pumped from TSF supernatant	A	Lyco	
	Decant Return	Nominal	%				40	A	Client	39
		Startup (First 6 Months)	%				0	A	Client	39
		Maximum	%				70	A	Client	39
	Number of Decant Return Pumps at TSF		#				2	A	Lyco	
		Configuration	type				1 duty, 1 standby	A	Lyco	
	Pump Flowrate	Nominal	m^3/h	333	333	286	333		Calc	
		Maximum	m^3/h	582	582	500	582		Calc	
	Number of Seepage Pumps at TSF		#				1	A	Lyco	
	Number of Underdrainage Pumps at TSF		#				1	A	Lyco	
	Plant Potable Water Treatment									
	Number of Water Treatment Plants		#				1	A	Client	39
	Source		type				Filtered Water	A	Client	39
	Treatment Method		type				Filtration, Chlorination & UV Sterilisation	A	Lyco	
	Potable Water Allocation per Person	Plant	L/d				70	A	Industry	
	Potable Water Demand per Day	Personnel Living in Camp	#				448	A	Client	39
		CIL Interstage Screen Cleaning	m^3/d				2	A	Calc	
		Gold Room Clean-Up	m^3/d				2	A	Assume	
		Assay Laboratory	m^3/d				10	A	Assume	
		Other Process Potable Users	m^3/d				20	A	Assume	
		Misc. Potable Water Usage	m^3/d				40	A	Assume	
		Plant Total	m^3/d				105		Calc	
	Potable Water Requirement	Selected	m^3/d				105	B	Lyco	
	Filter Back Wash Losses		m^3/d				15	A	Lyco	
	Operating Schedule		h/d				20	A	Client	39
	Feed Rate	Nominal	m^3/d				126		Calc	
		Selected	m^3/d				140		Calc	
	Plant Potable Water Tank									
	Source		type				Potable Water Treatment Plant	A	Client	39
	Number of Potable Water Tanks		#				1	A	Lyco	
	Potable Water Storage		type				Tank	A	Lyco	
	Residence Time	Minimum	hours				30	A	Agreed	39
	Volume Required (each)	Minimum (Live)	m^3				132		Calc	
		Selected	m^3				300	A	Lyco	
	Camp Potable Water Treatment (By Others, Water Balance Purposes Only)									
	Number of Water Treatment Plants		#				1	B	Client	39
	Potable Water Allocation per Person	Camp	L/d				300	A	Industry	
	Potable Water Demand per Day	Personnel Living in Camp	#				448	A	Client	39
		Camp	m^3/d				134		Calc	
	Potable Water Requirement	Selected	m^3/d				134	B	Lyco	
	Filter Back Wash Losses		m^3/d				15	B	Lyco	
	Operating Schedule		h/d				20	B	Client	39
	Feed Rate	Nominal	m^3/d				161		Calc	
		Selected	m^3/d				180		Calc	
	Camp Potable Water Tank (By Others)									
	Source		type				Camp Potable Water System	B	Client	39
	Safety Showers									
	Source		type				Potable Water	A	Lyco	
	Shower Required Temperature	Range	°C				15 - 38	A	Industry	
	Shower Flowrate		L/minute				75.7	A	Industry	
	Shower Duration		minutes				10	A	Industry	
	Instantaneous Flowrate per Safety Shower		m^3/h				4.5		Calc	
	Number of Simultaneously Operating Showers		#				3	A	Lyco	
	Instantaneous Flowrate Required		m^3/h				13.6		Calc	
	Potable Water Pumps									
	Number of Pumps	Installed	#				2	A	Lyco	
	Pump Configuration		type				1 duty, 1 standby	A	Lyco	
	Pump Flowrate	Nominal	m^3/h				4		Calc	
		Maximum	m^3/h				18		Calc	
	Gland Water									
	Source		type				Filtered Water	A	Lyco	
	Cyclone Feed Pump		m^3/h				3.5		Calc	
	Gravity Feed Pump		m^3/h				3.5		Calc	
	Pre-Leach Thickener Underflow Pump		m^3/h				2.4		Calc	
	Tails Pump		m^3/h				2.4		Calc	
	LP Process Water Pump		m^3/h				2.4		Calc	
	HP Process Water Pump		m^3/h				2.4		Calc	
	Fluidisation Water		m^3/h				2.4		Calc	
	Total Gland Water		m^3/h				19.0		Calc	
	Filtered Water									
	Source		type				Raw Water via Water Treatment Plant	A	Agreed	21
	Total Gland Water		m^3/h				19.0		Calc	
	SAG Mill Seal		m^3/h				1	A	Assume	
	Ball Mill Seal		m^3/h				1	A	Assume	
	Acid Rinse		m^3/h				4.9		Calc	
	Gravity Concentrate Leaching		m^3/h				0.6		Calc	
	Acid Wash Carbon Transfer		m^3/h				2.4		Calc	
	Pre-soak		m^3/h				0.6		Calc	
	Elution		m^3/h				6.1		Calc	
	Elution Carbon Transfer		m^3/h				2.4		Calc	
	HCl Dilution		m^3/h				0.9		Calc	
	NaCN Mixing		m^3/h				3.0		Calc	
	NaOH Mixing		m^3/h				1.0		Calc	
	SMBS Mixing		m^3/h				1.8		Calc	
	$CuSO_4$ Mixing		m^3/h				0.8		Calc	
	Flocculant Mixing		m^3/h				27		Calc	
	Potable Water Plant		m^3/h				5		Calc	
	Gold Room, Miscellaneous		m^3/h				2	A	Lyco	
	Total Filtered Water	Including Gland Water	m^3/h				80		Calc	
		Excluding Gland Water	m^3/h				61		Calc	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any
third party without written authority from Lycopodium Minerals Pty Ltd.

Treatment Type		type			Multi-Media Filtration	A	Lyco	
Plant Feed TSS	Nominal	mg/L			40		Calc	
	Maximum	mg/L			100		Calc	
Target Filtrate TSS		mg/L			<10	A	Lyco	
Filtered Water Requirement	Selected	m^3/h			80		Calc	
		m^3/d			1,920		Calc	
Filter Back Wash Losses		m^3/d			15	A	Lyco	
Operating Schedule		h/d			20	A	Client	39
Feed Rate	Nominal	m^3/d			2,304		Calc	
	Selected	m^3/d			2,540		Calc	
Filtered Water Storage Tank								
Number of Filter Water Tanks		#			1	A	Lyco	
Filter Water Storage		type			Tank	A	Lyco	
Residence Time	Minimum	hours			8	A	Agreed	39
Volume Required (each)	Minimum (Live)	m^3			638		Calc	
	Selected	m^3			800	A	Lyco	
Filtered Water Pumps								
Number of Pumps	Installed	#			2	A	Lyco	
Pump Configuration		type			1 duty, 1 standby	A	Lyco	
Pump Flowrate	Nominal	m^3/h			61		Calc	

17 EVENT POND

The event pond will be located to allow for the collection of slurry from process overflows. Sizing will be determined by 110% of the largest vessel, plus a 1-in-100-year 24-hour storm event, minus volume captured in bunds. The contents of the event pond will be pumped either to the tailings hopper, process water pond or trash screen feed distribution box. — A — Lyco

Volume due to Tankage	% of Largest Vessel	%		110	A	Lyco

18 REFERENCES

1 Not used
2 2326-TQ-002 Process Design Basis, Client Response, 19 August 2025
3 2326-TQ-003 Elution Circuit, Client Response, 19 August 2025
4 2326-TQ-004 Cyanide Destruction Client Response, 19 August 2025
5 2326-TQ-006 Gravity Concentrator Tails, Client Response, 19 August 2025
6 2326-TQ-007 Sodium Cyanide Preparation, Client Response, 19 August 2025
7 OMC Report A046-03 Doropo Gold Project Comminution Modelling Rev 0, 16 October 2025
8 ALS Metallurgical Testwork Report A23136, September 2023
9 ALS Metallurgical Testwork Report A24862, November 2024
10 Oreology Doropo Ore & Waste Tonnages 22 August 2025
11 Piteau Water Management Report PFS_Final May 2023
12 CAT 785 Specifications
13 CAT 993 Specifications
14 Metso Brochure Nordberg C Series Jaw Crushers
15 Not used
16 Knelson QS48 Specification 1000802705 1
17 Gekko Tender Excerpt - Technical Data Schedule - Batch ILR, March 2025
18 ILR Batch Technical Specifications 2025
19 Doropo Thickening Testwork Metso, 3472031 3456183 Part A and B, 2024
20 Email P Wilkinson ALS CIL Tests and Lime, 22 August 2025
21 2326-TQ-005 Raw Water Filtration, Client Response, 01 September 2025
22 2326-TQ-009 Rom Tip Bin and Crusher Design, Client Response 01 September 2025
23 2326-TQ-010 Primary Crusher Discharge Conveyor and Magnet, Client Response 01 September 2025
24 2326-TQ-011 Crushed Ore Stockpile Size, Client Response 01 September 2025
25 2326-TQ-013 Pebble Crusher Magnet and Conveyor Layout, Client Response 01 September 2025
26 2326-TQ-015 Gravity Concentrator Decoupling, Client Response 01 September 2025
27 PicaGold G210AS Technical Datasheet
28 Reagents Selected MSDS
29 2326-TQ-012 Milling and CIL Design Basis, Client Response, 26 September 2025
30 2326-TQ-016 Reagent Delivery and Storage Requirements, Client Response, 12 September 2025
31 Doropo Fragmentation Profile, 2023
32 Lafigue Induction Furnace Specifications, Keegor
33 Orica OCM5500 Website Data Sheet
34 Orica OCM6500 Data Sheet
35 2326-TQ-018 FEL and Dump Truck Selection, Client Response, 26 September 2025
36 2326-TQ-019 Process Design Criteria Inputs - General, Client Response, 17 October 2025
37 2326-TQ-020 Process Design Criteria Inputs - Pre-Leach Thickener, Client Response, 17 October 2025
38 2326-TQ-021 Process Design Criteria Inputs - CIL, Elution, Goldroom, Client Response, 17 October 2025
39 2326-TQ-022 Process Design Criteria Inputs - Water and Air Services, Client Response, 17 October 2025
40 Weir Cyclone Simulations 400CVD10, 10 October 2025
41 2326-TQ-023 Primary Crusher Design Basis, Client Response, 21 October 2025
42 2326-TQ-017 MSA Services Requirements Rev C, Client Response, 17 October 2025
43 2326-TQ-024 Oxygen Plant Size and Configuration, RML Response, 27 October 2025
44 Oxymat Twin-Tower PSA Oxygen Generator Datasheet
45 2234-GDAS-001 Site Datasheet for the Doropo Gold Project PFS

This document is the property of Lycopodium Minerals Pty Ltd. It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Project	Doropo Gold DFS
Client	Resolute Mining Limited
Date	19-Nov-25
Revision	C
Title	Mass Balance - Nominal Fresh

All flows are on an average continuous basis and at 91.3% utilisation unless otherwise noted.

Legend

Ore / Slurry
Raw Water
Process Water **(LP)**
Process Water **(HP)**
Filtered Water
Reagents
Sample

Colour Coding

Bold and blue is for input data.
Black is for calculated data.
Bold and pink is for linked data within the same file.

Primary Crushing (80% Utilisation)

Stream Name		Primary Ore Feed	Vibrating Grizzly Oversize	Vibrating Grizzly Undersize	ROM Hopper Dust Suppression[1]	Primary Crusher Disch.	Primary Crushing Disch. Conveyor	Primary Crushing Dust Suppression[1]
Solids	dry t/h	**702**	**329**	373		329	702	
% Solids	% w/w	**95**	95	95		95	95	
Solids SG	SG	**2.67**	2.67	2.67		2.67	2.67	
Solution	t/h	37	17	20	5	17	37	5
Solution SG	SG	**1.00**	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	739	347	392	5	347	739	5
Volumetric Flow	m^3/h	300	141	159	**5**	141	300	**5**
Slurry SG	SG	2.46	2.46	2.46	1.00	2.46	2.46	1.00

Note 1: 100% evaporation of dust suppression water assumed.

Coarse Ore Stockpile and Reclaim

Stream Name		Coarse Ore Stockpile Feed Conveyor[3]	Coarse Ore Stockpile Dust Suppression[3]	Total Raw Water to Crushing & Reclaim	Coarse Ore Stockpile Reclaim	SAG Mill Feed Conveyor Sprays	Quicklime to SAG Mill Feed Conveyor	Total New Feed to SAG Mill
Solids	dry t/h	702			**615**		**0.12**	615
% Solids	% w/w	95			95			94
Solids SG	SG	2.67			2.67			2.67
Solution	t/h	37	10	20	32	5		37
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	739	10	20	647	5	0	653
Volumetric Flow	m^3/h	300	**10**	20	263	**5**		268
Slurry SG	SG	2.46	1.00	1.00	2.46	1.00		2.44

Note 2: Value at 80% Utilisation.
Note 3: 100% evaporation of dust suppression water assumed.

SAG Milling

Stream Name		Total New Feed to SAG Mill	Crushed Pebble Conveyor	Total Ore Feed to SAG Mill	Cyclone U/F to SAG Mill	SAG Mill Feed Dilution Water	SAG Mill Seal Water	SAG Mill Discharge	Pebble Screen Spray Water	Pebble Screen O/S	Pebble Screen U/S
Solids	dry t/h	615	44	659	142			802		**44**	757
% Solids	% w/w	94	95	94	75			**70**		**95**	65
Solids SG	SG	2.67	2.67	2.67	2.67			2.67		2.67	2.67
Solution	t/h	37	2	40	47	255	1	344	72	2	413
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	653	47	699	189	255	1	1,145	72	47	1,170
Volumetric Flow	m^3/h	268	19	287	101	255	**1.00**	644	**72**	19	697
Slurry SG	SG	2.44	2.46	2.44	1.88	1.00	1.00	1.78	1.00	2.46	1.68

Ball Milling

Stream Name		Cyclone U/F to Ball Mill	Ball Mill Feed Dilution Water	Ball Mill Seal Water	Ball Mill Discharge	Ball Mill Trommel Screen Spray Water	Ball Mill Trommel O/S	Ball Mill Trommel U/S
Solids	dry t/h	1,634			1,634		**0**	1,634
% Solids	% w/w	75			75		**100**	72
Solids SG	SG	2.67			2.67		2.67	2.67
Solution	t/h	545	0	1	546	96	0	642
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	2,179	0	1	2,180	96	0	2,276
Volumetric Flow	m^3/h	1,157	0	**1.00**	1,158	**96**	0	1,254
Slurry SG	SG	1.88	0.00	1.00	1.88	1.00	0.00	1.82

Classification Cyclones

Stream Name		Pebble Screen U/S	Ball Mill Trommel U/S	Gravity Circuit Combined Return	ILR Feed Tank O/F	ILR Tails	Mill Discharge Hopper Feed	Mill Discharge Hopper Dilution Water	Mill Discharge Hopper Total	Cyclone Feed	Gravity Circuit Feed	Cyclone Feed Pump Gland Water	Cyclone Feed Pump	Cyclone U/F	Cyclone O/F	Cyclone U/F to SAG Mill	Cyclone U/F to Ball Mill
Solids	dry t/h	757	1,634	800		0.2	3,192		3,192	2,392	800		2,392	**1,777**	615	**142**	1,634
% Solids	% w/w	65	72	46		33.9	61		53	53	53		53	**75**	**29**	75	75
Solids SG	SG	2.67	2.67	2.67		3.40	2.67		2.67	2.67	2.67		2.67	2.67	2.67	2.67	2.67
Solution	t/h	413	642	950	1.86	0.4	2,008	817	2,825	2,117	708	4	2,120	592	1,528	47	545
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	1,170	2,276	1,750	1.86	0.6	5,199	817	6,017	4,509	1,508	4	4,512	2,369	2,143	189	2,179
Volumetric Flow	m^3/h	697	1,254	1,250	1.86	0.4	3,203	817	4,020	3,013	1,008	**3.5**	3,016	1,258	1,759	101	1,157
Slurry SG	SG	1.68	1.82	1.40	1.00	1.51	1.62	1.00	1.50	1.50	1.50	1.00	1.50	1.88	1.22	1.88	1.88

Gravity Concentrator Circuit

Stream Name		Gravity Circuit Feed	Gravity Screen Feed Pump Gland Water	Gravity Screen Feed Pump	Gravity Screen Feed Dilution Water	Gravity Screen Feed	Gravity Screen Spray Water	Gravity Screen O/S	Gravity Screen U/S	Gravity Concentrator Feed	Gravity Concentrator Fluidisation Water (Total)	Fluidisation Water Pump Gland Water	Gravity Concentrator Tails	Gravity Concentrate	Gravity Circuit Combined Return
Solids	dry t/h	800		**800**		800		120	680	**680**			680	**0.21**	800
% Solids	% w/w	53		53		**50**		**80**	46	46			42	**10**	46
Solids SG	SG	2.67		2.67		2.67		2.67	2.67	2.67			2.67	**3.40**	2.67
Solution	t/h	708	4	712	88	800	40	30	810	810	110	2.40	920	1.92	950
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	1,508	4	1,512	88	1,600	40	150	1,490	1,490	110	2.40	1,600	2.13	1,750
Volumetric Flow	m^3/h	1,008	**3.5**	1,011	88	1,100	**40**	75	1,065	1,065	**110**	**2.40**	1,175	1.98	1,250
Slurry SG	SG	1.50	1.00	1.49	1.00	1.46	1.00	2.00	1.40	1.40	1.00	1.00	1.36	1.08	1.40

Intensive Leaching

Stream Name		Gravity Concentrate	ILR Feed	ILR Feed Tank Fluidisation	ILR Feed Tank O/F	ILR Cyanide Addition	ILR Caustic Addition	ILR Leach Solution Water	ILR Leach Solution	ILR Flocculant Addition	ILR Solids Rinse Water (Eluate)	ILR Pregnant Leach Solution	ILR Solids Rinse Water (Cyanide)	ILR Tails Flush Water	ILR Tails
Solids	dry t/h	0.21	0.21												0.21
% Solids	% w/w	10	**60**												34
Solids SG	SG	3.40	3.40												3.40
Solution	t/h	1.92	0.14	0.08	1.86	0.07	0.07	0.09	0.37	0.00	0.42	0.79	0.21	0.42	0.42
Solution SG	SG	1.00	1.00	1.00	1.00	**1.08**	**1.19**	1.00	0.89	**1.00**	1.00	0.95	1.00	1.00	1.00
Total Stream	wet t/h	2.13	0.36	0.08	1.86	0.07	0.07	0.09	0.37	0.00	0.42	0.79	0.21	0.42	0.63
Volumetric Flow	m^3/h	1.98	0.20	**0.08**	1.86	**0.06**	**0.06**	0.09	**0.42**	**0.004**	**0.42**	0.84	**0.21**	**0.42**	0.42
Slurry SG	SG	1.08	1.73	1.00	1.00	1.08	1.19	1.00	0.89	1.00	1.00	0.95	1.00	1.00	1.51

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Trash Screening

Stream Name		Cyclone O/F	Trash Screen Spray Water	Trash Screen O/S	Trash Screen U/S
Solids	dry t/h	615		0	615
% Solids	% w/w	29		85	28
Solids SG	SG	2.67		2.67	2.67
Solution	t/h	1,528	36	0	1,564
Solution SG	SG	1.00	1.00	1.00	1.00
Total Stream	wet t/h	2,143	36	0	2,179
Volumetric Flow	m^3/h	1,759	36	0	1,795
Slurry SG	SG	1.22	1.00	0.00	1.21

Pre-leach Thickening

Stream Name		Trash Screen U/S	Pre-leach Thickener Flocculant Addition	Pre-Leach Thickener Flocculant Dilution Water	Pre-Leach Thickener Spray Water	Total Pre-Leach Thickener Feed	Pre-Leach Thickener O/F	Pre-Leach Thickener U/F	Pre-Leach Thickener U/F Pump Gland Water	Pre-Leach Thickener U/F Pump	CIL Feed
Solids	dry t/h	615				615		615		615	615
% Solids	% w/w	28				28		50		50	50
Solids SG	SG	2.67				2.67		2.67		2.67	2.67
Solution	t/h	1,564	2.46	22	0	1,589	974	615	2	618	618
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	2,179	2.46	22	0	2,204	974	1,230	2	1,233	1,233
Volumetric Flow	m^3/h	1,795	2.46	22	0	1,819	974	846	2.4	848	848
Slurry SG	SG	1.21	1.00	1.00	0.00	1.21	1.00	1.46	1.00	1.45	1.45

Note 5: Value adjusted to 92% Utilisation.

CIL

Stream Name		CIL Feed	CIL Cyanide Addition	ILR Solids Rinse Water (Cyanide)	Loaded Carbon Screen Feed	Loaded Carbon Screen Spray Water	Loaded Carbon Screen U/S	Total Barren EW Solution	Plant Washdown Water	Quench Carbon Transfer	Carbon Sizing Screen Spray Water	Elution Column Drain	Carbon Dewatering Screen U/S	CIL Tailings
Solids	dry t/h	615			193		193							615
% Solids	% w/w	50			50		48							48
Solids SG	SG	2.67			2.67		2.67							2.67
Solution	t/h	618	2.73	0.21	194	12	206	7.86	10	7	4	2	2	666
Solution SG	SG	1.00	1.08	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	1,233	2.73	0.21	388	12	400	7.86	10	7	4	2	2	1,281
Volumetric Flow	m^3/h	848	2.52	0.21	267	12	279	7.85	10	7	4	2	2	896
Slurry SG	SG	1.45	1.08	1.00	1.45	1.00	1.43	1.00	1.00	1.00	1.00	1.00	1.00	1.43

Carbon Safety Screen

Stream Name		CIL Tailings	Carbon Safety Screen Spray Water	Carbon Safety Screen U/S
Solids	dry t/h	615		615
% Solids	% w/w	48		47
Solids SG	SG	2.67		2.67
Solution	t/h	666	36	702
Solution SG	SG	1.00	1.00	1.00
Total Stream	wet t/h	1,281	36	1,317
Volumetric Flow	m^3/h	896	36	932
Slurry SG	SG	1.43	1.00	1.41

Acid Wash

Stream Name		Acid Wash HCl	Acid Wash Water	Acid Rinse	Acid Wash Effluent	Acid Wash Carbon Transfer	Elution Column Drain
Solids	dry t/h						
% Solids	% w/w						
Solids SG	SG						
Solution	t/h	0.08	0.87	4.96	6	2.43	2.43
Solution SG	SG	1.16	1.00	1.02	1.02	1.00	1.00
Total Stream	wet t/h	0.08	0.87	4.96	5.9	2.43	2.43
Volumetric Flow	m^3/h	0.07	0.87	4.86	5.8	2.43	2.43
Slurry SG	SG	1.16	1.00	1.02	1.02	1.00	1.00

Elution & Carbon Regeneration

Stream Name		Pre-soak NaCN	Pre-soak NaOH	Pre-soak Water	Elution Rinse	Pregnant Eluate	Elution Carbon Transfer	Carbon Dewatering Screen U/S	Carbon Quench Water	Quench Carbon Transfer
Solids	dry t/h									
% Solids	% w/w									
Solids SG	SG									
Solution	t/h	0.09	0.15	0.61	6.1	6.9	2.4	2.4	6.9	6.9
Solution SG	SG	1.08	1.19	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	0.09	0.15	0.61	6.1	6.9	2.4	2.4	6.9	6.9
Volumetric Flow	m^3/h	0.08	0.12	0.61	6.1	6.9	2.4	2.4	6.9	6.9
Slurry SG	SG	1.08	1.19	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Cyanide Destruction

Stream Name		Carbon Safety Screen U/S	Cyanide Destruction SMBS Solution	Cyanide Destruction $CuSO_4$ Solution	Cyanide Destruction Caustic Addition	Cyanide Destruction Discharge
Solids	dry t/h	615				615
% Solids	% w/w	47				47
Solids SG	SG	2.67				2.67
Solution	t/h	702	2.12	0.92	1.00	706
Solution SG	SG	1.00	1.15	1.15	1.19	1.00
Total Stream	wet t/h	1,317	2.12	0.92	1.00	1,321
Volumetric Flow	m^3/h	932	1.85	0.81	0.84	936
Slurry SG	SG	1.41	1.15	1.15	1.19	1.41

Electrowinning

Stream Name		Pregnant Eluate	Elution EW NaOH	Barren Eluate	ILR Pregnant Leach Solution	Gravity Barren Solution	Total Barren EW Solution
Solids	dry t/h						
% Solids	% w/w						
Solids SG	SG						
Solution	t/h	6.92	0.15	7.1	0.8	0.8	7.9
Solution SG	SG	1.00	1.19	1.00	0.95	0.95	1.00
Total Stream	wet t/h	6.92	0.15	7.1	0.8	0.8	7.9
Volumetric Flow	m^3/h	6.89	0.12	7.0	0.8	0.8	7.9
Slurry SG	SG	1.00	1.19	1.01	0.95	0.95	1.00

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Tailings Disposal

Stream Name		Cyanide Destruction Discharge	Acid Wash Effluent	Total Tailings to TSF	Tails Pump Gland Water	Tails Pump	TSF Decant Water	TSF Consolidated Tails
Solids	dry t/h	615		615		615		615
% Solids	% w/w	47		46		46		59
Solids SG	SG	2.67		2.67		2.67		2.67
Solution	t/h	706	5.9	712	2.40	715	**286**	429
Solution SG	SG	1.00	1.02	1.00	**1.00**	1.00	1.00	1.00
Total Stream	wet t/h	1,321	5.9	1,327	2.40	1,330	286	1,044
Volumetric Flow	m^3/h	936	5.8	943	**2.40**	944	286	659
Slurry SG	SG	1.41	1.02	1.41	1.00	1.41	1.00	1.59

Process Water

Stream Name		Pre-Leach Thickener O/F	Filtered Water Plant Backwash	TSF Decant Return	LP Process Water Demand	HP Process Water Demand	Fluidisation Water	Total Process Water Demand	Process Water Available	LP Process Water Pump Gland Water	HP Process Water Pump Gland Water	Raw Water Makeup (Nominal)	Raw Water Makeup (Max) No Decant
Stream No													
Solids	dry t/h												
% Solids	% w/w												
Solids SG	SG												
Solution	t/h	974	0.63	286	1,184	306	110	1,600	1,265	2.40	2.40	335	621
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	974	0.63	286	1,184	306	110	1,600	1,265	2.40	2.40	335	621
Volumetric Flow	m^3/h	974	0.63	286	1,184	306	110	1,600	1,265	**2.40**	**2.40**	335	621
Slurry SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Raw Water

Stream Name		Crushing & Reclaim Raw Water Demand	Process Plant Raw Water Demand	Raw Water Makeup (Nominal)	Raw Water Makeup (Max) No Decant	Water Filtration Plant Feed	Mining Water	Camp Raw Water	Total Raw Water Demand	Raw Water Pumps (Nominal)	Raw Water Pumps (Max)
Stream No											
Solids	dry t/h										
% Solids	% w/w										
Solids SG	SG										
Solution	t/h	20	12	335	621	81	25	7	479	398	684
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	20	12	335	621	81	25	7	479	398	684
Volumetric Flow	m^3/h	20	12	335	621	81	25	7	479	398	684
Slurry SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

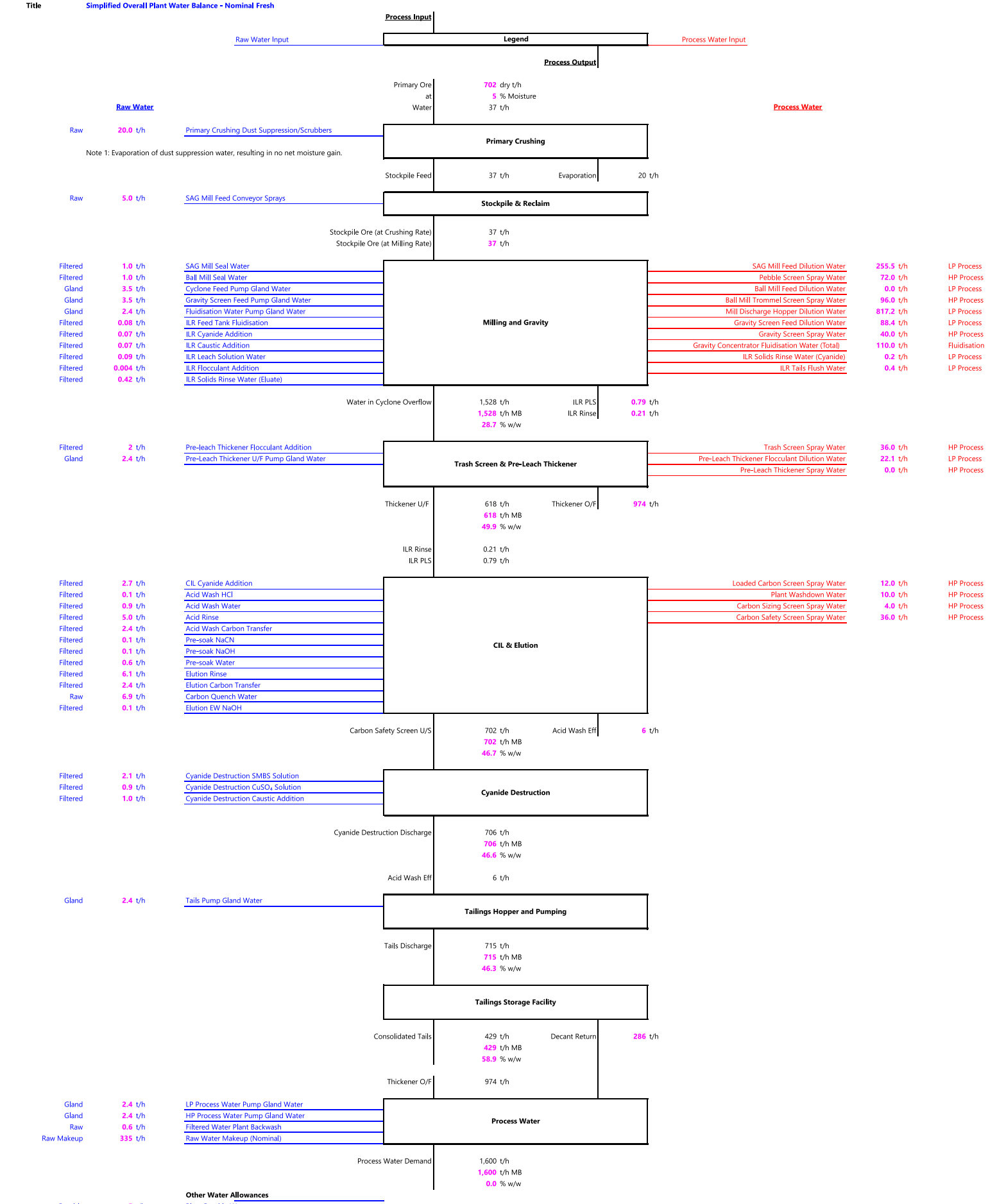
Filtered Water

Stream Name		Gland Water Total	Mill Seal Water	SMBS Mixing	$CuSO_4$ Mixing	NaCN Mixing	NaOH Mixing	HCl Dilution	Flocculant Mixing	Elution Circuit Demand	ILR Demand	Potable Water Plant Feed	Gold Room, Misc Water	Filtered Water Demand	Filtration Plant Backwash	Filtration Plant Feed
Stream No																
Solids	dry t/h															
% Solids	% w/w															
Solids SG	SG															
Solution	t/h	19	2.0	**1.8**	**0.8**	**3.0**	**1.0**	**0.9**	**27**	17	0.6	**5**	**2**	81	**0.6**	81
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	19	2.0	1.8	0.8	3.0	1.0	0.9	27	17	0.6	5	2	81	0.6	81
Volumetric Flow	m^3/h	19	2.0	1.8	0.8	3.0	1.0	0.9	27	17	0.6	5	2	81	0.6	81
Slurry SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Project	Doropo Gold DFS
Client	Resolute Mining Limited
Date	19-Nov-25
Revision	C
Title	Simplified Overall Plant Water Balance - Nominal Fresh



This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Summary		
Potable	5	t/h
Gland	19	t/h
Filtered	56	t/h
Filtered_other	2	t/h
Raw	39	t/h
Raw Makeup	335	t/h
Raw Plant Total	430	t/h

Summary		
LP Process	1,184	t/h
HP Process	306	t/h
Fluidisation	110	t/h
PW Total	1,600	t/h

Plant Water Balance Summary	Design Flows (t/h)	Min Flows (t/h)	Max Flows (t/h)	Startup Flows (t/h)
Raw Water in Mill Feed	37	37	37	37
Raw Water in Tailings	715	715	715	715
Raw Water - Difference	**678**	**678**	**678**	**678**
Decant Return	**286**	**286**	**500**	**0**
Filtered Water (into Slurry)	49	49	49	49
Raw Water (into Slurry)	39	39	39	39
Total Water Streams into Slurry	374	374	588	88
Difference - Raw Water to Process Water Makeup	304	304	89	589
Raw Water to Plant Required	**392**	**392**	**177**	**678**
Raw Water to Plant (Crushing Losses + Other Water Streams)	25.0	25.0	25.0	25.0
Filtered Water (Other Water Streams)	2.0	2.0	2.0	2.0
Raw Water For Filtered Water (Backwash)	**0.6**	0.6	0.6	0.6
Total Raw Water Streams Losses	27.6	27.6	27.6	27.6
Total Raw Water Required to Plant	**419**	**419**	**205**	**705**
Raw Water For Filtered Water (Potable Water)	**5**	5	5	5
Raw Water to Camp	**7**	7	7	7
Raw Water to General Infrastructure & MSA	**25**	25	25	25
Total Raw Water Required from Water Storage Dam	**456**	**456**	**242**	**742**

Notes		
Nominal	**40**	Decant Return used for Design Flows
Startup (First 6 Months)	**0**	Decant Return for Startup
Maximum	**70**	Decant Return Max

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Project	Doropo Gold DFS
Client	Resolute Mining Limited
Date	19-Nov-25
Revision	C
Title	Mass Balance - Nominal Transition

All flows are on an average continuous basis and at 91.3% utilisation unless otherwise noted.

Legend

Ore / Slurry
Raw Water
Process Water **(LP)**
Process Water **(HP)**
Filtered Water
Reagents
Sample

Colour Coding

Bold and blue is for input data.
Black is for calculated data.
Bold and pink is for linked data within the same file.

Primary Crushing (80% Utilisation)

Stream Name		Primary Ore Feed	Vibrating Grizzly Oversize	Vibrating Grizzly Undersize	ROM Hopper Dust Suppression[1]	Primary Crusher Disch.	Primary Crushing Disch. Conveyor	Primary Crushing Dust Suppression[1]
Solids	dry t/h	**771**	**280**	490		280	771	
% Solids	% w/w	**85**	85	85		85	85	
Solids SG	SG	**2.57**	2.57	2.57		2.57	2.57	
Solution	t/h	136	49	86	5	49	136	5
Solution SG	SG	**1.00**	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	907	330	577	5	330	907	5
Volumetric Flow	m^3/h	436	159	277	**5**	159	436	**5**
Slurry SG	SG	2.08	2.08	2.08	1.00	2.08	2.08	1.00

Note 1: 100% evaporation of dust suppression water assumed.

Coarse Ore Stockpile and Reclaim

Stream Name		Coarse Ore Stockpile Feed Conveyor[3]	Coarse Ore Stockpile Dust Suppression[4]	Total Raw Water to Crushing & Reclaim	Coarse Ore Stockpile Reclaim	SAG Mill Feed Conveyor Sprays	Quicklime to SAG Mill Feed Conveyor	Total New Feed to SAG Mill
Solids	dry t/h	771			**675**		**0.30**	675
% Solids	% w/w	85			85			84
Solids SG	SG	2.57			2.57			2.57
Solution	t/h	136	10	20	119	5		124
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	907	10	20	794	5	0	799
Volumetric Flow	m^3/h	436	**10**	20	382	**5**		387
Slurry SG	SG	2.08	1.00	1.00	2.08	1.00		2.07

Note 2: Value at 80% Utilisation.
Note 3: 100% evaporation of dust suppression water assumed.

SAG Milling

Stream Name		Total New Feed to SAG Mill	Crushed Pebble Conveyor	Total Ore Feed to SAG Mill	Cyclone U/F to SAG Mill	SAG Mill Feed Dilution Water	SAG Mill Seal Water	SAG Mill Discharge	Pebble Screen Spray Water	Pebble Screen O/S	Pebble Screen U/S
Solids	dry t/h	675	43	719	289			1,007		**43**	964
% Solids	% w/w	84	95	85	75			**70**		**95**	66
Solids SG	SG	2.57	2.57	2.57	2.57			2.57		2.57	2.57
Solution	t/h	124	2	126	96	208	1	432	72	2	501
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	799	45	845	385	208	1	1,439	72	45	1,466
Volumetric Flow	m^3/h	387	19	406	209	208	**1.00**	824	**72**	19	877
Slurry SG	SG	2.07	2.38	2.08	1.85	1.00	1.00	1.75	1.00	2.38	1.67

Ball Milling

Stream Name		Cyclone U/F to Ball Mill	Ball Mill Feed Dilution Water	Ball Mill Seal Water	Ball Mill Discharge	Ball Mill Trommel Screen Spray Water	Ball Mill Trommel O/S	Ball Mill Trommel U/S
Solids	dry t/h	1,637			1,637		**0**	1,637
% Solids	% w/w	75			75		**100**	72
Solids SG	SG	2.57			2.57		2.57	2.57
Solution	t/h	546	0	1	547	96	0	643
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	2,183	0	1	2,184	96	0	2,280
Volumetric Flow	m^3/h	1,183	0	**1.00**	1,184	**96**	0	1,280
Slurry SG	SG	1.85	0.00	1.00	1.84	1.00	0.00	1.78

Classification Cyclones

Stream Name		Pebble Screen U/S	Ball Mill Trommel U/S	Gravity Circuit Combined Return	ILR Feed Tank O/F	ILR Tails	Mill Discharge Hopper Feed	Mill Discharge Hopper Dilution Water	Mill Discharge Hopper Total	Cyclone Feed	Gravity Circuit Feed	Cyclone Feed Pump Gland Water	Cyclone Feed Pump	Cyclone U/F	Cyclone O/F	Cyclone U/F to SAG Mill	Cyclone U/F to Ball Mill
Solids	dry t/h	964	1,637	800		0.2	3,401		3,401	2,601	800		2,601	**1,926**	675	**289**	1,637
% Solids	% w/w	66	72	46		33.9	62		53	53	53		53	**75**	**29**	75	75
Solids SG	SG	2.57	2.57	2.57		3.40	2.57		2.57	2.57	2.57		2.57	2.57	2.57	2.57	2.57
Solution	t/h	501	643	950	1.86	0.4	2,097	910	3,007	2,300	707	4	2,303	642	1,661	96	546
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	1,466	2,280	1,750	1.86	0.6	5,498	910	6,409	4,901	1,507	4	4,905	2,568	2,337	385	2,183
Volumetric Flow	m^3/h	877	1,280	1,262	1.86	0.4	3,420	910	4,331	3,312	1,019	**3.5**	3,316	1,391	1,924	209	1,183
Slurry SG	SG	1.67	1.78	1.39	1.00	1.51	1.61	1.00	1.48	1.48	1.48	1.00	1.48	1.85	1.21	1.85	1.85

Gravity Concentrator Circuit

Stream Name		Gravity Circuit Feed	Gravity Screen Feed Pump Gland Water	Gravity Screen Feed Pump	Gravity Screen Feed Dilution Water	Gravity Screen Feed	Gravity Screen Spray Water	Gravity Screen O/S	Gravity Screen U/S	Gravity Concentrator Feed	Gravity Concentrator Fluidisation Water (Total)	Fluidisation Water Pump Gland Water	Gravity Concentrator Tails	Gravity Concentrate	Gravity Circuit Combined Return
Solids	dry t/h	800		**800**		800		120	680	**680**			680	**0.21**	800
% Solids	% w/w	53		53		**50**		**80**	46	46			42	**10**	46
Solids SG	SG	2.57		2.57		2.57		2.57	2.57	2.57			2.57	**3.40**	2.57
Solution	t/h	707	4	711	89	800	40	30	810	810	110	2.40	920	1.92	950
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	1,507	4	1,511	89	1,600	40	150	1,490	1,490	110	2.40	1,600	2.13	1,750
Volumetric Flow	m^3/h	1,019	**3.5**	1,022	89	1,111	**40**	77	1,075	1,075	**110**	**2.40**	1,185	1.98	1,262
Slurry SG	SG	1.48	1.00	1.48	1.00	1.44	1.00	1.96	1.39	1.39	1.00	1.00	1.35	1.08	1.39

Intensive Leaching

Stream Name		Gravity Concentrate	ILR Feed	ILR Feed Tank Fluidisation	ILR Feed Tank O/F	ILR Cyanide Addition	ILR Caustic Addition	ILR Leach Solution Water	ILR Leach Solution	ILR Flocculant Addition	ILR Solids Rinse Water (Eluate)	ILR Pregnant Leach Solution	ILR Solids Rinse Water (Cyanide)	ILR Tails Flush Water	ILR Tails
Solids	dry t/h	0.21	0.21												0.21
% Solids	% w/w	10	**60**												34
Solids SG	SG	3.40	3.40												3.40
Solution	t/h	1.92	0.14	0.08	1.86	0.07	0.07	0.09	0.37	0.00	0.42	0.79	0.21	0.42	0.42
Solution SG	SG	1.00	1.00	1.00	1.00	**1.08**	**1.19**	1.00	0.89	**1.00**	1.00	0.95	1.00	1.00	1.00
Total Stream	wet t/h	2.13	0.36	0.08	1.86	0.07	0.07	0.09	0.37	0.00	0.42	0.79	0.21	0.42	0.63
Volumetric Flow	m^3/h	1.98	0.20	**0.08**	1.86	**0.06**	**0.06**	0.09	**0.42**	**0.004**	**0.42**	0.84	**0.21**	**0.42**	0.42
Slurry SG	SG	1.08	1.73	1.00	1.00	1.08	1.19	1.00	0.89	1.00	1.00	0.95	1.00	1.00	1.51

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Trash Screening

Stream Name		Cyclone O/F	Trash Screen Spray Water	Trash Screen O/S	Trash Screen U/S
Solids	dry t/h	675		0	675
% Solids	% w/w	29		85	28
Solids SG	SG	2.57		2.57	2.57
Solution	t/h	1,661	36	0	1,697
Solution SG	SG	1.00	1.00	1.00	1.00
Total Stream	wet t/h	2,337	36	0	2,373
Volumetric Flow	m^3/h	1,924	36	0	1,960
Slurry SG	SG	1.21	1.00	0.00	1.21

Pre-leach Thickening

Stream Name		Trash Screen U/S	Pre-leach Thickener Flocculant Addition	Pre-Leach Thickener Flocculant Dilution Water	Pre-Leach Thickener Spray Water	Total Pre-Leach Thickener Feed	Pre-Leach Thickener O/F	Pre-Leach Thickener U/F	Pre-Leach Thickener U/F Pump Gland Water	Pre-Leach Thickener U/F Pump	CIL Feed
Solids	dry t/h	675				675		675		675	675
% Solids	% w/w	28				27		48		48	48
Solids SG	SG	2.57				2.57		2.57		2.57	2.57
Solution	t/h	1,697	13.51	122	0	1,833	1,101	732	2	734	734
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	2,373	13.51	122	0	2,508	1,101	1,407	2	1,409	1,409
Volumetric Flow	m^3/h	1,960	13.51	122	0	2,095	1,101	994	2.4	997	997
Slurry SG	SG	1.21	1.00	1.00	0.00	1.20	1.00	1.41	1.00	1.41	1.41

Note 5: Value adjusted to 92% Utilisation.

CIL

Stream Name		CIL Feed	CIL Cyanide Addition	ILR Solids Rinse Water (Cyanide)	Loaded Carbon Screen Feed	Loaded Carbon Screen Spray Water	Loaded Carbon Screen U/S	Total Barren EW Solution	Plant Washdown Water	Quench Carbon Transfer	Carbon Sizing Screen Spray Water	Elution Column Drain	Carbon Dewatering Screen U/S	CIL Tailings
Solids	dry t/h	675			181		181							675
% Solids	% w/w	48			48		46							46
Solids SG	SG	2.57			2.57		2.57							2.57
Solution	t/h	734	3.03	0.21	196	12	208	7.86	10	7	4	2	2	783
Solution SG	SG	1.00	1.08	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	1,409	3.03	0.21	377	12	389	7.86	10	7	4	2	2	1,458
Volumetric Flow	m^3/h	997	2.81	0.21	267	12	279	7.85	10	7	4	2	2	1,045
Slurry SG	SG	1.41	1.08	1.00	1.41	1.00	1.40	1.00	1.00	1.00	1.00	1.00	1.00	1.39

Carbon Safety Screen

Stream Name		CIL Tailings	Carbon Safety Screen Spray Water	Carbon Safety Screen U/S
Solids	dry t/h	675		675
% Solids	% w/w	46		45
Solids SG	SG	2.57		2.57
Solution	t/h	783	36	819
Solution SG	SG	1.00	1.00	1.00
Total Stream	wet t/h	1,458	36	1,494
Volumetric Flow	m^3/h	1,045	36	1,081
Slurry SG	SG	1.39	1.00	1.38

Acid Wash

Stream Name		Acid Wash HCl	Acid Wash Water	Acid Rinse	Acid Wash Effluent	Acid Wash Carbon Transfer	Elution Column Drain
Solids	dry t/h						
% Solids	% w/w						
Solids SG	SG						
Solution	t/h	0.08	0.87	4.96	6	2.43	2.43
Solution SG	SG	1.16	1.00	1.02	1.02	1.00	1.00
Total Stream	wet t/h	0.08	0.87	4.96	5.9	2.43	2.43
Volumetric Flow	m^3/h	0.07	0.87	4.86	5.8	2.43	2.43
Slurry SG	SG	1.16	1.00	1.02	1.02	1.00	1.00

Elution & Carbon Regeneration

Stream Name		Pre-soak NaCN	Pre-soak NaOH	Pre-soak Water	Elution Rinse	Pregnant Eluate	Elution Carbon Transfer	Carbon Dewatering Screen U/S	Carbon Quench Water	Quench Carbon Transfer
Solids	dry t/h									
% Solids	% w/w									
Solids SG	SG									
Solution	t/h	0.09	0.15	0.61	6.1	6.9	2.4	2.4	6.9	6.9
Solution SG	SG	1.08	1.19	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	0.09	0.15	0.61	6.1	6.9	2.4	2.4	6.9	6.9
Volumetric Flow	m^3/h	0.08	0.12	0.61	6.1	6.9	2.4	2.4	6.9	6.9
Slurry SG	SG	1.08	1.19	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Cyanide Destruction

Stream Name		Carbon Safety Screen U/S	Cyanide Destruction SMBS Solution	Cyanide Destruction $CuSO_4$ Solution	Cyanide Destruction Caustic Addition	Cyanide Destruction Discharge
Solids	dry t/h	675				675
% Solids	% w/w	45				45
Solids SG	SG	2.57				2.57
Solution	t/h	819	2.12	0.92	1.00	823
Solution SG	SG	1.00	1.15	1.15	1.19	1.00
Total Stream	wet t/h	1,494	2.12	0.92	1.00	1,498
Volumetric Flow	m^3/h	1,081	1.85	0.81	0.84	1,085
Slurry SG	SG	1.38	1.15	1.15	1.19	1.38

Electrowinning

Stream Name		Pregnant Eluate	Elution EW NaOH	Barren Eluate	ILR Pregnant Leach Solution	Gravity Barren Solution	Total Barren EW Solution
Solids	dry t/h						
% Solids	% w/w						
Solids SG	SG						
Solution	t/h	6.92	0.15	7.1	0.8	0.8	7.9
Solution SG	SG	1.00	1.19	1.00	0.95	0.95	1.00
Total Stream	wet t/h	6.92	0.15	7.1	0.8	0.8	7.9
Volumetric Flow	m^3/h	6.89	0.12	7.0	0.8	0.8	7.9
Slurry SG	SG	1.00	1.19	1.01	0.95	0.95	1.00

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Tailings Disposal

Stream Name		Cyanide Destruction Discharge	Acid Wash Effluent	Total Tailings to TSF	Tails Pump Gland Water	Tails Pump	TSF Decant Water	TSF Consolidated Tails
Solids	dry t/h	675		675		675		675
% Solids	% w/w	45		45		45		58
Solids SG	SG	2.57		2.57		2.57		2.57
Solution	t/h	823	5.9	829	2.40	831	**333**	499
Solution SG	SG	1.00	1.02	1.00	**1.00**	1.00	1.00	1.00
Total Stream	wet t/h	1,498	5.9	1,504	2.40	1,507	333	1,174
Volumetric Flow	m^3/h	1,085	5.8	1,092	**2.40**	1,093	333	761
Slurry SG	SG	1.38	1.02	1.38	1.00	1.38	1.00	1.54

Process Water

Stream Name		Pre-Leach Thickener O/F	Filtered Water Plant Backwash	TSF Decant Return	LP Process Water Demand	HP Process Water Demand	Fluidisation Water	Total Process Water Demand	Process Water Available	LP Process Water Pump Gland Water	HP Process Water Pump Gland Water	Raw Water Makeup (Nominal)	Raw Water Makeup (Max) No Decant
Stream No													
Solids	dry t/h												
% Solids	% w/w												
Solids SG	SG												
Solution	t/h	1,101	0.63	333	1,330	306	110	1,746	1,439	2.40	2.40	307	639
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	1,101	0.63	333	1,330	306	110	1,746	1,439	2.40	2.40	307	639
Volumetric Flow	m^3/h	1,101	0.63	333	1,330	306	110	1,746	1,439	**2.40**	**2.40**	307	639
Slurry SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Raw Water

Stream Name		Crushing & Reclaim Raw Water Demand	Process Plant Raw Water Demand	Raw Water Makeup (Nominal)	Raw Water Makeup (Max) No Decant	Water Filtration Plant Feed	Mining Water	Camp Raw Water	Total Raw Water Demand	Raw Water Pumps (Nominal)	Raw Water Pumps (Max)
Stream No											
Solids	dry t/h										
% Solids	% w/w										
Solids SG	SG										
Solution	t/h	20	12	307	639	81	25	7	451	370	703
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	20	12	307	639	81	25	7	451	370	703
Volumetric Flow	m^3/h	20	12	307	639	81	25	7	451	370	703
Slurry SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

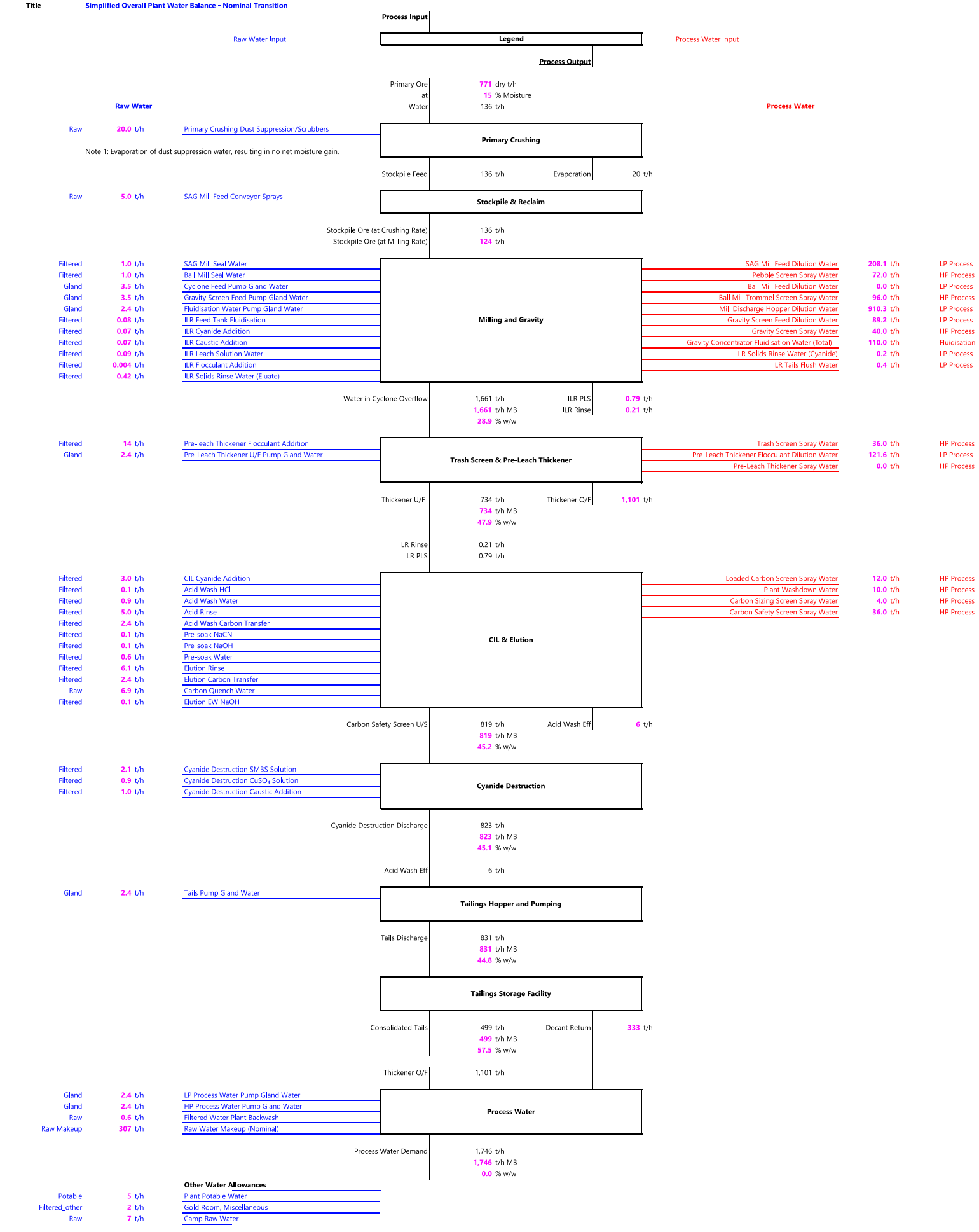
Filtered Water

Stream Name		Gland Water Total	Mill Seal Water	SMBS Mixing	$CuSO_4$ Mixing	NaCN Mixing	NaOH Mixing	HCl Dilution	Flocculant Mixing	Elution Circuit Demand	ILR Demand	Potable Water Plant Feed	Gold Room, Misc Water	Filtered Water Demand	Filtration Plant Backwash	Filtration Plant Feed
Stream No																
Solids	dry t/h															
% Solids	% w/w															
Solids SG	SG															
Solution	t/h	19	2.0	**1.8**	**0.8**	**3.0**	**1.0**	**0.9**	**27**	17	0.6	**5**	**2**	81	**0.6**	81
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	19	2.0	1.8	0.8	3.0	1.0	0.9	27	17	0.6	5	2	81	0.6	81
Volumetric Flow	m^3/h	19	2.0	1.8	0.8	3.0	1.0	0.9	27	17	0.6	5	2	81	0.6	81
Slurry SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

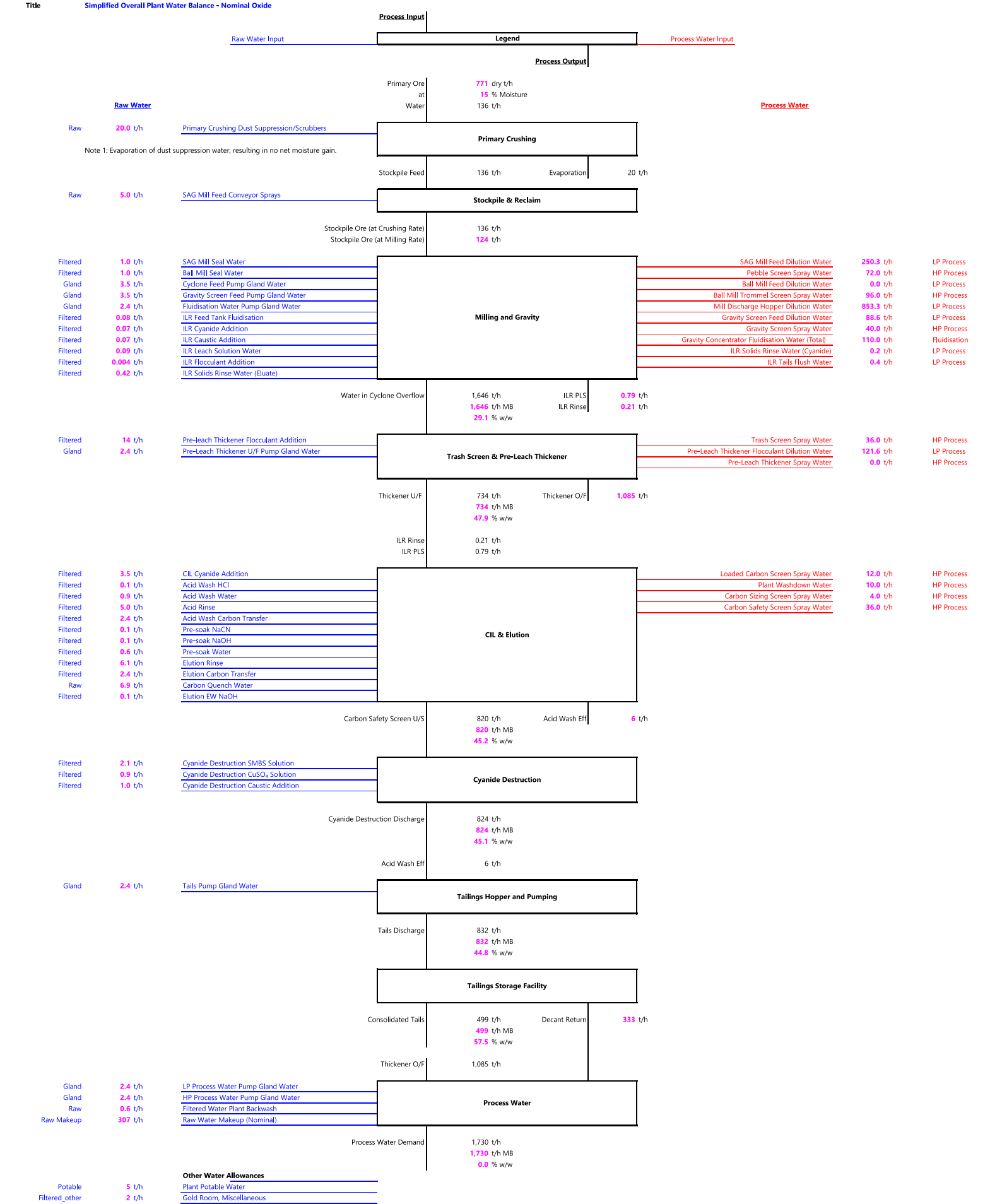
Project Doropo Gold DFS
Client Resolute Mining Limited
Date 19-Nov-25
Revision C
Title Simplified Overall Plant Water Balance - Nominal Transition



This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Project	Doropo Gold DFS
Client	Resolute Mining Limited
Date	19-Nov-25
Revision	C
Title	Simplified Overall Plant Water Balance - Nominal Oxide



This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Summary		
Potable	5	t/h
Gland	19	t/h
Filtered	67	t/h
Filtered_other	2	t/h
Raw	39	t/h
Raw Makeup	307	t/h
Raw Plant Total	414	t/h

1,330	t/h	LP Process
306	t/h	HP Process
110	t/h	Fluidisation
1,746	t/h	PW Total

Summary

Plant Water Balance Summary	Design Flows (t/h)	Min Flows (t/h)	Max Flows (t/h)	Startup Flows (t/h)
Raw Water in Mill Feed	136	136	136	136
Raw Water in Tailings	831	831	831	831
Raw Water - Difference	**695**	**695**	**695**	**695**
Decant Return	**333**	**333**	**582**	**0**
Filtered Water (into Slurry)	60	60	60	60
Raw Water (into Slurry)	39	39	39	39
Total Water Streams into Slurry	432	432	681	99
Difference - Raw Water to Process Water Makeup	263	263	14	596
Raw Water to Plant Required	**363**	**363**	**113**	**695**
Raw Water to Plant (Crushing Losses + Other Water Streams)	25.0	25.0	25.0	25.0
Filtered Water (Other Water Streams)	2.0	2.0	2.0	2.0
Raw Water For Filtered Water (Backwash)	**0.6**	0.6	0.6	0.6
Total Raw Water Streams Losses	27.6	27.6	27.6	27.6
Total Raw Water Required to Plant	**390**	**390**	**141**	**723**
Raw Water For Filtered Water (Potable Water)	**5**	5	5	5
Raw Water to Camp	**7**	7	7	7
Raw Water to General Infrastructure, Village & MSA	**25**	25	25	25
Total Raw Water Required from Water Storage Dam	**427**	**427**	**178**	**759**

Notes

Nominal	**40**	Decant Return used for Design Flows
Startup (First 6 Months)	**0**	Decant Return for Startup
Maximum	**70**	Decant Return Max

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Project	Doropo Gold DFS
Client	Resolute Mining Limited
Date	19-Nov-25
Revision	C
Title	Mass Balance - Nominal Oxide

All flows are on an average continuous basis and at 91.3% utilisation unless otherwise noted.

Legend

Ore / Slurry
Raw Water
Process Water **(LP)**
Process Water **(HP)**
Filtered Water
Reagents
Sample

Colour Coding

Bold and blue is for input data.
Black is for calculated data.
Bold and pink is for linked data within the same file.

Primary Crushing (80% Utilisation)

Stream Name		Primary Ore Feed	Vibrating Grizzly Oversize	Vibrating Grizzly Undersize	ROM Hopper Dust Suppression[1]	Primary Crusher Disch.	Primary Crushing Disch. Conveyor	Primary Crushing Dust Suppression[1]
Solids	dry t/h	**771**	**283**	488		283	771	
% Solids	% w/w	**85**	85	85		85	85	
Solids SG	SG	**2.47**	2.47	2.47		2.47	2.47	
Solution	t/h	136	50	86	5	50	136	5
Solution SG	SG	**1.00**	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	907	333	574	5	333	907	5
Volumetric Flow	m^3/h	448	164	284	**5**	164	448	**5**
Slurry SG	SG	2.02	2.02	2.02	1.00	2.02	2.02	1.00

Note 1: 100% evaporation of dust suppression water assumed.

Coarse Ore Stockpile and Reclaim

Stream Name		Coarse Ore Stockpile Feed Conveyor[3]	Coarse Ore Stockpile Dust Suppression[4]	Total Raw Water to Crushing & Reclaim	Coarse Ore Stockpile Reclaim	SAG Mill Feed Conveyor Sprays	Quicklime to SAG Mill Feed Conveyor	Total New Feed to SAG Mill
Solids	dry t/h	771			**675**		**0.57**	676
% Solids	% w/w	85			85			84
Solids SG	SG	2.47			2.47			2.47
Solution	t/h	136	10	20	119	5		124
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	907	10	20	794	5	1	800
Volumetric Flow	m^3/h	448	**10**	20	392	**5**		398
Slurry SG	SG	2.02	1.00	1.00	2.02	1.00		2.01

Note 2: Value at 80% Utilisation.
Note 3: 100% evaporation of dust suppression water assumed.

SAG Milling

Stream Name		Total New Feed to SAG Mill	Crushed Pebble Conveyor	Total Ore Feed to SAG Mill	Cyclone U/F to SAG Mill	SAG Mill Feed Dilution Water	SAG Mill Seal Water	SAG Mill Discharge	Pebble Screen Spray Water	Pebble Screen O/S	Pebble Screen U/S
Solids	dry t/h	676	41	717	739			1,456		**41**	1,414
% Solids	% w/w	84	95	85	75			**70**		**95**	67
Solids SG	SG	2.47	2.47	2.47	2.47			2.47		2.47	2.47
Solution	t/h	124	2	126	246	250	1	624	72	2	694
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	800	43	843	985	250	1	2,079	72	43	2,108
Volumetric Flow	m^3/h	398	19	416	545	250	**1.00**	1,213	**72**	19	1,266
Slurry SG	SG	2.01	2.30	2.02	1.81	1.00	1.00	1.71	1.00	2.30	1.66

Ball Milling

Stream Name		Cyclone U/F to Ball Mill	Ball Mill Feed Dilution Water	Ball Mill Seal Water	Ball Mill Discharge	Ball Mill Trommel Screen Spray Water	Ball Mill Trommel O/S	Ball Mill Trommel U/S
Solids	dry t/h	1,156			1,156		**0**	1,156
% Solids	% w/w	75			75		**100**	71
Solids SG	SG	2.47			2.47		2.47	2.47
Solution	t/h	385	0	1	386	96	0	482
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	1,541	0	1	1,542	96	0	1,638
Volumetric Flow	m^3/h	853	0	**1.00**	854	**96**	0	950
Slurry SG	SG	1.81	0.00	1.00	1.81	1.00	0.00	1.72

Classification Cyclones

Stream Name		Pebble Screen U/S	Ball Mill Trommel U/S	Gravity Circuit Combined Return	ILR Feed Tank O/F	ILR Tails	Mill Discharge Hopper Feed	Mill Discharge Hopper Dilution Water	Mill Discharge Hopper Total	Cyclone Feed	Gravity Circuit Feed	Cyclone Feed Pump Gland Water	Cyclone Feed Pump	Cyclone U/F	Cyclone O/F	Cyclone U/F to SAG Mill	Cyclone U/F to Ball Mill
Solids	dry t/h	1,414	1,156	800		0.2	3,370		3,370	2,570	800		2,570	**1,894**	676	**739**	1,156
% Solids	% w/w	67	71	46		33.9	61		53	53	53		53	**75**	**29**	75	75
Solids SG	SG	2.47	2.47	2.47		3.40	2.47		2.47	2.47	2.47		2.47	2.47	2.47	2.47	2.47
Solution	t/h	694	482	950	1.86	0.4	2,129	853	2,982	2,274	708	4	2,278	631	1,646	246	385
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	2,108	1,638	1,750	1.86	0.6	5,499	853	6,352	4,844	1,508	4	4,847	2,526	2,322	985	1,541
Volumetric Flow	m^3/h	1,266	950	1,274	1.86	0.4	3,493	853	4,346	3,314	1,032	**3.5**	3,318	1,398	1,920	545	853
Slurry SG	SG	1.66	1.72	1.37	1.00	1.51	1.57	1.00	1.46	1.46	1.46	1.00	1.46	1.81	1.21	1.81	1.81

Gravity Concentrator Circuit

Stream Name		Gravity Circuit Feed	Gravity Screen Feed Pump Gland Water	Gravity Screen Feed Pump	Gravity Screen Feed Dilution Water	Gravity Screen Feed	Gravity Screen Spray Water	Gravity Screen O/S	Gravity Screen U/S	Gravity Concentrator Feed	Gravity Concentrator Fluidisation Water (Total)	Fluidisation Water Pump Gland Water	Gravity Concentrator Tails	Gravity Concentrate	Gravity Circuit Combined Return
Solids	dry t/h	800		**800**		800		120	680	**680**			680	**0.21**	800
% Solids	% w/w	53		53		**50**		**80**	46	46			42	**10**	46
Solids SG	SG	2.47		2.47		2.47		2.47	2.47	2.47			2.47	**3.40**	2.47
Solution	t/h	708	4	711	89	800	40	30	810	810	110	2.40	920	1.92	950
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	1,508	4	1,511	89	1,600	40	150	1,490	1,490	110	2.40	1,600	2.13	1,750
Volumetric Flow	m^3/h	1,032	**3.5**	1,035	89	1,124	**40**	79	1,085	1,085	**110**	**2.40**	1,196	1.98	1,274
Slurry SG	SG	1.46	1.00	1.46	1.00	1.42	1.00	1.91	1.37	1.37	1.00	1.00	1.34	1.08	1.37

Intensive Leaching

Stream Name		Gravity Concentrate	ILR Feed	ILR Feed Tank Fluidisation	ILR Feed Tank O/F	ILR Cyanide Addition	ILR Caustic Addition	ILR Leach Solution Water	ILR Leach Solution	ILR Flocculant Addition	ILR Solids Rinse Water (Eluate)	ILR Pregnant Leach Solution	ILR Solids Rinse Water (Cyanide)	ILR Tails Flush Water	ILR Tails
Solids	dry t/h	0.21	0.21												0.21
% Solids	% w/w	10	**60**												34
Solids SG	SG	3.40	3.40												3.40
Solution	t/h	1.92	0.14	0.08	1.86	0.07	0.07	0.09	0.37	0.00	0.42	0.79	0.21	0.42	0.42
Solution SG	SG	1.00	1.00	1.00	1.00	**1.08**	**1.19**	1.00	0.89	**1.00**	1.00	0.95	1.00	1.00	1.00
Total Stream	wet t/h	2.13	0.36	0.08	1.86	0.07	0.07	0.09	0.37	0.00	0.42	0.79	0.21	0.42	0.63
Volumetric Flow	m^3/h	1.98	0.20	**0.08**	1.86	**0.06**	**0.06**	0.09	**0.42**	**0.004**	**0.42**	0.84	**0.21**	**0.42**	0.42
Slurry SG	SG	1.08	1.73	1.00	1.00	1.08	1.19	1.00	0.89	1.00	1.00	0.95	1.00	1.00	1.51

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Trash Screening

Stream Name		Cyclone O/F	Trash Screen Spray Water	Trash Screen O/S	Trash Screen U/S
Solids	dry t/h	676		0	676
% Solids	% w/w	29		85	29
Solids SG	SG	2.47		2.47	2.47
Solution	t/h	1,646	36	0	1,682
Solution SG	SG	1.00	1.00	1.00	1.00
Total Stream	wet t/h	2,322	36	0	2,358
Volumetric Flow	m^3/h	1,920	36	0	1,956
Slurry SG	SG	1.21	1.00	0.00	1.21

Pre-leach Thickening

Stream Name		Trash Screen U/S	Pre-leach Thickener Flocculant Addition	Pre-Leach Thickener Flocculant Dilution Water	Pre-Leach Thickener Spray Water	Total Pre-Leach Thickener Feed	Pre-Leach Thickener O/F	Pre-Leach Thickener U/F	Pre-Leach Thickener U/F Pump Gland Water	Pre-Leach Thickener U/F Pump	CIL Feed
Solids	dry t/h	676				676		676		676	676
% Solids	% w/w	29				27		48		48	48
Solids SG	SG	2.47				2.47		2.47		2.47	2.47
Solution	t/h	1,682	13.51	122	0	1,817	1,085	732	2	734	734
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	2,358	13.51	122	0	2,493	1,085	1,407	2	1,410	1,410
Volumetric Flow	m^3/h	1,956	13.51	122	0	2,091	1,085	1,005	2.4	1,008	1,008
Slurry SG	SG	1.21	1.00	1.00	0.00	1.19	1.00	1.40	1.00	1.40	1.40

Note 5: Value adjusted to 92% Utilisation.

CIL

Stream Name		CIL Feed	CIL Cyanide Addition	ILR Solids Rinse Water (Cyanide)	Loaded Carbon Screen Feed	Loaded Carbon Screen Spray Water	Loaded Carbon Screen U/S	Total Barren EW Solution	Plant Washdown Water	Quench Carbon Transfer	Carbon Sizing Screen Spray Water	Elution Column Drain	Carbon Dewatering Screen U/S	CIL Tailings
Solids	dry t/h	676			179		179							676
% Solids	% w/w	48			48		46							46
Solids SG	SG	2.47			2.47		2.47							2.47
Solution	t/h	734	3.51	0.21	194	12	206	7.86	10	7	4	2	2	784
Solution SG	SG	1.00	1.08	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	1,410	3.51	0.21	373	12	385	7.86	10	7	4	2	2	1,459
Volumetric Flow	m^3/h	1,008	3.25	0.21	267	12	279	7.85	10	7	4	2	2	1,057
Slurry SG	SG	1.40	1.08	1.00	1.40	1.00	1.38	1.00	1.00	1.00	1.00	1.00	1.00	1.38

Carbon Safety Screen

Stream Name		CIL Tailings	Carbon Safety Screen Spray Water	Carbon Safety Screen U/S
Solids	dry t/h	676		676
% Solids	% w/w	46		45
Solids SG	SG	2.47		2.47
Solution	t/h	784	36	820
Solution SG	SG	1.00	1.00	1.00
Total Stream	wet t/h	1,459	36	1,495
Volumetric Flow	m^3/h	1,057	36	1,093
Slurry SG	SG	1.38	1.00	1.37

Acid Wash

Stream Name		Acid Wash HCl	Acid Wash Water	Acid Rinse	Acid Wash Effluent	Acid Wash Carbon Transfer	Elution Column Drain
Solids	dry t/h						
% Solids	% w/w						
Solids SG	SG						
Solution	t/h	0.08	0.87	4.96	6	2.43	2.43
Solution SG	SG	1.16	1.00	1.02	1.02	1.00	1.00
Total Stream	wet t/h	0.08	0.87	4.96	5.9	2.43	2.43
Volumetric Flow	m^3/h	0.07	0.87	4.86	5.8	2.43	2.43
Slurry SG	SG	1.16	1.00	1.02	1.02	1.00	1.00

Elution & Carbon Regeneration

Stream Name		Pre-soak NaCN	Pre-soak NaOH	Pre-soak Water	Elution Rinse	Pregnant Eluate	Elution Carbon Transfer	Carbon Dewatering Screen U/S	Carbon Quench Water	Quench Carbon Transfer
Solids	dry t/h									
% Solids	% w/w									
Solids SG	SG									
Solution	t/h	0.09	0.15	0.61	6.1	6.9	2.4	2.4	6.9	6.9
Solution SG	SG	1.08	1.19	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	0.09	0.15	0.61	6.1	6.9	2.4	2.4	6.9	6.9
Volumetric Flow	m^3/h	0.08	0.12	0.61	6.1	6.9	2.4	2.4	6.9	6.9
Slurry SG	SG	1.08	1.19	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Cyanide Destruction

Stream Name		Carbon Safety Screen U/S	Cyanide Destruction SMBS Solution	Cyanide Destruction $CuSO_4$ Solution	Cyanide Destruction Caustic Addition	Cyanide Destruction Discharge
Solids	dry t/h	676				676
% Solids	% w/w	45				45
Solids SG	SG	2.47				2.47
Solution	t/h	820	2.12	0.92	1.00	824
Solution SG	SG	1.00	1.15	1.15	1.19	1.00
Total Stream	wet t/h	1,495	2.12	0.92	1.00	1,499
Volumetric Flow	m^3/h	1,093	1.85	0.81	0.84	1,096
Slurry SG	SG	1.37	1.15	1.15	1.19	1.37

Electrowinning

Stream Name		Pregnant Eluate	Elution EW NaOH	Barren Eluate	ILR Pregnant Leach Solution	Gravity Barren Solution	Total Barren EW Solution
Solids	dry t/h						
% Solids	% w/w						
Solids SG	SG						
Solution	t/h	6.92	0.15	7.1	0.8	0.8	7.9
Solution SG	SG	1.00	1.19	1.00	0.95	0.95	1.00
Total Stream	wet t/h	6.92	0.15	7.1	0.8	0.8	7.9
Volumetric Flow	m^3/h	6.89	0.12	7.0	0.8	0.8	7.9
Slurry SG	SG	1.00	1.19	1.01	0.95	0.95	1.00

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Tailings Disposal

Stream Name		Cyanide Destruction Discharge	Acid Wash Effluent	Total Tailings to TSF	Tails Pump Gland Water	Tails Pump	TSF Decant Water	TSF Consolidated Tails
Solids	dry t/h	676		676		676		676
% Solids	% w/w	45		45		45		58
Solids SG	SG	2.47		2.47		2.47		2.47
Solution	t/h	824	5.9	830	2.40	832	**333**	499
Solution SG	SG	1.00	1.02	1.00	**1.00**	1.00	1.00	1.00
Total Stream	wet t/h	1,499	5.9	1,505	2.40	1,508	333	1,175
Volumetric Flow	m^3/h	1,096	5.8	1,103	**2.40**	1,105	333	772
Slurry SG	SG	1.37	1.02	1.36	1.00	1.36	1.00	1.52

Process Water

Stream Name		Pre-Leach Thickener O/F	Filtered Water Plant Backwash	TSF Decant Return	LP Process Water Demand	HP Process Water Demand	Fluidisation Water	Total Process Water Demand	Process Water Available	LP Process Water Pump Gland Water	HP Process Water Pump Gland Water	Raw Water Makeup (Nominal)	Raw Water Makeup (Max) No Decant
Stream No													
Solids	dry t/h												
% Solids	% w/w												
Solids SG	SG												
Solution	t/h	1,085	0.63	333	1,314	306	110	1,730	1,424	2.40	2.40	307	640
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	1,085	0.63	333	1,314	306	110	1,730	1,424	2.40	2.40	307	640
Volumetric Flow	m^3/h	1,085	0.63	333	1,314	306	110	1,730	1,424	**2.40**	**2.40**	307	640
Slurry SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Raw Water

Stream Name		Crushing & Reclaim Raw Water Demand	Process Plant Raw Water Demand	Raw Water Makeup (Nominal)	Raw Water Makeup (Max) No Decant	Water Filtration Plant Feed	Mining Water	Camp Raw Water	Total Raw Water Demand	Raw Water Pumps (Nominal)	Raw Water Pumps (Max)
Stream No											
Solids	dry t/h										
% Solids	% w/w										
Solids SG	SG										
Solution	t/h	20	12	307	640	81	25	7	451	370	703
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	20	12	307	640	81	25	7	451	370	703
Volumetric Flow	m^3/h	20	12	307	640	81	25	7	451	370	703
Slurry SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Filtered Water

Stream Name		Gland Water Total	Mill Seal Water	SMBS Mixing	$CuSO_4$ Mixing	NaCN Mixing	NaOH Mixing	HCl Dilution	Flocculant Mixing	Elution Circuit Demand	ILR Demand	Potable Water Plant Feed	Gold Room, Misc Water	Filtered Water Demand	Filtration Plant Backwash	Filtration Plant Feed
Stream No																
Solids	dry t/h															
% Solids	% w/w															
Solids SG	SG															
Solution	t/h	19	2.0	**1.8**	**0.8**	**3.0**	**1.0**	**0.9**	**27**	17	0.6	**5**	**2**	81	**0.6**	81
Solution SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Stream	wet t/h	19	2.0	1.8	0.8	3.0	1.0	0.9	27	17	0.6	5	2	81	0.6	81
Volumetric Flow	m^3/h	19	2.0	1.8	0.8	3.0	1.0	0.9	27	17	0.6	5	2	81	0.6	81
Slurry SG	SG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Raw	7 t/h	Camp Raw Water	

Summary			Summary
Potable	5 t/h	1,314 t/h	LP Process
Gland	19 t/h	306 t/h	HP Process
Filtered	68 t/h	110 t/h	Fluidisation
Filtered_other	2 t/h		
Raw	39 t/h		
Raw Makeup	307 t/h	1,730 t/h	PW Total
Raw Plant Total	414 t/h		

Plant Water Balance Summary	Design Flows (t/h)	Min Flows (t/h)	Max Flows (t/h)	Startup Flows (t/h)
Raw Water in Mill Feed	136	136	136	136
Raw Water in Tailings	832	832	832	832
Raw Water - Difference	**696**	**696**	**696**	**696**
Decant Return	**333**	**333**	**582**	**0**
Filtered Water (into Slurry)	61	61	61	61
Raw Water (into Slurry)	39	39	39	39
Total Water Streams into Slurry	433	433	682	100
Difference - Raw Water to Process Water Makeup	263	263	14	596
Raw Water to Plant Required	**363**	**363**	**114**	**696**
Raw Water to Plant (Crushing Losses + Other Water Streams)	25.0	25.0	25.0	25.0
Filtered Water (Other Water Streams)	2.0	2.0	2.0	2.0
Raw Water For Filtered Water (Backwash)	**0.6**	0.6	0.6	0.6
Total Raw Water Streams Losses	27.6	27.6	27.6	27.6
Total Raw Water Required to Plant	**391**	**391**	**141**	**724**
Raw Water For Filtered Water (Potable Water)	**5**	5	5	5
Raw Water to Camp	**7**	7	7	7
Raw Water to General Infrastructure, Village & MSA	**25**	25	25	25
Total Raw Water Required from Water Storage Dam	**427**	**427**	**178**	**760**

Notes		
Nominal	**40**	Decant Return used for Design Flows
Startup (First 6 Months)	**0**	Decant Return for Startup
Maximum	**70**	Decant Return Max

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

APPENDIX 7.2

PROCESS FLOW DIAGRAMS

DOROPO GOLD PROJECT OVERALL FLOWSHEET

ROM PAD
GRIZZLY
ROM BIN
PRIMARY CRUSHER APRON FEEDER
CRUSHING
PRIMARY CRUSHER GRIZZLY FEEDER
PRIMARY CRUSHER
PRIMARY CRUSHER DISCHARGE CONVEYOR
STOCKPILE FEED CONVEYOR
COARSE ORE STOCKPILE & RECLAIM
COARSE ORE STOCKPILE
STOCKPILE RECLAIM FEEDERS
LIME SILO
PEBBLE RECIRCULATION CONVEYOR
PEBBLE CRUSHING CIRCUIT (FUTURE)
SAG MILL FEED CONVEYOR
PEBBLE CRUSHING
PROCESS WATER
SAG MILL
SAG MILL DISCHARGE SCREEN
SACRIFICIAL PEBBLE CONVEYOR
GRINDING
CYCLONE CLUSTER
BALL MILL
GRAVITY FEED SCREEN (x2)
GRAVITY CONCENTRATOR (x2)
T
C
PROCESS WATER
MILL DISCHARGE HOPPER
OXYGEN
SODIUM HYDROXIDE
CYANIDE
FLOCCULANT
INTENSIVE CYANIDATION REACTOR

REAGENTS
- CYANIDE
- SODIUM HYRDROXIDE
- HYDROCHLORIC ACID
- FLOC
- LIME
- SMBS
- COPPER SULPHATE
- COAGULANT

PLANT SERVICES
- POTABLE WATER
- AIR
- SEWAGE
- OXYGEN
- DIESEL

TRASH SCREEN
PRE-LEACH THICKENING
FLOCCULANT
COAGULANT
O/F
U/F
PRE-LEACH THICKENER
PROCESS WATER POND
WATER STORAGE DAM
PROCESS WATER TO PLANT
PROCESS WATER TANK
ELUTION
ACID WASH COLUMN
HYDROCHLORIC ACID
ELUTION COLUMN
SODIUM HYDROXIDE
CYANIDE
ELECTROWINNING
CIL (CELL x3)
GRAVITY
GOLD ROOM
FURNACE
DORE
EXCESS SPILLAGE
EVENT POND
CARBON REGENERATION KILN
CARBON DEWATERING SCREEN
CARBON SIZING SCREEN
CARBON SAFETY SCREEN
HIGH SHEAR OXYGENATION REACTOR
LOADED CARBON RECOVERY SCREEN
CYANIDE LEACH & ADSORPTION
OXYGEN CYANIDE
CYANIDE OXYGEN
CYANIDE
OXYGEN
OXYGEN CYANIDE
OXYGEN
OXYGEN
OXYGEN
OXYGEN
LEACH TANK 1
LEACH TANK 2
CIL TANKS 1 - 6
SMBS
SODIUM HYDROXIDE
OXYGEN
COPPER SULPHATE
CYANIDE DESTRUCTION TANKS
PROCESS WATER
TAILS HOPPER
TAILS PUMPS
DECANT RETURN
TAILS STORAGE FACILITY

PLANT WATER STORAGE
DECANT TOWER
WATER STORAGE PUMP
WATER HARVEST DAM
WATER STORAGE DAM
FIRE WATER
RAW WATER TANK
RAW WATER TO PLANT
FILTERED WATER
FILTERED WATER PLANT

LEGEND:
- ALTERNATE / INTERMITTENT
- FUTURE

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE
PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, and subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:39:55 +08'00'		Anton Gustavson 2025.11.26 16:00:45 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:52 +08'00'	

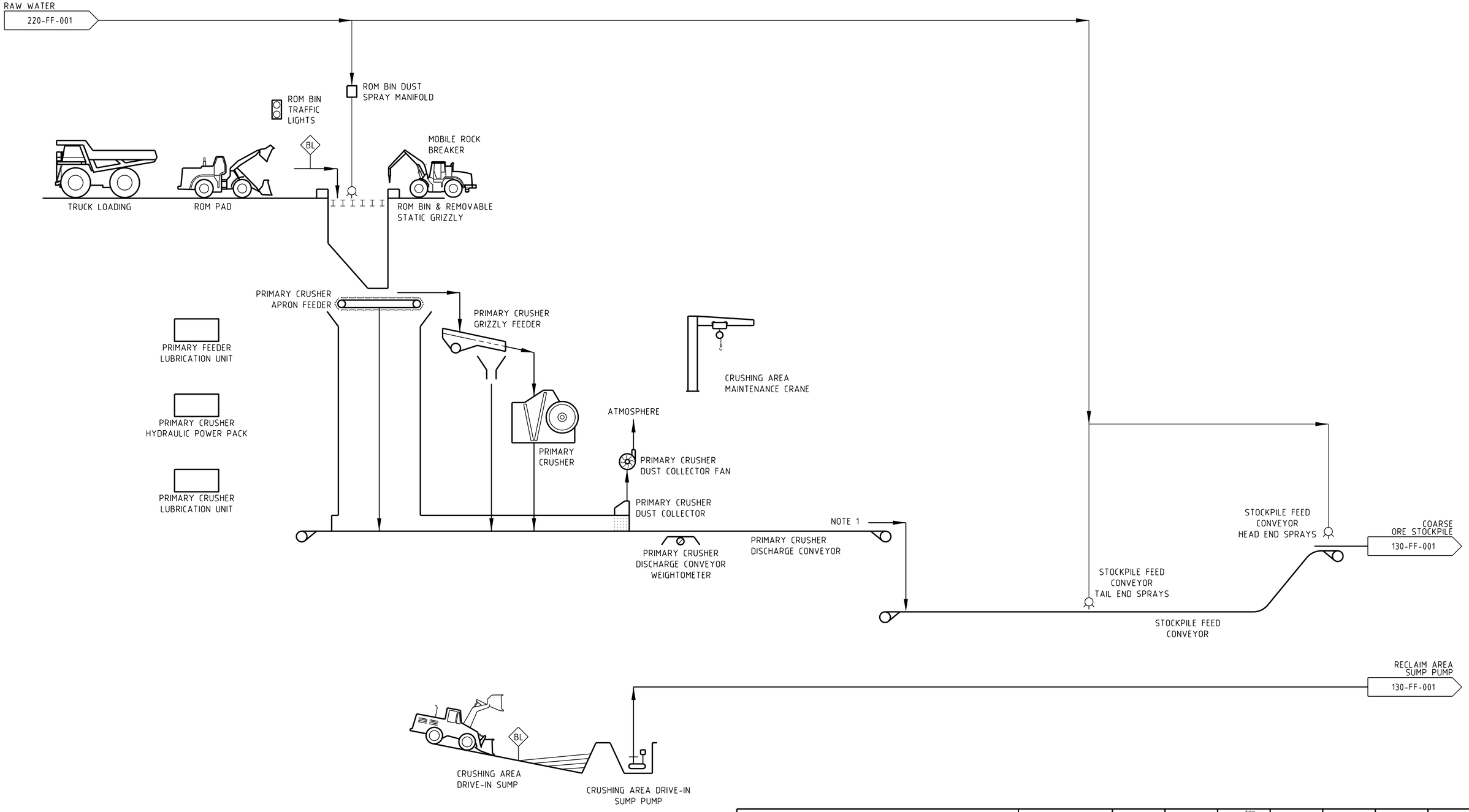
DRAWING TITLE: TREATMENT PLANT - GENERAL OVERVIEW PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	110-FF-001	C

DRAWN: ML DATE: 13AUG25

NOTES:

1. ALLOW SUFFICIENT SPACE FOR FUTURE INSTALLATION OF MAGNET.



DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:00:55 +08'00'		Anton Gustavson 2025.11.26 16:00:45 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:52 +8'00'	

DRAWING TITLE: FEED PREPARATION PRIMARY CRUSHING PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	120-FF-001	C

DRAWN: ML DATE: 13AUG25

pw:\\perpwint1.lycopodium.com.au:PERPWINTDS1\Documents\Drafting\02 Studies\2000 - 2999\2326.20 - Doropo Gold Project DFS\F\01 PFD\2326-120-FF-001.dgn, 19/11/2025 1:57:03 PM, Mary.Landicho, ISO A1

A1

PEBBLE
RECIRCULATION CONVEYOR
130-FF-001

CRUSHED PEBBLE
RETURN CONVEYOR
130-FF-004

PLANT AIR
240-FF-001

RAW WATER
220-FF-001

STOCKPILE FEED CONVEYOR
120-FF-001

LIME HOIST

LIME LIFTING
FRAME

LIME
BULK BAG

BL

LIME TANKER
WITH BLOWER
(BY OTHERS)

FEL
(BY OTHERS)

COARSE ORE
STOCKPILE

RECLAIM CHAMBER
MAINTENANCE
HOIST 1 & 2

STOCKPILE
RECLAIM FEEDER 1

STOCKPILE
RECLAIM FEEDER 2

LIME SILO DUST
COLLECTOR

LIME SILO

LIME SILO BIN
ACTIVATOR

LIME SILO
ROTARY VALVE

ATMOSPHERE

RECLAIM TUNNEL
VENTILATION
FAN

SAG MILL
BALL BUNKER

SAG MILL BALL
CHARGING FEEDER

SAG MILL FEED BOX
130-FF-002

TO ATMOSPHERE

RECLAIM DUST
COLLECTOR FAN

RECLAIM DUST
COLLECTOR

DUST
SUPPRESSION

RECLAIM TUNNEL
SUMP PUMP

SAG MILL
FEED CONVEYOR

SAG MILL FEED
WEIGHTOMETER

CRUSHING AREA
DRIVE-IN SUMP PUMP
120-FF-001

MILL
DISCHARGE HOPPER
130-FF-002

RECLAIM AREA
SUMP PUMP

LEGEND:

------ ALTERNATE / INTERMITTENT

——--—— FUTURE

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT AMPELLA MINING CÔTE D'IVOIRE

PROJECT DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:00:55 +08'00'		Anton Gustavson 2025.11.26 16:00:45 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:52 +08'00'	

DRAWING TITLE
MILLING
STOCKPILE AND RECLAIM
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	130-FF-001	C

DRAWN ML | DATE 13AUG25

HP PROCESS WATER
220-FF-002

LP PROCESS WATER
220-FF-002

SAG MILL FEED CONVEYOR
130-FF-001

CYCLONE U/F
SPLITTER BOX
130-FF-003

SAG MILL
FEED BOX

NOTE 1

MILL LINER
HANDLER

LINER BOLT
REMOVAL
TOOL

SAG MILL FEED
SPOUT REMOVAL
TROLLEY

SAG MILL

FILTERED WATER
220-FF-003

SEAL WATER

SAG MILL
LUBE PACK

SAG MILL
DISCHARGE
SCREEN

MILLING AREA
DRIVE-IN SUMP
130-FF-003

PEBBLE CRUSHER
FEED CONVEYOR
130-FF-004

GRAVITY CONCENTRATORS
130-FF-005

TAILS

MILLING AREA
DRIVE-IN SUMP PUMP
130-FF-003

MILL FEED
END SUMP PUMP 2
130-FF-003

BALL MILL DISCHARGE
130-FF-003

ICR LEACH RESIDUE
130-FF-006

TAILS

PEBBLE CRUSHING
AREA SUMP PUMP
130-FF-004

ICR AREA SUMP PUMP
130-FF-006

RECLAIM AREA SUMP PUMP
130-FF-001

GRAVITY SCREENS O/S
130-FF-005

O/F

TO
GRADE

GRAVITY FEED
PUMP

GRAVITY
SCALPING SCREENS
130-FF-005

CYCLONE CLUSTER
130-FF-003

CYCLONE
FEED PUMPS

MILL FEED END
SUMP PUMP 1

MILL DISCHARGE
HOPPER

GLAND WATER
220-FF-003

NOTES:

1. MILL LINER HANDLER AND LINER BOLT REMOVAL TOOL TO BE SHARED WITH BALL MILL.

LEGEND:

------ ALTERNATE / INTERMITTENT

——·——·—— FUTURE

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT AMPELLA MINING CÔTE D'IVOIRE

PROJECT DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, and subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

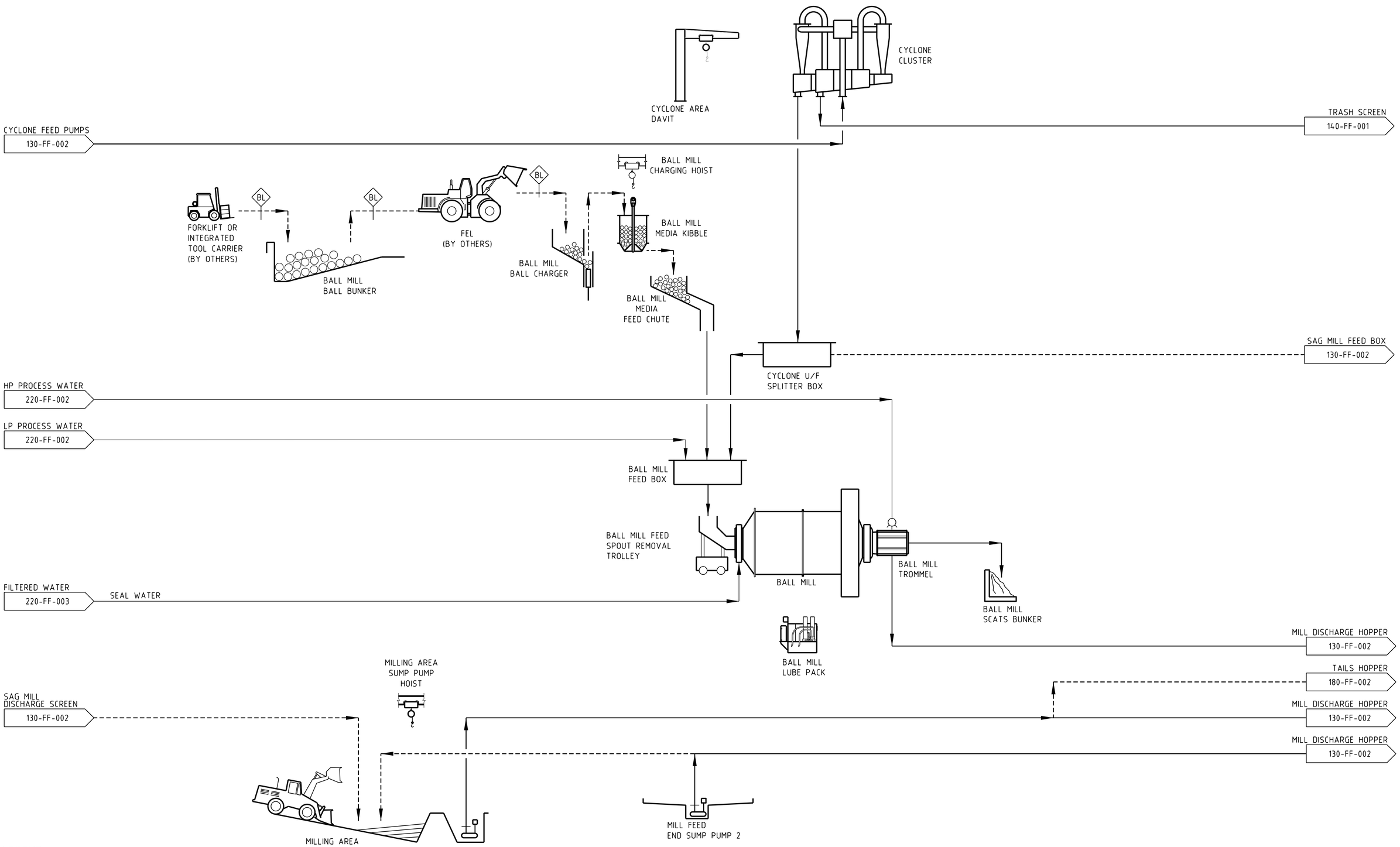
Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:00:56 +08'00'		Anton Gustavson 2025.11.26 18:00:45 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:52 +08'00'	

DRAWING TITLE
MILLING
SAG MILLING
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	130-FF-002	C

DRAWN ML | DATE 13AUG25



LEGEND:

------ ALTERNATE / INTERMITTENT

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:39:56 +08'00'		Anton Gustavson 2025.11.26 16:00:46 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:53 +08'00'	

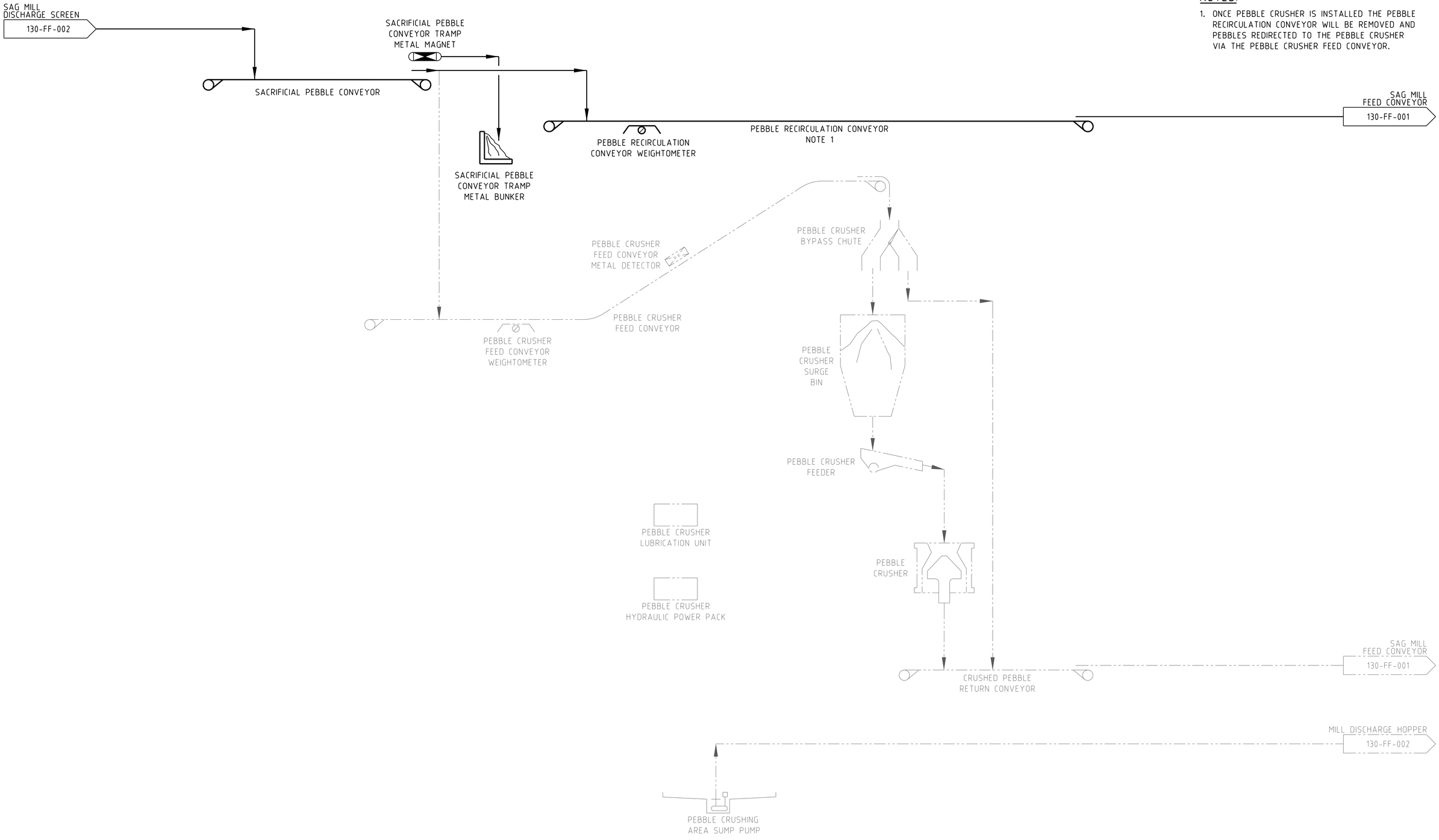
DRAWING TITLE
MILLING
BALL MILLING
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	130-FF-003	C

DRAWN: ML DATE: 13AUG25

NOTES:

1. ONCE PEBBLE CRUSHER IS INSTALLED THE PEBBLE RECIRCULATION CONVEYOR WILL BE REMOVED AND PEBBLES REDIRECTED TO THE PEBBLE CRUSHER VIA THE PEBBLE CRUSHER FEED CONVEYOR.



LEGEND:

------ ALTERNATE / INTERMITTENT

——·—·— FUTURE

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT AMPELLA MINING CÔTE D'IVOIRE

PROJECT DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

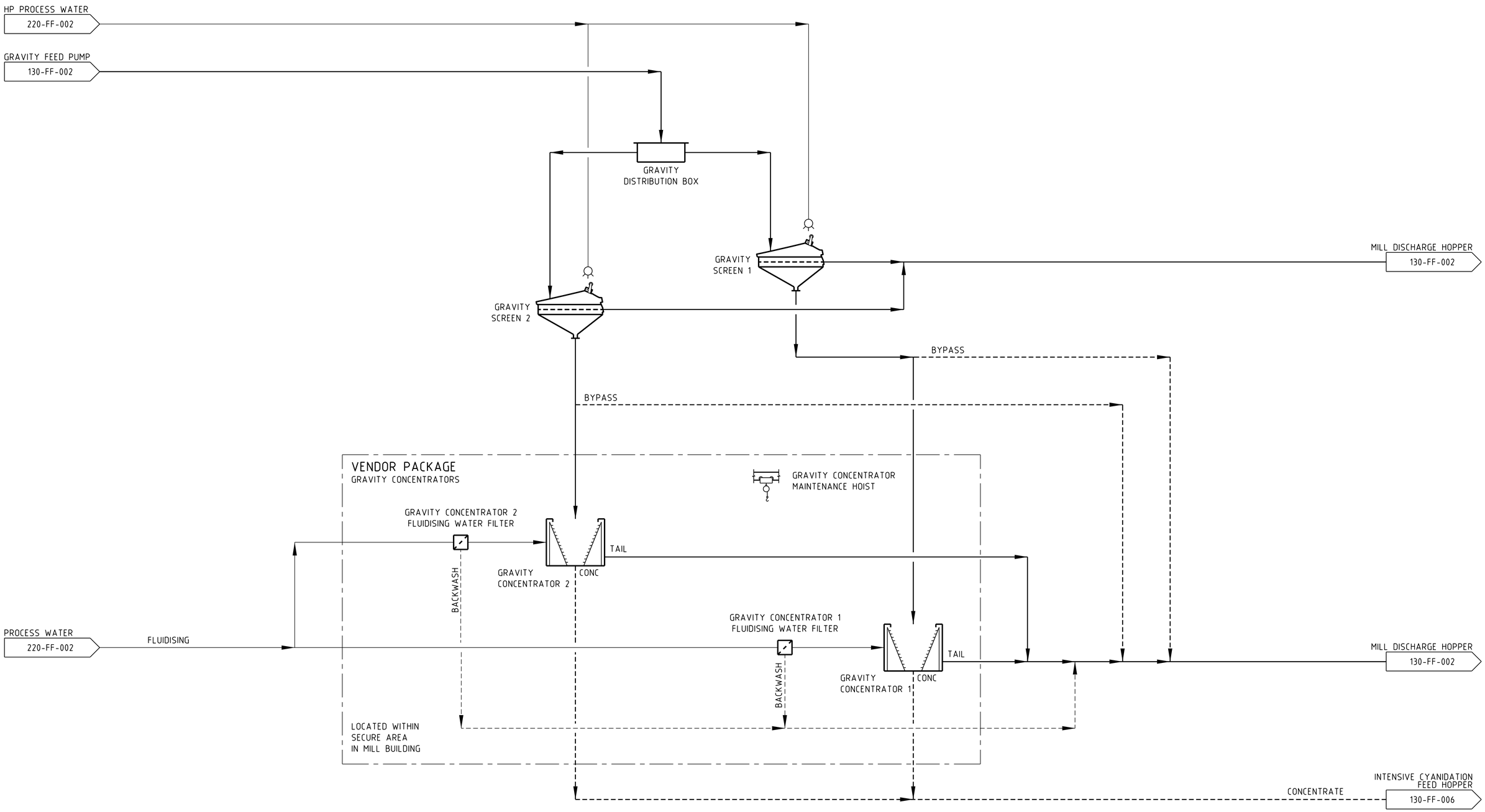
DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Landicho Date: 2025.11.26 08:29:12 +08'00'		Anton Gustavson 2025.11.26 16:00:46 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Schütz 2025.11.27 07:58:53 +08'00'	

DRAWING TITLE

MILLING
PEBBLE CRUSHING
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	130-FF-004	C

DRAWN ML | DATE 13AUG25



LEGEND:

------ ALTERNATE / INTERMITTENT

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:09:57 +08'00'		Anton Gustavsson 2025.11.26 16:00:46 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:53 +08'00'	

DRAWING TITLE
MILLING
GRAVITY CONCENTRATOR
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	130-FF-005	C

DRAWN: ML DATE: 13AUG25

SODIUM HYDROXIDE
210-FF-001

SODIUM CYANIDE
210-FF-001

VENDOR PACKAGE
INTENSIVE CYANIDATION REACTOR

GRAVITY CONCENTRATORS
130-FF-005

CONCENTRATE

O/F

FEED STORAGE HOPPER

TO GRADE

O/F

SOLUTION STORAGE HOPPER

TO GRADE

HCN GAS DETECTOR

FILTERED WATER
220-FF-003

FLOCCULANT
210-FF-001

OXYGEN
240-FF-001

REACTOR DRUM

LEACH FEED DISTRIBUTION BOX
160-FF-001

WASH

MILL DISCHARGE HOPPER
130-FF-002

TAILS

LEACH RESIDUE

ICR PREGNANT SOLUTION TANK
170-FF-002

PREGNANT SOLUTION

PROCESS WATER
220-FF-002

O/F

TO GRADE

ICR PUMP

LOCATED WITHIN SECURE AREA IN MILL BUILDING

TRASH SCREEN FEED BOX
140-FF-001

MILL DISCHARGE HOPPER
130-FF-002

ICR AREA SUMP PUMP

LEGEND:

------ ALTERNATE / INTERMITTENT

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT AMPELLA MINING CÔTE D'IVOIRE

PROJECT DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, and are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:39:57 +08'00'		Anton Gustavson 2025.11.26 16:00:46 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:53 +08'00'	

DRAWING TITLE
ELUTION AND GOLD ROOM
INTENSIVE CYANIDATION REACTOR (ICR)
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	130-FF-006	C

DRAWN ML | DATE 13AUG25

pw:\\perpwint1.lycopodium.com.au:PERPWINTDST\Documents\Drafting\02 Studies\2000 - 2999\2326.20 - Doropo Gold Project DFS\F\01 PFD\2326-130-FF-006.dgn, 19/11/2025 2:35:00 PM, Mary.Landicho, ISO A1

A1

LP PROCESS WATER
220-FF-002

FLOCCULANT
210-FF-001

HP PROCESS WATER
220-FF-002

CYCLONE OVERFLOW
130-FF-003

EVENT POND
180-FF-002

TAILS AREA SUMP PUMP
180-FF-002

ICR AREA SUMP PUMP
130-FF-006

TRASH SCREEN FEED BOX

TRASH SCREEN

PRE-LEACH THICKENER STATIC MIXER

COAGULANT
210-FF-002

U/F RECIRC

PRE-LEACH THICKENER FEED BOX

TRASH COLLECTION BUNKER

PRE-LEACH THICKENER

PROCESS WATER TANK
220-FF-002

LEACH FEED DISTRIBUTION BOX
160-FF-001

LEACH FEED PUMPS

GLAND WATER
220-FF-003

LEACH FEED DISTRIBUTION BOX
160-FF-001

PRE-LEACH THICKENER AREA SUMP PUMP

LEGEND:

------ ALTERNATE / INTERMITTENT

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:09:57 +08'00'		Anton Gustavson 2025.11.26 16:00:46 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:53 +08'00'	

DRAWING TITLE: TRASH REMOVAL AND THICKENING
PRE-LEACH THICKENING
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	140-FF-001	C

DRAWN: ML | DATE: 13AUG25

ELUTION COLUMN
170-FF-001

BARREN CARBON

CARBON REGENERATION
170-FF-004

CARBON REGENERATION SUMP PUMP
170-FF-004

HP PROCESS WATER
220-FF-002

PLANT AIR
240-FF-001

FILTERED WATER
220-FF-003

CYANIDE
210-FF-001

ICR RESIDUE WASH
130-FF-006

WASH

ICR PREGNANT SOLUTION PUMP
170-FF-002

BARREN

PREGNANT SOLUTION PUMPS
170-FF-002

BARREN

GOLD ROOM AREA SUMP PUMP
170-FF-003

LEACH FEED PUMPS
140-FF-001

CIL FEED SAMPLER

CYANIDE AREA SUMP PUMP
210-FF-001

PREGNANT SOLUTION AREA SUMP PUMP
170-FF-002

PRE-LEACH THICKENER AREA SUMP PUMP
140-FF-001

OXYGEN
240-FF-001

LEACH FEED DISTRIBUTION BOX

FREE CYANIDE ANALYSER

WASTE

HCN GAS DETECTOR

LOADED CARBON SCREEN

CARBON SIZING SCREEN

CARBON QUENCH HOPPER
170-FF-004

LOADED CARBON

ACID WASH COLUMN
170-FF-001

HCN GAS DETECTOR

CIL INTERTANK SCREEN PRESSURE WASHER

UNINSTALLED SPARE SCREENS

INTERTANK SCREEN MAINTENANCE BAY

CIL GANTRY CRANE

HCN GAS DETECTOR

CARBON SAFETY SCREEN FEED BOX
180-FF-001

HIGH SHEAR OXYGENATION DEVICES

HIGH SHEAR OXYGENATION PUMPS

LEACH TANK 1 & AGITATOR

LEACH TANK 2 & AGITATOR

CIL TANK 1 & AGITATOR

CIL TANK 2 & AGITATOR

CIL TANK 3 & AGITATOR

CIL TANK 4 & AGITATOR

CIL TANK 5 & AGITATOR

CIL TANK 6 & AGITATOR

CIL TANK 7 & AGITATOR

ELUTION COLUMN DRAIN
170-FF-001

GLAND WATER
220-FF-003

LEACHING AREA CIL SUMP PUMP 1

CIL SUMP PUMP 2

CIL SUMP PUMP 3

CIL TAILS AREA SUMP PUMP

TAILS HOPPER
180-FF-002

EVENT POND
180-FF-002

CIL BUND

LEGEND

ALTERNATE / INTERMITTENT

FUTURE

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

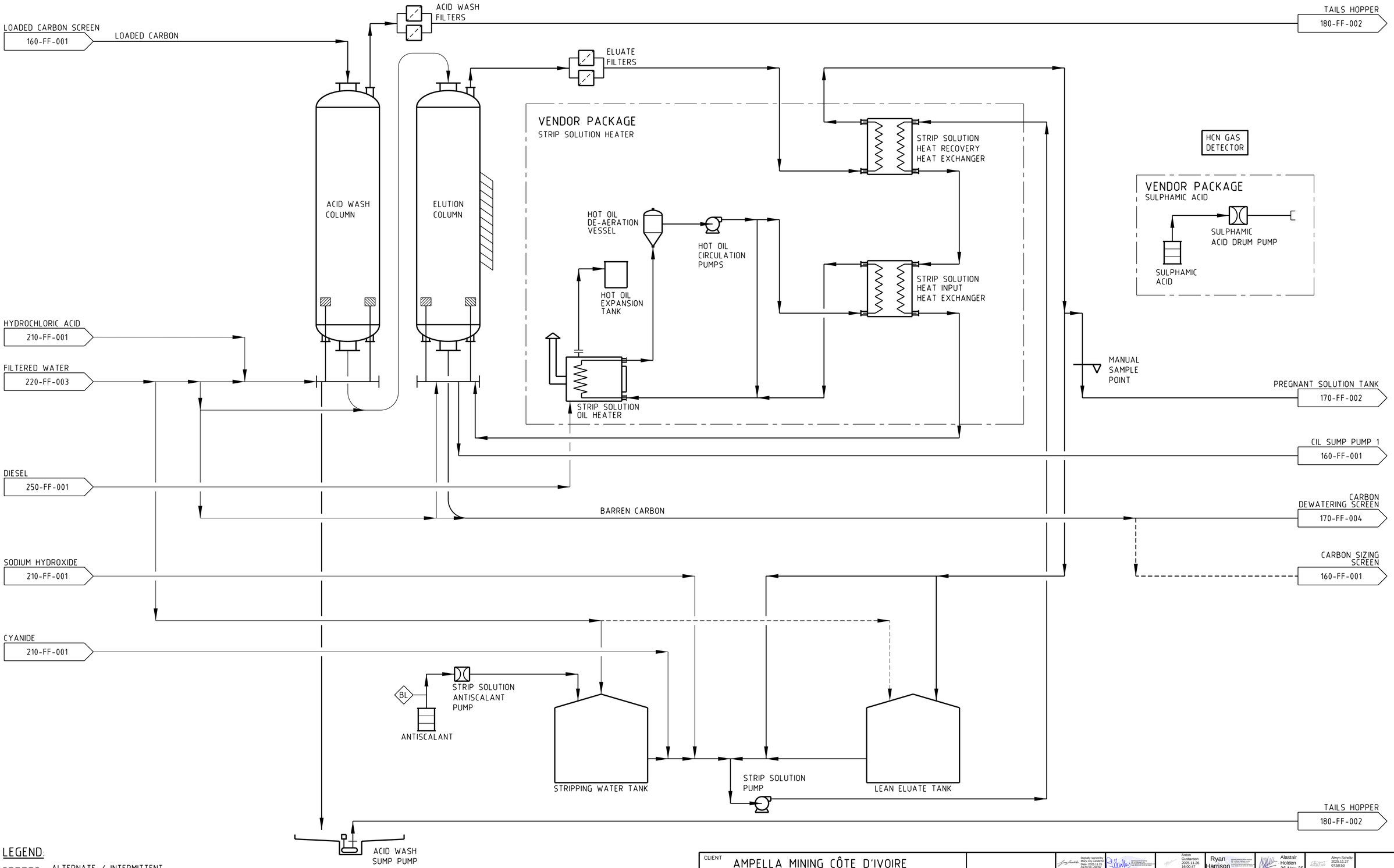
Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:00:58 +08'00'		Anton Gustavsson 2025.11.26 16:00:47 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:53 +08'00'	

DRAWING TITLE
LEACHING
CIL
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	160-FF-001	C

DRAWN: ML
DATE: 13AUG25



LEGEND:

------ ALTERNATE / INTERMITTENT

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:00:58 +08'00'		Anton Gustavson 2025.11.26 18:00:47 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:53 +08'00'	

DRAWING TITLE

ELUTION AND GOLD ROOM
ELUTION
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	170-FF-001	C

DRAWN: ML DATE: 13AUG25

pw:\\perpwint1.lycopodium.com.au:PERPWINTDS1\Documents\Drafting\02 Studies\2000 - 2999\2326.20 - Doropo Gold Project DFS\F\01 PFD\2326-170-FF-001.dgn, 19/11/2025 2:42:05 PM, Mary Landicho, ISO A1

A1

NOTES:
1. SAMPLE POINT LOCATION TO BE FINALIZED.

FILTERED WATER
220-FF-003

ATMOSPHERE
FUME STACK
ELECTROWINNING CELL
FUME EXTRACTION FAN
ATMOSPHERE
GOLDROOM
VENTILATION FANS
LOCATED WITHIN
GOLDROOM SECURE AREA
HP CATHODE
WASH MACHINE
GOLDROOM
CRANE
ELECTROWINNING CELL
FUME HOODS
GRAVITY ELECTROWINNING
CELL FUME HOOD
ELECTROWINNING CELLS
E/W CELL
FEED
DISTRIBUTION
BOX
ANODE LIFTING
FRAME
ANODE HOLDING
RACK
GRAVITY ELECTROWINNING
CELL
CELL SLUDGE
CELL SLUDGE PAN FILTER
170-FF-003
HCN GAS
DETECTOR
CELL SLUDGE
CELL SLUDGE PAN FILTER
170-FF-003
BARREN
LEACH FEED
DISTRIBUTION BOX
160-FF-001
MANUAL
SAMPLE POINT
NOTE 1
SODIUM HYDROXIDE
210-FF-001
ELUTION COLUMN
170-FF-001
PREGNANT
ICR
130-FF-006
PREGNANT
MANUAL
SAMPLE
POINT
NOTE 1
LEACH FEED
DISTRIBUTION BOX
160-FF-001
PREGNANT SOLUTION
AREA SUMP PUMP
PREGNANT
SOLUTION TANKS
ICR PREGNANT
SOLUTION TANK
ICR PREGNANT
SOLUTION PUMP
MANUAL
SAMPLE POINT
PREGNANT
SOLUTION PUMPS
BARREN
LEACH FEED
DISTRIBUTION BOX
160-FF-001

LEGEND:
------ ALTERNATE / INTERMITTENT

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT AMPELLA MINING CÔTE D'IVOIRE
PROJECT DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:00:58 +08'00'		Anton Gustavson 2025.11.26 16:00:47 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:53 +08'00'	

DRAWING TITLE
ELUTION AND GOLD ROOM
ELECTROWINNING
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	170-FF-002	C

DRAWN ML | DATE 13AUG25

pw:\\perpwint1.lycopodium.com.au:PERPWINTDS1\Documents\Drafting\02 Studies\2000 - 2999\2326.20 - Doropo Gold Project DFS\F\01 PFD\2326-170-FF-002.dgn, 19/11/2025 2:48:08 PM, Mary Landicho, ISO A1

A1

LOCATED WITHIN
GOLDROOM SECURE AREA

GRAVITY
ELECTROWINNING CELL
170-FF-002

CELL SLUDGE

ELECTROWINNING CELLS
170-FF-002

CELL SLUDGE

SLUDGE FILTER
HOPPER

VENDOR PACKAGE
SLUDGE FILTER

CELL SLUDGE
FILTER

CELL SLUDGE FILTER
VACUUM PUMP

FILTER CAKE (BY HAND)

ATMOSPHERE

FURNACE
EXTRACTION
FAN

FURNACE
EXTRACTION
STACK

OVEN
FUME HOOD

FURNACE
FUME HOOD

GOLD ROOM
DRYING OVENS

BL

FLUXES IN BAGS
(BY OTHERS)

FLUX PLATFORM
SCALE

GOLDROOM
MIXER

FILTERED WATER
220-FF-003

INDUCTION FURNACE
COOLING SYSTEM

INDUCTION
FURNACE

BARRING
MOULDS

INDUCTION FURNACE
CASCADE TROLLEY

VENDOR PACKAGE
INDUCTION FURNACE

GOLD DORE
BALANCE

GOLD ROOM
SAFE

STRONG ROOM

LEACH FEED
DISTRIBUTION BOX
160-FF-001

GOLD ROOM
AREA SUMP PUMP

LEGEND:
ALTERNATE / INTERMITTENT

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:00:58 +08'00'		Anton Gustavson 2025.11.26 16:00:47 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:53 +08'00'	

DRAWING TITLE
ELUTION AND GOLD ROOM
GOLDROOM
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	170-FF-003	C

DRAWN: AM
DATE: 14AUG25

BARREN CARBON
170-FF-001

CARBON DEWATERING SCREEN

VENDOR PACKAGE
CARBON REGENERATION KILN

CARBON REGENERATION KILN FEED HOPPER

CARBON REGENERATION KILN

ATMOSPHERE

CARBON REGENERATION KILN STACK

DIESEL
250-FF-001

CARBON SIZING SCREEN UNDERSIZE
160-FF-001

RAW WATER
220-FF-001

NEW CARBON HOIST

CARBON BULK BAG

CARBON QUENCH HOPPER

CARBON TRANSFER PUMP

CARBON SIZING SCREEN
160-FF-001

CARBON SIZING SCREEN
160-FF-001

CARBON REGENERATION SUMP PUMP

LEGEND:
------- ALTERNATE / INTERMITTENT

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Landicho Date: 2025.11.25 09:00:59 +08'00'		Anton Gustavson 2025.11.26 16:00:47 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Schlitz 2025.11.27 07:58:54 +08'00'	

DRAWING TITLE
ELUTION AND GOLD ROOM
CARBON REGENERATION
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	170-FF-004	C

DRAWN: AM
DATE: 14AUG25

PLANT AIR
240-FF-001

FILTERED WATER
220-FF-003

COPPER SULPHATE AREA SUMP PUMP
210-FF-002

CYANIDE AREA SUMP PUMP
210-FF-001

SMBS AREA SUMP PUMP
210-FF-002

CIL TAILS
160-FF-001

CIL TAILS SAMPLER

SAMPLE BUCKET

HP PROCESS WATER
220-FF-002

LP PROCESS WATER
220-FF-002

COPPER SULPHATE
210-FF-002

SODIUM HYDROXIDE
210-FF-001

SMBS
210-FF-002

OXYGEN
240-FF-001

CARBON SAFETY SCREEN FEED BOX

CARBON SAFETY SCREEN

CARBON COLLECTION BAG

WASTE

WAD CYANIDE ANALYSER

NOTE 1

CYANIDE DESTRUCTION DISTRIBUTION BOX

HCN GAS MONITOR

CYANIDE DESTRUCTION TANK 1

CYANIDE DESTRUCTION TANK 2

NOTE 1

TAILS HOPPER
180-FF-002

TAILS HOPPER
180-FF-002

CYANIDE DESTRUCTION AREA SUMP PUMP

LEGEND

------ ALTERNATE / INTERMITTENT

NOTES:

1. WAD CYANIDE SAMPLE STREAM CIL TAILS AND DETOX DISCHARGE.

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:00:59 +08'00'		Anton Gustavson 2025.11.26 15:00:47 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:54 +08'00'	

DRAWING TITLE: TAILS HANDLING CYANIDE DESTRUCTION PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	180-FF-001	C

DRAWN: HT | DATE: 13AUG25

pw:\\perpwint1.lycopodium.com.au:PERPWINTDS1\Documents\Drafting\02 Studies\2000 - 2999\2326.20 - Doropo Gold Project DFS\F\01 PFD\2326-180-FF-001.dgn, 19/11/2025 2:53:02 PM, Mary Landicho, ISO A1

A1

LP PROCESS WATER
220-FF-002

ACID AREA SUMP PUMP
210-FF-001

ACID WASH COLUMN
170-FF-001

ACID WASH SUMP PUMP
170-FF-001

CYANIDE DESTRUCTION
AREA SUMP PUMP
180-FF-001

CIL TAILS
AREA SUMP PUMP
130-FF-003

MILLING AREA
DRIVE-IN SUMP PUMP
130-FF-003

CYANIDE DESTRUCTION
DISCHARGE TANK
180-FF-001

FLOCCULANT AREA
SUMP PUMP
210-FF-001

PLANT GREY WATER
TRANSFER PUMP
230-FF-001

SODIUM HYDROXIDE
AREA SUMP PUMP
210-FF-001

NOTE 1
TAILS PUMPS

TAILS
HOPPER

TAILS STORAGE
FACILITY
350-FF-001

TRASH SCREEN FEED BOX
140-FF-001

TAILS AREA
SUMP PUMP

GLAND WATER
220-FF-003

PROCESS WATER
TANK OVERFLOW
220-FF-002

TRASH SCREEN FEED BOX
140-FF-001

CIL BUND OVERFLOW
160-FF-001

EVENT POND

NOTES:

1. TWO STAGE PUMPING.

LEGEND

------ ALTERNATE / INTERMITTENT

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

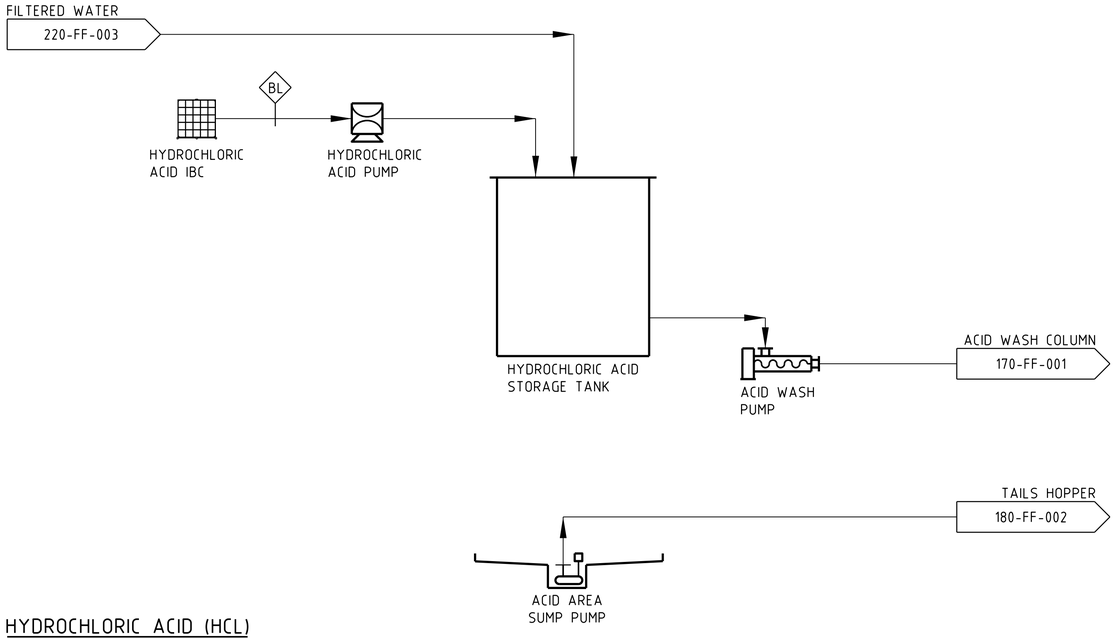
Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:00:59 +08'00'		Anton Gustavson 2025.11.26 16:00:48 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:54 +08'00'	

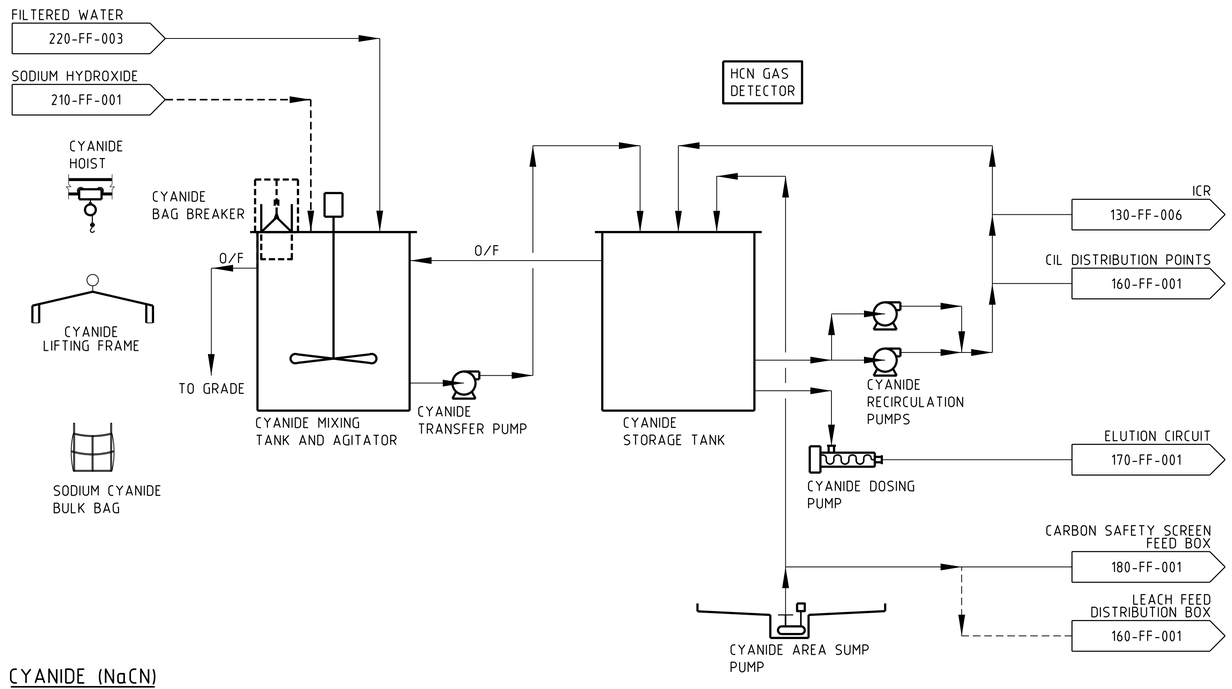
DRAWING TITLE
TAILS HANDLING
TAILS PUMPING
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	180-FF-002	C

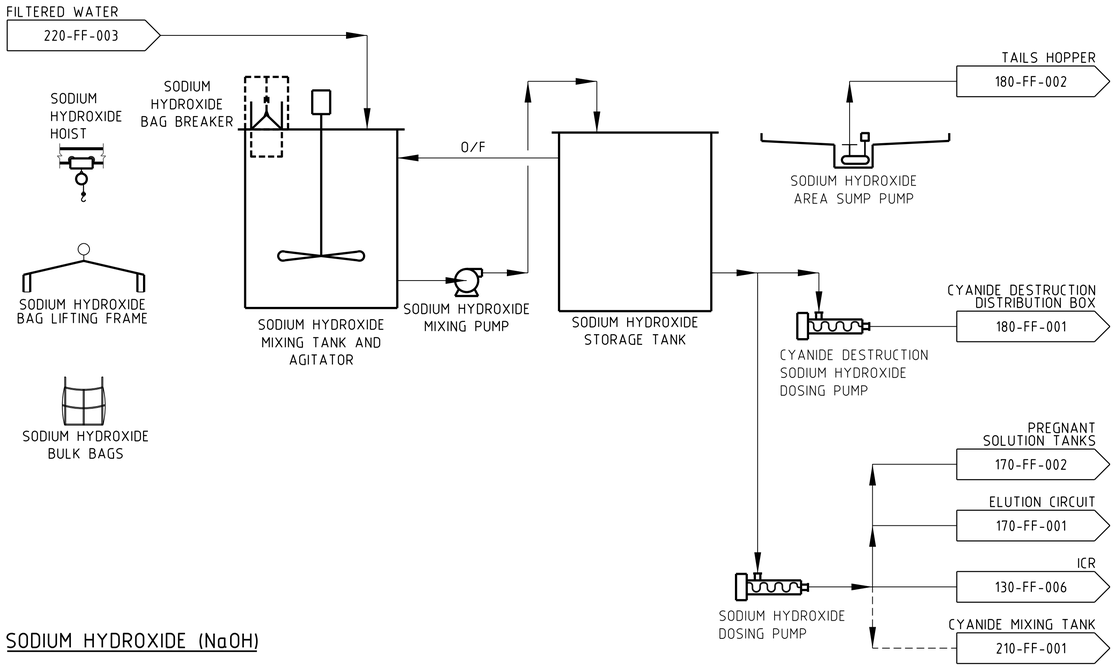
DRAWN: HT DATE: 13AUG25



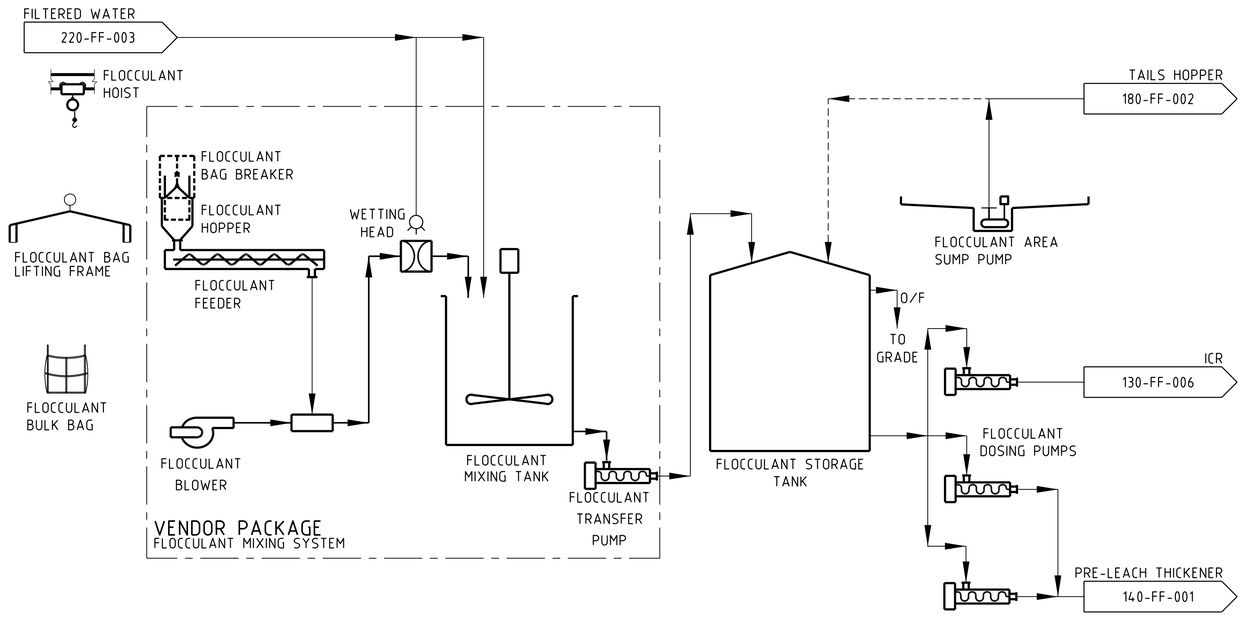
HYDROCHLORIC ACID (HCL)



CYANIDE (NaCN)



SODIUM HYDROXIDE (NaOH)



FLOCCULANT

LEGEND:
------- ALTERNATE / INTERMITTENT

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

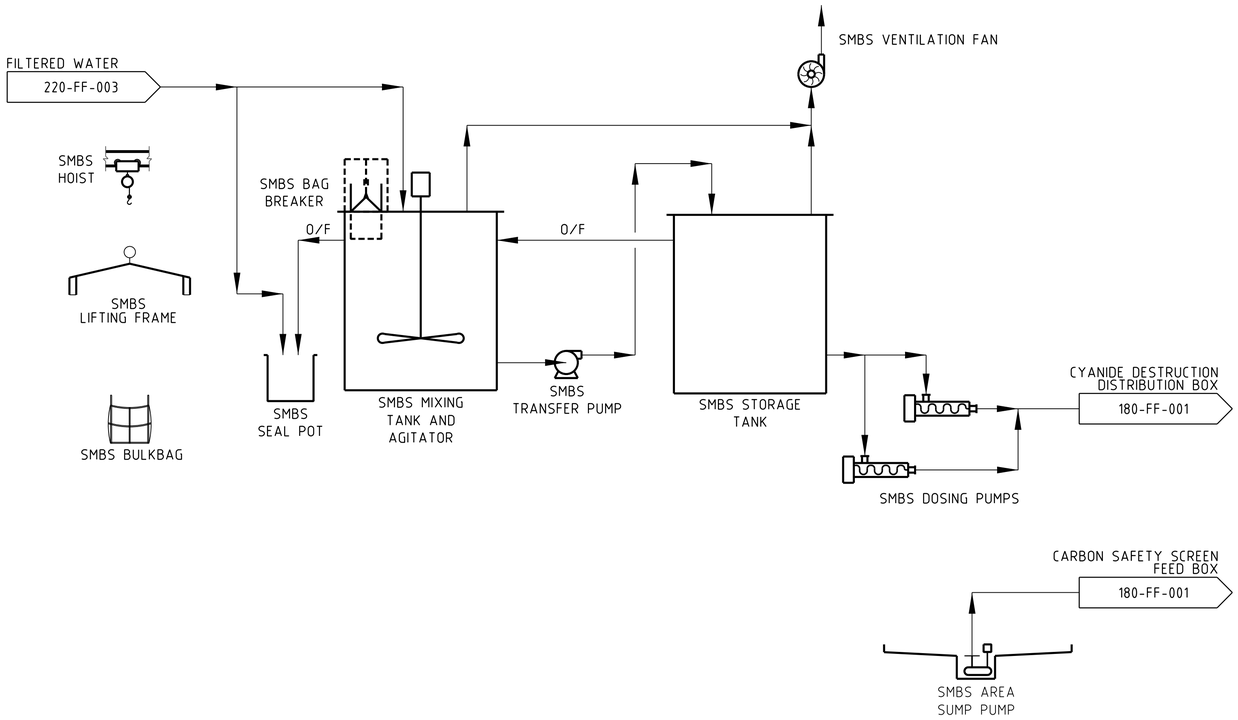
DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:01:00 +08'00'		Anton Gustavson 2025.11.26 16:00:48 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:54 +08'00'	

DRAWING TITLE
REAGENTS
REAGENTS SHEET 1
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	210-FF-001	C

DRAWN: AM DATE: 14AUG25

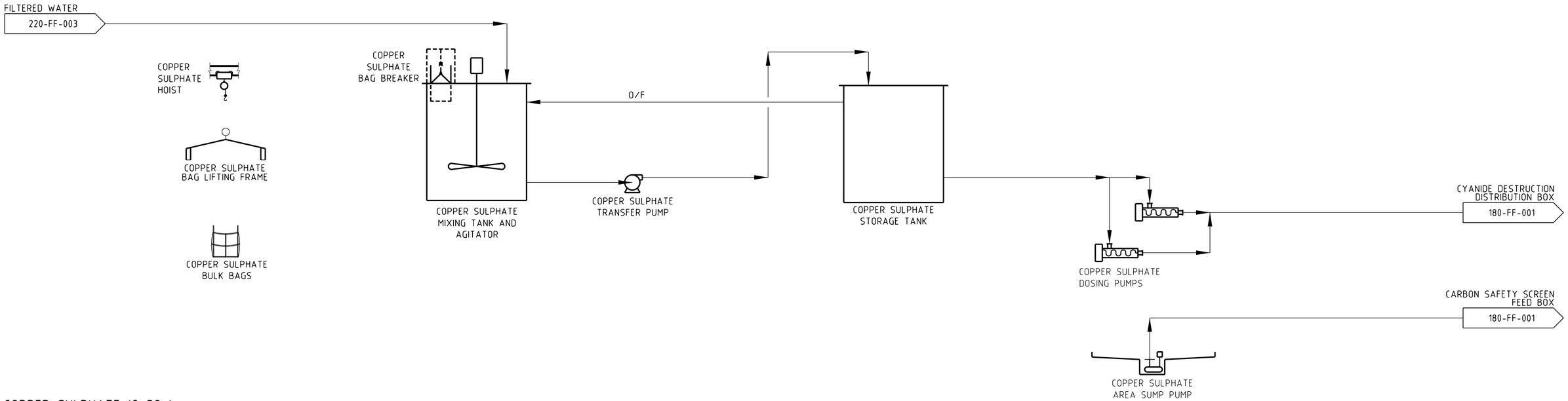
SODIUM METABISULPHITE (SMBS $Na_2S_2O_5$)



COAGULANT



COPPER SULPHATE ($CuSO_4$)



DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	HT	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

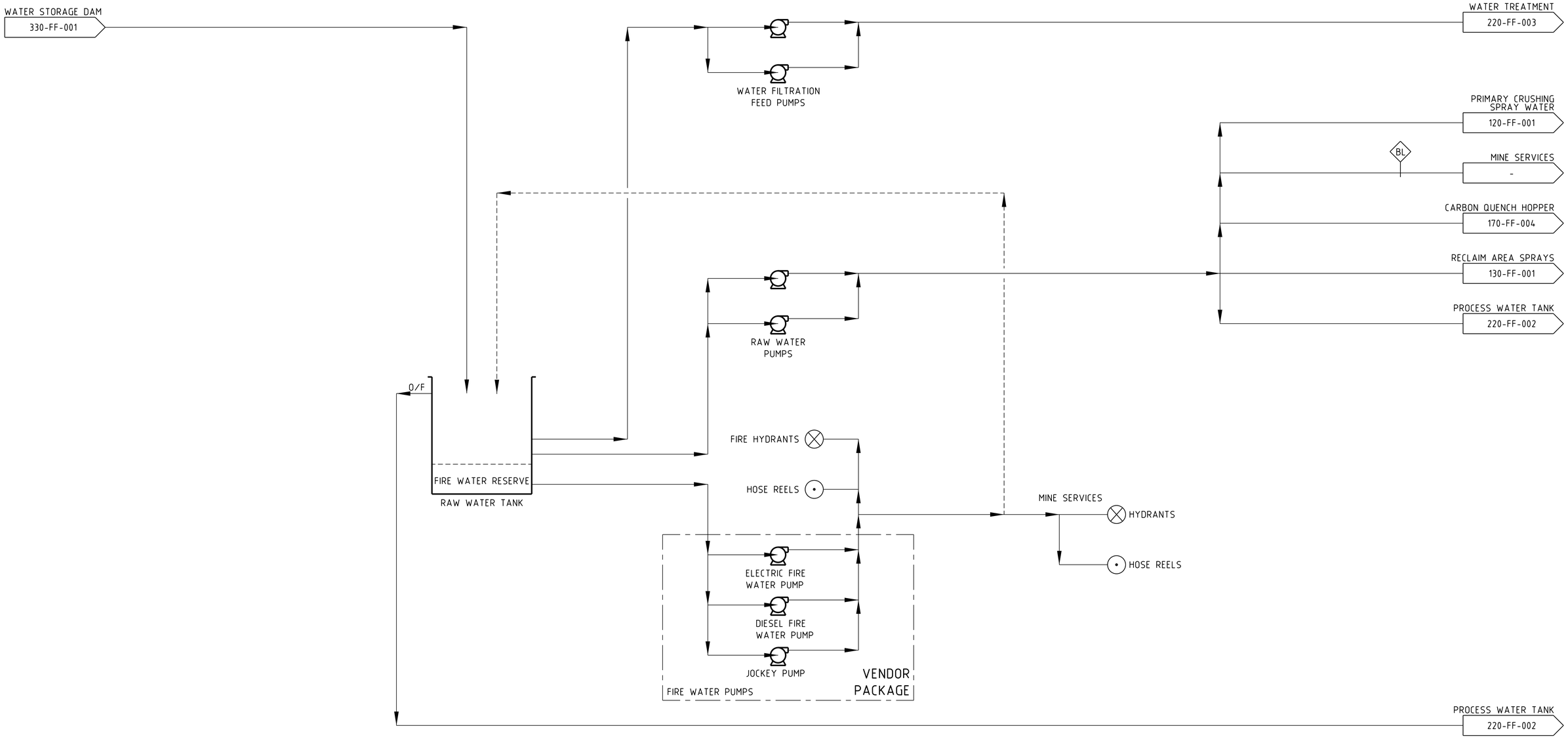
Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Hardie Teh Date: 2025.11.28 07:31:28 +08'00'		Anton Gustavson 2025.11.28 09:54:55 +08'00'	Ryan Harrison	Alastair Holden 28-Nov-25	Alwyn Scholtz	

DRAWING TITLE
REAGENTS
REAGENTS SHEET 2
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	210-FF-002	C

DRAWN: AM | DATE: 13AUG25



LEGEND:
------- ALTERNATE / INTERMITTENT

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE
PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Landicho Date: 2025.11.25 09:01:00 +08'00'		Anton Gustavsson 2025.11.26 16:00:48 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:54 +08'00'	

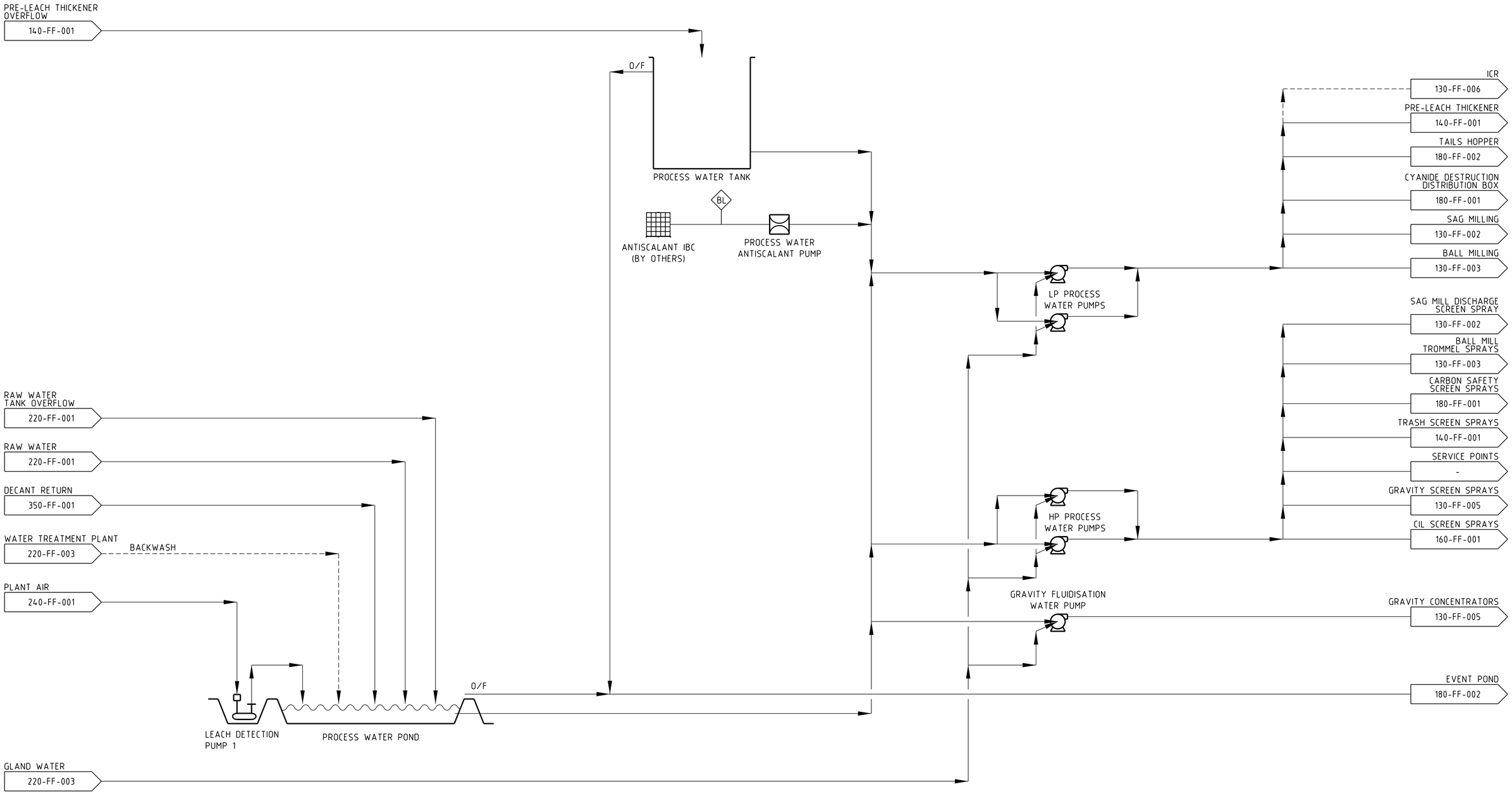
DRAWING TITLE
WATER SERVICES
RAW WATER DISTRIBUTION
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	220-FF-001	C

DRAWN: AM
DATE: 13AUG25

pw:\\perpwint1.lycopodium.com.au:PERPWINTDS1\Documents\Drafting\02 Studies\2000 - 2999\2326.20 - Doropo Gold Project DFS\F\01 PFD\2326-220-FF-001.dgn, 21/11/2025 2:27:26 PM, Mary Landicho, ISO A1

A1



LEGEND:

------- ALTERNATE / INTERMITTENT

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

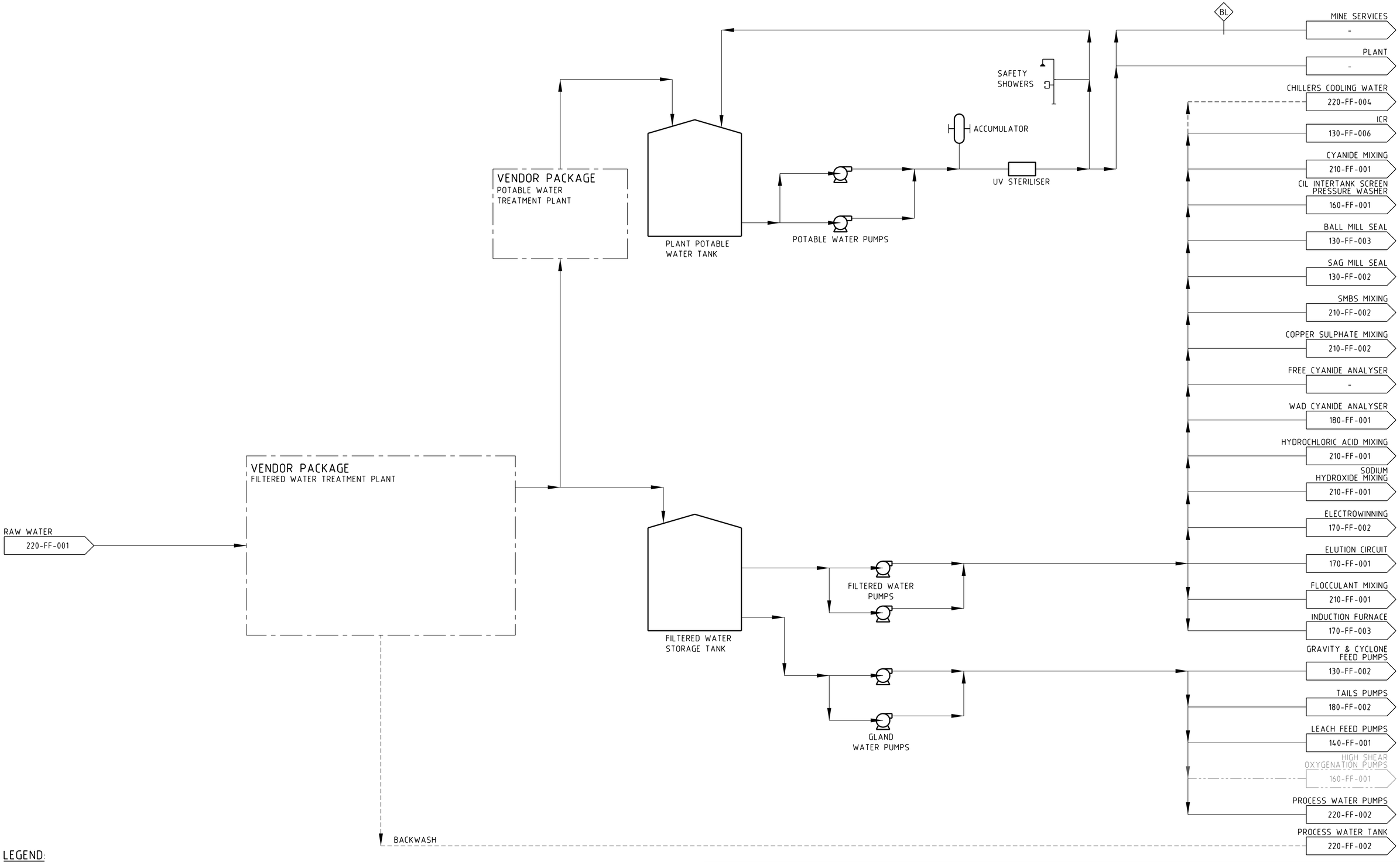
Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:01:01 +08'00'		Anton Gustavson 2025.11.26 16:00:48 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:54 +08'00'	

DRAWING TITLE: WATER SERVICES PROCESS WATER PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	220-FF-002	C

DRAWN: AM DATE: 13AUG25



LEGEND:

ALTERNATE / INTERMITTENT

FUTURE

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

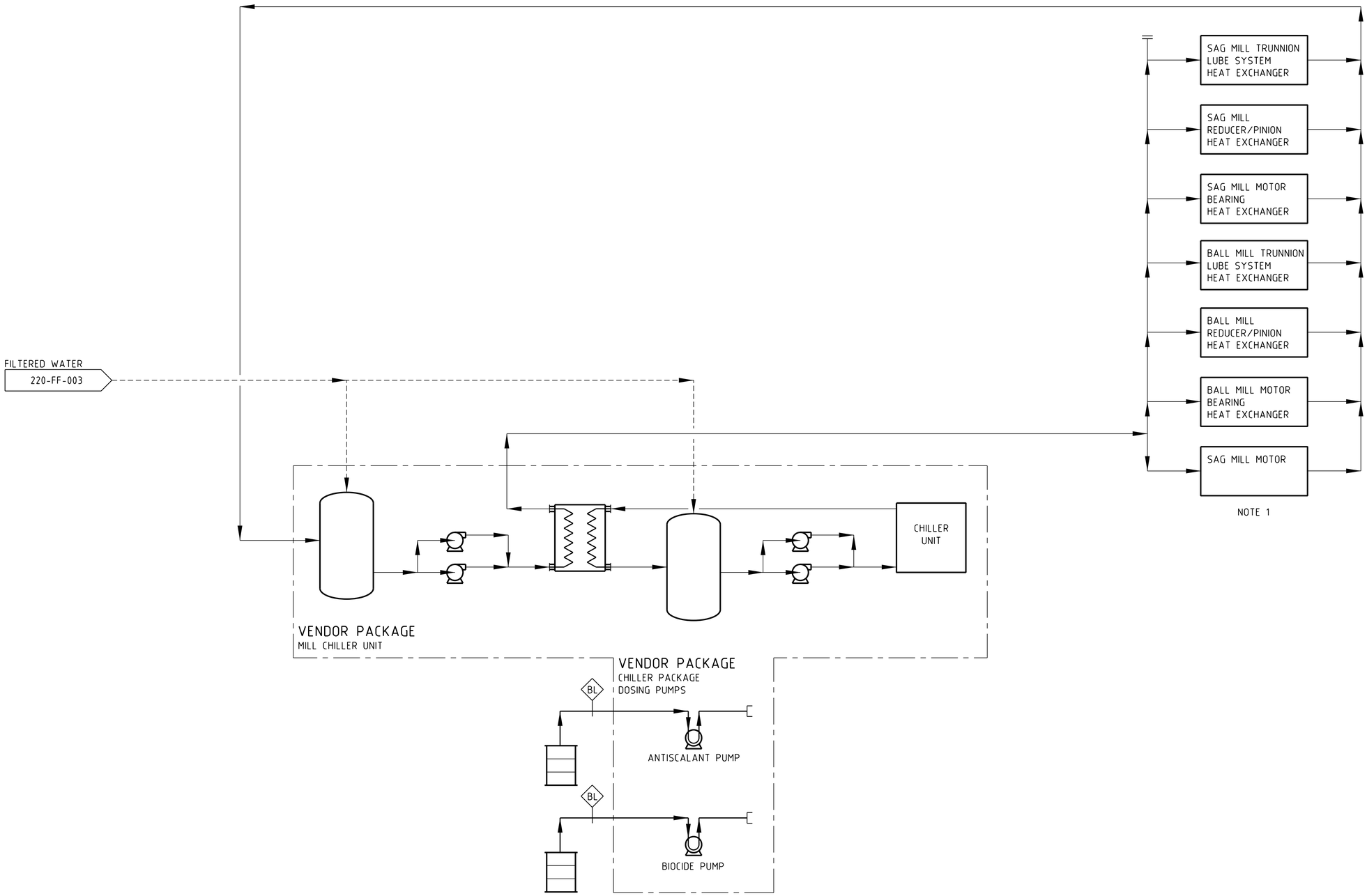
DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.26 09:48:35 +08'00'		Anton Gustavson 2025.11.26 16:00:48 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:54 +08'00'	

DRAWING TITLE: WATER SERVICES TREATED WATER PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	220-FF-003	C

DRAWN: AM DATE: 13AUG25

NOTES:
1. TO BE CONFIRMED BY MILL SUPPLIER.



DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:01:51 +08'00'		Anton Gustavson 2025.11.26 16:00:49 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:54 +08'00'	

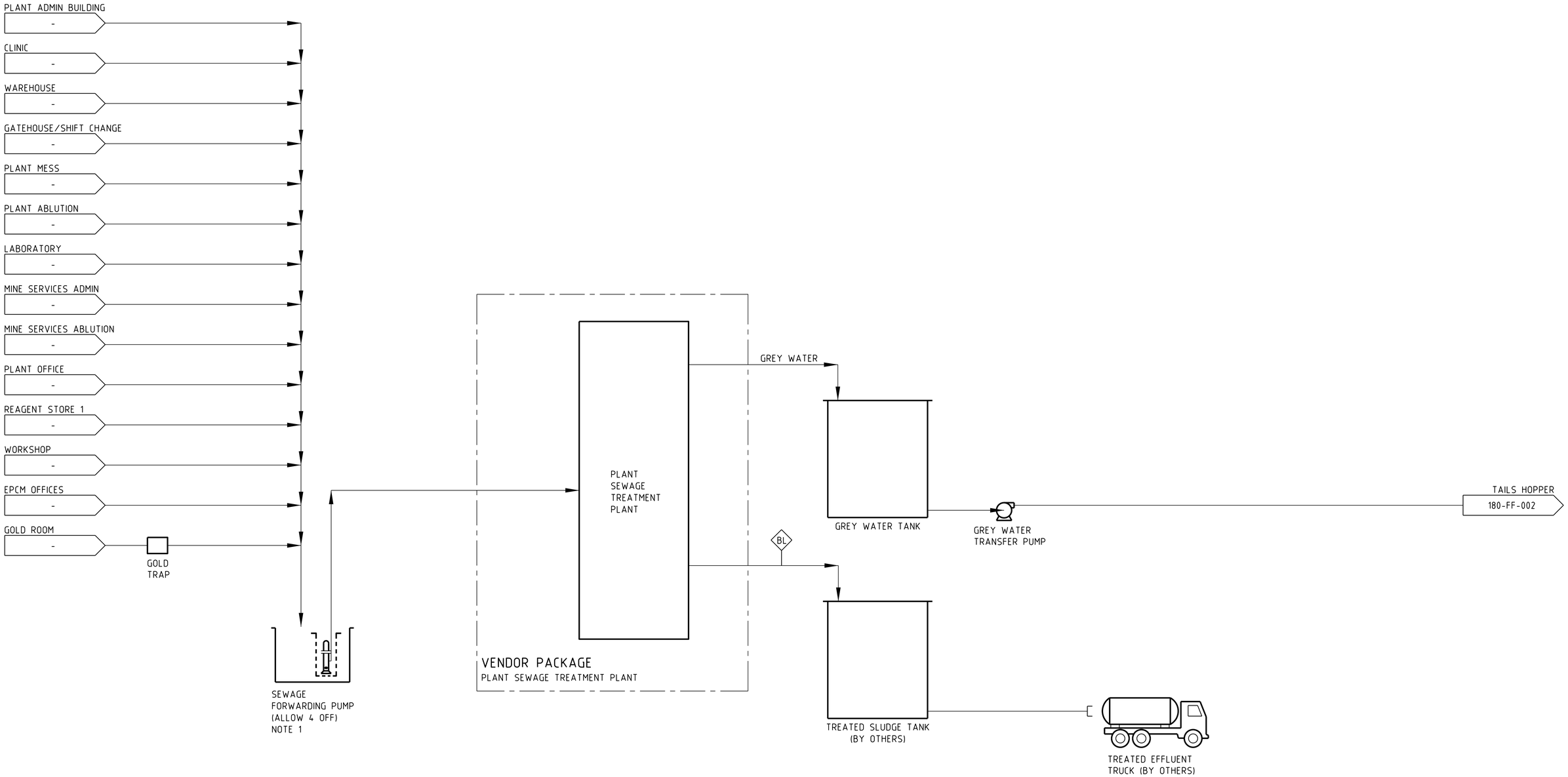
DRAWING TITLE
WATER SERVICES
COOLING WATER
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	220-FF-004	C

DRAWN: AM
DATE: 13AUG25

NOTES:

1. NUMBER AND ARRANGEMENT OF SEWAGE FORWARDING PUMPS TO BE DETERMINED BY SITE LAYOUT.



DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

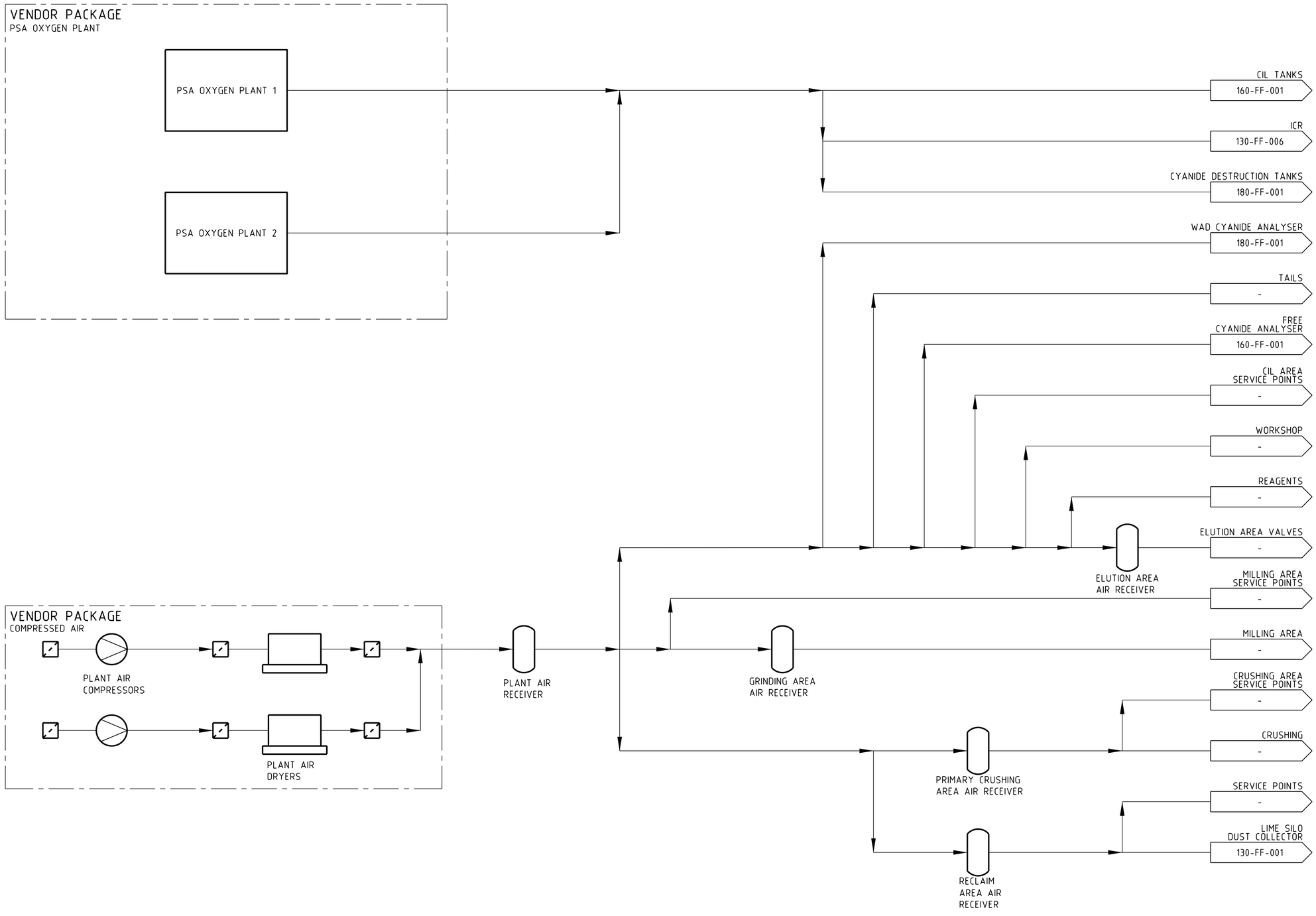
Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.26 09:01:01 +08'00'		Anton Gustavson 2025.11.26 16:00:49 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:54 +08'00'	

DRAWING TITLE: PLANT SERVICES SEWAGE HANDLING PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	230-FF-001	C

DRAWN: AM DATE: 13AUG25



DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

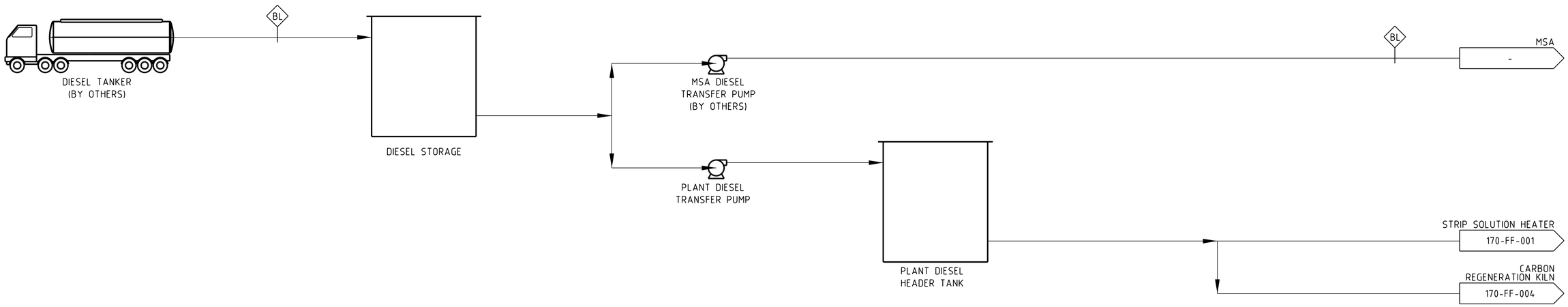
Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Alexander Lloyd Date: 2025.11.26 09:01:02 +08'00'		Anton Gustavson 2025.11.26 16:00:49 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:55 +08'00'	

DRAWING TITLE
AIR SERVICES
AIR SERVICES
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	240-FF-001	C

DRAWN: AM | DATE: 13AUG25



DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	HT	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT AMPELLA MINING CÔTE D'IVOIRE

PROJECT DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

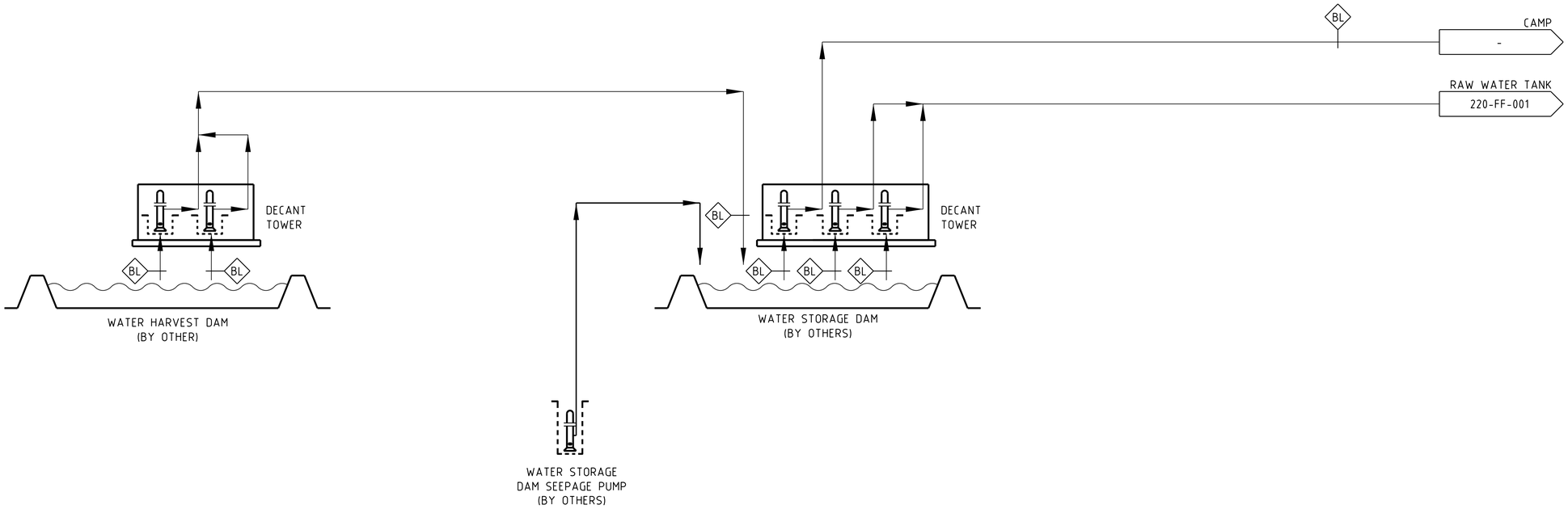
DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Hardie Teh Date: 2025.11.28 07:25:27 +08'00'		Anton Gustavson 2025.11.28 09:54:55 +08'00'	Ryan Harrison	Alastair Holden 28-Nov-25	Alwyn Scholtz	

DRAWING TITLE
FUELS
FUEL STORAGE & DISTRIBUTION PLANT DIESEL
PROCESS FLOW DIAGRAM

SCALE		JOB No.	DRG No.	REV.
NTS		2326	250-FF-001	C
DRAWN AM	DATE 13AUG25			

\\MNLFILE1\draftingbound$\2326 20 - Doropo Gold Project DFS\F\2326-250-FF-001 C.dgn, 28/11/2025 7:18:16 AM, Hardie.Teh, ISO A1

A1



DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

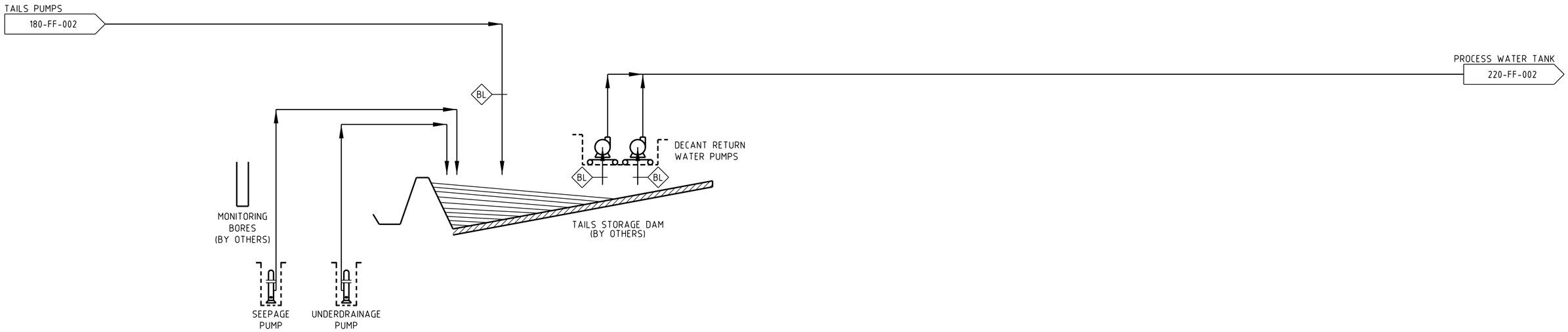
Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:01:52 +08'00'		Anton Gustavson 2025.11.26 16:00:50 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:55 +08'00'	

DRAWING TITLE
WATER AND SEWAGE
WATER SUPPLY
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	330-FF-001	C

DRAWN: AM DATE: 13AUG25



DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
Digitally signed by Mary Joy Landicho Date: 2025.11.25 09:01:53 +08'00'		Anton Gustavson 2025.11.26 16:00:50 +08'00'	Ryan Harrison	Alastair Holden 26-Nov-25	Alwyn Scholtz 2025.11.27 07:58:55 +08'00'	

DRAWING TITLE
TAILS DAM
TAILS DISPOSAL AND DECANT RETURN
PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	350-FF-001	C

DRAWN: AM
DATE: 13AUG25

APPENDIX 7.3

MECHANICAL EQUIPMENT LIST

RESOLUTE MINING LIMITED

DOROPO GOLD PROJECT FS

MECHANICAL EQUIPMENT LIST

2326-MLST-001

November 2025

Prepared by:

Lycopodium

REV NO.	DATE	DESCRIPTION OF REVISION	BY	DESIGN APPROVED	PROJECT APPROVED	CLIENT APPROVED
D	26.11.25	ISSUED FOR STUDY			Alwyn Scholtz	
C	03.10.25	ISSUED FOR INFORMATION	JH	AC	AS	
B	03.10.25	ISSUED FOR INFORMATION	JH	AC	AS	
A	03.10.25	ISSUED FOR INFORMATION	JH	AC	AS	

This document is the property of Lycopodium. It must not be copied or reproduced in any way
or transmitted on to any third party without written authority from Lycopodium.

Item	Tag No.	Equipment Identifier	Numerical Identifier	Equipment No.	Qty	Qty Op	Equipment Name	Plant Area	Facility	Generic Type 1	Generic Type 2	Generic Type 3	Pinnacle Type Ref: ISBOM.XML	Mech'al Constr. (incl. Lining)	Design Duty Point	Process Duty Point	Size	Noted Comments	Supplier	Manufacturer	Model No.	Package No.	Purchase Order No.	Vendor Drg No.	Spec / Data Sheet No.	GA No.	Detail Dwg. No.	PID / P&ID No.	System No.	Sub-System No.	Drive Type	Installed Power Per Unit [kW]	Total Installed Power [kW]	Total Drawn Power [kW]	MC Confirmed	Emergency Power Required	PFD Project Origin
1	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
32	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
33	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
34	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
35	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
36	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
37	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
38	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
39	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
40	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
41	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
42	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
43	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
44	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
45	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
46	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
47	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
48	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
49	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
50	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
51	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
52	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Item	Tag No.	Equipment Identifier	Numerical Identifier	Equipment No.	Qty	Qty Op	Equipment Name	Plant Area	Facility	Generic Type 1	Generic Type 2	Generic Type 3	Process & Type (Ref. ISBL/OSBL)	Mech'al Constr. (Incl. Lining)	Design Duty Point	Process Duty Point	Size	Noted Comments	Supplier	Manufacturer	Model No.	Package No.	Purchase Order No.	Vendor Drg No.	Spec / Data Sheet No.	GA No.	Detail Dwg. No.	PFD / P&ID No.	System No.	Sub-System No.	Drive Type	Installed Power Per Unit [kW]	Total Installed Power [kW]	Total Drawn Power [kW]	MC Confirmed	Emergency Power Required	PFD Project Origin
[illegible]																																				
1	[illegible]	01	001	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]					[illegible]																		
2	[illegible]	01	002	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
3	[illegible]	01	003	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]					[illegible]																							
4	[illegible]	01	004	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		[illegible]																		
5	[illegible]	02	001	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]					[illegible]																		
6	[illegible]	02	002	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
7	[illegible]	02	003	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]					[illegible]																		
8	[illegible]	02	004	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
9	[illegible]	03	001	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
10	[illegible]	03	002	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
11	[illegible]	03	003	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
12	[illegible]	03	004	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
13	[illegible]	04	001	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
14	[illegible]	04	002	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
15	[illegible]	04	003	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
16	[illegible]	04	004	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
17	[illegible]	05	001	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
18	[illegible]	05	002	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
19	[illegible]	05	003	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
20	[illegible]	05	004	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
21	[illegible]	06	001	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
22	[illegible]	06	002	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
23	[illegible]	06	003	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
24	[illegible]	06	004	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
[illegible]																																				
1	[illegible]	01	001	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
2	[illegible]	01	002	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
3	[illegible]	01	003	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
4	[illegible]	01	004	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
5	[illegible]	02	001	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
6	[illegible]	02	002	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]					[illegible]																		
7	[illegible]	02	003	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

No.	Status	Equipment Identifier	Nominal Identifier	Equipment No.	Cat. Qty	Qty Qty	Equipment Name	Plant Area	Facility	Generic Type 1	Generic Type 2	Generic Type 3	Pipework Type Ref. ISO 9001-2015	Bed of Cement (Ave Lining)	Design Duty Point	Process Duty Point	Size	Notes/Comments	Supplier	Manufacturer	Model No.	Package No.	Purchase Order No.	Vendor Drg No.	Spec Clean Sheet No.	GA No.	Detail Dwg No.	PID / PAID No.	System No.	Sub System No.	Drive Type	Installed Power Per Unit [kW]	Total Installed Power [kW]	Total Drawn Power [kW]	MI Confirmed	Emergency Power Required	PFE Project Origin
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Item	Name	Equipment Identifier	Numerical Identifier	Equipment No.	Qty	Qty Op	Equipment Name	Plant Area	Facility	Generic Type 1	Generic Type 2	Generic Type 3	Pinnacle Type Ref: 000-MC-001	Mech'al Constr. (incl. Lining)	Design Duty Point	Process Duty Point	Size	Noted Comments	Supplier	Manufacturer	Model No.	Package No.	Purchase Order No.	Vendor Drg No.	Spec / Data Sheet No.	GA No.	Detail Dwg. No.	PID / P&ID No.	System No.	Sub-System No.	Drive Type	Installed Power Per Unit [kW]	Total Installed Power [kW]	Total Drawn Power [kW]	MC Confirmed	Emergency Power Required	PFD Project Origin
1	Area	10	100	10000	1			Processing	100	Primary area																										

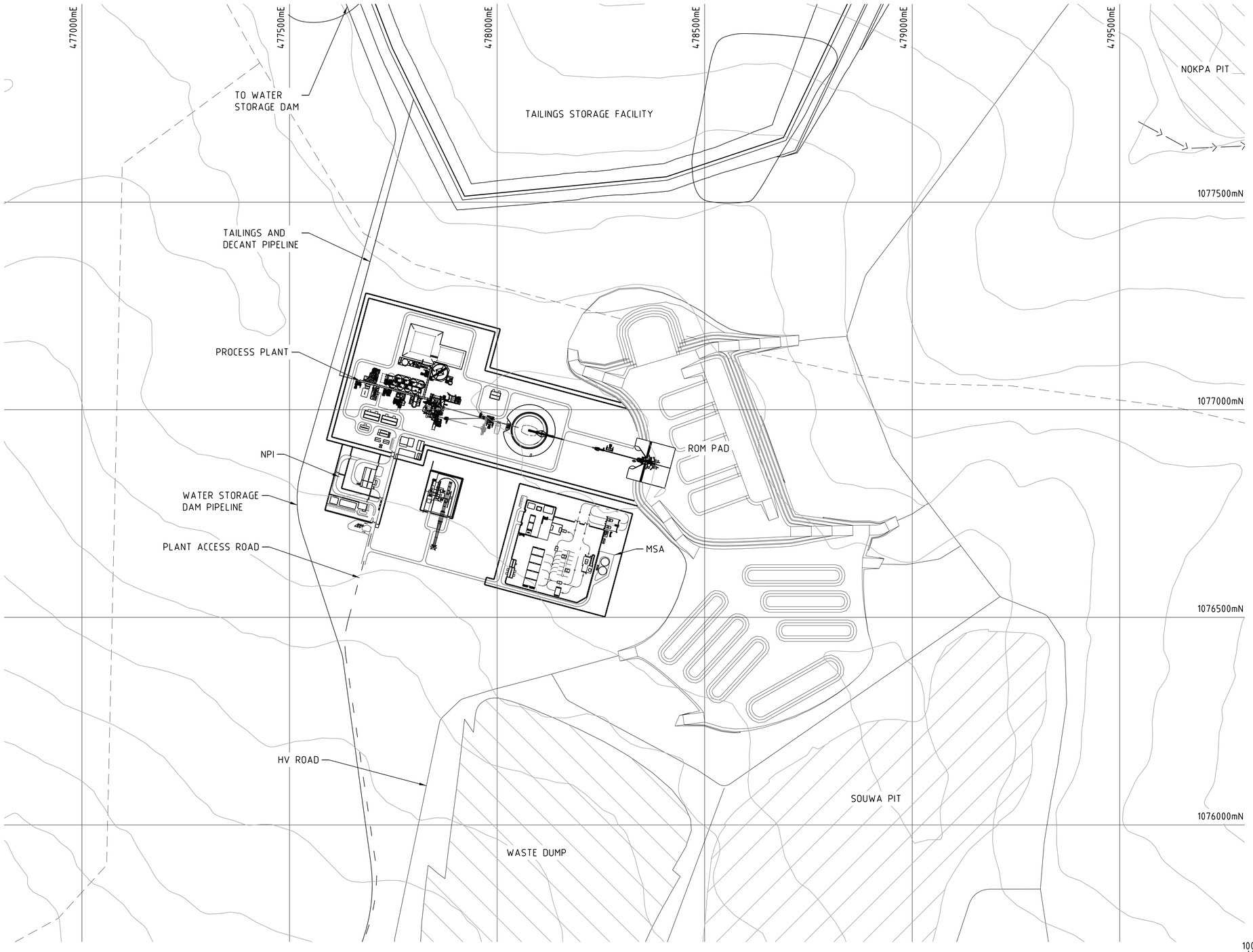
Item	Status	Equipment Identifier	Numerical Identifier	Equipment No.	Qty (+1)	Qty Op	Equipment Name	Plant Area	Facility	Generic Type 1	Generic Type 2	Generic Type 3	Pinnacle Type Ref: 000.000.000	Mech'al Comm'n (Ann'l Listing)	Design Duty Point	Process Duty Point	Size	Noted Comments	Supplier	Manufacturer	Model No.	Package No.	Purchase Order No.	Vendor Drg No.	Spec / Data Sheet No.	GA No.	Detail Dwg. No.	PFD / P&ID No.	System No.	Sub-System No.	Drive Type	Installed Power Per Unit [kW]	Total Installed Power [kW]	Total Drawn Power [kW]	MC Confirmed	Emergency Power Required	PFD Project Origin
1	Use	001	101	101-CV-01			Feeder Conveyor to Primary Crusher	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
2	Use	002	101	101-CV-02			Primary Crusher to Stockpile Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
3	Use	003	101	101-FE-01			Apron Feeder	101-Run-of-Mine Stockpile	101-Primary Crushing	Feeder	Apron																										
4	Use	004	101	101-CR-01			Primary Jaw Crusher	101-Run-of-Mine Stockpile	101-Primary Crushing	Crusher	Jaw																										
5	Use	005	101	101-CV-03			Primary Crusher to Secondary Screen Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
6	Use	006	101	101-SC-01			Primary Screen	101-Run-of-Mine Stockpile	101-Primary Crushing	Screen	Vibrating																										
7	Use	007	101	101-CV-04			Secondary Screen Oversize Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
8	Use	008	101	101-CV-05			Secondary Screen Undersize Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
9	Use	009	101	101-CV-06			Primary Crusher Discharge Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
10	Use	010	101	101-CV-07			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
11	Use	011	101	101-CV-08			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
12	Use	012	101	101-CV-09			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
13	Use	013	101	101-CV-10			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
14	Use	014	101	101-CV-11			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
15	Use	015	101	101-CV-12			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
16	Use	016	101	101-CV-13			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
17	Use	017	101	101-CV-14			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
18	Use	018	101	101-CV-15			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
19	Use	019	101	101-CV-16			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
20	Use	020	101	101-CV-17			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
21	Use	021	101	101-CV-18			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
22	Use	022	101	101-CV-19			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
23	Use	023	101	101-CV-20			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
24	Use	024	101	101-CV-21			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
25	Use	025	101	101-CV-22			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
26	Use	026	101	101-CV-23			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
27	Use	027	101	101-CV-24			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
28	Use	028	101	101-CV-25			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
29	Use	029	101	101-CV-26			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
30	Use	030	101	101-CV-27			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
31	Use	031	101	101-CV-28			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
32	Use	032	101	101-CV-29			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
33	Use	033	101	101-CV-30			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
34	Use	034	101	101-CV-31			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
35	Use	035	101	101-CV-32			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
36	Use	036	101	101-CV-33			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
37	Use	037	101	101-CV-34			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
38	Use	038	101	101-CV-35			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
39	Use	039	101	101-CV-36			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
40	Use	040	101	101-CV-37			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
41	Use	041	101	101-CV-38			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
42	Use	042	101	101-CV-39			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
43	Use	043	101	101-CV-40			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
44	Use	044	101	101-CV-41			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
45	Use	045	101	101-CV-42			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
46	Use	046	101	101-CV-43			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
47	Use	047	101	101-CV-44			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
48	Use	048	101	101-CV-45			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
49	Use	049	101	101-CV-46			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
50	Use	050	101	101-CV-47			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
51	Use	051	101	101-CV-48			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
52	Use	052	101	101-CV-49			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
53	Use	053	101	101-CV-50			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
54	Use	054	101	101-CV-51			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
55	Use	055	101	101-CV-52			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
56	Use	056	101	101-CV-53			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
57	Use	057	101	101-CV-54			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
58	Use	058	101	101-CV-55			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
59	Use	059	101	101-CV-56			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
60	Use	060	101	101-CV-57			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
61	Use	061	101	101-CV-58			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
62	Use	062	101	101-CV-59			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
63	Use	063	101	101-CV-60			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
64	Use	064	101	101-CV-61			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
65	Use	065	101	101-CV-62			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
66	Use	066	101	101-CV-63			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
67	Use	067	101	101-CV-64			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
68	Use	068	101	101-CV-65			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
69	Use	069	101	101-CV-66			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
70	Use	070	101	101-CV-67			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
71	Use	071	101	101-CV-68			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
72	Use	072	101	101-CV-69			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
73	Use	073	101	101-CV-70			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
74	Use	074	101	101-CV-71			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
75	Use	075	101	101-CV-72			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
76	Use	076	101	101-CV-73			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
77	Use	077	101	101-CV-74			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
78	Use	078	101	101-CV-75			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
79	Use	079	101	101-CV-76			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
80	Use	080	101	101-CV-77			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
81	Use	081	101	101-CV-78			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
82	Use	082	101	101-CV-79			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
83	Use	083	101	101-CV-80			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
84	Use	084	101	101-CV-81			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
85	Use	085	101	101-CV-82			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
86	Use	086	101	101-CV-83			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
87	Use	087	101	101-CV-84			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
88	Use	088	101	101-CV-85			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
89	Use	089	101	101-CV-86			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
90	Use	090	101	101-CV-87			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
91	Use	091	101	101-CV-88			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
92	Use	092	101	101-CV-89			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
93	Use	093	101	101-CV-90			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
94	Use	094	101	101-CV-91			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
95	Use	095	101	101-CV-92			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
96	Use	096	101	101-CV-93			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
97	Use	097	101	101-CV-94			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
98	Use	098	101	101-CV-95			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
99	Use	099	101	101-CV-96			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										
100	Use	100	101	101-CV-97			Primary Crushing Area Transfer Conveyor	101-Run-of-Mine Stockpile	101-Primary Crushing	Conveyor	Belt																										

Rev	Status	Equipment Identifier	Numerical Identifier	Equipment No.	Qty (ea)	Qty (for)	Equipment Name	Plant Area	Facility	Generic Type 1	Generic Type 2	Generic Type 3	Permanent Type (Ref. ISBLIBOL)	Mod of Constr. (Ind / Loding)	Design Duty Point	Process Duty Point	Size	Noted Comments	Supplier	Manufacturer	Model No.	Package No.	Purchase Order No.	Vendor Drg No.	Spec / Data Sheet No.	GA No.	Detail Dwg. No.	PID / P&ID No.	System No.	Sub-System No.	Drive Type	Installed Power Per Unit [kW]	Total Installed Power [kW]	Total Drawn Power [kW]	MC Confirmed	Emergency Power Required	PFD Project Origin
1	Use	EC	001	EC-001	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-001	DWG-EC-001	PID-EC-001	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-001
1	Use	EC	002	EC-002	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-002	DWG-EC-002	PID-EC-002	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-002
1	Use	EC	003	EC-003	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-003	DWG-EC-003	PID-EC-003	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-003
1	Use	EC	004	EC-004	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-004	DWG-EC-004	PID-EC-004	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-004
1	Use	EC	005	EC-005	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-005	DWG-EC-005	PID-EC-005	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-005
1	Use	EC	006	EC-006	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-006	DWG-EC-006	PID-EC-006	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-006
1	Use	EC	007	EC-007	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-007	DWG-EC-007	PID-EC-007	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-007
1	Use	EC	008	EC-008	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-008	DWG-EC-008	PID-EC-008	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-008
1	Use	EC	009	EC-009	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-009	DWG-EC-009	PID-EC-009	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-009
1	Use	EC	010	EC-010	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-010	DWG-EC-010	PID-EC-010	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-010
1	Use	EC	011	EC-011	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-011	DWG-EC-011	PID-EC-011	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-011
1	Use	EC	012	EC-012	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-012	DWG-EC-012	PID-EC-012	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-012
1	Use	EC	013	EC-013	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-013	DWG-EC-013	PID-EC-013	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-013
1	Use	EC	014	EC-014	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-014	DWG-EC-014	PID-EC-014	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-014
1	Use	EC	015	EC-015	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-015	DWG-EC-015	PID-EC-015	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-015
1	Use	EC	016	EC-016	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-016	DWG-EC-016	PID-EC-016	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-016
1	Use	EC	017	EC-017	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-017	DWG-EC-017	PID-EC-017	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-017
1	Use	EC	018	EC-018	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-018	DWG-EC-018	PID-EC-018	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-018
1	Use	EC	019	EC-019	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-019	DWG-EC-019	PID-EC-019	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-019
1	Use	EC	020	EC-020	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-020	DWG-EC-020	PID-EC-020	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-020
1	Use	EC	021	EC-021	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-021	DWG-EC-021	PID-EC-021	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-021
1	Use	EC	022	EC-022	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-022	DWG-EC-022	PID-EC-022	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-022
1	Use	EC	023	EC-023	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-023	DWG-EC-023	PID-EC-023	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-023
1	Use	EC	024	EC-024	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-024	DWG-EC-024	PID-EC-024	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-024
1	Use	EC	025	EC-025	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-025	DWG-EC-025	PID-EC-025	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-025
1	Use	EC	026	EC-026	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-026	DWG-EC-026	PID-EC-026	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-026
1	Use	EC	027	EC-027	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-027	DWG-EC-027	PID-EC-027	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-027
1	Use	EC	028	EC-028	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-028	DWG-EC-028	PID-EC-028	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-028
1	Use	EC	029	EC-029	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-029	DWG-EC-029	PID-EC-029	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-029
1	Use	EC	030	EC-030	1		Excavator	Mine Area	Mine Site	Excavation	Excavator			Mining	1.5 m³ bucket, 200 kW		1.5 m³	Primary loading unit	Caterpillar	Caterpillar	390F		PO-2026-001			GA-EC-030	DWG-EC-030	PID-EC-030	SYS-MIN-01	SUB-EXC-01	Hydraulic	200	200	180	Yes	Yes	PFD-EC-030

2326-D-00-0-0-0

APPENDIX 7.4

PLANT LAYOUT DRAWINGS



DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		A	25NOV25	ISSUED FOR STUDY	ZCG			AC		AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
			Ashley Cook 11/25/25 09:18		Alwyn Scholtz	

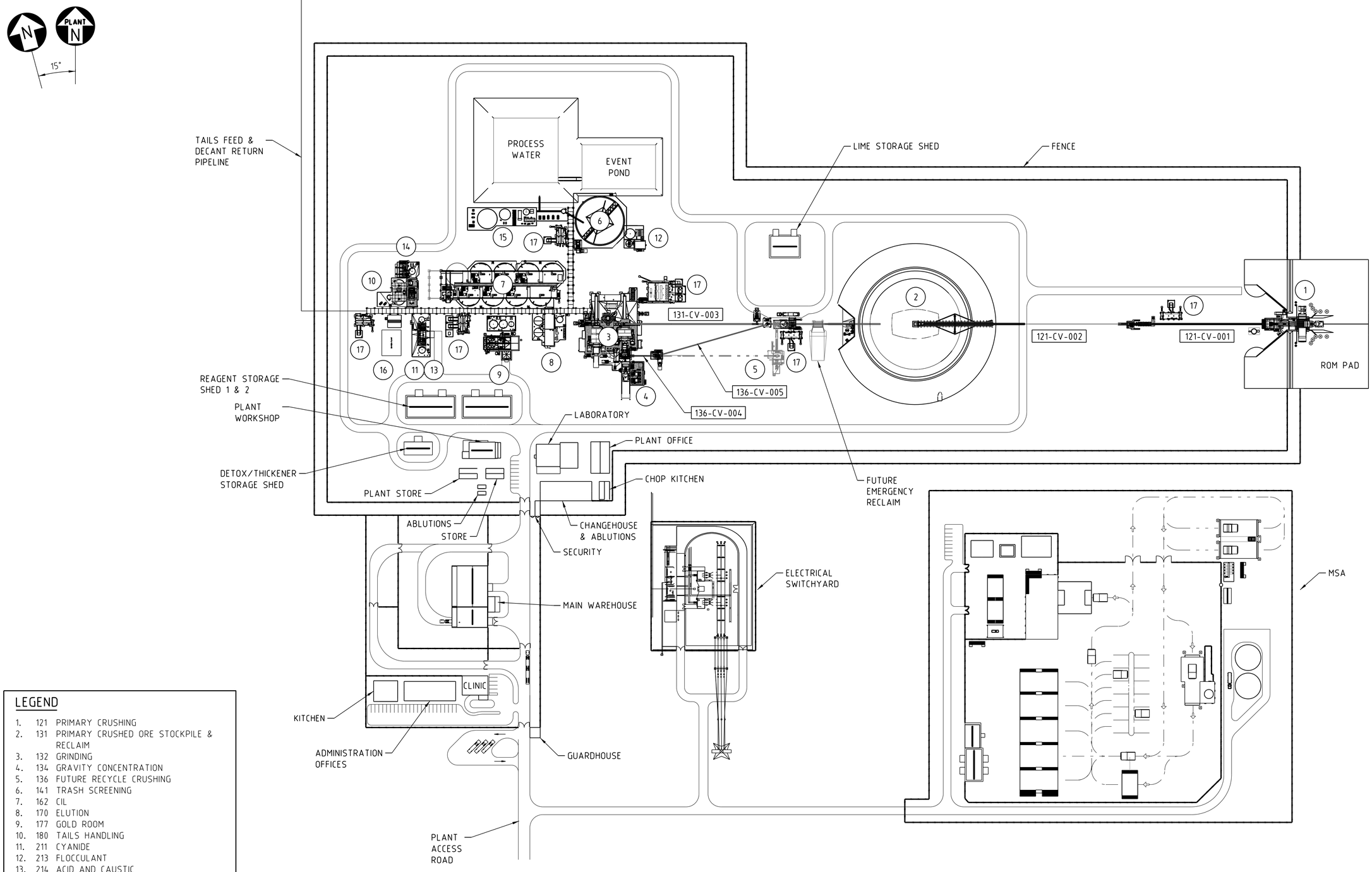
DRAWING TITLE: TREATMENT PLANT - GENERAL SITE LAYOUT PLAN

SCALE	JOB No.	DRG No.	REV.
1:5000	2326	110-GD-003	A

DRAWN: ZCG DATE: 27OCT25

pw:\\PERPWINT1.lycopodium.com.au:PERPWINTDS1\Documents\Drafting\02 Studies\2000 - 2999\2326.20 - Doropo Gold Project DFS\G\00 GD\2326-110-GD-003.dgn, 25/11/2025 9:08:38 AM, zane.goncalves, ISO A1

A1



LEGEND

1. 121 PRIMARY CRUSHING
2. 131 PRIMARY CRUSHED ORE STOCKPILE & RECLAIM
3. 132 GRINDING
4. 134 GRAVITY CONCENTRATION
5. 136 FUTURE RECYCLE CRUSHING
6. 141 TRASH SCREENING
7. 162 CIL
8. 170 ELUTION
9. 177 GOLD ROOM
10. 180 TAILS HANDLING
11. 211 CYANIDE
12. 213 FLOCCULANT
13. 214 ACID AND CAUSTIC
14. 216 DETOX REAGENTS
15. 220 WATER SERVICES
16. 240 AIR SERVICES
17. 376 ELECTRICAL SWITCHROOMS

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		A	25NOV25	ISSUED FOR STUDY	ZCG			AC		AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
					Alwyn Scholtz	

DRAWING TITLE: TREATMENT PLANT - GENERAL PLANT LAYOUT PLAN

SCALE	JOB No.	DRG No.	REV.
1:1500	2326	110-GD-004	A

DRAWN: ZCG DATE: 24OCT25

APPENDIX 7.5

SINGLE LINE DIAGRAMS

PART OF
90kV SWITCHYARD

90kV 3PH 50Hz 2000A 40kA FOR 1 SEC

340-TX-001
90/11.5kV
35/45MVA

150A
NER

2000A

2500A

340-TX-002
90/11.5kV
35/45MVA

2000A

2500A

STATCOM

SOLAR FARM

EMERGENCY POWER
OUTGOING FEEDER
EARTH SWITCH

POWER STATION
340-GE-001
EMERGENCY POWER
INCOMER

342-SS-001
SITE 11kV MAIN SUBSTATION

342-SB-001
SITE 11kV MAIN SWITCHBOARD

150/1A
3.15A
11000/√3 / 110/√3
2500/1A
2500/1A
F1
TO 344-PF-001
POWER FACTOR
CORRECTION PANEL
2500A

150/1A
3.15A
11000/√3 / 110/√3
2500/1A
2500/1A
F1
TO 344-PF-001
POWER FACTOR
CORRECTION PANEL
2500A

150/1A
3.15A
11000/√3 / 110/√3
2500/1A
2500/1A
F1
SPARE
2500A

150/1A
3.15A
11000/√3 / 110/√3
3150/1A
3150A
G1
METERING & INTERTRIPS
TO EMERGENCY POWER
MAIN SWITCHBOARD
3150/1A
3150A

BUS VT
11000/√3 / 110/√3
6.3A

11kV 50Hz 3150A 31.5kA FOR 3 SEC

A01	A02	A03	A04	A05	A06	A07	A08	A09	A10	A11	A12
630A	2500A	630A	2500A	630A	2500A	630A	630A	630A	630A	630A	
50/1A F1	2500/1A F1	500/1A F1	2500/1A F1	150/1A F1	2500/1A F1	150/1A F1	350/1A F1	150/1A F1	350/1A F1	150/1A F1	350/1A F1
	150/1A	150/1A			150/1A		150/1A		150/1A		150/1A
U/G CABLE	SPARE	STAGES 3 x 2MVAr 2 x 1MVAr ACCESS DOORS 342-PF-001 POWER FACTOR CORRECTION		U/G CABLE 344-SB-001 PLANT FEEDER REFER DWG DOR-0340-E-SL-0003		SPARE		U/G CABLE 344-OHL-001 11kV OVERHEAD POWERLINE 1 REFER DWG DOR-0340-E-SL-0004		SPARE	

342-TX-006
11kV/0.4kV
Dyn11
315kVA
ONAN

342-DB-006
SITE 11kV
SWITCHROOM L&SP
DISTRIBUTION BOARD
630A
400V
25kA FOR 1 SEC

LEGEND

F1 FEEDER PROTECTION RELAY

CAPTIVE KEY INTERLOCK

REFERENCE DOC No.	REFERENCE DOCUMENT TITLE
-	-

REV	DATE	REVISION	DRN	DRA	DES	APP
A	15.10.25	ISSUED FOR REVIEW				

DRAWN BY: M.LARDIZABAL
DRAFTING CHECKED BY:
DESIGN CHECKED BY:
APPROVED BY:
DATE DRAWN: 18.09.2025

Resolute

Project No. 2326 | Design Lead | Project Lead | Design Manager | Project Manager | Client

Lycopodium
Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com.au

© COPYRIGHT
THIS DRAWING AND ALL THE INFORMATION IT CONTAINS REMAINS THE PROPERTY OF ECG. NO PART MAY BE COPIED OR REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION FROM ECG.

ECG ENGINEERING
2-10 ADAMS DRIVE, WELSHPOOL, WESTERN AUSTRALIA, 6106
T: +61 8 6164 3400
WWW.ECG-ENGINEERING.COM

CLIENT: RESOLUTE MINING CORPORATION LIMITED

TITLE: DOROPO GOLD PROJECT
POWER DISTRIBUTION
342-SS-001 SITE 11kV SUBSTATION
SINGLE LINE DIAGRAM

SCALE	DRAWING No.	SHEET	REV
NTS	DOR-0340-E-SL-0001	1 OF 5	A

342-SB-001
INCOMER
REFER DWG DOR-0340-E-SL-0001

U/G CABLE

344-SS-001
PROCESS PLANT 11kV SUBSTATION

344-SB-001
PLANT 11kV SWITCHBOARD

150/1A
11000/√3 / 110/√3
3.15A
2500/1A
F1
2500A

B01 | B02 | B03 | B04 | B05 | B06 | B07 | B08

11kV 50Hz 3150A 31.5kA FOR 3 SEC

B01: 1250A; 1000/1A; 150/1A; F1

B02: 6.3A; 11000/√3 / 110/√3; BUS VT

B03: 630A; 150/1A; F1

B04: 630A; 150/1A; F1

B06: 630A; 150/1A; F1

B07: 630A; 150/1A; F1

B08: 630A; 150/1A; F1

CONTINUED ON DWG. DOR-0340-E-SL-0003

132-TX-001
11/1.85/1.85/1.85/1.85kV
De(-22.5°)e(-7.5°)e(+7.5°)e(+22.5°)
12.1MVA
ONAN

24 PULSE
132-ML-001-VSD

KEY EXCHANGE ACCESS DOORS

INCH DRIVE

M 3~
132-ML-001A
5250kW
SAG MILL

M 3~
132-ML-001B
5250kW
SAG MILL

U/G CABLE

120-SR-010
PRIMARY CRUSHER
SWITCHROOM

120-TX-011
11kV/0.415kV
Dyn11
1.25MVA
ONAN

120-MC-011
PRIMARY CRUSHER
MCC

2500A

400V
50kA FOR 1 SEC

U/G CABLE

130-SR-021
STOCKPILING, RECLAIM
& PEBBLE CRUSHING
SWITCHROOM

130-TX-021
11kV/0.415kV
Dyn11
2.5MVA
ONAN

130-MC-021
RECLAIM
MCC

4000A

400V
63kA FOR 1 SEC

133-PP-001-VSD
ACCESS DOORS

M 3~
133-PP-001
CYCLONE
FEED PUMP 1
700kW

133-PP-002-VSD
ACCESS DOORS

M 3~
133-PP-002
CYCLONE
FEED PUMP 2
700kW

SPARE

REFERENCE DOC No.	REFERENCE DOCUMENT TITLE
-	-

REV	DATE	REVISION	DRN	DRA	DES	APP
A	15.10.25	ISSUED FOR REVIEW				

DRAWN BY: M.LARDIZABAL
DRAFTING CHECKED BY:
DESIGN CHECKED BY:
APPROVED BY:
DATE DRAWN: 18.09.2025

Resolute

Lycopodium
Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com.au

Project No.	Design Lead	Project Lead	Design Manager	Project Manager	Client
2326					

© COPYRIGHT
THIS DRAWING AND ALL THE INFORMATION IT CONTAINS REMAINS THE PROPERTY OF ECG. NO PART MAY BE COPIED OR REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION FROM ECG.

ECG ENGINEERING
2-10 ADAMS DRIVE, WELSHPOOL, WESTERN AUSTRALIA, 6106
T: +61 8 6164 3400
WWW.ECG-ENGINEERING.COM

CLIENT: RESOLUTE MINING CORPORATION LIMITED

TITLE:
DOROPO GOLD PROJECT
POWER DISTRIBUTION
344-SB-001 PLANT 11kV SWITCHBOARD
SINGLE LINE DIAGRAM

SCALE	DRAWING No.	SHEET	REV
NTS	DOR-0340-E-SL-0002	2 OF 5	A

CONTINUED FROM DWG. DOR-0340-E-SL-0002

344-SB-001
PLANT 11kV SWITCHBOARD

11kV 50Hz 3150A 31.5kA FOR 3 SEC

B9 B10 B11 B12 B13 B14 B15 B16 B17

630A 630A 630A 630A 630A 630A 630A 630A 1250A

150/1A F1 150/1A F1 150/1A F1 150/1A F1 150/1A F1 150/1A F1 150/1A F1 150/1A F1 1000/1A F1
150/1A

SPARE

U/G CABLE

SPARE

130-TX-022
11kV/0.415kV
Dyn11
2.5MVA
ONAN

140-TX-061
11kV/0.415kV
Dyn11
2.5MVA
ONAN

170-TX-041
11kV/0.415kV
Dyn11
2.5MVA
ONAN

170-TX-042
11kV/0.415kV
Dyn11
2.5MVA
ONAN

160-TX-031
11kV/0.415kV
Dyn11
2.5MVA
ONAN

180-TX-051
11kV/0.415kV
Dyn11
2.5MVA
ONAN

132-TX-002
11/1.85/1.85/1.85/1.85kV
De(-22.5°)e(-7.5°)e(+7.5°)e(+22.5°)
12.1MVA
ONAN

130-MC-022
MILLING
MCC
4000A
400V
63kA FOR 1 SEC
630A 630A

267-SR-002
ELUTION, CIL &
GOLDROOM
SWITCHROOM

170-MC-041
ELUTION & GOLD
ROOM 400V MCC
4000A
400V
63kA FOR 1 SEC

160-MC-031
CIL MCC
4000A
400V
63kA FOR 1 SEC

267-SR-003
TAILINGS, REAGENTS &
AIR SERVICES
SWITCHROOM

180-MC-051
TAILINGS, REAGENTS
& AIR SERVICES MCC
4000A
400V
63kA FOR 1 SEC

24 PULSE
132-ML-002-VSD

KEY
EXCHANGE
ACCESS DOORS

INCH DRIVE

132-MC-023
SAG MILL MCC
630A
400V
25kA FOR 1 SEC

132-MC-024
BALL MILL MCC
630A
400V
25kA FOR 1 SEC

267-SR-001
THICKENING & PLANT
WATER SERVICES

140-MC-061
PRE-LEACH THICKENER
& PLANT SERVICES
MCC
4000A
400V
63kA FOR 1 SEC

170-MC-042
CARBON REGENERATION
KILN
400V MCC
4000A
400V
63kA FOR 1 SEC

M 3~
132-ML-002A
5250kW
BALL MILL

M 3~
132-ML-002B
5250kW
BALL MILL

REFERENCE DOC No.	REFERENCE DOCUMENT TITLE
-	-

REV	DATE	REVISION	DRN	DRA	DES	APP
A	15.10.25	ISSUED FOR REVIEW				

DRAWN BY: M.LARDIZABAL
DRAFTING CHECKED BY:
DESIGN CHECKED BY:
APPROVED BY:
DATE DRAWN: 18.09.2025

Resolute

Lycopodium
Lycopodium Minerals Pty Ltd
ABN: 34 085 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com.au

Project No.	Design Lead	Project Lead	Design Manager	Project Manager	Client
2326					

© COPYRIGHT
THIS DRAWING AND ALL THE INFORMATION IT CONTAINS REMAINS THE PROPERTY OF ECG. NO PART MAY BE COPIED OR REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION FROM ECG.

ECG ENGINEERING
2-10 ADAMS DRIVE, WELSHPOOL, WESTERN AUSTRALIA, 6106
T: +61 8 6164 3400
WWW.ECG-ENGINEERING.COM

CLIENT: RESOLUTE MINING CORPORATION LIMITED

TITLE:
DOROPO GOLD PROJECT
POWER DISTRIBUTION
344-SB-001 PLANT 11kV SWITCHBOARD
SINGLE LINE DIAGRAM

SCALE	DRAWING No.	SHEET	REV
NTS	DOR-0340-E-SL-0003	3 OF 5	A

344-OHL-001
REFER DWG
DOR-0340-E-SL-0001

U/G CABLE

FIRST POLE

344-OHL-001

400A

344-IS-001

350-IS-001

344-OHL-103

344-OHL-002
REFER DWG
DOR-0340-E-SL-0005

344-OHL-101

25A

LAST POLE

U/G CABLE

330-SS-091
WATER STORAGE DAM
MCC

330-TX-091
11kV/0.415kV
Dyn11
315kVA
ONAN
(POLE MOUNT)

330-MC-091

630A

400V
25kA FOR 1 SEC

344-OHL-104

380-IS-001
400A

FIRST POLE

344-OHL-105

80A

LAST POLE

U/G CABLE

370-SS-001
PLANT BUILDING SUBSTATION

370-RM-001

250A

11kV 3Ph
630A 16kA FOR 3 sec

100A

PR

370-TX-001

OIL
I >
OIL
I <
RELIEF
p>

NOTE 2

1250kVA
11/0.415kV
Dyn11
ONAN

EARTH BAR

370-SB-001

2000A

MEN

NEUTRAL BAR

400V 3Ph+N+E
35kA FOR 1sec

370-DB-001A
370-DB-001B
370-DB-001C
370-DB-001D
370-DB-001E
370-DB-001F
SPARE
SPARE
SPARE

400Vac TO PLANT ADMIN BUILDINGS,
WORKSHOP, WAREHOUSE

344-OHL-106

400A

318-IS-001

380-IS-001

344-OHL-107

318-SS-001
AIRSTRIP
SUBSTATION

318-TX-001
11kV/0.415kV
Dyn11
315kVA
ONAN
(POLE MOUNT)

318-SB-001

630A

400V
25kA FOR 1 SEC

330-SS-101

330-TX-101
11kV/0.415kV
Dyn11
315kVA
ONAN
(POLE MOUNT)

330-MC-101
WATER HARVESTING
DAM

630A

400V
25kA FOR 1 SEC

344-OHL-102

450-SS-411

450-TX-411
11kV/0.415kV
Dyn11
315kVA
ONAN
(POLE MOUNT)

450-SB-411
EXPLOSIVE MAGAZINE
SWITCHBOARD

630A

400V
25kA FOR 1 SEC

344-OHL-108

25A

LAST POLE

U/G CABLE

450-SS-400
MINE SERVICES AREA SUBSTATION

450-RM-400

250A

11kV 3Ph
630A 16kA FOR 3 sec

SPARE

40A

PR

450-TX-400

OIL
I >
OIL
I <
RELIEF
p>

NOTE 2

1250kVA
11/0.415kV
Dyn11
ONAN

EARTH BAR

450-SB-400

2000A

MEN

NEUTRAL BAR

400V 3Ph+N+E
35kA FOR 1sec

450-DB-400A
450-DB-400B
450-DB-400C
450-DB-400D
450-DB-400E
450-DB-400F
SPARE
SPARE
SPARE

400Vac TO MINING INFRASTRUCTURE
FACILITIES

380-SS-001
ACCOMMODATION AREA SUBSTATION 1

380-RM-001

250A

11kV 3Ph
630A 16kA FOR 3 sec

40A

PR

380-TX-001

OIL
I >
OIL
I <
RELIEF
p>

NOTE 2

500kVA
11/0.415kV
Dyn11
ONAN

EARTH BAR

380-SB-001

800A

MEN

NEUTRAL BAR

400V 3Ph+N+E
25kA FOR 1sec

380-DB-001A
380-DB-001B
380-DB-001C
380-DB-001D
380-DB-001E
380-DB-001F
SPARE
SPARE
SPARE

400Vac TO ACCOMMODATION UNITS
DISTRIBUTION BOARD

380-SS-002
ACCOMMODATION AREA SUBSTATION 2

380-RM-002

250A

11kV 3Ph
630A 16kA FOR 3 sec

SPARE

40A

PR

380-TX-002

OIL
I >
OIL
I <
RELIEF
p>

NOTE 2

500kVA
11/0.415kV
Dyn11
ONAN

EARTH BAR

380-SB-002

800A

MEN

NEUTRAL BAR

400V 3Ph+N+E
25kA FOR 1sec

380-DB-002A
380-DB-002B
380-DB-002C
380-DB-002D
380-DB-002E
380-DB-002F
SPARE
SPARE
SPARE

400Vac TO ACCOMMODATION UNITS
DISTRIBUTION BOARD

REFERENCE DOC No.	REFERENCE DOCUMENT TITLE
-	-

REV	DATE	REVISION	DRN	DRA	DES	APP
A	15.10.25	ISSUED FOR REVIEW				

DRAWN BY: M.LARDIZABAL
DRAFTING CHECKED BY:
DESIGN CHECKED BY:
APPROVED BY:
DATE DRAWN: 18.09.2025

Resolute

Project No. 2326 | Design Lead | Project Lead | Design Manager | Project Manager | Client

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com.au

© COPYRIGHT
THIS DRAWING AND ALL THE INFORMATION IT CONTAINS REMAINS THE PROPERTY OF ECG. NO PART MAY BE COPIED OR REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION FROM ECG.

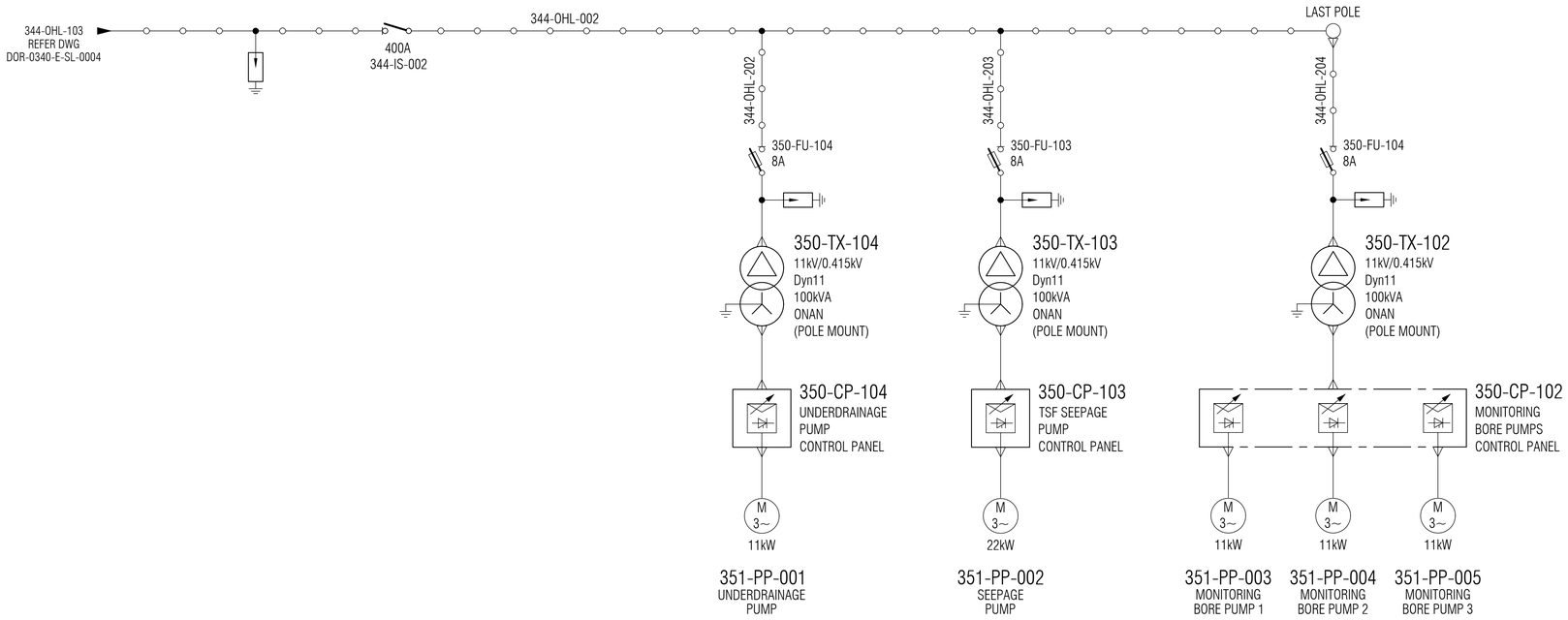
ECG ENGINEERING

2-10 ADAMS DRIVE, WELSHPOOL, WESTERN AUSTRALIA, 6106
T: +61 8 6164 3400
WWW.ECG-ENGINEERING.COM

CLIENT: RESOLUTE MINING CORPORATION LIMITED

TITLE:
DOROPO GOLD PROJECT
POWER DISTRIBUTION
SITE 11kV OVERHEAD POWER LINE
SINGLE LINE DIAGRAM

SCALE	DRAWING No.	SHEET	REV
NTS	DOR-0340-E-SL-0004	4 OF 5	A



REFERENCE DOC No.	REFERENCE DOCUMENT TITLE
-	-

REV	DATE	REVISION	DRN	DRA	DES	APP
A	15.10.25	ISSUED FOR REVIEW				

DRAWN BY: M.LARDIZABAL
DRAFTING CHECKED BY:
DESIGN CHECKED BY:
APPROVED BY:
DATE DRAWN: 18.09.2025

Resolute

Lycopodium
Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com.au

Project No.	Design Lead	Project Lead	Design Manager	Project Manager	Client
2326					

© COPYRIGHT
THIS DRAWING AND ALL THE INFORMATION IT CONTAINS REMAINS THE PROPERTY OF ECG. NO PART MAY BE COPIED OR REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION FROM ECG.

ECG ENGINEERING
2-10 ADAMS DRIVE, WELSHPOOL, WESTERN AUSTRALIA, 6106
T: +61 8 6164 3400
WWW.ECG-ENGINEERING.COM

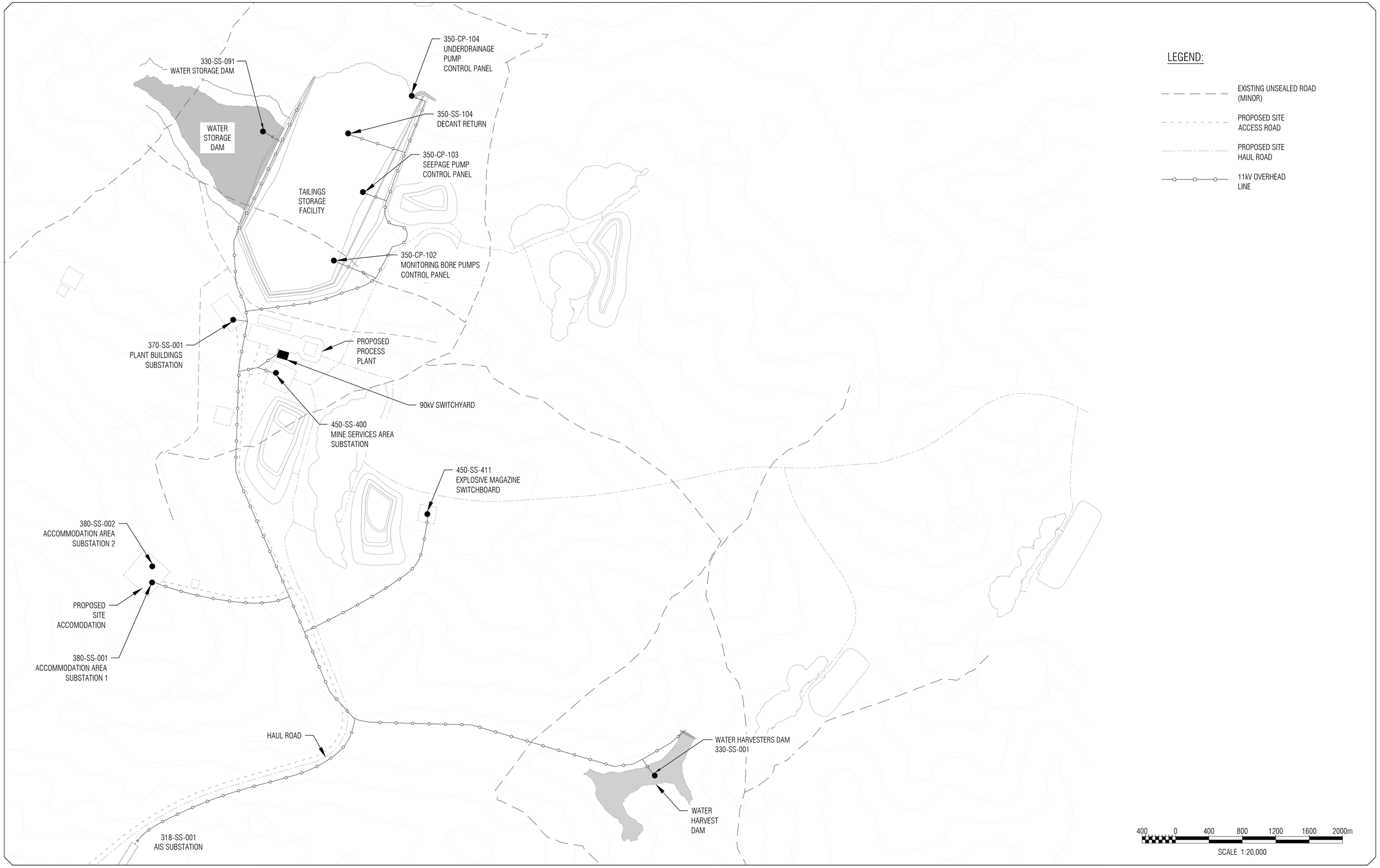
CLIENT: RESOLUTE MINING CORPORATION LIMITED

TITLE: DOROPO GOLD PROJECT
POWER DISTRIBUTION
SITE 11kV OVERHEAD POWER LINE
SINGLE LINE DIAGRAM

SCALE	DRAWING No.	SHEET	REV
NTS	DOR-0340-E-SL-0005	5 OF 5	A

APPENDIX 7.6

POWER DISTRIBUTION LAYOUT



REFERENCE DOC No.	REFERENCE DOCUMENT TITLE
-	-

REV	DATE	REVISION	DRN	DRA	DES	APP
A	15.10.25	ISSUED FOR REVIEW				

DRAWN BY: M.LARDIZABAL
DRAFTING CHECKED BY:
DESIGN CHECKED BY:
APPROVED BY:
DATE DRAWN: 23.09.2025

Resolute

Lycopodium
Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com.au

Project No.	Design Lead	Project Lead	Design Manager	Project Manager	Client
2326					

© COPYRIGHT
THIS DRAWING AND ALL THE INFORMATION IT CONTAINS REMAINS THE PROPERTY OF ECG. NO PART MAY BE COPIED OR REPRODUCED WITHOUT PRIOR WRITTEN PERMISSION FROM ECG.

ECG ENGINEERING
2-10 ADAMS DRIVE, WELSHPOOL, WESTERN AUSTRALIA, 6106
T: +61 8 6164 3400
WWW.ECG-ENGINEERING.COM

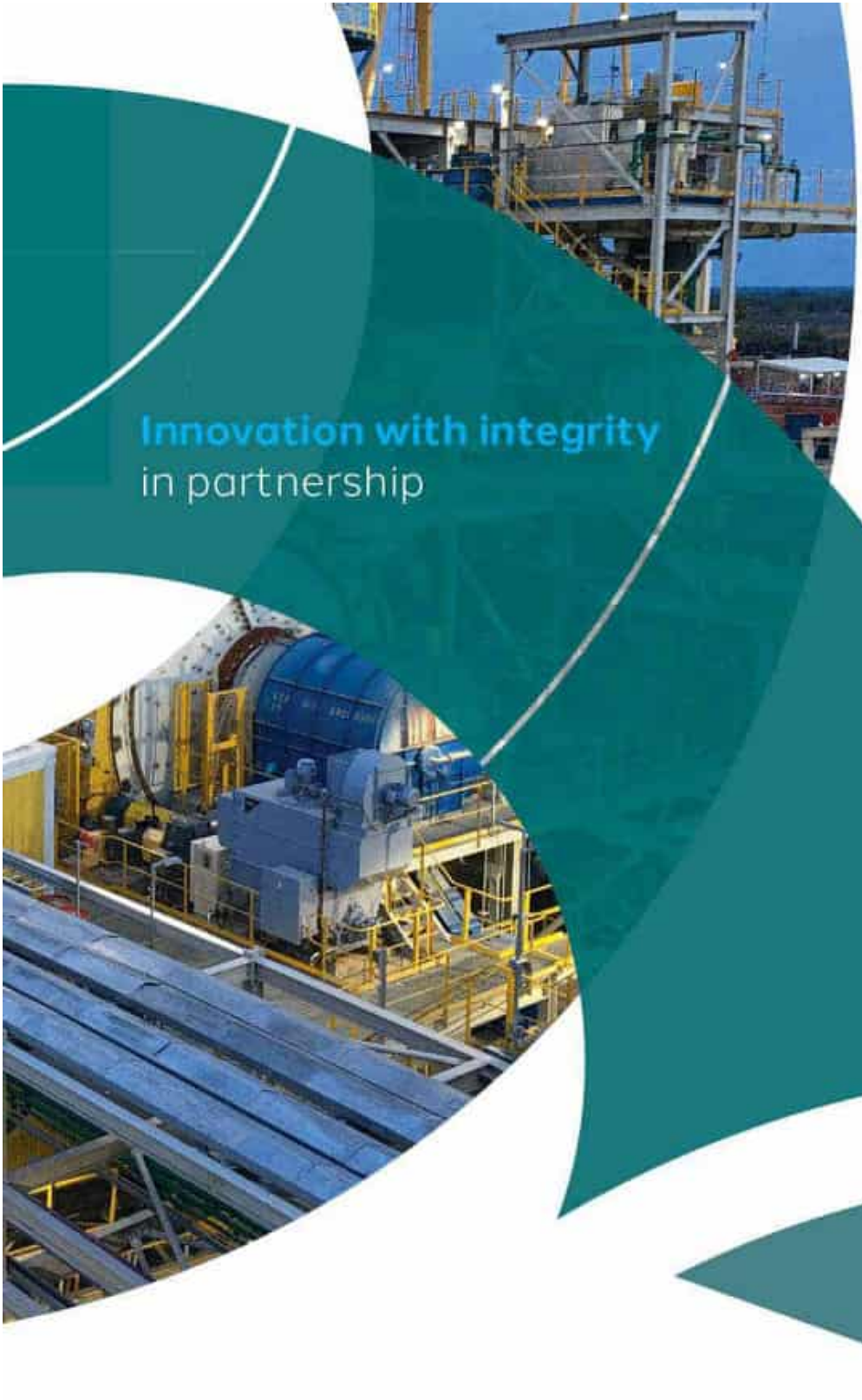
CLIENT: RESOLUTE MINING CORPORATION LIMITED

TITLE: DOROPO GOLD PROJECT
POWER DISTRIBUTION
11kV OVERHEAD LINE
GENERAL ARRANGEMENT

SCALE	DRAWING No.	SHEET	REV
1:20000	DOR-0340-E-GA-0000	1 OF 1	A

APPENDIX 7.7

LOAD LIST



ECG ENGINEERING

Prepared for:
Lycopodium

Project:
Doropo Gold Project

Cote de' Voir
2326.20

Electrical Load List

DOR-0004-E-LI-0001

REVISION: **A**

DATE: **16/10/2025**

Document Information

Client Information

Prepared For: Lycopodium
Project Name: Doropo Gold Project
Site Location: Cote de' Voir
Client Reference: 2326.20

ECG Information

Project No: DOR-0004
Discipline: Electrical
Discipline Code: E
Doc Type: List
Doc Type Code: LI
Doc No. DOR-0004-E-LI-0001
Doc Title: Electrical Load List

Document Control

Rev	Date	Description of Revision	Prepared By	Checked By	Design Approved	ECG Project Approved
A	16/10/2025	Issued for internal review	NP	JK	JK	JK

Rev		Lead Eng	Project Lead	Design Approved	Project Approved	Client Approved
A	Issued for internal review					

Copyright / Disclaimer

The contents of this document have been prepared for the exclusive use of the named Client and may not be used by any third party without the written consent of both the named Client and ECG Engineering Pty Ltd and its subsidiaries ('the Consultant'). The Client acknowledges that the contents of this document were prepared by the Consultant using the information that was made available to the Consultant and based on the Consultant's assessment of that information. The Client, in accepting the document, agrees to release the Consultant from any liability with respect to inaccuracies or omissions in the document to the extent such inaccuracies or omissions arise from information which was not provided to the Consultant. In addition, to the extent the document attempts to predict future matters, the Client acknowledges that the Consultant has used its reasonable endeavours with respect to those matters, but the Client agrees to release the Consultant from any liability with respect to future matters, shall not rely on the Consultant's predictions and shall form its own assessment of those future matters.

LOAD SUMMARY - SCENARIO 1

Maximum Demand

Switchboard Tag	Switchboard Name	Voltage (kV)	Bus Bar Rated Current (A)	Connected Load (kW)	Coincidence	Max Demand P (kW)	Max Demand Q (kvar)	Max Demand S (kVA)	Max Demand Current (A)	Max Demand PF	SWBD Bus Loading (%)	Average Demand P (kW)	Annual Average P (kW)	Annual Energy (MWh/yr)
342-SB-001	Site Main 11kV Switchboard	11	2500	37568	1.00	27643	7380	28611	1502	0.966	60%	25986	23796	208449
344-OHL-001	11kV Plant Services Overhead Line	11	300	3515	1.00	2182	1162	2472	130	0.883	43%	1315	1210	10601
344-OHL-002	11kV Decant Return Overhead Line	11	300	130	1.00	62	50	79	4	0.775	1%	57	52	460
342-DB-006	Site Main 11kV Substation L&SP Power Station Aux Distribution Board	0.4	630	315	1.00	252	122	280	404	0.900	64%	189	174	1523
344-SB-001	Plant 11kV Switchboard	11	2500	33608	1.00	25147	6045	25864	1357	0.972	54%	24424	22359	195865
120-MC-011	Primary Crusher Area 400V Motor Control Centre	0.4	2500	582	1.00	388	185	430	621	0.903	25%	344	268	2346
130-MC-021	Stockpiling, Reclaim & Pebble Crushing Area 400V Motor Control Centre	0.4	3600	1363	1.00	1030	265	1064	1535	0.969	43%	959	844	7394
130-MC-022	Grinding Area 400V Motor Control Centre	0.4	3600	1167	1.00	866	426	965	1392	0.897	39%	787	700	6128
132-MC-023	SAG Mill Area 400V Motor Control Centre	0.4	630	107	1.00	80	65	103	149	0.779	24%	80	74	646
132-MC-024	Ball Mill Area 400V Motor Control Centre	0.4	630	100	1.00	75	0	75	108	1.000	17%	75	69	604
140-MC-061	Pre-Leach Thickening & Plant Water Area 400V Motor Control Centre	0.4	3600	1931	1.00	1444	696	1603	2314	0.901	64%	1402	1290	11296
	-	0.4	3600	0	1.00	0	0	0	0	-	0%	0	0	0
170-MC-041	Elution & Gold Room Area 400V Motor Control Centre	0.4	3600	1526	1.00	11		1225	1768	0.936	49%	1013	932	8161
170-MC-042	Carbon Regenration Kiln Area 400V Motor Control Centre	0.4	3600	1544	1.00	11		1377	1987	0.841	55%	888	817	7160
160-MC-031	CIL Area 400V Motor Control Centre	0.4	3600	2160	1.00	16		1708	2466	0.951	68%	1612	1483	12995
180-MC-051	Tailings,Reagents & Air Services Area 400V Motor Control Centre	0.4	2500	1303	1.00	965	415	1051	1516	0.919	61%	895	824	7214
450-SB-411	Explosive Magazine Area 400V Switchboard	0.4	630	250	1.00	150	73	167	241	0.900	38%	100	92	806
330-MC-091	Water Storage Dam Area 400V Motor Control Centre	0.4	630	103	1.00	77	58	96	139	0.801	22%	77	71	621
370-SB-001	Plant Building Area 400V Switchboard	0.4	2000	750	1.00	450	218	500	722	0.900	36%	225	207	1813
450-SB-400	MSA Main 400V Switchboard	0.4	2000	1074	1.00	648	322	723	1044	0.896	52%	329	302	2648
380-SB-001	Permanent Village Area 400V Switchboard	0.4	800	530	1.00	318	165	358	516	0.887	65%	173	159	1395
380-SB-002	Permanent Village Area 400V Switchboard	0.4	800	400	1.00	240	116	267	385	0.900	48%	120	110	967
318-SB-001	Airstrip Area 400V Switchboard	0.4	630	40	1.00	24	12	27	38	0.900	6%	16	15	129
330-MC-101	Water Harvesting Dam Area 400V Motor Control Centre	0.4	630	368	1.00	276	200	341	491	0.810	78%	276	254	2223
350-MC-101	Decant Return Area 400V Motor Control Centre	0.4	1000	58	1.00	44	34	55	80	0.790	8%	44	40	351
350-CP-102	TSF Underdrainage Pump Control Panel	0.4	1000	12	1.00	9	8	12	18	0.740	2%	9	8	73
350-CP-103	TSF Seepage Pump Control Panel	0.4	1000	24	1.00	4	3	5	7	0.740	1%	2	2	14
350-CP-104	TSF Ground Water Pump Control Panel	0.4	1000	36	1.00	5	5	7	11	0.740	1%	3	2	22

Confirm revised load with changes to carbon regen kiln as discussed 22/10

LOAD SUMMARY - SCENARIO 2

Emergency Loading

Switchboard Tag	Switchboard Name	Voltage (kV)	Bus Bar Rated Current (A)	Connected Load (kW)	Coincidence	Max Demand P (kW)	Max Demand Q (kvar)	Max Demand S (kVA)	Max Demand Current (A)	Max Demand PF	SWBD Bus Loading (%)	Average Demand P (kW)	Annual Average P (kW)	Annual Energy (MWh/yr)
342-SB-001	Site Main 11kV Switchboard	11	2500	2125	1.00	1594	205	1607	84	0.992	3%	-	-	-
344-OHL-001	11kV Plant Services Overhead Line	11	300	0	1.00	0	0	0	0	-	0%	-	-	-
344-OHL-002	11kV Decant Return Overhead Line	11	300	0	1.00	0	0	0	0	-	0%	-	-	-
342-DB-006	Site Main 11kV Substation L&SP Power Station Aux Distribution Board	0.4	630	0	1.00	0	0	0	0	-	0%	-	-	-
344-SB-001	Plant 11kV Switchboard	11	2500	2125	1.00	1594	205	1607	84	0.992	3%	-	-	-
120-MC-011	Primary Crusher Area 400V Motor Control Centre	0.4	2500	0	1.00	0	0	0	0	0.640	0%	-	-	-
130-MC-021	Stockpiling, Reclaim & Pebble Crushing Area 400V Motor Control Centre	0.4	3600	16	1.00	12	11	16	24	0.740	1%	-	-	-
130-MC-022	Grinding Area 400V Motor Control Centre	0.4	3600	207	1.00	155	65	168	243	0.923	7%	-	-	-
132-MC-023	SAG Mill Area 400V Motor Control Centre	0.4	630	107	1.00	80	65	103	149	0.779	24%	-	-	-
132-MC-024	Ball Mill Area 400V Motor Control Centre	0.4	630	100	1.00	75	0	75	108	1.000	17%	-	-	-
140-MC-061	Pre-Leach Thickening & Plant Water Area 400V Motor Control Centre	0.4	3600	16	1.00	12	11	16	24	0.740	1%	-	-	-
	-	0.4	3600	0	1.00	0	0	0	0	-	0%	-	-	-
170-MC-041	Elution & Gold Room Area 400V Motor Control Centre	0.4	3600	733	1.00	550	80	556	802	0.990	22%	-	-	-
170-MC-042	Carbon Regenration Kiln Area 400V Motor Control Centre	0.4	3600	1	1	1	0	1	1	0.850	0%	-	-	-
160-MC-031	CIL Area 400V Motor Control Centre	0.4	3600	1151	1	1151	0	864	1247	0.999	35%	-	-	-
180-MC-051	Tailings,Reagents & Air Services Area 400V Motor Control Centre	0.4	2500	0	1	0	0	0	0	-	0%	-	-	-
	-			0				0	-	-	-	-	-	-
450-SB-411	Explosive Magazine Area 400V Switchboard	0.4	630	0	1.00	0	0	0	0	-	0%	-	-	-
330-MC-091	Water Storage Dam Area 400V Motor Control Centre	0.4	630	0	1.00	0	0	0	0	-	0%	-	-	-
370-SB-001	Plant Building Area 400V Switchboard	0.4	2000	0	1.00	0	0	0	0	-	0%	-	-	-
450-SB-400	MSA Main 400V Switchboard	0.4	2000	0	1.00	0	0	0	0	-	0%	-	-	-
380-SB-001	Permanent Village Area 400V Switchboard	0.4	800	0	1.00	0	0	0	0	-	0%	-	-	-
380-SB-002	Permanent Village Area 400V Switchboard	0.4	800	0	1.00	0	0	0	0	-	0%	-	-	-
318-SB-001	Airstrip Area 400V Switchboard	0.4	630	0	1.00	0	0	0	0	-	0%	-	-	-
330-MC-101	Water Harvesting Dam Area 400V Motor Control Centre	0.4	630	0	1.00	0	0	0	0	-	0%	-	-	-
	-			0	1.00	0	0	0	-	-	-	-	-	-
350-MC-101	Decant Return Area 400V Motor Control Centre	0.4	1000	0	1.00	0	0	0	0	-	0%	-	-	-
350-CP-102	TSF Underdrainage Pump Control Panel	0.4	1000	0	1.00	0	0	0	0	-	0%	-	-	-
350-CP-103	TSF Seepage Pump Control Panel	0.4	1000	0	1.00	0	0	0	0	-	0%	-	-	-
350-CP-104	TSF Ground Water Pump Control Panel	0.4	1000	0	1.00	0	0	0	0	-	0%	-	-	-
													-	
													-	
													-	
													-	
													-	
													-	

Confirm e-power loads have been captured correctly from the MEL - overall e-power on CIL agis should be ~1,620 kW (even 'annualised avg demand powers' are larger than 1151kW?)

TRANSFORMER LOADING

Transformer Tag	Transformer Name	TX Power Rating (kVA)	TX HV (kV)	TX LV (kV)	SWBD Connected to TX Secondary	Load Max Demand P (kW)	Load Max Demand Q (kVAr)	Load Max Demand S (kVA)	TX Leakage Q (kVAR)	TX Max Demand S (kVA)	TX Max Demand PF	HV Max Dmd Current (A)	LV Max Dmd Current (A)	TX Loading	Comments
340-TX-001	Main Switchyard Transformer	45000	90	11	342-SB-001	27643	7380	28611	2151	29240	0.945	188	1535	65%	
340-TX-002	Main Switchyard Transformer	45000	90	11	342-SB-001	27643	7380	28611	2151	29240	0.945	188	1535	65%	
342-TX-006	Site Main 11kV Substation L&SP Power Station Aux Transformer	500	11	0.4	342-DB-006	252	122	280	6	283	0.891	15	408	57%	
120-TX-011	Primary Crusher Motor Control Centre Transformer	1250	11	0.4	120-MC-011	388	185	430	8	434	0.896	23	626	35%	
130-TX-021	Stockpiling, Reclaim & Pebble Crushing Motor Control Centre Transformer	2500	11	0.4	130-MC-021	1030	265	1064	28	1071	0.962	56	1546	43%	
130-TX-022	Grinding Motor Control Centre Transformer	2500	11	0.4	130-MC-022	866	426	965	23	975	0.888	51	1407	39%	
140-TX-061	Pre-Leach Thickening & Plant Water Motor Control Centre Transformer	2500	11	0.4	140-MC-061	1444	696	1603	64	1632	0.885	86	2356	65%	
160-TX-031	CIL Motor Control Centre Transformer	2500	11	0.4	160-MC-031	1624	528	1708	73	1732	0.938	91	2500	69%	
170-TX-041	Elution Motor Control Centre Transformer	2500	11	0.4	170-MC-041	1147	431	1225	37	1239	0.926	65	1788	50%	
170-TX-042	Carbon Regeneration Kiln Motor Control Centre Transformer	2500	11	0.4	170-MC-042	1158	745	1377	47	1403	0.826	74	2025	56%	
180-TX-051	Tailings, Reagents & Air Services Motor Control Centre Transformer	2500	11	0.4	180-MC-051	965	415	1051	27	1062	0.909	56	1532	42%	
450-TX-411	Explosive Magazine Switchboard Transformer	315	11	0.4	450-SB-411	150	73	167	4	168	0.891	9	243	53%	
330-TX-091	Water Storage Dam Motor Control Centre Transformer	315	11	0.4	330-MC-091	77	58	96	1	97	0.795	5	140	31%	
318-TX-001	Air Strip Switchboard Transformer	100	11	0.4	318-SB-001	24	12	27	0	27	0.896	1	39	27%	
330-TX-101	Water Harvesting Dam Motor Control Centre Transformer	500	11	0.4	330-MC-101	276	200	341	10	346	0.797	18	500	69%	
350-TX-101	Decant Return Motor Control Centre Transformer	100	11	0.4	350-MC-101	44	34	55	1	56	0.779	3	81	56%	
350-TX-102	TSF Ground Water Control Panel Transformer	100	11	0.4	350-CP-102	9	8	12	0	12	0.738	1	18	12%	
350-TX-103	TSF Seepage Control Panel Transformer	100	11	0.4	350-CP-103	4	3	5	0	5	0.739	0	7	5%	
350-TX-104	TSF Underdrainage Control Panel Transformer	100	11	0.4	350-CP-104	5	5	7	0	7	0.739	0	11	7%	
370-TX-001	Plant Building Main Switchboard 400V Transformer	1250	11	0.4	370-SB-001	450	218	500	10	505	0.892	26	728	40%	
450-TX-400	MSA Main Switchboard 400V Transformer	1250	11	0.4	450-SB-400	648	322	723	22	733	0.884	38	1058	59%	
380-TX-001	Permanent Village Area Switchboard 1 400V Transformer	500	11	0.4	380-SB-001	318	165	358	11	363	0.875	19	524	73%	
380-TX-002	Permanent Village Area Switchboard 2 400V Transformer	500	11	0.4	380-SB-002	240	116	267	6	269	0.891	14	389	54%	

INDIVIDUAL LOADS

Switchboard Tag	Voltage (kV)	Tier / Module	Module New / Existing	MCC Module Type	CB Size (A)	Load Type	Load Type Converted	MEL Load Type	LCS Type	Area Code	Equip Code	Seq No.	Equipment Tag	Equipment Name	Motor Poles	Name-plate (kW)	Motor FLA (A)	Qty	Load Factor	Max Demand Factor	Duty / Standby	Manual Efficiency	Efficiency	Manual Power Factor	Power Factor	Connected Load (kW)	Max Demand P (kW)	Max Demand Q (kVAR)	Average Demand Factor	Average Demand P (kW)	Plant Availability	Annual Average P (kW)	Scenario 1	Scenario 2	Scenario 3	Exclude From Lumped Load	Notes	Schematic Drawing No.	Line Rev
120-MC-011	0.4			DOL-01		H02	Variable	Fixed	LCS-01	121	PP	001	121-PP-001	PRIMARY CRUSHER WATER PUMP	4	5.5	11	1	0.75	1	Duty		0.875		0.998	6.3	4.7	0.3	1.00	4.7	0.75	3.5	1	0	0				A
120-MC-011	0.4			VSD-01		M01	Fixed	Variable	LCS-02	121	FE	001	121-FE-001	PRIMARY CRUSHER APRON FEEDER	4	75	132	1	0.75	1	Duty		0.950		0.820	78.9	59.2	41.3	1.00	59.2	0.75	44.4	1	0	0				A
120-MC-011	0.4			FDR-01		M01	Fixed	Dependent	-	121	ZM	027	121-ZM-027	PRIMARY FEEDER LUBRICATION UNIT	4	1	2	1	0.75	1	Duty		0.839		0.730	1.2	0.9	0.8	1.00	0.9	0.75	0.7	1	0	0				A
120-MC-011	0.4			VSD-01		H01	Variable	Variable	LCS-02	121	SC	001	121-SC-001	PRIMARY VIBRATING GRIZZLY FEEDER	4	37	66	1	0.75	1	Duty		0.915		0.996	40.4	30.3	2.7	1.00	30.3	0.75	22.7	1	0	0				A
120-MC-011	0.4			DOL-03		M01	Fixed	Fixed	LCS-01	121	CR	001	121-CR-001	PRIMARY CRUSHER	4	200	347	1	0.75	0.7	Duty		0.963		0.810	207.6	109.0	78.9	0.60	93.4	0.75	70.1	1	0	0				A
120-MC-011	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	121	ZM	005	121-ZM-005	PRIMARY CRUSHER HYDRAULIC POWER PACK	4	3.7	8	1	0.75	1	Duty		0.881		0.700	4.2	3.2	3.2	1.00	3.2	0.75	2.4	1	0	0				A
120-MC-011	0.23			FDR-01		M01	Fixed	-	-	121	ZM	006	121-ZM-006	PRIMARY CRUSHER LUBRICATION UNIT	4	0.05	0	1	0.75	1	Duty		0.681		0.640	0.1	0.1	0.1	1.00	0.1	0.75	0.0	1	1	0				A
120-MC-011	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	121	DC	001	121-DC-001	PRIMARY CRUSHER DUST COLLECTOR	4	5.5	11	1	0.75	1	Duty		0.904		0.770	6.1	4.6	3.8	1.00	4.6	0.75	3.4	1	0	0				A
120-MC-011	0.4			VSD-02		H02	Variable	Variable	LCS-02	121	CV	001	121-CV-001	PRIMARY CRUSHER DISCHARGE CONVEYOR CV01	4	110	192	1	0.75	1	Duty		0.933		0.999	117.8	88.4	4.0	1.00	88.4	0.75	66.3	1	0	0				A
120-MC-011	0.23			FDR-01		Z02	Fixed	Fixed	-	121	WE	001	121-WE-001	PRIMARY CRUSHER DISCHARGE CONVEYOR WEIGHTOMETER	4	1.5	6	1	0.75	1	Duty		1.000		1.000	1.5	1.1	0.0	1.00	1.1	0.75	0.8	1	0	0				A
120-MC-021	0.4			VSD-02		H02	Variable	Variable	LCS-02	121	CV	002	121-CV-002	STOCKPILE FEED CONVEYOR CV02	4	280	490	1	0.75	1	Duty		0.942		0.998	297.2	222.9	14.1	1.00	222.9	0.75	167.2	1	0	0				A
120-MC-011	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	121	CN	001	121-CN-001	CRUSHING AREA MAINTENANCE CRANE	4	7.87	15	1	0.75	0.2	Duty		0.912		0.770	8.6	1.3	1.1	0.05	0.3	0.75	0.2	1	0	0				A
120-MC-011	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	121	PP	002	121-PP-002	CRUSHING AREA DRIVE-IN SUMP PUMP	4	22	42	1	0.75	1	Duty		0.926		0.740	23.7	17.8	16.2	0.10	1.8	0.92	1.6	1	0	0				A
130-MC-022	0.4			DOL-03		M01	Fixed	Fixed	LCS-01	131	CV	003	131-CV-003	SAG MILL FEED CONVEYOR CV03	4	185	322	1	0.75	1	Duty		0.961		0.810	192.4	144.3	104.5	1.00	144.3	0.75	108.2	1	0	0				A
130-MC-022	0.23			FDR-01		Z02	Fixed	Fixed	-	131	WE	002	131-WE-002	SAG MILL FEED CONVEYOR WEIGHTOMETER	4	1.5	6	1	0.75	1	Duty		1.000		1.000	1.5	1.1	0.0	1.00	1.1	0.75	0.8	1	0	0				A
130-MC-021	0.4			VSD-01		H01	Variable	Variable	LCS-02	131	FE	001	131-FE-001	RECLAIM FEEDER 1	4	75	132	1	0.75	1	Duty		0.922		0.981	81.4	61.0	12.1	1.00	61.0	0.92	56.1	1	0	0				A
130-MC-021	0.23			FDR-01		M01	Fixed	Fixed	-	131	ZM	022A	131-ZM-022A	RECLAIM FEEDER 1 LUBRICATION SYSTEM	4	0.15	1	1	0.75	1	Duty		0.681		0.640	0.2	0.2	0.2	1.00	0.2	0.92	0.2	1	0	0				A
130-MC-021	0.4			VSD-01		H02	Variable	Variable	LCS-02	131	FE	002	131-FE-002	RECLAIM FEEDER 2	4	75	132	1	0.75	1	Duty		0.922		0.981	81.4	61.0	12.1	1.00	61.0	0.92	56.1	1	0	0				A
130-MC-021	0.23			FDR-01		M01	Fixed	Fixed	-	131	ZM	022B	131-ZM-022B	RECLAIM FEEDER 2 LUBRICATION SYSTEM	4	0.15	1	1	0.75	1	Duty		0.681		0.640	0.2	0.2	0.2	1.00	0.2	0.92	0.2	1	0	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	131	DC	001	131-DC-001	RECLAIM DUST COLLECTOR	4	5.5	11	1	0.75	1	Duty		0.904		0.770	6.1	4.6	3.8	1.00	4.6	0.92	4.2	1	0	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	131	FA	002	131-FA-002	RECLAIM TUNNEL VENTILATION FAN	4	15	29	1	0.75	1	Duty		0.922		0.740	16.3	12.2	11.1	1.00	12.2	0.92	11.2	1	1	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	131	PP	002	131-PP-002	RECLAIM AREA SUMP PUMP	4	22	42	1	0.75	1	Duty		0.926		0.740	23.7	17.8	16.2	0.10	1.8	0.92	1.6	1	0	0				A
130-MC-022	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	131	FE	003	131-FE-003	SAG MILL CHARGING FEEDER	4	5.5	11	1	0.75	1	Duty		0.904		0.770	6.1	4.6	3.8	1.00	4.6	0.92	4.2	1	0	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	131	DC	002	131-DC-002	LIME SILO DUST COLLECTOR	4	2.2	5	1	0.75	1	Duty		0.878		0.700	2.5	1.9	1.9	1.00	1.9	0.92	1.7	1	0	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	131	ZM	003	131-ZM-003	LIME SILO BIN ACTIVATOR	4	1.1	2	1	0.75	1	Duty		0.858		0.700	1.3	1.0	1.0	1.00	1.0	0.92	0.9	1	0	0				A
130-MC-021	0.4			FDR-01		M01	Fixed	0	LCS-01	131	ZM	004	131-ZM-004	LIME SILO ROTARY VALVE	4	0.37	1	1	0.75	1	Duty		0.734		0.610	0.5	0.4	0.5	1.00	0.4	0.92	0.3	1	0	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	131	PP	003	131-PP-003	RECLAIM TUNNEL SUMP PUMP	4	22	42	1	0.75	1	Duty		0.926		0.740	23.7	17.8	16.2	0.10	1.8	0.92	1.6	1	0	0				A
344-SB-001	11			VSD-20		H20	Variable	Variable	LCS-02	132	ML	001	132-ML-001	SAG MILL	4	10000	598	1	0.75	1	Duty		0.940		0.990	10637.5	7978.1	1136.8	1.00	7978.1	0.92	7339.9	1	0	0				A
132-MC-023	0.4			DOL-02		M01	Fixed	Fixed	LCS-01	132	ZM	004	132-ZM-004	SAG MILL GEARBOX / PINION LUBRICATION SKID	4	50	91	1	0.75	1	Duty		0.946		0.780	52.8	39.6	31.8	1.00	39.6	0.92	36.5	1	1	0				A
132-MC-023	0.4			DOL-02		M01	Fixed	Fixed	LCS-01	132	ZM	005	132-ZM-005	SAG MILL BEARING LUBRICATION SKID	4	50	91	1	0.75	1	Duty		0.946		0.780	52.8	39.6	31.8	1.00	39.6	0.92	36.5	1	1	0				A
132-MC-023	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	132	ZM	033	132-ZM-033	SAG MILL RING GEAR GREASE SYSTEM	4	1.1	2	1	0.75	1	Duty		0.858		0.700	1.3	1.0	1.0	1.00	1.0	0.92	0.9	1	1	0				A
130-MC-022	0.4			RDOL-02		M01	Fixed	Fixed	LCS-03	132	DV	001	132-DV-001	SAG MILL INCHING DRIVE	4	90	159	1	0.75	1	Standby		0.953		0.810	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	1	0				A
130-MC-022	0.4			FDR-02		M01	Fixed	Fixed	-	132	ZM	010	132-ZM-010	MILL LINER BOLT REMOVAL TOOL	4	37.75	68	1	0.75	1	Standby		0.944		0.790	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	1	0				A
130-MC-022	0.4			FDR-02		C02	Feeder	Feeder	-	132	ZM	011	132-ZM-011	SAG MILL LINER HANDLER	4	120	210	1	0.75	1	Standby		1.000		0.850	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	1	0				A
130-MC-022	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	132	SC	002	132-SC-002	SAG MILL DISCHARGE SCREEN	4	22	42	1	0.75	1	Duty		0.926		0.740	23.7	17.8	16.2	1.00	17.8	0.92	16.4	1	0	0				A
130-MC-022	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	132	PP	022	132-PP-022	MILL FEED END SUMP PUMP 1	4	22	42	1	0.75	1	Duty		0.926		0.740	23.7	17.8	16.2	0.20	3.6	0.92	3.3	1	0	0				A
130-MC-022	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	132	PP	021	132-PP-021	MILLING AREA DRIVE IN SUMP PUMP	4	30	57	1	0.75	1	Duty		0.932		0.720	32.2	24.1	23.3	0.20	4.8	0.92	4.4	1	0	0				A
130-MC-022	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	132	PP	023	132-PP-023	MILL FEED END SUMP PUMP 2	4	30	57	1	0.75	1	Duty		0.932		0.720	32.2	24.1	23.3	0.20	4.8	0.92	4.4	1	0	0				A
130-MC-022	0.4			FDR-01		M01	Fixed	Fixed	-	132	HT	002	132-HT-002	BALL MILL CHARGING HOIST	4	15	29	1	0.75	0.2	Duty		0.922		0.740	16.3	12.2	11.1	1.00	12.2	0.92	11.2	1	0	0				A
344-SB-001	11			VSD-20		H20	Variable	Variable	LCS-02	132	ML	002	132-ML-002	BALL MILL	4	10000	598	1	0.75	1	Duty		0.940		0.990	10637.5	7978.1	1136.8	1.00	7978.1	0.92	7339.9	1	0	0				A
132-MC-024	0.4			DOL-01		Z02	Fixed	Fixed	LCS-01	132	ZM	017	132-ZM-017	BALL MILL GEARBOX / PINION LUBRICATION SKID	4	50	91	1	0.75	1	Duty		1.000		1.000	50.0	37.5	0.0	1.00	37.5	0.92	34.5	1	1	0				A
132-MC-024	0.4			DOL-01		Z02	Fixed	Fixed	LCS-01	132	ZM	018	132-ZM-018	BALL MILL BEARING LUBRICATION SKID	4	50	91	1	0.75	1	Duty		1.000		1.000	50.0	37.5	0.0	1.00	37.5	0.92	34.5	1	1	0				A
132-MC-024	0.4			RDOL-02		M01	Fixed	Fixed	LCS-03	132	DV	002	132-DV-002	BALL MILL INCHING DRIVE	4	90	159	1	0.75	1	Standby		0.953		0.810	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	1	0				A
344-SB-001	11			VSD-20		H20	Variable	Variable	LCS-02	133	PP	001	133-PP-001	Cyclone Feed Pump 1 Motor	4	700	44	1	0.75	1	Duty		0.925		0.990	756.9	567.7	80.9	1.00	567.7	0.92	522.3	1	0	0				A
344-SB-001	11			VSD-20		H20	Variable	Variable	LCS-02	133	PP	002	133-PP-002	Cyclone Feed Pump 2 Motor	4	700	44	1	0.75	1	Standby		0.925		0.990	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
132-MC-022	0.4			FDR-01		M01	Fixed	Fixed	-	133	CN	001	133-CN-001	CYCLONE AREA DAVIT CRANE	4	8.15	15	1	0.75	0.2	Duty		0.912		0.770	8.9	1.3	1.1	0.05	0.3	0.92	0.3	1	0	0				A
130-MC-022	0.4			VSD-02		H02	Variable	Variable	LCS-02	134	PP	003	134-PP-003	GRAVITY FEED PUMP	4	250	443	1	0.75	1	Duty		0.942		0.998	265.3	199.0	12.6	1.00	199.0	0.92	183.1	1	0	0				A
130-MC-022	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	134	SC	001	134-SC-001	GRAVITY SCREEN 1	4	15	29	1	0.75	1	Duty		0.922		0.740	16.3	12.2	11.1	1.00	12.2	0.92	11.2	1	0	0				A
130-MC-022	0.4			FDR-02		C02	Feeder	Feeder	-	134	GC	001	134-GC-001	GRAVITY CONCENTRATOR 1	4	75	132	1	0.75	1	Duty		1.000		0.850	75.0	56.3	34.9	1.00	56.3	0.92	51.8	1	0	0				A
130-MC-022	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	134	SC	002	134-SC-002	GRAVITY SCREEN 2	4	15	29	1	0.75	1	Duty		0.922		0.740	16.3	12.2	11.1	1.00	12.2	0.92	11.2	1	0	0				A
130-MC-022	0.4			FDR-02		C02	Feeder	Feeder	-	134	GC	002	134-GC-002	GRAVITY CONCENTRATOR 2	4	75	132	1	0.75	1	Duty		1.000		0.850	75.0	56.3	34.9	1.00	56.3	0.92	51.8	1	0	0				A
130-MC-022	0.4			FDR-01		C02	Feeder	Feeder	-	134	HT	001	134-HT-001	GRAVITY CONCENTRATOR HOIST	4	5.5	11	1	0.75	0.2	Duty		1.000		0.850	5.5	0.8	0.5	0.05	0.2	0.92	0.2	1	0	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	136	CV	004	136-CV-004	PEBBLE RECIRCULATION CONVEYOR CV04	4	55	98	1	0.75	1	Duty		0.947		0.790	58.1	43.5	33.8	1.00	43.5	0.92	40.1	1	0	0				A
130-MC-021	0.4			VSD-01		Z02	Fixed	Fixed	-	136	WE	001	136-WE-001	PEBBLE RECIRCULATION CONVEYOR CV04 WEIGHTOMETER	4	1.5	3	1	0.75	1	Duty		1.000		1.000	1.5	1.1	0.0	1.00	1.1	0.92	1.0	1	0	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	136	CV	005	136-CV-005	PEBBLE CRUSHER FEED CONVEYOR CV05	4	55	98	1	0.75	1	Duty		0.947		0.790	58.1	43.5	33.8	1.00	43.5	0.92	40.1	1	0	0				A
130-MC-021	0.4			FDR-02		Z02	Fixed	Fixed	-	136	WE	002	136-WE-002	PEBBLE CRUSHER FEED CONVEYOR CV05 WEIGHTOMETER	4	1.5	3	1	0.75	1	Duty		1.000		1.000	1.5	1.1	0.0	1.00	1.1	0.92	1.0	1	0	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	136	MA	001	136-MA-001	PEBBLE CRUSHER FEED CONVEYOR CV05 TRAMP METAL MAGNET	4	15	29	1	0.75	1	Duty		0.922		0.740	16.3	12.2	11.1	1.00	12.2	0.92	11.2	1	0	0				A
130-MC-021	0.4			FDR-02		Z01	Fixed	Fixed	-	136	MD	001	136-MD-001	PEBBLE CRUSHER FEED CONVEYOR CV05 METAL DETECTOR	4	0.2	1	1	0.75	1	Duty		1.000		0.900	0.2	0.2	0.1	1.00	0.2	0.92	0.1	1	0	0				A
130-MC-021	0.4			VSD-01		H01	Variable	Variable	LCS-02	136	FE	001	136-FE-001	PEBBLE CRUSHER FEEDER 1	4	7.4	14	1	0.75	1	Duty		0.875		0.998	8.5	6.3	0.4	1.00	6.3	0.92	5.8	1	0	0				A
130-MC-021	0.4			FDR-01		H02	Variable	Fixed	LCS-02	136	CR	001	136-CR-001	PEBBLE CRUSHER 1	4	220	391	1	0.75	1	Duty		0.940		0.999	234.0	175.5	7.9	1.00	175.5	0.92	161.4	1	0	0				A
130-MC-021	0.4			VSD-01		H01	Variable	Variable	LCS-02	136	FE	002	136-FE-002	PEBBLE CRUSHER FEEDER 2	4	7.4	14	1	0.75	1	Duty		0.875		0.998	8.5	6.3	0.4	1.00	6.3	0.92	5.8	1	0	0				A
130-MC-021	0.4			VSD-02		H02	Variable	Fixed	LCS-02	136	CR	002	136-CR-002	PEBBLE CRUSHER 2	4	220	391	1	0.75	1	Duty		0.940		0.999	234.0	175.5	7.9	1.00	175.5	0.92	161.4	1	0	0				A
130-MC-021	0.4			VSD-01		H01	Variable	Variable	LCS-02	136	CV	006	136-CV-006	CRUSHED PEBBLE RETURN CONVEYOR CV06	4	22	42	1	0.75	1	Duty		0.897		0.995	24.5	18.4	1.8	1.00	18.4	0.92	16.9	1	0	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	161	PP	006	161-PP-006	PEBBLE CRUSHING AREA SUMP PUMP	4	22	42	1	0.75	1	Duty		0.926		0.740	23.7	17.8	16.2	0.01	0.2	0.92	0.2	1	0	0				A
140-MC-061	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	141	SN	001	141-SN-001	TRASH SCREEN	4	45	82	1	0.75	1	Duty		0.946		0.780	47.5	35.7	28.6	1.00	35.7	0.92	32.8	1	0	0				A
140-MC-061	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	142	TH	001	142-TH-001	PRE-LEACH THICKENER	4	15	29	1	0.75	1	Duty		0.922		0.740	16.3	12.2	11.1	1.00	12.2	0.92	11.2	1	1	0				A
140-MC-061	0.4			VSD-01		H02	Variable	Variable	LCS-02	161	PP	003	161-PP-003	LEACH FEED PUMP 1	4	200	347	1	0.75	1	Duty		0.940		0.999	212.7	159.5	7.1	1.00	159.5	0.92	146.8	1	0	0				A
140-MC-061	0.4			VSD-01		H02	Variable	Variable	LCS-02	161	PP	004	161-PP-004	LEACH FEED PUMP 2	4	200	347	1	0.75	1	Duty		0.940		0.999	212.7	159.5	7.1	1.00	159.5	0.92	146.8	1	0	0				A
140-MC-061	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	161	PP	005	161-PP-005	PRE-LEACH THICKENING AREA SUMP PUMP	4	22	42	1	0.75	1	Duty		0.926		0.740	23.7	17.8	16.2	0.20	3.6	0.92	3.3	1	0	0				A
160-MC-031	0.4			VSD-02		H02	Variable	Variable	LCS-02	162	AG	001	162-AG-001	LEACH TANK 1 AGITATOR	4	180	313	1	0.75	1	Duty		0.938		0.999	191.8	143.9	6.4	1.00	143.9	0.92	132.4	1	1	0				A
160-MC-031	0.4			VSD-02		H02	Variable	Variable	LCS-02	162	AG	002	162-AG-002	LEACH TANK 2 AGITATOR	4	180	313	1	0.75	1	Duty		0.938		0.999	191.8	143.9	6.4	1.00	143.9	0.92	132.4	1	1	0				A
160-MC-031	0.4			VSD-02		H02	Variable	Variable	LCS-02	162	AG	003	162-AG-003	LEACH TANK 3 AGITATOR	4	180	313	1	0.75	1	Duty		0.938		0.999	191.8	143.9	6.4	1.00	143.9	0.92	132.4	1	1	0				A
160-MC-031	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	162	SC	001A	162-SC-001A	CIL TANK 1 INTERTANK SCREEN 1	4	11	21	1	0.75	1	Duty		0.915		0.740	12.0	9.0	8.2	1.00	9.0	0.92	8.3	1	0	0				A
160-MC-031	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	162	SC	001B	162-SC-001B	CIL TANK 1 INTERTANK SCREEN 2	4	11	21	1	0.75	1	Duty		0.915		0.740	12.0	9.0	8.2	1.00	9.0	0.92	8.3	1	0	0				A
160-MC-031	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	162	PP	001	162-PP-001	CARBON RECOVERY PUMP	4	22	42	1	0.75	1	Duty		0.926		0.740	23.7	17.8	16.2	1.00	17.8	0.92	16.4	1	0	0				A
160-MC-031	0.4			VSD-01		H02	Variable	Variable	LCS-02	162	TK	004	162-TK-004	CIL TANK 2	4	180	313	1	0.75	1	Duty		0.938		0.999	191.8	143.9	6.4	1.00	143.9	0.92	132.4	1	1	0				A
160-MC-031	0.4			VSD-01		H02	Variable	Variable	LCS-02	162	AG	004	162-AG-004	CIL TANK 2 AGITATOR	4	180	313	1	0.75	1	Duty		0.938		0.999	191.8	143.9	6.4	1.00	143.9	0.92	132.4	1	1	0				A
160-MC-031	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	162	SC	004A	162-SC-004A	CIL TANK 2 INTERTANK SCREEN 1	4	11	21	1	0.75	1	Duty		0.915		0.740	12.0	9.0	8.2	1.00	9.0	0.92	8.3	1	0	0				A
160-MC-031	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	162	SC	004B	162-SC-004B	CIL TANK 2 INTERTANK SCREEN 2	4	11	21	1	0.75	1	Duty		0.915		0.740	12.0	9.0	8.2	1.00	9.0	0.92	8.3	1	0	0				A
160-MC-031	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	162	PP	002	162-PP-002	CIL TANK 2 CARBON ADVANCE PUMP	4	22	42	1	0.75	1	Duty		0.926		0.740	23.7	17.8	16.2	1.00	17.8	0.92	16.4	1	0	0				A
160-MC-031	0.4			VSD-01		H02	Variable	Variable	LCS-02	162	AG	005	162-AG-005	CIL TANK 3 AGITATOR	4	180	313	1	0.75	1	Duty		0.938		0.999	191.8	143.9	6.4	1.00	143.9	0.92	132.4	1	1	0				A
160-MC-031

Switchboard Tag	Voltage (kV)	Tier / Module	Module New / Existing	MCC Module Type	CB Size (A)	Load Type	Load Type Converted	MEL Load Type	LCS Type	Area Code	Equip Code	Seq No.	Equipment Tag	Equipment Name	Motor Poles	Name-plate (kW)	Motor FLA (A)	Qty	Load Factor	Max Demand Factor	Duty / Standby	Manual: Efficiency	Efficiency	Manual: Power Factor	Power Factor	Connected Load (kW)	Max Demand P (kW)	Max Demand Q (kVAR)	Average Demand Factor	Average Demand P (kW)	Plant Availability	Annual Average P (kW)	Scenario 1	Scenario 2	Scenario 3	Exclude From Lumped Load	Notes	Schematic Drawing No.	Line Rev
170-MC-041	0.4			DOL-02		M01	Fixed	Fixed	LCS-01	173	HE	001	173-HE-001	STRIP SOLUTION OIL HEATER	4	11	21	1	0.75	1	Duty		0.915		0.740	12.0	9.0	8.2	0.60	5.4	0.92	5.0	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	174	SC	001	174-SC-001	CARBON DEWATERING SCREEN	4	7.5	14	2	0.75	1	Duty		0.912		0.770	16.4	12.3	10.2	0.80	9.9	0.92	9.1	1	0	0				A
170-MC-042	0.4			FDR-02		C02	Feeder	Feeder	-	174	KN	001	174-KN-001	CARBON REGENERATION KILN	4	1400	2451	1	0.75	1	Duty		1.000		0.850	1400.0	1050.0	650.7	0.83	871.5	0.92	801.8	1	0	0				A
170-MC-042	0.4			FDR-02		C02	Feeder	Feeder	-	174	DV	001	174-DV-001	CARBON REGENERATION KILN BARRING DRIVE	4	1.1	2	1	0.75	1	Duty		1.000		0.850	1.1	0.8	0.5	0.83	0.7	0.92	0.6	1	1	0				A
170-MC-041	0.4			DOL-01		C02	Feeder	Feeder	LCS-01	174	HT	001	174-HT-001	SERVICE AND NEW CARBON HOIST	4	5.5	11	1	0.75	0.2	Duty		1.000		0.850	5.5	0.8	0.5	0.05	0.2	0.92	0.2	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	174	PP	005	174-PP-005	CARBON TRANSFER PUMP	4	18	35	1	0.75	1	Duty		0.922		0.740	19.5	14.6	13.3	0.60	8.8	0.92	8.1	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	174	SC	002	174-SC-002	CARBON SIZING SCREEN	4	4.4	9	1	0.75	1	Duty		0.891		0.720	4.9	3.7	3.6	1.00	3.7	0.92	3.4	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	174	PP	002	174-PP-002	CARBON REGENERATION AREA SUMP PUMP	4	11	21	1	0.75	1	Duty		0.915		0.740	12.0	9.0	8.2	0.10	0.9	0.92	0.8	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	175	ZM	003	175-ZM-003	ILR PACKAGE	4	11	21	1	0.75	1	Duty		0.915		0.740	12.0	9.0	8.2	1.00	9.0	0.92	8.3	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	175	PP	003	175-PP-003	ILR AREA SUMP PUMP	4	11	21	1	0.75	1	Duty		0.915		0.740	12.0	9.0	8.2	0.10	0.9	0.92	0.8	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	176	PP	001	176-PP-001	PREGNANT SOLUTION PUMP 1	4	11	21	1	0.75	1	Duty		0.915		0.740	12.0	9.0	8.2	0.90	8.1	0.92	7.5	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	176	PP	002	176-PP-002	PREGNANT SOLUTION PUMP 2	4	11	21	1	0.75	1	Standby		0.915		0.740	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	176	PP	004	176-PP-004	ILR PREGNANT SOLUTION PUMP	4	5.5	11	1	0.75	1	Duty		0.904		0.770	6.1	4.6	3.8	1.00	4.6	0.92	4.2	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	176	PP	003	176-PP-003	PREGNANT SOLUTION AREA SUMP PUMP	4	11	21	1	0.75	1	Duty		0.915		0.740	12.0	9.0	8.2	0.10	0.9	0.92	0.8	1	0	0				A
170-MC-041	0.4			FDR-01		H01	Variable	Feeder	-	176	RC	001	176-RC-001	ELECTROWINNING CELL 1 RECTIFIER	4	50	91	1	0.75	1	Duty		0.919		0.993	54.4	40.8	4.9	0.90	36.7	0.92	33.8	1	0	0				A
170-MC-041	0.4			FDR-01		H01	Variable	Feeder	-	176	RC	002	176-RC-002	ELECTROWINNING CELL 2 RECTIFIER	4	50	91	1	0.75	1	Duty		0.919		0.993	54.4	40.8	4.9	0.90	36.7	0.92	33.8	1	0	0				A
170-MC-041	0.4			FDR-01		H01	Variable	Feeder	-	176	RC	003	176-RC-003	ILR ELECTROWINNING CELL RECTIFIER	4	50	91	1	0.75	1	Duty		0.919		0.993	54.4	40.8	4.9	0.90	36.7	0.92	33.8	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	176	FA	001	176-FA-001	ELECTROWINNING CELL FUME EXTRACTION FAN	4	1.5	3	1	0.75	1	Duty		0.860		0.660	1.7	1.3	1.5	1.00	1.3	0.92	1.2	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	177	CN	001	177-CN-001	GOLD ROOM CRANE	4	4.25	9	1	0.75	1	Duty		0.891		0.720	4.8	3.6	3.5	0.05	0.2	0.92	0.2	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	177	FA	001	177-FA-001	GOLD ROOM VENTILATION FANS	4	2.2	5	3	0.75	1	Duty		0.878		0.700	7.5	5.6	5.8	1.00	5.6	0.92	5.2	1	1	0				A
170-MC-041	0.4			FDR-01		C02	Feeder	Feeder	-	177	ZM	002	177-ZM-002	HIGH PRESSURE CATHODE WASH SPRAY	4	4	8	1	0.75	1	Standby		1.000		0.850	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	177	PP	001	177-PP-001	CELL SLUDGE FILTER VACUUM PUMP	4	2.4	5	1	0.75	1	Duty		0.878		0.700	2.7	2.1	2.1	0.10	0.2	0.92	0.2	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	177	PP	002	177-PP-002	GOLD ROOM AREA SUMP PUMP	4	11	21	1	0.75	1	Duty		0.915		0.740	12.0	9.0	8.2	0.10	0.9	0.92	0.8	1	0	0				A
170-MC-041	0.4			FDR-01		C02	Feeder	Feeder	-	177	DR	001	177-DR-001	DRYING OVEN 1	4	37	66	1	0.75	1	Duty		1.000		0.850	37.0	27.8	17.2	1.00	27.8	0.92	25.5	1	0	0				A
170-MC-041	0.4			FDR-01		C02	Feeder	Feeder	-	177	DR	002	177-DR-002	DRYING OVEN 2	4	37	66	1	0.75	1	Duty		1.000		0.850	37.0	27.8	17.2	1.00	27.8	0.92	25.5	1	0	0				A
170-MC-041	0.4			FDR-02		Z01	Feeder	Feeder	-	177	FC	001	177-FC-001	BARRING FURNACE	4	150	261	1	0.75	1	Duty		1.000		0.900	150.0	112.5	54.5	1.00	112.5	0.92	103.5	1	1	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	177	FA	004	177-FA-004	FURNACE EXTRACTION FAN	4	4	8	1	0.75	1	Duty		0.891		0.720	4.5	3.4	3.2	1.00	3.4	0.92	3.1	1	0	0				A
160-MC-031	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	181	SC	001	181-SC-001	CARBON SAFETY SCREEN	4	75	132	1	0.75	1	Duty		0.950		0.820	78.9	59.2	41.3	1.00	59.2	0.92	54.5	1	0	0				A
160-MC-031	0.4			DOL-03		M01	Fixed	Fixed	LCS-01	182	AG	001	182-AG-001	CYANIDE DESTRUCTION TANK 1 AGITATOR	4	220	391	1	0.75	1	Duty		0.963		0.780	228.4	171.3	137.4	1.00	171.3	0.92	157.6	1	0	0				A
160-MC-031	0.4			DOL-03		M01	Fixed	Fixed	LCS-01	182	AG	002	182-AG-002	CYANIDE DESTRUCTION TANK 2 AGITATOR	4	220	391	1	0.75	1	Duty		0.963		0.780	228.4	171.3	137.4	1.00	171.3	0.92	157.6	1	0	0				A
160-MC-031	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	182	SA	001	182-SA-001	WAD CYANIDE ANALYSER	4	5	10	1	0.75	1	Duty		0.891		0.720	5.6	4.2	4.1	1.00	4.2	0.92	3.9	1	0	0				A
180-MC-051	0.4			VSD-02		H02	Variable	Variable	LCS-02	184	PP	001	184-PP-001	TAILINGS PUMP 1	4	250	443	1	0.75	1	Duty		0.942		0.998	265.3	199.0	12.6	1.00	199.0	0.92	183.1	1	0	0				A
180-MC-051	0.4			VSD-02		H02	Variable	Variable	LCS-02	184	PP	003	184-PP-003	TAILINGS PUMP 2	4	250	443	1	0.75	1	Standby		0.942		0.998	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	184	PP	005	184-PP-005	TAILINGS AREA SUMP PUMP	4	22	42	1	0.75	1	Duty		0.926		0.740	23.7	17.8	16.2	0.20	3.6	0.92	3.3	1	0	0				A
180-MC-051	0.4			FDR-01		C02	Feeder	Feeder	-	211	HT	001	211-HT-001	CYCANIDE HOIST	4	5.5	11	1	0.75	0.2	Duty		1.000		0.850	5.5	0.8	0.5	0.05	0.2	0.92	0.2	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	211	AG	001	211-AG-001	CYANIDE MIXING TANK AGITATOR	4	5.5	11	1	0.75	1	Duty		0.904		0.770	6.1	4.6	3.8	1.00	4.6	0.92	4.2	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	211	PP	001	211-PP-001	CYANIDE TRANSFER PUMP	4	11	21	1	0.75	1	Duty		0.915		0.740	12.0	9.0	8.2	1.00	9.0	0.92	8.3	1	0	0				A
180-MC-051	0.4			VSD-01		H01	Variable	Variable	LCS-02	211	PP	004	211-PP-004	CYANIDE DOSING PUMP	4	3	6	1	0.75	1	Duty		0.848		0.997	3.5	2.7	0.2	1.00	2.7	0.92	2.4	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	211	PP	007	211-PP-007	CYANIDE AREA SUMP PUMP	4	11	21	1	0.75	1	Duty		0.915		0.740	12.0	9.0	8.2	0.10	0.9	0.92	0.8	1	0	0				A
180-MC-051	0.4			VSD-01		H01	Variable	Variable	LCS-02	211	PP	002	211-PP-002	CYANIDE RECIRCULATION PUMP 1	4	5.5	11	1	0.75	1	Duty		0.875		0.998	6.3	4.7	0.3	1.00	4.7	0.92	4.3	1	0	0				A
180-MC-051	0.4			VSD-01		H01	Variable	Variable	LCS-02	211	PP	003	211-PP-003	CYANIDE RECIRCULATION PUMP 2	4	5.5	11	1	0.75	1	Standby		0.875		0.998	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
							-	-	-					-								-		-	-	-		-		-							
180-MC-051	0.4			FDR-01		C02	Feeder	Feeder	-	211	HT	002	211-HT-002	FLOCCULANT HOIST	4	5.5	11	1	0.75	0.2	Duty		1.000		0.850	5.5	0.8	0.5	0.05	0.2	0.92	0.2	1	0	0				A
170-MC-041	0.4			VSD-01		M01	Fixed	Fixed	LCS-02	213	FE	001	213-FE-001	FLOCCULANT MIXING TANK PACKAGE	4	15	29	1	0.75	1	Duty		0.922		0.740	16.3	12.2	11.1	0.25	3.0	0.92	2.8	1	0	0				A
170-MC-041	0.4			VSD-01		H01	Variable	Variable	LCS-02	213	PP	001	213-PP-001	FLOCCULANT DOSING PUMP 1	4	3	6	1	0.75	1	Duty		0.848		0.997	3.5	2.7	0.2	0.02	0.1	0.92	0.0	1	0	0				A
170-MC-041	0.4			VSD-01		H01	Variable	Variable	LCS-02	213	PP	002	213-PP-002	FLOCCULANT DOSING PUMP 2	4	3	6	1	0.75	1	Duty		0.848		0.997	3.5	2.7	0.2	1.00	2.7	0.92	2.4	1	0	0				A
170-MC-041	0.4			VSD-01		H01	Variable	Fixed	LCS-02	213	PP	003	213-PP-003	ILR FLOCCULANT TRANSFER PUMP	4	1.1	2	1	0.75	1	Duty		0.810		0.996	1.4	1.0	0.1	1.00	1.0	0.92	0.9	1	0	0				A
180-MC-051	0.4			FDR-01		C02	Feeder	Feeder	-	214	HT	002	214-HT-002	SODIUM HYDROXIDE HOIST	4	5.5	11	1	0.75	0.2	Duty		1.000		0.850	5.5	0.8	0.5	0.05	0.2	0.92	0.2	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	214	AG	001	214-AG-001	SODIUM HYDROXIDE MIXING TANK AGITATOR	4	2.2	5	1	0.75	1	Duty		0.878		0.700	2.5	1.9	1.9	1.00	1.9	0.92	1.7	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	214	PP	001	214-PP-001	SODIUM HYDROXIDE MIX DOSING PUMP	4	3	6	1	0.75	1	Duty		0.881		0.700	3.4	2.6	2.6	1.00	2.6	0.92	2.4	1	0	0				A
180-MC-051	0.4			VSD-01		H01	Variable	Variable	LCS-02	214	PP	002	214-PP-002	SODIUM HYDROXIDE DOSING PUMP	4	2.2	5	1	0.75	1	Duty		0.844		0.995	2.6	2.0	0.2	1.00	2.0	0.92	1.8	1	0	0				A
180-MC-051	0.4			VSD-01		H01	Variable	Variable	LCS-02	214	PP	003	214-PP-003	SODIUM HYDROXIDE MIXING PUMP	4	5.5	11	1	0.75	1	Duty		0.875		0.998	6.3	4.7	0.3	1.00	4.7	0.92	4.3	1	0	0				A
180-MC-051	0.4			VSD-01		H01	Variable	Variable	LCS-02	214	PP	005	214-PP-005	ACID WASH PUMP	4	11	21	1	0.75	1	Duty		0.890		0.995	12.4	9.3	0.9	1.00	9.3	0.92	8.5	1	0	0				A
180-MC-051	0.4			FDR-02		Z01	Feeder	Feeder	-	216	HT	001	216-HT-001	SMBS HOIST	4	5.5	11	1	0.75	0.2	Duty		1.000		0.900	5.5	0.8	0.4	0.05	0.2	0.92	0.2	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	216	AG	001	216-AG-001	SMBS MIXING TANK AGITATOR	4	3	6	1	0.75	1	Duty		0.881		0.700	3.4	2.6	2.6	1.00	2.6	0.92	2.4	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	216	FA	001	216-FA-001	SMBS TANK VENTILATION FAN	4	2.2	5	1	0.75	1	Duty		0.878		0.700	2.5	1.9	1.9	0.60	1.1	0.92	1.0	1	0	0				A
180-MC-051	0.4			VSD-01		H01	Variable	Variable	LCS-02	216	PP	002	216-PP-002	SMBS TRANSFER PUMP	4	3	6	1	0.75	1	Duty		0.848		0.997	3.5	2.7	0.2	1.00	2.7	0.92	2.4	1	0	0				A
180-MC-051	0.4			VSD-01		H01	Variable	Variable	LCS-02	216	PP	003	216-PP-003	SMBS DOSING PUMP 1	4	1.5	3	1	0.75	1	Duty		0.824		0.995	1.8	1.4	0.1	1.00	1.4	0.92	1.3	1	0	0				A
180-MC-051	0.4			VSD-01		H01	Variable	Variable	LCS-02	216	PP	004	216-PP-004	SMBS DOSING PUMP 2	4	1.5	3	1	0.75	1	Standby		0.824		0.995	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	216	AG	002	216-AG-002	COPPER SULPHATE MIXING TANK AGITATOR	4	2.2	5	1	0.75	1	Duty		0.878		0.700	2.5	1.9	1.9	1.00	1.9	0.92	1.7	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	216	PP	008	216-PP-008	COPPER SULPHATE MIXING PUMP	4	5.5	11	1	0.75	1	Duty		0.904		0.770	6.1	4.6	3.8	1.00	4.6	0.92	4.2	1	0	0				A
180-MC-051	0.4			VSD-01		H01	Variable	Variable	LCS-02	216	PP	005	216-PP-005	COPPER SULPHATE DOSING PUMP 1	4	0.75	2	1	0.75	1	Duty		0.793		0.996	0.9	0.7	0.1	1.00	0.7	0.92	0.7	1	0	0				A
180-MC-051	0.4			VSD-01		H01	Variable	Variable	LCS-02	216	PP	006	216-PP-006	COPPER SULPHATE DOSING PUMP 2	4	0.75	2	1	0.75	1	Duty		0.793		0.996	0.9	0.7	0.1	1.00	0.7	0.92	0.7	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	216	PP	009	216-PP-009	COPPER SULPHATE AREA SUMP PUMP	4	11	21	1	0.75	1	Duty		0.915		0.740	12.0	9.0	8.2	0.10	0.9	0.92	0.8	1	0	0				A
180-MC-051	0.4			FDR-01		C02	Feeder	Feeder	-	216	HT	002	216-HT-002	COPPER SULPHATE HOIST	4	5.5	11	1	0.75	0.2	Duty		1.000		0.850	5.5	0.8	0.5	0.05	0.2	0.92	0.2	1	0	0				A
140-MC-061	0.4			DOL-03		M01	Fixed	Fixed	LCS-01	222	PP	004	222-PP-004	RAW WATER PUMP 1	4	220	391	1	0.75	1	Duty		0.963		0.780	228.4	171.3	137.4	1.00	171.3	0.92	157.6	1	0	0				A
140-MC-061	0.4			DOL-03		M01	Fixed	Fixed	LCS-01	222	PP	005	222-PP-005	RAW WATER PUMP 2	4	220	391	1	0.75	1	Standby		0.963		0.780	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
140-MC-061	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	222	PP	007	222-PP-007	WATER FILTRATION FEED PUMP 1	4	37	66	1	0.75	1	Duty		0.944		0.790	39.2	29.4	22.8	1.00	29.4	0.92	27.0	1	0	0				A
140-MC-061	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	222	PP	008	222-PP-008	WATER FILTRATION FEED PUMP 2	4	37	66	1	0.75	1	Standby		0.944		0.790	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
140-MC-061	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	223	PP	001	223-PP-001	PROCESS WATER ANTISCALANT PUMP	4	1.1	2	1	0.75	1	Duty		0.858		0.700	1.3	1.0	1.0	1.00	1.0	0.92	0.9	1	0	0				A
140-MC-061	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	223	PP	006	223-PP-006	GRAVITY FLUIDISATION WATER PUMP	4	37	66	1	0.75	1	Duty		0.944		0.790	39.2	29.4	22.8	1.00	29.4	0.92	27.0	1	0	0				A
140-MC-061	0.4			DOL-02		M01	Fixed	Fixed	LCS-01	223	PP	004	223-PP-004	HP PROCESS WATER PUMP 1	4	110	192	1	0.75	1	Duty		0.956		0.820	115.6	86.3	60.2	1.00	86.3	0.92	79.4	1	0	0				A
140-MC-061	0.4			DOL-02		M01	Fixed	Fixed	LCS-01	223	PP	005	223-PP-005	HP PROCESS WATER PUMP 2	4	110	192	1	0.75	1	Standby		0.956		0.820	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
140-MC-061	0.4			DOL-03		M01	Fixed	Fixed	LCS-01	223	PP	002	223-PP-002	LP PROCESS WATER PUMP 1	4	315	551	1	0.75	1	Duty		0.965		0.810	326.3	244.7	177.2	1.00	244.7	0.92	225.2	1	0	0				A
140-MC-061	0.4			DOL-03		M01	Fixed	Fixed	LCS-01	223	PP	003	223-PP-003	LP PROCESS WATER PUMP 2	4	315	551	1	0.75	1	Standby		0.965		0.810	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
140-MC-061	0.4			FDR-01		Z02	Fixed	Fixed	-	224	WT	001	224-WT-001	POTABLE WATER TREATMENT PLANT	4	20	39	1	0.75	1	Duty		1.000		1.000	20.0	15.0	0.0	1.00	15.0	0.92	13.8	1	0	0				A
140-MC-061	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	224	PP	001	224-PP-001	PLANT POTABLE WATER PUMP 1	4	4	8	1	0.75	1	Duty		0.891		0.720	4.5	3.4	3.2	1.00	3.4	0.92	3.1	1	0	0				A
140-MC-061	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	224	PP	002	224-PP-002	PLANT POTABLE WATER PUMP 2	4	4	8	1	0.75	1	Standby		0.891		0.720	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
140-MC-061	0.4			FDR-01		C02	Feeder	Fixed	-	224	ZM	001	224-ZM-001	PLANT POTABLE WATER UV STERILISER	4	0.5	1	1	0.75	1	Duty		1.000		0.850	0.5	0.4	0.2	1.00	0.4	0.92	0.3	1	0	0				A
140-MC-061	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	225	PP	001	225-PP-001	GLAND WATER PUMP 1	4	22	42	1	0.75	1	Duty		0.926		0.740	23.7	17.8	16.2	1.00	17.8	0.92	16.4	1	0	0				A
140-MC-061	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	225	PP	002	225-PP-002	GLAND WATER PUMP 2	4	22	42	1	0.75	1	Standby		0.926		0.740	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
140-MC-061	0.4			HDO-01		H01	Variable	Variable	LCS-02	226	HX	001	226-HX-001	COOLING TOWER REFRIGERATIVE CHILLER	4	215.8	375	1	0.75	1	Duty		0.940		0.999	229.5	172.1	7.7	1.00	172.1	0.92	158.4	1	0	0				A
140-MC-061	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	226	PP	005	226-PP-005	CHILLED WATER PUMP 1	4	22	42	1	0.75	1	Duty		0.926		0.740	23.7	17.8	16.

Electrical Load List

ECG ENGINEERING

Switchboard Tag	Voltage (kV)	Tier / Module	Module New / Existing	MCC Module Type	CB Size (A)	Load Type	Load Type Converted	MEL Load Type	LCS Type	Area Code	Equip Code	Seq No.	Equipment Tag	Equipment Name	Motor Poles	Name-plate (kW)	Motor FLA (A)	Qty	Load Factor	Max Demand Factor	Duty / Standby	Manual Efficiency	Efficiency	Manual Power Factor	Power Factor	Connected Load (kW)	Max Demand P (kW)	Max Demand Q (kVAR)	Average Demand Factor	Average Demand P (kW)	Plant Availability	Annual Average P (kW)	Scenario 1	Scenario 2	Scenario 3	Exclude From Lumped Load	Notes	Schematic Drawing No.	Line Rev
330-MC-091	0.4			DOL-02		M01	Fixed	Fixed	LCS-01	331	PP	001	331-PP-001	WATER STORAGE DAM SEEPAGE PUMP	4	22	42	1	0.75	1	Duty		0.926		0.740	23.7	17.8	16.2	1.00	17.8	0.92	16.4	1	0	0				A
330-MC-091	0.4			DOL-02		M01	Fixed	Fixed	LCS-01	331	PP	002	331-PP-002	WATER STORAGE DECANT PUMP 1	4	75	132	1	0.75	1	Duty		0.950		0.820	78.9	59.2	41.3	1.00	59.2	0.92	54.5	1	0	0				A
330-MC-091	0.4			DOL-02		M01	Fixed	Fixed	LCS-01	331	PP	003	331-PP-003	WATER STORAGE DECANT PUMP 2	4	75	132	1	0.75	1	Standby		0.950		0.820	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
350-CP-102	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	351	PP	001	351-PP-001	UNDERDRAINAGE PUMP	4	11	21	1	0.75	1	Duty		0.915		0.740	12.0	9.0	8.2	1.00	9.0	0.92	8.3	1	0	0				A
350-CP-103	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	351	PP	002	351-PP-002	SEEPAGE PUMP	4	22	42	1	0.75	0.2	Duty		0.926		0.740	23.7	3.6	3.2	0.10	1.8	0.92	1.6	1	0	0				A
350-CP-104	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	351	PP	003/004/005	351-PP-003/004/005	MONITORING BORE PUMPS	4	11	21	3	0.75	0.2	Duty		0.915		0.740	36.0	5.4	4.9	0.10	2.7	0.92	2.5	1	0	0				A
350-MC-101	0.4			DOL-02		M01	Fixed	Fixed	LCS-01	353	PP	001	353-PP-001	DECANT RETURN WATER PUMP 1	4	55	98	1	0.75	1	Duty		0.947		0.790	58.1	43.5	33.8	1.00	43.5	0.92	40.1	1	0	0				A
350-MC-101	0.4			DOL-02		M01	Fixed	Fixed	LCS-01	353	PP	002	353-PP-002	DECANT RETURN WATER PUMP 2	4	55	98	1	0.75	1	Standby		0.947		0.790	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
330-MC-101	0.4			DOL-03		M01	Fixed	Fixed	LCS-01	353	PP	003	353-PP-003	WATER HARVEST DECANT PUMP 1	4	355	621	1	0.75	1	Duty		0.965		0.810	367.7	275.8	199.7	1.00	275.8	0.92	253.7	1	0	0				A
330-MC-101	0.4			DOL-03		M01	Fixed	Fixed	LCS-01	353	PP	004	353-PP-004	WATER HARVEST DECANT PUMP 2	4	355	621	1	0.75	1	Standby		0.965		0.810	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
380-SB-001	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	392	PP	001	392-PP-001	CAMP RAW WATER PUMP 1	4	5.5	11	1	0.75	1	Duty		0.904		0.770	6.1	4.6	3.8	1.00	4.6	0.92	4.2	1	0	0				A
380-SB-001	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	392	PP	002	392-PP-002	CAMP RAW WATER PUMP 2	4	5.5	11	1	0.75	1	Standby		0.904		0.770	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
380-SB-001	0.4			FDR-02		Z02	Fixed	Fixed	-	392	WT	001	392-WT-001	CAMP POTABLE WATER TREATMENT PLANT	4	11	21	1	0.75	1	Duty		1.000		1.000	11.0	8.3	0.0	1.00	8.3	0.92	7.6	1	0	0				A
380-SB-001	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	392	PP	003	392-PP-003	CAMP POTABLE WATER PUMP 1	4	5.5	11	1	0.75	1	Duty		0.904		0.770	6.1	4.6	3.8	1.00	4.6	0.92	4.2	1	0	0				A
380-SB-001	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	392	PP	004	392-PP-004	CAMP POTABLE WATER PUMP 2	4	5.5	11	1	0.75	1	Standby		0.904		0.770	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
380-SB-001	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	392	PP	005	392-PP-005	CAMP POTABLE WATER PUMP 3	4	5.5	11	1	0.75	1	Standby		0.904		0.770	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
380-SB-001	0.4			FDR-02		Z02	Fixed	Fixed	-	392	ZM	002	392-ZM-002	CAMP UV STERILISER	4	0.5	1	1	0.75	1	Duty		1.000		1.000	0.5	0.4	0.0	1.00	0.4	0.92	0.3	1	0	0				A
380-SB-001	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	392	PP	006	392-PP-006	SECURITY CAMP POTABLE WATER TRANSFER PUMP 1	4	15	29	1	0.75	1	Duty		0.922		0.740	16.3	12.2	11.1	1.00	12.2	0.92	11.2	1	0	0				A
380-SB-001	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	392	PP	007	392-PP-007	SECURITY CAMP POTABLE WATER TRANSFER PUMP 2	4	15	29	1	0.75	1	Standby		0.922		0.740	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
380-SB-001	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	392	PP	008	392-PP-008	SECURITY CAMP POTABLE WATER PUMP 1	4	5.5	11	1	0.75	1	Duty		0.904		0.770	6.1	4.6	3.8	0.60	2.7	0.92	2.5	1	0	0				A
380-SB-001	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	392	PP	009	392-PP-009	SECURITY CAMP POTABLE WATER PUMP 2	4	5.5	11	1	0.75	1	Standby		0.904		0.770	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
380-SB-001	0.4			FDR-02		Z02	Fixed	Fixed	-	392	ZM	003	392-ZM-003	SECURITY CAMP UV STERILISER	4	0.5	1	1	0.75	1	Duty		1.000		1.000	0.5	0.4	0.0	1.00	0.4	0.92	0.3	1	0	0				A
380-SB-001	0.4			FDR-02		Z02	Fixed	Fixed	-	393	ZM	001	393-ZM-001	CAMP FIRE WATER SKID	4	45	82	1	0.75	1	Standby		1.000		1.000	0.0	0.0	0.0	1.00	0.0	0.92	0.0	1	0	0				A
380-SB-001	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	394	PP	001	394-PP-001	CAMP SEWAGE COLLECTION PUMP 1	4	4.2	8	1	0.75	0.5	Duty		0.891		0.720	4.7	1.8	1.7	0.20	0.7	0.92	0.7	1	0	0				A
380-SB-001	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	394	PP	002	394-PP-002	CAMP SEWAGE COLLECTION PUMP 2	4	4.2	8	1	0.75	0.5	Duty		0.891		0.720	4.7	1.8	1.7	0.20	0.7	0.92	0.7	1	0	0				A
380-SB-001	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	394	PP	003	394-PP-003	CAMP SEWAGE COLLECTION PUMP 3	4	4.2	8	1	0.75	0.5	Duty		0.891		0.720	4.7	1.8	1.7	0.20	0.7	0.92	0.7	1	0	0				A
380-SB-001	0.4			DOL-01		M01	Fixed	Fixed	LCS-01	394	PP	004	394-PP-004	CAMP SEWAGE FORWARDING PUMP	4	18	35	1	0.75	0.5	Duty		0.922		0.740	19.5	7.3	6.7	0.20	2.9	0.92	2.7	1	0	0				A
						-	-	-						-											-					-								
	Future Drives																																					
342-DB-006	0.4			FDR-02		C01	Feeder	-	-	342	DB	006	342-DB-006	Site Main 11kV Substation L&SP Power Station Aux Distribution Board	315	-	1	1	0.8	Duty		1.000		0.900	315.0	252.0	122.0	0.60	189.0	0.92	173.9	1	0	0				A
	0.4			FDR-02		C01	Feeder	-	-	342	DB	001	342-DB-001	Site Main 11kV Substation L&SP Distribution Board	20	-	1	1	0.8	Duty		1.000		0.900	20.0	16.0	7.7	0.60	12.0	0.92	11.0	1	0	0				A
	0.4			FDR-02		C01	Feeder	-	-	342	DB	002	342-DB-002	Site Main 11kV Substation Process L&SP Distribution Board	20	-	1	1	0.8	Duty		1.000		0.900	20.0	16.0	7.7	0.80	16.0	0.92	14.7	1	0	0				A
	0.4			FDR-02		C01	Feeder	-	-	342	BC	001	342-BC-001	Site Main 11kV Substation 48VDC Battery Charger	15	-	1	1	0.8	Duty		1.000		0.900	15.0	12.0	5.8	0.80	12.0	0.92	11.0	1	0	0				A
						-	-	-						-		-							-		-	-	-		-		-						
130-MC-022	0.4			FDR-02		C01	Feeder	-	-	344	DB	001	344-DB-001	Plant 11kV Substation L&SP Distribution Board	20	-	1	1	0.8	Duty		1.000		0.900	20.0	16.0	7.7	0.60	12.0	0.92	11.0	1	0	0				A
130-MC-022	0.4			FDR-02		C01	Feeder	-	-	344	DB	002	344-DB-002	Plant 11kV Process UPS Distribution Board	20	-	1	1	0.8	Duty		1.000		0.900	20.0	16.0	7.7	0.80	16.0	0.92	14.7	1	0	0				A
130-MC-022	0.4			FDR-02		C01	Feeder	-	-	344	DB	003	344-DB-003	Plant 11kV Lighting UPS Distribution Board	20	-	1	1	0.8	Duty		1.000		0.900	20.0	16.0	7.7	0.60	12.0	0.92	11.0	1	0	0				A
130-MC-022	0.4			FDR-02		C01	Feeder	-	-	344	BC	001	344-BC-001	Plant 11kV Substation 48VDC Battery Charger	15	-	1	1	0.8	Duty		1.000		0.900	15.0	12.0	5.8	0.80	12.0	0.92	11.0	1	0	0				A
						-	-	-						-		-							-		-	-	-		-		-						
130-MC-022	0.4			FDR-02		C01	Feeder	-	-	130	DB	022A	130-DB-022A	Grinding Process UPS Distribution Board	20	-	1	1	0.8	Duty		1.000		0.900	20.0	16.0	7.7	0.80	16.0	0.92	14.7	1	0	0				A
130-MC-022	0.4			FDR-02		C01	Feeder	-	-	130	DB	022B	130-DB-022B	Grinding Lighting UPS Distribution Board	50	-	1	1	0.8	Duty		1.000		0.900	50.0	40.0	19.4	0.60	30.0	0.92	27.6	1	0	0				A
130-MC-022	0.4			FDR-02		C01	Feeder	-	-	130	DB	022C	130-DB-022C	Grinding Area L&SP Distribution Board	5	-	1	1	0.8	Duty		1.000		0.900	5.0	4.0	1.9	0.80	4.0	0.92	3.7	1	0	0				A
130-MC-022	0.4			FDR-02		C01	Feeder	-	-	130	DB	022D	130-DB-022D	Grinding Switchroom L&SP Distribution Board	10	-	1	1	0.8	Duty		1.000		0.900	10.0	8.0	3.9	0.60	6.0	0.92	5.5	1	0	0				A
						-	-	-						-		-							-		-	-	-		-		-						
130-MC-022	0.4			FDR-02		C01	Feeder	-	-	130	DB	023	130-DB-023	Grinding - SAG Mill Area L&SP Distribution Board	5	-	1	1	0.8	Duty		1.000		0.900	5.0	4.0	1.9	0.60	3.0	0.92	2.8	1	0	0				A
130-MC-022	0.4			FDR-02		C01	Feeder	-	-	130	DB	024	130-DB-024	Grinding - BALL Mill Area L&SP Distribution Board	5	-	1	1	0.8	Duty		1.000		0.900	5.0	4.0	1.9	0.60	3.0	0.92	2.8	1	0	0				A
						-	-	-						-		-							-		-	-	-		-		-						
130-MC-022	0.4			DOL-01		M01	Fixed	-	LCS-01	130	SP	022A	130-SP-022A	Grinding MCC Spare Starter	5.5	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
130-MC-022	0.4			DOL-01		M01	Fixed	-	LCS-01	130	SP	022B	130-SP-022B	Grinding MCC Spare Starter	5.5	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
130-MC-022	0.4			DOL-01		M01	Fixed	-	LCS-01	130	SP	022C	130-SP-022C	Grinding MCC Spare Starter	11	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
130-MC-022	0.4			DOL-01		M01	Fixed	-	LCS-01	130	SP	022D	130-SP-022D	Grinding MCC Spare Starter	11	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
130-MC-022	0.4			DOL-01		M01	Fixed	-	LCS-01	130	SP	022E	130-SP-022E	Grinding MCC Spare Starter	30	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
130-MC-022	0.4			DOL-01		M01	Fixed	-	LCS-01	130	SP	022F	130-SP-022F	Grinding MCC Spare Starter	55	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
130-MC-022	0.4			DOL-01		M01	Fixed	-	LCS-01	130	SP	022G	130-SP-022G	Grinding MCC Spare Starter	11	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
130-MC-022	0.4			DOL-01		M01	Fixed	-	LCS-01	130	SP	022H	130-SP-022H	Grinding MCC Spare Starter	11	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
130-MC-022	0.4			FDR-01		C01	Feeder	-	-	130	SP	022I	130-SP-022I	Grinding MCC Spare Feeder	14	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
130-MC-022	0.4			FDR-01		C01	Feeder	-	-	130	SP	022J	130-SP-022J	Grinding MCC Spare Feeder	18	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
130-MC-022	0.4			FDR-01		C01	Feeder	-	-	130	SP	022K	130-SP-022K	Grinding MCC Spare Feeder	89	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
130-MC-022	0.4			FDR-01		C01	Feeder	-	-	130	SP	022L	130-SP-022L	Grinding MCC Spare Feeder	138	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
						-	-	-						-		-							-		-	-	-		-		-						
120-MC-011	0.4			FDR-02		C01	Feeder	-	-	120	DB	011A	120-DB-011A	Primary Crusher Process UPS Distribution Board	20	-	1	1	0.8	Duty		1.000		0.900	20.0	16.0	7.7	0.80	16.0	0.92	14.7	1	0	0				A
120-MC-011	0.4			FDR-02		C01	Feeder	-	-	120	DB	011B	120-DB-011B	Primary Crusher Lighting UPS Distribution Board	50	-	1	1	0.8	Duty		1.000		0.900	50.0	40.0	19.4	0.60	30.0	0.92	27.6	1	0	0				A
120-MC-011	0.4			FDR-02		C01	Feeder	-	-	120	DB	011C	120-DB-011C	Primary Crusher Area L&SP Distribution Board	5	-	1	1	0.8	Duty		1.000		0.900	5.0	4.0	1.9	0.80	4.0	0.92	3.7	1	0	0				A
120-MC-011	0.4			FDR-02		C01	Feeder	-	-	120	DB	011D	120-DB-011D	Primary Crusher Switchroom L&SP Distribution Board	10	-	1	1	0.8	Duty		1.000		0.900	10.0	8.0	3.9	0.60	6.0	0.92	5.5	1	0	0				A
120-MC-011	0.4			DOL-01		M01	Fixed	-	LCS-01	120	SP	011A	120-SP-011A	Primary Crusher MCC Spare Starter	5.5	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
120-MC-011	0.4			DOL-01		M01	Fixed	-	LCS-01	120	SP	011B	120-SP-011B	Primary Crusher MCC Spare Starter	5.5	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
120-MC-011	0.4			DOL-01		M01	Fixed	-	LCS-01	120	SP	011C	120-SP-011C	Primary Crusher MCC Spare Starter	11	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
120-MC-011	0.4			DOL-01		M01	Fixed	-	LCS-01	120	SP	011D	120-SP-011D	Primary Crusher MCC Spare Starter	11	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
120-MC-011	0.4			DOL-01		M01	Fixed	-	LCS-01	120	SP	011E	120-SP-011E	Primary Crusher MCC Spare Starter	30	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
120-MC-011	0.4			DOL-01		M01	Fixed	-	LCS-01	120	SP	011F	120-SP-011F	Primary Crusher MCC Spare Starter	55	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
120-MC-011	0.4			FDR-01		C01	Feeder	-	-	120	SP	011G	120-SP-011G	Primary Crusher MCC Spare Feeder	14	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
120-MC-011	0.4			FDR-01		C01	Feeder	-	-	120	SP	011H	120-SP-011H	Primary Crusher MCC Spare Feeder	18	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
120-MC-011	0.4			FDR-01		C01	Feeder	-	-	120	SP	011I	120-SP-011I	Primary Crusher MCC Spare Feeder	89	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
120-MC-011	0.4			FDR-01		C01	Feeder	-	-	120	SP	011J	120-SP-011J	Primary Crusher MCC Spare Feeder	138	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
						-	-	-						-		-							-		-	-	-		-		-						
130-MC-021	0.4			FDR-02		C01	Feeder	-	-	130	DB	021A	130-DB-021A	Reclaim Process UPS Distribution Board	20	-	1	1	0.8	Duty		1.000		0.900	20.0	16.0	7.7	0.80	16.0	0.92	14.7	1	0	0				A
130-MC-021	0.4			FDR-02		C01	Feeder	-	-	130	DB	021B	130-DB-021B	Reclaim Lighting UPS Distribution Board	50	-	1	1	0.8	Duty		1.000		0.900	50.0	40.0	19.4	0.60	30.0	0.92	27.6	1	0	0				A
130-MC-021	0.4			FDR-02		C01	Feeder	-	-	130	DB	021C	130-DB-021C	Reclaim Area L&SP Distribution Board	5	-	1	1	0.8	Duty		1.000		0.900	5.0	4.0	1.9	0.80	4.0	0.92	3.7	1	0	0				A
130-MC-021	0.4			FDR-02		C01	Feeder	-	-	130	DB	021D	130-DB-021D	Stockpiling, Reclaim & Pebble Crushing Switchroom L&SP Distribution Board	10	-	1	1	0.8	Duty		1.000		0.900	10.0	8.0	3.9	0.60	6.0	0.92	5.5	1	0	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	-	LCS-01	130	SP	021A	130-SP-021A	Reclaim MCC Spare Starter	5.5	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	-	LCS-01	130	SP	021B	130-SP-021B	Reclaim MCC Spare Starter	5.5	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	-	LCS-01	130	SP	021C	130-SP-021C	Reclaim MCC Spare Starter	11	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	-	LCS-01	130	SP	021D	130-SP-021D	Reclaim MCC Spare Starter	11	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	-	LCS-01	130	SP	021E	130-SP-021E	Reclaim MCC Spare Starter	30	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
130-MC-021	0.4			DOL-01		M01	Fixed	-	LCS-01	130	SP	021F	130-SP-021F	Reclaim MCC Spare Starter	55	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
130-MC-021	0.4			FDR-01		C01	Feeder	-	-	130	SP	021G	130-SP-021G	Reclaim MCC Spare Feeder	14	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
130-MC-021	0.4			FDR-01		C01	Feeder	-	-	130	SP	021H	130-SP-021H	Reclaim MCC Spare Feeder	18	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
130-MC-021	0.4			FDR-01		C01	Feeder	-	-	130	SP	021I	130-SP-021I	Reclaim MCC Spare Feeder	89	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
130-MC-021	0.4			FDR-01		C01	Feeder	-	-	130	SP	021J	130-SP-021J	Reclaim

Switchboard Tag	Voltage (kV)	Tier / Module	Module New / Existing	MCC Module Type	CB Size (A)	Load Type	Load Type Converted	MEL Load Type	LCS Type	Area Code	Equip Code	Seq No.	Equipment Tag	Equipment Name	Motor Poles	Name-plate (kW)	Motor FLA (A)	Qty	Load Factor	Max Demand Factor	Duty / Standby	Manual Efficiency	Efficiency	Manual Power Factor	Power Factor	Connected Load (kW)	Max Demand P (kW)	Max Demand Q (kVAR)	Average Demand Factor	Average Demand P (kW)	Plant Availability	Annual Average P (kW)	Scenario 1	Scenario 2	Scenario 3	Exclude From Lumped Load	Notes	Schematic Drawing No.	Line Rev
140-MC-061	0.4			DOL-01		M01	Fixed	-	LCS-01	200	SP	061E	200-SP-061E	Plant Services MCC Spare Starter		30	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
140-MC-061	0.4			DOL-01		M01	Fixed	-	LCS-01	200	SP	061F	200-SP-061F	Plant Services MCC Spare Starter		55	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
140-MC-061	0.4			FDR-01		C01	Feeder	-	-	200	SP	061G	200-SP-061G	Plant Services MCC Spare Feeder		14	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
140-MC-061	0.4			FDR-01		C01	Feeder	-	-	200	SP	061H	200-SP-061H	Plant Services MCC Spare Feeder		18	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
140-MC-061	0.4			FDR-01		C01	Feeder	-	-	200	SP	061I	200-SP-061I	Plant Services MCC Spare Feeder		89	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
140-MC-061	0.4			FDR-01		C01	Feeder	-	-	200	SP	061J	200-SP-061J	Plant Services MCC Spare Feeder		138	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
							-	-	-					-			-					-		-	-	-	-		-		-							
140-MC-061	0.4			FDR-02		C01	Feeder	-	-	200	DB	061B	200-DB-061B	Plant Services Lighting UPS Distribution Board		50	-	1	1	0.8	Duty		1.000		0.900	50.0	40.0	19.4	0.80	40.0	0.92	36.8	1	0	0				A
140-MC-061	0.4			FDR-02		C01	Feeder	-	-	200	DB	061C	200-DB-061C	Plant Services Area L&SP Distribution Board		5	-	1	1	0.8	Duty		1.000		0.900	5.0	4.0	1.9	0.60	3.0	0.92	2.8	1	0	0				A
							-	-	-					-			-					-		-	-	-	-		-		-							
170-MC-041	0.4			FDR-02		C01	Feeder	-	-	170	DB	041A	170-DB-041A	Elution Process UPS Distribution Board		20	-	1	1	0.8	Duty		1.000		0.900	20.0	16.0	7.7	0.80	16.0	0.92	14.7	1	0	0				A
170-MC-041	0.4			FDR-02		C01	Feeder	-	-	170	DB	041B	170-DB-041B	Elution Lighting UPS Distribution Board		50	-	1	1	0.8	Duty		1.000		0.900	50.0	40.0	19.4	0.60	30.0	0.92	27.6	1	0	0				A
170-MC-041	0.4			FDR-02		C01	Feeder	-	-	170	DB	041C	170-DB-041C	Elution Area L&SP Distribution Board		5	-	1	1	0.8	Duty		1.000		0.900	5.0	4.0	1.9	0.80	4.0	0.92	3.7	1	0	0				A
170-MC-041	0.4			FDR-02		C01	Feeder	-	-	170	DB	041D	170-DB-041D	Elution Switchroom L&SP Distribution Board		10	-	1	1	0.8	Duty		1.000		0.900	10.0	8.0	3.9	0.60	6.0	0.92	5.5	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	-	LCS-01	170	SP	041A	170-SP-041A	Elution MCC Spare Starter		5.5	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	-	LCS-01	170	SP	041B	170-SP-041B	Elution MCC Spare Starter		5.5	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	-	LCS-01	170	SP	041C	170-SP-041C	Elution MCC Spare Starter		11	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	-	LCS-01	170	SP	041D	170-SP-041D	Elution MCC Spare Starter		11	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	-	LCS-01	170	SP	041E	170-SP-041E	Elution MCC Spare Starter		30	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
170-MC-041	0.4			DOL-01		M01	Fixed	-	LCS-01	170	SP	041F	170-SP-041F	Elution MCC Spare Starter		55	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
170-MC-041	0.4			FDR-01		C01	Feeder	-	-	170	SP	041G	170-SP-041G	Elution MCC Spare Feeder		14	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
170-MC-041	0.4			FDR-01		C01	Feeder	-	-	170	SP	041H	170-SP-041H	Elution MCC Spare Feeder		18	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
170-MC-041	0.4			FDR-01		C01	Feeder	-	-	170	SP	041I	170-SP-041I	Elution MCC Spare Feeder		89	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
170-MC-041	0.4			FDR-01		C01	Feeder	-	-	170	SP	041J	170-SP-041J	Elution MCC Spare Feeder		138	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
160-MC-031	0.4			FDR-02		C01	Feeder	-	-	160	DB	031A	160-DB-031A	CIL Process UPS Distribution Board		20	-	1	1	0.8	Duty		1.000		0.900	20.0	16.0	7.7	0.80	16.0	0.92	14.7	1	0	0				A
160-MC-031	0.4			FDR-02		C01	Feeder	-	-	160	DB	031B	160-DB-031B	CIL Lighting UPS Distribution Board		50	-	1	1	0.8	Duty		1.000		0.900	50.0	40.0	19.4	0.60	30.0	0.92	27.6	1	0	0				A
160-MC-031	0.4			FDR-02		C01	Feeder	-	-	160	DB	031C	160-DB-031C	CIL Area L&SP Distribution Board		5	-	1	1	0.8	Duty		1.000		0.900	5.0	4.0	1.9	0.80	4.0	0.92	3.7	1	0	0				A
160-MC-031	0.4			FDR-02		C01	Feeder	-	-	160	DB	031D	160-DB-031D	CIL Switchroom L&SP Distribution Board		10	-	1	1	0.8	Duty		1.000		0.900	10.0	8.0	3.9	0.60	6.0	0.92	5.5	1	0	0				A
160-MC-031	0.4			DOL-01		M01	Fixed	-	LCS-01	160	SP	031A	160-SP-031A	CIL MCC Spare Starter		5.5	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
160-MC-031	0.4			DOL-01		M01	Fixed	-	LCS-01	160	SP	031B	160-SP-031B	CIL MCC Spare Starter		5.5	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
160-MC-031	0.4			DOL-01		M01	Fixed	-	LCS-01	160	SP	031C	160-SP-031C	CIL MCC Spare Starter		11	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
160-MC-031	0.4			DOL-01		M01	Fixed	-	LCS-01	160	SP	031D	160-SP-031D	CIL MCC Spare Starter		11	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
160-MC-031	0.4			DOL-01		M01	Fixed	-	LCS-01	160	SP	031E	160-SP-031E	CIL MCC Spare Starter		30	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
160-MC-031	0.4			DOL-01		M01	Fixed	-	LCS-01	160	SP	031F	160-SP-031F	CIL MCC Spare Starter		55	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
160-MC-031	0.4			FDR-01		C01	Feeder	-	-	160	SP	031G	160-SP-031G	CIL MCC Spare Feeder		14	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
160-MC-031	0.4			FDR-01		C01	Feeder	-	-	160	SP	031H	160-SP-031H	CIL MCC Spare Feeder		18	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
160-MC-031	0.4			FDR-01		C01	Feeder	-	-	160	SP	031I	160-SP-031I	CIL MCC Spare Feeder		89	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
160-MC-031	0.4			FDR-01		C01	Feeder	-	-	160	SP	031J	160-SP-031J	CIL MCC Spare Feeder		138	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
							-	-	-					-			-					-		-	-	-	-		-		-							
170-MC-041	0.4			FDR-02		C01	Feeder	-	-	170	DB	044	170-DB-044	Goldroom Building L&SP Distribution Board		30	-	1	1	0.8	Duty		1.000		0.900	30.0	24.0	11.6	0.60	18.0	0.92	16.6	1	0	0				A
							-	-	-					-			-					-		-	-	-	-		-		-							
180-MC-051	0.4			FDR-02		C01	Feeder	-	-	180	DB	051A	180-DB-051A	Tailings Process UPS Distribution Board		20	-	1	1	0.8	Duty		1.000		0.900	20.0	16.0	7.7	0.80	16.0	0.92	14.7	1	0	0				A
180-MC-051	0.4			FDR-02		C01	Feeder	-	-	180	DB	051B	180-DB-051B	Tailings Lighting UPS Distribution Board		50	-	1	1	0.8	Duty		1.000		0.900	50.0	40.0	19.4	0.60	30.0	0.92	27.6	1	0	0				A
180-MC-051	0.4			FDR-02		C01	Feeder	-	-	180	DB	051C	180-DB-051C	Tailings Area L&SP Distribution Board		5	-	1	1	0.8	Duty		1.000		0.900	5.0	4.0	1.9	0.80	4.0	0.92	3.7	1	0	0				A
180-MC-051	0.4			FDR-02		C01	Feeder	-	-	180	DB	051D	180-DB-051D	Tailings, Reagent & Air Services Switchroom L&SP Distribution Board		10	-	1	1	0.8	Duty		1.000		0.900	10.0	8.0	3.9	0.60	6.0	0.92	5.5	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	-	LCS-01	180	SP	051A	180-SP-051A	Tailings MCC Spare Starter		5.5	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	-	LCS-01	180	SP	051B	180-SP-051B	Tailings MCC Spare Starter		5.5	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	-	LCS-01	180	SP	051C	180-SP-051C	Tailings MCC Spare Starter		11	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	-	LCS-01	180	SP	051D	180-SP-051D	Tailings MCC Spare Starter		11	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	-	LCS-01	180	SP	051E	180-SP-051E	Tailings MCC Spare Starter		30	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
180-MC-051	0.4			DOL-01		M01	Fixed	-	LCS-01	180	SP	051F	180-SP-051F	Tailings MCC Spare Starter		55	-	1	1	0.8	Standby		0.697		0.740	0.0	0.0	0.0	0.60	0.0	0.92	0.0	1	0	0				A
180-MC-051	0.4			FDR-01		C01	Feeder	-	-	180	SP	051G	180-SP-051G	Tailings MCC Spare Feeder		14	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
180-MC-051	0.4			FDR-01		C01	Feeder	-	-	180	SP	051H	180-SP-051H	Tailings MCC Spare Feeder		18	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
180-MC-051	0.4			FDR-01		C01	Feeder	-	-	180	SP	051I	180-SP-051I	Tailings MCC Spare Feeder		89	-	1	1	0.8	Standby		1.000		0.900	0.0	0.0	0.0	0.80	0.0	0.92	0.0	1	0	0				A
370-SB-001	0.4			FDR-02		C01	Feeder	-	-					Plant Admin Building		500	-	1	1	0.6	Duty		1.000		0.900	500.0	300.0	145.3	0.30	150.0	0.92	138.0	1	0	0		*Assumed		A
370-SB-001	0.4			FDR-02		C01	Feeder	-	-					Plant Workshop/Warehouse Offices		250	-	1	1	0.6	Duty		1.000		0.900	250.0	150.0	72.6	0.30	75.0	0.92	69.0	1	0	0		*Assumed		A
							-	-	-					-			-					-		-	-	-	-		-		-							
450-SB-400	0.4			FDR-02		C01	Feeder	-	-					MSA Lump Load		800	-	1	1	0.6	Duty		1.000		0.900	800.0	480.0	232.5	0.30	240.0	0.92	220.8	1	0	0		*Assumed		A
450-SB-400	0.4			FDR-02		C01	Feeder	-	-					MSA HME Area Workshop		250	-	1	1	0.6	Duty		1.000		0.900	250.0	150.0	72.6	0.30	75.0	0.92	69.0	1	0	0		*Assumed		A
							-	-	-					-			-					-		-	-	-	-		-		-							
380-SB-001	0.4			FDR-02		C01	Feeder	-	-	380	SB	001	380-SB-001	Permanent Village Area 400V Switchboard		450	-	1	1	0.6	Duty		1.000		0.900	450.0	270.0	130.8	0.30	135.0	0.92	124.2	1	0	0		*Assumed	Permanent Accommodation (300 Beds) + (80 Bed Pioneer Camp)	A
380-SB-002	0.4			FDR-02		C01	Feeder	-	-	380	SB	002	380-SB-002	Permanent Village Area 400V Switchboard		400	-	1	1	0.6	Duty		1.000		0.900	400.0	240.0	116.2	0.30	120.0	0.92	110.4	1	0	0		*Assumed	Permanent Accommodation (300 Beds) + (80 Bed Pioneer Camp)	A
							-	-	-					-			-					-		-	-	-	-		-		-							
450-SB-411	0.4			FDR-02		C01	Feeder	-	-	450	SB	411	450-SB-411	Explosive Magazine Area 400V Switchboard		250	-	1	1	0.6	Duty		1.000		0.900	250.0	150.0	72.6	0.40	100.0	0.92	92.0	1	0	0		*Assumed		A
							-	-	-					-			-					-		-	-	-	-		-		-							
318-SB-001	0.4			FDR-02		C01	Feeder	-	-	318	SB	001	316-SB-001	Airstrip Area 400V Switchboard		40	-	1	1	0.6	Duty		1.000		0.900	40.0	24.0	11.6	0.40	16.0	0.92	14.7	1	0	0		*Assumed		A
							-	-	-					-			-					-		-	-	-	-		-		-							

*Assumed Loads

DEFINITIONS

Parameter	Description
Nameplate kW	For motors the nameplate power is the maximum output continuous power, i.e., the rated shaft mechanical power.
Connected Load	The input power required to obtain an output power equal to the nameplate rating. Connected Load kW = Nameplate kW ÷ Efficiency x Duty/Standby Factor Connected Load kVA = Connected Load kW ÷ Power Factor If the equipment is a standby load then the connected load is zero.
Load Factor	Represents the per unit value of the nameplate rating that is required by the load under normal operating conditions. Load Factor = Normal Running kW / Nameplate kW
Max Demand Factor	Is a per unit value that accounts for the period of time that the load will be running for during a maximum demand period. Typical values used: 1) Hoists, pulleys and winches = 0.20 2) All other drives = 1.0
Duty/Standby Factor	Duty equipment is considered to be running and has a factor of one, whereas standby equipment is offline and has a factor of zero.
Maximum Demand	The maximum quarter hour averaged power that a switchboard/MCC will draw during operation. For switchboard with directly connected loads: Maximum Demand kW = Sum(Each Connected Load x Load Factor x Max Demand Factor x Duty/Standby Factor) For switchboards with only feeds to subswitchboards: Maximum Demand kW = Sum(Each Feeders' Max Demand) x Coincidence Factor
Diversity Factor	The maximum demand of a switchboard's feeders do not normally occur at the same time. Therefore the sum of each feeder's maximum demand will normally be greater than the switchboard incomer's maximum demand. The diversity factor has a value greater than unity and is only equal to unity if the maximum demand of each feeder occurs at the same time. Diversity Factor = Sum(Individual Feeders' Max Demand) ÷ Incomer Max Demand
Coincidence Factor	The coincidence factor is the reciprocal of the diversity factor and is a number less than or equal to unity. Coincidence Factor = 1 ÷ Diversity Factor For MCCs or switchboards with only final connected loads, a coincidence of one is recommended, as coincidence is already applied through the use of the maximum demand factor to the individual loads. For switchboards that feed more than one subswitchboard, a coincidence less than one is recommended. For a mine process plant where most switchboards' maximum demands occur at a similar time during peak process throughput, a high coincidence of 0.95 for switchboards that feed a few subswitchboards, or 0.9 for switchboards that feed many subswitchboards is recommended.
Average Demand Factor	The per unit proportion of time for which each item of equipment operates per day at normal loading. This factor is used to calculate average demand power. The average demand factor is always less than or equal to the max demand factor. Typical values: 1) Hoists = 0.02 2) Concentrate underflow pumps = 0.20 3) Lube system heaters = 0.30 4) Lube cooling fans = 0.60 5) Air compressors and gland water pumps = 0.70 6) Dry sumps = 0.02 7) Wet sumps = 0.30 8) All other drives = 1.00
Average Demand	The power that a load will typically draw averaged over a day. Average Demand kW = Sum (Each Connected Load x Load Factor x Average Demand Factor x Duty/Standby Factor)
Plant Availability	The proportion of time in per unit that a load is in operation per year.
Annual Average Power	The average power over a year that a load will draw. Annual Average kW = Average Demand kW x Plant Availability
Annual Energy	The total energy consumed over one year and calculated in MWh per year. Annual Energy MWh/yr = Annual Average Power kW x 10^{-3} x Plant Availability x 24 x 365

APPENDIX 7.8

ELECTRICAL EQUIPMENT LIST



ECG ENGINEERING

Prepared for:
Lycopodium

Project:
Doropo Gold Plant

Côte d'Ivoire
2326

Electrical Equipment List

DOR-0004-E-LI-0002

REVISION: A

DATE: 19/10/2025

Document Information

Client Information

Prepared For: Lycopodium
Project Name: Doropo Gold Plant
Site Location: Côte d'Ivoire
Client Reference: 2326

ECG Information

Project No: DOR-0004
Discipline: Electrical
Discipline Code: E
Doc Type: List
Doc Type Code: LI
Doc No. DOR-0004-E-LI-0002
Doc Title: Electrical Equipment List

Document Control

Rev	Date	Description of Revision	Prepared By	Checked By	Design Approved	ECG Project Approved
A	19/10/2025	Issued for review				

Rev	Date	Description of Revision	Project Design Approved	Project Approved	Client Approved
A	19/10/2025	Issued for review			

Copyright / Disclaimer

The contents of this document have been prepared for the exclusive use of the named Client and may not be used by any third party without the written consent of both the named Client and ECG Engineering Pty Ltd and its subsidiaries ('the Consultant'). The Client acknowledges that the contents of this document were prepared by the Consultant using the information that was made available to the Consultant and based on the Consultant's assessment of that information. The Client, in accepting the document, agrees to release the Consultant from any liability with respect to inaccuracies or omissions in the document to the extent such inaccuracies or omissions arise from information which was not provided to the Consultant. In addition, to the extent the document attempts to predict future matters, the Client acknowledges that the Consultant has used its reasonable endeavours with respect to those matters, but the Client agrees to release the Consultant from any liability with respect to future matters, shall not rely on the Consultant's predictions and shall form its own assessment of those future matters.

EQUIPMENT LIST

Equipment No.	Description	Reference Drawing	Manufacturer	Model/Description	Supplied By	Installed By	Installation Location	Preservation Required	Remarks	Rev	Revision Comment
	-							☐			
342-BC-001	Site Main 11kV Substation 48VDC Battery Charger		TBA	TBA	TBA	1700 - E&I Installation		☐	For MV switchgear	A	
344-BC-001	Plant 11kV Substation 48VDC Battery Charger		TBA	TBA	TBA	1700 - E&I Installation		☐	For MV switchgear	A	
	-							☐			
120-CP-111	Primary Crusher Mainshaft Positioning Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
120-CP-112	Crusher Discharge Conveyor Weightometer Control Panel		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
120-CP-113	Crusher Discharge Conveyor Tramp Metal Magnet Control Panel		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
120-CP-114	Crusher Discharge Conveyor Metal Detector Control Panel		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
130-CP-121	SAG Mill Feed Conveyor Weightometer Control Panel		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
130-CP-122	Mill Feed Chute Transporter Hydraulic Power Pack Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
130-CP-123	SAG Mill Motor Excitation Control Panel		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
130-CP-124	Ball Mill Motor Excitation Control Panel		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
130-CP-125	SAG Mill Ring Gear Grease Pneumatic Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
130-CP-126	SAG Mill Sense Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
130-CP-127	Ball Mill Ring Gear Grease Pneumatic Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
130-CP-128	SAG Mill Reliner Bolt Hydraulic Power Pack Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
130-CP-129	Ball Mill Reliner Bolt Hydraulic Power Pack Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
130-CP-130	SAG Mill Motor Encoder Transmitter Box		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
130-CP-131	Ball Mill Motor Encoder Transmitter Box		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
130-CP-132	SAG Mill Transformer Cooling Fan Control Panel		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
130-CP-133	Ball Mill Transformer Cooling Fan Control Panel		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
130-CP-134	Gravity Concentrator 1 Control Panel		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
130-CP-135	Gravity Concentrator 2 Control Panel		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
130-CP-136	ILR Plant Control Panel		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
130-CP-137	Pebble Crusher 1 Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
130-CP-138	Pebble Crusher 1 Lubrication & Hydraulic Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
130-CP-139	Pebble Crusher 2 Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
130-CP-140	Pebble Crusher 2 Lubrication & Hydraulic Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
130-CP-141	Pebble Feed Conveyor Weightometer Control Panel		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
130-CP-142	Pebble Feed Conveyor Tramp Metal Magnet Control Panel		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
130-CP-143	Pebble Feed Conveyor Metal Detector Control Panel		TBA	Vendor Customised Panel	Vendor	1700 - E&I Installation		☐		A	
140-CP-151	Pre-Leach Thickener Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
160-CP-161	CIL Free Cyanide Analyser Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
170-CP-171	Strip Solution Heater Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
170-CP-172	Carbon Regeneration Kiln Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
170-CP-173	Electrowinning Cell 1 Rectifier Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
170-CP-174	Electrowinning Cell 1 Rectifier Remote Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
170-CP-175	Electrowinning Cell 2 Rectifier Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
170-CP-176	Electrowinning Cell 2 Rectifier Remote Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
170-CP-177	Gravity Electrowinning Cell Rectifier Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
170-CP-178	Gravity Electrowinning Cell Rectifier Remote Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
170-CP-179	Smelting Furnace Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
170-CP-180	Retort Oven Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
180-CP-191	CIL Tails Sampler Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
210-CP-201	Flocculant Plant Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
220-CP-211	Plant Potable Water Pump Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
220-CP-212	Plant Potable Water Treatment Plant Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
220-CP-213	Cooling Tower Dosing Pump Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
220-CP-214	Cooling Tower Collection Chamber Filter Purge Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
220-CP-215	Diesel Fire Pump Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
220-CP-216	Electric Fire Pump Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
220-CP-217	Jockey Fire Water Pump Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
240-CP-221	Plant Air Compressor 1 Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
240-CP-222	Plant Air Compressor 2 Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
240-CP-223	Oxygen Plant 1 Main Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
240-CP-224	Oxygen Plant 1 Compressor 1 Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
240-CP-225	Oxygen Plant 1 Compressor 2 Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
240-CP-226	Oxygen Plant 1 Booster Compressor Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
240-CP-227	Oxygen Plant 1 Air Dryer Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
240-CP-228	Oxygen Plant 2 Main Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
240-CP-229	Oxygen Plant 2 Compressor Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
240-CP-230	Oxygen Plant 2 Compressor Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
240-CP-231	Oxygen Plant 2 Booster Compressor Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
240-CP-232	Oxygen Plant 2 Air Dryer Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
240-CP-233	Plant Air Dryer 1 Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
240-CP-234	Plant Air Dryer 2 Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
340-CP-001	Power Factor Correction Unit Control Panel Correction Unit Control Panel		TBA	Vendor Customised Panel	Vendor	Vendor		☐		A	
350-CP-102	TSF Underdrainage Pump Control Panel		TBA	TBA	TBA	1700 - E&I Installation		☐		A	
350-CP-103	TSF Seepage Pump Control Panel		TBA	TBA	TBA	1700 - E&I Installation		☐		A	
350-CP-104	TSF Ground Water Pump Control Panel		TBA	TBA	TBA	1700 - E&I Installation		☐		A	
	-							☐			
342-DB-006	Site Main 11kV Substation L&SP Power Station Aux Distribution Board		TBA	400V, 630A	Prefab Switchroom Vendor	Prefab Switchroom Vendor		☐		A	
342-DB-001	Site Main 11kV Substation L&SP Distribution Board		TBA	400V, 63A	Prefab Switchroom Vendor	Prefab Switchroom Vendor		☐		A	
342-DB-002	Site Main 11kV Substation Process L&SP Distribution Board		TBA	400V, 63A	Prefab Switchroom Vendor	Prefab Switchroom Vendor		☐		A	
344-DB-001	Plant 11kV Substation L&SP Distribution Board		TBA	400V, 63A	Prefab Switchroom Vendor	Prefab Switchroom Vendor		☐		A	
344-DB-002	Plant 11kV Process UPS Distribution Board		TBA	400V, 63A	Prefab Switchroom Vendor	Prefab Switchroom Vendor		☐		A	
344-DB-003	Plant 11kV Lighting UPS Distribution Board		TBA	400V, 63A	Prefab Switchroom Vendor	Prefab Switchroom Vendor		☐		A	
120-DB-011A	Primary Crusher Process UPS Distribution Board		TBA	230V, 40A	7002 - Switchrooms	7002 - Switchrooms		☐		A	
120-DB-011B	Primary Crusher Lighting UPS Distribution Board		TBA	400V, 32A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
120-DB-011C	Primary Crusher Area L&SP Distribution Board		TBA	400V, 250A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
120-DB-011D	Primary Crusher Switchroom L&SP Distribution Board		TBA	400V, 63A	7002 - Switchrooms	7002 - Switchrooms		☐		A	
130-DB-021A	Reclaim Process UPS Distribution Board		TBA	230V, 40A	7002 - Switchrooms	7002 - Switchrooms		☐		A	
130-DB-021B	Reclaim Lighting UPS Distribution Board		TBA	400V, 32A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
130-DB-021C	Reclaim Area L&SP Distribution Board		TBA	400V, 250A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
130-DB-021D	Stockpiling, Reclaim & Pebble Crushing Switchroom L&SP Distribution Board		TBA	400V, 63A	7002 - Switchrooms	7002 - Switchrooms		☐		A	
130-DB-022A	Grinding Process UPS Distribution Board		TBA	230V, 40A	7002 - Switchrooms	7002 - Switchrooms		☐		A	
130-DB-022B	Grinding Lighting UPS Distribution Board		TBA	400V, 32A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
130-DB-022C	Grinding Area L&SP Distribution Board		TBA	400V, 250A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
130-DB-023	Grinding - SAG Miill Area L&SP Distribution Board		TBA	400V, 250A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
130-DB-024	Grinding - BALL Mill Area L&SP Distribution Board		TBA	400V, 250A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
130-DB-022D	Grinding Switchroom L&SP Distribution Board		TBA	400V, 63A	7002 - Switchrooms	7002 - Switchrooms		☐		A	
130-DB-025A	Pebble Crusher Process UPS Distribution Board		TBA	230V, 40A	7002 - Switchrooms	7002 - Switchrooms		☐		A	
130-DB-025B	Pebble Crusher Lighting UPS Distribution Board		TBA	400V, 32A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
130-DB-025C	Pebble Crusher Area L&SP Distribution Board		TBA	400V, 250A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
160-DB-031A	CIL Process UPS Distribution Board		TBA	230V, 40A	7002 - Switchrooms	7002 - Switchrooms		☐		A	
160-DB-031B	CIL Lighting UPS Distribution Board		TBA	400V, 32A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
160-DB-031C	CIL Area L&SP Distribution Board		TBA	400V, 250A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
160-DB-031D	CIL Switchroom L&SP Distribution Board		TBA	400V, 63A	7002 - Switchrooms	7002 - Switchrooms		☐		A	

Equipment No.	Description	Reference Drawing	Manufacturer	Model/Description	Supplied By	Installed By	Installation Location	Preservation Required	Remarks	Rev	Revision Comment
170-DB-041A	Elution Process UPS Distribution Board		TBA	230V, 40A	7002 - Switchrooms	7002 - Switchrooms		☐		A	
170-DB-041B	Elution Lighting UPS Distribution Board		TBA	400V, 32A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
170-DB-041C	Elution Area L&SP Distribution Board		TBA	400V, 250A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
170-DB-041D	Elution Switchroom L&SP Distribution Board		TBA	400V, 63A	7002 - Switchrooms	7002 - Switchrooms		☐		A	
170-DB-044	Goldroom Building L&SP Distribution Board		TBA	3 Phase 400V, 100A	E&I Contractor	1700 - E&I Installation		☐		A	
180-DB-051A	Tailings Process UPS Distribution Board		TBA	230V, 40A	7002 - Switchrooms	7002 - Switchrooms		☐		A	
180-DB-051B	Tailings Lighting UPS Distribution Board		TBA	400V, 32A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
180-DB-051C	Tailings Area L&SP Distribution Board		TBA	400V, 250A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
180-DB-051D	Tailings, Reagent & Air Services Switchroom L&SP Distribution Board		TBA	400V, 63A	7002 - Switchrooms	7002 - Switchrooms		☐		A	
140-DB-041A	Preleach Thickening & Plant Water Services Process UPS Distribution Board		TBA	230V, 40A	7002 - Switchrooms	7002 - Switchrooms		☐		A	
140-DB-041B	Preleach Thickening & Plant Water Services Lighting UPS Distribution Board		TBA	400V, 32A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
200-DB-061B	Plant Services Lighting UPS Distribution Board		TBA	400V, 32A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
140-DB-041C	Preleach Thickening & Plant Water Services Area L&SP Distribution Board		TBA	400V, 250A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
200-DB-061C	Plant Services Area L&SP Distribution Board		TBA	400V, 250A	E&I Contractor	1700 - E&I Installation	Outdoor	☐		A	
140-DB-041D	Preleach Thickening & Plant Water Services Switchroom L&SP Distribution Board		TBA	400V, 63A	7002 - Switchrooms	7002 - Switchrooms		☐		A	
360-DB-101	Administration L&SP Distribution Board		TBA	400V, 63A	Prefab Switchroom Vendor	Prefab Switchroom Vendor		☐		A	
360-DB-102	Clinic L&SP Distribution Board		TBA	400V, 63A	Prefab Switchroom Vendor	Prefab Switchroom Vendor		☐		A	
	-							☐			
342-EB-001	Site Main 11kV Switchroom Earth Bar		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms		☐		A	
344-EB-001	Plant 11kV Switchroom Earth Bar		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms		☐		A	
342-EB-011A	Site Main 11kV Power Station Auxiliaries Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
120-EB-011A	Primary Crusher Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
120-EB-011B	Primary Crusher Switchroom Earth Bar		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms		☐		A	
130-EB-021A	Stockpiling, Reclaim & Pebble Crushing Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
130-EB-021B	Stockpiling, Reclaim & Pebble Crushing Switchroom Earth Bar		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms		☐		A	
130-EB-022A	Milling Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
130-EB-022B	Milling Switchroom Earth Bar		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms		☐		A	
130-EB-025	Pebble Crusher Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐	Future	A	
130-EB-001A	SAG Mill Variable Speed Drive Transformer Earth Bar		TBA	TBA	Mill Vendor	Mill Vendor		☐		A	
130-EB-001B	SAG Mill Motor 1 Earth Bar		TBA	TBA	Mill Vendor	Mill Vendor		☐		A	
130-EB-001C	SAG Mill Motor 2 Earth Bar		TBA	TBA	Mill Vendor	Mill Vendor		☐		A	
130-EB-002A	Ball Mill Variable Speed Drive Transformer Earth Bar		TBA	TBA	Mill Vendor	Mill Vendor		☐		A	
130-EB-002B	Ball Mill Motor 1 Earth Bar		TBA	TBA	Mill Vendor	Mill Vendor		☐		A	
130-EB-002C	Ball Mill Motor 2 Earth Bar		TBA	TBA	Mill Vendor	Mill Vendor		☐		A	
133-EB-001	Cyclone Feed Pump 1 Motor Earth Bar		TBA	TBA	Cyclone Vendor	Cyclone Vendor		☐		A	
133-EB-002	Cyclone Feed Pump 2 Motor Earth Bar		TBA	TBA	Cyclone Vendor	Cyclone Vendor		☐		A	
160-EB-031A	CIL Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
267-EB-002	Elution, CIL & Gold Room Switchroom Earth Bar		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms		☐		A	
170-EB-041A	Elution Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
180-EB-051	Reagents & Tailings Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
240-EB-041	Air Servies & Oxygen Plant Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
140-EB-41	Preleach Thickening Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
267-EB-061B	Preleach Thickening & Plant Water Services Switchroom Earth Bar		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms		☐		A	
450-EB-001	Explosive Magazine Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
330-EB-091	Water Storage Damp Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
318-EB-001	Lake Water Extraction Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
330-EB-001	Water Harvesting Dam Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
350-EB-101	Decant Return Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
350-EB-102	TSF Monitoring Bore Pumps Control Panel Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
350-EB-103	TSF Seepage Pump Control Panel Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
350-EB-104	TSF Ground Water Pump Control Panel Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
370-EB-001	Administration Area Kiosk Substation Earth Bar		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms		☐		A	
380-EB-001	Camp Area Kiosk Substation 1 Earth Bar		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms		☐		A	
450-EB-400	MSA Area Kiosk Substation Earth Bar		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms		☐		A	
380-EB-002	Camp Area Kiosk Substation 2 Earth Bar		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms		☐		A	
	-							☐			
340-FB-001A	Site 11kV Switchboard PLC Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
340-FB-001B	Site 11kV Switchboard PLC Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
340-FB-002A	Plant 11kV Switchboard PLC Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
340-FB-002B	Plant 11kV Switchboard PLC Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
120-FB-011A	Primary Crusher Area Motor Control Centre Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
120-FB-011B	Primary Crusher Area Motor Control Centre Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
120-FB-011C	Primary Crusher Area Motor Control Centre Fobot C		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
120-FB-011D	Primary Crusher Area Motor Control Centre Fobot D		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
120-FB-012A	Primary Crusher Area Remote IO Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
120-FB-012B	Primary Crusher Area Remote IO Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
120-FB-013A	Primary Crusher Remote IO Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
120-FB-013B	Primary Crusher Remote IO Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-021A	Reclaim Area Motor Control Centre Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-021B	Reclaim Area Motor Control Centre Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-021C	Reclaim Area Motor Control Centre Fobot C		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-021D	Reclaim Area Motor Control Centre Fobot D		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-022A	Grinding Area Motor Control Centre Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-022B	Grinding Area Motor Control Centre Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-022C	Grinding Area Motor Control Centre Fobot C		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-022D	Grinding Area Motor Control Centre Fobot D		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-023A	SAG Mill Motor Control Centre Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-023B	SAG Mill Motor Control Centre Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-024A	Ball Mill Motor Control Centre Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-024B	Ball Mill Motor Control Centre Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-025A	Pebble Crusher Area Motor Control Centre Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-025B	Pebble Crusher Area Motor Control Centre Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-026A	Reclaim Area Remote IO Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-026B	Reclaim Area Remote IO Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-027A	Mill Feed Area Remote IO Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-027B	Mill Feed Area Remote IO Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-028A	Mill Discharge Area Remote IO Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-028B	Mill Discharge Area Remote IO Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-029A	Cyclone Cluster Area Remote IO Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-029B	Cyclone Cluster Area Remote IO Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-030A	Pebble Crusher Area Remote IO Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
130-FB-030B	Pebble Crusher Area Remote IO Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
160-FB-031A	CIL Area Motor Control Centre Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
160-FB-031B	CIL Area Motor Control Centre Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
160-FB-031C	CIL Area Motor Control Centre Fobot C		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
160-FB-031D	CIL Area Motor Control Centre Fobot D		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
160-FB-032A	CIL Tanks Area Remote IO Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
160-FB-032B	CIL Tanks Area Remote IO Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
170-FB-041A	Elution Area Motor Control Centre Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
170-FB-041B	Elution Area Motor Control Centre Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
170-FB-041C	Elution Area Motor Control Centre Fobot C		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	

Equipment No.	Description	Reference Drawing	Manufacturer	Model/Description	Supplied By	Installed By	Installation Location	Preservation Required	Remarks	Rev	Revision Comment
170-FB-041D	Elution Area Motor Control Centre Fobot D		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
170-FB-042A	Elution Area Remote IO Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
170-FB-042B	Elution Area Remote IO Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
170-FB-043A	Gold Room Remote IO Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
170-FB-043B	Gold Room Remote IO Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
170-FB-051A	Tailings Area Motor Control Centre Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
170-FB-051B	Tailings Area Motor Control Centre Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
180-FB-052A	Tailings Area Remote IO Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
180-FB-052B	Tailings Area Remote IO Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
200-FB-061A	Services Area Motor Control Centre Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
200-FB-061B	Services Area Motor Control Centre Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
200-FB-061C	Services Area Motor Control Centre Fobot C		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
200-FB-061D	Services Area Motor Control Centre Fobot D		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
200-FB-062A	Services Area Remote IO Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
200-FB-062B	Services Area Remote IO Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
140-FB-072A	Pre-Leach Thickener Area Remote IO Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
140-FB-072B	Pre-Leach Thickener Area Remote IO Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
210-FB-082A	Reagents Area Remote IO Panel Fobot A		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
210-FB-082B	Reagents Area Remote IO Panel Fobot B		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-011A	Primary Crusher Area Switchroom Network Equipment Panel Fobot A		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-011B	Primary Crusher Area Switchroom Network Equipment Panel Fobot B		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-011C	Primary Crusher Area Switchroom Network Equipment Panel Fobot C		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-011D	Primary Crusher Area Switchroom Network Equipment Panel Fobot D		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-011E	Primary Crusher Area Switchroom Network Equipment Panel Fobot E		TBA	19" Rack Mount Fobot - 2RU 24C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-011F	Primary Crusher Area Switchroom Network Equipment Panel Fobot F		TBA	19" Rack Mount Fobot - 2RU 24C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-021A	Reclaim Area Switchroom Network Equipment Panel Fobot A		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-021B	Reclaim Area Switchroom Network Equipment Panel Fobot B		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-021C	Reclaim Area Switchroom Network Equipment Panel Fobot C		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-021D	Reclaim Area Switchroom Network Equipment Panel Fobot D		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-021E	Reclaim Area Switchroom Network Equipment Panel Fobot E		TBA	19" Rack Mount Fobot - 2RU 24C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-021F	Reclaim Area Switchroom Network Equipment Panel Fobot F		TBA	19" Rack Mount Fobot - 2RU 24C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-022A	Grinding Area Switchroom Network Equipment Panel Fobot A		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-022B	Grinding Area Switchroom Network Equipment Panel Fobot B		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-022C	Grinding Area Switchroom Network Equipment Panel Fobot C		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-022D	Grinding Area Switchroom Network Equipment Panel Fobot D		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-022E	Grinding Area Switchroom Network Equipment Panel Fobot E		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-022F	Grinding Area Switchroom Network Equipment Panel Fobot F		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-022G	Grinding Area Switchroom Network Equipment Panel Fobot G		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-022H	Grinding Area Switchroom Network Equipment Panel Fobot H		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-022I	Grinding Area Switchroom Network Equipment Panel Fobot I		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-022J	Grinding Area Switchroom Network Equipment Panel Fobot J		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-022K	Grinding Area Switchroom Network Equipment Panel Fobot K		TBA	19" Rack Mount Fobot - 2RU 24C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-022L	Grinding Area Switchroom Network Equipment Panel Fobot L		TBA	19" Rack Mount Fobot - 2RU 24C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-022M	Grinding Area Switchroom Network Equipment Panel Fobot M		TBA	19" Rack Mount Fobot - 2RU 24C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-031A	CIL & Tailings Area Switchroom Network Equipment Panel Fobot A		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-031B	CIL & Tailings Area Switchroom Network Equipment Panel Fobot B		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-031C	CIL & Tailings Area Switchroom Network Equipment Panel Fobot C		TBA	19" Rack Mount Fobot - 2RU 24C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-031D	CIL & Tailings Area Switchroom Network Equipment Panel Fobot D		TBA	19" Rack Mount Fobot - 2RU 24C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-031E	CIL & Tailings Area Switchroom Network Equipment Panel Fobot E		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-031F	CIL & Tailings Area Switchroom Network Equipment Panel Fobot F		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-041A	Elution Area Switchroom Network Equipment Panel Fobot A		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-041B	Elution Area Switchroom Network Equipment Panel Fobot B		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-041C	Elution Area Switchroom Network Equipment Panel Fobot C		TBA	19" Rack Mount Fobot - 2RU 24C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-041D	Elution Area Switchroom Network Equipment Panel Fobot D		TBA	19" Rack Mount Fobot - 2RU 24C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-041E	Elution Area Switchroom Network Equipment Panel Fobot E		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-041F	Elution Area Switchroom Network Equipment Panel Fobot F		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-061A	Services Area Switchroom Network Equipment Panel Fobot A		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-061B	Services Area Switchroom Network Equipment Panel Fobot B		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-061C	Services Area Switchroom Network Equipment Panel Fobot C		TBA	19" Rack Mount Fobot - 2RU 24C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-061D	Services Area Switchroom Network Equipment Panel Fobot D		TBA	19" Rack Mount Fobot - 2RU 24C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-061E	Services Area Switchroom Network Equipment Panel Fobot E		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
260-FB-061F	Services Area Switchroom Network Equipment Panel Fobot F		TBA	19" Rack Mount Fobot - 2RU 48C Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
330-FB-091	Lake Water Extraction Motor Control Centre Fobot		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
340-FB-XXX	11kV Lake Water Extraction Overhead Line First Pole Fobot		TBA	Outdoor Pole Mount 96C Fobot - Double Cable Entry	1702 - Overhead Power Line	1702 - Overhead Power Line		☐		A	
340-FB-XXX	11kV Lake Water Extraction Overhead Line Final Pole Fobot		TBA	Outdoor Pole Mount 96C Fobot - Double Cable Entry	1702 - Overhead Power Line	1702 - Overhead Power Line		☐		A	
340-FB-XXX	11kV Decant Return Overhead Line First Pole Fobot		TBA	Outdoor Pole Mount 96C Fobot - Double Cable Entry	1702 - Overhead Power Line	1702 - Overhead Power Line		☐		A	
340-FB-XXX	11kV Decant Return Overhead Line Camp Tee-Off Fobot		TBA	Outdoor Pole Mount 96C Fobot - Double Cable Entry	1702 - Overhead Power Line	1702 - Overhead Power Line		☐		A	
340-FB-XXX	11kV Decant Return Overhead Line MSA Tee-Off Fobot		TBA	Outdoor Pole Mount 96C Fobot - Double Cable Entry	1702 - Overhead Power Line	1702 - Overhead Power Line		☐		A	
340-FB-XXX	11kV Decant Return Overhead Line Decant Return Tee-Off Fobot		TBA	Outdoor Pole Mount 96C Fobot - Double Cable Entry	1702 - Overhead Power Line	1702 - Overhead Power Line		☐		A	
340-FB-XXX	11kV Decant Return Overhead Line Final Pole Fobot		TBA	Outdoor Pole Mount 96C Fobot - Double Cable Entry	1702 - Overhead Power Line	1702 - Overhead Power Line		☐		A	
350-FB-101	Decant Return Motor Control Centre Fobot		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
350-FB-102	TSF Underdrainage Pump Control Panel Fobot		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
350-FB-103	TSF Seepage Pump Control Panel Fobot		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
350-FB-104	TSF Ground Water Pump Control Panel Fobot		TBA	DIN Rail Mout 12C Fobot Complete Fibre Optic Pig Tail	Vendor	Vendor		☐		A	
	-							☐			
120-FP-011	Primary Crusher Area 400V Switchroom VESDA Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	FIP + VESDA	A	
130-FP-021	Reclaim Area 400V Switchroom VESDA Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	FIP + VESDA	A	
130-FP-022	Grinding Area 400V Switchroom VESDA Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	FIP + VESDA	A	
170-FP-031	Elution Area 400V Switchroom VESDA Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	FIP + VESDA	A	
180-FP-051	Tailings Area 400V Switchroom VESDA Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	FIP + VESDA	A	
200-FP-061	Plant Services Area 400V Switchroom VESDA Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	FIP + VESDA	A	
340-FP-001	Site 11kV Switchroom VESDA Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	FIP + VESDA	A	
340-FP-002	Plant 11kV Switchroom VESDA Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	FIP + VESDA	A	
120-FSP-011	Primary Crusher Area 400V Switchroom Fire Suppression Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	Complete With Extinguishing Agent Cylinder	A	
130-FSP-021	Reclaim Area 400V Switchroom Fire Suppression Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	Complete With Extinguishing Agent Cylinder	A	
130-FSP-022	Grinding Area 400V Switchroom Fire Suppression Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	Complete With Extinguishing Agent Cylinder	A	
170-FSP-031	Elution Area 400V Switchroom Fire Suppression Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	Complete With Extinguishing Agent Cylinder	A	
180-FSP-051	Tailings Area 400V Switchroom Fire Suppression Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	Complete With Extinguishing Agent Cylinder	A	
200-FSP-061	Plant Services Area 400V Switchroom Fire Suppression Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	Complete With Extinguishing Agent Cylinder	A	
340-FSP-001	Site 11kV Switchroom Fire Suppression Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	Complete With Extinguishing Agent Cylinder	A	
340-FSP-002	Plant 11kV Switchroom Fire Suppression Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation		☐	Complete With Extinguishing Agent Cylinder	A	
	-							☐			
131-HT-001IS	Lime Area Hoist Field Isolator		TBA	Weatherproof, 3 Pole, Load Break 20A Isolator	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-HT-003IS	Ball Mill Charging Hoist Charging Hoist Field Isolator		TBA	Weatherproof, 3 Pole, Load Break 20A Isolator	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-DV-001IS	Sag Mill Inching Drive Inching Drive Field Isolator		TBA	Weatherproof, 3 Pole, Load Break 200A Isolator	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-DV-002IS	Ball Mill Inching Drive Inching Drive Field Isolator		TBA	Weatherproof, 3 Pole, Load Break 200A Isolator	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
133-CN-001IS	Cyclone Area Jib Crane Jib Crane Field Isolator		TBA	Weatherproof, 3 Pole, Load Break 32A Isolator	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-CN-002IS	CIL Area Service Crane Service Crane Field Isolator		TBA	Weatherproof, 3 Pole, Load Break 100A Isolator	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	

Electrical Equipment List

Equipment No.	Description	Reference Drawing	Manufacturer	Model/Description	Supplied By	Installed By	Installation Location	Preservation Required	Remarks	Rev	Revision Comment
174-HT-004IS	Service And New Carbon Hoist New Field Isolator		TBA	Weatherproof, 3 Pole, Load Break 20A Isolator	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
177-CN-003IS	Gold Room Crane Field Isolator		TBA	Weatherproof, 3 Pole, Load Break 20A Isolator	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
178-HT-005IS	Carbon Filter Loading Hoist Loading Hoist Field Isolator		TBA	Weatherproof, 3 Pole, Load Break 20A Isolator	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
211-HT-006IS	Cyanide / Caustic Hoist Field Isolator		TBA	Weatherproof, 3 Pole, Load Break 20A Isolator	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
213-HT-007IS	Flocculant Hoist Field Isolator		TBA	Weatherproof, 3 Pole, Load Break 20A Isolator	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
216-HT-008IS	SMBS Hoist Field Isolator		TBA	Weatherproof, 3 Pole, Load Break 20A Isolator	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
216-HT-009IS	Copper Sulphate Area Hoist Area Hoist Field Isolator		TBA	Weatherproof, 3 Pole, Load Break 20A Isolator	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
372-CN-003IS	Plant Workshop Maintenance Crane Maintenance Crane Field Isolator		TBA	Weatherproof, 3 Pole, Load Break 32A Isolator	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
	-							☐			
121-JB-001	Crusher Discharge Conveyor Weightometer Load Cell Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	1700 - E&I Installation		☐		A	
121-JB-002	Primary Crusher Sensor Instrument Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
121-JB-003	Primary Crusher Lube Sensor Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
121-JB-004	Primary Crusher Spider Lube Instrument Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
131-JB-011	SAG Mill Feed Conveyor Weightometer Load Cell Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	1700 - E&I Installation		☐		A	
132-JB-012	SAG Mill Inching Drive Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-013	SAG Mill Motor Lube Unit Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-014	SAG Mill Ring Gear Grease Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-015	SAG Mill Ring Gear Spray Door Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-016	SAG Mill Main Bearings Lube Unit Junction Box 1		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-017	SAG Mill Main Bearings Lube Unit Junction Box 2		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-018	SAG Mill Axial Bearings Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-019	SAG Mill Feed End Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-020	SAG Mill Discharge End Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-021	SAG Mill Infrared Sensors Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-022	Ball Mill Inching Drive Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-023	Ball Mill Motor Lube Unit Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-024	Ball Mill Ring Gear Grease Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-025	Ball Mill Ring Gear Spray Door Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-026	Ball Mill Main Bearings Lube Unit Junction Box 1		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-027	Ball Mill Main Bearings Lube Unit Junction Box 2		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-028	Ball Mill Axial Bearings Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-029	Ball Mill Main Bearings Lube Unit Junction Box 3		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-030	Ball Mill Main Bearings Lube Unit Junction Box 4		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-031	Ball Mill Feed End Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-032	Ball Mill Discharge End Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
132-JB-033	Ball Mill Infrared Sensors Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
133-JB-034	Cyclone Feed Pump 1 Gearbox Instrument Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
133-JB-035	Cyclone Feed Pump 2 Gearbox Instrument Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
136-JB-036	Pebble Crusher 1 Distribution Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
136-JB-037	Pebble Crusher 1 Hydraulic Power Pack Distribution Junction Box 1		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
136-JB-038	Pebble Crusher 1 Hydraulic Power Pack Distribution Junction Box 2		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
136-JB-039	Pebble Crusher 2 Distribution Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
136-JB-040	Pebble Crusher 2 Hydraulic Power Pack Distribution Junction Box 1		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
136-JB-041	Pebble Crusher 2 Hydraulic Power Pack Distribution Junction Box 2		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
136-JB-042	Pebble Feed Conveyor Weightometer Load Cell Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	1700 - E&I Installation		☐		A	
184-JB-051	Tails Pump 1 Stage 1 Gearbox Instrument Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
184-JB-052	Tails Pump 1 Stage 2 Gearbox Instrument Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
184-JB-053	Tails Pump 2 Stage 1 Gearbox Instrument Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
184-JB-054	Tails Pump 2 Stage 2 Gearbox Instrument Junction Box		TBA	Vendor Customised Instrument Junction Box	Vendor	Vendor		☐		A	
	-							☐			
120-MCC-011LCS	Primary Crusher Motor Control Centre Incomer Local Control Station			IP65 Two Button LCS in Outdoor Padlockable Enclosure (Open, Close)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
130-MCC-021LCS	Reclaim Motor Control Centre Incomer Local Control Station			IP65 Two Button LCS in Outdoor Padlockable Enclosure (Open, Close)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
130-MCC-022LCS	Grinding Motor Control Centre Incomer Local Control Station			IP65 Two Button LCS in Outdoor Padlockable Enclosure (Open, Close)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
160-MCC-031LCS	CIL Motor Control Centre Incomer Local Control Station			IP65 Two Button LCS in Outdoor Padlockable Enclosure (Open, Close)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
170-MCC-041LCS	Elution Motor Control Centre Incomer Local Control Station			IP65 Two Button LCS in Outdoor Padlockable Enclosure (Open, Close)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
180-MCC-051LCS	Tailings Motor Control Centre Incomer Local Control Station			IP65 Two Button LCS in Outdoor Padlockable Enclosure (Open, Close)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
200-MCC-061LCS	Plant Services Motor Control Centre Incomer Local Control Station			IP65 Two Button LCS in Outdoor Padlockable Enclosure (Open, Close)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-FA-001LCS	Primary Crusher Motor Cooling Fan 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-FA-002LCS	Primary Crusher Motor Cooling Fan 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-PP-001LCS	Primary Crusher Lubrication Oil Pump 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-PP-002LCS	Primary Crusher Lubrication Oil Pump 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-HE-002LCS	Primary Crusher Lubrication Oil Heater 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-FA-003LCS	Primary Crusher Lube Oil Cooling Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-BL-001LCS	Primary Crusher Seal Blower Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-PP-004LCS	Primary Crusher Spider Lube Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-FA-004LCS	Primary Crusher Feeder Forced Cooling Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-ZM-001LCS	Primary Crusher Feeder Lubrication System Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-PP-005LCS	Primary Crusher Dust Scrubber Circulation Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-PP-006LCS	Crusher Raw Water Booster Pump 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-PP-007LCS	Crusher Raw Water Booster Pump 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-CV-001LCS	Crusher Discharge Conveyor (CV1) Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-WE-001LCS	Crusher Discharge Conveyor Weightometer Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-MA-001LCS	Crusher Discharge Conveyor Tramp Metal Magnet Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-FA-006LCS	Coarse Ore Stockpile Chamber Ventilation Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-FN-001LCS	Reclaim Tunnel Dust Scrubber Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-PP-010LCS	Reclaim Tunnel Dust Scrubber Circulation Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-FA-007LCS	Stockpile Reclaim Feeder 1 Forced Cooling Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-ZM-002LCS	Reclaim Feeder 1 Lubrication System Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-FA-008LCS	Stockpile Reclaim Feeder 2 Forced Cooling Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-ZM-003LCS	Reclaim Feeder 2 Lubrication System Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-CV-003LCS	Stockpile Reclaim Conveyor (CV3) Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-SA-001LCS	SAG Mill Feed Conveyor Sampler Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-FA-009LCS	Emergency Reclaim Feeder Forced Cooling Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-ZM-004LCS	Emergency Feeder Lubrication System Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-CV-004LCS	Emergency Reclaim Conveyor (CV4) Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-ZM-005LCS	Lime Hopper Bin Activator Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-BL-002LCS	Lime Transfer Blower Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-ZM-006LCS	Lime Silo Bin Activator Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-HE-003LCS	SAG Mill Motor Heater 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-HE-004LCS	SAG Mill Motor Heater 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-SC-001LCS	Pebble Screen Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
133-PP-029LCS	Cyclone Feed Pump 1 Heat Exchanger Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
133-FA-018LCS	Cyclone Feed Pump 1 Heat Exchanger Cooling Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
133-PP-031LCS	Cyclone Feed Pump 2 Heat Exchanger Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
133-FA-019LCS	Cyclone Feed Pump 2 Heat Exchanger Cooling Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
134-SC-002LCS	Gravity Scalping Screen Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
134-ZM-010LCS	ILR Reactor Drum Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
134-PP-034LCS	ILR Circulating Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-CV-006LCS	Pebble Discharge Conveyor (CV6) Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-CV-006FLCS	Pebble Crusher Feed Conveyor (CV6) (Future) Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-MA-002LCS	Pebble Discharge Conveyor Tramp Metal Magnet Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-CV-007LCS	Pebble Transfer Conveyor (CV7) Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-CV-007FLCS	Crushed Pebble Conveyor (CV7) (Future) Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-WE-004LCS	Pebble Feed Conveyor Weightometer Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-MA-003LCS	Pebble Feed Conveyor Tramp Metal Magnet Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-MD-002LCS	Pebble Feed Conveyor Metal Detector Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	

Equipment No.	Description	Reference Drawing	Manufacturer	Model/Description	Supplied By	Installed By	Installation Location	Preservation Required	Remarks	Rev	Revision Comment
136-BL-003LCS	Pebble Crusher 1 Blower Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-PP-036LCS	Pebble Crusher 1 Hydraulic Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-PP-037LCS	Pebble Crusher 1 Lubrication Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-HE-039LCS	Pebble Crusher 1 Oil Heater 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-HE-040LCS	Pebble Crusher 1 Oil Heater 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-HE-041LCS	Pebble Crusher 1 Oil Heater 3 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-FA-020LCS	Pebble Crusher 1 Oil Cooling Fan 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-FA-021LCS	Pebble Crusher 1 Oil Cooling Fan 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-BL-004LCS	Pebble Crusher 2 Blower Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-PP-038LCS	Pebble Crusher 2 Hydraulic Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-PP-039LCS	Pebble Crusher 2 Lubrication Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-HE-042LCS	Pebble Crusher 2 Oil Heater 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-HE-043LCS	Pebble Crusher 2 Oil Heater 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-FA-022LCS	Pebble Crusher 2 Oil Cooling Fan 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-FA-023LCS	Pebble Crusher 2 Oil Cooling Fan 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-DC-001LCS	Crushed Pebble Conveyor Dust Collector Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
141-SC-003LCS	Trash Screen Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
142-SA-002LCS	Leach Feed Primary Sampler Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
142-SA-003LCS	Leach Feed Secondary Sampler Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
142-PP-041LCS	Pre-Leach Thickener Hydraulic Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
142-PP-042LCS	Mill Water Pump 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
142-PP-043LCS	Mill Water Pump 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-PP-047LCS	Carbon Recovery Pump 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-PP-048LCS	Carbon Advance Pump 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-PP-049LCS	Carbon Advance Pump 3 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-PP-050LCS	Carbon Advance Pump 4 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-PP-051LCS	Carbon Advance Pump 5 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-PP-052LCS	Carbon Advance Pump 6 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-PP-053LCS	Carbon Advance Pump 7 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-VP-001LCS	CIL Free Cyanide Analyser Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-ZM-011LCS	CIL High Pressure Cleaner Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
171-SC-011LCS	Loaded Carbon Recovery Screen Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
174-SC-012LCS	Carbon Dewatering Screen Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
174-FE-009LCS	Carbon Regeneration Kiln Screw Feeder Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
174-HT-004LCS	Service And New Carbon Hoist Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
174-PP-059LCS	Carbon Transfer Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
174-SC-013LCS	Carbon Sizing Screen Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
176-PP-062LCS	Gravity Pregnant Solution Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
176-FA-024LCS	Electrowinning Cell Fume Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
177-CN-003LCS	Gold Room Crane Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
177-FA-025LCS	Gold Room Ventilation Fan 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
177-FA-026LCS	Gold Room Ventilation Fan 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
177-FA-027LCS	Gold Room Ventilation Fan 3 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
177-PP-064LCS	Sludge Pan Filter Vacuum Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
177-FA-028LCS	Furnace Extraction Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
178-FA-029LCS	Retort Oven Exhaust Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
178-FL-001LCS	Retort Vacuum Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
178-PP-066LCS	Retort Area Portable Vacuum Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
178-FA-030LCS	Carbon Filter Booster Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
178-PP-067LCS	Wet Scrubber Discharge Hopper Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
178-HE-045LCS	Carbon Filter Feed Heater Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
178-HT-005LCS	Carbon Filter Loading Hoist Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
178-FA-031LCS	Carbon Filter ID Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
181-SA-004LCS	CIL Tails Primary Sampler Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
181-SA-005LCS	CIL Tails Secondary Sampler Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
181-SC-014LCS	Carbon Safety Screen Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
183-AG-009LCS	Cyanide Destruction Tank 1 Agitator Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
183-PP-069LCS	Cyanide Destruction Tank 1 Agitator Lubrication Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
183-AG-010LCS	Cyanide Destruction Tank 2 Agitator Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
183-PP-070LCS	Cyanide Destruction Tank 2 Agitator Lubrication Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
183-ZM-017LCS	Wad Cyanide Analyser Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
211-AG-011LCS	Cyanide Mixing Tank Agitator Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
211-PP-075LCS	Cyanide Transfer Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
211-PP-076LCS	Cyanide Pump 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
211-PP-077LCS	Cyanide Pump 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
211-FA-032LCS	Cyanide Dust Scrubber Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
211-PP-078LCS	Cyanide Dust Scrubber Circulation Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
213-FE-010LCS	Flocculant Screw Feeder Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
213-BL-005LCS	Flocculant Blower Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
213-AG-012LCS	Flocculant Mixing Tank Agitator Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
213-PP-079LCS	Flocculant Transfer Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
214-FE-011LCS	Caustic Screw Feeder Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
214-AG-013LCS	Caustic Mixing Tank Agitator Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
214-PP-082LCS	Caustic Dosing Pump 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
214-PP-083LCS	Caustic Dosing Pump 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
214-FA-033LCS	Cyanide Destruction Caustic Dosing Pump Forced Cooling Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
214-PP-086LCS	Acid Wash Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
216-AG-014LCS	SMBS Mixing Tank Agitator Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
216-PP-088LCS	SMBS Transfer Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
216-FA-034LCS	SMBS Dosing Pump 1 Forced Cooling Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
216-FA-035LCS	SMBS Dosing Pump 1 Forced Cooling Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
216-FA-036LCS	SMBS Tank Ventilation Fan Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
216-AG-015LCS	Copper Sulphate Mixing / Storage Tank Agitator Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
221-PP-094LCS	Filtered Water Pump 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
221-PP-095LCS	Filtered Water Pump 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
222-PP-096LCS	Raw Water Pump 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
222-PP-097LCS	Raw Water Pump 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
222-PP-098LCS	Village Water Supply Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
223-PP-101LCS	Process Water Antiscalant Dosing Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
225-PP-104LCS	LP Gland Water Pump 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
225-PP-105LCS	LP Gland Water Pump 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
225-PP-106LCS	HP Gland Water Pump 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
225-PP-107LCS	HP Gland Water Pump 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
226-HX-001LCS	Cooling Tower Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
226-PP-108LCS	Cooling Tower Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
226-PP-109LCS	Cooling Water Biocide Dosing Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
226-PP-110LCS	Cooling Water Pump 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
226-PP-111LCS	Cooling Water Pump 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
228-PP-112LCS	Plant Fire Water Jockey Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
233-TE-003LCS	Plant Sewage Treatment Plant (STP) Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
233-PP-114LCS	Plant Sewage Transfer Station 1 Pump 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
233-PP-115LCS	Plant Sewage Transfer Station 1 Pump 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
233-PP-116LCS	Plant Sewage Transfer Station 2 Pump 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
233-PP-117LCS	Plant Sewage Transfer Station 2 Pump 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
233-PP-118LCS	Plant Sewage Transfer Station 3 Pump 1 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	

Equipment No.	Description	Reference Drawing	Manufacturer	Model/Description	Supplied By	Installed By	Installation Location	Preservation Required	Remarks	Rev	Revision Comment
233-PP-119LCS	Plant Sewage Transfer Station 3 Pump 2 Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
234-PP-120LCS	Event Pond Pump Local Control Station			IP65 Standard DOL LCS (Start, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-PP-003LCS	Primary Crusher Hydroset Pump Local Control Station			IP65 Reversing DOL LCS (Start Forward, Start Reverse, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-PP-008LCS	Primary Crusher Area Sump Pump Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-PP-009LCS	Primary Crusher Chamber Sump Pump Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-PP-011LCS	Stockpile Reclaim Sump Pump Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-PP-019LCS	Milling Discharge End Sump Pump Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-PP-020LCS	Milling Feed End Sump Pump Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
134-PP-035LCS	ILR Area Sump Pump Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
141-PP-040LCS	Trash Area Sump Pump Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
142-PP-046LCS	Pre-Leach Area Sump Pump Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-PP-054LCS	CIL Area Sump Pump 1 Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-PP-055LCS	CIL Area Sump Pump 2 Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-PP-056LCS	CIL Area Sump Pump 3 Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-PP-057LCS	CIL Area Sump Pump 4 Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
176-PP-063LCS	Pregnant Solution Area Sump Pump Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
177-PP-065LCS	Gold Room Area Sump Pump Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
178-PP-068LCS	Kiln Process Exhaust Handling Sump Pump Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
214-PP-085LCS	Cyanide / Caustic Area Sump Pump Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
214-PP-087LCS	Acid Area Sump Pump Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
216-PP-091LCS	SMBS Area Sump Pump Local Control Station			IP65 Sump Pump LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-SC-004LCS	CIL Tank 1 Intertank Screen Local Control Station			IP65 Intertank Screen LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-SC-005LCS	CIL Tank 2 Intertank Screen Local Control Station			IP65 Intertank Screen LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-SC-006LCS	CIL Tank 3 Intertank Screen Local Control Station			IP65 Intertank Screen LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-SC-007LCS	CIL Tank 4 Intertank Screen Local Control Station			IP65 Intertank Screen LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-SC-008LCS	CIL Tank 5 Intertank Screen Local Control Station			IP65 Intertank Screen LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-SC-009LCS	CIL Tank 6 Intertank Screen Local Control Station			IP65 Intertank Screen LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-SC-010LCS	CIL Tank 7 Intertank Screen Local Control Station			IP65 Intertank Screen LCS (Start, Latching E-Stop) C/W Marechal Plug & Socket + 2 Auxiliary Contacts	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-CR-001LCS	Primary Crusher Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-FE-001LCS	Primary Crusher Feeder Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
121-FA-005LCS	Primary Crusher Dust Scrubber Fan Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
125-CV-002LCS	Stockpile Feed Conveyor (CV2) Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-FE-002LCS	Stockpile Reclaim Feeder 1 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-FE-003LCS	Stockpile Reclaim Feeder 2 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-CV-005LCS	SAG Mill Feed Conveyor (CV5) Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-FE-004LCS	Emergency Reclaim Feeder Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-FE-005LCS	Lime Hopper Rotary Valve Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
131-FE-006LCS	Lime Silo Rotary Valve Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
133-PP-001LCS	Cyclone Feed Pump 1 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
133-PP-002LCS	Cyclone Feed Pump 2 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
134-PP-032LCS	Gravity Feed Pump 1 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
134-PP-033LCS	Gravity Feed Pump 2 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
134-GC-001LCS	Gravity Concentrator 1 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
134-GC-002LCS	Gravity Concentrator 2 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-FE-007LCS	Pebble Crusher 1 Feeder Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-CR-002LCS	Pebble Crusher 1 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-FE-008LCS	Pebble Crusher 2 Feeder Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
136-CR-003LCS	Pebble Crusher 2 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
142-PP-044LCS	Leach Feed Pump 1 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
142-PP-045LCS	Leach Feed Pump 2 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-AG-001LCS	Pre-Oxidation Tank Agitator Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-AG-002LCS	CIL Tank 1 Agitator Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-AG-003LCS	CIL Tank 2 Agitator Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-AG-004LCS	CIL Tank 3 Agitator Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-AG-005LCS	CIL Tank 4 Agitator Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-AG-006LCS	CIL Tank 5 Agitator Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-AG-007LCS	CIL Tank 6 Agitator Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
162-AG-008LCS	CIL Tank 7 Agitator Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
173-PP-058LCS	Strip Solution Pump Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
176-PP-060LCS	Pregnant Solution Pump 1 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
176-PP-061LCS	Pregnant Solution Pump 2 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
184-PP-071LCS	Tails Pump 1 Stage 1 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
184-PP-072LCS	Tails Pump 1 Stage 2 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
184-PP-073LCS	Tails Pump 2 Stage 1 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
184-PP-074LCS	Tails Pump 2 Stage 2 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
213-PP-080LCS	Pre Leach Thickener Flocculant Dosing Pump 1 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
213-PP-081LCS	Pre Leach Thickener Flocculant Dosing Pump 2 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
214-PP-084LCS	Cyanide Destruction Caustic Dosing Pump Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
216-PP-089LCS	SMBS Dosing Pump 1 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
216-PP-090LCS	SMBS Dosing Pump 2 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
216-PP-092LCS	Copper Sulphate Dosing Pump 1 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
216-PP-093LCS	Copper Sulphate Dosing Pump 2 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
223-PP-099LCS	Process Water Pump 1 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
223-PP-100LCS	Process Water Pump 2 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
224-PP-102LCS	Plant Potable Water Pump 1 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
224-PP-103LCS	Plant Potable Water Pump 2 Local Control Station			IP65 Standard VSD LCS (Start, Stop, Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-ML-001ES	SAG Mill Emergency Stop A			IP65 Standard Emergency Stop LCS (Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-ML-001ES	SAG Mill Emergency Stop B			IP65 Standard Emergency Stop LCS (Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-ML-001ES	SAG Mill Emergency Stop C			IP65 Standard Emergency Stop LCS (Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-ML-001ES	SAG Mill Emergency Stop D			IP65 Standard Emergency Stop LCS (Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-ML-002ES	Ball Mill Emergency Stop A			IP65 Standard Emergency Stop LCS (Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-ML-002ES	Ball Mill Emergency Stop B			IP65 Standard Emergency Stop LCS (Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-ML-002ES	Ball Mill Emergency Stop C			IP65 Standard Emergency Stop LCS (Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
132-ML-002ES	Ball Mill Emergency Stop D			IP65 Standard Emergency Stop LCS (Latching E-Stop)	Electrical Bulks Vendor	1700 - E&I Installation		☐		A	
	-							☐			
120-MC-011	Primary Crusher Area 400V Motor Control Centre		TBA	400V, 2500A, 50kA (1s)	7002 - LV MCCs	1700 - E&I Installation		☐		A	
130-MC-021	Stockpiling, Reclaim & Pebble Crushing Area 400V Motor Control Centre		TBA	400V, 4000A, 65kA (1s)	7002 - LV MCCs	1700 - E&I Installation		☐		A	
130-MC-022	Grinding Area 400V Motor Control Centre		TBA	400V, 3000A, 50kA (1s)	7002 - LV MCCs	1700 - E&I Installation		☐		A	
132-MC-023	SAG Mill Area 400V Motor Control Centre		TBA	400V, 630A, 50kA (1s)	7002 - LV MCCs	1700 - E&I Installation	Outdoor	☐		A	
132-MC-024	Ball Mill Area 400V Motor Control Centre		TBA	400V, 630A, 50kA (1s)	7002 - LV MCCs	1700 - E&I Installation	Outdoor	☐		A	
140-MC-061	Pre-Leach Thickening & Plant Water Area 400V Motor Control Centre		TBA	400V, 3000A, 50kA (1s)	7002 - LV MCCs	1700 - E&I Installation		☐		A	
								☐			
160-MC-031	CIL Area 400V Motor Control Centre		TBA	400V, 3000A, 50kA (1s)	7002 - LV MCCs	1700 - E&I Installation		☐		A	
170-MC-041	Elution & Gold Room Area 400V Motor Control Centre		TBA	400V, 3000A, 50kA (1s)	7002 - LV MCCs	1700 - E&I Installation		☐		A	
170-MC-042	Carbon Regenration Kiln Area 400V Motor Control Centre		TBA	400V, 3000A, 50kA (1s)	7002 - LV MCCs	1700 - E&I Installation		☐		A	
180-MC-051	Tailings,Reagents & Air Services Area 400V Motor Control Centre		TBA	400V, 3000A, 50kA (1s)	7002 - LV MCCs	1700 - E&I Installation		☐		A	
								☐			
330-MC-091	Water Storage Dam Area 400V Motor Control Centre		TBA	400V, 1000A, 25kA (1s)	7002 - LV MCCs	1700 - E&I Installation	Outdoor	☐		A	
330-MC-101	Water Harvesting Dam Area 400V Motor Control Centre		TBA	400V, 1000A, 25kA (1s)	7002 - LV MCCs	1700 - E&I Installation	Outdoor	☐		A	

Electrical Equipment List

Equipment No.	Description	Reference Drawing	Manufacturer	Model/Description	Supplied By	Installed By	Installation Location	Preservation Required	Remarks	Rev	Revision Comment
350-MC-101	Decant Return Area 400V Motor Control Centre		TBA	400V, 1000A, 25kA (1s)	7002 - LV MCCs	1700 - E&I Installation	Outdoor	☐		A	
	-							☐			
260-NP-001	Site 11kV Switchroom Network Equipment Panel		TBA	Wall Mount 24RU 19" Network Cabinet	7002 - Switchrooms	7002 - Switchrooms		☐		A	
260-NP-011	Primary Crusher Area Switchroom Network Equipment Panel		TBA	Wall Mount 24RU 19" Network Cabinet	7002 - Switchrooms	7002 - Switchrooms		☐		A	
260-NP-021	Reclaim Area Switchroom Network Equipment Panel		TBA	Wall Mount 24RU 19" Network Cabinet	7002 - Switchrooms	7002 - Switchrooms		☐		A	
260-NP-022	Grinding Area Switchroom Network Equipment Panel		TBA	Floor Mount 40RU 19" Network Cabinet	7002 - Switchrooms	1700 - E&I Installation		☐		A	
260-NP-031	CIL & Tailings Area Switchroom Network Equipment Panel		TBA	Wall Mount 24RU 19" Network Cabinet	7002 - Switchrooms	7002 - Switchrooms		☐		A	
260-NP-041	Elution Area Switchroom Network Equipment Panel		TBA	Wall Mount 24RU 19" Network Cabinet	7002 - Switchrooms	7002 - Switchrooms		☐		A	
260-NP-061	Plant Services Area Switchroom Network Equipment Panel		TBA	Wall Mount 24RU 19" Network Cabinet	7002 - Switchrooms	7002 - Switchrooms		☐		A	
260-NP-111	Plant Control Room Network Equipment Panel		TBA	Wall Mount 24RU 19" Network Cabinet	TBA	1700 - E&I Installation		☐		A	
360-NP-200	Administration Area Network Equipment Panel		TBA	Wall Mount 24RU 19" Network Cabinet	TBA	1700 - E&I Installation		☐		A	
450-NP-400	MSA Area Network Equipment Panel		TBA	Wall Mount 24RU 19" Network Cabinet	TBA	1700 - E&I Installation		☐		A	
	-							☐			
340-NER-001	Main Switchyard Transformer Neutral Earthing Resistor		TBA	TBC	7008 - Transformers	1703 - E&I Installation		☐		A	
340-NER-002	Main Switchyard Transformer Neutral Earthing Resistor		TBA	TBC	7008 - Transformers	1703 - E&I Installation		☐		A	
	-							☐			
120-QN-011	Primary Crusher Area Motor Control Centre Network Switch		Allen-Bradley	Stratix	Lycopodium	7002 - Switchrooms		☐		A	
130-QN-021	Reclaim Area Motor Control Centre Network Switch		Allen-Bradley	Stratix	Lycopodium	7002 - Switchrooms		☐		A	
130-QN-022	Grinding Area Motor Control Centre Network Switch		Allen-Bradley	Stratix	Lycopodium	7002 - Switchrooms		☐		A	
130-QN-023	SAG Mill Area Motor Control Centre Network Switch		Allen-Bradley	Stratix	Mill Vendor	Mill Vendor		☐		A	
130-QN-024	Ball Mill Area Motor Control Centre Network Switch		Allen-Bradley	Stratix	Mill Vendor	Mill Vendor		☐		A	
130-QN-025	Pebble Crusher Area Motor Control Centre Network Switch		Allen-Bradley	Stratix	Lycopodium	7002 - Switchrooms		☐		A	
130-QN-001	Gravity Concentrator 1 Control Panel Network Switch		Allen-Bradley	Stratix	Gravity Concentrator Vendor	Gravity Concentrator Vendor		☐		A	
130-QN-002	Gravity Concentrator 2 Control Panel Network Switch		Allen-Bradley	Stratix	Gravity Concentrator Vendor	Gravity Concentrator Vendor		☐		A	
130-QN-003	ILR Plant Control Panel Network Switch		Allen-Bradley	Stratix	ILR Vendor	ILR Vendor		☐		A	
160-QN-031	CIL Area Motor Control Centre Network Switch		Allen-Bradley	Stratix	Lycopodium	7002 - Switchrooms		☐		A	
160-QN-001	CIL Free Cyanide Analyser Control Panel Network Switch		Allen-Bradley	Stratix	Cyanide Analyser Vendor	Cyanide Analyser Vendor		☐		A	
170-QN-041	Elution Area Motor Control Centre Network Switch		Allen-Bradley	Stratix	Lycopodium	7002 - Switchrooms		☐		A	
170-QN-001	Carbon Regeneration Kiln Control Panel Network Switch		Allen-Bradley	Stratix	Vendor	Vendor		☐		A	
200-QN-061	Plant Services Area Motor Control Centre Network Switch		Allen-Bradley	Stratix	Lycopodium	7002 - Switchrooms		☐		A	
210-QN-001	Flocculant Plant Control Panel Network Switch		Allen-Bradley	Stratix	Flocculant Plant Vendor	Flocculant Plant Vendor		☐		A	
220-QN-001	Plant Filtered Water Treatment Plant Control Panel Network Switch		Allen-Bradley	Stratix	Filtered Water Plant Vendor	Filtered Water Plant Vendor		☐		A	
220-QN-002	Plant Potable Water Treatment Plant Control Panel Network Switch		Allen-Bradley	Stratix	Potable Water Plant Vendor	Potable Water Plant Vendor		☐		A	
230-QN-003	Plant Sewage Treatment Plant Control Panel Network Switch		Allen-Bradley	Stratix	Sewage Plant Vendor	Sewage Plant Vendor		☐		A	
240-QN-001	Oxygen Plant Control Panel Network Switch		Allen-Bradley	Stratix	Oxygen Plant Vendor	Oxygen Plant Vendor		☐		A	
330-QN-091	Lake Water Extraction Motor Control Centre Network Switch		Allen-Bradley	Stratix	Lycopodium	Outdoor MCC Vendor		☐		A	
340-QN-001	Site 11kV Switchboard PLC Panel Network Switch		Allen-Bradley	Stratix	Lycopodium	1703 - E&I Installation		☐		A	
340-QN-002	Plant 11kV Switchboard PLC Panel Network Switch		Allen-Bradley	Stratix	Lycopodium	1703 - E&I Installation		☐		A	
340-QN-111	Plant Control Room Network Switch		Allen-Bradley	Stratix	Lycopodium	1700 - E&I Installation		☐		A	
350-QN-101	Decant Return Motor Control Centre Network Switch		Allen-Bradley	Stratix	Lycopodium	Outdoor MCC Vendor		☐		A	
350-QN-102	TSF Underdrainage Control Panel Network Switch		Allen-Bradley	Stratix	Lycopodium	Outdoor MCC Vendor		☐		A	
350-QN-103	TSF Seepage Control Panel Network Switch		Allen-Bradley	Stratix	Lycopodium	Outdoor MCC Vendor		☐		A	
350-QN-104	TSF Ground Water Control Panel Network Switch		Allen-Bradley	Stratix	Lycopodium	Outdoor MCC Vendor		☐		A	
	-							☐			
130-OIT-	SAG Mill Motor Control Centre HMI				Mill Vendor	Mill Vendor		☐		A	
130-OIT-	Ball Mill Motor Control Centre HMI				Mill Vendor	Mill Vendor		☐		A	
130-OIT-	Gravity Concentrator 1 Control Panel HMI							☐		A	
130-OIT-	Gravity Concentrator 2 Control Panel HMI							☐		A	
130-OIT-	ILR Plant Control Panel HMI							☐		A	
160-OIT-	CIL Free Cyanide Analyser Control Panel HMI							☐		A	
160-OIT-	Carbon Regeneration Kiln Control Panel HMI							☐		A	
210-OIT-	Flocculant Plant Control Panel HMI							☐		A	
220-OIT-	Plant Filtered Water Treatment Plant Control Panel HMI							☐		A	
220-OIT-	Plant Potable Water Treatment Plant Control Panel HMI							☐		A	
230-OIT-	Plant Sewage Treatment Plant Control Panel HMI							☐		A	
240-OIT-	Oxygen Plant Control Panel HMI							☐		A	
340-OIT-	Site 11kV Switchboard PLC Panel HMI							☐		A	
340-OIT-	Plant 11kV Switchboard PLC Panel HMI							☐		A	
370-OIT-001	Plant Operator Interface Terminal 1							☐		A	
370-OIT-002	Plant Operator Interface Terminal 2							☐		A	
370-OIT-003	Plant Engineering Workstation Operator Interface Terminal							☐		A	
	-							☐		A	
	-							☐		A	
	-							☐			
344-OHL-001	11kV Plant Services Overhead Line		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	Length TBA
344-OHL-002	11kV Decant Return Overhead Line		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
	-							☐			
120-PLC-011	Primary Crusher Motor Control Centre Programmable Controller		Allen-Bradley	ControlLogix L8X Range	Lycopodium	7002 - Switchrooms		☐		A	
130-PLC-021	Reclaim Motor Control Centre Programmable Controller		Allen-Bradley	ControlLogix L8X Range	Lycopodium	7002 - Switchrooms		☐		A	
130-PLC-022	Grinding Motor Control Centre Programmable Controller		Allen-Bradley	ControlLogix L8X Range	Lycopodium	7002 - Switchrooms		☐		A	
132-PLC-023	SAG Mill Motor Control Centre Programmable Controller		Allen-Bradley	ControlLogix L8X Range	Mill Vendor	Mill Vendor		☐		A	
132-PLC-024	Ball Mill Motor Control Centre Programmable Controller		Allen-Bradley	ControlLogix L8X Range	Mill Vendor	Mill Vendor		☐		A	
130-PLC-025	Pebble Crusher Motor Control Centre Programmable Controller		Allen-Bradley	ControlLogix L8X Range	Lycopodium	7002 - Switchrooms		☐		A	
134-PLC-001	Gravity Concentrator 1 Control Panel Programmable Controller		Allen-Bradley	CompactLogix L24 Controllers	Gravity Concentrator Vendor	Gravity Concentrator Vendor		☐		A	
134-PLC-002	Gravity Concentrator 2 Control Panel Programmable Controller		Allen-Bradley	CompactLogix L24 Controllers	Gravity Concentrator Vendor	Gravity Concentrator Vendor		☐		A	
134-PLC-003	ILR Plant Control Panel Programmable Controller		Allen-Bradley	CompactLogix L24 Controllers	ILR Vendor	ILR Vendor		☐		A	
160-PLC-031	CIL Motor Control Centre Programmable Controller		Allen-Bradley	ControlLogix L8X Range	Lycopodium	7002 - Switchrooms		☐		A	
162-PLC-001	CIL Free Cyanide Analyser Control Panel Programmable Controller		Allen-Bradley	CompactLogix L24 Controllers	Cyanide Analyser Vendor	Cyanide Analyser Vendor		☐		A	
170-PLC-041	Elution Motor Control Centre Programmable Controller		Allen-Bradley	ControlLogix L8X Range	Lycopodium	7002 - Switchrooms		☐		A	
174-PLC-001	Carbon Regeneration Kiln Control Panel Programmable Controller		Allen-Bradley	CompactLogix L24 Controllers	Vendor	Vendor		☐		A	
180-PLC-051	Tailings Motor Control Centre Programmable Controller		Allen-Bradley	ControlLogix L8X Range	Lycopodium	7002 - Switchrooms		☐		A	
200-PLC-061	Plant Services Motor Control Centre Programmable Controller		Allen-Bradley	ControlLogix L8X Range	Lycopodium	7002 - Switchrooms		☐		A	
213-PLC-001	Flocculant Plant Control Panel Programmable Controller		Allen-Bradley	CompactLogix L24 Controllers	Flocculant Plant Vendor	Flocculant Plant Vendor		☐		A	
221-PLC-001	Plant Filtered Water Treatment Plant Control Panel Programmable Controller		Allen-Bradley	CompactLogix L24 Controllers	Filtered Water Plant Vendor	Filtered Water Plant Vendor		☐		A	
224-PLC-002	Plant Potable Water Treatment Plant Control Panel Programmable Controller		Allen-Bradley	CompactLogix L24 Controllers	Potable Water Plant Vendor	Potable Water Plant Vendor		☐		A	
233-PLC-003	Plant Sewage Treatment Plant Control Panel Programmable Controller		Allen-Bradley	CompactLogix L24 Controllers	Sewage Plant Vendor	Sewage Plant Vendor		☐		A	
243-PLC-001	Oxygen Plant Control Panel Programmable Controller		Allen-Bradley	CompactLogix L24 Controllers	Oxygen Plant Vendor	Oxygen Plant Vendor		☐		A	
330-PLC-091	Lake Water Extraction Motor Control Centre Programmable Controller		Allen-Bradley	CompactLogix L24 Controllers	Lycopodium	Outdoor MCC Vendor		☐		A	
340-PLC-001	Site 11kV Switchboard PLC Panel Programmable Controller		Allen-Bradley	ControlLogix L8X Range	Lycopodium	7002 - Switchrooms		☐		A	
340-PLC-002	Plant 11kV Switchboard PLC Panel Programmable Controller		Allen-Bradley	ControlLogix L8X Range	Lycopodium	7002 - Switchrooms		☐		A	
350-PLC-101	Decant Return Motor Control Centre Programmable Controller		Allen-Bradley	CompactLogix L24 Controllers	Lycopodium	Outdoor MCC Vendor		☐		A	
350-PLC-102	TSF Underdrainage Control Panel Programmable Controller		Allen-Bradley	CompactLogix L24 Controllers	Lycopodium	Outdoor MCC Vendor		☐		A	
350-PLC-103	TSF Seepage Control Panel Programmable Controller		Allen-Bradley	CompactLogix L24 Controllers	Lycopodium	Outdoor MCC Vendor		☐		A	
350-PLC-104	TSF Ground Water Control Panel Programmable Controller		Allen-Bradley	CompactLogix L24 Controllers	Lycopodium	Outdoor MCC Vendor		☐		A	
	-							☐			
130-IP-001	Pebble Crusher Diverter Gate Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
130-IP-002	Cyclone Cluster Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
130-IP-003A	Cyclone Feed Pumps Valve Control Pneumatic Panel A		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
130-IP-003B	Cyclone Feed Pumps Valve Control Pneumatic Panel B		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
130-IP-004	Milling Area Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
130-IP-005	Gravity Feed Pump Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
130-IP-006	Cyclone Cluster Area Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	

Equipment No.	Description	Reference Drawing	Manufacturer	Model/Description	Supplied By	Installed By	Installation Location	Preservation Required	Remarks	Rev	Revision Comment
130-IP-007	Cyclone Underflow Splitter Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
130-IP-008	Ball Mill Indexer Actuator Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
140-IP-011	Trash Screen Isolation Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
140-IP-012A	Leach Feed Thickener Valve Control Pneumatic Panel A		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
140-IP-012B	Leach Feed Thickener Valve Control Pneumatic Panel B		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
160-IP-021	CIL Tanks 5 & 6 Isolation Gate Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
170-IP-031A	Acid Wash & Elution Column Valve Control Pneumatic Panel A		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
170-IP-031B	Acid Wash & Elution Column Valve Control Pneumatic Panel B		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
170-IP-032	Strip Solution Area Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
170-IP-033	Pregnant Solution Tanks Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
170-IP-034	Carbon Reactivation Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
170-IP-035	Gravity Electrowinning Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
170-IP-036	Electrowinning Cell Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
170-IP-037	Gravity Electrowinning Cell Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
180-IP-041A	Tailings Pump Area Valve Control Pneumatic Panel A		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
180-IP-041B	Tailings Pump Area Valve Control Pneumatic Panel B		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
180-IP-042	Carbon Safety Screen Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
210-IP-051	Reagents Area Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
240-IP-061	Oxygen Plant Valve Control Pneumatic Panel		TBA	TBC	Lycopodium	1700 - E&I Installation		☐		A	
	-							☐			
120-HE-001/002JB	Primary Crusher Lubrication Oil Heater Junction Box		TBA	Vendor Customised Equipment Junction Box	1700 - E&I Installation	1700 - E&I Installation		☐		A	
130-HE-039/040/041JB	Pebble Crusher 1 Oil Heater Junction Box		TBA	Vendor Customised Equipment Junction Box	1700 - E&I Installation	1700 - E&I Installation		☐		A	
130-HE-042/043/044JB	Pebble Crusher 2 Oil Heater Junction Box		TBA	Vendor Customised Equipment Junction Box	1700 - E&I Installation	1700 - E&I Installation		☐		A	
130-BN-006JB	Lime Silo Bin Activator Junction Box		TBA	Vendor Customised Equipment Junction Box	1700 - E&I Installation	1700 - E&I Installation		☐		A	
130-FE-007JB	Pebble Crusher 1 Feeder Junction Box		TBA	Vendor Customised Equipment Junction Box	1700 - E&I Installation	1700 - E&I Installation		☐		A	
130-FE-008JB	Pebble Crusher 2 Feeder Junction Box		TBA	Vendor Customised Equipment Junction Box	1700 - E&I Installation	1700 - E&I Installation		☐		A	
130-SC-001JB	Pebble Screen Junction Box		TBA	Vendor Customised Equipment Junction Box	1700 - E&I Installation	1700 - E&I Installation		☐		A	
130-SC-002JB	Gravity Scalping Screen Junction Box		TBA	Vendor Customised Equipment Junction Box	1700 - E&I Installation	1700 - E&I Installation		☐		A	
140-SC-003JB	Trash Screen Junction Box		TBA	Vendor Customised Equipment Junction Box	1700 - E&I Installation	1700 - E&I Installation		☐		A	
170-SC-011JB	Loaded Carbon Recovery Screen Junction Box		TBA	Vendor Customised Equipment Junction Box	1700 - E&I Installation	1700 - E&I Installation		☐		A	
170-SC-012JB	Carbon Dewatering Screen Junction Box		TBA	Vendor Customised Equipment Junction Box	1700 - E&I Installation	1700 - E&I Installation		☐		A	
170-SC-013JB	Carbon Sizing Screen Junction Box		TBA	Vendor Customised Equipment Junction Box	1700 - E&I Installation	1700 - E&I Installation		☐		A	
180-SC-014JB	Carbon Safety Screen Junction Box		TBA	Vendor Customised Equipment Junction Box	1700 - E&I Installation	1700 - E&I Installation		☐		A	
	-							☐			
370-RM-001	Plant Building Ring Main Unit		TBA	630A, 11kV, 25kA (3s)	7004 - HV Switchgear	1700 - E&I Installation		☐		A	
	-							☐			
340-RSP-002	Plant Main 11kV Switchroom Remote Switching Panel		TBA	TBA	7002 - Switchrooms	1700 - E&I Installation	130-SWR-022	☐		A	
	-							☐			
120-PC-012	Crushing Area Remote IO Panel		TBA	230V / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐		A	
120-PC-013	Primary Crusher Area Remote IO Panel		TBA	230V / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐		A	
130-PC-026	Reclaim Area Remote IO Panel		TBA	230V / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐		A	
130-PC-027	Mill Feed Area Remote IO Panel		TBA	230V / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐		A	
130-PC-028	Mill Discharge Area Remote IO Panel		TBA	230V / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐		A	
130-PC-029	Cyclone Cluster Area Remote IO Panel		TBA	230V / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐		A	
130-PC-030	Pebble Crusher Area Remote IO Panel		TBA	230V / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐		A	
160-PC-032	CIL Tanks Area Remote IO Panel		TBA	230V / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐		A	
170-PC-042	Elution Area Remote IO Panel		TBA	230V / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐		A	
170-PC-043	Gold Room Area Remote IO Panel		TBA	230V / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐		A	
180-PC-052	Tailings Area Remote IO Panel		TBA	230V / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐		A	
200-PC-062	Services Area Remote IO Panel		TBA	230V / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐		A	
140-PC-072	Pre-Leach Thickener Area Remote IO Panel		TBA	230V / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐		A	
210-PC-082	Reagents Area Remote IO Panel		TBA	230V / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐		A	
340-PC-001	Site 11kV Switchboard PLC Panel		TBA	48VDC / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐	Located in Site 11kV Switchroom 340-SWR-001	A	
340-PC-002	Plant 11kV Switchboard PLC Panel		TBA	230V / 24VDC IP56, Field Control Panel	RIO Panel Vendor	1700 - E&I Installation		☐	Located in Grinding Switchroom 130-SWR-022	A	
	-							☐			
342-SB-001	Site Main 11kV Switchboard		TBA	2500A, 11kV, 20kA (3s)	7004 - HV Switchgear	Power Station Package		☐	Part of PS Package	A	
344-SB-001	Plant 11kV Switchboard		TBA	2500A, 11kV, 20kA (3s)	7004 - HV Switchgear	1700 - E&I Installation		☐		A	
370-SB-001	Plant Building Area 400V Switchboard		TBA	2000A, 0.4kV, 35kA (3s)	TBA	1700 - E&I Installation	Outdoor Kiosk	☐	Part of Kiosk/Switchroom	A	
450-SB-400	MSA Main 400V Switchboard		TBA	2000A, 0.4kV, 35kA (3s)	TBA	1700 - E&I Installation	Outdoor Kiosk	☐	Part of Kiosk/Switchroom	A	
380-SB-001	Permanent Village Area 400V Switchboard		TBA	1000A, 0.4kV, 25kA (3s)	TBA	1700 - E&I Installation	Outdoor Kiosk	☐	Part of Kiosk/Switchroom	A	
380-SB-002	Permanent Village Area 400V Switchboard		TBA	1000A, 0.4kV, 25kA (3s)	TBA	1700 - E&I Installation	Outdoor Kiosk	☐	Part of Kiosk/Switchroom	A	
450-SB-411	Explosive Magazine Area 400V Switchboard		TBA	630A, 0.4kV, 16kA (3s)	TBA	1700 - E&I Installation	Outdoor Kiosk	☐	Part of Kiosk/Switchroom	A	
318-SB-001	Airstrip Area 400V Switchboard		TBA	630A, 0.4kV, 16kA (3s)	TBA	1700 - E&I Installation	Outdoor Kiosk	☐	Part of Kiosk/Switchroom	A	
	-							☐			
120-SWR-011	Crushing Area 400V Switchroom		TBA	TBC	7002 - Switchrooms	1700 - E&I Installation		☐		A	
130-SWR-021	Reclaim Area 400V Switchroom		TBA	TBC	7002 - Switchrooms	1700 - E&I Installation		☐	Contains Reclaim MCC & Future Pebble Crusher MCC	A	
130-SWR-022	Grinding Area 400V Switchroom		TBA	TBC	7002 - Switchrooms	1700 - E&I Installation		☐	Grinding Switchroom Next To Plant HV Switchroom	A	
160-SWR-031	CIL & Tailings Area 400V Switchroom		TBA	TBC	7002 - Switchrooms	1700 - E&I Installation		☐	Contains CIL & Tailings MCCs	A	
170-SWR-041	Elution Area 400V Switchroom		TBA	TBC	7002 - Switchrooms	1700 - E&I Installation		☐		A	
200-SWR-061	Plant Services Area 400V Switchroom		TBA	TBC	7002 - Switchrooms	1700 - E&I Installation		☐		A	
340-SWR-001	Site 11kV Switchroom		TBA	TBC	7002 - Switchrooms	1700 - E&I Installation		☐		A	
340-SWR-002	Plant 11kV Switchroom		TBA	TBC	7002 - Switchrooms	1700 - E&I Installation		☐		A	
	-							☐			
340-TX-001	Main Switchyard Transformer		TBA	25/33MVA	Switchyard Vendor	1700 - E&I Installation	Switchyard	☐	Duty	A	
340-TX-002	Main Switchyard Transformer		TBA	25/33MVA	Switchyard Vendor	1700 - E&I Installation	Switchyard	☐	Duty	A	
340-TX-003	Main Switchyard Transformer		TBA	25/33MVA	Switchyard Vendor	1700 - E&I Installation	Switchyard	☐	Spare	A	
342-TX-006	Site Main 11kV Substation L&SP Power Station Aux Transformer		TBA	315kVA	7005 - Transformers	1700 - E&I Installation		☐		A	
120-TX-011	Primary Crusher Motor Control Centre Transformer		TBA	2500kVA	7005 - Transformers	1700 - E&I Installation		☐		A	
130-TX-021	Stockpiling, Reclaim & Pebble Crushing Motor Control Centre Transformer		TBA	2500kVA	7005 - Transformers	1700 - E&I Installation		☐		A	
130-TX-022	Grinding Motor Control Centre Transformer		TBA	2500kVA	7005 - Transformers	1700 - E&I Installation		☐		A	
132-TX-001	SAG Mill VSD Transformer		TBA	TBA	Mill Vendor	1700 - E&I Installation		☐		A	
132-TX-002	Ball Mill VSD Transformer		TBA	TBA	Mill Vendor	1700 - E&I Installation		☐		A	
140-TX-061	Pre-Leach Thickening & Plant Water Motor Control Centre Transformer		TBA	1000kVA	7005 - Transformers	1700 - E&I Installation		☐	Future	A	
160-TX-031	CIL Motor Control Centre Transformer		TBA	2500kVA	7005 - Transformers	1700 - E&I Installation		☐		A	
170-TX-041	Elution Motor Control Centre Transformer		TBA	2500kVA	7005 - Transformers	1700 - E&I Installation		☐		A	
170-TX-042	Carbon Regeneration Kiln Motor Control Centre Transformer		TBA	2500kVA	7005 - Transformers	1700 - E&I Installation		☐		A	
180-TX-051	Tailings, Reagents & Air Services Motor Control Centre Transformer		TBA	2500kVA	7005 - Transformers	1700 - E&I Installation		☐		A	
								☐			
								☐			
330-TX-091	Water Storage Dam Motor Control Centre Transformer		TBA	315kVA	7005 - Transformers	1700 - E&I Installation		☐	*Pole Mount	A	
318-TX-001	Air Strip Switchboard Transformer		TBA	315kVA	7005 - Transformers	1700 - E&I Installation		☐	*Pole Mount	A	
330-TX-101	Water Harvesting Dam Motor Control Centre Transformer		TBA	315kVA	7005 - Transformers	1700 - E&I Installation		☐	*Pole Mount	A	
350-TX-101	Decant Return Motor Control Centre Transformer		TBA	315kVA	7005 - Transformers	1700 - E&I Installation		☐	*Pole Mount	A	
450-TX-411	Explosive Magazine Switchboard Transformer		TBA	315kVA	1702 - Overhead Power Line	1702 - Overhead Power Line		☐	*Pole Mount	A	
350-TX-102	TSF Ground Water Control Panel Transformer		TBA	150kVA	1702 - Overhead Power Line	1702 - Overhead Power Line		☐	*Pole Mount	A	
350-TX-103	TSF Seepage Control Panel Transformer		TBA	150kVA	1702 - Overhead Power Line	1702 - Overhead Power Line		☐	*Pole Mount	A	
350-TX-104	TSF Underdrainage Control Panel Transformer		TBA	150kVA	1702 - Overhead Power Line	1702 - Overhead Power Line		☐	*Pole Mount	A	
370-TX-001	Plant Building Main Switchboard 400V Transformer		TBA	1250kVA	7006 - Transformers	1700 - E&I Installation		☐	* Part of Kiosk Sub	A	

Electrical Equipment List

Equipment No.	Description	Reference Drawing	Manufacturer	Model/Description	Supplied By	Installed By	Installation Location	Preservation Required	Remarks	Rev	Revision Comment
380-TX-001	Permanent Village Area Switchboard 1 400V Transformer		TBA	500kVA	7007 - Transformers	1700 - E&I Installation		☐	* Part of Kiosk Sub	A	
450-TX-400	MSA Main Switchboard 400V Transformer		TBA	1250kVA	7008 - Transformers	1700 - E&I Installation		☐	* Part of Kiosk Sub	A	
380-TX-002	Permanent Village Area Switchboard 2 400V Transformer		TBA	500kVA	7008 - Transformers	1700 - E&I Installation		☐	* Part of Kiosk Sub	A	
	-							☐			
120-UPS-011A	Primary Crusher Area Process Uninterruptible Power Supply		TBA	400/230 Vac Input/Output, 5kVA, Double Conversion, C/W Battery Cabinet and External Bypass	7002 - Switchrooms	7002 - Switchrooms		☐		A	
120-UPS-011B	Primary Crusher Area Lighting Uninterruptible Power Supply		TBA	400/400 Vac Input/Output, 15kVA, Double Conversion, C/W Battery Cabinet and External Bypass	7002 - Switchrooms	7002 - Switchrooms		☐		A	
130-UPS-021A	Reclaim Area Process Uninterruptible Power Supply		TBA	400/230 Vac Input/Output, 5kVA, Double Conversion, C/W Battery Cabinet and External Bypass	7002 - Switchrooms	7002 - Switchrooms		☐		A	
130-UPS-021B	Reclaim Area Lighting Uninterruptible Power Supply		TBA	400/400 Vac Input/Output, 15kVA, Double Conversion, C/W Battery Cabinet and External Bypass	7002 - Switchrooms	7002 - Switchrooms		☐		A	
130-UPS-022A	Grinding Area Process Uninterruptible Power Supply		TBA	400/230 Vac Input/Output, 5kVA, Double Conversion, C/W Battery Cabinet and External Bypass	7002 - Switchrooms	1700 - E&I Installation		☐		A	
130-UPS-022B	Grinding Area Lighting Uninterruptible Power Supply		TBA	400/400 Vac Input/Output, 15kVA, Double Conversion, C/W Battery Cabinet and External Bypass	7002 - Switchrooms	1700 - E&I Installation		☐		A	
160-UPS-031A	CIL Area Process Uninterruptible Power Supply		TBA	400/230 Vac Input/Output, 5kVA, Double Conversion, C/W Battery Cabinet and External Bypass	7002 - Switchrooms	7002 - Switchrooms		☐		A	
160-UPS-031B	CIL Area Lighting Uninterruptible Power Supply		TBA	400/400 Vac Input/Output, 15kVA, Double Conversion, C/W Battery Cabinet and External Bypass	7002 - Switchrooms	7002 - Switchrooms		☐		A	
170-UPS-041A	Elution Area Process Uninterruptible Power Supply		TBA	400/230 Vac Input/Output, 5kVA, Double Conversion, C/W Battery Cabinet and External Bypass	7002 - Switchrooms	7002 - Switchrooms		☐		A	
170-UPS-041B	Elution Area Lighting Uninterruptible Power Supply		TBA	400/400 Vac Input/Output, 15kVA, Double Conversion, C/W Battery Cabinet and External Bypass	7002 - Switchrooms	7002 - Switchrooms		☐		A	
180-UPS-051A	Tailings Area Process Uninterruptible Power Supply		TBA	400/230 Vac Input/Output, 5kVA, Double Conversion, C/W Battery Cabinet and External Bypass	7002 - Switchrooms	7002 - Switchrooms		☐		A	
180-UPS-051B	Tailings Area Lighting Uninterruptible Power Supply		TBA	400/400 Vac Input/Output, 15kVA, Double Conversion, C/W Battery Cabinet and External Bypass	7002 - Switchrooms	7002 - Switchrooms		☐		A	
200-UPS-061A	Plant Services Area Process Uninterruptible Power Supply		TBA	400/230 Vac Input/Output, 5kVA, Double Conversion, C/W Battery Cabinet and External Bypass	7002 - Switchrooms	7002 - Switchrooms		☐		A	
200-UPS-061B	Plant Services Area Lighting Uninterruptible Power Supply		TBA	400/400 Vac Input/Output, 15kVA, Double Conversion, C/W Battery Cabinet and External Bypass	7002 - Switchrooms	7002 - Switchrooms		☐		A	
	-							☐			
121-CR-001VSD	Primary Crusher Variable Speed Drive		TBA	450kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
121-FE-001VSD	Primary Crusher Feeder Variable Speed Drive		TBA	90kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
121-FA-005VSD	Primary Crusher Dust Scrubber Fan Variable Speed Drive		TBA	75kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
125-CV-002VSD	Stockpile Feed Conveyor (CV2) Variable Speed Drive		TBA	355kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
131-FE-002VSD	Stockpile Reclaim Feeder 1 Variable Speed Drive		TBA	75kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
131-FE-003VSD	Stockpile Reclaim Feeder 2 Variable Speed Drive		TBA	75kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
131-CV-005VSD	Sag Mill Feed Conveyor (CV5) Variable Speed Drive		TBA	355kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
131-FE-004VSD	Emergency Reclaim Feeder Variable Speed Drive		TBA	75kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
131-FE-005VSD	Lime Hopper Rotary Valve Variable Speed Drive		TBA	0.55kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
131-FE-006VSD	Lime Silo Rotary Valve Variable Speed Drive		TBA	0.55kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
132-ML-001VSD	Sag Mill Variable Speed Drive		TBA	10500kW, Variable Speed Drive, 11000V, 50Hz (Mounted Inside Switchroom)	5001- Mill	1700 - E&I Installation		☐		A	
132-ML-002VSD	Ball Mill Variable Speed Drive		TBA	10500kW, Variable Speed Drive, 11000V, 50Hz (Mounted Inside Switchroom)	5001- Mill	1700 - E&I Installation		☐		A	
133-PP-001	Cyclone Feed Pump 1 Motor		TBA	3.3kV, 700kW, 11000V, 50Hz Motor	Lycopodium	1700 - E&I Installation		☐		A	
133-PP-001VSD	Cyclone Feed Pump 1 Variable Speed Drive		TBA	850kW, Variable Speed Drive, 11000V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
133-PP-002	Cyclone Feed Pump 2 Motor		TBA	3.3kV, 700kW, 11000V, 50Hz Motor	Lycopodium	1700 - E&I Installation		☐		A	
133-PP-002VSD	Cyclone Feed Pump 2 Variable Speed Drive		TBA	850kW, Variable Speed Drive, 11000V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
134-PP-032VSD	Gravity Feed Pump 1 Variable Speed Drive		TBA	220kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
134-PP-033VSD	Gravity Feed Pump 2 Variable Speed Drive		TBA	220kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
134-GC-001VSD	Gravity Concentrator 1 Variable Speed Drive		TBA	75kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
134-GC-002VSD	Gravity Concentrator 2 Variable Speed Drive		TBA	75kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
136-FE-007VSD	Pebble Crusher 1 Feeder Variable Speed Drive		TBA	7.5kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
136-CR-002VSD	Pebble Crusher 1 Variable Speed Drive		TBA	250kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
136-FE-008VSD	Pebble Crusher 2 Feeder Variable Speed Drive		TBA	7.5kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
136-CR-003VSD	Pebble Crusher 2 Variable Speed Drive		TBA	250kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
142-PP-044VSD	Leach Feed Pump 1 Variable Speed Drive		TBA	150kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
142-PP-045VSD	Leach Feed Pump 2 Variable Speed Drive		TBA	150kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
162-AG-001VSD	Pre-Oxidation Tank Agitator Variable Speed Drive		TBA	132kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
162-AG-002VSD	CIL Tank 1 Agitator Variable Speed Drive		TBA	132kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
162-AG-003VSD	CIL Tank 2 Agitator Variable Speed Drive		TBA	132kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
162-AG-004VSD	CIL Tank 3 Agitator Variable Speed Drive		TBA	132kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
162-AG-005VSD	CIL Tank 4 Agitator Variable Speed Drive		TBA	132kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
162-AG-006VSD	CIL Tank 5 Agitator Variable Speed Drive		TBA	132kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
162-AG-007VSD	CIL Tank 6 Agitator Variable Speed Drive		TBA	132kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
162-AG-008VSD	CIL Tank 7 Agitator Variable Speed Drive		TBA	132kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
173-PP-058VSD	Strip Solution Pump Variable Speed Drive		TBA	37kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
176-PP-060VSD	Pregnant Solution Pump 1 Variable Speed Drive		TBA	11kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
176-PP-061VSD	Pregnant Solution Pump 2 Variable Speed Drive		TBA	11kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
184-PP-071VSD	Tails Pump 1 Stage 1 Variable Speed Drive		TBA	355kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
184-PP-072VSD	Tails Pump 1 Stage 2 Variable Speed Drive		TBA	355kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
184-PP-073VSD	Tails Pump 2 Stage 1 Variable Speed Drive		TBA	355kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
184-PP-074VSD	Tails Pump 2 Stage 2 Variable Speed Drive		TBA	355kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
213-PP-080VSD	Pre Leach Thickener Flocculant Dosing Pump 1 Variable Speed Drive		TBA	2.2kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
213-PP-081VSD	Pre Leach Thickener Flocculant Dosing Pump 2 Variable Speed Drive		TBA	2.2kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
214-PP-084VSD	Cyanide Destruction Caustic Dosing Pump Variable Speed Drive		TBA	1.5kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
216-PP-089VSD	SMBS Dosing Pump 1 Variable Speed Drive		TBA	1.5kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
216-PP-090VSD	SMBS Dosing Pump 2 Variable Speed Drive		TBA	1.5kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
216-PP-092VSD	Copper Sulphate Dosing Pump 1 Variable Speed Drive		TBA	0.75kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
216-PP-093VSD	Copper Sulphate Dosing Pump 2 Variable Speed Drive		TBA	0.75kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
223-PP-099VSD	Process Water Pump 1 Variable Speed Drive		TBA	250kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
223-PP-100VSD	Process Water Pump 2 Variable Speed Drive		TBA	250kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
224-PP-102VSD	Plant Potable Water Pump 1 Variable Speed Drive		TBA	4kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
224-PP-103VSD	Plant Potable Water Pump 2 Variable Speed Drive		TBA	4kW, Variable Speed Drive, 400V, 50Hz (Mounted Inside Switchroom)	7002 - Switchrooms	1700 - E&I Installation		☐		A	
	-							☐			
120-SP-011A	Primary Crusher MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
120-SP-011B	Primary Crusher MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
120-SP-011C	Primary Crusher MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
120-SP-011D	Primary Crusher MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
120-SP-011E	Primary Crusher MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
120-SP-011F	Primary Crusher MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
120-SP-011G	Primary Crusher MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
120-SP-011H	Primary Crusher MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
120-SP-011I	Primary Crusher MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
120-SP-011J	Primary Crusher MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-021A	Reclaim MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-021B	Reclaim MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-021C	Reclaim MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-021D	Reclaim MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-021E	Reclaim MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-021F	Reclaim MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-021G	Reclaim MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-021H	Reclaim MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-021I	Reclaim MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-021J	Reclaim MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-022A	Grinding MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-022B	Grinding MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-022C	Grinding MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-022D	Grinding MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-022E	Grinding MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-022F	Grinding MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	

Equipment No.	Description	Reference Drawing	Manufacturer	Model/Description	Supplied By	Installed By	Installation Location	Preservation Required	Remarks	Rev	Revision Comment
130-SP-022G	Grinding MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-022H	Grinding MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-022I	Grinding MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-022J	Grinding MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-022K	Grinding MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-022L	Grinding MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-025A	Pebble Crusher MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-025B	Pebble Crusher MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-025C	Pebble Crusher MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-025D	Pebble Crusher MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-025E	Pebble Crusher MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-025F	Pebble Crusher MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-025G	Pebble Crusher MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-025H	Pebble Crusher MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-025I	Pebble Crusher MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
130-SP-025J	Pebble Crusher MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
160-SP-031A	CIL MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
160-SP-031B	CIL MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
160-SP-031C	CIL MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
160-SP-031D	CIL MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
160-SP-031E	CIL MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
160-SP-031F	CIL MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
160-SP-031G	CIL MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
160-SP-031H	CIL MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
160-SP-031I	CIL MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
160-SP-031J	CIL MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
170-SP-041A	Elution MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
170-SP-041B	Elution MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
170-SP-041C	Elution MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
170-SP-041D	Elution MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
170-SP-041E	Elution MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
170-SP-041F	Elution MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
170-SP-041G	Elution MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
170-SP-041H	Elution MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
170-SP-041I	Elution MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
170-SP-041J	Elution MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
180-SP-051A	Tailings MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
180-SP-051B	Tailings MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
180-SP-051C	Tailings MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
180-SP-051D	Tailings MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
180-SP-051E	Tailings MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
180-SP-051F	Tailings MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
180-SP-051G	Tailings MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
180-SP-051H	Tailings MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
180-SP-051I	Tailings MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
180-SP-051J	Tailings MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
200-SP-061A	Plant Services MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
200-SP-061B	Plant Services MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
200-SP-061C	Plant Services MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
200-SP-061D	Plant Services MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
200-SP-061E	Plant Services MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
200-SP-061F	Plant Services MCC Spare Starter		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
200-SP-061G	Plant Services MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
200-SP-061H	Plant Services MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
200-SP-061I	Plant Services MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
200-SP-061J	Plant Services MCC Spare Feeder		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms	MCC	☐		A	
200-EB-41	Plant Water Services Transformer Earth Bar		TBA	TBA	7005 - Transformers	1700 - E&I Installation		☐		A	
267-EB-003	Elution, CIL & Gold Room Switchroom Earth Bar		TBA	TBA	7002 - Switchrooms	7002 - Switchrooms		☐		A	
344-OHL-001POL01	11kV Plant Services Overhead Line First Pole 01		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-002POL01	11kV Decant Return Overhead Line First Pole 01		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-101	11kV Spur to West-South OHL - 1 Overhead Line		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	Length TBA
344-OHL-102	11kV Spur to Explosive Magazine Overhead Line		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	Length TBA
344-OHL-103	11kV Spur to Water Storage Dam Overhead Line		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-104	11kV Spur to Plant Building Substation Overhead Line		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-105	11kV Spur to West-South OHL - 2 Overhead Line		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-106	11kV Spur to Air Strip Overhead Line		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-107	11kV Spur to Water Harvesting Dam Overhead Line		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-108	11kV Spur to Permanent Village Overhead Line		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
	-							☐			
344-OHL-201	11kV Spur to Decant Return Overhead Line		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-202	11kV Spur to Underdrainage Pump Overhead Line		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-203	11kV Spur to Underdrainage Pump Overhead Line		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
	-							☐			
344-OHL-001POL02	11kV Plant Services Overhead Line Intermediate Pole 02		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-002POL0x	11kV Decant Return Overhead Line Last Pole XX		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
	-							☐			
344-OHL-101POL02	11kV Spur to West-South OHL Overhead Line Intermediate Pole 02		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐			
344-OHL-102POL02	11kV Spur to Explosive Magazine Last Pole 02		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-103POL02	11kV Spur to Water Storage Dam Last Pole 02		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-104POL02	11kV Spur to Plant Building Substation Last Pole 02		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-105POL02	11kV Spur to West-South OHL - 2 Last Pole 02		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-106POL02	11kV Spur to Air Strip Last Pole 02		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-107POL02	11kV Spur to Water Harvesting Dam Last Pole 02		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-108POL02	11kV Spur to Permanent Village Last Pole 02		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
	-							☐			
344-OHL-201POL02	11kV Spur to Decant Return Last Pole 02		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-202POL02	11kV Spur to Underdrainage Pump Last Pole 02		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
344-OHL-203POL02	11kV Spur to Underdrainage Pump Last Pole 02		TBA	11kV, 50Hz, XXXXA	1702 - Overhead Power Line	1703 - E&I Installation		☐		A	
	-							☐			
132-ML-001A	SAG Mill Motor 1				Lycopodium	1700 - E&I Installation		☐			
132-ML-001B	SAG Mill Motor 2				Lycopodium	1700 - E&I Installation		☐			
132-ML-002A	BALL Mill Motor 1				Lycopodium	1700 - E&I Installation		☐			
132-ML-002B	BALL Mill Motor 2				Lycopodium	1700 - E&I Installation		☐			
	-							☐			
450-RM-001	Mine Service Area Ring Main Unit		TBA	630A, 11kV, 25kA (3s)	7004 - HV Switchgear	1700 - E&I Installation		☐		A	
380-RM-001	Accomodatin Area 1 Ring Main Unit		TBA	630A, 11kV, 25kA (3s)	7004 - HV Switchgear	1700 - E&I Installation		☐		A	

Client
Project Name

Electrical Equipment List

Equipment No.	Description	Reference Drawing	Manufacturer	Model/Description	Supplied By	Installed By	Installation Location	Preservation Required	Remarks	Rev	Revision Comment
380-RM-002	Accomodatin Area 2 Ring Main Unit		TBA	630A, 11kV, 25kA (3s)	7004 - HV Switchgear	1700 - E&I Installation		☐		A	
	-							☐			
	-							☐			
342-PF-001	Site Main 11kV Power Factor Correction		TBA	11kV,8 MVAR, 5 Stages - 3 x 2MVAr, 2 x 1MVAr	TBA	1700 - E&I Installation	Outdoor Kiosk	☐		A	
	-							☐			
	-							☐			
	-							☐			
	-							☐			
	-							☐			
	-							☐			
	-							☐			
	-							☐			
	-							☐			
	-							☐			
	-							☐			
	-							☐			
								☐			
								☐			
								☐			
	-							☐			
	-							☐			
	-							☐			

APPENDIX 7.9

CABLE SCHEDULE



ECG ENGINEERING

Prepared for:
Lycopodium

Project:
Doropo Gold Project

Côte d'Ivoire
2326.20

MV Cable Schedule

DOR-0004-E-CS-0001

REVISION: A

DATE: 16/10/2025

Document Information

Client Information

Prepared For:	Lycopodium
Project Name:	Doropo Gold Project
Site Location:	Côte d'Ivoire
Client Reference:	2326.20

ECG Information

Project No:	DOR-0004
Discipline:	Electrical
Discipline Code:	E
Doc Type:	Cable Schedule
Doc Type Code:	CS
Doc No.	DOR-0004-E-CS-0001
Doc Title:	MV Cable Schedule

Document Control

Rev	Date	Description of Revision	Prepared By	Checked By	Design Approved	ECG Project Approved
A	16/10/2025	Issued for review_ Prepared for Estimate	NP Nitin Panchal	JK	NP Nitin Panchal	JK

Rev		Lead Eng	Project Lead	Design Approved	Project Approved	Client Approved
A	Issued for review_ Prepared for Estimate					

Copyright / Disclaimer

The contents of this document have been prepared for the exclusive use of the named Client and may not be used by any third party without the written consent of both the named Client and ECG Engineering Pty Ltd and its subsidiaries ('the Consultant'). The Client acknowledges that the contents of this document were prepared by the Consultant using the information that was made available to the Consultant and based on the Consultant's assessment of that information. The Client, in accepting the document, agrees to release the Consultant from any liability with respect to inaccuracies or omissions in the document to the extent such inaccuracies or omissions arise from information which was not provided to the Consultant. In addition, to the extent the document attempts to predict future matters, the Client acknowledges that the Consultant has used its reasonable endeavours with respect to those matters, but the Client agrees to release the Consultant from any liability with respect to future matters, shall not rely on the Consultant's predictions and shall form its own assessment of those future matters.

Cable No.	From Tag	Manual: From Description	From Description	To Tag	Manual: To Description	To Description	Operating Voltage	Category	Insulation Voltage (kV)	Cores	Conductor Size (mm²)	Construction	Core Colours	Sheath Colour	Length (m)	Supplied By	Installed By	Installation Condition	Remarks	Rev	Revision Comment
-																					
344SB001-R1	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-W1	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-B1	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-R2	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-W2	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-B2	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-R3	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-W3	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-B3	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-R4	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-W4	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-B4	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-R5	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-W5	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-B5	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-R6	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-W6	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-B6	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	11000Vac	Power MV	6,35/11 (12)	1C	630	CCu/XLPE/CWS(10kA)PVC	BK	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-E1	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard		Earth	0,6/1	1C	120	Cu/V-90	GNYE		200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-E2	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard		Earth	0,6/1	1C	120	Cu/V-90	GNYE		200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-C1	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	48Vdc	Control	0,6/1	6C+E	2,5	CCu/XLPE/CWS(10kA)PVC	WH+GNYE	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
344SB001-C2	342-SB-001		Site Main 11kV Switchboard	344-SB-001		Plant 11kV Switchboard	110Vdc	Control	0,6/1	6C+E	1,5	CCu/XLPE/CWS(10kA)PVC	WH+GNYE	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	*Assumed 34MVA Maxi Demand
-																					
342TX006-P1	342-SB-001			342-TX-006		Site Main 11kV Substation L&SP Power Station Aux Transformer	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
342TX006-E1	342-SB-001			342-TX-006		Site Main 11kV Substation L&SP Power Station Aux Transformer		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
342TX006-C1	342-SB-001			342-TX-006		Site Main 11kV Substation L&SP Power Station Aux Transformer	48Vdc	Control	0,6/1	6C+E	2,5	CCu/XLPE/CWS(10kA)PVC	WH+GNYE	Black	100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	Transformer Guards
-																					
342PF001-P1	342-SB-001		Site Main 11kV Switchboard	342-PF-001		Site Main 11kV Power Factor Correction	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
342PF001-P2	342-SB-001		Site Main 11kV Switchboard	342-PF-001		Site Main 11kV Power Factor Correction	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
342PF001-E1	342-SB-001		Site Main 11kV Switchboard	342-PF-001		Site Main 11kV Power Factor Correction		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	Cable Ladder Touching		A	
342PF001-E2	342-SB-001		Site Main 11kV Switchboard	342-PF-001		Site Main 11kV Power Factor Correction		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	Cable Ladder Touching		A	
342PF001-C1	342-SB-001		Site Main 11kV Switchboard	342-PF-001		Site Main 11kV Power Factor Correction	48Vdc	Control	0,6/1	6C+E	2,5	Cu/V-90/PVC	WH+GNYE	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	Status Signals
342PF001-I1	342-SB-001		Site Main 11kV Switchboard	342-PF-001		Site Main 11kV Power Factor Correction	400Vac	Power LV	0,6/1	4C+E	2,5	Cu/V-90/PVC	RD+WH+BU+BK+GNYE	Orange	100	Principal	E&I Contractor	Cable Ladder Touching		A	Voltage Reference
342PF001-I2	342-SB-001		Site Main 11kV Switchboard	342-PF-001		Site Main 11kV Power Factor Correction		Power LV	0,6/1	4C+E	2,5	Cu/V-90/PVC	RD+WH+BU+BK+GNYE	Orange	100	Principal	E&I Contractor	Cable Ladder Touching		A	Current Reference
-																					
344OH001-P1	342-SB-001			344-OHL-001POL01		11kV Plant Services Overhead Line First Pole 01	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)PVC	RD+WH+BU	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
344OH001-P2	342-SB-001			344-OHL-001POL01		11kV Plant Services Overhead Line First Pole 01	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)PVC	RD+WH+BU	Black	200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
344OH001-E1	342-SB-001			344-OHL-001POL01		11kV Plant Services Overhead Line First Pole 01		Earth	0,6/1	1C	120	Cu/V-90	GNYE		200	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
-																					
132TX001-R1	344-SB-001		Plant 11kV Switchboard	132-TX-001		SAG Mill VSD Transformer	11000Vac	Power MV	6,35/11 (12)	1C	400	CCu/XLPE/CWS(10kA)PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132TX001-W1	344-SB-001		Plant 11kV Switchboard	132-TX-001		SAG Mill VSD Transformer	11000Vac	Power MV	6,35/11 (12)	1C	400	CCu/XLPE/CWS(10kA)PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132TX001-B1	344-SB-001		Plant 11kV Switchboard	132-TX-001		SAG Mill VSD Transformer	11000Vac	Power MV	6,35/11 (12)	1C	400	CCu/XLPE/CWS(10kA)PVC	BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132TX001-E1	342-SB-001		Site Main 11kV Switchboard	132-TX-001		SAG Mill VSD Transformer		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
132ML001VSD-R11	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 1 (Panel 02)	SAG Mill Variable Speed Drive Input 1 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-W11	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 1 (Panel 02)	SAG Mill Variable Speed Drive Input 1 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-B11	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 1 (Panel 02)	SAG Mill Variable Speed Drive Input 1 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-R12	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 1 (Panel 02)	SAG Mill Variable Speed Drive Input 1 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-W12	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 1 (Panel 02)	SAG Mill Variable Speed Drive Input 1 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-B12	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 1 (Panel 02)	SAG Mill Variable Speed Drive Input 1 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-E1	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 1 (Panel 02)	SAG Mill Variable Speed Drive Input 1 (Panel 02)		Earth	0,6/1	1C	120	Cu/V-90	GNYE		50	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
132ML001VSD-R21	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 2 (Panel 02)	SAG Mill Variable Speed Drive Input 2 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-W21	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 2 (Panel 02)	SAG Mill Variable Speed Drive Input 2 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-B21	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 2 (Panel 02)	SAG Mill Variable Speed Drive Input 2 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-R22	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 2 (Panel 02)	SAG Mill Variable Speed Drive Input 2 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-W22	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 2 (Panel 02)	SAG Mill Variable Speed Drive Input 2 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-B22	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 2 (Panel 02)	SAG Mill Variable Speed Drive Input 2 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-E2	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 2 (Panel 02)	SAG Mill Variable Speed Drive Input 2 (Panel 02)		Earth	0,6/1	1C	120	Cu/V-90	GNYE		50	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
132ML001VSD-R31	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 3 (Panel 05)	SAG Mill Variable Speed Drive Input 3 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-W31	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 3 (Panel 05)	SAG Mill Variable Speed Drive Input 3 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-B31	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 3 (Panel 05)	SAG Mill Variable Speed Drive Input 3 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-R32	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 3 (Panel 05)	SAG Mill Variable Speed Drive Input 3 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-W32	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 3 (Panel 05)	SAG Mill Variable Speed Drive Input 3 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-B32	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 3 (Panel 05)	SAG Mill Variable Speed Drive Input 3 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-E3	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 3 (Panel 05)	SAG Mill Variable Speed Drive Input 3 (Panel 05)		Earth	0,6/1	1C	120	Cu/V-90	GNYE		50	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
132ML001VSD-R41	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 4 (Panel 05)	SAG Mill Variable Speed Drive Input 4 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-W41	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 4 (Panel 05)	SAG Mill Variable Speed Drive Input 4 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-B41	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 4 (Panel 05)	SAG Mill Variable Speed Drive Input 4 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-R42	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 4 (Panel 05)	SAG Mill Variable Speed Drive Input 4 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-W42	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 4 (Panel 05)	SAG Mill Variable Speed Drive Input 4 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-B42	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 4 (Panel 05)	SAG Mill Variable Speed Drive Input 4 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001VSD-E4	132-TX-001		SAG Mill VSD Transformer	132-ML-001VSD	SAG Mill Variable Speed Drive Input 4 (Panel 05)	SAG Mill Variable Speed Drive Input 4 (Panel 05)		Earth	0,6/1	1C	120	Cu/V-90	GNYE		50	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
132ML001A-R1	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001A		SAG Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001A-W1	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001A		SAG Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001A-B1	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001A		SAG Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001A-R2	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001A		SAG Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001A-W2	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001A		SAG Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001A-B2	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001A		SAG Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001A-R3	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001A		SAG Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001A-W3	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001A		SAG Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001A-B3	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001A		SAG Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001A-E1	132-ML-001VSD		Sag Mill Variable Speed Drive	132-ML-001A		SAG Mill Motor 1		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
132ML001B-R1	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001B		SAG Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001B-W1	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001B		SAG Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001B-B1	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001B		SAG Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001B-R2	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001B		SAG Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001B-W2	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001B		SAG Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001B-B2	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001B		SAG Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001B-R3	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001B		SAG Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001B-W3	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001B		SAG Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML001B-B3	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-001B		SAG Mill Mot

Cable No.	From Tag	Manual: From Description	From Description	To Tag	Manual: To Description	To Description	Operating Voltage	Category	Insulation Voltage (kV)	Cores	Conductor Size (mm²)	Construction	Core Colours	Sheath Colour	Length (m)	Supplied By	Installed By	Installation Condition	Remarks	Rev	Revision Comment
130TX021-D1	344-SB-001		Plant 11kV Switchboard	130-TX-021		Stockpiling, Reclaim & Pebble Crushing Motor Control Centre Transformer	48Vdc	Control	0,6/1	6C+E	2,5	CCu/XLPE/CWS(10kA)/PVC	WH+GNYE	Black	130	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	Transformer Guards
-																					
133PP028VSD-P1	344-SB-001		Plant 11kV Switchboard	133-PP-001VSD		Cyclone Feed Pump 1 Variable Speed Drive	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	30	Principal	E&I Contractor	Cable Ladder Touching		A	
133PP028VSD-E1	344-SB-001		Plant 11kV Switchboard	133-PP-001VSD		Cyclone Feed Pump 1 Variable Speed Drive		Earth	0,6/1	1C	120	Cu/V-90	GNYE		30	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
133PP001-R1	133-PP-001VSD		Cyclone Feed Pump 1 Variable Speed Drive	133-PP-001		Cyclone Feed Pump 1 Motor	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
133PP001-W1	133-PP-001VSD		Cyclone Feed Pump 1 Variable Speed Drive	133-PP-001		Cyclone Feed Pump 1 Motor	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
133PP001-B1	133-PP-001VSD		Cyclone Feed Pump 1 Variable Speed Drive	133-PP-001		Cyclone Feed Pump 1 Motor	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
133EB001-E1	133-PP-001VSD		Cyclone Feed Pump 1 Variable Speed Drive	133-EB-001		Cyclone Feed Pump 1 Motor Earth Bar		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
133PP002VSD-P1	344-SB-001		Plant 11kV Switchboard	133-PP-002VSD		Cyclone Feed Pump 2 Variable Speed Drive	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	30	Principal	E&I Contractor	Cable Ladder Touching		A	
133PP002VSD-E1	344-SB-001		Plant 11kV Switchboard	133-PP-002VSD		Cyclone Feed Pump 2 Variable Speed Drive		Earth	0,6/1	1C	120	Cu/V-90	GNYE		30	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
133PP002-R1	133-PP-002VSD		Cyclone Feed Pump 2 Variable Speed Drive	133-PP-002		Cyclone Feed Pump 2 Motor	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
133PP002-W1	133-PP-002VSD		Cyclone Feed Pump 2 Variable Speed Drive	133-PP-002		Cyclone Feed Pump 2 Motor	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
133PP002-B1	133-PP-002VSD		Cyclone Feed Pump 2 Variable Speed Drive	133-PP-002		Cyclone Feed Pump 2 Motor	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
133EB002-E1	133-PP-002VSD		Cyclone Feed Pump 2 Variable Speed Drive	133-EB-002		Cyclone Feed Pump 2 Motor Earth Bar		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
130TX022-P1	344-SB-001		Plant 11kV Switchboard	130-TX-022		Grinding Motor Control Centre Transformer	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	30	Principal	E&I Contractor	Cable Ladder Touching		A	
130TX022-E1	344-SB-001		Plant 11kV Switchboard	130-TX-022		Grinding Motor Control Centre Transformer		Earth	0,6/1	1C	120	Cu/V-90	GNYE		30	Principal	E&I Contractor	Cable Ladder Touching		A	
130TX022-C1	344-SB-001		Plant 11kV Switchboard	130-TX-022		Grinding Motor Control Centre Transformer	48Vdc	Control	0,6/1	6C+E	2,5	CCu/XLPE/CWS(10kA)/PVC	WH+GNYE	Black	30	Principal	E&I Contractor	Cable Ladder Touching		A	Transformer Guards
-																					
140TX061-P1	344-SB-001		Plant 11kV Switchboard	140-TX-061		Pre-Leach Thickening & Plant Water Motor Control Centre Transformer	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	160	Principal	E&I Contractor	Cable Ladder Touching		A	
140TX061-E1	344-SB-001		Plant 11kV Switchboard	140-TX-061		Pre-Leach Thickening & Plant Water Motor Control Centre Transformer		Earth	0,6/1	1C	120	Cu/V-90	GNYE		160	Principal	E&I Contractor	Cable Ladder Touching		A	
140TX061-C1	344-SB-001		Plant 11kV Switchboard	140-TX-061		Pre-Leach Thickening & Plant Water Motor Control Centre Transformer	48Vdc	Control	0,6/1	6C+E	2,5	CCu/XLPE/CWS(10kA)/PVC	WH+GNYE	Black	160	Principal	E&I Contractor	Cable Ladder Touching		A	Transformer Guards
-																					
170TX041-P1	344-SB-001		Plant 11kV Switchboard	170-TX-041		Elution Motor Control Centre Transformer	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	173	Principal	E&I Contractor	Cable Ladder Touching		A	
170TX041-E1	344-SB-001		Plant 11kV Switchboard	170-TX-041		Elution Motor Control Centre Transformer		Earth	0,6/1	1C	120	Cu/V-90	GNYE		173	Principal	E&I Contractor	Cable Ladder Touching		A	
170TX041-C1	344-SB-001		Plant 11kV Switchboard	170-TX-041		Elution Motor Control Centre Transformer	48Vdc	Control	0,6/1	6C+E	2,5	CCu/XLPE/CWS(10kA)/PVC	WH+GNYE	Black	173	Principal	E&I Contractor	Cable Ladder Touching		A	Transformer Guards
-																					
170TX042-P1	344-SB-001		Plant 11kV Switchboard	170-TX-042		Carbon Regeneration Kiln Motor Control Centre Transformer	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	173	Principal	E&I Contractor	Cable Ladder Touching		A	
170TX042-E1	344-SB-001		Plant 11kV Switchboard	170-TX-042		Carbon Regeneration Kiln Motor Control Centre Transformer		Earth	0,6/1	1C	120	Cu/V-90	GNYE		173	Principal	E&I Contractor	Cable Ladder Touching		A	
170TX042-C1	344-SB-001		Plant 11kV Switchboard	170-TX-042		Carbon Regeneration Kiln Motor Control Centre Transformer	48Vdc	Control	0,6/1	6C+E	2,5	CCu/XLPE/CWS(10kA)/PVC	WH+GNYE	Black	173	Principal	E&I Contractor	Cable Ladder Touching		A	Transformer Guards
-																					
160TX031-P1	344-SB-001		Plant 11kV Switchboard	160-TX-031		CIL Motor Control Centre Transformer	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	173	Principal	E&I Contractor	Cable Ladder Touching		A	
160TX031-E1	344-SB-001		Plant 11kV Switchboard	160-TX-031		CIL Motor Control Centre Transformer		Earth	0,6/1	1C	120	Cu/V-90	GNYE		173	Principal	E&I Contractor	Cable Ladder Touching		A	
160TX031-C1	344-SB-001		Plant 11kV Switchboard	160-TX-031		CIL Motor Control Centre Transformer	48Vdc	Control	0,6/1	6C+E	2,5	CCu/XLPE/CWS(10kA)/PVC	WH+GNYE	Black	173	Principal	E&I Contractor	Cable Ladder Touching		A	Transformer Guards
-																					
180TX051-P1	344-SB-001		Plant 11kV Switchboard	180-TX-051		Tailings, Reagents & Air Services Motor Control Centre Transformer	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	210	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
180TX051-E1	344-SB-001		Plant 11kV Switchboard	180-TX-051		Tailings, Reagents & Air Services Motor Control Centre Transformer		Earth	0,6/1	1C	120	Cu/V-90	GNYE		210	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
180TX051-C1	344-SB-001		Plant 11kV Switchboard	180-TX-051		Tailings, Reagents & Air Services Motor Control Centre Transformer	48Vdc	Control	0,6/1	6C+E	2,5	CCu/XLPE/CWS(10kA)/PVC	WH+GNYE	Black	210	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	Transformer Guards
-																					
132TX002-R1	344-SB-001		Plant 11kV Switchboard	132-TX-002		Ball Mill VSD Transformer	11000Vac	Power MV	6,35/11 (12)	1C	400	CCu/XLPE/CWS(10kA)/PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132TX002-W1	344-SB-001		Plant 11kV Switchboard	132-TX-002		Ball Mill VSD Transformer	11000Vac	Power MV	6,35/11 (12)	1C	400	CCu/XLPE/CWS(10kA)/PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132TX002-B1	344-SB-001		Plant 11kV Switchboard	132-TX-002		Ball Mill VSD Transformer	11000Vac	Power MV	6,35/11 (12)	1C	400	CCu/XLPE/CWS(10kA)/PVC	BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132TX002-E1	342-SB-001		Site Main 11kV Switchboard	132-TX-002		Ball Mill VSD Transformer		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
132ML002VSD-R11	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 1 (Panel 02)	Ball Mill Variable Speed Drive Input 1 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-W11	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 1 (Panel 02)	Ball Mill Variable Speed Drive Input 1 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-B11	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 1 (Panel 02)	Ball Mill Variable Speed Drive Input 1 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-R12	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 1 (Panel 02)	Ball Mill Variable Speed Drive Input 1 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-W12	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 1 (Panel 02)	Ball Mill Variable Speed Drive Input 1 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-B12	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 1 (Panel 02)	Ball Mill Variable Speed Drive Input 1 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-E1	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 1 (Panel 02)	Ball Mill Variable Speed Drive Input 1 (Panel 02)		Earth	0,6/1	1C	120	Cu/V-90	GNYE		50	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
132ML002VSD-R21	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 2 (Panel 02)	Ball Mill Variable Speed Drive Input 2 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-W21	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 2 (Panel 02)	Ball Mill Variable Speed Drive Input 2 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-B21	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 2 (Panel 02)	Ball Mill Variable Speed Drive Input 2 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-R22	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 2 (Panel 02)	Ball Mill Variable Speed Drive Input 2 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-W22	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 2 (Panel 02)	Ball Mill Variable Speed Drive Input 2 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-B22	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 2 (Panel 02)	Ball Mill Variable Speed Drive Input 2 (Panel 02)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-E2	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 2 (Panel 02)	Ball Mill Variable Speed Drive Input 2 (Panel 02)		Earth	0,6/1	1C	120	Cu/V-90	GNYE		50	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
132ML002VSD-R31	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 3 (Panel 05)	Ball Mill Variable Speed Drive Input 3 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-W31	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 3 (Panel 05)	Ball Mill Variable Speed Drive Input 3 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-B31	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 3 (Panel 05)	Ball Mill Variable Speed Drive Input 3 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-R32	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 3 (Panel 05)	Ball Mill Variable Speed Drive Input 3 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-W32	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 3 (Panel 05)	Ball Mill Variable Speed Drive Input 3 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-B32	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 3 (Panel 05)	Ball Mill Variable Speed Drive Input 3 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-E3	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 3 (Panel 05)	Ball Mill Variable Speed Drive Input 3 (Panel 05)		Earth	0,6/1	1C	120	Cu/V-90	GNYE		50	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
132ML002VSD-R41	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 4 (Panel 05)	Ball Mill Variable Speed Drive Input 4 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-W41	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 4 (Panel 05)	Ball Mill Variable Speed Drive Input 4 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-B41	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 4 (Panel 05)	Ball Mill Variable Speed Drive Input 4 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-R42	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 4 (Panel 05)	Ball Mill Variable Speed Drive Input 4 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-W42	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 4 (Panel 05)	Ball Mill Variable Speed Drive Input 4 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-B42	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 4 (Panel 05)	Ball Mill Variable Speed Drive Input 4 (Panel 05)	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	50	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002VSD-E4	132-TX-001		SAG Mill VSD Transformer	132-ML-002VSD	Ball Mill Variable Speed Drive Input 4 (Panel 05)	Ball Mill Variable Speed Drive Input 4 (Panel 05)		Earth	0,6/1	1C	120	Cu/V-90	GNYE		50	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
132ML002A-R1	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002A		BALL Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002A-W1	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002A		BALL Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002A-B1	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002A		BALL Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002A-R2	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002A		BALL Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002A-W2	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002A		BALL Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002A-B2	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002A		BALL Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002A-R3	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002A		BALL Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002A-W3	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002A		BALL Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002A-B3	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002A		BALL Mill Motor 1	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002A-E1	132-ML-001VSD		Sag Mill Variable Speed Drive	132-ML-002A		BALL Mill Motor 1		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
132ML002B-R1	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002B		BALL Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002B-W1	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002B		BALL Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002B-B1	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002B		BALL Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002B-R2	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002B		BALL Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002B-W2	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002B		BALL Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002B-B2	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002B		BALL Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	

Cable No.	From Tag	Manual: From Description	From Description	To Tag	Manual: To Description	To Description	Operating Voltage	Category	Insulation Voltage (kV)	Cores	Conductor Size (mm²)	Construction	Core Colours	Sheath Colour	Length (m)	Supplied By	Installed By	Installation Condition	Remarks	Rev	Revision Comment
132ML002B-R3	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002B		BALL Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	RD	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002B-W3	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002B		BALL Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	WH	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002B-B3	132-ML-001VSD	SAG Mill Variable Speed Drive Output (Panel 04)	SAG Mill Variable Speed Drive Output (Panel 04)	132-ML-002B		BALL Mill Motor 2	3300Vac	Power MV	3,8/6,6 (7,2)	1C	240	CCu/XLPE/CWS(10kA)/PVC	BU	Black	100	Principal	E&I Contractor	Cable Ladder Touching		A	
132ML002B-E1	132-ML-001VSD		Sag Mill Variable Speed Drive	132-ML-002B		BALL Mill Motor 2		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	Cable Ladder Touching		A	
-																					
344OHL001POL01-P1	342-SB-001		Site Main 11kV Switchboard	344-OHL-001POL01		11kV Plant Services Overhead Line First Pole 01	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
344OHL001POL01-P2	342-SB-001		Site Main 11kV Switchboard	344-OHL-001POL01		11kV Plant Services Overhead Line First Pole 01	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
344OHL001POL01-E1	342-SB-001		Site Main 11kV Switchboard	344-OHL-001POL01		11kV Plant Services Overhead Line First Pole 01		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
-																					
-	344-OHL-001POL01		11kV Plant Services Overhead Line First Pole 01	344-OHL-001POL02		11kV Plant Services Overhead Line Intermediate Pole 02	11000Vac	Aerial Conductor	-	1C	-	AAAC 7/3,00 (Aster 117.0)	-	-	6000 X 3	OHPL Contractor	OHPL Contractor	Outdoor on pole		A	
-	344-OHL-001POL02		11kV Plant Services Overhead Line Intermediate Pole 02	344-OHL-103		11kV Spur to Water Storage Dam Overhead Line	11000Vac	Aerial Conductor	-	1C	-	AAAC 7/3,00 (Aster 117.0)	-	-	7000 X 3	OHPL Contractor	OHPL Contractor	Outdoor on pole		A	
-	344-OHL-001POL02		11kV Plant Services Overhead Line Intermediate Pole 02	344-OHL-102		11kV Spur to Explosive Magazine Overhead Line	11000Vac	Aerial Conductor	-	1C	-	AAAC 7/3,00 (Aster 117.0)	-	-	7000 X 3	OHPL Contractor	OHPL Contractor	Outdoor on pole		A	
450TX411-P1	344-OHL-102POL02		11kV Spur to Explosive Magazine Last Pole 02	450-TX-411		Explosive Magazine Switchboard Transformer	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
450TX411-E1	344-OHL-102POL02		11kV Spur to Explosive Magazine Last Pole 02	450-TX-411		Explosive Magazine Switchboard Transformer		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
-																					
330TX091-P1	344-OHL-103POL02		11kV Spur to Water Storage Dam Last Pole 02	330-TX-091		Water Storage Dam Motor Control Centre Transformer	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
330TX091-E1	344-OHL-103POL02		11kV Spur to Water Storage Dam Last Pole 02	330-TX-091		Water Storage Dam Motor Control Centre Transformer		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
-																					
318TX001-P1	344-OHL-106POL02		11kV Spur to Air Strip Last Pole 02	318-TX-001		Air Strip Switchboard Transformer	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
318TX001-E1	344-OHL-106POL02		11kV Spur to Air Strip Last Pole 02	318-TX-001		Air Strip Switchboard Transformer		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
-																					
330TX101-P1	344-OHL-107POL02		11kV Spur to Water Harvesting Dam Last Pole 02	330-TX-101		Water Harvesting Dam Motor Control Centre Transformer	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
330TX101-E1	344-OHL-107POL02		11kV Spur to Water Harvesting Dam Last Pole 02	330-TX-101		Water Harvesting Dam Motor Control Centre Transformer		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
-																					
-	344-OHL-001POL02		11kV Plant Services Overhead Line Intermediate Pole 02	344-OHL-101POL02		11kV Spur to West-South OHL Overhead Line Intermediate Pole 02	11000Vac	Aerial Conductor	-	1C	-	AAAC 7/3,00 (Aster 117.0)	-	-	7000 X 3	OHPL Contractor	OHPL Contractor	Outdoor on pole		A	
-																					
-	344-OHL-101POL02		11kV Spur to West-South OHL Overhead Line Intermediate Pole 02	344-OHL-104		11kV Spur to Plant Building Substation Overhead Line	11000Vac	Aerial Conductor	-	1C	-	AAAC 7/3,00 (Aster 117.0)	-	-	7000 X 3	OHPL Contractor	OHPL Contractor	Outdoor on pole		A	
-	344-OHL-101POL02		11kV Spur to West-South OHL Overhead Line Intermediate Pole 02	344-OHL-105		11kV Spur to West-South OHL • 2 Overhead Line	11000Vac	Aerial Conductor	-	1C	-	AAAC 7/3,00 (Aster 117.0)	-	-	10000 X 3	OHPL Contractor	OHPL Contractor	Outdoor on pole		A	
-	344-OHL-104		11kV Spur to Plant Building Substation Overhead Line	344-OHL-104POL02		11kV Spur to Plant Building Substation Last Pole 02	11000Vac	Aerial Conductor	-	1C	-	AAAC 7/3,00 (Aster 117.0)	-	-	3000 X 3	OHPL Contractor	OHPL Contractor	Outdoor on pole		A	
-																					
370RM001-P1	344-OHL-104POL02		11kV Spur to Plant Building Substation Last Pole 02	370-RM-001		Plant Building Ring Main Unit	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
370RM001-E1	344-OHL-104POL02		11kV Spur to Plant Building Substation Last Pole 02	370-RM-001		Plant Building Ring Main Unit		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
450RM001-P1	370-RM-001		Plant Building Ring Main Unit	450-RM-001		Mine Service Area Ring Main Unit	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
450RM001-E1	370-RM-001		Plant Building Ring Main Unit	450-RM-001		Mine Service Area Ring Main Unit		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
-																					
380RM001-P1	344-OHL-108POL02		11kV Spur to Permanent Village Last Pole 02	380-RM-001		Accomodatin Area 1 Ring Main Unit	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
380RM001-E1	344-OHL-108POL02		11kV Spur to Permanent Village Last Pole 02	380-RM-001		Accomodatin Area 1 Ring Main Unit		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
-	380-RM-001		Accomodatin Area 1 Ring Main Unit	380-RM-002		Accomodatin Area 2 Ring Main Unit	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
-	380-RM-001		Accomodatin Area 1 Ring Main Unit	380-RM-002		Accomodatin Area 2 Ring Main Unit		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
-																					
344OHL002POL01-P1	342-SB-001		Site Main 11kV Switchboard	344-OHL-002POL01		11kV Decant Return Overhead Line First Pole 01	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
344OHL002POL01-P2	342-SB-001		Site Main 11kV Switchboard	344-OHL-002POL01		11kV Decant Return Overhead Line First Pole 01	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
344OHL002POL01-E1	342-SB-001		Site Main 11kV Switchboard	344-OHL-002POL01		11kV Decant Return Overhead Line First Pole 01		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
-																					
-	344-OHL-002POL01		11kV Decant Return Overhead Line First Pole 01	344-OHL-002POL0x		11kV Decant Return Overhead Line Last Pole XX	11000Vac	Aerial Conductor	-	1C	-	AAAC 7/3,00 (Aster 117.0)	-	-	7000 X 3	OHPL Contractor	OHPL Contractor	Outdoor on pole		A	
-	344-OHL-002		11kV Decant Return Overhead Line	344-OHL-201POL02		11kV Spur to Decant Return Last Pole 02	11000Vac	Aerial Conductor	-	1C	-	AAAC 7/3,00 (Aster 117.0)	-	-	2000 X 3	OHPL Contractor	OHPL Contractor	Outdoor on pole		A	
-																					
350TX101-P1	344-OHL-201POL02		11kV Spur to Decant Return Last Pole 02	350-TX-101		Decant Return Motor Control Centre Transformer	11000Vac	Power MV	6,35/11 (12)	3C	95	CCu/XLPE/CWS(10kA)/PVC	RD+WH+BU	Black	100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
350TX101-E1	344-OHL-201POL02		11kV Spur to Decant Return Last Pole 02	350-TX-101		Decant Return Motor Control Centre Transformer		Earth	0,6/1	1C	120	Cu/V-90	GNYE		100	Principal	E&I Contractor	U/G Conduit - 3core per conduit	@ depth of 1,25meter	A	
-																					

APPENDIX 7.10

INSTRUMENT LIST



ECG ENGINEERING

Prepared for:
Lycopodium

Project:
Doropo Gold Plant

Côte d'Ivoire
2326

Instrument List

DOR-0004-I-LI-0006

REVISION: A

DATE: 19/10/2025

Document Information

Client Information

Prepared For: Lycopodium
Project Name: Doropo Gold Plant
Site Location: Côte d'Ivoire
Client Reference: 2326

ECG Information

Project No: DOR-0004
Discipline: Instrumentation
Discipline Code: I
Doc Type: List
Doc Type Code: LI
Doc No. DOR-0004-I-LI-0006
Doc Title: Instrument List

Document Control

Rev	Date	Description of Revision	Prepared By	Checked By	Design Approved	ECG Project Approved
A	19/10/2025	Issued for review				

Rev	Date	Description of Revision	Project Design Approved	Project Approved	Client Approved
A	19/10/2025	Issued for review			

Copyright / Disclaimer

The contents of this document have been prepared for the exclusive use of the named Client and may not be used by any third party without the written consent of both the named Client and ECG Engineering Pty Ltd and its subsidiaries ('the Consultant'). The Client acknowledges that the contents of this document were prepared by the Consultant using the information that was made available to the Consultant and based on the Consultant's assessment of that information. The Client, in accepting the document, agrees to release the Consultant from any liability with respect to inaccuracies or omissions in the document to the extent such inaccuracies or omissions arise from information which was not provided to the Consultant. In addition, to the extent the document attempts to predict future matters, the Client acknowledges that the Consultant has used its reasonable endeavours with respect to those matters, but the Client agrees to release the Consultant from any liability with respect to future matters, shall not rely on the Consultant's predictions and shall form its own assessment of those future matters.

IO LIST

Area	Type	Seq	Suffix	Valid Type	Equipment No.	Description 1	Description 2	Description 3	Manual: Instrument Type	Instrument Type	Dummy Number	Instrument No.	Description	Reference Drawing	Supplied By	Installed By	Manufacturer	Model/Description	Remarks	Preservation Required	Rev	Revision Comment	DI	DO	AI	AO	RTD	Assigned PLC	Future TX	Drum Filler
132	TE	801	A		132-ML-001	SAG Mill	Motor Stator Winding	(U Phase)		Temperature Element	TE132801A	TE-132801A	SAG Mill Motor Stator Winding (U Phase) Temperature Element		NCP	Vendor		3-wire RTD with DIN Rail Transmitter	PT100 Temperature Transmitter		A		-	-	-	-	1	-	0	1
132	TT	801	A		132-ML-001	SAG Mill	Motor Stator Winding	(U Phase)		Temperature Transmitter	TT132801A	TT-132801A	SAG Mill Motor Stator Winding (U Phase) Temperature Transmitter		NCP	Vendor	TBA	3-wire RTD (part of equipment)	RTD Temperature Probe		A		-	-	-	-	1	-	0	2
132	TE	801	B		132-ML-001	SAG Mill	Motor Stator Winding	(V Phase)		Temperature Element	TE132801B	TE-132801B	SAG Mill Motor Stator Winding (V Phase) Temperature Element		NCP	Vendor	TBA	3-wire RTD with DIN Rail Transmitter	PT100 Temperature Transmitter		A		-	-	-	-	1	-	0	3
132	TT	801	B		132-ML-001	SAG Mill	Motor Stator Winding	(V Phase)		Temperature Transmitter	TT132801B	TT-132801B	SAG Mill Motor Stator Winding (V Phase) Temperature Transmitter		NCP	Vendor	TBA	3-wire RTD (part of equipment)	RTD Temperature Probe		A		-	-	-	-	1	-	0	4
132	TE	801	C		132-ML-001	SAG Mill	Motor Stator Winding	(W Phase)		Temperature Element	TE132801C	TE-132801C	SAG Mill Motor Stator Winding (W Phase) Temperature Element		NCP	Vendor	TBA	3-wire RTD with DIN Rail Transmitter	PT100 Temperature Transmitter		A		-	-	-	-	1	-	0	5
132	TT	801	C		132-ML-001	SAG Mill	Motor Stator Winding	(W Phase)		Temperature Transmitter	TT132801C	TT-132801C	SAG Mill Motor Stator Winding (W Phase) Temperature Transmitter		NCP	Vendor	TBA	3-wire RTD (part of equipment)	RTD Temperature Probe		A		-	-	1	-	-	-	0	6
132	TE	802	A		132-ML-001	SAG Mill	Motor Bearing	DE		Temperature Element	TE132802A	TE-132802A	SAG Mill Motor Bearing DE Temperature Element		NCP	Vendor	TBA				A		-	-	1	-	1	-	0	7
132	TT	802	A		132-ML-001	SAG Mill	Motor Bearing	DE		Temperature Transmitter	TT132802A	TT-132802A	SAG Mill Motor Bearing DE Temperature Transmitter		NCP	Vendor	TBA	3-wire RTD with DIN Rail Transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	8
132	TE	802	B		132-ML-001	SAG Mill	Motor Bearing	NDE		Temperature Element	TE132802B	TE-132802B	SAG Mill Motor Bearing NDE Temperature Element		NCP	Vendor	TBA				A		-	-	1	-	1	-	0	9
132	TT	802	B		132-ML-001	SAG Mill	Motor Bearing	NDE		Temperature Transmitter	TT132802B	TT-132802B	SAG Mill Motor Bearing NDE Temperature Transmitter		NCP	Vendor	TBA	3-wire RTD with DIN Rail Transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	10
132	VE	802	A		132-ML-001	SAG Mill	Motor Bearing	DE		Vibration Element	VE-132802A	VE-132802A	SAG Mill Motor Bearing DE Vibration Element		NCP	Vendor	TBA				A		-	-	-	-	-	-	0	11
132	VT	802	A		132-ML-001	SAG Mill	Motor Bearing	DE		Vibration Transmitter	VT-132802A	VT-132802A	SAG Mill Motor Bearing DE Vibration Transmitter		NCP	Vendor	TBA	Hansford HS42002002/08	Vibration Transmitter		A		-	-	1	-	-	-	0	12
132	VE	802	B		132-ML-001	SAG Mill	Motor Bearing	NDE		Vibration Element	VE-132802B	VE-132802B	SAG Mill Motor Bearing NDE Vibration Element		NCP	Vendor	TBA	Hansford HS42002002/08			A		-	-	-	-	-	-	0	13
132	VT	802	B		132-ML-001	SAG Mill	Motor Bearing	NDE		Vibration Transmitter	VT-132802B	VT-132802B	SAG Mill Motor Bearing NDE Vibration Transmitter		NCP	Vendor	TBA	Hansford HS42002002/08	Vibration Transmitter		A		-	-	1	-	-	-	0	14
132	TE	803	A		132-ML-001	SAG Mill	Motor	Cold Air		Temperature Element	TE132803A	TE-132803A	SAG Mill Motor Cold Air Temperature Element		NCP	Vendor	TBA	3-wire RTD (part of equipment)	RTD Temperature Probe		A		-	-	1	-	1	-	0	15
132	TT	803	A		132-ML-001	SAG Mill	Motor	Cold Air		Temperature Transmitter	TT132803A	TT-132803A	SAG Mill Motor Cold Air Temperature Transmitter		NCP	Vendor	TBA				A		-	-	1	-	-	-	0	16
132	TE	803	B		132-ML-001	SAG Mill	Motor	Hot Air		Temperature Element	TE132803B	TE-132803B	SAG Mill Motor Hot Air Temperature Element		NCP	Vendor	TBA	3-wire RTD (part of equipment)	RTD Temperature Probe		A		-	-	1	-	1	-	0	17
132	TT	803	B		132-ML-001	SAG Mill	Motor	Hot Air		Temperature Transmitter	TT132803B	TT-132803B	SAG Mill Motor Hot Air Temperature Transmitter		NCP	Vendor	TBA				A		-	-	1	-	-	-	0	18
132	LSL	804			132-ML-001	SAG Mill	Motor	Cooling Water leakage detector		Level Switch Low	LSL132804	LSL-132804	SAG Mill Motor Cooling Water leakage detector Level Switch Low		NCP	Vendor	TBA	Float Switch			A		1	-	-	-	-	-	0	19
132	FSL	805			132-ML-001	SAG Mill	Motor	Cooling Water		Flow Switch Low	FSL132805	FSL-132805	SAG Mill Motor Cooling Water Flow Switch Low		NCP	Vendor	TBA	TBA			A		1	-	-	-	-	-	0	20
132	SE	806			132-ML-001	SAG Mill	Motor			Speed Element	SE132806	SE-132806	SAG Mill Motor Speed Element		NCP	Vendor	TBA	TBA			A		-	-	-	-	-	-	0	21
132	XS	810	A		132-TX-001	SAG Mill VSD Transformer	Buchholz Relay		Alarm	Alarm	XS132810A	XS-132810A	SAG Mill VSD Transformer Buchholz Relay Alarm		NCP	Vendor	TBA	N/A - part of equipment			A		-	-	-	-	-	-	0	22
132	XS	810	B		132-TX-001	SAG Mill VSD Transformer	Buchholz Relay		Trip	Trip	XS132810B	XS-132810B	SAG Mill VSD Transformer Buchholz Relay Trip		NCP	Vendor	TBA	N/A - part of equipment			A		1	-	-	-	-	-	0	23
132	TSH	811			132-TX-001	SAG Mill VSD Transformer	Oil			Temperature Switch High	TSH132811	TSH-132811	SAG Mill VSD Transformer Oil Temperature Switch High		NCP	Vendor	TBA	N/A - part of equipment	Analogue Output		A		1	-	-	-	-	-	0	24
132	TSHH	811			132-TX-001	SAG Mill VSD Transformer	Oil			Temperature Switch High High	TSHH132811	TSHH-132811	SAG Mill VSD Transformer Oil Temperature Switch High High		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	25
132	PSH	812			132-TX-001	SAG Mill VSD Transformer				Pressure Switch High	PSH132812	PSH-132812	SAG Mill VSD Transformer Pressure Switch High		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	26
132	TSH	813			132-TX-001	SAG Mill VSD Transformer	Winding			Temperature Switch High	TSH132813	TSH-132813	SAG Mill VSD Transformer Winding Temperature Switch High		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	27
132	TSHH	813			132-TX-001	SAG Mill VSD Transformer	Winding			Temperature Switch High High	TSHH132813	TSHH-132813	SAG Mill VSD Transformer Winding Temperature Switch High High		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	28
132	XC	814			132-ML-001VSD	Sag Mill Variable Speed Drive	Connect Command			Contact	XC132814	XC-132814	Sag Mill Variable Speed Drive Connect Command Contact		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	29
132	XC	815			132-ML-001VSD	Sag Mill Variable Speed Drive	Start Command			Contact	XC132815	XC-132815	Sag Mill Variable Speed Drive Start Command Contact		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	30
132	XC	816			132-ML-001VSD	Sag Mill Variable Speed Drive	Fundamental Interlock Command			Contact	XC132816	XC-132816	Sag Mill Variable Speed Drive Fundamental Interlock Command Contact		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	31
132	XC	817			132-ML-001VSD	Sag Mill Variable Speed Drive	Frozen Charge Release Command			Contact	XC132817	XC-132817	Sag Mill Variable Speed Drive Frozen Charge Release Command Contact		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	32
132	XC	818			132-ML-001VSD	Sag Mill Variable Speed Drive	Reset Command			Contact	XC132818	XC-132818	Sag Mill Variable Speed Drive Reset Command Contact		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	33
132	XC	819			132-ML-001VSD	Sag Mill Variable Speed Drive	VSD Mill Running Feedback			Contact	XC132819	XC-132819	Sag Mill Variable Speed Drive VSD Mill Running Feedback Contact		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	34
132	XC	820			132-ML-001VSD	Sag Mill Variable Speed Drive	VSD Fault Tns Feedback			Contact	XC132820	XC-132820	Sag Mill Variable Speed Drive VSD Fault Tns Feedback Contact		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	35
132	XC	821			132-ML-001VSD	Sag Mill Variable Speed Drive	VSD Ready to Enerstise Feedback			Contact	XC132821	XC-132821	Sag Mill Variable Speed Drive VSD Ready to Enerstise Feedback Contact		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	36
132	XC	822			132-ML-001VSD	Sag Mill Variable Speed Drive	VSD Ready to Start Feedback			Contact	XC132822	XC-132822	Sag Mill Variable Speed Drive VSD Ready to Start Feedback Contact		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	37
132	XC	823			132-ML-001VSD	Sag Mill Variable Speed Drive	VSD Frozen Charge Detection Function in Progress Feedback			Contact	XC132823	XC-132823	Sag Mill Variable Speed Drive VSD Frozen Charge Detection Function in Process Feedback Contact		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	38
132	XC	824			132-ML-001VSD	Sag Mill Variable Speed Drive	VSD Frozen Charge Detected Feedback			Contact	XC132824	XC-132824	Sag Mill Variable Speed Drive VSD Frozen Charge Detected Feedback Contact		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	39
132	XC	825			132-ML-001VSD	Sag Mill Variable Speed Drive	VSD Frozen Charge Release Function in Progress Feedback			Contact	XC132825	XC-132825	Sag Mill Variable Speed Drive VSD Frozen Charge Release Function in Progress Feedback Contact		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	40
132	XC	826			132-ML-001VSD	Sag Mill Variable Speed Drive	VSD Emergency Stop Actuated Feedback			Contact	XC132826	XC-132826	Sag Mill Variable Speed Drive VSD Emergency Stop Actuated Feedback Contact		NCP	Vendor	TBA	N/A - part of equipment	Relay		A		1	-	-	-	-	-	0	41
132	SC	827			132-ML-001VSD	Sag Mill Variable Speed Drive	Mill Speed Setpoint Command			Speed Controller	SC132827	SC-132827	Sag Mill Variable Speed Drive Mill Speed Setpoint Command Speed Controller		NCP	Vendor	TBA	N/A - part of equipment	Analogue Output		A		-	-	1	1	-	-	0	42
132	IT	828			132-ML-001VSD	Sag Mill Variable Speed Drive	Mill Motor Current Feedback			Current Transmitter	IT132828	IT-132828	Sag Mill Variable Speed Drive Mill Motor Current Feedback Current Transmitter		NCP	Vendor	TBA	N/A - part of equipment	Analogue Input		A		-	-	1	-	-	-	0	43
132	JT	829			132-ML-001VSD	Sag Mill Variable Speed Drive	Mill Motor Active Power Draw Feedback			Power Transmitter	JT132829	JT-132829	Sag Mill Variable Speed Drive Mill Motor Active Power Draw Feedback Power Transmitter		NCP	Vendor	TBA	N/A - part of equipment	Analogue Input		A		-	-	1	-	-	-	0	44
132	ST	830			132-ML-001VSD	Sag Mill Variable Speed Drive	Mill Motor Real Speed Feedback			Speed Transmitter	ST132830	ST-132830	Sag Mill Variable Speed Drive Mill Motor Real Speed Feedback Speed Transmitter		NCP	Vendor	TBA	N/A - part of equipment	Analogue Input		A		-	-	1	-	-	-	0	45
132	NT	831			132-ML-001VSD	Sag Mill Variable Speed Drive	Mill Motor Torque Feedback			Torque Transmitter	NT132831	NT-132831	Sag Mill Variable Speed Drive Mill Motor Torque Feedback Torque Transmitter		NCP	Vendor	TBA	N/A - part of equipment	Analogue Input		A		-	-	1	-	-	-	0	46
132	TT	832	A		132-ML-001	SAG Mill	High Speed Main Bearing DE			Temperature Transmitter	TT132832A	TT-132832A	SAG Mill High Speed Main Bearing DE Temperature Transmitter		NCP	Vendor	TBA	Swift Heat PT100 with head-mounted transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	47
132	TT	832	B		132-ML-001	SAG Mill	High Speed Thrust Bearing DE			Temperature Transmitter	TT132832B	TT-132832B	SAG Mill High Speed Thrust Bearing DE Temperature Transmitter		NCP	Vendor	TBA	Swift Heat PT100 with head-mounted transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	48
132	TT	832	C		132-ML-001	SAG Mill	High Speed Main Bearing NDE			Temperature Transmitter	TT132832C	TT-132832C	SAG Mill High Speed Main Bearing NDE Temperature Transmitter		NCP	Vendor	TBA	Swift Heat PT100 with head-mounted transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	49
132	TT	832	D		132-ML-001	SAG Mill	High Speed Thrust Bearing NDE			Temperature Transmitter	TT132832D	TT-132832D	SAG Mill High Speed Thrust Bearing NDE Temperature Transmitter		NCP	Vendor	TBA	Swift Heat PT100 with head-mounted transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	50
132	TT	832	E		132-ML-001	SAG Mill	Low Speed Bearing DE			Temperature Transmitter	TT132832E	TT-132832E	SAG Mill Low Speed Bearing DE Temperature Transmitter		NCP	Vendor	TBA	Swift Heat PT100 with head-mounted transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	51
132	TT	832	F		132-ML-001	SAG Mill	Low Speed Bearing NDE			Temperature Transmitter	TT132832F	TT-132832F	SAG Mill Low Speed Bearing NDE Temperature Transmitter		NCP	Vendor	TBA	Swift Heat PT100 with head-mounted transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	52
132	VT	833	A		132-ML-001	SAG Mill	High Speed Bearing DE			Vibration Transmitter	VT-132833A	VT-132833A	SAG Mill High Speed Bearing DE Vibration Transmitter		NCP	Vendor	TBA	Hansford HS42002002/08	Vibration Transmitter		A		-	-	1	-	-	-	0	53
132	VT	833	B		132-ML-001	SAG Mill	High Speed Bearing NDE			Vibration Transmitter	VT-132833B	VT-132833B	SAG Mill High Speed Bearing NDE Vibration Transmitter		NCP	Vendor	TBA	Hansford HS42002002/08	Vibration Transmitter		A		-	-	1	-	-	-	0	54
132	VT	833	C		132-ML-001	SAG Mill	Low Speed Bearing DE			Vibration Transmitter	VT-132833C	VT-132833C	SAG Mill Low Speed Bearing DE Vibration Transmitter		NCP	Vendor	TBA	Hansford HS42002002/08	Vibration Transmitter		A		-	-	1	-	-	-	0	55
132	VT	833	D		132-ML-001	SAG Mill	Low Speed Bearing NDE			Vibration Transmitter	VT-132833D	VT-132833D	SAG Mill Low Speed Bearing NDE Vibration Transmitter		NCP	Vendor	TBA	Hansford HS42002002/08	Vibration Transmitter		A		-	-	1	-	-	-	0	56
132	TT	834	A		132-ML-001	SAG Mill	Pinion DE Bearing			Temperature Transmitter	TT132834A	TT-132834A	SAG Mill Pinion DE Bearing Temperature Transmitter		NCP	Vendor	TBA	Swift Heat PT100 with head-mounted transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	57
132	TT	834	B		132-ML-001	SAG Mill	Pinion NDE Bearing			Temperature Transmitter	TT132834B	TT-132834B	SAG Mill Pinion NDE Bearing Temperature Transmitter		NCP	Vendor	TBA	Swift Heat PT100 with head-mounted transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	58
132	VT	835	A		132-ML-001	SAG Mill	Pinion DE Bearing			Vibration Transmitter	VT-132835A	VT-132835A	SAG Mill Pinion DE Bearing Vibration Transmitter		NCP	Vendor	TBA	Hansford HS42002002/08	Vibration Transmitter		A		-	-	1	-	-	-	0	59
132	VT	835	B		132-ML-001	SAG Mill	Pinion NDE Bearing			Vibration Transmitter	VT-132835B	VT-132835B	SAG Mill Pinion NDE Bearing Vibration Transmitter		NCP	Vendor	TBA	Hansford HS42002002/08	Vibration Transmitter		A		-	-	1	-	-	-	0	60
132	TT	836	A		132-ML-001	SAG Mill	Pinion Gear Drive End (DE) Tooth Flank			Temperature Transmitter	TT132836A	TT-132836A	SAG Mill Pinion Gear Drive End (DE) Tooth Flank Temperature Transmitter		NCP	Vendor	TBA	CALEX PC151MT-0 Infrared Sensor - D:5 15:1	Infrared Temperature Transmitter		A		-	-	1	-	-	-	0	61
132	TT	836	B		132-ML-001	SAG Mill	Pinion Gear Centre Tooth Flank			Temperature Transmitter	TT132836B	TT-132836B	SAG Mill Pinion Gear Centre Tooth Flank Temperature Transmitter		NCP	Vendor	TBA	CALEX PC151MT-0 Infrared Sensor - D:5 15:1	Infrared Temperature Transmitter		A		-	-	1	-	-	-	0	62
132	TT	836	C		132-ML-001	SAG Mill	Pinion Gear Non-Drive End (NDE) Tooth Flank			Temperature Transmitter	TT132836C	TT-132836C	SAG Mill Pinion Gear Non-Drive End (NDE) Tooth Flank Temperature Transmitter		NCP	Vendor	TBA	CALEX PC151MT-0 Infrared Sensor - D:5 15:1	Infrared Temperature Transmitter		A		-	-	1	-	-	-	0	63
132	TT	837			132-ML-001	SAG Mill	Discharge End Air Purge Air Regulator Pressure Gauge			Temperature Transmitter	TT132837	TT-132837	SAG Mill Infrared Air Purge Air Regulator Pressure Gauge Temperature Transmitter		NCP	Vendor	TBA	N/A - part of equipment	Pressure Regulator		A		-	-	1	-	-	-	0	64
132	TT	838	A		132-ML-001	SAG Mill	Discharge End (DE) Trunnion Bearing Journal, Inboard Journal			Temperature Transmitter	TT132838A	TT-132838A	SAG Mill Discharge End (DE) Trunnion Bearing Journal, Inboard Journal Temperature Transmitter		NCP	Vendor	TBA	Custom 3 wire RTD with copper head and Novus TxlcoRail DIN Rail Transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	65
132	TT	838	B		132-ML-001	SAG Mill	Discharge End (DE) Trunnion Bearing Journal, Centre Journal		Tail End	Temperature Transmitter	TT132838B	TT-132838B	SAG Mill Discharge End (DE) Trunnion Bearing Journal, Centre Journal Tail End Temperature Transmitter		NCP	Vendor	TBA	Custom 3 wire RTD with copper head and Novus TxlcoRail DIN Rail Transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	66
132	TT	838	C		132-ML-001	SAG Mill	Discharge End (DE) Trunnion Bearing Journal, Outboard Journal		Tail End	Temperature Transmitter	TT132838C	TT-132838C	SAG Mill Discharge End (DE) Trunnion Bearing Journal, Outboard Journal Tail End Temperature Transmitter		NCP	Vendor	TBA	Custom 3 wire RTD with copper head and Novus TxlcoRail DIN Rail Transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	67
132	TT	838	D		132-ML-001	SAG Mill	Discharge End (DE) Trunnion Bearing Thrust Face, Inboard		Tail End	Temperature Transmitter	TT132838D	TT-132838D	SAG Mill Discharge End (DE) Trunnion Bearing Thrust Face, Inboard Tail End Temperature Transmitter		NCP	Vendor	TBA	Custom 3 wire RTD with copper head and Novus TxlcoRail DIN Rail Transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	68
132	TT	838	E		132-ML-001	SAG Mill	Discharge End (DE) Trunnion Bearing Thrust Face, Outboard		Head End	Temperature Transmitter	TT132838E	TT-132838E	SAG Mill Discharge End (DE) Trunnion Bearing Thrust Face, Outboard Head End Temperature Transmitter		NCP	Vendor	TBA	Custom 3 wire RTD with copper head and Novus TxlcoRail DIN Rail Transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	69
132	ZT	839	A		132-ML-001	SAG Mill	Discharge End (DE) Trunnion Bearing Inboard		Head End	Position Transmitter	ZT-132839A	ZT-132839A	SAG Mill Discharge End (DE) Trunnion Bearing Inboard Head End Position Transmitter		NCP	Vendor	TBA	IFM IF6028	Inductive Gauging Sensor		A		-	-	1	-	-	-	0	70
132	ZT	839	B		132-ML-001	SAG Mill	Discharge End (DE) Trunnion Bearing Outboard		Head End	Position Transmitter	ZT-132839B	ZT-132839B	SAG Mill Discharge End (DE) Trunnion Bearing Outboard Head End Position Transmitter		NCP	Vendor	TBA	IFM IF6028	Inductive Gauging Sensor		A		-	-	1	-	-	-	0	71
132	TT	840	A		132-ML-001	SAG Mill	Feed End (NDE) Trunnion Bearing Journal, Inboard Journal		Take Up	Temperature Transmitter	TT132840A	TT-132840A	SAG Mill Feed End (NDE) Trunnion Bearing Journal, Inboard Journal Take Up Temperature Transmitter		NCP	Vendor	TBA	Custom 3 wire RTD with copper head and Novus TxlcoRail DIN Rail Transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	72
132	TT	840	B		132-ML-001	SAG Mill	Feed End (NDE) Trunnion Bearing Journal, Centre Journal		Take Up	Temperature Transmitter	TT132840B	TT-132840B	SAG Mill Feed End (NDE) Trunnion Bearing Journal, Centre Journal Take Up Temperature Transmitter		NCP	Vendor	TBA	Custom 3 wire RTD with copper head and Novus TxlcoRail DIN Rail Transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	73
132	TT	840	C		132-ML-001	SAG Mill	Feed End (NDE) Trunnion Bearing Journal, Outboard Journal		Take Up	Temperature Transmitter	TT132840C	TT-132840C	SAG Mill Feed End (NDE) Trunnion Bearing Journal, Outboard Journal Take Up Temperature Transmitter		NCP	Vendor	TBA	Custom 3 wire RTD with copper head and Novus TxlcoRail DIN Rail Transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	74
132	ZT	841	A		132-ML-001	SAG Mill	Feed End (NDE) Trunnion Bearing Inboard			Position Transmitter	ZT-132841A	ZT-132841A	SAG Mill Feed End (NDE) Trunnion Bearing Inboard Position Transmitter		NCP	Vendor	TBA	IFM IF6028	Inductive Gauging Sensor		A		-	-	1	-	-	-	0	75
132	ZT	841	B		132-ML-001	SAG Mill	Feed End (NDE) Trunnion Bearing Outboard			Position Transmitter	ZT-132841B	ZT-132841B	SAG Mill Feed End (NDE) Trunnion Bearing Outboard Position Transmitter		NCP	Vendor	TBA	IFM IF6028	Inductive Gauging Sensor		A		-	-	1	-	-	-	0	76
132	ZSC	842			132-DV-001	SAG Mill Inching Drive	Encased			Position Switch Closed	ZSC132842	ZSC-132842	SAG Mill Inching Drive Encased Position Switch Closed		NCP	Vendor	TBA	TBC	Limit Switch		A		1	-	-	-	-	-	0	77
132	ZSO	842			132-DV-001	SAG Mill Inching Drive	Dis-Encased			Position Switch Open	ZSO132842	ZSO-132842	SAG Mill Inching Drive Dis-Encased Position Switch Open		NCP	Vendor	TBA	TBC	Limit Switch		A		1	-	-	-	-	-	0	78
132	ZSC	843			132-DV-001	SAG Mill Inching Drive	Brake Closed			Position Switch Closed	ZSC132843	ZSC-132843	SAG Mill Inching Drive Brake Closed Position Switch Closed		NCP	Vendor	TBA	TBC	Limit Switch		A		1	-	-	-	-	-	0	79
132	ZSO	843			132-DV-001	SAG Mill Inching Drive	Brake Open			Position Switch Open	ZSO132843	ZSO-132843	SAG Mill Inching Drive Brake Open Position Switch Open		NCP	Vendor	TBA	TBC	Limit Switch		A		1	-	-	-	-	-	0	80
132	ZS	843			132-ML-001	SAG Mill Inching Drive	Wear Indication			Position Switch	ZS132843	ZS-132843	SAG Mill Inching Drive Wear Indication Position Switch		NCP	Vendor	TBA	TBC	Limit Switch		A		1	-	-	-	-	-	0	81
132	HS	844	A		132-DV-001	SAG Mill Inching Drive	Start Button (Forward Direction)			Hand Switch	HS132844A	HS-132844A	SAG Mill Inching Drive Start Button (Forward Direction) Hand Switch		NCP	Vendor	TBA	TBA	Hand Switch		A		1	-	-	-	-	-	0	82
132	HS	845	B		132-DV-001	SAG Mill Inching Drive	Start Button (Reverse Direction)			Hand Switch	HS132845B	HS-132845B	SAG Mill Inching Drive Start Button (Reverse Direction) Hand Switch		NCP	Vendor	TBA	TBA	Hand Switch		A		1	-	-	-	-	-	0	83
132	HS	846	A		132-ML-001	SAG Mill Inching Drive	Emerengcy Stop Button			Hand Switch	HS132846A	HS-132846A	SAG Mill Inching Drive Emerengcy Stop Button Hand Switch		NCP	Vendor	TBA	TBA	Emergency Stop		A		1	-	-	-	-	-	0	84
132	LT	847			132-ML-001	SAG Mill	Oil Tank (Dirty Side)			Level Transmitter	LT132847A	LT-132847A	SAG Mill Oil Tank (Dirty Side) Level Transmitter		NCP	Vendor	TBA	Valco RI-ALDRZ*-EK15-L1300-E52	Level Transmitter		A		-	-	1	-	-	-	0	85
132	LT	847	B		132-ML-001	SAG Mill	Oil Tank (Clean Side)			Level Transmitter	LT132847B	LT-132847B	SAG Mill Oil Tank (Clean Side) Level Transmitter		NCP	Vendor	TBA	Valco RI-ALDRZ*-EK15-L1300-E52	Level Transmitter		A		-	-	1	-	-	-	0	86
132	TT	848	A		132-ML-001	SAG Mill	Oil Tank (Dirty Side)			Temperature Transmitter	TT132848A	TT-132848A	SAG Mill Oil Tank (Dirty Side) Temperature Transmitter		NCP	Vendor	TBA	Temperature Controls 96-6-300-HIR-7.7FB with head-mounted transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	87
132	TT	848	B		132-ML-001	SAG Mill	Oil Tank (Clean Side)			Temperature Transmitter	TT132848B	TT-132848B	SAG Mill Oil Tank (Clean Side) Temperature Transmitter		NCP	Vendor	TBA	Temperature Controls 96-6-300-HIR-7.7FB with head-mounted transmitter	PT100 Temperature Transmitter		A		-	-	1	-	-	-	0	88
132	LI	849			132-ML-001	SAG Mill	Oil Tank (Dirty Side)			Level Indicator	LI132849A	LI-132849A	SAG Mill Oil Tank (Dirty Side) Level Indicator		NCP	Vendor	TBA	LubeTech LO-4030	Level Indicator		A		-	-	-	-	-	-	0	89
132	TI	850	A		132-ML-001	SAG Mill	Oil Tank (Dirty Side)			Temperature Indicator	TI132850A	TI-132850A	SAG Mill Oil Tank (Dirty Side) Temperature Indicator		NCP	Vendor	TBA	LubeTech LOT-4032	Level / Temperature Indicator		A		-	-	-	-	-	-	0	90
132	LI	849	B		132-ML-001	SAG Mill	Oil Tank (Clean Side)			Level Indicator	LI132849B	LI-132849B	SAG Mill Oil Tank (Clean Side) Level Indicator		NCP	Vendor	TBA	LubeTech LO-4030	Level Indicator		A		-	-	-	-	-	-	0	91
132	TI	850	B		132-ML-001	SAG Mill	Oil Tank (Clean Side)			Temperature Indicator	TI132850B	TI-132850B	SAG Mill Oil Tank (Clean Side) Temperature Indicator		NCP	Vendor	TBA	LubeTech LOT-4032	Level / Temperature Indicator		A		-	-	-	-	-	-	0	92
132	ZSC	851			132-ML-001	SAG Mill	Conditioning LP Pump #1 Suction Valve (Closed Limit)			Position Switch Closed	ZSC132851	ZSC-132851	SAG Mill Conditioning LP Pump #1 Suction Valve (Closed Limit) Position Switch Closed		NCP	Vendor	TBA	N/A - part of equipment	Limit Switch		A		1	-	-	-	-	-	0	93
132	ZSO	851			132-ML-001	SAG Mill	Conditioning LP Pump #1 Suction Valve (Open Limit)			Position Switch Open	ZSO

Client
Project Name

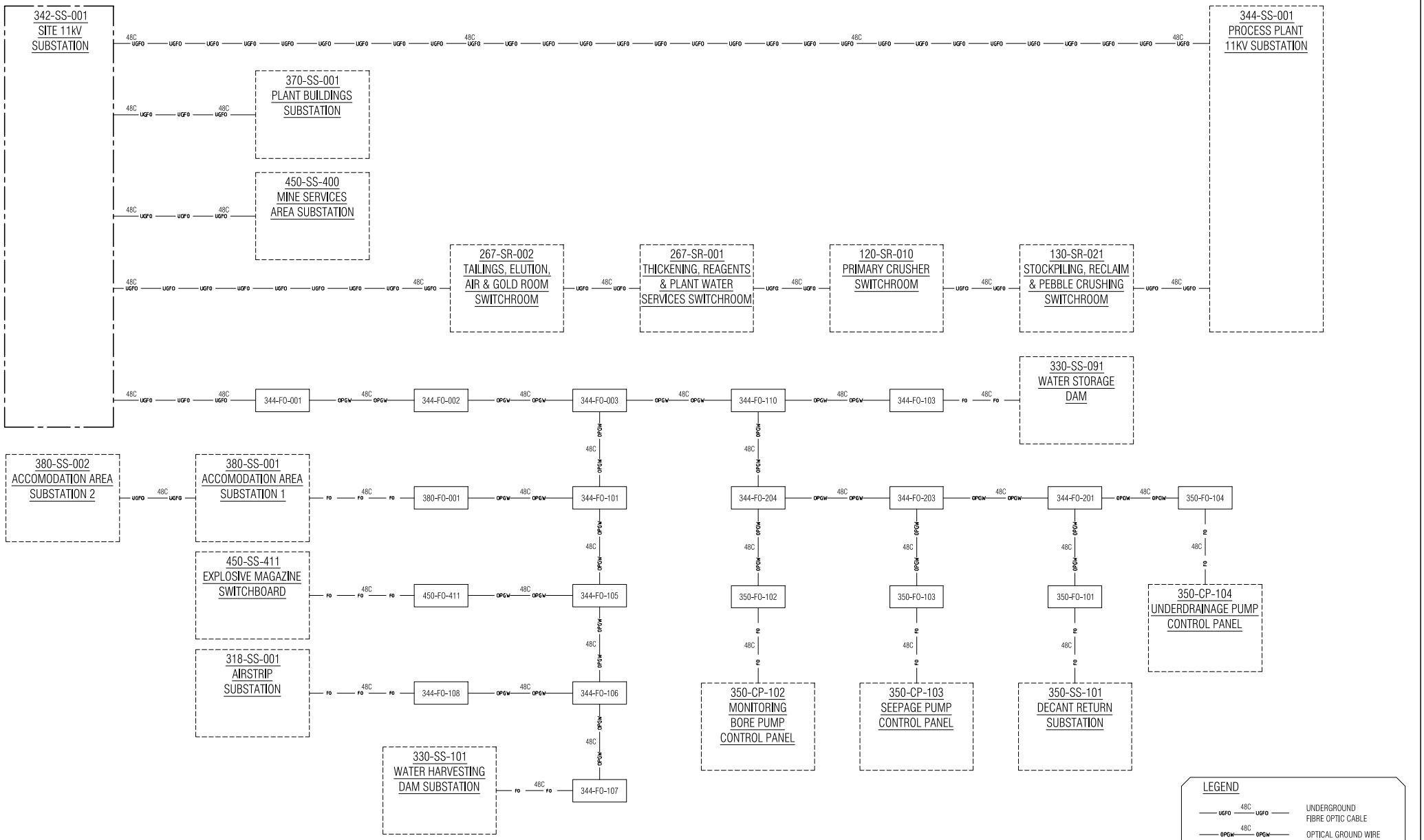
Instrument List

ECG ENGINEERING

Area	Type	Seq	Suffix	Class Type	Equipment No.	Description 1	Description 2	Description 3	Manuals' Instrument Type	Instrument Type	Dummy Number	Instrument No.	Description	Reference Drawing	Supplied By	Installed By	Manufacturer	Model/Description	Remarks	Preservation Required	Rev	Revision Comment	DI	DO	AI	AO	RTD	Assigned PLC	Cables Qty	Wires Power
132	ZSO	904			132-ML-001	SAG Mill	LP Circuit Filter #2 Outlet Valve (Open Limit)			Position Switch Open	ZSO132904	ZSO-132904	SAG Mill LP Circuit Filter #2 Outlet Valve (Open Limit) Position Switch Open		NCP	Vendor	TBA	N/A - part of equipment	Limit Switch	☐	A		1	-	-	-	-	-	0	195
132	PI	905			132-ML-001	SAG Mill	LP Circuit after filter			Pressure Indicator	PI132905	PI-132905	SAG Mill LP Circuit after filter Pressure Indicator		NCP	Vendor	TBA	LubeTech 213.4	Pressure Gauge	☐	A		-	-	-	-	-	-	0	196
132	TT	906			132-ML-001	SAG Mill	LP Oil (before cooler)			Temperature Transmitter	TT132906	TT-132906	SAG Mill LP Oil (before cooler) Temperature Transmitter		NCP	Vendor	TBA	Temperature Controls 96-6-75-HIR-7.7FB with head-mounted transmitter	PT100 Temperature Transmitter	☐	A		-	-	1	-	-	-	0	197
132	TI	907			132-ML-001	SAG Mill	LP Oil (before cooler)			Temperature Indicator	TI132907	TI-132907	SAG Mill LP Oil (before cooler) Temperature Indicator		NCP	Vendor	TBA	LubeTech TMV 100	Temperature Gauge	☐	A		-	-	-	-	-	-	0	198
132	PRV	908			132-ML-001	SAG Mill	LP Oil Cooler			Pressure Relief Valve	PRV132908	PRV-132908	SAG Mill LP Oil Cooler Pressure Relief Valve		NCP	Vendor	TBA	LubeTech VU 50	Pressure Relief Valve	☐	A		-	-	-	-	-	-	0	199
132	TT	909			132-ML-001	SAG Mill	LP Oil (after cooler)			Temperature Transmitter	TT132909	TT-132909	SAG Mill LP Oil (after cooler) Temperature Transmitter		NCP	Vendor	TBA	Temperature Controls 96-6-75-HIR-7.7FB with head-mounted transmitter	PT100 Temperature Transmitter	☐	A		-	-	1	-	-	-	0	200
132	TI	910			132-ML-001	SAG Mill	LP Oil (after cooler)			Temperature Indicator	TI132910	TI-132910	SAG Mill LP Oil (after cooler) Temperature Indicator		NCP	Vendor	TBA	LubeTech TMV 100	Temperature Gauge	☐	A		-	-	-	-	-	-	0	201
132	FT	911	A		132-ML-001	SAG Mill	Gearbox - Oil Supply to HS DE Bearing			Flow Transmitter	FT132911A	FT-132911A	SAG Mill Gearbox - Oil Supply to HS DE Bearing Flow Transmitter		NCP	Vendor	TBA	Horsberg OMNI HD2K-020GM015	Flow Transmitter	☐	A		-	-	1	-	-	-	0	202
132	FT	911	B		132-ML-001	SAG Mill	Gearbox - Oil Supply to HS NDE Bearing			Flow Transmitter	FT132911B	FT-132911B	SAG Mill Gearbox - Oil Supply to HS NDE Bearing Flow Transmitter		NCP	Vendor	TBA	Horsberg OMNI HD2K-020GM015	Flow Transmitter	☐	A		-	-	1	-	-	-	0	203
132	FT	912	A		132-ML-001	SAG Mill	Gearbox - Oil Supply to LS DE Bearing			Flow Transmitter	FT132912A	FT-132912A	SAG Mill Gearbox - Oil Supply to LS DE Bearing Flow Transmitter		NCP	Vendor	TBA	Horsberg OMNI HD2K-020GM015	Flow Transmitter	☐	A		-	-	1	-	-	-	0	204
132	FT	912	B		132-ML-001	SAG Mill	Gearbox - Oil Supply to LS NDE Bearing			Flow Transmitter	FT132912B	FT-132912B	SAG Mill Gearbox - Oil Supply to LS NDE Bearing Flow Transmitter		NCP	Vendor	TBA	Horsberg OMNI HD2K-020GM015	Flow Transmitter	☐	A		-	-	1	-	-	-	0	205
132	FT	913			132-ML-001	SAG Mill	Gearbox - Oil Supply to Gear mesh			Flow Transmitter	FT132913	FT-132913	SAG Mill Gearbox - Oil Supply to Gear mesh Flow Transmitter		NCP	Vendor	TBA	Horsberg OMNI VHS040AS50	Flow Transmitter	☐	A		-	-	1	-	-	-	0	206
132	PI	914			132-ML-001	SAG Mill	Gearbox - Oil Supply			Pressure Indicator	PI132914	PI-132914	SAG Mill Gearbox - Oil Supply Pressure Indicator		NCP	Vendor	TBA	LubeTech 213.4	Pressure Gauge	☐	A		-	-	-	-	-	-	0	207
132	PT	915			132-ML-001	SAG Mill	Gearbox - Oil Supply			Pressure Transmitter	PT132915	PT-132915	SAG Mill Gearbox - Oil Supply Pressure Transmitter		NCP	Vendor	TBA	Horsberg EPS006RK015	Pressure Transmitter	☐	A		-	-	1	-	-	-	0	208
132	FT	916	A		132-ML-001	SAG Mill	Pinion Bearing - Oil Supply to DE Roller Bearing			Flow Transmitter	FT132916A	FT-132916A	SAG Mill Pinion Bearing - Oil Supply to DE Roller Bearing Flow Transmitter		NCP	Vendor	TBA	Horsberg OMNI HD2K-020GM015	Flow Transmitter	☐	A		-	-	1	-	-	-	0	209
132	FT	916	B		132-ML-001	SAG Mill	Pinion Bearing - Oil Supply to NDE Roller Bearing			Flow Transmitter	FT132916B	FT-132916B	SAG Mill Pinion Bearing - Oil Supply to NDE Roller Bearing Flow Transmitter		NCP	Vendor	TBA	Horsberg OMNI HD2K-020GM015	Flow Transmitter	☐	A		-	-	1	-	-	-	0	210
132	LT	917			132-ML-001	SAG Mill	Oil Tank			Level Transmitter	LT132917	LT-132917	SAG Mill Oil Tank Level Transmitter		NCP	Vendor	TBA	Valco ARV-2" 500mm	Level Transmitter	☐	A		-	-	1	-	-	-	0	211
132	TT	918			132-ML-001	SAG Mill	Oil Tank			Temperature Transmitter	TT132918	TT-132918	SAG Mill Oil Tank Temperature Transmitter		NCP	Vendor	TBA	Temperature Controls GRX 96-300-FM100C-4F2B with head-mounted	PT100 Temperature Transmitter	☐	A		-	-	1	-	-	-	0	212
132	TI	919			132-ML-001	SAG Mill	Oil Tank			Temperature Indicator	TI132919	TI-132919	SAG Mill Oil Tank Temperature Indicator		NCP	Vendor	TBA	LubeTech LTI-4032	Level Temperature Indicator	☐	A		-	-	-	-	-	-	0	213
132	ZSC	920			132-ML-001	SAG Mill	LP Pump #1 Suction Valve (Closed Limit)			Position Switch Closed	ZSC132920	ZSC-132920	SAG Mill LP Pump #1 Suction Valve (Closed Limit) Position Switch Closed		NCP	Vendor	TBA	N/A - part of equipment	Limit Switch	☐	A		1	-	-	-	-	-	0	214
132	ZSO	920			132-ML-001	SAG Mill	LP Pump #1 Suction Valve (Open Limit)			Position Switch Open	ZSO132920	ZSO-132920	SAG Mill LP Pump #1 Suction Valve (Open Limit) Position Switch Open		NCP	Vendor	TBA	N/A - part of equipment	Limit Switch	☐	A		1	-	-	-	-	-	0	215
132	ZSC	921			132-ML-001	SAG Mill	LP Pump #2 Suction Valve (Closed Limit)			Position Switch Closed	ZSC132921	ZSC-132921	SAG Mill LP Pump #2 Suction Valve (Closed Limit) Position Switch Closed		NCP	Vendor	TBA	N/A - part of equipment	Limit Switch	☐	A		1	-	-	-	-	-	0	216
132	ZSO	921			132-ML-001	SAG Mill	LP Pump #2 Suction Valve (Open Limit)			Position Switch Open	ZSO132921	ZSO-132921	SAG Mill LP Pump #2 Suction Valve (Open Limit) Position Switch Open		NCP	Vendor	TBA	N/A - part of equipment	Limit Switch	☐	A		1	-	-	-	-	-	0	217
132	PRV	922			132-ML-001	SAG Mill	LP Circuit			Pressure Relief Valve	PRV132922	PRV-132922	SAG Mill LP Circuit Pressure Relief Valve		NCP	Vendor	TBA	LubeTech RPCC-LBN-AEU	Pressure Relief Valve	☐	A		-	-	-	-	-	-	0	218
132	PI	923			132-ML-001	SAG Mill	LP Circuit before filter			Pressure Indicator	PI132923	PI-132923	SAG Mill LP Circuit before filter Pressure Indicator		NCP	Vendor	TBA	LubeTech PG 0-250KPA-LM	Pressure Gauge	☐	A		-	-	-	-	-	-	0	219
132	PDSH	924			132-ML-001	SAG Mill	LP Filter Clogged			Pressure Differential Switch	PDSH132924	PDSH-132924	SAG Mill LP Filter Clogged Pressure Differential Switch		NCP	Vendor	TBA	FG/Mahle PI 2111-58	Differential Pressure Switch	☐	A		1	-	-	-	-	-	0	220
132	PI	925			132-ML-001	SAG Mill	LP Circuit after filter			Pressure Indicator	PI132925	PI-132925	SAG Mill LP Circuit after filter Pressure Indicator		NCP	Vendor	TBA	LubeTech PG 0-250KPA-LM	Pressure Gauge	☐	A		-	-	-	-	-	-	0	221
132	TT	926	A		132-ML-001	SAG Mill	LP Oil (before cooler)			Temperature Transmitter	TT132926A	TT-132926A	SAG Mill LP Oil (before cooler) Temperature Transmitter		NCP	Vendor	TBA	Temperature Controls GRX 96-75-FM100C-4F2B with head-mounted	PT100 Temperature Transmitter	☐	A		-	-	1	-	-	-	0	222
132	TI	926	A		132-ML-001	SAG Mill	LP Oil (before cooler)			Temperature Indicator	TI132926B	TI-132926B	SAG Mill LP Oil (before cooler) Temperature Indicator		NCP	Vendor	TBA	LubeTech TMV 100	Temperature Gauge	☐	A		-	-	-	-	-	-	0	223
132	TT	927	A		132-ML-001	SAG Mill	LP Oil (after cooler)			Temperature Transmitter	TT132927A	TT-132927A	SAG Mill LP Oil (after cooler) Temperature Transmitter		NCP	Vendor	TBA	Temperature Controls GRX 96-75-FM100C-4F2B with head-mounted	PT100 Temperature Transmitter	☐	A		-	-	1	-	-	-	0	224
132	TI	927	B		132-ML-001	SAG Mill	LP Oil (after cooler)			Temperature Indicator	TI132927B	TI-132927B	SAG Mill LP Oil (after cooler) Temperature Indicator		NCP	Vendor	TBA	LubeTech TMV 100	Temperature Gauge	☐	A		-	-	-	-	-	-	0	225
132	FT	928	A		132-ML-001	SAG Mill	Motor - LP Oil Supply to DE Bearing			Flow Transmitter	FT132928A	FT-132928A	SAG Mill Motor - LP Oil Supply to DE Bearing Flow Transmitter		NCP	Vendor	TBA	Horsberg OMNI HD2K-015GM015	Flow Transmitter	☐	A		-	-	1	-	-	-	0	226
132	FT	928	B		132-ML-001	SAG Mill	Motor - LP Oil Supply to NDE Bearing			Flow Transmitter	FT132928B	FT-132928B	SAG Mill Motor - LP Oil Supply to NDE Bearing Flow Transmitter		NCP	Vendor	TBA	Horsberg OMNI HD2K-015GM015	Flow Transmitter	☐	A		-	-	1	-	-	-	0	227
132	ZSC	929			132-ML-001	SAG Mill	HP Pump Suction Valve (Closed Limit)			Position Switch Closed	ZSC132929	ZSC-132929	SAG Mill HP Pump Suction Valve (Closed Limit) Position Switch Closed		NCP	Vendor	TBA	N/A - part of equipment	Limit Switch	☐	A		1	-	-	-	-	-	0	228
132	ZSO	929			132-ML-001	SAG Mill	HP Pump Suction Valve (Open Limit)			Position Switch Open	ZSO132929	ZSO-132929	SAG Mill HP Pump Suction Valve (Open Limit) Position Switch Open		NCP	Vendor	TBA	N/A - part of equipment	Limit Switch	☐	A		1	-	-	-	-	-	0	229
132	PI	930	A		132-ML-001	SAG Mill	HP Oil - DE Bearing			Pressure Indicator	PI132930A	PI-132930A	SAG Mill HP Oil - DE Bearing Pressure Indicator		NCP	Vendor	TBA	LubeTech PG 0-40MPA-LM	Pressure Gauge	☐	A		-	-	-	-	-	-	0	230
132	PI	930	B		132-ML-001	SAG Mill	HP Oil - NDE Bearing			Pressure Indicator	PI132930B	PI-132930B	SAG Mill HP Oil - NDE Bearing Pressure Indicator		NCP	Vendor	TBA	LubeTech PG 0-40MPA-LM	Pressure Gauge	☐	A		-	-	-	-	-	-	0	231
132	PT	931			132-ML-001	SAG Mill	HP Oil - DE Bearing			Pressure Transmitter	PT132931A	PT-132931A	SAG Mill HP Oil - DE Bearing Pressure Transmitter		NCP	Vendor	TBA	Horsberg EPS020RK015B	Pressure Transmitter	☐	A		-	-	1	-	-	-	0	232
132	PT	931	B		132-ML-001	SAG Mill	HP Oil - NDE Bearing			Pressure Transmitter	PT132931B	PT-132931B	SAG Mill HP Oil - NDE Bearing Pressure Transmitter		NCP	Vendor	TBA	Horsberg EPS020RK015B	Pressure Transmitter	☐	A		-	-	1	-	-	-	0	233
132	PRV	932	A		132-ML-001	SAG Mill	HP Oil - DE Bearing			Pressure Relief Valve	PRV132932A	PRV-132932A	SAG Mill HP Oil - DE Bearing Pressure Relief Valve		NCP	Vendor	TBA	LubeTech RPCC-LBN-AEU	Pressure Relief Valve	☐	A		-	-	-	-	-	-	0	234
132	PRV	932	B		132-ML-001	SAG Mill	HP Oil - NDE Bearing			Pressure Relief Valve	PRV132932B	PRV-132932B	SAG Mill HP Oil - NDE Bearing Pressure Relief Valve		NCP	Vendor	TBA	LubeTech RPCC-LBN-AEU	Pressure Relief Valve	☐	A		-	-	-	-	-	-	0	235
132	PT	933			132-ML-001	SAG Mill	Instrument Air Supply			Pressure Transmitter	PT132933	PT-132933	SAG Mill Instrument Air Supply Pressure Transmitter		NCP	Vendor	TBA	TBC by Client	Pressure Transmitter	☐	A		-	-	-	-	-	-	0	236
132	LSL	934			132-ML-001	SAG Mill	Grease Line			Level Switch Low	LSL132934	LSL-132934	SAG Mill Grease Drum Level Switch Low		NCP	Vendor	TBA	Lubetech LSL001	Proximity Switch	☐	A		1	-	-	-	-	-	0	237
132	PSL	935			132-ML-001	SAG Mill	Instrument Air Supply Line			Pressure Switch Low	PSL132935	PSL-132935	SAG Mill Instrument Air Supply Line Pressure Switch Low		NCP	Vendor	TBA	Horsberg PH-010M004H	Pressure Switch	☐	A		1	-	-	-	-	-	0	238
132	ZS	936			132-ML-001	SAG Mill	Grease Distributor Block - Cycle Switch			Position Switch	ZS132936	ZS-132936	SAG Mill Grease Distributor Block - Cycle Switch Position Switch		NCP	Vendor	TBA	TBC	Limit Switch	☐	A		1	-	-	-	-	-	0	239
132	PI	937			132-ML-001	SAG Mill	Instrument Air Supply to Grease Pump			Pressure Indicator	PI132937	PI-132937	SAG Mill Instrument Air Supply to Grease Pump Pressure Indicator		NCP	Vendor	TBA	Meclube FRL-CL 33G	Pressure Regulator	☐	A		-	-	-	-	-	-	0	240
132	XV	938			132-ML-001	SAG Mill	Grease Pump Instrument Air		Solenoid Valve	Solenoid Valve	XV132938	XV-132938	SAG Mill Grease Pump Instrument Air Solenoid Valve		NCP	Vendor	TBA	Hafner	Solenoid Operated Valve	☐	A		-	-	-	-	-	-	0	241
132	PI	939			132-ML-001	SAG Mill	Grease Supply Line			Pressure Indicator	PI132939	PI-132939	SAG Mill Grease Supply Line Pressure Indicator		NCP	Vendor	TBA	LubeTech 213-63-46	Pressure Gauge	☐	A		-	-	-	-	-	-	0	242
132	PI	940			132-ML-001	SAG Mill	Instrument Air Supply to Spray Nozzles			Pressure Indicator	PI132940	PI-132940	SAG Mill Instrument Air Supply to Spray Nozzles Pressure Indicator		NCP	Vendor	TBA	Meclube	Pressure Regulator	☐	A		-	-	-	-	-	-	0	243
132	XV	941			132-ML-001	SAG Mill	Spray Nozzle Instrument Air		Solenoid Valve	Solenoid Valve	XV132941	XV-132941	SAG Mill Spray Nozzle Instrument Air Solenoid Valve		NCP	Vendor	TBA	Hafner	Solenoid Operated Valve	☐	A		-	-	-	-	-	-	0	244
132	TSL	942			132-ML-001	SAG Mill	Drum Pad Heater			Temperature Switch Low	TSL132942	TSL-132942	SAG Mill Drum Pad Heater Temperature Switch Low		NCP	Vendor	TBA	N/A - part of drum pad heater	Thermostat	☐	A		1	-	-	-	-	-	0	245
132	LSL	943			132-ML-001	SAG Mill	Grease Drum Level			Level Switch Low	LSL132943	LSL-132943	SAG Mill Grease Drum Level Level Switch Low		NCP	Vendor	TBA	LubeTech 9964-1500	Proximity Switch	☐	A		1	-	-	-	-	-	0	246
132	ZS	944	A		132-ML-001	SAG Mill	Grease Distributor Block - Cycle Switch - FE Trunnion Bearing			Position Switch	ZS132944A	ZS-132944A	SAG Mill Grease Distributor Block - Cycle Switch - FE Trunnion Bearing Position Switch		NCP	Vendor	TBA	TBC	Limit Switch	☐	A		1	-	-	-	-	-	0	247
132	ZS	944	B		132-ML-001	SAG Mill	Grease Distributor Block - Cycle Switch - DE Trunnion Bearing			Position Switch	ZS132944B	ZS-132944B	SAG Mill Grease Distributor Block - Cycle Switch - DE Trunnion Bearing Position Switch		NCP	Vendor	TBA	TBC	Limit Switch	☐	A		1	-	-	-	-	-	0	248
132	XV	945			132-ML-001	SAG Mill	Grease Pump Instrument Air		Solenoid Valve	Solenoid Valve	XV132945	XV-132945	SAG Mill Grease Pump Instrument Air Solenoid Valve		NCP	Vendor	TBA	LubeTech 551 02 005	Solenoid Operated Valve	☐	A		1	-	-	-	-	-	0	249
132	PI	946			132-ML-001	SAG Mill	Grease Supply Line			Pressure Indicator	PI132946	PI-132946	SAG Mill Grease Supply Line Pressure Indicator		NCP	Vendor	TBA	LubeTech PG 0-25M.BE	Pressure Gauge	☐	A		-	-	-	-	-	-	0	250
132	TSL	947			132-ML-001	SAG Mill	Drum Pad Heater			Temperature Switch Low	TSL132947	TSL-132947	SAG Mill Drum Pad Heater Temperature Switch Low		NCP	Vendor	TBA	N/A - part of drum pad heater	Thermostat	☐	A		1	-	-	-	-	-	0	251
132	ZS	948			132-ML-001	SAG Mill	Feed Spout Exposed/Dis-engaged			Position Switch	ZS132948	ZS-132948	SAG Mill Feed Spout Exposed/Dis-engaged Position Switch		NCP	Vendor	TBA	LubeTech LSL001	Proximity Switch	☐	A		1	-	-	-	-	-	0	252
132	FSL	949			132-ML-001	SAG Mill	Feed Spout Seal Water			Flow Switch Low	FSL132949	FSL-132949	SAG Mill Feed Spout Seal Water Flow Switch Low		NCP	Vendor	TBA	IFM SI5000	Flow Switch	☐	A		1	-	-	-	-	-	0	253
132	FT	950			-	-	Primary Circuit			Flow Transmitter	FT132950	FT-132950	- Primary Circuit - Flow Transmitter		NCP	Vendor	TBA	TBC	Flow Transmitter	☐	A		-	-	-	-	-	-	0	254
132	TT	951			-	-	Primary Circuit (Chiller outlet)			Temperature Transmitter	TT132951	TT-132951	- Primary Circuit (Chiller outlet) Temperature Transmitter		NCP	Vendor	TBA	TBC	PT100 Temperature Transmitter	☐	A		-	-	1	-	-	-	0	255
132	TI	952			-	-	Primary Circuit (Chiller outlet)			Temperature Indicator	TI132952	TI-132952	- Primary Circuit (Chiller outlet) Temperature Indicator		NCP	Vendor	TBA	TBC	Temperature Gauge	☐	A		-	-	-	-	-	-	0	256
132	PI	953			-	-	Primary Circuit (Chiller outlet)			Pressure Indicator	PI132953	PI-132953	- Primary Circuit (Chiller outlet) Pressure Indicator		NCP	Vendor	TBA	TBC	Pressure Gauge	☐	A		-	-	-	-	-	-	0	257
132	FCV	954			-	-	Primary Circuit - VSD HEX Balance Valve			Flow Control Valve	FCV132954	FCV-132954	- Primary Circuit - VSD HEX Balance Valve Flow Control Valve		NCP	Vendor	TBA	TBC	Balance Valve	☐	A		-	-	1	1	-	-	0	258
132	TI	955	A		-	-	Primary Circuit - VSD HEX Inlet			Temperature Indicator	TI132955A	TI-132955A	- Primary Circuit - VSD HEX Inlet Temperature Indicator		NCP	Vendor	TBA	TBC	Temperature Gauge	☐	A		-	-	-	-	-	-	0	259
132	TI	955	B		-	-	Primary Circuit - VSD HEX Outlet			Temperature Indicator	TI132955B	TI-132955B	- Primary Circuit - VSD HEX Outlet Temperature Indicator		NCP	Vendor	TBA	TBC	Temperature Gauge	☐	A		-	-	-	-	-	-	0	260
132	TT	956			-	-	Primary Circuit - VSD HEX Outlet			Temperature Transmitter	TT132956	TT-132956	- Primary Circuit - VSD HEX Outlet Temperature Transmitter		NCP	Vendor	TBA	TBC	PT100 Temperature Transmitter	☐	A		-	-	1	-	-	-	0	261
132	FCV	957			-	-	Primary Circuit - Motor HEX Balance Valve			Flow Control Valve	FCV132957	FCV-132957	- Primary Circuit - Motor HEX Balance Valve Flow Control Valve		NCP	Vendor	TBA	TBC	Balance Valve	☐	A		-	-	-	1	1	-	0	262
132	TI	958	A		-	-	Primary Circuit - Motor HEX Inlet			Temperature Indicator	TI132958A	TI-132958A	- Primary Circuit - Motor HEX Inlet Temperature Indicator		NCP	Vendor	TBA	TBC	Temperature Gauge	☐	A		-	-	-	-	-	-	0	263
132	TI	958	B		-	-	Primary Circuit - Motor HEX Outlet			Temperature Indicator	TI132958B	TI-132958B	- Primary Circuit - Motor HEX Outlet Temperature Indicator		NCP	Vendor	TBA	TBC	Temperature Gauge	☐	A		-	-	-	-	-	-	0	264
132	TT	959			-	-	Primary Circuit - Motor HEX Outlet			Temperature Transmitter	TT132959	TT-132959	- Primary Circuit - Motor HEX Outlet Temperature Transmitter		NCP	Vendor	TBA	TBC	PT100 Temperature Transmitter	☐	A		-	-	1	-	-	-	0	265
132	PI	960			-	-	Primary Circuit (Chiller outlet)			Pressure Indicator	PI132960	PI-132960	- Primary Circuit (Chiller outlet) Pressure Indicator		NCP	Vendor	TBA	TBC	Pressure Gauge	☐	A		-	-	-	-	-	-	0	266
132	TI	961			-	-	Primary Circuit (Chiller outlet)			Temperature Indicator	TI132961	TI-132961	- Primary Circuit (Chiller outlet) Temperature Indicator		NCP	Vendor	TBA	TBC	Temperature Gauge	☐	A		-	-	-	-	-	-	0	267
132	TT	962			-	-	Primary Circuit (Chiller outlet)			Temperature Transmitter	TT132962	TT-132962	- Primary Circuit (Chiller outlet) Temperature Transmitter		NCP	Vendor	TBA	TBC	PT100 Temperature Transmitter	☐	A		-	-	1	-	-	-	0	268
132	FT	963			-	-	Secondary Motor Circuit			Flow Transmitter	FT132963	FT-132963	- Secondary Motor Circuit Flow Transmitter		NCP	Vendor	TBA	TBC	Flow Transmitter	☐	A		-	-	-	-	-	-	0	269
132	TI	964	A		-	-	Secondary Motor Circuit (motor inlet)			Temperature Indicator	TI132964A	TI-132964A	- Secondary Motor Circuit (motor inlet) Temperature Indicator		NCP	Vendor	TBA	TBC	Temperature Gauge	☐	A		-	-	-	-	-	-	0	270
132	TI	964	B		-	-	Secondary Motor Circuit (motor outlet)			Temperature Indicator	TI132964B	TI-132964B	- Secondary Motor Circuit (motor outlet) Temperature Indicator		NCP	Vendor	TBA	TBC	Temperature Gauge	☐	A		-	-	-	-	-	-	0	271
132	TT	965			-	-	Secondary Motor Circuit (motor outlet)			Temperature Transmitter	TT132965	TT-132965	- Secondary Motor Circuit (motor outlet) Temperature Transmitter		NCP	Vendor	TBA	TBC	PT100 Temperature Transmitter	☐	A		-	-	1	-	-	-	0	272
132	PI	966			-	-	Secondary Motor Circuit (before Duty Pump)			Pressure Indicator	PI132965	PI-132965	- Secondary Motor Circuit (before Duty Pump) Pressure Indicator		NCP	Vendor	TBA	TBC	Pressure Gauge	☐	A		-	-	-	-	-	-	0	273
132	PI	966			-	-	Secondary Motor Circuit (after Duty Pump)			Pressure Indicator	PI132966	PI-132966	- Secondary Motor Circuit (after Duty Pump) Pressure Indicator		NCP	Vendor	TBA	TBC	Pressure Gauge	☐	A		-	-	-	-	-	-	0	274
132	PI	967	A		-	-	Secondary Motor Circuit (before Standby Pump)			Pressure Indicator	PI132967A	PI-132967A	- Secondary Motor Circuit (before Standby Pump) Pressure Indicator		NCP	Vendor	TBA	TBC	Pressure Gauge	☐	A		-	-	-	-	-	-	0	275
132	PI	967	B		-	-	Secondary Motor Circuit (after Standby Pump)			Pressure Indicator	PI132967B	PI-132967B	- Secondary Motor Circuit (after Standby Pump) Pressure Indicator		NCP	Vendor	TBA	TBC	Pressure Gauge	☐	A		-	-	-	-	-	-	0	276
132	TI	968			-	-	Secondary Motor Circuit (before heat exchanger)			Temperature Indicator	TI132968	TI-132968	- Secondary Motor Circuit (before heat exchanger) Temperature Indicator		NCP	Vendor	TBA	TBC	Temperature Gauge	☐	A		-	-	-	-	-	-	0	277
132	PT	970			-	-	Secondary Motor Circuit (before heat exchanger)			Pressure Transmitter	PT132970	PT-132970	- Secondary Motor Circuit (before heat exchanger) Pressure Transmitter		NCP	Vendor	TBA	TBC	Pressure Transmitter	☐	A		-	-	-	-	-	-	0	278
132	TCV	971			-	-	Secondary Motor Circuit			Temperature Control Valve	TCV132971	TCV-132971	- Secondary Motor Circuit Temperature Control Valve		NCP	Vendor	TBA	TBC	Temperature Control Valve	☐	A		-	-	-	-	-	-	0	279
132	TT	972			-	-	Secondary Motor Circuit (after heat exchanger)			Temperature Transmitter	TT132972	TT-132972	- Secondary Motor Circuit (after heat exchanger) Temperature Transmitter		NCP	Vendor	TBA	TBC	PT100 Temperature Transmitter	☐	A		-	-	-	-	-	-	0	280
132	TI	973			-	-	Secondary Motor Circuit (after heat exchanger)			Temperature Indicator	TI132973	TI-132973	- Secondary Motor Circuit (after heat exchanger) Temperature Indicator		NCP	Vendor	TBA	TBC	Temperature Gauge	☐	A		-	-	-	-	-	-	0	281
132	FT	974			-	-	Secondary VSD Circuit			Flow Transmitter	FT132974	FT-132974	- Secondary VSD Circuit Flow Transmitter		NCP	Vendor	TBA	TBC	Flow Transmitter	☐	A		-	-	-	-	-	-	0	282
132	TI	975	A		-	-	Secondary VSD Circuit (motor inlet)			Temperature Indicator	TI132975A	TI-132975A	- Secondary VSD Circuit (motor inlet) Temperature Indicator		NCP	Vendor	TBA	TBC	Temperature Gauge	☐	A		-	-	-	-	-	-	0	283
132	TI	975	B		-	-	Secondary VSD Circuit (motor outlet)			Temperature Indicator	TI132975B	TI-132975B	- Secondary VSD Circuit (motor outlet) Temperature Indicator		NCP	Vendor	TBA	TBC	Temperature Gauge	☐	A		-	-	-	-	-	-	0	284
132	TT	976			-	-	Secondary VSD Circuit (motor outlet)			Temperature Transmitter	TT132976	TT-132976	- Secondary VSD Circuit (motor outlet) Temperature Transmitter		NCP	Vendor	TBA	TBC	PT100 Temperature Transmitter	☐	A		-	-	1	-	-	-	0	285
132	PI	977	A		-	-	Secondary VSD Circuit (before Duty Pump)			Pressure Indicator	PI132977A	PI-132977A	- Secondary VSD Circuit (before Duty Pump) Pressure Indicator		NCP	Vendor	TBA	TBC	Pressure Gauge	☐	A		-	-	-	-	-	-	0	286
132	PI	977	B		-	-	Secondary VSD Circuit (after Duty Pump)			Pressure Indicator	PI132977B	PI-132977B	- Secondary VSD Circuit (after Duty Pump) Pressure Indicator		NCP	Vendor	TBA	TBC	Pressure Gauge	☐	A		-	-	-	-	-	-	0	287
132	PI	978	A		-	-	Secondary VSD Circuit (before Standby Pump)			Pressure Indicator	PI132978A	PI-132978A	- Secondary VSD Circuit (before Standby Pump) Pressure Indicator		NCP	Vendor	TBA	TBC	Pressure Gauge	☐	A		-	-	-	-	-	-	0	288
132	PI	978	B		-	-	Secondary VSD Circuit (after Standby Pump)			Pressure Indicator	PI132978B	PI-132978B	- Secondary VSD Circuit (after Standby Pump) Pressure Indicator		NCP	Vendor	TBA	TBC	Pressure Gauge	☐	A		-	-	-	-	-	-	0	289
132	TI	979			-	-	Secondary VSD Circuit (before heat exchanger)			Temperature Indicator	TI132979	TI-132979	- Secondary VSD Circuit (before heat exchanger) Temperature Indicator		NCP	Vendor	TBA	TBC	Temperature Gauge	☐	A		-	-	-	-	-	-	0	290
132	PT	980			-	-	Secondary VSD Circuit (before heat exchanger)			Pressure Transmitter	PT132980	PT-132980	- Secondary VSD Circuit (before heat exchanger) Pressure Transmitter		NCP	Vendor	TBA	TBC	Pressure Transmitter	☐	A		-	-	-	-	-	-	0	291
132	TCV	981			-	-	Secondary VSD Circuit			Temperature Control Valve	TCV132981	TCV-132981	- Secondary VSD Circuit Temperature Control Valve		NCP	Vendor	TBA	TBC	Temperature Control Valve	☐	A		-	-	-	-	-	-	0	292
132	TT	982			-	-	Second

APPENDIX 7.11

COMMUNICATION BLOCK DIAGRAM



REFERENCE DOC No.	REFERENCE DOCUMENT TITLE
-	-

REV	DATE	REVISION	DRN	DRA	DES	APP
A.	20.10.25	ISSUED FOR REVIEW	MSL			

DRAWN BY: M.LARDIZABAL
DRAFTING CHECKED BY:
DESIGN CHECKED BY:
APPROVED BY:
DATE DRAWN: 20.10.2025

Resolute

Project No.	Design Lead	Project Lead	Design Manager	Project Manager	Client
2326					

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 0222 www.lycopodium.com.au

© COPYRIGHT
THIS DRAWING AND ALL THE INFORMATION IT CONTAINS REMAINS THE PROPERTY OF ECG ENGINEERING AND MUST NOT BE REPRODUCED, WITHOUT PRIOR WRITTEN PERMISSION FROM ECG.

ECG ENGINEERING
2-10 ADAMS DRIVE, WELSHPOOL, WESTERN AUSTRALIA, 6106
T: +61 8 6164 3400
WWW.ECG-ENGINEERING.COM

CLIENT: RESOLUTE MINING CORPORATION LIMITED

TITLE:
DOROPO GOLD PROJECT
OVERALL
SITE WIDE FIBRE BACKBONE
BLOCK DIAGRAM

SCALE	DRAWING No.	SHEET	REV
NTS	DOR-0340-E-BD-0001	1 OF 1	A

APPENDIX 7.12

FIRST FILLS AND OPENING STOCK

RESOLUTE MINING LIMITED

DOROPO GOLD PROJECT DFS UPDATE

First Fills and Opening Stock

2326-MLST-003

November 2025

Prepared by:

Lycopodium

REV NO.	DATE	DESCRIPTION OF REVISION	BY	DESIGN APPROVED	PROJECT APPROVED	CLIENT APPROVED
A	03.10.25	ISSUED FOR INFORMATION	RH	RH	AS	

This document is the property of Lycopodium. It must not be copied or reproduced in any way
or transmitted on to any third party without written authority from Lycopodium.

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	C

FIRST FILL AND OPENING STOCKS

Item		Cost (Total) US$/Unit	Unit	Consumption (units)	Delivery Size	First Fill		Opening Stocks			TOTAL
						units	US$	units	No Days	US$	US$
Primary Jaw Crusher	Fixed Jaw Liners	$18,615	set	9.1 set/yr	1 set(s)	Included	0	1 set(s)	40	18,615	18,615
	Swing Jaw Liners	$21,956	set	6.7 set/yr	1 set(s)	Included	0	1 set(s)	54	21,956	21,956
SAG Mill	Lifters/Liners	$1,224,210	set	1.5 set/yr	1 set(s)	Included	0	1.0 set(s)	248	1,224,210	1,224,210
	Grinding Media	$1,302	t	0.43 kg/t	20 t	247 t	322,019	200 t	30	260,307	582,326
Ball Mill	Lifters/Liners	$1,080,701	set	1.0 set/yr	1 set(s)	Included	0	1.0 set(s)	367	1,080,701	1,080,701
	Grinding Media	$1,214	t	0.73 kg/t	20 t	553 t	671,183	340 t	30	412,803	1,083,985
Quicklime		$372	t	0.84 kg/t	24 t	250 t	93,085	384 t	30	142,979	236,064
Sodium Cyanide		$2,523	t	1.03 kg/t	20 t	31 t	78,226	460 t	30	1,160,772	1,238,998
Sodium Hydroxide		$974	t	0.07 kg/t	20 t	21.0 t	20,447	40 t	30	38,946	59,393
Hydrochloric Acid		$524	t	0.04 kg/t	20 t	4.3 t	2,254	20 t	30	10,478	12,733
Carbon		$4,360	t	30.0 g/t	20 t	272 t	1,185,895	20 t	30	87,198	1,273,094
SMBS		$651	t	0.55 kg/t	20 t	29 t	18,884	260 t	30	169,301	188,185
Copper Sulphate		$3,769	t	0.24 kg/t	20 t	10 t	36,179	120 t	30	452,239	488,418
Stainless Steel Stocking		$730	kg	1,584 kg/yr	1 set(s)	2 set(s)	1,461	1 set(s)	365	730	2,191
Crucibles		$1,340	ea	35 /yr	2 each	2	2,680	1	41	1,340	4,020
Borax		$2,532	t	2,019 kg/yr	1 t	1 t	2,532	1 t	30	2,532	5,065
Silica		$1,027	t	505 kg/yr	1 t	1 t	1,027	1 t	30	1,027	2,055
Nitre		$2,425	t	337 kg/yr	1 t	1 t	2,425	1 t	30	2,425	4,850
Soda Ash		$1,189	t	337 kg/yr	1 t	1 t	1,189	1 t	30	1,189	2,377
Antiscalant	Decant Return Water	$3,263	t	12,678 kg/yr	1 t	1 t	3,263	2 t	30	6,527	9,790
Antiscalant	Elution	$4,893	t	701 kg/yr	1 t	1 t	4,893	1 t	30	4,893	9,786
Sulphamic Acid		$1,027	t	100 kg/week	1 t	1 t	1,027	1 t	30	1,027	2,055
Flocculant		$2,371	t	0.05 kg/t	20 t	1.08 t	2,549	40 t	30	94,846	97,395
Coagulant		$1,834	t	0.04 kg/t	20 t			20 t	30	36,673	36,673
Diesel		$1,200	kL	0.46 kL/t						0	0
Lubricants		$20,000	lot			1	20,000			20,000	40,000
Plant Operating Tools & Equipment		$10,000	lot			1	10,000			10,000	20,000
Gold Room Tools & Equipment		$10,000	lot			1	10,000			10,000	20,000
Laboratory Reagents		$0	lot			1	0			0	0
TOTAL CONSUMABLE COST							**2,491,219**			**5,273,715**	**7,764,934**

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

APPENDIX 7.13

PROCESS CONTROL PHILOSOPHY

Lycopodium

Resolute Mining Limited

Doropo Gold Project

Process Control Philosophy

2326-FPCP-001

December 2025

Resolute

REV NO.	DATE	DESCRIPTION OF REVISION	BY	DESIGN APPROVED	PROJECT APPROVED	CLIENT APPROVED
A	05.12.25	ISSUED FOR INFORMATION	Ryan Harrison	Alastair Holden 05-Dec-25	Alwyn Scholtz	

This document is the property of Lycopodium. It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium.

Doropo Gold Project

Process Control Philosophy

2326-FPCP-001

Table of Contents

			Page
1.0	**GENERAL**		**1**
	1.1	Introduction	1
	1.1	Abbreviations	1
2.0	**PLANT CONTROL SYSTEM**		**2**
	2.1	General	2
	2.2	Field Input / Output	4
	2.3	Drive Controls	4
	2.4	Valve Control	4
	2.5	Operator Interface	5
	2.6	Vendor Packages	5
	2.7	Emergency Stop Buttons	6
	2.8	Control Loops	6
	2.9	Control System Communications	7
	2.10	Control System Access	7
	2.11	Cyanide Industry Standards	7
3.0	**CONTROL ARRANGEMENTS**		**7**
	3.1	General	7
	3.2	Vessel Level	8
	3.3	Slurry Solids Content	8
	3.4	Volume Flow	8
		3.4.1 Slurry Flow	8
		3.4.2 Water and Solution Flows	8
		3.4.3 Reagent Flow	9
		3.4.4 Oxygen Flow	9
		3.4.5 Diesel Flow	9
	3.5	Slurry Mass Flow	10
	3.6	Conveyors	10
	3.7	Apron Feeders	11
	3.8	Weightometers	11
	3.9	Pump Gland Seal Water	11
	3.10	Sump Pumps	12
	3.11	Gas Monitoring	12
		3.11.1 Cyanide Gas	12
	3.12	Cranes and Hoists	12
	3.13	Slurry Pumps	12
	3.14	Run Hours	13
4.0	**PLANT OPERATION AND CONTROL**		**13**
	4.1	Area 120 – Feed Preparation	13
		4.1.1 Primary Crushing	13

Table of Contents

			Page
	4.1.2	Crushing Services	14
4.2	Area 130 – Stockpile and Reclaim		14
	4.2.1	Lime Addition	15
	4.2.2	Reclaim Dust Scrubbing Plant	15
4.3	Area 130 – Milling		15
	4.3.1	SAG Mill	16
	4.3.2	Ball Mill	17
	4.3.3	Mill Discharge Hopper	18
	4.3.4	Constant Cyclone Pressure Control	19
	4.3.5	Mill Media Addition	19
	4.3.6	Pebble Recycle	20
4.4	Area 130 – Gravity Concentration		20
	4.4.1	Gravity Concentrators	20
	4.4.2	Intensive Cyanidation	21
4.5	Area 140 – Trash Removal and Thickening		22
	4.5.1	Pre-Leach Thickening	22
	4.5.2	Process Water	23
4.6	Area 160 – Leaching		24
	4.6.1	Leach Feed Sampling	24
	4.6.2	Leach and CIL Circuit	24
	4.6.3	Cyanide Addition	25
	4.6.4	Carbon Recovery	25
	4.6.5	CIL Intertank Screens	25
4.7	Area 170 – Elution Circuit		26
	4.7.1	Elution Heater Package	26
4.8	Area 170 – Carbon Regeneration		26
	4.8.1	Carbon Regeneration Kiln	26
4.9	Area 170 – Electrowinning		26
	4.9.1	Gravity Electrowinning	27
	4.9.2	Elution Electrowinning	27
	4.9.3	Electrowinning Caustic Addition	27
4.10	Area 170 – Gold Room		27
	4.10.1	Drying Ovens	28
	4.10.2	Gold Room Extraction	28
4.11	Area 180 – Tails Handling		28
	4.11.1	CIL Tails Sampling	28
	4.11.2	Cyanide Destruction	28
	4.11.3	Tails Pumping	31
4.12	Area 210 – Reagents		31
	4.12.1	Cyanide	31
	4.12.2	Caustic (Sodium Hydroxide)	33
	4.12.3	Hydrochloric Acid	33

Table of Contents

Page

4.12.4 Flocculant 35
4.12.5 Sodium Metabisulphite (SMBS) 35
4.12.6 Copper Sulphate ($CuSO_4$) 36
4.13 Area 220 – Water Services 37
4.13.1 Raw Water 37
4.13.2 Fire Water 38
4.13.3 Process Water 38
4.13.4 HP Process Water 39
4.13.5 Filtered and Potable Water 39
4.13.6 Gland Water 40
4.13.7 Cooling Water 40
4.14 Area 230 – Plant Services 40
4.14.1 Event Pond 40
4.14.2 Sewage Treatment Plant 40
4.15 Area 240 – Air Services 40
4.15.1 Plant Air 40
4.15.2 Oxygen 41
4.16 Area 250 – Fuels 41
4.16.1 Diesel 41
4.17 Area 330 – Raw Water Supply 41
4.18 Area 350 – Tailings Storage Facility 42
4.18.1 Tailings Storage Facility 42
4.18.2 TSF Decant Return Water 42
4.19 Area 380 – Permanent Accommodation 42
4.19.1 Raw Water 42
4.19.2 Fire Water 43
4.19.3 Potable Water 43

1.0 GENERAL

1.1 Introduction

This control philosophy document is intended to provide an overview of the control strategy that will be employed for the Doropo Gold Project. It is not intended to provide a detailed description of control logic, interlocking, alarms and sequencing. These details will be found in the P&IDs, control logic and engineering lists, which will be developed in detailed engineering. This document should be read in conjunction with the PFDs, E&I diagrams and design criteria. This document will be further developed in the detailed engineering phase along with the P&IDs, vendor P&IDs and functional specifications.

1.1 Abbreviations

The following abbreviations / acronyms have been used in this document:

Auto	Automatic
Caustic	Sodium Hydroxide (Caustic Soda)
CIL	Carbon in Leach
CN_{WAD}	Weak Acid Dissociable Cyanide
$CuSO_4$	Copper Sulphate
CV	Controlled Variable
DOL	Direct on Line
E-Stop	Emergency Stop
Ethernet	A type of LAN which uses serial communications
FEL	Front End Loader
HCl	Hydrochloric Acid
HMI	Human Machine Interface, the system used to communicate field signals (level measurements, motor running status, etc.) to the plant operators. It includes printers, operator interface terminals (OITs) and communication hubs
ICMC	International Cyanide Management Code
Interlock	An alarm or condition, which triggers or allows an action or event to occur
ILR	Inline Leach Reactor
I/O	Input / Output
LCS	Local Control Station (adjacent to the equipment being controlled)
LOS	Latch-off-stop
MCC	Motor Control Centre
OIT	Operator Interface Terminal. The personal computer that runs the operator interface software for equipment control and displays process information. Also used for trending of process signals, and alarming critical information
ORP	Oxidation-Reduction Potential
PCS	Process Control System

PID Control	Proportional – Integral – Derivative controller. A program in the PLC that uses a feedback loop to control a process to an operator specified set-point
P&IDs	Piping and Instrumentation Diagrams; the principal documents used to define the details of how the plant works and how it is controlled
PLC	Programmable Logic Controllers, the hardware used to control and interlock instrumentation and motors on the entire plant site. Instrumentation and motor I/O will be wired from the field to the PLC
ppm	Parts per Million
PV	Process Variable
ROM	Run-of-Mine
SCADA	Supervisory Control and Data Acquisition
SMBS	Sodium Metabisulphite
SP	Set-Point
TSF	Tailings Storage Facility
VSD	Variable Speed Drive (Electronic VVVF)
VVVF	Variable Voltage Variable Frequency
WAD	Weak Acid Dissociable

2.0 PLANT CONTROL SYSTEM

There are several process interlocks on the plant. The OIT will display drive or valve status, fault status, pushbutton status, instrument status, instrument alarms, equipment alarms and trends for selected analogue process values and will allow adjustment to selected control loop set-points.

2.1 General

The general control philosophy for the plant will be one with an adequate level of automation and remote control facilities. Instrumentation will be provided within the plant to measure and control key process parameters, provide a safe work environment, minimise operator intervention in standard start-up functions, minimise process excursions and maintain steady operation.

The main control room will house redundant PLC based supervisory control and data acquisition (SCADA) servers and OITs.

The control room is intended to provide a central area from where much of the plant is operated and monitored and from which the regulatory control loops can be monitored and adjusted. All key process and maintenance parameters will be available for trending and alarming on the PCS.

The PCS that will be used for this plant is a PLC-based SCADA system. The PCS will control the process interlocks and PID control loops for non-packaged equipment. Control loop set-point changes for non-packaged equipment will be made at the OIT.

There will be two modes for loop controlled Control Variables available in the PCS. These are 'Auto Mode' and 'Manual Mode'.

In Auto mode, the Control Variable will be predominantly controlled by the applicable PID loop based on the Process Variable set-point. Auto mode control may include cascade control loops where the Process Variable set-point is provided by another control loop rather than being directly specified.

In Manual mode, the control variable may be entered manually at the SCADA OIT. Both process and control variable set-points can be entered from the control loop popup on the OIT.

In general, the plant process drives will, as a minimum, report their ready, run and fault status to the PCS and will be displayed on the OIT. Local control stations will be located in the field in proximity to the relevant drives. These will, as a minimum, contain start and LOS pushbuttons which will be hard-wired to the drive starter.

Statutory interlocks such as emergency stops and overload protection are hardwired and will always apply regardless of the modes of operation selected.

- **Remote**: Selection allows drives and valves to be controlled from the OIT. This mode allows operators to start or stop a drive or open or close a valve manually by clicking on the relevant pushbutton on the OIT (in 'Manual Mode') or for the drive or valve to be controlled by an automatic sequence or control loop (in 'Auto Mode').

- **Local:** If not in remote mode, the drive can be controlled from local pushbuttons in the field (in 'Local Mode'). Note that all automatic valves will be controlled via the OIT with no local control stations. All interlocks will be active in this mode.

- **Auto**: Selection allows for the starting of automatic sequences for some systems, e.g. in the elution circuit, where the system may be group started when all associated drives or valves are selected to 'Auto'.

- **Maintenance**: Selection allows each drive / valve to be operated in the field via a local pushbutton, which is connected to the PLC. All process (i.e. non-statutory) interlocks will be bypassed, with the exception of critical (safety) interlocks such as lubrication systems, to allow testing and maintenance of equipment. This mode requires a supervisor login, and a 5 minute timer will initiate on starting any drive in maintenance mode.

The control of most of the vendor packages will be done via the local vendor control panel with no facility for control or set-point changes from the PCS. General fault alarms from each vendor package will be monitored by the PCS and displayed on the OIT. Fault diagnostics and troubleshooting of vendor packages will be performed by local examination at the vendor control panel.

Digital outputs can be transmitted from the PCS to the vendor packages where required. The function of these outputs is to enable a start permissive for the package or to start the package remotely. For some specific packages (e.g. the elution heater) a remote set-point can be entered.

2.2 Field Input / Output

All instrumentation and field controls will be captured by the PCS via remote I/O modules, generally located at each process module of the plant, primarily to minimise the extended cable run lengths back to the switchroom. These remote I/O modules will be electrical field enclosures housing power supplies, network equipment, marshalling terminals and PLC remote I/O nodes. All remote I/O nodes will typically be linked to the PLC via a PCS Ethernet network, supported over the site fibre optic cabling between switchrooms, remote I/O modules and key infrastructure buildings.

2.3 Drive Controls

In general, drives will be powered from starters installed in an MCC located in the Low Voltage Switchrooms. The starter for a DOL drive will be controlled and monitored by a PLC using hardwired, volt-free contacts. No 'smart MCCs' will be employed. Field inputs will be wired directly to the PLC, and an output will be wired to the start relay of a DOL drive. Each DOL drive will have 'Running', 'Ready' and 'Fault' status displayed on the OIT as a minimum. A start / stop command can be sent from the OIT drive popup to the drive starter via the PLC.

There will be local start and E-Stop pushbuttons for each DOL drive, which will be hard-wired to the drive starter circuit. There will be local start / stop / E-stop pushbuttons for each VSD, which will also be hardwired to the drive starter circuit. Start and stop pushbuttons will be momentary type and E-Stop pushbuttons will be latched mushroom head type.

VSD units will be of a VVVF type utilising pulse width modulated technology and mounted within the MCC. VSD speed can be controlled via the PCS, in the case of process closed loop circuits. There will be no provision made for speed control local to the drive.

Exceptions to this drive control philosophy will be drives which form part of vendor packages that are controlled from a vendor supplied local control panel.

Large loads (e.g. mills) will only be started in local mode.

The starting of conveyors, apron feeders, belt feeders, and mills will be preceded by a siren.

The PCS will provide run-time monitoring (run hours) on all equipment.

2.4 Valve Control

All automatic valves will be controlled via the OIT with no local field control stations.

Automatic control valves will be controlled by PID loops within the PLC. Manual operation of the valves will be from the OIT and there will be no provision made for local position control.

Actuated isolation valves for individual cyclones will be operated from the control room.

2.5 Operator Interface

The main control room will contain two OITs each of which can run the SCADA system. A separate engineering workstation will be provided for control system overview and modifications.

Two other work stations will be provided in the process and maintenance managers' office.

Two additional OITs will be provided in the process plant: one in the crusher operator cubicle and one in the elution circuit area.

An additional OIT will be provided for the main database server, backup, and historical records.

All OITs will have access as described in Section 2.10.

The SCADA OIT will include the following:

- Process mimics.
- Drive and valve status display.
- Drive and valve mode selection and start / stop or open / close control.
- Current active alarm display.
- Popup to display analogue ranges and set-points for analogue alarms. Analogue process values on the OIT will be displayed using appropriate engineering units.
- Trending capability for all analogue values. The trend displays will enable the display of data from the past 30 days. The operator will be able to change the time scale and magnitude axis for each trend with 90 days trending capacity stored on the hard disk drive.
- Control loop popups.

The SCADA OIT graphics will be based on abnormal situation management (ASM). In general, grey scale colours will be typical, with the use of bright colours minimised to stand out alarms.

2.6 Vendor Packages

Vendor supplied equipment packages will typically use vendor standard control systems throughout the Project. Standardisation of hardware will be implemented as far as possible during the tendering and procurement stages.

Design will maximise the centralisation of control on the PCS with selected controls for vendor packages being either programmed into the plant PLCs or inputs to and outputs from the field controllers being duplicated on the OIT with minimum local set-point input and adjustment in the field.

General equipment fault alarms from each vendor package will be monitored by the PCS and displayed on the OIT. Fault diagnostics and troubleshooting of vendor packages will be performed locally.

The equipment package controls are summarised in the control arrangement descriptions in Section 3.0 below.

2.7 Emergency Stop Buttons

Emergency stop buttons (E-Stops) will be hardwired into all the drive starter circuits. Every drive will have one or more emergency stop buttons located in proximity to the drive. Emergency stop buttons will be of a latched mushroom head style.

In addition, there will be a number of emergency stop buttons in the plant to stop specific equipment:

- SAG mill – four E-Stops in the field.
- Ball mill – four E-Stops in the field.
- Pre-Leach thickener rake drive control – one E-Stop in the field.
- Carbon regeneration kiln – one E-Stop in the field.
- Feeders and conveyors will be equipped with lanyard type emergency stop pull wires.
- VSDs will be equipped with soft stops and latch off stops.

2.8 Control Loops

Regulatory control loops will be provided for all key process circuits to provide optimal functionality without regular operator intervention.

There will be two modes for loop controlled set-points available in the OIT. These are 'Loop Auto Mode' and 'Loop Manual Mode'. In loop auto mode (analogous to cascade control), the set-point will be predominantly controlled by the applicable 'master' PID loop (e.g. for thickener underflow pumping control the bed pressure PID controller output will supply a set-point for the thickener underflow flow control loop which ultimately controls the speed of the thickener underflow pump). In loop manual mode, a set-point may be entered manually from the loop set-point popup in the OIT.

Where required, analogue set-points from the PCS to vendor supplied control panels can be manipulated either via the OIT or via vendor control panels.

Where required, selected equipment will have multiple control loops operating concurrently (e.g. for tails pumping control the respective tank level PID controller output will supply a set-point for water addition flow control loop but also maintain pump speed to a minimum line velocity control loop).

Control loops that will be used for this project are listed in Section 4.0.

2.9 Control System Communications

Fibre optics will be used for communication between the switchrooms and the control room. Ethernet switches will be used at the plant LV switchrooms and the control room. Ethernet will be used as the communication backbone between PLC racks and SCADA hardware. Ethernet will be used to allow communication with the raw water supply, raw water storage and tails dam equipment via a fibre optic cable run along the overhead power line.

2.10 Control System Access

The control system SCADA will default to 'view only' access when no user is logged in. Each operator or engineer will be assigned a username and password to operate the plant via the SCADA. Access privileges will be assigned to specific personnel via their username. For example, the operator user group will have access to drive controls but not to loop tuning.

2.11 Cyanide Industry Standards

Several alarms and interlocks have been included to meet cyanide industry standards.

The cyanide mixing tank will have dual independent level measurements, tied to a shutdown of the fill device (water valve or transfer pump), to prevent the tank from overflowing.

The process water pond has a level measurement that will alarm if the level rises above a pre-determined set-point.

3.0 CONTROL ARRANGEMENTS

3.1 General

Where instrument measurements are required to be only displayed locally, there will be no transmission of the signal from the field to the PCS system.

Where instrument measurements are required to be displayed on the OIT, they will first be transmitted to the PLC and then displayed on the OIT. Instrument measurements displayed on the OIT may also be displayed locally on the instrument or local transmitter depending on access.

Where the PCS system is said to control a device, e.g. VSD speed control, based on an instrument measurement, e.g. hopper level, there will be a PID controller programmed in the PLC. The instrument measurement will be displayed on the OIT, and a process variable set-point can be entered by the operator on the OIT.

Control loops that will be used for this project are listed in Section 4.0.

The controls and alarms that are available at the OIT are listed in Appendix 1.

3.2 Vessel Level

Storage vessels and ponds with significant volumes will be equipped with level monitoring to allow assessment of inventories as well as alerting to high levels to prevent overflows and low levels to prevent possible equipment damage in the case of running empty.

Level measurement will be provided by non-contact laser, radar or ultrasonic devices in solids and slurry applications and agitated vessels (e.g. reagent mixing tanks). Solution and water tanks or ponds will be equipped with differential pressure measurement devices.

Where vessels overflow by design (e.g. CIL tanks and thickeners), or gravity drain (e.g. boil boxes and chutes), level measurement is generally considered unnecessary.

Measurements of reagent tank inventories will be provided for plant control, personnel safety and cost effective operation. A large scale local display of the cyanide mixing tank level will be made available to the operator in the field. The ICMC also dictates that redundant high level switches are installed in the cyanide mixing tank. The cyanide storage tank overflows back to the mixing tank.

Water tank and pond inventories, as well as flows in and out of the plant, will be monitored to allow balancing of water sources and tracking individual water types for management of usage.

3.3 Slurry Solids Content

Slurry density (solids content) will be measured using nucleonic density gauges with a transmitter and displayed on the OIT. Density gauges will be installed on:

- Cyclone feed pump discharge.
- Pre-leach thickener underflow pump discharge.
- Tails pump delivery line to the TSF.

3.4 Volume Flow

Flow of key process fluid streams will be monitored by the PLC using flow meters and, where applicable, controlled by flow control valves or pump speed. Where necessary flows will be totalised for accounting purposes. Key duties are summarised in the following sections.

3.4.1 Slurry Flow

Slurry flow meters will be installed on the cyclone feed, pre-leach thickener underflow and tails pump delivery lines.

3.4.2 Water and Solution Flows

The raw water supply flow from the water storage dam to the raw water tank and the decant return water flow to the process plant will be measured by flow meters.

Flow meters will be installed on mill water addition to the SAG mill feed, ball mill feed, and mill discharge hopper. Also, a flow meter will monitor the total mill water addition to the gravity circuit.

A flow meter will be installed on HP process water addition to the pre-leach thickener underflow line. Also, two flowmeters will monitor the total HP process water addition to the gravity circuit and the milling circuit.

The volume of filtered water and potable water produced will each be totalised by separate flow meters.

In the elution area, the filtered water flow to the acid wash and elution columns for carbon transfer will be measured by a flow meter. A flow meter will be installed on the strip solution pump delivery line for control of the pump speed and eluant flowrate.

A flow meter will be installed on the gravity pregnant solution pump delivery to allow the gravity electrowinning rectifier to be interlocked to a low flowrate. Also, a flow meter will be installed on the pregnant solution pump delivery line for control of the pump speed and pregnant solution flowrate.

3.4.3 Reagent Flow

A flow meter will be installed on the cyanide dosing delivery line to the CIL circuit. A flow meter will be installed on the cyanide dosing pump delivery line to elution for control of reagent addition.

A flow meter will be installed on the sodium hydroxide dosing pump delivery line to cyanide mixing, intensive cyanidation, elution and electrowinning for control of reagent addition.

Flow meters will be installed on the flocculant dosing pump delivery lines to the pre-leach thickener and intensive cyanidation for control of reagent addition.

Flow meters will be installed on the cyanide destruction sodium hydroxide dosing pump, SMBS dosing pumps and copper sulphate dosing pumps delivery lines to cyanide detoxification for control of reagent addition.

3.4.4 Oxygen Flow

Oxygen gas flows will be measured at each individual addition point and manual flowrates will be adjusted by operator setting. The mass flow of oxygen at each addition point will be totalised for process monitoring and optimisation of oxygen addition.

3.4.5 Diesel Flow

The volume of diesel supplied to the plant diesel day tank will be totalised by a flow meter with display on the field.

3.5 Slurry Mass Flow

The volumetric slurry flowrates and slurry solids contents measured for the streams listed below will be used to calculate the mass flowrate in the PLC.

- Cyclone feed pump discharge.
- Gravity feed pump discharge.
- Pre-leach thickener underflow pump discharge.
- Tails pump delivery line to the TSF.

These values will be displayed on the OIT.

Additionally, the instantaneous cyclone feed pump delivery mass flow will be compared to the SAG mill feed rate to calculate the milling circuit circulating load. This value will be displayed on the OIT.

3.6 Conveyors

In addition to the standard drive protection, monitoring and alarming facilities, conveyor drives will be provided with the following:

- A start delay timer to energise an audible alarm and flashing beacon light before the conveyor drive is energised. Subject to specific conveyor length, start-up sirens may be installed at the tail and head of the conveyor.
- Pull-wire switches on each accessible side of the conveyor for emergency stop. Pull-wire activation status will be shown on the OIT.
- A high level switch in the head chute to detect a blockage and to stop the conveyor drive. Chute blockage alarms will be shown on the OIT.
- Belt drift switches on each side of the conveyor to detect belt misalignment and alarm if the condition persists for a period. If this condition is not cleared within a defined period, the conveyor drive will be stopped to avoid possible spillage and belt damage.
- An underspeed switch that will activate an alarm on the OIT and stop the conveyor drive.
- A belt rip detection switch, interlocked to stop the conveyor drive when activated and alarm at the OIT.
- Subject to specific conveyor design, pulley assemblies may be installed to ensure proper belt tensioning, which may include take-up limit switches to monitor the pulley assembly and stop the conveyor drive and alarm on the OIT and if either switch is activated.

3.7 Apron Feeders

In addition to the standard drive protection, monitoring and alarming facilities, apron feeders will be provided with the following:

- Pull-wire switches on each accessible side of the feeder for emergency stop. Pull-wire activation status will be shown on the OIT.
- An underspeed switch that will activate an alarm on the OIT and stop the apron feeder drive.
- A start delay timer to energise an audible alarm and flashing beacon before the apron feeder drive is energised.
- The feeders will be equipped with blocked chute switches at the head end. The stockpile reclaim feeders will be equipped with low feed chute level point detectors. The status of these devices will be shown on the OIT.
- A lubrication system fault status alarm, which will be shown at the OIT and interlocked to stop the apron feeder drive.

3.8 Weightometers

Weightometers will be located on the following conveyor belts:

- Stockpile feed conveyor.
- SAG mill feed conveyor.
- Pebble discharge conveyor.

Conveyed solids will be measured by weightometer to monitor and/or control the crushing and milling rates and circulating loads. Mass flow will be displayed on the OIT. The weightometers will have a 4-20 mA output for flowrate and a digital pulsed output for totalised flow.

3.9 Pump Gland Seal Water

A pressure gauge and low flow switch will be installed at each gland serviced pump.

A low flow alarm will be displayed at the OIT and will stop the pump that is fed with gland seal water when activated.

Subject to specific pump suction and discharge isolation valves. Pump gland seal water interlocked with at least a pump suction valve or pump discharge valve in open position.

3.10 Sump Pumps

Sump pumps will be provided with a decontactor plug and socket to enable quick disconnection in the field. The OIT will display a 'Not Healthy' signal when the decontactor is disconnected.

In auto mode the sump pump will start when a high level is detected by a level switch. An adjustable timer (set at commissioning) will start when the start is initiated by the sump high level, and the pump will stop when the timer expires.

If the high level alarm is still active when the timer expires, the pump will continue to run, and a high level alarm will be raised to notify the operator of a condition that may warrant further investigation.

In local mode the pumps can be started at the LCS. A local start will not activate the countdown timer with an auto stop on time out.

3.11 Gas Monitoring

3.11.1 Cyanide Gas

Fixed hydrogen cyanide (HCN) gas monitors will be installed at potential exposure risk locations in the intensive cyanidation, CIL, elution, tailings and reagents areas. The gas level measurement will be shown at the OIT. Alarms will indicate at the OIT as well as sounding a siren and illuminating a flashing beacon in the field if preset HCN concentrations are exceeded.

Also, an alarm will indicate at the OIT as well as sounding sirens and illuminating flashing beacon lights adjacent to the carbon safety screen feed distribution box and tails hopper ground floor level when any acidic solutions (e.g. acid wash effluent or sump pump spillage) are being pumped to the carbon safety screen feed distribution box.

3.12 Cranes and Hoists

All electric cranes will be pendant or wireless remote controlled and will be provided with field isolators. Electric crane drives will have no interface with the PCS.

3.13 Slurry Pumps

In addition to the standard drive protection, monitoring and alarming facilities and subject to specific duties, slurry pumps may be provided with the following:

- Motor temperature that will activate an alarm on the OIT and stop the drive if a high set-point temperature is exceeded.

3.14 Run Hours

Per Section 2.3, the PCS will provide run-time monitoring (run hours) on all equipment with drives. Additionally, the following run hour totalisers will include the ability to reset to zero on supervisor access:

- SAG mill.
- Ball mill.
- Cyclone feed pumps.
- Cyclone cluster distribution valves open. Totalised only when a cyclone feed pump is operating.
- Leach feed pumps.

4.0 PLANT OPERATION AND CONTROL

4.1 Area 120 – Feed Preparation

4.1.1 Primary Crushing

The primary crushing circuit will comprise a primary jaw crusher discharging to a coarse ore stockpile. ROM ore will be fed to the ROM bin either by FEL or direct tipped from mine haul trucks.

If the primary crushing circuit is operating, the primary crusher dump lights will be green, indicating that the truck or FEL can approach and dump its load. A high-high level in the ROM bin will automatically switch the primary crusher dump lights to red. The operator will also have the facility to manually select a red light.

ROM bin dust suppression water sprays will normally be used when the crusher is in operation and material is being tipped. When a truck approaches the ROM bin to unload, the dust suppression water spray in the dump pocket will be automatically turned on. An adjustable timer will start on activation of the spray water and will stop when the timer expires. The operator will have the facility to also turn the dust sprays on and off from the OIT.

Crusher gap setting adjustment will be performed locally. A connection from the vendor supplied crusher control panel linked to the PCS will provide primary crusher lubrication system fault status.

The primary crushing drive will be provided with a start delay timer to energise an audible alarm and a flashing beacon light before the primary crusher drive is energised.

The ROM bin level will be used to control the speed of the primary crusher apron feeder that withdraws ROM ore from the ROM bin. The primary crusher discharge conveyor (CV1) will deliver ore onto stockpile feed conveyor (CV2) and will be interlocked with the CV2 running signal. The vendor supplied primary crusher dust collector will be installed in the crusher discharge conveyor (CV1) and will provide a fault status to the PCS if the fan is not running.

The stockpile feed conveyor (CV2) will deliver ore to the coarse ore stockpile and will typically operate at 100% speed at all times (the conveyor is equipped with a VSD for start-up and maintenance only). Dust suppression water spray on the coarse ore stockpile will turn on automatically with the stockpile feed conveyor (CV2) running signal. A facility will also be provided to enable the operator to turn the dust sprays on and off from the OIT.

A weightometer will be installed in the stockpile feed conveyor (CV2).

A level measurement element will provide an indication of crushed ore inventory on the coarse ore stockpile. A coarse ore stockpile high-high level alarm will stop the stockpile feed conveyor (CV2).

Refer to Section 3.10 for controls applicable to the crushing area drive-in sump pump.

4.1.2 Crushing Services

The primary crusher air receiver will be connected to the plant air distribution network and distribute plant air to the primary crushing area. The primary crusher air receiver delivery pressure will be displayed on the OIT. Low and low-low air pressures will alarm at the OIT.

4.2 Area 130 – Stockpile and Reclaim

Crushed ore will be withdrawn from the coarse ore stockpile at a controlled rate by stockpile reclaim feeder 1 and/or stockpile reclaim feeder 2. Crushed ore will be delivered to the milling circuit via the SAG mill feed conveyor (CV5).

The SAG mill feed conveyor weightometer will be used to control the speed of the stockpile reclaim feeders that withdraws crushed ore from the stockpile and onto the SAG mill feed conveyor (CV5). The feeders will be interlocked with the CV5 running signal, causing them to stop or be prevented from starting if CV5 is not running.

Output from the SAG mill feed conveyor weightometer will be used to control the following:

- Lime addition (Section 4.2.1).
- SAG mill feed water addition (Section 4.3.1).
- SAG mill media addition (Section 4.3.5).

Refer to Section 3.10 for controls applicable to the stockpile reclaim sump pump.

4.2.1 Lime Addition

Quicklime will be added from the lime silo onto the SAG mill feed conveyor (CV5) to control pH in the CIL circuit. A controller will be used to control the speed of the lime silo rotary valve drive.

The operator may select from the pH measurements of the slurry in either the leach tank 1 or leach tank 2, or the CIL free cyanide analyser sample from CIL tank 1, 2 or 6, to control the speed of the lime silo rotary valve. Alternatively, the operator may use a selected dose ratio (kg/t) to the SAG mill feed rate, measured by the weightometer, to control the speed of the lime silo rotary valve.

The operator may select lime to be added from the lime transfer hopper (emergency supply), via the lime transfer hopper rotary valve speed using the same ratio control described above.

An underspeed switch will be fitted to each of the lime rotary valves, which will activate an alarm on the OIT.

Lime addition from the lime silo or lime transfer hopper will be interlocked with the SAG mill feed conveyor (CV5) running signal, causing either rotary valve to stop or being prevented from starting if CV5 is not running. The level in the lime silo will be monitored and displayed on the OIT. A high-high level alarm will be interlocked with the lime transfer blower to prevent overfilling the lime silo. The level in the lime transfer hopper will be displayed on the OIT.

4.2.2 Reclaim Dust Scrubbing Plant

A wet dust scrubber will be installed in the reclaim circuit for capture of the dust and removal from the air stream. The combined ducting of the stockpile reclaim feeders will feed the venturi dust scrubber. The level of the reclaim tunnel dust scrubber hopper, water recirculation flow and differential pressure across the dust scrubber will be monitored and displayed on the OIT.

4.3 Area 130 – Milling

The SAG and ball mills will each be supplied with and controlled from a separate control panel. Both panels will include all protective interlocks and all control interlocks for start-up and shutdown. A connection to the PCS will provide key outputs and systems fault status. Trending will be provided for these parameters. Mill start-up will be from the field using the control panel or from the OIT if all interlocks have been satisfied at the local control panel.

During normal operation, the entire cyclone underflow stream will be directed to the ball mill feed box. However, the mill feed splitter box will be fitted with actuated valves to enable a portion of the cyclone underflow to be redirected to the SAG mill feed chute. The valve located in mill feed splitter box to the SAG mill feed box could be partially open to allow slurry flow to the SAG mill. There will not be any allowance for slurry flow measurement to the SAG mill feed box.

Refer to Section 3.10 for controls applicable to the mill area drive in and milling feed end sump pump.

4.3.1 SAG Mill

Start-up and Monitoring

The SAG mill will be supplied with a standalone control panel. The SAG mill will be controlled from this panel, including all protective interlocks and all control interlocks for start-up and shutdown. The SAG mill control system will include the following:

- SAG mill load measurement calculated from mill bearing lube system hydraulic pressure. A high alarm will override the SAG mill feed conveyor set-point.
- SAG mill power draw from the VSD.
- SAG mill feed rate from the SAG mill feed conveyor weightometer.
- A VSD for start-up and mill speed control with speed adjustment (0 - 80% of critical speed).
- Bearing temperature measurement.
- SAG mill run hours.
- Locked charge speed restriction via VSD for every SAG mill start.
- SAG mill inching via the inching drive for mill relines.
- Locked charge timer.
- A third party mill load monitoring package will be used for online analysis of the mill charge position and volume from measurement of toe and shoulder angles of the mill charge.

Process Control

The PCS will allow remote control of SAG mill feed rate to a predetermined set-point via the speed of the stockpile reclaim feeders and emergency reclaim feeder. The speed of each feeder will be adjusted to provide the portions from each and the total mass flowrate as measured by the SAG mill feed conveyor weightometer. A basic automatic loop control of feed rate based on mill power or mill monitoring load will be made.

A third party Advance Process Control (APC) package will be used for online analysis of the mill performance and adjust the process parameters such as mill feed and speed, using advance algorithms.

The SAG mill will be interlocked with the running signals of the following pumps:

- Mill water pumps.
- HP process water pumps.

- Process water pumps.
- Cyclone feed pumps.
- Ball mill.

The SAG mill feed conveyor low-low mass alarm will start the SAG mill feed rate low timer. The SAG mill will stop when the timer expires to prevent mill liner damage from grind out. A bypass of this condition will be available for supervisor access if grind out is deliberate prior to a mill reline.

SAG mill density will be controlled by the addition of mill water to the SAG mill feed chute, which is proportional to SAG mill feed rate. If required, mill water may be added to the pebble dewatering screen feed chute via a manual set-point from the OIT.

A low flow switch will be installed at the SAG mill feed chute seal water addition, with an associated alarm to be displayed at the OIT.

4.3.2 Ball Mill

Ball Mill Start-up and Monitoring

The ball mill will be supplied with a standalone control panel. The ball mill will be controlled from this panel, including all protective interlocks and all control interlocks for start-up and shutdown. The ball mill control system will include the following:

- Ball mill load measurement calculated from mill bearing lube system hydraulic pressure.
- Ball mill power draw from the VSD.
- Ball mill start-up via VSD with fixed speed operation.
- Bearing temperature measurement.
- Ball mill run hours.
- Locked charge speed restriction via VSD for every ball mill start.
- Ball mill inching via the inching drive for mill relines.

Process Control

Ball mill operation will aim to maintain a ball charge that fully utilises the available motor power. If the ball mill is under-utilised because of fine or soft ore feed, the ball charge may be allowed to run down to reduce power draw.

Generally, grinding variability will be addressed through the SAG mill speed control. However, the ball mill speed may also be adjusted to a fixed setpoint, if deemed preferable, to optimise power draw so that the target grind size is achieved.

The ball mill will be interlocked with the running signals of the following pumps:

- Mill water pumps.
- HP process water pumps.
- Process water pumps.
- Cyclone feed pumps.

During normal operation, mill water will not be added to the ball mill feed as the ball mill feed density will be dictated by the cyclone underflow density. However, provision to add mill water to the ball mill feed spout will be made, to cater for instances where a high slurry viscosity in the mill could cause the ball charge to 'float', or to flush the mill ahead of relining. The ball mill feed water addition will be adjusted via a manual set-point in the OIT.

A low flow switch will be installed at the ball mill feed chute seal water addition, with an associated alarm to be displayed at the OIT.

The ball mill circulating load will be calculated from the SAG mill feed rate (per SAG mill feed conveyor weightometer) and the cyclone feed mass flow (per cyclone feed flowmeter and cyclone feed density gauge).

4.3.3 Mill Discharge Hopper

Slurry in the mill discharge hopper will be pumped to the cyclone cluster from a duty / standby cyclone feed pump. Cyclone feed slurry solids and volumetric flowrate will be measured using a nucleonic density gauge and a flowmeter, both displayed on the OIT. Control of mill water addition to the mill discharge hopper will be by a PID loop based on cyclone feed density measurement to achieve the operator entered set-point value.

The level in the mill discharge hopper will be monitored and will control the mill water addition to the hopper. The cyclone cluster feed and overflow densities will vary. The mill discharge hopper level will also override the cyclone feed density control loop and open the mill water addition valve at the mill discharge hopper at low level.

Mill water flushing lines fitted with actuated valves will be located at the suction of the cyclone feed pumps and on the bend to the vertical section of the cyclone feed pipeline. The valves will be interlocked so they cannot be opened unless at least one cyclone isolation valve is open to prevent over-pressurising the cyclone feed distributor or the corresponding pump discharge drain valve is open.

If a cyclone feed pump trips, the suction and discharge lines will be drained.

The number of hours each cyclone feed valve is open and the cyclone feed pump is operational, will be accumulated and displayed for maintenance purposes.

Refer to Section 3.9 and Section 3.13 for additional controls to the cyclone feed pumps.

4.3.4 Constant Cyclone Pressure Control

The cyclone cluster operating pressure will be displayed at the OIT. Individual cyclone isolation valves will be opened and closed from the OIT. The cyclone cluster pressure will be monitored and will control the speed of the duty cyclone feed pump to increase or decrease the flowrate to meet the set-point. The operator will have the ability to manually adjust the number of operating cyclones from the OIT to increase or decrease the mill circulating load.

If the flowrate required to achieve the desired pressure set-point is above the maximum allowable flow, the operator will be required to open a cyclone via the OIT. Similarly, if the flowrate required to achieve the desired set-point is below the minimum allowable flow, the operator will be required to close a cyclone via the OIT.

The mode status of all valves in the cyclone cluster may be set either as a group or individually. When all valves are in auto mode, no less than four valves will remain open at any time and closure of any open valve that would result in less than four remaining open will be inhibited.

Cyclone feed pump flowrate will have a minimum flow set-point to prevent settling of coarse particles in the cyclone feed pipeline.

4.3.5 Mill Media Addition

SAG Mill

SAG mill media will be loaded by FEL into the SAG mill ball charger.

A pneumatic actuator will load a relatively constant number of grinding balls per stroke onto the SAG mill feed conveyor on a timed setting. The addition of grinding media will be allowed when the SAG mill feed rate is above 100 t/h (per SAG mill feed conveyor weightometer). SAG mill power will be monitored and operations staff will need to adjust to maintain the target mill power draw.

The SAG mill feed conveyor low mass flow will disable automatic SAG mill media addition. SAG mill media addition by the pneumatic actuator will only recommence if the SAG mill feed conveyor low-low mass alarm is not active.

Ball Mill

Ball mill ball charging will be carried out periodically by the operations staff to adjust the ball mill power draw and feed rate to the ball mill. A pneumatic actuator will load a relatively constant number of grinding balls per stroke into the ball mill ball charging kibble, which will cycle until the PCS counts the required number of cycles completed to fill a kibble and then stop.

A notification to the operator at the OIT will advise that the kibble is full (based on the number of fill cycles completed), and the hoist can be used to raise the loaded kibble to the ball mill feed chute, where it will be emptied and then returned to the loading position.

4.3.6 Pebble Recycle

SAG mill discharge oversize ore will report to the pebble recycle circuit to be transferred to the SAG mill feed conveyor (CV5) and returned to the grinding circuit.

Oversize ore from the pebble dewatering screen will report to the sacrificial pebble conveyor (CV6). The sacrificial pebble conveyor (CV6) will discharge onto the pebble recirculation conveyor (CV7) and will be interlocked to stop or be prevented from starting if CV7 is not running. Likewise, the pebble recirculation conveyor (CV7) will discharge onto the SAG mill feed conveyor (CV5) and will be interlocked to stop or be prevented from starting if CV5 is not running.

A weightometer will be installed on the pebble recirculation conveyor (CV7), and the mass measurement will be used to control the SAG mill feed water addition. Refer to Section 3.8 for additional details.

Refer to Section 3.6 for additional controls to the sacrificial pebble conveyor (CV6) and pebble recirculation conveyor (CV7).

4.4 Area 130 – Gravity Concentration

Slurry in the mill discharge hopper will be pumped to the gravity circuit by the gravity feed pump. The gravity circuit feed slurry flowrate will be measured by a flow meter and controlled to match an operator entered set-point by adjusting the speed of the gravity feed pump.

The gravity circuit feed slurry solids concentration will be the same as the cyclone feed slurry solids concentration which will be measured using a nucleonic density gauge on cyclone feed. The slurry solids concentration and the gravity circuit feed volumetric flowrate will be used to calculate the gravity feed pump mass flowrate. The mass flowrate will be totalised. The gravity circuit feed will be split between two gravity scalping screens each dedicated to separate gravity concentrators.

The spray water flowrate to the gravity scalping screens will be measured by a flow meter.

Refer to Section 3.9 and Section 3.13 for additional controls to the gravity feed pump.

4.4.1 Gravity Concentrators

The two gravity concentrators will be controlled by the vendor supplied PLC. Fluidising water flow to each concentrator will be measured by a flow meter and controlled to the vendor recommended set-point. The gravity concentrators will be interlocked to the fluidising water pump running signal and the discharge permissive from the intensive cyanidation system.

The common fluidising water pressure to the gravity concentrators will be measured by a pressure transmitter. Also, separate pressure transmitters will monitor the fluidising water pressure to the bowl of each gravity concentrator.

Gravity concentrator operation will be a batch cycle, alternating between slurry feed for concentrate recovery followed by a brief concentrate discharge cycle. The feed and bypass valves corresponding to each concentrator will be actuated to divert screen undersize slurry to bypass to the concentrator tails pipe launder during concentrate discharge.

If either of the concentrators stops or trips, the relevant bypass valve will open and the feed valve will close, thus bypassing the concentrator and diverting the feed directly to the tails box.

The OIT display for the gravity concentrators will include running and fault status. Also, monitoring of the fluidising water flow and pressure. The control parameters of both gravity concentrators will be adjustable only at the vendor panel.

Each gravity concentrator will have a dedicated fluidising water filter with the backflush sequence interlocked with the gravity concentrator's supplied PLC.

4.4.2 Intensive Cyanidation

The gravity concentrate intensive cyanidation reactor (ICR) will be located below in the gravity concentrators structure and will operate as a standalone unit, leaching daily batches of gravity concentrate to produce a volume of pregnant leach solution suitable for electrowinning.

The ICR will be controlled from the vendor control panel. The vendor supplied control logic will be used to control each batch start-up, operation and shutdown of the intensive cyanidation system. The plant services (e.g. air, water) required must be detected and operational for the batch cycle to run. The OIT display for the ILR will include fault status.

Cyanide dosing from the cyanide ring main will be controlled by the vendor supplied control logic that will open a sodium cyanide addition valve at the ICR for a period to dose the required volume of solution.

Caustic addition will be controlled by the vendor supplied control logic that will send a signal to the PCS to start the sodium hydroxide dosing pump for a period to add the required volume of solution, after the caustic addition valve at the ICR is opened. Once dosing is complete, the ICR control system will send a signal to stop the pump before closing the valve to prevent dead heading the pump.

Similarly, flocculant solution addition will be controlled by the vendor supplied control logic that will open the flocculant dosing valve at the ICR and then start the ICR flocculant pump. The pump will run for a preset time to add the required volume of solution. Once flocculant dosing is complete, the ICR control system will stop the pump before closing the valve to prevent dead heading the pump.

ICR feed storage hopper mass and ICR solution storage hopper mass will be monitored by load cells and displayed in the OIT.

Refer to Section 3.10 for controls applicable to the intensive cyanidation area sump pump.

Refer to Section 3.11 for details of the intensive cyanidation area HCN gas detector.

4.5 Area 140 – Trash Removal and Thickening

4.5.1 Pre-Leach Thickening

Cyclone overflow will report to the trash screen, with the undersize reporting to the pre-leach thickener feed box.

The thickener will be controlled according to the vendor package functional description (to be developed in detailed design). The following monitoring signals of the thickener vendor package will be displayed at the OIT:

- Thickener rake torque.
- Thickener bed mass.
- Thickener bed level.
- Thickener rake level.
- Thickener rake torque.
- Thickener hydraulic oil level low.
- Thickener rake fault status.
- Thickener rakes rotation speed low.
- Thickener rakes fully lowered status.
- Thickener rakes fully raised status.
- Thickener hydraulic oil temperature high.

A vendor supplied bed level indicator will be provided on the pre-leach thickener for measurement of the solid/liquid interface. Control of the bed level in the thickener will be by a PID loop, which will regulate the speed of the corresponding duty flocculant dosing pump (flocculant dosing pump 1 or pump 2).

A vendor supplied pressure indicator will be provided on the thickener for bed mass measurement. Control of the bed pressure in the thickener will be by a PID loop in the PLC, which will regulate the underflow flowrate by varying the speed of the pre-leach thickener underflow pumps (i.e. leach feed pump).

Alternatively, pre-leach thickener underflow slurry solids will be measured using a nucleonic density gauge and transmitter and displayed on the OIT. Instead of using the bed pressure controller, the underflow slurry density may be controlled by varying the speed of the underflow pump to control the discharge rate of the thickener underflow. A low density will slow the pump to allow bed mass and density to increase.

A flow meter will measure and totalise the flowrate of thickener underflow slurry pumped to the CIL circuit. The solids mass flowrate will be calculated from the thickener underflow slurry solids density measurement and the slurry flowrate. The solids mass flowrate may be used to control the cyanide addition to the CIL circuit (Section 4.7.3).

During normal operation, dilution water will not be added to the thickener underflow slurry, as thickener underflow slurry density will be dictated by the thickener performance. However, provision to add HP process water to the leach feed pump suction lines will be made, to cater for instances where a high slurry viscosity is measured. The HP process water addition will be adjusted via a manual set-point from the OIT.

Refer to Section 3.9 and Section 3.13 for additional controls to the leach feed pumps.

Refer to Section 3.10 for controls applicable to the pre-leach thickener sump pump.

4.5.2 Process Water

The primary inflow to the process water tank will be the pre-leach thickener overflow. The process water tank and the process water pond are connected by a manifold to maintain minimum required level for the mill water pumps to be healthy to run. Process water supply will also be necessary on start-up until steady state thickener overflow is established.

Process water will be distributed throughout the milling circuit to provide the dilution water for the SAG mill feed and mill discharge hopper, and other selected duties in the mill area. Flowmeters will be provided on the water header to the milling area to allow total water added to the milling circuit to be measured.

Process water pumps will draw from the process water suction manifold. Process water will be serviced by a duty / standby pump pair. Automatic changeover of the pumps will require that the suction and discharge valve of each pump be left open. The process water delivery pressure will be monitored and will control the speed of the duty process water pump.

The process water suction manifold will also be used to supply the HP process water demand. The level in the process water tank will be monitored.

Refer to Section 3.9 and Section 3.13 for additional controls to the process water pumps.

4.6 Area 160 – Leaching

4.6.1 Leach Feed Sampling

Automatic samplers will be installed on the leach feed stream to provide a composite process slurry sample, which will be collected each shift for metallurgical accounting purposes. Samplers will be timer controlled. Sampling frequency interval will be adjustable at the vendor panel. Sampler fault status will be indicated on the OIT.

HP process water delivery pressure to the leach feed samplers for rinse duties will be monitored and displayed on the OIT.

Access to the slurry in the CIL tanks will be provided to allow accurate manual measurement of CIL tank freeboard and consistent carbon sampling to determine CIL inventories. Sampling from the CIL tanks will be manual.

4.6.2 Leach and CIL Circuit

Oxygen will be reticulated to agitators in the leach tanks and CIL tanks 1 to 6. Oxygen will be introduced into the agitated slurry down shaft to maintain dissolved oxygen concentrations for optimum leach conditions.

The total oxygen addition rate to the leach and CIL circuit will be controlled by manually adjusting the oxygen flowrate. Vortex flow meters indicate the air flow to each tank and the output will be displayed on the OIT.

The slurry pH, ORP and dissolved oxygen concentration in the leach tank and CIL tank 1 will be measured using in-tank probes and displayed on the OIT. The pH readings may be used to control lime addition (Section 4.2.1).

An agitator will be fitted to the leach tanks and each of the CIL tanks 1 to 6. A gearbox oil low flow switch will be installed for each agitator and will be interlocked with the agitator motor. Agitator motor current will be monitored and displayed on the OIT. Actuated gates will be installed in the discharge launders of the leach tanks, CIL tank 1 to CIL tank 4.

Actuated gates will be installed in the discharge launders of CIL tank 5 and CIL tank 6. For start-up, the gates open actuation will be interlocked with the tails pumps running signal.

Refer to Section 3.10 for controls applicable to the CIL sump pump 1 to 3.

Refer to Section 3.11 for details of the CIL HCN gas detector 1 to 3.

4.6.3 Cyanide Addition

Cyanide addition to the leach and CIL tanks will be controlled by a flow control valve on the cyanide ring main. The flow set-point will be calculated from either:

- A ratio (based on an operator selected cyanide dose in g/t) to the pre-leach thickener underflow mass flowrate pumped to CIL, or
- The selected output from the free cyanide analyser. The free cyanide analyser will provide online free cyanide concentration measurement in leach tanks 1, 2 and CIL tank 6. Selection of the active control will be made at the OIT.

CIL free cyanide analyser fault status will be indicated on the OIT.

4.6.4 Carbon Recovery

Each of the CIL tanks may be bypassed by changing the launder gate positions. This will be a manual function since it will not occur frequently.

Carbon will be pumped counter-current to the slurry flow to maintain an appropriate carbon inventory in each tank when loaded carbon is recovered for elution. The carbon transfer piping will be reconfigured by manually changing pipe spools if a tank is bypassed.

The loaded carbon recovery and carbon advance pumps will be started from the OIT and will operate according to a set timer. The timer duration will be an input at the OIT. A high-high level switch in the acid wash column will be interlocked to stop loaded carbon recovery pump 1. Loaded carbon recovery pump 1 will only run when the loaded carbon recovery screen is running.

If it is required to bypass CIL tank 1 the carbon recovery pump descriptor will need to be reassigned to CIL tank 2 to ensure the control logic and interlocks address the alternate pump configuration.

A vendor supplied carbon measurement probe will be installed in each of the CIL tanks 1 to 6 to measure carbon concentration. An additional probe will be installed in leach tank 2 as a reference of the solids slurry density in the CIL circuit. The measured carbon concentration of each CIL tank may be used to control the timer of the corresponding carbon advance pump, based on a carbon concentration setpoint. Manual measurements of in-tank carbon concentration from dip samples will be used to balance the individual tank inventories.

4.6.5 CIL Intertank Screens

The intertank screens in the CIL tanks will be provided with decontactor plugs to facilitate maintenance. Phase wiring of decontactor plugs will be standardised such that all screens are interchangeable. The status of screen drives will be shown on the OIT.

Each of the CIL tanks may be bypassed if the intertank screens are removed for cleaning / maintenance by changing the launder gate positions. The gate position can be actuated from the OIT.

4.7 Area 170 – Elution Circuit

The elution sequence will be controlled from the PCS. Further details of sequencing will be developed in conjunction with the P&IDs during detailed design.

An auto solution sampler will be installed in the elution column discharge to the pregnant solution tanks. Furthermore, manual sample valves will be used to generate solution samples from the elution and electrowinning circuits.

Carbon sampling in the elution circuit will be a manual operation.

Three elution building ventilation fans will be installed in the roof to provide adequate ventilation in the partially enclosed area housing the acid wash column, elution column and carbon regeneration kiln.

Refer to Section 3.11 for details of the acid wash and elution HCN gas detectors.

4.7.1 Elution Heater Package

The vendor package will provide the control for the elution heater to achieve a target eluant temperature set-point. The OIT will indicate the heater status.

A low pressure switch in the fuel supply pipeline from the plant diesel day tank will be interlocked to stop the elution heater operation in the event of diesel supply failure.

4.8 Area 170 – Carbon Regeneration

4.8.1 Carbon Regeneration Kiln

The vendor package will provide the control of the carbon regeneration kiln to a target temperature set-point and carbon throughput rate. The OIT will indicate key parameters such as kiln running or fault status, kiln screw feeder running status, screw feeder rotational speed, kiln rotational speed, and kiln temperature in zones 1 to 3. The level of the kiln feed hopper will be monitored and displayed in the OIT.

Regenerated carbon will be discharged to the carbon quench hopper before being returned to the CIL circuit. The carbon transfer pump may only run when the loaded carbon sizing screen is running.

Refer to Section 3.9 and Section 3.13 for additional controls to the carbon transfer pump.

A low pressure switch in the fuel supply pipeline from the plant diesel day tank will be interlocked to stop the kiln operation in the event of diesel supply failure.

4.9 Area 170 – Electrowinning

The rectifier vendor control system will provide for cell current and voltage to be displayed locally and on the OIT and there will be a facility for local control of current outside the gold room.

The pregnant solution pumps will be interlocked with the open and closed position of the discharge valves of the pregnant solution tanks (including the common discharge header valve) and the discharge valves of the pumps.

Refer to Section 3.10 for controls applicable to the pregnant solution area sump pump.

4.9.1 Gravity Electrowinning

The level in the ICR pregnant solution tank will be indicated at the OIT. The gravity electrowinning cell feed flowrate will be measured and totalised by a flow meter on the ICR pregnant solution pump delivery. Flowrate will be displayed on the OIT. The rectifier will be interlocked to prevent operation if there is a recirculating solution low-low flow alarm.

4.9.2 Elution Electrowinning

The level in the pregnant solution tanks will be indicated on the OIT. The combined electrowinning cell feed flowrate will be measured and totalised by a flow meter on the pregnant solution pump delivery. Flowrate will be displayed on the OIT.

Each cell inlet pipe will be equipped with a flow switch. Each rectifier will be interlocked to prevent operation if the low flow switch is activated from the respective cell feed inlet solution.

4.9.3 Electrowinning Caustic Addition

A fixed volume of caustic solution will be added to the pregnant solution prior to electrowinning after the duty pregnant solution pump (electrowinning feed) is started.

The duty pregnant solution pump will be started and run for a set time (set during commissioning) to ensure the electrowinning cells are full and solution is returning to the duty pregnant solution tank. The electrowinning caustic addition valve (corresponding to the selected pregnant solution tank) will be opened, and sodium hydroxide dosing pump and pump run timer will start. After the run timer has elapsed (caustic addition complete, with volume set during commissioning), the sodium hydroxide dosing pump will stop and the corresponding electrowinning caustic addition valve will close.

If required, the operator can add a fixed volume of caustic solution to the ICR pregnant solution tank, prior to electrowinning after the gravity pregnant solution pump (electrowinning feed) is started. The gravity electrowinning caustic addition valve will be opened, sodium hydroxide dosing pump will start and the pump run timer will start. After the run timer has elapsed (caustic solution will be added, with volume set during commissioning), the sodium hydroxide dosing pump will stop and the gravity electrowinning caustic addition valve will close.

4.10 Area 170 – Gold Room

Vendor packages will provide control for the gold room equipment other than electrowinning. Selected parameters from the gold room will be displayed on the OIT.

A vendor supplied high-high level switch in the sludge pan filter will be interlocked with the sludge pan filter vacuum pump.

Three gold room ventilation fans will be installed in the roof to provide adequate ventilation of the building.

Refer to Section 3.10 for controls applicable to the gold room area sump pump.

Refer to Section 3.11 for details of the electrowinning cells area HCN gas detector. Located in the electrowinning cells level.

4.10.1 Drying Ovens

The drying ovens will be located inside the gold room and will operate as standalone units drying batches of wet sludge to produce dry sludge for mixing with flux prior to smelting.

The vendor supplied control system will control all the equipment without external intervention. The overall drying cycle will be approximately 24 hours and the oven will be electrically powered.

4.10.2 Gold Room Extraction

Each electrowinning cell will have a fume hood connected to an extraction fan capturing and discharging vapour to atmosphere via a stack. The smelting furnace and drying ovens will have their own fume hoods connected to another extraction fan and stack.

4.11 Area 180 – Tails Handling

4.11.1 CIL Tails Sampling

Automatic samplers will be installed on the CIL tails stream to provide a composite process slurry sample, which will be collected each shift for metallurgical accounting purposes. Samplers will be timer controlled. Sampling frequency interval will be adjustable at the vendor panel. Sampler fault status will be indicated on the OIT.

HP process water delivery pressure to the CIL tails samplers for rinse duties will be monitored and displayed in the OIT.

4.11.2 Cyanide Destruction

Reagent additions to the cyanide destruction circuit will be controlled so that the weak acid dissociable cyanide (CN_{WAD}) concentration in the plant tailings achieves the target set-point value.

CIL and plant tails slurry CN_{WAD} concentration will be measured online by the WAD cyanide analyser with samples taken from the cyanide destruction distribution box and cyanide destruction tank 2.

The slurry pH, ORP and dissolved oxygen concentration in the cyanide destruction tanks will be measured using in-tank probes. The WAD cyanide analyser will also measure slurry pH in these tanks. The duty pH measurement will be selected on the OIT (cyanide destruction tank 1 or tank 2 or cyanide destruction distribution box).

The gearboxes for both of the cyanide destruction tank agitators will each have a gearbox oil low flow switch. Activation of the low flow switch will generate an alarm on the OIT and an interlock will cause the respective agitator drive to stop. Agitator motor current will be monitored and displayed on the OIT.

WAD cyanide analyser fault status will be indicated on the OIT.

Refer to Section 3.10 for controls applicable to the tails detoxification area sump pump.

Refer to Section 3.11 for details of the detoxification HCN gas detector.

Sodium Metabisulphite Addition Control

The sodium metabisulphite (SMBS) addition rate to the cyanide destruction circuit will be controlled by adjusting the speed, via the VSD, of the SMBS dosing pump. SMBS will be dosed to the cyanide destruction distribution box.

The total SMBS flowrate will be established by one of the following:

- A control room operator entered flowrate set-point.
- Calculated based on a control room operator entered ratio to the plant tails mass flowrate.
- Via a control loop in cascade mode using the measurement of the cyanide destruction feed CN_{WAD} and the calculated reagent requirement to achieve the target discharge CN_{WAD}.

The CN_{WAD} measured in the cyanide destruction discharge will be used as a guide to adjust the reagent addition rates / ratios.

Where the following are measured:

- $CNWAD_{Feed}$ = Cyanide Destruction Feed CN_{WAD} [ppm] as measured by the WAD Analyser.
- $CNWAD_{Discharge}$ = Cyanide Destruction Discharge CN_{WAD} [ppm] as measured by the WAD Analyser.
- SG_{Slurry} = Tails Slurry Specific Gravity [t/m^3] as measured by the density gauge.
- V_{Slurry} = Tails slurry flowrate [m^3/h] as measured by the flowmeter.

Where the following are calculated:

- FM_{Slurry} = Tails Slurry Mass Flow [t/h] as calculated by SG_{Slurry} x V_{Slurry}.
- VW_{Tails} = Tails Water Volume [m^3/h] as calculated by

$$FM_{Slurry} \times (SG_{Solids} - SG_{Slurry}) \div (SG_{Slurry} \times (SG_{Solids} - SG_{Water})$$

Copper Sulphate Addition Control

The copper sulphate solution addition rate to the cyanide destruction circuit will be controlled by adjusting the speed, via the VSD, of the copper sulphate dosing pump.

The total copper sulphate dosing rate will either be:

- An operator entered flowrate set-point.
- Calculated based on an operator entered ratio to the plant tails solution flowrate. The operator will enter the copper sulphate solution concentration and the required excess copper sulphate level. The required copper sulphate dosing rate will then be determined based on the plant tails water flowrate (VW_{Tails} per previous section).

Caustic Addition Control

The caustic addition rate to the cyanide detoxification circuit will be controlled by adjusting the speed of the cyanide destruction sodium hydroxide dosing pump via the VSD.

The caustic dosing rate may be established by one of the following:

- An operator entered flowrate set-point.
- Controlled to an operator entered pH set-point, as measured in the cyanide destruction discharge slurry by the WAD analyser or the in-tank pH probe.

Oxygen Addition Control

The total oxygen addition rate to the cyanide detoxification circuit will be controlled by adjusting the oxygen addition flowrate. Distribution of oxygen between the two cyanide detoxification tanks will be adjusted manually. Vortex flow meters will indicate the oxygen flow to each tank and both flowrates will be displayed on the OIT.

The total oxygen addition rate to the tails detoxification circuit will be controlled by manually adjusting the oxygen flowrate. Vortex flow meters indicate the flow rate to each tank and the output will be displayed on the OIT.

4.11.3 Tails Pumping

Slurry in the tails hopper will be pumped to the TSF by a duty / standby tails pump pair. Tails slurry density and volumetric flowrate will be measured using a nucleonic density gauge and a flowmeter and both values will be displayed on the OIT. A flow totaliser will record the ongoing volume of slurry pumped to the TSF. The solids mass flowrate will be calculated from the slurry density and slurry flow measurements. A second flow meter will be installed at the pump end of the pipeline. A flow deviation alarm will be generated if there is a significant discrepancy in flow between the two flowmeters, which may indicate a leak. If the difference exceeds a specified value this will alarm at the OIT and stop the pump.

Tails pump flowrate will have a minimum flow set-point to ensure a minimum volumetric slurry flowrate in the tails pipeline is exceeded to prevent solids sanding the line.

The level in the tails hopper will be monitored and will control the speed of the duty tails pump to increase or decrease the flowrate to meet the set-point. If the flowrate required to achieve the desired set-point is below the minimum allowable flow, process water addition to the tails hopper will be started to achieve the required level.

Alternatively, the operator may use a manually entered flowrate set-point value, measured by the tailings line slurry flow meter, to control the speed of the duty tails pump.

Process water flushing lines, fitted with actuated valves, will be located at the suction of the tails pumps and the delivery pipeline to allow the tails line to be flushed. The valves will be interlocked so they cannot be opened unless at least one pump discharge valve is open to prevent over-pressurising the line.

If a tails pump stops or trips, the suction and discharge lines will be drained.

Refer to Section 3.9 and Section 3.13 for additional controls to the tails pumps.

Refer to Section 3.11 for details of the tailings HCN gas detector.

4.12 Area 210 – Reagents

4.12.1 Cyanide

Cyanide will be delivered to site in boxes and mixed in a dedicated mixing tank to a nominal strength of 20% w/v solution. Prior to adding the solid reagent briquettes to the mixing tank, the tank will be filled with filtered water to the high level. The sequence for water addition to the mixing tank will be initiated from the control room. The sequence will require that the relevant equipment and valves are selected to auto and will proceed as follows:

- The water addition valve will open and commence filling the tank.
- When the mixing tank level is above the agitator impeller, the agitator will start.

- The mixing tank will continue to fill with water until the high level is reached.

Because reagent mixing requires an operator to be present and will be initiated independently of the rest of the process, it may be preferred to maintain the valves in local mode and initiate tank filling from the field. The high tank level valve shut-off will still function in local mode.

If the mixing tank level reaches high-high, a high priority alarm will be raised. The caustic and filtered water addition valves will be interlocked with the high-high alarm and high-high level switch.

Six bulk bags will be required for a mixing batch. After addition of the final reagent bulk bag, a mixing period of at least two hours will be required before the solution should be used or is transferred to the storage tank.

Solution transfer to the storage tank will be manually initiated by the control room operator (or locally in the field if required). The mixing tank agitator will be stopped before commencing the transfer.

The solution transfer pump will stop if the storage tank reaches a high level. A high priority alarm will be raised if the storage tank reaches high-high level. As a final safeguard, the overflow from the storage tank will report back to the mixing tank, and a time-out on the transfer pump run timer will stop the pump and generate an alarm to prompt an investigation.

When the cyanide mixing tank reaches low-low level the cyanide transfer pump will stop, whether in local or remote selection mode.

The level in the cyanide mixing tank and the cyanide storage tank will be displayed on the OIT and also locally on a large digital display that is readily visible to the reagent area operator. The cyanide dosing pumps will be interlocked to stop and/or be prevented from starting if a low-low level in the storage tank is recorded.

Duty / standby cyanide pumps will deliver sodium cyanide solution to the CIL and intensive cyanidation circuits via a ring main distribution system. Refer to each area for specific cyanide dosing control.

A separate cyanide dosing pump will be dedicated to the elution circuit. Further details for the elution sequencing will be developed with the P&IDs during detailed design. A low-low flow alarm generated from a flowmeter on the dosing pump discharge, will be interlocked to stop the pump.

The solution pH value in the cyanide mixing tank will be measured using an in-tank probe and displayed on the OIT.

Refer to Section 3.10 for controls applicable to the cyanide / caustic area sump pump.

Refer to Section 3.11 for details of the cyanide mixing HCN gas detector.

4.12.2 Caustic (Sodium Hydroxide)

Caustic will be delivered to site in bulk bags and mixed in a dedicated mixing tank to a nominal 20% w/v solution concentration. Caustic usage will be intermittent with batch dosing cycles to elution, intensive cyanidation, and electrowinning areas, and continuous dosing to the cyanide destruction area. Make up of a new batch will be timed between dosing requirements.

Six bulk bags of caustic will be added to the mixing tank via a hopper and screw feeder. The screw feeder will have an underspeed switch which, if activated, will be interlocked to stop the feeder motor. The mixing tank will be equipped with a separate high-high level switch and a level transmitter. Prior to caustic addition, the mixing tank will have been pre-filled to a set-point level with filtered water via an actuated valve. If either the high-high level switch is activated or a high-high level is recorded, the actuated filtered water addition valve will close and/or be prevented from opening. After addition of the final reagent bulk bag, an additional volume of filtered water will be added.

Caustic solution will be batch transferred from the mixing tank to the adjacent sodium hydroxide storage tank. If the sodium hydroxide mixing tank records a low-low level, an interlock will either stop the caustic transfer pump or prevent it from starting.

The level in the sodium hydroxide mixing tank and the sodium hydroxide storage tank will be displayed on the OIT. The mixing and storage tank levels will also be displayed locally on a large digital display that is readily visible to the reagent area operator.

Variable speed sodium hydroxide dosing pump will supply caustic to the elution, intensive cyanidation, and electrowinning circuits. The correct volume of caustic (based on the nominal concentration) will be added to each of these circuits according to a flow totaliser from the flow meter on the dosing pump discharge. The dosing pump will start automatically as part of the elution and intensive cyanidation sequences so all manual valves will be left open, and the pump selected to auto mode, with interlock to prevent simultaneous dosing of caustic. If the pump is already running as part of a sequence, the pump status will be not available for any other sequence and a warning will be generated informing the second pump running request was declined. The totaliser will reset at the end of dosing for any sequence.

Refer to each area for specific caustic dosing control. Further details on the elution sequencing will be developed with the P&IDs during detailed design. A low-low flow alarm generated from the pump discharge flow meter will be interlocked to stop the sodium hydroxide dosing pump.

Variable speed cyanide destruction sodium hydroxide dosing pump will be dedicated to cyanide destruction circuit for continuous flow to the cyanide destruction distribution box. Refer to area for specific caustic dosing control. A low-low flow alarm generated from the pump discharge flow meter will be interlocked to stop the dosing pump.

4.12.3 Hydrochloric Acid

Hydrochloric acid (HCl) will be delivered to the process plant in IBCs of 1 m^3 capacity, typically at a 32% w/w HCl concentration.

A dilute solution of hydrochloric acid (3% w/w HCl) will be prepared by mixing concentrated HCl from the IBCs with filtered water in the hydrochloric acid storage tank. When empty, the hydrochloric acid mixing and storage tank has capacity of up to three IBCs.

The hydrochloric acid make-up system will function to provide mixing of a number of selected IBCs per the operator in the OIT (up to four IBCs) as follows:

- The area operator will confirm the same number of IBCs is connected to the piping arrangement and manual valves position is confirmed.
- Operator to select number of IBCs to add to the mixing tank. Depending on the number of IBCs to be mixed, there will be a permissible level to guarantee sufficient volume for the acid and filtered water addition.
- Filtered water will be added to the hydrochloric acid storage tank via an actuated valve until the desired tank level is achieved.
- Pump of concentrated hydrochloric acid from the IBCs is completed.
- Filtered water will be added to fill the tank. The actuated valve will close when the required volume is recorded.

Sufficient concentrated hydrochloric acid will be unloaded manually from the IBCs using the hydrochloric acid unloading pump. This is a fixed speed pneumatic diaphragm pump that will normally be stopped and started in the field (local control) by the reagent mixing operator. The solenoid valve on the plant air supply to the pump will be interlocked to close if the hydrochloric acid mixing and storage tank records a high-high level.

The pump air supply valve will be interlocked so that the pump can only be started if the level in the acid mixing and storage tank is greater than 45% to ensure concentrated hydrochloric acid is always added to a sufficient volume of water.

During the acid wash sequence in the elution circuit a fixed volume of dilute hydrochloric acid will be added for each batch of carbon processed. Further details for elution sequencing will be developed with the P&IDs during detailed. The acid addition in the elution sequence will be programmed to allow the acid wash pump to run based on a preset volume discharge to the acid wash column, monitored via the tank level transmitter, A low-low level recorded in the mixing and storage tank will initiate an interlock to stop the pump. A low flow switch will be installed on the pump delivery that will be interlocked to stop the pump when activated.

The level in the hydrochloric acid storage tank will be displayed at the OIT. The storage tank level will also be displayed locally on a large digital display that will be readily visible to the reagent area operator.

Refer to Section 3.10 for controls applicable to the acid area sump pump.

4.12.4 Flocculant

The flocculant make-up and mixing plant will be automatically controlled by a vendor supplied control panel. The panel will show the status of the mixing cycle. The sequence settings and timers may be adjusted from this panel as required. The fault, ready, running status of the system, raw water feed pressure, and selected alarm status will be displayed on the OIT.

The field operators will be responsible for maintaining a full powder storage hopper using the manual bulk bag loading and breaking facility.

The level in the flocculant storage tank will be displayed on the OIT. The flocculant dosing pumps will be interlocked to stop or be prevented from starting if a low-low level is recorded in the flocculant storage tank.

A flow meter will be installed on the flocculant delivery line to the pre-leach thickener. Output from flow meter will be used to modulate the speed of the dosing pump according to a set-point determined from the bed level of the pre-leach thickener. Activation of a low-low flow alarm will be interlocked to stop the corresponding pump if it is dead headed. An additional flocculant dosing pump will be available as standby for the pre-leach thickener flocculant dosing duties, as selected from the OIT.

A dedicated dosing pump will be available in the flocculant area transfer flocculant solution to the intensive cyanidation area. Flocculant from will be pumped to the ILR pump hopper as part of the ILR sequence from the ILR vendor control panel. The local ILR flocculant pump will be started and stopped automatically.

Refer to Section 3.10 for controls applicable to the flocculant area sump pump.

4.12.5 Sodium Metabisulphite (SMBS)

SMBS will be delivered to site in bulk bags and mixed in a dedicated mixing tank to a nominal 20% w/v solution concentration. Prior to adding the SMBS powder to the mixing tank, the tank will be filled with filtered water to the high level via an actuated valve. The sequence for addition of filtered water to the mixing tank will be initiated from the control room. The sequence will require that the relevant equipment and valves be selected to auto and will proceed as follows:

- The water addition valve will open and commence filling the tank.
- When the level in the mixing tank is above the agitator impeller, the agitator will be started.
- The mixing tank will continue to fill with water until the high level is reached.

SMBS mixing will require a field operator to be present and will be initiated independently of the rest of the process. It may be preferred, therefore, to maintain the valves in local mode and initiate tank filling from the field. The tank high level interlock to close the actuated water addition valve will still function in local mode.

A separate high-high level switch will be provided in the mixing tank. If the high-high level is activated, a high priority alarm will be generated. An interlock will be provided to close the water addition valve if the level high-high switch is activated.

Seven bulk bags will be required for a mixing batch. After addition of the final reagent bulk bag, a mixing period of at least two hours will be required before the solution is transferred to the storage tank. Solution transfer will be manually initiated by the control room operator (or locally in the field if required). The mixing tank agitator will be stopped before commencing the transfer.

The solution transfer pump will stop if the tank level reaches high level. A high priority alarm will be raised if the storage tank level reaches high-high. As a final safeguard, the overflow from the storage tank will report back to the mixing tank, and a time-out on the transfer pump run timer will stop the pump and generate an alarm to prompt an investigation.

When the SMBS mixing tank reaches low-low level the SMBS transfer pump will stop, whether selected to local or remote mode.

The level in the SMBS mixing tank and SMBS storage tank will be displayed on the OIT. The duty / standby variable speed SMBS dosing pumps will dose SMBS to the cyanide destruction circuit (refer to cyanide destruction for specific SMBS dosing control). The pumps will be interlocked to stop, or be prevented from starting, if there is a low-low level in the SMBS storage tank.

A flow meter will be installed on the discharge line of the dosing pumps. If a low-low flow is recorded during pump operation, an alarm will be generated, and an interlock will stop the pump.

Operation of the SMBS vent fan will be a prerequisite for opening the doors of the SMBS bag breaker enclosure. The fan will continue to run while the SMBS mixing sequence is ongoing.

Refer to Section 3.10 for controls applicable to the SMBS area sump pump.

4.12.6 Copper Sulphate ($CuSO_4$)

Copper sulphate will be delivered to site in bulk bags and mixed in a mixing / storage tank to a nominal 20% w/v solution concentration. Copper sulphate solution will be continuously dosed to the cyanide destruction area.

The sequence for addition of filtered water to the mixing tank will be initiated from the control room. The sequence will require that the relevant equipment and valves be selected to auto and will proceed as follows:

- The water addition valve will open and commence filling the tank.
- When the level in the mixing tank is above the agitator impeller, the agitator will be started.
- The mixing tank will continue to fill with water until the high level is reached.

Three bulk bags will be required for a mixing batch. After addition of the final reagent bulk bag, a mixing period of at least 30 minutes will be required before the solution is transferred to the storage tank. Solution transfer will be manually initiated by the control room operator (or locally in the field if required). The mixing tank agitator will be stopped before commencing the transfer.

The solution transfer pump will stop if the tank level reaches high level. A high priority alarm will be raised if the storage tank level reaches high-high. As a final safeguard, the overflow from the storage tank will report back to the mixing tank, and a time-out on the transfer pump run timer will stop the pump and generate an alarm to prompt an investigation.

When the copper sulphate mixing tank reaches low-low level the copper sulphate transfer pump will stop, whether selected to local or remote mode.

The level in the copper sulphate mixing tank and copper sulphate storage tank will be displayed on the OIT. The duty / standby variable speed copper sulphate dosing pumps will dose copper sulphate to the cyanide destruction circuit (refer to cyanide destruction for specific copper sulphate dosing control). The pumps will be interlocked to stop, or be prevented from starting, if there is a low-low level in the copper sulphate storage tank.

A flow meter will be installed on the discharge line of the dosing pumps. If a low-low flow is recorded during pump operation, an alarm will be generated, and an interlock will stop the pump.

4.13 Area 220 – Water Services

4.13.1 Raw Water

The suction take-off level for the raw water pumps will ensure that a minimum fire water inventory is maintained in the raw water tank. A mid low level alarm will thus be set with the raw water pumps being interlocked to this low level.

The water storage dam pumps will be interlocked to stop, or be prevented from starting, if a high-high level is recorded in the raw water tank and a high priority alarm will be raised.

The water harvest dam pumps will be interlocked to stop, or be prevented from starting, if a high-high level is recorded in the water storage dam.

The raw water tank will provide a secure fire water supply as well as supplying the filtered water treatment plant.

Duty / standby variable speed raw water pumps will draw suction from the raw water tank and will pump raw water to the process plant, MSA and potable water treatment plant. Automatic changeover of the pumps will require that the suction and discharge valve of each pump be left open. The raw water delivery pressure will be monitored and will control the speed of the duty raw water pump.

The camp raw water feed pump will draw suction from the water storage pond and will pump raw water to the camp raw water tank.

All pumps supplied from the raw water tank will be interlocked to stop, or be prevented from starting, on low-low pond level. A high priority alarm will be raised when the raw water tank level reaches low level.

4.13.2 Fire Water

The vendor package will provide the control for the plant fire water system. The OIT will indicate the fault status of the electric and diesel fire water pumps and running status for the electric fire water pump.

The fire water reticulation system will be pressurised by a small electric jockey pump, which will automatically start and stop to ensure the system pressure is within a certain pressure band. If any fire hose or hydrant is opened, in the first instance, when the pressure in the system drops below a specific set-point, the electric fire pump will start. An alarm will be generated in the control room when the electric fire water pump is running.

If the pressure in the fire water ring main continues to drop with the electric pump running below a lower set-point, the diesel fire water pump will start and an alarm will be generated in the control room. Both the electric and diesel fire water pumps will have to be turned off manually at the local control panel once started. Only the jockey pump will be able to automatically start and stop based on the pressure of the fire water distribution system.

4.13.3 Process Water

The primary inflow to the process water pond will be decant return from the TSF and additional supply from the raw water tank. Pre-leach thickener overflow will be directed into the process water tank. The process water pumps will be fed from a suction manifold that connects the process water pond and process water tank.

The TSF decant water and raw water addition valves will be interlocked with the process water pond level.

Process water will be distributed for milling circuit and flocculant dilution duties.

Duty / standby variable speed process water pumps will draw suction from the process water suction manifold. Automatic pump changeover will require that the manual suction and discharge valve of each pump be left open. The process water delivery pressure will be monitored and will control the speed of the duty process water pump.

A variable speed fluidising water pump will also draw suction from the process water suction header and will pump fluidising water to the gravity concentrators in the milling circuit. The fluidising water delivery pressure will be monitored and will control the speed of the fluidising water pump.

All pumps supplied from the process water pond will be interlocked to stop, or be prevented from starting, if a low-low pond level is recorded. A high priority alarm will be generated when the process water pond records a low level.

Refer to Section 3.9 and Section 3.13 for additional controls to the process water and fluidising water pumps.

4.13.4 HP Process Water

The primary inflow to the process water tank will be the pre-leach thickener overflow, with additional supply via the process water suction manifold from the process water pond to maintain minimum required level for the HP process water pumps to be healthy to run. Process water supply will also be required on start-up until steady state thickener overflow is established.

HP process water will be distributed throughout the milling, pre-leach and CIL areas to provide screen spray water and other selected duties. Intermittent use of HP process water will also be required for some batch processing duties and for hosing.

Duty / standby variable speed HP process water pumps will draw from the process water suction manifold. Automatic changeover of the pumps will require that the manual suction and discharge valves of each pump are maintained in the open position. The HP process water delivery pressure will be monitored and will control the speed of the duty HP process water pump.

A flow meter will be provided on the water header to the milling area to measure the total water addition to the milling circuit.

The level in the process water tank will be monitored. A high priority alarm will be generated if the tank records a low level while a low-low level will stop the HP process water pumps.

Refer to Section 3.9 and Section 3.13 for additional controls to the HP process water pumps.

4.13.5 Filtered and Potable Water

Raw water will be supplied to the filtered water treatment plant via raw water distribution system. Filtered water will be supplied to the potable water treatment plant via the filtered water distribution system.

Water filtration and potable water treatment plants will be provided with standalone control panels. The running and fault status of these plants will be indicated on the OIT for remote monitoring of these facilities.

Low raw water tank level or high filtered water tank level will stop the filtration plant. A high level in the plant potable water tank will stop the potable water treatment plants.

The filtered and potable water pump delivery manifolds will each be equipped with a pressure transducer to indicate the pressure in each system on the OIT.

The main uses of filtered water will be for gland water, cooling water, and selected reagent mixing duties, and for stripping solution for the elution circuit.

Potable water will supply the safety showers, offices, ablutions, and the sewage treatment plant.

4.13.6 Gland Water

Duty / standby variable speed gland water pumps will draw suction from the filtered water storage tank. Automatic pump changeover will require that the manual suction and discharge valve of each pump be left open. The gland water delivery pressure will be monitored and will control the speed of the duty gland water pump. A flow meter will be installed on the discharge line of the gland water pumps and displayed on the OIT.

The gland water supply pipeline to each slurry pump will be fitted with a flow switch. If a low gland water flow is detected, an alarm will be generated and displayed on the OIT. Flow switch status (Healthy / Low Flow) will be indicated on the relevant area graphics displayed on the OIT.

Each gland water supply pipeline will be equipped with a solenoid valve which will open to the pump as part of the pump start up sequence.

4.13.7 Cooling Water

A closed circuit cooling water system with a standalone control panel will be provided to service the cooling water requirements of the SAG mill and ball mill. Cooling water delivery and return temperatures will be monitored and displayed in the OIT. A low flow switch will be installed on the cooling water pump delivery line which will generate an alarm when activated.

A level switch installed in the closed circuit will permit filtered water addition to top up as required.

4.14 Area 230 – Plant Services

4.14.1 Event Pond

The event pond will be provided with level measurement and the level will be displayed on the OIT.

The event pond pump will be equipped with a motor current transducer which will stop the pump on low current.

4.14.2 Sewage Treatment Plant

A vendor supplied panel will control all functions of the sewage treatment plant. The panel will have indicator lights showing the status of the system (running / stopped / faulted) and stop / start buttons for all drives. Communication with the sewage treatment plant will provide limited status information to the plant control system to facilitate remote monitoring of the operation.

4.15 Area 240 – Air Services

4.15.1 Plant Air

The plant air compressors and dryers will be supplied with in-built vendor programmed controllers to carry out all monitoring and control functions. The lead / lag control of the compressors will be carried out by local adjustment of compressor pressure controllers.

The compressors will be capable of being started locally or remotely. Running and fault signals status will be sent to the OIT. Fault diagnosis will be from the local compressor control panels.

Air pressures within the plant air distribution network will be displayed on the OIT.

4.15.2 Oxygen

The oxygen plant will be supplied with vendor programmed control systems to carry out all monitoring and control functions. Fault and running status signals will be displayed in the OIT, as well as oxygen pressure and gas purity. Fault diagnosis will be from the local control panels.

An automated shut-off valve on the oxygen plant main delivery line will be provided. This shut-off will activate based on a high main flow indication from the main oxygen delivery flow meter.

The oxygen gas flow from the oxygen plant will be measured and totalised. Individual oxygen flow measurement will be provided for each addition point, i.e. down the agitator shafts in the leach tanks, CIL tanks 1 to 6, and cyanide detoxification tanks.

4.16 Area 250 – Fuels

4.16.1 Diesel

The plant diesel day tank will be filled from an external supply. The level in the tank will be indicated on the OIT and a high high level interlock will close the actuated diesel supply valve. A totalising flow meter, with local indication only, will be provided on the diesel supply to the day tank. The client external supply pump (if required) will be interlocked to the day tank high high level.

An actuated master isolation valve will be operated from the OIT to isolate fuel supply from the day tank to the strip solution heater, reactivation kiln, and smelting furnace.

4.17 Area 330 – Raw Water Supply

The water storage dam pumps will deliver raw water to the raw water tank. The dam water extraction pump intake and raw water tank levels will be indicated on the OIT. A low low level in the dam water extraction pump intake chamber will stop dam water extraction pumps. A high high level in the raw water tank will stop dam water extraction pumps. The supply pump will be restarted from the OIT. The dam water extraction pump will also stop if a low flow alarm on the pump discharge line is activated. These alarm conditions must be active for a preset delay, set during commissioning, for the interlocks to activate.

The required raw water supply flowrate will vary seasonally and operationally depending on the availability of decant water from the TSF. A significant increase in raw water flowrate will be required to provide the necessary make-up to the process water pond if the TSF decant water pond is empty or not available.

Dam water extraction pumps will be fixed speed and run in a duty / standby arrangement for normal operation and duty / duty arrangement for high demand. Dual flow meters will be installed on the raw water feed line, one flow meter adjacent to the pump station and the other adjacent to the raw water pond. The flowrates will be indicated separately on the OIT. A flow deviation alarm will be generated if there is a significant discrepancy in flow between the two flow meters, which may indicate a leak. If the difference exceeds a specified value this will alarm at the OIT and stop the pump.

4.18 Area 350 – Tailings Storage Facility

4.18.1 Tailings Storage Facility

A containment trench will be constructed for both the tailings delivery and decant return pipelines as both of these streams may be cyanide bearing and thus any potential release to the environment must be avoided. The tailings delivery pipeline will be located along the embankment perimeter with sub-aerial discharge via a number of spigots. The active tailings beach will be regularly rotated around the facility with the aim of pushing the decant pond away from the perimeter to maximise decant water recovery.

The operating philosophy for the TSF is not in the scope of this document.

4.18.2 TSF Decant Return Water

Duty / standby variable speed decant return water pumps will supply make-up water to the process water pond. The duty decant return pump will always be operational unless a high-high level in the process water pond is reached, and the pump will be stopped by interlock. The pump will be restarted from the OIT.

The flow rate from the decant return water pumps will be measured by a flow meter installed at the discharge end of the line and the flowrate indicated at the OIT. A second flow meter will be installed at the pump end of the pipeline. A flow deviation alarm will be generated if there is a significant discrepancy in flow between the two flowmeters, which may indicate a leak. If the difference exceeds a specified value this will alarm at the OIT and stop the pump.

The pump delivery manifold will be equipped with a pressure transducer that will provide pressure indication on the OIT. The decant return water pump will stop if a high-high pressure alarm is activated.

4.19 Area 380 – Permanent Accommodation

4.19.1 Raw Water

Raw water will be pumped to the battery limit of the permanent accommodation. Raw water storage will be by the camp contractor.

4.19.2 Fire Water

Fire water for the permanent accommodation will be using raw water. The configuration and control of the system will be by the camp contractor.

4.19.3 Potable Water

Potable water generation will be by the camp contractor using raw water.

APPENDIX 8.1

KNIGHT PIÉSOLD DFS REPORT

Knight Piésold Pty Limited
A.B.N. 67 001 040 419

Level 1, 184 Adelaide Terrace
EAST PERTH WA 6004, Australia
(PO Box 6837, EAST PERTH WA 6892)

Telephone +61 (0)8 9223 6300
Facsimile +61 (0)8 9223 6399
Email doccontrol@knightpiesold.com

Our Ref: PE25-01652
KP File Ref.: T25019

DOCUMENT TRANSMITTAL

☒FTP SITE ☐EMAIL ☐HARD COPY

Date: 22-Dec-25

PROJECT: Doropo Gold
Definitive Feasibility Study Update

NUMBER: PE301-00821/07-A

TO: Resolute Mining Limited

ATTENTION: Rob Cicchini / Luciano Gioancristafaro

FROM: Krishna Erumodi

Please find enclosed the following documents:

Quantity	Document Ref.	Revision No.	Particulars
1	PE301-00821/18	0	Doropo Gold Definitive Feasibility Study Update

Sent for: ☒ Comment/Review ☐ Construction ☐ Information ☐ Reference ☐ Signature ☐ Tender ☐ Use

PLEASE SIGN AND RETURN TO DOCCONTROL@KNIGHTPIESOLD.COM

Issued by: Julie Mathieson

Approved by: Krishna Erumodi

Received by: ..... Date: .....

RESOLUTE MINING LIMITED
DOROPO GOLD PROJECT





DEFINITIVE FEASIBILITY STUDY UPDATE REPORT

PREPARED FOR:

Resolute Mining Ltd
Level 17, 2 The Esplanade
Perth, WA, 6000
AUSTRALIA

PREPARED BY:

Knight Piésold Pty Limited
Level 1, 184 Adelaide Terrace
East Perth, WA 6004, AUSTRALIA
p. +61 8 9223 6300 • f. +61 8 9223 6399

PE301-00821/18
Rev 0
December, 2025

Knight Piésold CONSULTING

DOCUMENT CONTROL PAGE

RESOLUTE MINING LIMITED

DOROPO GOLD PROJECT

DEFINITIVE FEASIBILITY STUDY UPDATE

REPORT

KP Job No. PE301-00821/07

KP Report No. PE301-00821/18

CONTRACT REF. PE301-00821/07

DOCUMENT INFORMATION

REV	DESCRIPTION	PREPARED	REVIEW	KNIGHT PIÉSOLD APPROVAL	DATE
A	Issued as Draft	KPE	DJTM	DJTM	19/12/2025
		KPE	DJTM	DJTM	
0	Issued as Final	KPE	DJTM	DJTM	22/12/2025
		KPE	DJTM	DJTM	

DOCUMENT DISTRIBUTION

REV	DESTINATION	HARD COPY	ELECTRONIC COPY
A	RESOLUTE MINING LTD	0	1
0	RESOLUTE MINING LTD	0	1

CONTENTS **PAGE**

EXECUTIVE SUMMARY i

1. INTRODUCTION 1
   - 1.1 GENERAL 1
   - 1.2 DESIGN OBJECTIVES 1
   - 1.3 DESIGN PARAMETERS 3
   - 1.4 DESIGN GUIDELINES 11

2. SITE CHARACTERISTICS 12
   - 2.1 GENERAL 12

3. GEOTECHNICAL INVESTIGATION 14
   - 3.1 GENERAL 14
   - 3.2 SCOPE OF WORK 14
   - 3.3 INVESTIGATION FINDINGS 15
     - 3.3.1 Tailings Storage Facility (TSF) 16
     - 3.3.2 Process Plant Site 17
     - 3.3.3 Water Storage Dam 20
     - 3.3.4 Water Harvest Dam 22
     - 3.3.5 Han Diversion Channel 22
     - 3.3.6 Airstrip 23
     - 3.3.7 Accommodation Village 24
     - 3.3.8 Access Roads 25
     - 3.3.9 Access Road Overpass 26
     - 3.3.10 Construction Materials 27

4. TAILINGS CHARACTERISTICS 29
   - 4.1 GENERAL 29
   - 4.2 TAILINGS PHYSICAL TESTING 29
     - 4.2.1 General 29
     - 4.2.2 Predicted Physical Behaviour 31
   - 4.3 TAILINGS GEOCHEMICAL TESTING 32
     - 4.3.1 General 32
     - 4.3.2 Test Results 33
     - 4.3.3 Implications for TSF Design 33

5. WATER BALANCE MODELLING 35
   - 5.1 GENERAL 35
   - 5.2 WATER BALANCE MODELLING RESULTS 36

CONTENTS **PAGE**

6. TAILINGS STORAGE FACILITY SITING STUDY 38
6.1 GENERAL 38
6.2 FURTHER REVISIONS 38
7. TAILINGS STORAGE FACILITY DESIGN 40
7.1 GENERAL 40
7.2 EMBANKMENT CONSTRUCTION 41
7.3 SEEPAGE CONTROL 43
7.3.1 Cut Off Trench 44
7.3.2 Compacted Soil Liner 44
7.3.3 HDPE Geomembrane Liner 44
7.3.4 Underdrainage System 45
7.3.5 Underdrainage Collection Sump 46
7.3.6 Leakage Collection and Recovery System 46
7.3.7 Downstream Seepage Collection System 47
7.4 DECANT SYSTEM 48
7.5 EMERGENCY SPILLWAY 48
7.6 TAILINGS DEPOSITION SYSTEM 49
7.7 TAILINGS STORAGE FACILITY OPERATION 50
7.7.1 Deposition Objectives 50
7.7.2 Deposition Techniques 50
7.8 SEEPAGE ASSESSMENT 52
7.9 STABILITY ASSESSMENT 52
8. TAILINGS STORAGE FACILITY DAM BREAK ASSESSMENT 53
8.1 INTRODUCTION 53
8.2 DAM BREACH CONSEQUENCE ASSESSMENT 53
8.3 POPULATION AT RISK ASSESSMENT 54
8.4 ANCOLD CONSEQUENCE CATEGORY 55
8.4.1 DAM FAILURE CONSEQUENCE CATEGORY 55
8.4.2 ENVIRONMENTAL SPILL CONSEQUENCE CATEGORY 56
8.4.3 ANCOLD DESIGN PARAMETERS 56
8.5 GISTM CONSEQUENCE CATEGORY 58
8.5.1 DAM FAILURE CONSEQUENCE CATEGORY 58
8.5.2 GISTM DESIGN PARAMETERS 58
9. SURFACE WATER MANAGEMENT 60
9.1 WATER HARVESTING DAM 60
9.2 WATER STORAGE DAM 61

CONTENTS **PAGE**

10. SEDIMENT MANAGEMENT 63
10.1 GENERAL 63
11. SITE ACCESS ROADS 65
11.1 GENERAL 65
12. HAUL ACCESS ROADS 66
12.1 GENERAL 66
13. AIRSTRIP DESIGN 68
13.1 GENERAL 68
14. MONITORING 70
14.1 GENERAL 70
14.2 SEEPAGE MONITORING 70
14.3 STABILITY MONITORING 71
14.4 SURVEY PINS 71
14.5 OPERATIONAL AUDITS 71
15. REHABILITATION 72
15.1 GENERAL 72
16. CONSTRUCTION QUANTITIES 74
16.1 GENERAL 74
17. RISKS AND OPPORTUNITIES 96
17.1 INTRODUCTION 96
17.2 BEACH SLOPE 96
17.2.1 Steeper Beach Slope 96
17.2.2 Flatter Beach Slope 96
17.3 ACHIEVED DENSITIES 97
17.4 LIFE OF MINE PLANNING 97
17.5 ENGINEERED SOIL COVER 97
17.6 OPERATING TSF EMBANKMENT DOWNSTREAM PROFILE 97
17.7 AVAILABILITY OF MINE WASTE 98
17.8 WET SEASON CONSTRUCTION 98
17.9 SEDIMENT GENERATED BY ARTISANAL MINING WORKS 98
17.10 RUNOFF COEFFICIENTS 98
17.11 SURVEY 99
18. REFERENCES 100

CONTENTS **PAGE**

DRAWINGS

APPENDIX A
Memorandum Ref. PE25-01533, *Doropo Gold Project –Design Climatology Rev 2*

APPENDIX B
Memorandum Ref. PE25-01562, *Doropo Gold Project –Seismic Hazard Assessment Rev 1*

APPENDIX C
Report Ref. PE301-00821/04, *Doropo Gold Project – Definitive Feasibility Study Geotechnical Interpretative Report*

APPENDIX D
Memorandum Ref. PE25-01627, *Doropo Gold Project – Tailings Physical Testing Rev 1*

APPENDIX E
Memorandum Ref. PE25-01628, *Doropo Gold Project – Tailings Geochemistry Rev 1*

APPENDIX F
Memorandum Ref. PE25-01492, *Doropo Gold Project –Water Balance Modelling Update*

APPENDIX G
Memorandum Ref. PE22-00405, *Doropo Gold Project – Tailings Storage Facility Site Option Study*

APPENDIX H
TSF and WSD Seepage Assessment

APPENDIX I
TSF and WSD Stability Assessment

APPENDIX J
Memorandum Ref. PE25-01388, *Doropo Gold Project – Definitive Feasibility Study Tailings Storage Facility Dam Breach Assessment*

APPENDIX K
Memorandum Ref. PE25-01638, *Doropo Gold Project – Sediment Control and Surface Water Management Rev 1*

CONTENTS **PAGE**

APPENDIX L
Memorandum Ref. PE25-01637, *Doropo Gold Project – Site Access Road and Haul Road Design Definitive Feasibility Study Update*

APPENDIX M
Memorandum Ref. PE25-01621, *Doropo Gold Project – Conceptual Design of Haul Road Overpass Tunnel Rev 1*

APPENDIX N
Memorandum Ref. PE24-01639, *Doropo Gold Project – Airstrip Design Definitive Feasibility Study Update*

EXECUTIVE SUMMARY

Introduction

Knight Piésold Pty Ltd (KP) was commissioned by Resolute Mining Ltd (Resolute) to update the Definitive Feasibility Study (DFS) design of the following site infrastructure for the Doropo Gold Project:

- Tailings Storage Facility (TSF).
- Water Harvest Dam (WHD).
- Water Storage Dam (WSD).
- Sediment management system.
- Site water management.
- Site access and haul roads.
- Access road overpass.
- Site Airstrip.

Site Characteristics

The Doropo Gold Project area is located approximately 390 km north-east of Yamoussoukro and approximately 487 km north of Abidjan. The average annual rainfall for the project area is 1,133 mm, and the average annual lake evaporation is 1,469 mm. The 100-year ARI, wet annual rainfall total is 1,931 mm. The 100-year ARI, dry annual rainfall total is 704 mm. The annual wet season lasts approximately 4 months, starting in July.

Geotechnical Site Investigation

The site investigation was undertaken in December 2023 and comprised drilling of 36 No. boreholes, excavating 166 No. test pits, carrying out in-situ permeability tests, monitor groundwater, walkover survey and assess potential borrow locations. The investigation findings, sub-surface conditions, typical design parameters, geotechnical risks and construction considerations for TSF, WHD, WSD, Process Plant, WSD Diversion Channel, Han Diversion Channel, Site Access Road, and Haul Roads, Access Road Overpass, Accommodation Village and Airstrip are detailed in a separate report. Additional geotechnical site investigation is scheduled for the WSD causeway in Q1 2026.

Tailings Testing

Physical and geochemical testing of combined tailings samples from the various ore bodies was completed during the early DFS stage. Since then, process parameters have been revised, and additional physical testing of tailings produced under the updated parameters is scheduled for late 2025/early 2026. The current assessment is therefore based on the earlier test results.

The testing indicated that the rate of supernatant release for all the Transition and Fresh samples was relatively quick, with the majority of water released in hours. The rate of supernatant release for the Souwa Oxide sample was relatively slow, with the majority of water released after 3 days. With suitable underdrainage and air drying of the tailings slurry, a settled density of approximately 1.2 to 1.3 t/m^3 is expected in the facility during normal operating conditions. Final densities are dependent on a number of aspects of TSF design such as rate of rise and TSF water management.

The TSF incorporates sufficient measures to prevent the loss of tailings from the facility based on the expected tailings geochemistry. All the samples are considered to be Non-Acid Forming (NAF) with negative net acid producing potential (NAPP). Based on the tested samples, there are no specific controls required in relation to the acid formation potential of the tailings.

Site Water Management

In order to understand (and control) the flow of water around the site, a water balance model was developed. Key findings from the water balance modelling are as follows:

- The TSF is designed to hold the tailings plus the design rainfall conditions and thus has sufficient stormwater storage capacity for all design storm events and rainfall sequences.
- The critical design rainfall event in terms of pond elevation is the design storm event occurring in the last month of each stage of operation when the TSF stormwater capacity is at a minimum. There is sufficient stormwater storage capacity in the TSF for this situation during all stages of operation.
- The supernatant pond volume peaks in October each year (at the end of the wet season).
- All make-up water requirements can be provided by the WSD reservoir, supplemented by the WHD for design dry conditions. It is necessary that the WSD is completed early to allow a full wet season for filling prior to commissioning.
- A WSD storage capacity of 2,000,000 m^3 is required to provide sufficient make-up water, supplemented by an abstraction rate of 125 L/s from the WHD.
- A WHD capacity of 500,000 m^3 is required to reduce the risk of shortfalls under design dry conditions.

Tailings Storage Facility Siting Study

A TSF siting options assessment was carried out during the PFS stage to evaluate four potential locations for the Doropo Project. The assessment recommended Option 4, which was subsequently adopted as the basis for the PFS design.

As part of the DFS update, Resolute provided revised tailings throughput and life-of-mine, which increased the required TSF capacity.

The TSF configuration has therefore been updated to accommodate the new capacity, and its orientation has been modified to suit the expansion requirements. The current design consists of a valley storage facility with embankments on the east, west, and south sides, using the northern hillside as the main storage area. Tailings will be deposited from the embankment.

Tailings Storage Facility Design

The TSF will comprise of a valley storage facility formed by a multi-zoned earth fill embankment, comprising a total footprint area (including the basin area) of approximately 181 ha for the Stage 1 TSF increasing to 384 ha for the final TSF. The TSF is designed to store a total of 61.2 Mt of tailings.

The Stage 1 TSF will be designed for 18 months storage capacity. Subsequently, the TSF will be constructed in annual raises to suit storage requirements. Downstream raise construction methods will be utilised for all TSF embankment raises.

A downstream seepage collection system will be installed within and downstream of the TSF embankment, to capture seepage from the TSF and pump back to the embankment crest, where it will be deposited back into the supernatant pond.

The TSF basin area will be cleared, grubbed and topsoil stripped and a 200 mm thick compacted soil liner will be constructed in the TSF basin area and overlain with a 1.5 mm smooth HDPE geomembrane over the entire basin area. The embankment upstream face and decant turret areas will be lined with a 1.5 mm textured HDPE geomembrane liner.

The TSF design incorporates an underdrainage system to reduce pressure head acting on the compacted soil and HDPE geomembrane liners, reduce seepage, increase tailings densities, and improve the geotechnical stability of the embankments. The underdrainage system comprises a network of collector and finger drains. The underdrainage system drains by gravity to a collection sump located at the lowest point in the TSF basin. A leakage collection and recovery system (LCRS) will be installed beneath the basin composite liner. Solution recovered from the underdrainage system and LCRS will be released to the top of the tailings mass via submersible pumps, reporting to the supernatant pond.

Supernatant water will be removed from the TSF via a decant turret system (designed by others). The supernatant pond will be located against the northeast valley sides within the TSF basin. The solution recovered from the decant system will be pumped back to the plant for re-use in the process circuit.

An emergency spillway will be available at all times during TSF operation in order to protect the integrity of the constructed embankments in the unlikely event of emergency overflow.

The closure spillway will be located to the north of the west embankment, at the low point of the final tailings beach. The closure spillway will discharge into the existing drainage course downstream of the TSF. Upon closure, the TSF will be a fully water-shedding structure.

Tailings will be discharged into the TSF by sub-aerial deposition methods, using a combination of spigots at regularly spaced intervals from the TSF embankment.

An ANCOLD dam failure consequence category of 'High A' was determined on the basis of a potential PAR in the range of '≥10 to <100', potential PLL in the range of '≥5 to <50' and a Severity Level of 'MAJOR' primarily due to the anticipated business and public health impacts if tailings were to impact local communities downstream.

An ANCOLD environmental consequence category of 'Low' was determined on the basis of a potential PAR in the range of '<1' and a Severity Level of 'MEDIUM'.

Water Harvesting Dam

The Water Harvesting Dam (WHD) is the primary water collection structure and is able to store up to 500,000 m^3 of water at the maximum operating level. The WHD has a catchment area of 43,000 Ha. The water collected in the WHD will be pumped to the WSD, with a view to filling the WSD reservoir to its maximum storage level prior to each dry season.

Water Storage Dam Design

The Water Storage Dam (WSD) is the primary storage pond for clean process water on site and is able to store up to 2,000,000 m^3 of water at its maximum operating level. The WSD has a catchment area of 980 ha and when the pond volume is at maximum level the reservoir surface area will be 119 ha. The water collected in the WSD will be pumped back to the plant to supply plant raw water requirements and process make-up water requirements.

Sediment Management

Sediment control structures (SCSs) are sediment dams that will be constructed in the downstream reaches of catchments impacted by site infrastructure. The SCSs were designed to limit the maximum water depth to 2 m for safety reasons (drowning risk). Source control will be used to reduce the amount of sediment generated.

Site Access Roads

Site Access roads were designed to facilitate the following movements during operation:

- Process Site to A1 National Highway.
- Process Site to Accommodation Village and Magazine.
- Process Site to Airstrip.

The total length of site access roads is 16 km. The site access roads comprise two 3.5 m wide running lanes with a 1.5 m shoulder on each side, for a total formation width of 10 m.

Culverts will be required in a number of locations in order to provide adequate drainage. The culverts are designed to convey 10-year ARI storm event without the flow overtopping the road.

Site Haul Roads

Site haul roads were designed to facilitate the following haulage movements during operation:

- Pits to waste dump(s).
- Pits to ROM Pad.
- Pits to Mine Services Area (MSA).
- Northern Pits to Kilosegui Ore Bodies.

The total length of site haul roads is 27 km. The site haul roads will consist of two-way passing 12 m wide running lanes, with 2 No. 1 m high safety bunds, for a total formation width of 17 m (based on nominated haul truck Volvo FMX 460 8x4). A 200 mm laterite wearing course will be placed over the subgrade/general fill. Once competent waste rock is available from the operation, the site haul roads should be sheeted with rock by the mining operation (this has not been included in the construction quantities).

Culverts will be required in a number of locations in order to provide adequate drainage. The culverts are designed to convey a 10-year ARI storm event without the flow overtopping the road.

Airstrip

The DFS design of the site airstrip is summarised as follows:

- The prevailing wind direction of the Doropo project site is southwest to south. The airstrip will be orientated similarly to ensure optimal operability.
- The design aircraft for Doropo is a Cessna Caravanne.
- The airstrip will be unsealed.
- The runway running surface is 850 m long and 20 m wide. The surrounding runway strip is 80 m wide inclusive of the runway.
- Cut and fill operations will be required to achieve a design compliant with the ICAO guidelines, in particular, to achieve required longitudinal profiles.
- The apron is 100 m by 50 m and will comfortably park 2 No. design aircraft.

Monitoring

A total of 2 No. groundwater monitoring stations will be installed downstream of the TSF to facilitate early detection of changes in groundwater level and/or quality, both during the operating life and following decommissioning.

Piezometers (vibrating wire and/or standpipe) will be installed in the TSF, WSD and WHD embankments to monitor pore water pressures at several locations within the embankments to ensure that stability is not compromised.

Survey pins will be installed at regular intervals along the TSF, WSD and WHD embankment crests in order to monitor for embankment movements and assess the effects of any such movement on the embankment.

Closure and Rehabilitation

At the end of the TSF operation, the downstream faces of the embankments will have an overall slope profile of approximately 3.5H:1V. The profile will be inherently stable under both normal and seismic loading conditions. The embankment downstream face will be re-vegetated once the final downstream profile is achieved.

Upon closure, the final tailings surface will be capped with a soil cover. The following cover system was assumed:

- Mine waste capillary break (500mm).
- Low permeability fill layer (300 mm).
- Topsoil growth medium layer (200 mm).
- The finished surface will be shallow ripped and seeded with shrubs and grasses.

It is envisaged that the WSD will be handed over to the communities after the mine closure. If required, the WHD may be decommissioned by breaching the embankments to achieve full drainage of the reservoir. However, there is an option to work with the local communities to use the dams after the mine closure.

1. INTRODUCTION

1.1 GENERAL

Resolute Mining Limited (Resolute) is currently in the DFS phase of the Doropo Gold Project (Doropo). Knight Piésold Pty Ltd Australia (KP) was commissioned by Resolute to undertake the Definitive Feasibility Study (DFS) design for the following site infrastructure:

- Tailings Storage Facility (TSF).
- Water Harvesting Dam (WHD).
- Water Storage Dam (WSD).
- Surface water management system.
- Sediment management system.
- Site access roads and haul roads.
- Site airstrip.

The project will comprise an open pit mining operation, waste dump, tailings storage facility (TSF), water storage dam (WSD), water harvesting dam (WHD), and process plant. The process plant will be designed to treat ore at a rate of ~4.9 Mtpa.

This report presents the summary design report for the aspects listed above. The site general arrangement is shown on Drg. No. 301-821-C0001-025.

1.2 DESIGN OBJECTIVES

The design objectives for the TSF are as follows:

- Permanent and secure containment of all solid waste materials (tailings) generated by the process plant.
- Removal and reuse of free water as much as practicable.
- Reduction and control of seepage.
- Excess storage capacity to retain ANCOLD and GISTM prescribed design storms and annual rainfall sequence, including containment of runoff from upstream catchments.
- Rapid and effective rehabilitation.
- Ease of operation.
- Monitoring network comprising embankment piezometers, survey pins and groundwater bores.

The design objectives for the WHD are as follows:

- Harvest clean water supply for the process plant (via the WSD), and make-up process water during dry conditions, with a view to optimising discharge to downstream environments after the storage requirements are met.
- Containment of runoff from upstream catchment.

The design objectives for the WSD are as follows:

- Secure clean water supply for the process plant, and make-up process water during dry conditions, with a view to optimising discharge to downstream environments after the storage requirements are met.
- Storage of water abstracted from the WHD.
- Storage of water from pit dewatering (if required).
- Containment of runoff from surrounding catchments.

The design objectives for the site sediment management system are as follows:

- Containment of sediment-laden runoff from the process plant, open pit development, waste dump and stockpile areas, within sediment basins for controlled discharge from site. It is noted that the WSD will also act as a sediment basin downstream of some site infrastructure, and that the WHD is located downstream of all site infrastructure.

The design objectives for the site water management system are as follows:

- Reduce the volume of runoff water entering the open pits, divert clean runoff water around sediment dams to discharge downstream of site and direct runoff from disturbed catchments into sediment dams prior to discharge.

The design objectives for the site access roads are as follows:

- Provide suitable access to the project area from the existing sealed national highway A1, including allowance for design speeds.
- Provide suitable access to connect the accommodation village, airstrip, TSF, process plant and WSD.
- Optimise access road operability with consideration of reducing the earthworks volumes.

The design objectives for the site haul roads are as follows:

- Provide suitable access between the waste dumps, open pits, ROM pad and mine service area, including allowance for design speeds.

- Optimise access road operability with consideration of reducing the earthworks volumes.

The design objectives for the airstrip are as follows:

- Optimise airstrip operability (based on prevailing wind direction at the site).
- Pavement design and specification to ensure satisfactory operation for the project life.

1.3 DESIGN PARAMETERS

Design criteria and parameters adopted for the design are summarised in tables 1.1 to 1.8 for the following project components:

- Tailings Storage Facility (TSF).
- Water Harvesting Dam (WHD).
- Water Storage Dam (WSD).
- Sediment management system.
- Site water management system.
- Site access roads.
- Site haul roads.
- Site airstrip.

Table 1.1: Tailings Storage Facility design parameters

DESIGN STANDARDS	
Dam Failure Consequence Category	High A
Dam Spill Consequence Category	Low
Design Storage Allowance Parameters - Design Storage Allowance - Extreme Storm Storage	 - 1:5 AEP notional wet season runoff - Determine by risk assessment
TSF Emergency Spillway: - Spillway Capacity - Wave Freeboard Allowance	 Probable Maximum Flood (PMF)/critical duration Nil
TSF Closure Spillway: - Spillway capacity - Erosion protection	 PMF/critical duration 1:100 AEP
Contingency Freeboard (ANCOLD, 2019) - Wave Run-up - Additional Freeboard	 Nil Nil
Earthquake Loading - Operating - Final	 Operating Basis Earthquake (OBE) – 1,000-year ARI earthquake. Safety Evaluation Earthquake (SEE) – 10,000-year ARI earthquake.
EMBANKMENT STABILITY CRITERIA	
Stability Factors of Safety - Long-term undrained - Short-term undrained: - potential loss of containment - no potential loss of containment - Post-seismic	 1.5 1.5 1.3 1.0 – 1.2
OPERATIONS	
Capacity - Final - Starter	61.2 Mt of dry tails. 7.7 Mt of dry tails – 18 months initial capacity.
Production Rate	2.0 – 5.3 Mtpa; average of ~4.9 Mtpa
Slurry Characteristics -Target% Solids -Beach Slope[*1] -Density[*1] -Stage 1 - Final	 42 % (oxide) – 43 % (fresh) solids by weight. 100H:1V 0.73 – 1.06 t/m^3 (assumed, to be confirmed after density modelling). 1.34 t/m^3 (assumed, to be confirmed after density modelling).
Fluid Management	Full basin underdrainage, gravity system into collection sumps. Return to supernatant pond via submersible pumps. Leakage collection and recovery system (LCRS) installed beneath the composite basin liner in the main drainage course within the TSF basin, discharging to a collection sump, and pumped to the supernatant pond. Floating decant turret system for removal of supernatant solution. Return to the plant via a trailer-mounted pump. Seepage collection system within the TSF embankment to capture and return seepage to the TSF pond.

[*1] Tailings properties have been assumed based on experience on similar regional projects.

AEP – Annual Exceedance Probability, ARI – Average Recurrence Interval.

Table 1.1 (cont'd): Tailings Storage Facility design parameters

EMBANKMENT	
Embankment design: - Crest Width - Upstream Slope - Downstream Slope (interim) Downstream Slope (final, overall)	 8 m 3H:1V 3H:1V 3.5H:1V
General	Cross valley storage facility with supernatant pond situated against the northern hillside of the valley. Deposition from the TSF embankments will push the pond to the northern hillside of the valley within the basin area.
Construction Description - Cut-off Trench - Embankment - Embankment Raises - Decant System	 Upstream toe cut-off through residual/transported material Multi-zoned earth fill embankment, with upstream low permeability zone. Upstream face HDPE geomembrane lined. Downstream raise construction methods for all raises. Floating decant turret with trailer-mounted pump and structural fill access causeway.
BASIN	
Basin Liner	Compacted soil liner comprising primarily of in-situ soils, scarified and recompacted throughout basin area to form a 200 mm liner. Where in-situ materials are unsuitable for soil liner, low permeability material (Zone A) will be imported. 1.5 mm smooth HDPE geomembrane liner above compacted soil liner in the TSF basin.
Leakage Collection and Recovery Systems (LCRS)	Leakage collection and recovery system (LCRS) installed beneath composite basin liner. Drains excavated in alluvial sands with slotted pipe, backfilled with drainage medium (Zone F2) and capped with low permeability material (Zone A) below basin soil liner.
Tailings Underdrainage System	Collector drains and finger drains throughout the TSF basin area, water collected from the tailings mass and discharged to a collection sump, pumped to the supernatant pond. Collector Drains - Corrugated, perforated tubing (with filter sock), surrounded by sand (Zone F1), wrapped in geotextile. Finger Drains - Corrugated, perforated tubing (with filter sock), surrounded by sand (Zone F1) and wrapped in geotextile.

Table 1.1 (cont'd): Tailings Storage Facility design parameters

MATERIALS	
Material Supply	Low permeability fill (Zone A) sourced by civil contractor from local borrow, selected mine waste or off-site external source. Structural fill (Zone C1) sourced by civil contractor from local borrow or selected mine waste. Structural rockfill (Zone C2 to C4) sourced from mining operation, either pre-strip (Stage 1) or run of mine waste (Stage 2+). Random fill (Zone D) sourced by civil contractor from local excavations, borrow or selected mine waste. Rip rap for erosion protection (Zone E) sourced from mining operation, local borrow or off-site quarry. Drainage material (Zone F1 and Zone F2) sourced from local river beds, local borrow or off-site quarry. Coarse rockfill for decant surround (Zone G) sourced from mining operation, local borrow or off-site quarry. Wearing course material sourced by civil contractor from local borrow or selected mine waste.
REHABILITATION	
Final Embankment Slopes	3.5H:1V (overall), with 5 m horizontal benches at 10 m height increments
Cover Profile	Generally shaped to achieve dry closure with no ponding (water-shedding)
Capping	Mine waste capillary break (0.5 m), low permeability mine waste (nominal 0.3 m thickness), covered with topsoil (0.20 m), re-vegetated.

Table 1.2: Water Harvesting Dam design parameters

DESIGN	
Storage Capacity	0.5 Mm^3
Spillway Capacity	50-year ARI
Earthquake Loading	As per Table 1.1.
Factors of Safety	As per Table 1.1.
OPERATION	
Fluid Management	Abstraction tower system for removal of water. Abstraction to the WSD via submersible pump. [*1]
EMBANKMENT	
Embankment design: - Crest Width - Upstream Slope - Downstream Slope	 6 m 3H:1V 10H:1V
Construction Description - Cut-off Trench - Embankment	 Central cut-off through residual/transported material. Multi-zoned earth fill embankment, with central low permeability core.
MATERIALS	
Material Supply	Low permeability fill (Zone A) sourced by civil contractor from local borrow. Structural fill (Zone C1) sourced by civil contractor from local borrow or selected mine waste. Structural rockfill (Zone C2 to C4) sourced from mining operation, either pre-strip (Stage 1) or run of mine waste. Random fill (Zone D) sourced by civil contractor from local excavations or borrow. Rip rap for erosion protection (Zone E) sourced from off-site quarry or local borrow. Drainage material (Zone F1 and Zone F2) sourced from local river beds, local borrow or off-site quarry. Coarse rockfill (Zone G) sourced from local borrow or off-site quarry. Wearing course material sourced by civil contractor from local borrow or selected mine waste.
REHABILITATION	
Rehabilitation	Breach or remove WHD, replace topsoil, rip along contour and re-vegetate.

[*1] Design by others.

Table 1.3: Water Storage Dam design parameters

DESIGN	
Storage Capacity	6.1 Mm^3
Spillway Capacity	100-year ARI
Earthquake Loading	As per Table 1.1.
Factors of Safety	As per Table 1.1.
OPERATION	
Fluid Management	Abstraction tower system for removal of water. Abstraction from the WSD via submersible pump. [*1]
EMBANKMENT	
Embankment design: - Crest Width - Upstream Slope - Downstream Slope	 8 m 3.5H:1V 2.5H:1V
Construction Description - Cut-off Trench - Embankment	 Central cut-off through residual/transported material. Multi-zoned earth fill embankment, with central low permeability core.
MATERIALS	
Material Supply	Low permeability fill (Zone A) sourced by civil contractor from local borrow, selected mine waste or off-site external source. Structural fill (Zone C1) sourced by civil contractor from local borrow or selected mine waste. Structural rockfill (Zone C2 to C4) sourced from mining operation, either pre-strip (Stage 1) or run of mine waste (Stage 2+). Random fill (Zone D) sourced by civil contractor from local excavations, borrow or selected mine waste. Rip rap for erosion protection (Zone E) sourced from mining operation, local borrow or off-site quarry. Drainage material (Zone F1 and Zone F2) sourced from local river beds, local borrow or off-site quarry. Coarse rockfill for decant surround (Zone G) sourced from mining operation, local borrow or off-site quarry. Wearing course material sourced by civil contractor from local borrow or selected mine waste.
REHABILITATION	
Rehabilitation	Handover to the community

[*1] Design by others.

Table 1.4: Sediment management system design parameters

SCS DESIGN	
Design Maximum Water Depth	2.0 m for 2-year ARI
Construction Description	Homogeneous low permeability (Zone A) material earth fill embankment.
Spillway - Configuration - Capacity	 Overflow via gravity discharge system (open channel). 100-year ARI storm event, occurring when pond is at spillway inlet level.
SCS REHABILITATION	
Rehabilitation	Breach or remove SCS, replace topsoil, rip along contour and re-vegetate.

Table 1.5: Surface water management system design parameters

CHANNEL DESIGN	
Flow capacity - Diversion Channels	 2-year ARI
Base width (minimum)	1 m
Side slopes - Channel	 2H:1V to 2.5H: 1V
Water freeboard	0.3 m (minimum)

Table 1.6: Site access roads design parameters

DESIGN	
Road Cross Section	Carriageway Width – 10 m Lane Width – 3.5 m Shoulder width – 1.5 m Safety Bunds – 0.5 m height where fill height > 2 m Crossfall – 2%
Maximum Vertical Grade	8%
Minimum Culvert Diameter	600 mm
Culvert Design Criteria:	10-year ARI
Pavement	150 mm laterite gravel wearing course

Table 1.7: Site haul roads design parameters

DESIGN	
Road Cross Section	Total road width – 17 m Double Lane Width – 12 m Safety Bunds – 1 m height Crossfall – 2%
Maximum Vertical Grade	8%
Minimum Culvert Diameter	600 mm
Culvert Design Criteria: - Culvert Design Criteria	 10-year ARI
Pavement	200 mm laterite gravel wearing course (to be upgraded as required during the operation)

Table 1.8: Site airstrip design parameters

Design Parameter	Value
Design Aircraft	Cessna Caravanne
Aircraft Type	1B
Max. Passengers	14
Runway Length	≥819 m
Runway Width	≥18 m
Runway Longitudinal Slope	≤2.0%
Longitudinal Slope Change Between Segments	≤2.0%
Longitudinal Slope Change	≤0.4% per 30 m
Longitudinal Slope Radius of Curvature	≥7,500 m
Runway Transverse Slope	≤2.0%
Runway Shoulders	Not required
Runway Strip Length	≥30 m
Runway Strip Width: - Graded Area - Incl. Flyover Area	 60 m 90 m
Runway Strip Longitudinal Slope	≤2.0% per 30 m
Runway Strip Transverse Slope	≤3.0%
Runway End Safety Area Length	Not required
Clearway	Not required
Wheel Distance to Runway Edge (taxiing)	≥1.5 m
Taxiway Width	≥7.5 m
Taxiway Strip Width: - Graded Area - Cleared Area	 ≥20.5 m ≥40.0 m
Taxiway Longitudinal Slope	≤3.0%
Taxiway Transverse Slope Change	≤1.0% per 25 m (min. radius of curvature 2,500 m)
Taxiway Transverse Slope	≤2.0%
Turning Radius (turnaround)	≥4.59 m
Taxiway Turning Radius (≤20 km/h)	≥24.0 m
Runway Pavement Type	Unsealed

1.4 DESIGN GUIDELINES

No design guidelines were identified for Cote D'Ivoire and therefore the following documents were used for the design:

- Australian National Committee on Large Dams (ANCOLD), "Guidelines on Tailings Dams, Construction, Operation and Closure", July 2019 (Ref. 1).
- Australian National Committee on Large Dams (ANCOLD), "Guidelines for Design of Dams for Earthquakes", 1998 (Ref. 2).
- Global Tailings Review, "*Global Industry Standard on Tailings Management*", August 2020 (Ref.3).
- Civil Aviation Safety Authority (Australian Government), Manual of Standards Part 139 – Aerodromes Version 1.11, November 2013 (Ref. 4).
- The International Civil Aviation Organization (ICAO), "Aerodrome Design Manual", 2006 (Ref. 5).
- Authorite National De L'Aviation Civile De Côte d'Ivoire (ANAC), "Aeronautical Regulations of Cote D'Ivoire relating to the design and technical operation aerodromes RACI 6001", November 2020 (Ref. 6).
- ANCOLD, "Guidelines on the Consequence Categories for Dams", October 2012 (Ref. 12).

2. SITE CHARACTERISTICS

2.1 GENERAL

The site characteristics for the Doropo Gold Project (Doropo) are summarised as follows:

- The Doropo Gold Project area is located at approximately 9.8°N and 3.2°W, approximately 390 km north-east of Yamoussoukro, the political capital of Côte d'Ivoire and approximately 487 km north of Abidjan, the commercial capital of the country.
- A site-specific climate assessment was completed for Doropo and is included in Appendix A.
- Daily precipitation records (1944 to 2000) from the Batie meteorological station (34 km north east of the project site) were used for the short-duration climatic analysis and summed to produce monthly and annual totals for long-duration climatic analysis.
- September is the wettest month of the year and appreciable rainfall starts (on average) in April and finishes in October.
- The wet season typically lasts for 4 months out of each year, starting in July.
- The average annual rainfall for the project area is 1,133 mm.
- The maximum recorded annual rainfall for Batie was 1,838 mm (in 1968).
- The minimum recorded annual rainfall for Batie was 718 mm (in 1948).
- The 10-year ARI wet season duration is the period in which 70% of the annual rainfall occurs on average. For Doropo, this period was determined to be 120 days. The magnitude of the design wet season is 1,065 mm.
- Daily pan evaporation values were found for Batie and Gaoua weather stations, approximately 34 km to the north east and 67.3 km to the north of the site. The average annual lake evaporation for the project area used for water balance modelling is 1,469 mm.
- Design annual rainfall sequences, determined by analysing the Batie rainfall data, are provided in Table 2.1. The 100-year ARI, wet annual rainfall total is 1,931 mm. The 100-year ARI, dry annual rainfall total is 704 mm.

Table 2.1: Design rainfall and evaporation annual sequences

Month	Average Rainfall (mm)	100 ARI Wet Annual Rainfall (mm)	100 ARI Dry Annual Rainfall (mm)	Average Pan Evap. (mm)	Average Lake Evap. (mm)
January	0	0	0	199	143
February	7	56	0	210	148
March	0	93	48	234	164
April	85	149	133	204	146
May	121	189	69	189	136
June	64	258	100	152	111
July	229	366	79	128	94
August	267	303	111	111	82
September	223	394	77	121	89
October	84	83	88	146	107
November	2	26	0	162	118
December	50	14	0	181	131
TOTAL	1,133	1,931	704	2,037	1,469

- Short-term storm event magnitudes for the project area were calculated using published methods. The design 100-year ARI, 72-hour duration storm event magnitude is 220 mm.
- The design Probable Maximum Precipitation (PMP), 24-hour duration storm event is 602 mm.
- A probabilistic seismic hazard analysis was carried out to determine appropriate seismic design parameters for Doropo, and is included in Appendix B.
- The analysis was carried out using seismic hazard model developed using the computer program Open Quake (Ref. 13).
- It is recommended that the 1,000-year ARI earthquake be adopted as the Operating Basis Earthquake (OBE) for Doropo. The estimates peak ground acceleration (PGA) for the 1,000-year earthquake was calculated as 0.006 g for site class – Rock Site and 0.007 g for site class – Class C.
- Due to the ANCOLD Consequence Category (Ref. 12) of the Doropo TSF, it is recommended that the 10,000-year ARI earthquake be adopted as the Safety Evaluation Earthquake (SEE) for Doropo. The estimated peak ground acceleration (PGA) for the 10,000-year earthquake was calculated as 0.019 g for site class – Rock Site and 0.023 g for site class – Class C.

3. GEOTECHNICAL INVESTIGATION

3.1 GENERAL

A detailed geotechnical investigation (comprising cored drill holes, in-situ testing, test pitting and laboratory testing of undisturbed and disturbed representative samples) was conducted during the feasibility design phase, with a view to achieve the following objectives:

- Assess the suitability of each proposed infrastructure location.
- Determining ground conditions at each infrastructure location to the required depth to achieve objectives, including field logging and laboratory testing.
- Assess the excavatability in and around infrastructure locations.
- Develop an understanding of variability in ground conditions in each area.
- Estimate the basin permeability within the WSD and WHD.
- Assess ground aggressivity towards concrete in critical areas by chemical testing (pH, Cl, SO_4).
- Assess the suitability of in-situ materials for earthworks construction, and allow mapping of potential borrow areas.
- Provide design parameters for foundation and earthworks design, including settlement analysis of settlement-critical process plant structures.
- Locate suitable sources of low permeability fill material, rip rap material, decant rock material and drainage media for Stage 1 construction.
- Measure groundwater elevations (and fluctuation via installation of piezometers in boreholes) in infrastructure areas.
- Allow estimation of topsoil depth and volumes to be stripped during construction.

3.2 SCOPE OF WORK

Site investigation commenced on 5th December 2023 under the supervision of a geotechnical engineer from KP Perth. The site investigation and geotechnical logging were carried out in accordance with the Australian Standard for Geotechnical site investigations (Ref. 7), where practicable.

The scope of work consists of:

- Drilling of 36 No. boreholes using diamond coring technique with in-situ standard penetration tests.
- Test pitting of 166 No. pits across the footprints of the proposed infrastructure and potential borrow locations.

- Carry out in-situ permeability tests and installation of standpipes for groundwater monitoring.
- Walkover survey to assess potential borrow locations and understand the general site conditions.
- Laboratory testing of samples.

Of the 166 No. test pits, 140 No. pits were supervised by the KP site representative and 26 No. test pits within the TSF were supervised by Ampella representatives. A summary of geotechnical investigation is presented in Table 3.1.

Table 3.1: Geotechnical investigation summary

Infrastructure	Boreholes	Test Pits
Tailings Storage Facility (TSF)	8	40
Plant Site	15	15
Water Storage Dam (WSD)	2	20
Water Harvest Dam (WHD)	1	12
WSD Diversion Channel (WDC)[1]	2	6
Han Diversion Channel (HDC)	1	6
Airstrip (AS)	-	15
Accommodation Village (AV)	-	6
Site Access and Haul Access Roads (SAR and HAR)	1	41
Access Road Overpass (ARO)	4	4
Construction Materials	2	1
Total	36	166

1 WDC has since been removed from the site infrastructure as part of the DFS study update.

Representative samples were collected from the test pits and boreholes (disturbed and undisturbed samples) for laboratory testing. The purpose of the laboratory testing is to classify and characterise the in-situ materials so as to assess their behaviour characteristics under embankment and foundation loading, and suitability for use in earthworks.

3.3 INVESTIGATION FINDINGS

The detailed report outlining the geotechnical investigation completed for the Doropo DFS is included in Appendix C, and summarised in the below sections.

3.3.1 Tailings Storage Facility (TSF)

3.3.1.1 Sub-surface Conditions

The typical subsurface ground profile along the embankment footprint is summarised below:

- Topsoil with roots and other organic matter observed to depths of 300 – 500 mm within the TSF embankment footprint. Topsoil was generally recovered as silty sand, very loose to loose, medium to coarse sand particles.
- Colluvium; Gravel, clayey, medium dense to dense, brown to red brown, slightly moist, medium plasticity fines, cemented laterite observed to depths of 1.35 to 3.0 m from the surface.
- Residual soil; Clay, sandy, with gravel, medium plasticity, very stiff to hard observed to depths of 2.4 to 7.5 m.
- Granodiorite, medium to coarse grained, igneous, strength increasing with depth and weathering decreasing with depth until end of borehole.

SPT refusals were encountered at shallow depths in a majority of the boreholes.

The following is a summary of logged ground conditions within the TSF basin:

- The majority of the topsoil with biologically active layer are observed for the first 300 – 500 mm across the site. Topsoil was generally recovered as sand, clayey and silty, pale to dark grey very loose to loose, medium to coarse sand particles.
- Alluvium/colluvium recovered as sand and gravel, clayey and sandy, medium dense, cemented observed to depths of 0.7 – 3.0 m from the surface.
- Residual soil recovered as clay, sandy, medium plasticity, red to orange brown, stiff to hard and sand, clayey, medium plasticity fines, medium dense to dense observed to depths of 1.4 to 4.3 m.

3.3.1.2 Potential Geotechnical Risks and Construction Considerations

The following are to be considered during construction:

- The TSF basin areas comprise extensive areas of sand and gravel directly underlying the topsoil horizon. It is likely that these materials have relatively high permeability and therefore a compacted soil liner will be required as a minimum to reduce the rate of seepage through the basin floor.

- Cut-off trenches for the TSF should typically terminate in a low permeability horizon. At the embankment, the cut-off trench will need to extend through the near surface sand/gravel horizon and is likely to vary with location, with an average of 2 m depth into low permeability clay layers along the embankment alignment.
- Numerous artisanal pits were observed within the TSF embankment and basin, with some pits obscured by backfilling, making them difficult to identify during investigations. Artisanal pits are observed to the south of the east embankment and basin. A comprehensive survey is required to locate all potential artisanal pits, which must be properly backfilled before construction commences.
- In-situ falling head tests indicated the presence of relatively high permeable soil layers. This is likely due to the voids commonly observed within the cemented laterite soil layer at shallow depths from the surface. To limit seepage, it is recommended to use a soil liner along with HDPE liner.
- A pedestrian footpath for the community is proposed between the plant site and the TSF. The footpath shall be fenced and adequate security measures are to be implemented to ensure personnel and livestock are kept away from the TSF and related structures at all times.

The construction sequencing for the TSF comprises construction of the WSD and Stage 1 TSF embankment adjacent to each other. The space between these two embankments will be backfilled during the Stage 2 TSF raise, with the WSD upstream of the TSF western embankment. It is expected that the space between these two embankments will collect water during the wet season during Stage 1. Adequate dewatering measures must be put in place to keep the toes of the embankments reasonably dry, ensuring embankment stability and to facilitate the construction of Stage 2.

3.3.2 Process Plant Site

3.3.2.1 Sub-surface Conditions

The typical subsurface ground profile is summarised below:

- Topsoil with roots and other organic matter to varying depths from the existing ground level, generally recovered as gravel and sand, silty, pale to dark grey and brown, non-plastic, dry, loose to medium dense, observed to depths ranging from 0.1 to 0.5 m, with an average topsoil depth of 0.25 m.

- Laterite soil, comprising predominantly Clay, gravelly, with sand, medium to high plasticity, very stiff to hard and Gravel, clayey, with sand, low to medium plastic fines, very dense, cemented and Gravel, clayey, medium plasticity fines, dense to very dense observed to depths from 0.6 – 4.1 m from the ground surface to 3.0 – 20.0 m, with an average laterite depth of ~7 m.
- Saprolite, comprising predominantly Clay, sandy, trace gravel, stiff to very hard, medium plasticity observed between depths from 3.0 – 28.7 m.
- Extremely weathered granodiorite, recovered generally as sand, clayey, trace gravel, non-plastic, medium dense to very dense, generally observed from depths varying between 14 to 42.5 m.
- Highly to moderately weathered granodiorite, medium to coarse grained, porphyritic, massive, pale grey, low strength to very high strength observed between depths of 18.4 to 46.9 m.
- Fresh granodiorite, medium to coarse grained, porphyritic, massive, pale grey, high to very high strength observed from 25.0 to 48.5 m.

Settlement analyses were undertaken in order to calculate settlements of the major process plant foundations. Key outcomes of the settlement analyses are summarised as follows:

- An iterative design approach encompassing adjustments to the foundation dimensions, foundation level, loading conditions, settlement requirements etc. between Resolute, Lycopodium and KP will be required during the next stage of design.
- The estimated settlements will be adjusted based on the actual dead load, and the analyses will be reviewed during the next stage of design.
- The performance of the crusher foundation depends on the ground conditions, loading conditions from the primary crusher and influence from the ROM pad. As founding levels are not available at this stage, the settlement estimates for the primary crusher don’t take into account the impact of the ROM pad, with the assumption that the primary crusher vault and equipment will be installed after completion of ROM pad construction. The load distribution is complex and detailed 3D numerical finite element modelling (FEM) may be required during the next stage of design.

- The construction sequences of the ROM pad, retaining wall and crusher vault would have significant impact on the settlement of the crusher. If the surge bin and related steel works can be installed after completion of the ROM pad, the post construction settlement of the bin will be smaller than those estimated as the settlements due to the concrete dead load and pressure from the ROM pad will take place before the installation. Provision should be made to adjust the connection pins of the surge bin during installation to cater for assumptions and uncertainties during design.
- Relatively large settlements are expected for structures (Rock Breaker etc.) founded on top of the ROM pad unless the fill used to construct the ROM pad is structural fill compacted to 95% MMDD.
- As the ore stockpile, tunnel and trestle foundation are not in plane strain condition, the deformation and load distribution on the foundations will be complex. A detailed 3D FEM analysis should be undertaken to analyse the stability of the trestle foundation and deformation of the tunnels. To ensure the tunnels are stable, hoop stress condition should be maintained at all times, including during construction and operation. In addition to the settlement and bearing capacity, the trestle foundation should also be analysed to ensure they have sufficient passive resistance against tilt from the ore stockpile, to be undertaken during the detailed design stage.
- The settlement analyses for CIL tanks are based on the simplified elastic methods of analysis. Once the loading details and construction sequences are finalised, detailed finite element analysis could be performed to estimate the likely total and differential settlements of the tanks if deemed critical.
- Pre-leach thickener is assumed to be founded on pedestal footings to be confirmed by Resolute and Lycopodium. Settlement will increase if the foundation width increases. Given the presence of cemented ferricrete to shallow depths across the plant site, it is recommended to limit the foundation size to less than 3 m to reduce the foundation zone of influence extending beyond the ferricrete layer.

3.3.2.2 Potential Geotechnical Risks and Construction Considerations

The following are to be considered during construction:

- The terrain is generally flat with cemented laterite observed at shallow depths from the surface. Excavation difficulties may be encountered if low strength machinery (30T and below) are used during construction. Previous experience suggests that lower strength ferricrete should be excavatable using a D10 dozer or equivalent equipped with a single-tyne ripper attachment.
- To reduce foundation settlements, it is advisable to maintain the foundation at or below the natural ground level and restrict the use of fill material above the natural ground, unless compacted select fill material is employed. In addition, cemented ferricrete is observed to shallow depths from the surface, with compressible soil observed deeper. Foundation settlement will increase if large foundations are adopted with the zone of influence extending beyond the ferricrete layer.
- Proper drains are to be installed to direct water away from the foundation. Some shrinkage and swelling of the finer grained near surface soils is possible with seasonal changes in moisture content. To limit seasonal shrinkage and swelling, settlement-sensitive foundations should be founded at least 0.5 to 1 m below the final formation level. A layer of low permeability clay/silt should be placed around footings to prevent moisture change. Comprehensive surface water management/ drainage should also be provided to direct water away from the foundations.

3.3.3 Water Storage Dam

3.3.3.1 Sub-surface Conditions

The general stratigraphy within the WSD embankment is as follows:

- Topsoil; Sand, dark brown, dry, with sand particles medium grained and sub angular to a depth of 0.3 m.
- Alluvium; Clay, sandy, medium plasticity, very stiff to depths of 3.5 m followed by sand, with clay, low plasticity fines, very dense to depths of 6.0 m.
- Granodiorite, medium to coarse grained, porphyritic, massive, pale grey, strength increasing with depth and weathering decreasing with depth.

The general soil stratigraphy within the basin is as follows:

- Topsoil; Sand, silty, trace gravel, non-plastic, dark brown, very loose observed across the WSD embankment and basin footprint for depths ranging from 0.2 to 0.4 m.

- Alluvium; Sand, with gravel, trace clay, low plasticity fines, medium dense to dense; cemented laterite, recovered as Gravel, sandy, trace clay, low plasticity fines, dense and Clay, sandy, with gravel, medium plasticity, very stiff to hard between 0.2 – 2.9 m depths.
- Sand, clayey, medium to high plasticity, dense to very dense observed between 0.8 – 4m across the WSD basin.
- Granodiorite, medium to coarse-grained, porphyritic, massive, pale grey, strength increasing with depth and weathering decreasing with depth.

It is noted that the sand and gravel layer underlies the topsoil across much of the WSD basin area. It is likely that the permeability of near surface basin soil will be relatively high.

3.3.3.2 Potential Geotechnical Risks and Construction Considerations

The following are to be considered during construction.

- The WSD basin areas comprise extensive areas of clayey sand and gravel directly underlying the topsoil horizon. It is likely that these soils have relatively high permeability.
- Cut-off trenches for the WSD should typically terminate in a low permeability horizon. At the embankment, the cut-off trench will need to extend through the near surface sand clayey/clay sandy horizon and is likely to vary with locations with an average depth of more than 2 m at places along the embankment alignment.
- Topsoil is present to depths between 200 – 400 mm across the footprints of the WSD embankment, with some roots penetrating deeper.
- No artisanal mining shafts were observed within the embankment footprint and the WSD basin. Prior to the start of construction, a reconnaissance will need to be conducted to locate shafts within the footprint and immediate vicinity.
- Dewatering and water diversion measures may be required prior to the start of construction of the WSD embankment depending on the timing of construction. The preferred time for construction to commence within the WSD area will be after the end of the wet season.

3.3.4 Water Harvest Dam

3.3.4.1 Sub-surface Conditions

The typical subsurface ground profile is summarised below:

- Thick topsoil with roots and other organic matter observed to an average depth of ~0.5 m, with thickness ranging from 0.2 to 0.7 m. A greater thickness of topsoil is possible due to the increased alluvium deposition and organic growth directly under the river channel basin.
- The soil horizon underlying the topsoil comprises Clay, with sand, medium to high plasticity, yellow and brown, very stiff to hard for depths between 0.2 to 3.7 m and Sand, with silt and gravel, non-plastic to low plasticity fines, dense for depths between 0.4 to 3.4 m.
- Granodiorite, recovered as Sand and Gravel, dense to very dense, weathering decreasing with depth, strength increasing with depth were observed

3.3.4.2 Potential Geotechnical Risks and Construction Considerations

The following are to be considered during construction.

- A catchment of 43,000 Ha reports to the proposed WHD. The embankment is designed to serve as an overflow spillway. Due to the large catchment area and rainfall, overflow is likely to occur annually. Maintenance of the WHD will be required every year after the wet season.

3.3.5 Han Diversion Channel

The Han pit is along the basin of the river channel. The Han diversion channels are proposed to divert water from the southwest and southeast catchments to the proposed Han pit. Two diversion channels are proposed, DC10 and DC11. DC10 will discharge water into DC11 when operational.

3.3.5.1 Sub-surface Conditions

The typical subsurface ground profile is summarised below:

- Topsoil; Sand, silty, non-plastic fines, pale grey, very loose observed from 0.1 to 0.4 m, with an average depth of 0.3 m.
- Cemented laterite; Gravel, clayey, with sand, high plasticity fines, brown to orange-brown, dense to very dense, cemented and Sand, trace silt, non-plastic, red-brown, slightly moist, dense observed to depths of 1.2 to 2.9 m from the surface.
- Saprolite; Clay, sandy, trace gravel, high plasticity, very stiff to hard observed to depths 0.8 to 3.7 m in some of the test pits.

- Granodiorite, massive, igneous, yellow-brown with strength increasing with depth and weathering decreasing with depth observed until the end of the borehole.

3.3.5.2 Potential Geotechnical Risks and Construction Considerations

The following are to be considered during construction.

- Han pit is proposed along the basin of the river channel. Due to the large catchment area and the proposed pit along the existing channel, the design of DC11 is challenging. It is envisaged that DC11 will be integrated into the pit excavation surface, necessitating close collaboration with pit designers during the detailed design phase. Moreover, the presence of existing Han Bridge crossing and the nearby community impose significant constraints on the development of the diversion channel.
- Depending on the feasibility, it will be worth looking into the option of mining Han pit during the dry season alone. This will help reduce the earthworks volume required for the construction of the diversion channel.
- Management plans should be in place to ensure that personnel are evacuated from the pits during significant storms. This will require continuous monitoring of the forecasted rainfall in order to reduce the risk of personnel working in the pit from any flooding events.

3.3.6 Airstrip

3.3.6.1 Sub-surface Conditions

The typical subsurface ground profile is summarised below:

- Thick topsoil with roots and other organic matter to depths of ~150 – 400 mm with an average depth of 200 mm. Topsoil; Gravel, sandy, with silt, non-plastic fines, dry medium dense and Silt, sandy, trace gravel, non-plastic, soft to firm.
- Beneath the topsoil, a soil horizon comprising Gravel, sandy, with clay, high plasticity fines, red-brown, dense to very dense, cemented laterite was observed to 0.4 to 4.2 m from the existing ground surface.

3.3.6.2 Potential Geotechnical Risks and Construction Considerations

The following are to be considered during construction.

- To meet the design requirements of the runway based on CASA/ANAC/ICAO guidelines, cut and fill operations will be required. Permanent soil slopes must be adequately drained and rainfall run-off controlled to mitigate erosion and degradation of the slopes. The sides of excavations shall be benched and battered as necessary to ensure safety against sliding, cave-ins or danger to persons or structures.

- V-drains or culverts shall be constructed on the side of the runway strip and clearway to divert and discharge the surface runoff.
- Conventional earthmoving equipment, such as large dozers and excavators should be capable of excavating the near-surface materials across the site.
- Care should be taken to reduce the washing of fines from the airstrip running surface via rain or water flow post-construction. Regular maintenance will be required. The maintenance frequency should be adjusted according to in-situ conditions and the performance of the runway and airstrip. The maintenance frequency is expected to be higher during the first few years of use and will decrease over time. Routine maintenance will mostly comprise grading and watering. Occasional re-sheeting of the surface layers will be required during the pavement life.

3.3.7 Accommodation Village

3.3.7.1 Sub-surface Conditions

The typical subsurface ground profile is summarised below:

- Thick topsoil with roots and other organic matter was observed to ~0.2 – 0.5 m from the existing ground surface, with an average depth of 0.3 m across the footprint.
- Beneath the topsoil, a soil horizon comprising Gravel, sandy, with clay, low plasticity fines, medium dense to very dense was observed to 0.6 to 4.4 m. Of the 6 No. test pits, 5 No. test pits refused at shallow depth due to the presence of cemented laterite.

3.3.7.2 Potential Geotechnical Risks and Construction Considerations

The following are to be considered during construction.

- As the terrain is generally flat with elevation ranging from RL 342 to 348 m, cut and fill operations are expected to be comparatively small. Conventional earthmoving equipment, such as large dozers and excavators should be capable of excavating the near-surface materials across the site. However, there is potential for excavation difficulties once the excavation depth increases.

3.3.8 Access Roads

3.3.8.1 Sub-surface Conditions

The typical subsurface ground profile is summarised below:

- Topsoil with roots and other organic matter observed to an average depth of 300 mm from the surface. Depending on the location, the soil was Silt, sandy, non-plastic, firm; Gravel, sandy, with silt, non-plastic fines, loose to medium dense and Sand, silty, trace gravel, non-plastic fines, very loose to loose.
- Beneath the topsoil, the soil horizon comprises residual soil recovered as Clay, sandy and gravelly, medium to high plasticity, slightly moist to dry, stiff to hard; cemented laterite recovered as Gravel, clayey, with sand, medium plasticity fines, medium dense to very dense and Sand, gravelly, trace silt and clay, low to medium plasticity, medium dense to very dense.
- Beneath the layer, granodiorite recovered as Gravel, sandy, trace silt, low plasticity fines, yellow-brown, very dense, extremely weathered rock observed. With depth, weathering decreases and strength increases.

3.3.8.2 Potential Geotechnical Risks and Construction Considerations

The following are to be considered during construction.

- The SAR runs across difficult terrain consisting of valleys, ridges and river crossings. As the terrain is rugged, cut and fill is expected during construction. Conventional earthmoving equipment, such as large dozers and excavators should be capable of excavating the near-surface materials across the site. However, there is a potential for excavation difficulties within the cemented ferricrete layer as well as once the excavation depth increases.
- Roadside drainage is required to divert surface run-off away from the road and road embankment. The side drains comprise of V-ditch configuration with 1V:2H side slopes.
- Where the subgrade is recovered as clay, sandy and gravelly, a proper base course comprising predominantly gravel with CBR >40% is recommended. Cemented ferricrete recovered as gravel could serve as basecourse subject to laboratory testing.
- Laterite gravel wearing course could be placed over the subgrade/general fill during the initial stage. Once the site quarry or mining operations have commenced, the wearing course should be reinforced from the quarry or mining operations. Routine maintenance and resurfacing of the access road will need to be carried out during operation.

Culverts crossings will be required at significant stream crossing locations to convey runoff resulting from a 10-year annual recurrence interval (ARI). Culverts typically comprise either corrugated metal pipe structures or precast concrete box culverts, depending on the availability and cost. In the event of flood exceeding the 10-year ARI, the culverts would be unable to convey the flow, leading to overflow which could potentially cause significant damage to the roads. Damage to the roads could result in access to certain areas of the project being lost until repairs can be undertaken.

- It is expected that the existing local roads may intersect the proposed haul access roads at certain locations. Increased security and safety measures may be needed to protect personnel and livestock.

3.3.9 Access Road Overpass

3.3.9.1 Sub-surface Conditions

The typical subsurface ground profile is summarised below:

- Topsoil with roots and other organic matter observed to 300 – 400 mm from the existing ground surface. Topsoil; Sand, silty, trace clay, non-plastic, medium dense.
- Residual soil; Sand, clayey, with gravel, low plasticity, loose to medium dense observed to 6 m depths.
- Granodiorite, medium to coarse-grained, granular, massive, grey-brown, very low to low strength, highly weathered to moderately weathered rock till the end of the borehole.

3.3.9.2 Potential Geotechnical Risks and Construction Considerations

The following are to be considered during construction.

- To limit settlements and increase foundation bearing capacity, ground improvement comprising excavation of loose sand and replace with compacted structural fill is expected. The structural fill shall be crushed mine waste with fines content less than 20% and a maximum particle size less than 75 mm. The structural fill shall be compacted in layers less than 300 mm thick and achieve a 95% modified maximum dry density. Depending on the particle size of the mine waste, or borrows if any nearby, crushing and screening may be required to limit the particle size within the required range.

- During construction, a temporary diversion road will need to be constructed alongside the main A1 highway to redirect traffic. This will require careful traffic management plans to ensure compliance with regulatory requirements, given that the A1 is a national highway. Existing underground utilities such as water, gas, and sewer lines can be in conflict with the tunnel alignment, requiring careful relocation or protection.
- The integrity of the tunnel relies on the principle of maintaining a compressive hoop stress condition around the circumference of the tunnel lining at all times. This should be maintained throughout construction. If the hoop stress condition is not maintained, the tunnel lining may experience excessive deformation and overstressing, or even collapse. Proper sequencing of excavation, backfilling, support installation, and lining placement is crucial to avoid excessive deformation that could disrupt the hoop stress condition.
- Design of the overpass is based on haul truck Volvo FMX460 8X4 tipper nominated during the study. If the nominated truck changes or other higher loaded vehicles are anticipated, the analysis should be reviewed.

3.3.10 Construction Materials

The site investigation suggests that in potential areas of cut the excavated material will comprise colluvial and alluvial soils, cemented laterite and weathered rock recovered as gravels. Depending on the depth of excavation these horizons are likely to excavate as a combination of gravel, silt, clay, and clayey silt, and will provide a suitable common fill with which to construct the lower levels of bulk earthworks fill platforms and embankments. Of the soils likely to be encountered during bulk excavation, most of the coarse-grained materials should be suitable for embankment Zone C construction, whilst finer grained soils with selective excavation will be suitable for embankment Zone A.

If excavations extend into the moderately weathered rock horizon the resulting materials are likely to be coarse, but the end product will depend upon the design and implementation of the blasting programme (if any), as well as the pre-existing rock strength, weathering and joint spacing.

It is expected that substantial quantities of borrow can be sourced from the open pit pre-strip, subject to laboratory testing. The zones sourced from pre-stripping depend on the material type (oxide, transition, fresh). Oxide material closer to the surface could be designated as Zone A subject to lab testing. Zones C1 and D are typically sourced during pre-stripping. If the size of the material from pre-stripping for Zone C1 is too large, increasing the powder factor during blasting often helps without much additional cost. Depending on the properties, oxide material may also be used as Zone C1.

Zones E and G will consist of selected materials from waste rock. Zone F1 and F2 (drainage medium) shall be sourced from basins of WSD, WHD, Han and select locations of the SAR. Site investigation has identified potential borrow sources for Zone A, E, F1, F2, G, road basecourse and construction aggregates, subject to laboratory test findings.

4. TAILINGS CHARACTERISTICS

4.1 GENERAL

Physical and geochemical testing of the tailings derived from the combined ores, generated by ALS were completed in 2023 as part of the early DFS. Seven (7 No.) buckets of slurry were sent to the KP laboratory in Perth via ALS Metallurgy. A summary of the samples received is provided as follows:

- Souwa Oxide Tailings Slurry (54% solids w/w).
- Souwa Transition Tailings Slurry (54% solids w/w).
- Souwa Fresh Tailings Slurry (63% solids w/w).
- Nokpa Transition Tailings Slurry (54% solids w/w).
- Nokpa Fresh Tailings Slurry (63% solids w/w).
- Kilosegui Transition Tailings Slurry (54% solids w/w).
- Kilogegui Fresh Tailings Slurry (63% solids w/w).

The tailings sample was tested at its as-received solids content, which was representative of the operational target at the time of the test program. This differs from the current target of 42% to 43% solids (w/w) specified in the 2025 DFS update. Consequently, a subsequent testing program is scheduled for early 2026 to characterise tailings behaviour at the revised target solids content.

4.2 TAILINGS PHYSICAL TESTING

4.2.1 General

A detailed write up of the tailings physical testing is included in Appendix D and summarised in this section.

The following tests were carried out on all seven samples:

- Received percent solids (to confirm the provided values).
- Particle size distribution (PSD) of tailings.
- Supernatant liquor density and pH.
- Tailings solids particle density.
- Atterberg limits of the tailings solids.
- Undrained sedimentation tests.

The following tests were carried out only on the three Souwa samples:

- Drained sedimentation tests.
- Air drying tests.

- Permeability tests.
- Consolidation tests.

The results of these tests are summarised below:

- Souwa (Oxide, Transition and Fresh), Nokpa (Transition and Fresh) and Kilosegui (Transition and Fresh) consisted of 34 – 46% sand, 46 – 64% silt and 3 – 9% clay.
- All samples have a similar P_{80} of around 120 µm with the exception of Nokpa Transition with a P_{80} of around 160 µm. All samples are classified as non-plastic sandy SILT with the classification ML in accordance with AS1726:2017. The Souwa Oxide sample showed slightly higher silt content.
- The grading curves indicate all samples fall inside the boundary for potentially liquefiable soils and therefore liquefaction of the tailings mass needs to be considered in design.
- All seven samples were tested for undrained sedimentation tests and only the three Souwa samples (Oxide, Transition and Fresh) were tested for drained sedimentation, air drying, consolidation and permeability. This was conducted on the basis the Transition and Fresh samples behaved very similar to the corresponding Souwa samples. All the tests were performed at the as received solid content (w/w).
- The sedimentation tests indicate that the Transition and Fresh samples settle very quickly with settlement completed in hours. All three Transition samples release approximately 44% of water in slurry (starting at a similar initial solids) to the supernatant in the undrained test, with the Souwa Transition reducing to about 29% in the drained test. The samples achieved a moderate dry density from settlement before air drying or consolidation with a void ratio less than 1.4.
- All three Fresh samples released approximately 32% of water in slurry (starting at a similar initial solids) to the supernatant in the undrained test, with the Souwa Fresh reducing to about 23% in the drained test. The samples achieved a moderate to high dry density from settlement before air drying or consolidation with a void ratio less than 1.1.
- The Souwa Oxide sample settles slowly taking more than 3 days to complete the settlement. The sample releases approximately 32% of water in slurry to supernatant in the undrained test, reducing to about 23% in the drained test. The sample achieved a low dry density from settlement before air drying or consolidation with a void ratio of around 1.6.

- The Souwa Oxide sample achieved a dry density of 1.60 t/m^3 after 6 – 7 days of air drying at an average evaporation rate of ~8.1 mm/day (approximately 55 mm of total evaporation). This is an increase of about 36% over the dry density achieved in the drained sedimentation test. The dry density is high with a void ratio of about 0.7.
- The Souwa Transition sample achieved a dry density of 1.41 t/m^3 after 5 to 6 days of air drying at an average evaporation rate of ~7.7 mm/day (approximately 42 mm of total evaporation). This is an increase of 15% over the dry density achieved in the drained sedimentation test. The dry density is high with a void ratio of about 0.8.
- The Souwa Fresh achieved a dry density of 1.46 t/m3 after 1 – 2 days of air drying at an average evaporation rate of 7.9 mm/day (approximately 16 mm of total evaporation). This is an increase of 6% over the dry density achieved in the undrained sedimentation tests. The dry density is high with a void ratio of about 0.8.
- All the samples are moderately compressible and will consolidate rapidly with loading, except for the Souwa Oxide sample which will consolidate more slowly.
- In the range of expected settled densities, the vertical permeability is approximately 2 x 10^{-7} m/s for Souwa Oxide and 1 x 10^{-6} m/s for Souwa transition and Fresh. As the tailings consolidate it is anticipated that the permeability may reduce by half an order of magnitude.

4.2.2 Predicted Physical Behaviour

Based on testing conducted on the two samples, the predicted behaviour expected at 54% to 63% solids is summarised below:

- The testing indicated that the rate of supernatant release for all the Transition and Fresh samples was relatively quick, with the majority of water released in hours. Not accounting for rainfall, evaporation or the loss of water to re-saturate lower tailings layers, the expected water release is in the range of 29 – 44% and 23 – 34% of the water in slurry for Transition and Fresh samples respectively.
- The rate of supernatant release for the Souwa Oxide sample was relatively slow, with the majority of water released after 3 days. Not accounting for rainfall, evaporation or the loss of water to re-saturate lower tailings layers, the expected water release would be around 23 – 32% of the water in slurry.

- The quantity of underdrainage release in the field would be expected to be lower than the values indicated by the test work, due to the thickness of the deposited tailings, layering effect, further consolidation of the tailings, drying of intermediate layers and underdrainage collection efficiency. Underdrainage release will be relatively quick due to the tailings sample permeability. A recovery rate between 5% and 10% could be expected depending on the arrangement of the underdrainage collection and basin treatment.
- The settled dry density of tailings deposited into the TSF can be predicted from laboratory testing and appropriate site water balance taking into account climatic conditions. It has been observed over a number of years that densities achieved in the field are generally lower than those obtained in the laboratory. With suitable underdrainage and air drying of the tailings slurry, a settled density of approximately 1.2 to 1.3 t/m^3 is expected in the facility during normal operating conditions. Final densities are dependent on a number of aspects of TSF design such as rate of rise and TSF water management. Full tailings density modelling was completed as part of the site water balance modelling (refer Section 5).

  The predicted tailings behaviour will be updated once the 2026 tailings testing is completed.

4.3 TAILINGS GEOCHEMICAL TESTING

4.3.1 General

Geochemical testing was conducted on a sub-sample of the Souwa (Oxide, Transition and Fresh), Nokpa (Transition and Fresh) and Kilosegui (Transition and Fresh) tailings samples. A detailed write up of the tailings geochemistry testing is included in Appendix E, and summarised in this section. The tailings sample was tested at its as-received solids content. As part of the DFS update, the mine schedule and tailings blend have been revised. Consequently, a subsequent testing program is scheduled for early 2026 to characterise tailings behaviour.

The samples were subsampled and sent to an external laboratory for the geochemical tests listed below:

- Acid Base Accounting.
- Net Acid Generation.
- Acid Formation Potential.
- Multi-Element Analysis.
- Supernatant Water Quality.

4.3.2 Test Results

The results of these tests are summarised below:

- All the samples are considered to be Non Acid Forming (NAF) with negative net acid producing potential (NAPP). On the basis of these results, there is no perceived risk of these tailings samples generating acid.
- The result of the analysis shows that the samples had a low number of enriched elements, with the level of enrichment varying from slight to high. Molybdenum was the only highly enriched element seen at this high level of enrichment in the Kilosegui Fresh sample while the other samples were significantly enriched with the element. The levels of Sulfur and Carbon were also significantly enriched in fresh samples with further elements, Silver, Arsenic, Bismuth and Selenium being only slightly enriched, primarily in fresh samples.
- Comparison of the multi-element analysis results with soil quality screening guidelines indicated that all samples met the human health guidelines. However, no samples met the ecology guidelines due to elevated chromium, nickel and sulfur. The samples also did not satisfy the site contamination guidelines due to elevated barium, chromium and nickel.
- The water chemistry indicates limited of leaching occurring during the production of the samples and that no parameters analysed exceeded the Côte d'Ivoire water discharge limits (Ref. 17). Molybdenum was found to exceed the IFC/ANZECC water quality reference standard (Ref. 14) in all samples except for the Souwa oxide and transitional samples. Drinking water standards were exceeded for molybdenum for all samples except for the Souwa oxide and transitional samples. Manganese also exceeded drinking water standard for the transitional samples from Kilosegui and Nokpa. The chloride concentration in Souwa oxide also exceeded drinking water standards.

  It is noted that the determination of cyanide was not included in the analysis due to the time from production of samples to receipt of samples by KP and subsequent transference to the laboratory. This delay would have made any cyanide analysis misrepresentative due to the natural degradation of cyanide.

4.3.3 Implications for TSF Design

The tailings sample was classified as Non-Acid Forming due to negative NAPP and alkaline NAG pH values. All samples which had measurable sulfur had ANC/MPA ratios of greater than 3 indicating a high factor of safety against acidification.

Therefore, provided that the tailings sample tested are representative of the tailings to be produced during the life of the project, then there would be no specific controls required in relation to the acid formation potential of the tailings.

The tailings recorded a low number of element enrichments, with molybdenum found to be the only highly enriched element with minor enrichments in Silver, Arsenic, Bismuth and Selenium. Based on the level of enrichment a basic cover system comprising benign waste rock will be required on closure to isolate the tailings from the environment. The level of enrichment is not considered to be a risk to human health but standard measures to reduce dust generation should be implemented during operation and closure prior to application of the basic cover system.

On the basis of the tailings solids multi-element results, the TSF design will require controls to prevent the loss of tailings solids and control seepage. The TSF design incorporates a compacted soil liner overlain by HDPE geomembrane and drainage collection systems both above and beneath the geomembrane basin liner. The TSF design includes freeboard capacity to provide dilution of the supernatant if the spillway were to operate (under extreme conditions).

On the basis of the results, it is not envisaged that the closure cover system will need to be designed to significantly reduce infiltration, unless there are local groundwater abstractions used for potable water supply which could be impacted by elevated metal(loid) concentrations emanating from the tailings mass. This would not be expected to occur during operations, but may be experienced in the long-term post closure. It is proposed that a cover system be constructed over the tailings beach on closure to prevent the loss of tailings solids, with the capping design dependent on the expected post-closure land use.

This section will be updated following completion of the 2026 geochemical testing program.

5. WATER BALANCE MODELLING

5.1 GENERAL

The management of water is a critical aspect of the design for Doropo Project. In order to understand (and control) the flow of water around the site, a water balance model was developed.

The site water balance modelling is reported in detail in Appendix F and summarised in the following sections.

The primary objectives of the water balance modelling are summarised below:

- Establish the filling rate for tailings solids within the TSF.
- Estimate the in-situ tailings density within the TSF, taking into consideration tailings properties from laboratory testing and the TSF basin storage parameters.
- Determine supernatant pond volumes within the TSF under average climatic conditions throughout operation.
- Determine supernatant pond volumes within the TSF for design wet rainfall sequences and storm events, check TSF stormwater storage capacity and confirm the suitability of the current TSF design philosophy.
- Determine staged embankment crest elevations, to ensure containment of tailings and design supernatant pond volumes.
- Determine the likelihood of recycle water shortfalls during average conditions and design dry rainfall sequences.
- Determine the required WSD capacity to store make-up water for these shortfalls.
- Determine the required WHD capacity and abstraction rate (from WHD to WSD) to provide supplemental make-up water for shortfalls.
- Assess risk factors for water balance modelling.

The water balance modelling included the TSF, WHD, WSD and process plant, with a view to determining site water storage requirements. Design wet conditions were modelled to ensure that the TSF is designed with sufficient storage capacities to comply with ANCOLD guidelines (Ref. 1).

For the water management modelling, the following water requirements and priorities were assumed to supply the required process plant water demand:

- The water present in the ore was included.
- Water collected from Plant Site runoff was not included as the reliability of surface water management is unknown.

- The minimum raw water requirement (for use in the process plant) is sourced from the WSD. The water reservoir in the WSD is supplemented by water abstracted from the WHD and pit dewatering (not considered in the water balance).
- The additional raw water requirement for dust suppression and wash down (external to the process) is sourced from the WSD. Seasonal variation for dust suppression was considered.
- After allowing for the bulleted items above, the model attempts to supply the remaining process water requirement from the TSF supernatant pond (recycle).
- After including the process water return from the TSF, any further water requirements (make-up water) are provided by the WSD.
- If the process water requirement is not met, the model then determines the shortfall volume.

Various design rainfall conditions were modelled for selected operational years. The following rainfall sequences were modelled:

- Average conditions.
- 100-year Average Recurrence Interval (ARI), 1-year dry rainfall sequence.
- 100-year ARI, 1-year wet rainfall sequence.
- 100-year ARI, 72-hour duration storm event superimposed over average rainfall sequence.
- 10-year ARI wet season (120 days duration), with 100% runoff and no evaporation.

For all design rainfall conditions, it is assumed that average climatic conditions occur prior to and subsequent to the design events or rainfall sequences.

5.2 WATER BALANCE MODELLING RESULTS

A detailed summary of the water balance modelling results is provided in Appendix F. Key conclusions from the modelling are summarised as follows:

Tailings Storage Facility

- The TSF is designed to hold the tailings generated plus the design rainfall conditions and has sufficient stormwater storage capacity for all design storm events and rainfall sequences.
- The critical design rainfall event in terms of pond elevation is the design storm event occurring in the last month of each stage of operation when the TSF stormwater capacity is at a minimum. There is sufficient stormwater storage capacity in the TSF for this situation during all stages of operation.

- The supernatant pond volume peaks in October each year (at the end of the wet season).
- The water balance remains positive after decommissioning (increasing pond volume) and as such the supernatant pond should be removed (and treated if necessary and released) as soon as practicable after decommissioning.

Plant Site and Water Supply

- Process water shortfall is expected to occur under average and design dry climatic conditions.
- All make-up water requirements can be provided by the WSD reservoir, supplemented by the WHD for design dry conditions.

Water Storage Dam

- It is necessary that the WSD is completed early to allow a full wet season for filling prior to commissioning.
- For a basin permeability of 1 x 10^{-7} m/s, a WSD storage capacity of 2,000,000 m^3 is required to provide sufficient make-up water, supplemented by an abstraction rate of 125 L/s (unfactored) from the WHD. This includes allowances for storage losses due to evaporation and seepage in both the WSD and WHD reservoirs.

Water Harvesting Dam

- A WHD capacity of 500,000 m^3 is required to prevent shortfalls under design dry conditions.
- The required abstraction rate from the WHD to the WSD is 125 L/s (unfactored).

6. TAILINGS STORAGE FACILITY SITING STUDY

6.1 GENERAL

A siting options assessment was conducted during the Pre-Feasibility Study (PFS) to evaluate four potential sites for the Doropo Tailings Storage Facility (TSF). This work was completed prior to the DFS update and the change in project ownership from Centamin to Resolute Mining. The assessment is presented in Appendix G. The key details are summarised in this section.

The siting study included the following:

- Assessment and comparison of key parameters for the TSF site options.
- Ranking matrix for the site options considering expenditure, environmental, social, operational and closure factors.

Four alternative options were considered for the TSF location as follows:

- Option 2 – approximately 4.1 km away from the process plant.
- Option 3 – approximately 2.3 km away from the process plant.
- Option 4 – approximately 3.5 km away from the process plant.
- Option 6 – approximately 2.9 km away from the process plant.

Based on the conclusions drawn from the assessment, TSF Option 4 was selected as the preferred option. The primary reasons for this were as follows:

- Option 4 is expected to have lower costs (driven by embankment volumes and HDPE geomembrane liner area).
- Option 4 is expected to have the best expansion potential beyond the design tonnage.

6.2 FURTHER REVISIONS

Subsequent to the selection of Option 4 and during the current DFS update, a revised mine production schedule was developed that resulted in increased tailings throughput and storage requirements. Consequently, while the TSF site location remains unchanged, the layout has been revised and re-oriented to accommodate the expanded capacity. The current design is a cross-valley facility with embankments on the eastern, western, and southern sides, using the northern hillside as the primary containment. Tailings will be deposited from the embankment crests.

Additionally, the design for the Water Storage Dam (WSD) has been updated. The maximum flood level has been revised to RL331 m, with an operational water level of approximately RL327 m.

An emergency spillway/diversion channel is not proposed at this stage, as the water balance model indicates that planned water abstraction rates will prevent the dam from reaching the proposed flood level. The requirement for a future water diversion channel will be reviewed based on the observed rate-of-rise during the initial years of operation

7. TAILINGS STORAGE FACILITY DESIGN

7.1 GENERAL

The TSF will comprise a side hill storage facility formed by multi-zoned earth fill embankments, comprising a total footprint area (including the basin area) of approximately 181 ha for the Stage 1 TSF, increasing to 384 ha for the final TSF. The TSF is designed to accommodate a total of 61.2 Mt of tailings. Further expansion of the TSF is possible, however should be evaluated if required. General arrangements for the TSF Stage 1 and final stage are shown on Drg. Nos. 301-821-C3000-101 and 301-821-C3000-125.

The Stage 1 TSF is designed for 18 months storage capacity. Subsequently, the TSF will be constructed in annual raises to suit storage requirements, however, this may be adjusted to biennial raises to suit mine scheduling during the operation. Downstream raise construction methods will be utilised for all TSF embankment raises. A downstream seepage collection system will be installed within and downstream of the TSF embankment, to capture and return seepage from the TSF. Typical embankment cross sections and details are shown on Drg. Nos. 301-821-C3000-201 to 301-821-C3000-204.

The TSF basin area will be cleared, grubbed and topsoil stripped and a 200 mm thick compacted soil liner will be constructed in the TSF basin area, comprising either reworked in-situ material or imported low permeability material. The area within the TSF basin will be lined with a 1.5 mm HDPE geomembrane liner, overlying the compacted soil liner.

The TSF design incorporates an underdrainage system to reduce the pressure head acting on the basin liner system, reduce seepage, increase tailings densities, and improve the geotechnical stability of the embankments. The underdrainage system comprises a network of collector and finger drains. The underdrainage system drains by gravity to a collection sump located at the lowest point in the TSF basin. In addition, a leakage collection and recovery system (LCRS) will be installed beneath the basin composite liner, and reduce water pressure build-up on the basin liner. Solution recovered from the underdrainage system and LCRS will be released to the top of the tailings mass via a submersible pump, reporting to the supernatant pond.

The TSF underdrainage system layout is shown on Drg. No. 301-821-C3000-135, and typical underdrainage system sections and details are shown on Drg. Nos. 301-821-C3000-301 to 301-821-C3000-303.

Supernatant water will be removed from the TSF via a decant turret system (designed by others). The supernatant pond will be maintained against the northern hillside within the TSF basin. Solution recovered from the decant system will be pumped back to the plant for re-use in the process circuit. Typical decant system sections and details are shown on Drg. No. 301-821-C3000-401.

An operational emergency spillway will be available at all times during operation to protect the integrity of the constructed embankments in the event of an emergency overflow. The emergency spillway will initially be constructed to the north of east embankment. Typical emergency spillway sections and details are shown on Drg. No. 301-821-C3000-501.

The closure spillway will be excavated on the eastern embankment at the low point on the final tailings beach, where it will safely discharge into the existing water course after operation ceases, thus ensuring the TSF becomes a fully water-shedding structure on closure.

Tailings will be discharged into the TSF by sub-aerial deposition methods, using a combination of spigots at regularly spaced intervals around the TSF embankment. Deposition extents are shown on Drg. No. 301-821-C3000-601 and 301-821-C3000-625. During the early stages of operation, when the risk of water shortages is highest, the deposition plan will be managed to optimise water recovery.

A pipeline containment trench will be constructed during Stage 1 to contain both the tailings delivery pipeline and decant return pipeline between the TSF and Process Plant, to reduce environmental impact if the pipeline bursts.

7.2 EMBANKMENT CONSTRUCTION

The TSF embankment will be constructed in stages to suit storage requirements. It is envisaged that the embankment(s) will be raised annually by an earthworks' contractor, with the downstream structural fill zone constructed by the mining fleet on an ongoing basis during operation. Staged embankment crest elevations are presented in Table 7.1.

Table 7.1: Staged embankment construction

Stage	Tailings Storage (Cumulative) (Mt)	Embankment Crest Level (mRL)	Maximum TSF Embankment Height (m)	Approximate Basin Area (ha)
1[1]	7.7	328.1	20.9	172
2	12.6	331.2	24.0	205
3	17.5	333.6	26.4	233
4	22.4	335.7	28.5	257
5	27.3	337.4	30.2	273
6	32.2	338.9	31.7	284
7	37.1	340.3	33.1	295
8	42.0	341.7	34.5	305
9	46.9	343.0	35.8	316
10	51.8	344.3	37.1	325
11	56.7	345.5	38.3	335
12	61.2	346.6	39.4	344

[*1] Stage 1 embankment designed for 18-month storage capacity.

Staged embankment crest elevations were determined based on the stage storage curve for the facility, shown in Figure 2.2 of PE25-01492 (Appendix F). The embankment will have an upstream slope of 3H:1V (to facilitate HDPE geomembrane liner installation), an operating downstream slope of 3H:1V and a minimum crest width of 8 m. The downstream slope of 3H:1V and a crest width of 8 m is adopted for Stage 1. The final downstream embankment profile will consist of an overall slope of approximately 3.5H:1V, comprising a 3H:1V slope with 5 m benches at 10 m vertical intervals. The embankment upstream face will be lined with textured HDPE geomembrane liner to allow safe egress from the TSF.

The Stage 1 TSF was designed to provide 18 months of storage capacity, in order to allow some flexibility for Stage 2 construction to be carried out during the subsequent dry season when conditions are more suitable for construction. Downstream raise construction methods will be utilised for all stages of embankment construction. Typical embankment cross sections and details are shown on Drg. Nos. 301-821-C3000-201 to 301-821-C3000-204.

The TSF embankment comprises an upstream low permeability zone (Zone A), and a downstream structural fill zone (Zone C1).

Typical specifications for material types are summarised as follows:

- Zone A material shall be won from borrow to form the low permeability zone of the embankments. The material will be moisture conditioned, spread and compacted in 300 mm (uncompacted) layers. The target permeability of the zone shall be less than 1 x 10^{-8} m/s after conditioning and compaction.
- Zone C1 material shall be won from pre-stripping activities and delivered to the embankment by the civil/mining operation, levelled and compacted with a dozer.
- Zone C2 to C4 materials shall be delivered to the embankment by the mining operation, levelled with a dozer and traffic compacted by loaded haul trucks on an ongoing basis during the operation.
- The layer thickness will be varied depending on the material types, with an indicative guide as follows:
  - Oxide waste material – 0.5 m to 1 m layers (uncompacted), paddock dumped.
  - Transitional waste material – 1 m to 2 m layers (uncompacted), paddock dumped.
  - Fresh waste material (coarse rockfill) – 2 m to 5 m layers (uncompacted), dumped from a tip head.
- When material from the Open Pit is not available, Zone C2 material shall be won from borrow. The material will be moisture conditioned, spread and compacted in 500 mm (uncompacted) layers.
- Zone F1 shall be clean sand/gravel drainage material supplied to a stockpile adjacent to the works. The Zone F1 material will be sourced from local borrow (if available) or off-site.

A cut off trench will be located beneath the upstream low permeability zone (Zone A) of the embankment. The cut-off trench will be excavated to extend through to competent low permeability foundation material. The cut-off trench will be constructed continuously along the embankment and backfilled with low permeability fill (Zone A). The excavated material will be placed in the embankment (as Zone A or Zone C1), if suitable, or else hauled to waste.

7.3 SEEPAGE CONTROL

To reduce seepage losses through the TSF, increase water return to the process plant and increase the settled densities of deposited tailings, a number of seepage control and underdrainage collection features were integrated into the design. The seepage control and underdrainage collection systems will consist of the components described below.

7.3.1 Cut Off Trench

Primary seepage control from the TSF will comprise a cut-off trench excavated into foundation soils to competent foundation material, backfilled with low permeability (Zone A) fill to reduce seepage losses through the embankment foundations. The cut-off trench will be cut to extend through to competent low permeability foundation material. The cut off trench will be constructed directly below the upstream low permeability zone (Zone A) of the embankment, and excavated for the entire embankment length, to limit potential seepage at any level. If the cut material is suitable as fill, it may be replaced in the excavation in compacted layers, alternatively, suitable low permeability material will be imported, conditioned, placed and compacted in the trench, using the same compaction specifications as Zone A material.

7.3.2 Compacted Soil Liner

A compacted soil liner (200 mm thick) will be constructed over the TSF basin area, comprising either reworked in-situ material or imported Zone A material. The construction methodology for the compacted soil liner will be as follows:

- The TSF basin area will be cleared, grubbed and topsoil stripped.
- Borrow areas within the TSF basin will be shaped to facilitate full drainage into the TSF and the final surface graded and compacted to maximise potential runoff.
- Where in-situ material is suitable (classified as Zone A material), scarify to a depth of 200 mm, moisture condition and compact in-situ material to achieve target density.
- Where in-situ material is unsuitable (too coarse for classification as Zone A material or low plasticity to non-plastic), suitable material will be won from borrow or sourced from borrow, placed, spread, moisture conditioned and compacted (thickness 200 mm), subsequent to scarifying (to a depth of 200 mm), moisture conditioning and compaction of in-situ material. This will primarily occur within natural drainage courses in the TSF basin.

The compacted soil liner surface shall drain positively and be finished with a smooth drum vibratory roller to promote runoff.

7.3.3 HDPE Geomembrane Liner

A geomembrane basin liner, comprising 1.5 mm smooth HDPE will be installed over the compacted soil liner. The upstream slope of the TSF embankment and decant tower areas will be lined with a 1.5 mm textured HDPE liner.

The HDPE will be anchored within a rectangular trench on the embankment crest and around the perimeter of the TSF basin. HDPE geomembrane liner extents for the TSF Stage 1 and final stage are shown on Drg. Nos. 301-821-C3000-101 and 301-821-C3000-125.

7.3.4 Underdrainage System

The underdrainage system will be installed throughout the TSF basin area (over the HDPE geomembrane liner) and is designed to reduce the phreatic surface within the tailings mass, and subsequently the TSF embankments. The underdrainage system has several benefits, as follows:

- Reduces seepage through the basin and under/through the embankment. This is beneficial to the environment and promotes increased embankment stability.
- Drains the tailings mass, thus increasing the density of the tailings and providing a more efficient facility in terms of constructed storage capacity.
- Increases the strength of the tailings mass immediately adjacent to the embankment.

The design of the underdrainage system takes advantage of the natural fall of the ground and thus minimal re-shaping of the basin will be required. The underdrainage system will consist of two interconnected drainage networks, namely the collector drains and the finger drains.

The TSF underdrainage system layout is shown on Drg. No. 301-821-C3000-135, and typical underdrainage system sections and details are shown on Drg. Nos. 301-821-C3000-301 to 301-821-C3000-303.

Finger drains will be installed at approximately 100 m centres over the TSF basin area. The finger drains will consist of a 63 mm draincoil pipe covered with a 300 mm mound of drainage medium (Zone F1), wrapped in geotextile. A flap of HDPE liner will be installed over the upstream side of the finger drains to provide erosion protection from sheet flow prior to inundation with tailings. The finger drains will connect into the collector drains.

The collector drains will consist of a 100 mm draincoil pipe contained within a 400 mm deep trench, backfilled with drainage medium (Zone F1), double-wrapped in geotextile. The collector drains will be located on either side of a shaped drainage trench, approximately 8 m wide. The collector drains will be constructed so that the top surface of the drains is flush with the surrounding ground surface to reduce erosion losses and damage to the drains from tailings supernatant and rainfall runoff. The collector drains will feed directly into the underdrainage collection sump.

7.3.5 Underdrainage Collection Sump

An underdrainage collection sump will be excavated at the low point within the TSF basin, adjacent to the embankment upstream toe. The underdrainage sump will collect solution from the underdrainage network and collected solution will be pumped back onto the tailings beach by a submersible pump situated at the base of a riser pipe running up the embankment upstream face, with flows reporting to the supernatant pond for recycling back to the process plant. The underdrainage sump will consist of the following components:

- An excavation nominally 2 m deep (minimum), 6 m by 3 m at the base. The sump will be backfilled with clean gravel material (Zone F2), overlain with drainage sand/gravel material (Zone F1) and wrapped in geotextile.
- Two 630 mm diameter HDPE riser pipes, running from the base of the sump, on the embankment upstream face to the crest elevation. The bottom 3 m of riser pipe will be slotted. The riser pipes will be located on the embankment face and ballasted with pipes filled with concrete and fixed with a steel brace.
- A submersible pump will be situated at the base of one of the riser pipes (slotted section), within the collection sump. The pump will operate with a level control. A pump sled will be installed to facilitate removal of the underdrainage pump. The second riser pipe will provide redundancy in the event of pipe failure.
- Underdrainage system pumps, pipelines and associated infrastructure will be designed by others.

Sections and details of the underdrainage collection sump are shown on Drg. No. 301-821-C3000-302 and details of the steel brace ballasting are shown on Drg. No. 301-821-C3000-350.

7.3.6 Leakage Collection and Recovery System

Seepage from the existing drainage courses within the TSF basin, beneath the basin composite liner, will be collected by the Leakage Collection and Recovery System (LCRS). The LCRS is independent of all other seepage control components. The LCRS drains will consist of 100 mm diameter draincoil pipes contained within a 900 mm deep trench beneath the collector drains, backfilled with drainage medium (Zone F2) to 700 mm depth (wrapped in geotextile), overlain by a 200 mm low permeability (Zone A) material cap. The LCRS drains will feed directly into the LCRS collection sump.

In addition to providing a secondary drainage system beneath the TSF basin liner during operation, the LCRS has the following benefits:

- Improves accessibility of basin work areas during construction by helping to dewater the drainage course alluvial material.
- Reduces the hydrostatic pressure from the alluvial material after the construction of the basin composite liner (in particular beneath the HDPE geomembrane liner).

The LCRS will report to a collection sump at the lowest point in the TSF basin, adjacent to the underdrainage collection sump. The LCRS sump will lie beneath the basin composite liner and comprise the following components:

- An excavation nominally 2 m deep, 6 m by 3 m at the base, filled with selected clean gravel material encapsulated in geotextile. The sump will be covered with a compacted soil liner and HDPE geomembrane liner (so that the sump sits beneath the basin liner).
- Two 630 mm diameter HDPE riser pipes, running from the base of the sump, on the embankment upstream face to the crest elevation. The bottom 3 m of each riser pipe will be slotted. Each riser pipe will be situated within a trench on the embankment face and covered with cement-stabilised backfill material (to fill the trench flush with the embankment face).
- A submersible pump will be situated at the base of the riser pipe (slotted section), within the collection sump. The pump will operate with a level control. A pump sled will be installed to facilitate the removal of the LCRS pump. The second riser pipe will provide redundancy in the event of pipe failure.
- LCRS pumps, pipelines and associated infrastructure will be designed by others.

Sections and details of the LCRS collection sump are shown on Drg. No. 301-821-C3000-301.

7.3.7 Downstream Seepage Collection System

A seepage collection system will be constructed within and downstream of the TSF Stage 1 embankment.

The downstream embankment toe drain will comprise a 160 mm draincoil pipe laid at the embankment toe, covered by a 1 m wide, 500 mm deep trapezoidal profile of drainage sand (Zone F1). This will be overlain by a 200 mm thickness of erosion protection material (Zone E). The downstream toe drain will capture and direct flow to the low point(s) of the downstream toe.

At the low point(s) along the downstream toe drain, flow will be directed into an HDPE outfall pipe, finally reporting to a seepage collection sump outside of the final TSF embankment footprint.

The downstream seepage outfall pipe is a buried, 160 mm diameter solid HDPE pipe with a minimum fall of 0.5% and a minimum cover depth of 300 mm. A bedding layer of 50 mm should be placed beneath the outfall pipe.

Each seepage collection sump comprises a buried concrete tower structure, comprising a 25 MPa concrete base and a 1.2 m diameter solid precast concrete pipe section.

Sections and details of the downstream seepage collection system are shown on Drg. No. 301-821-C3000-201 to 301-821-C3000-202.

7.4 DECANT SYSTEM

Supernatant water will be removed from the TSF via a floating turret system located in an excavated trench along the primary natural drainage course within the TSF basin. The turret(s) will be connected to a trailer-mounted pump (or other means of easily moving the pump) located on an access causeway running alongside the decant trench. The pump will be moved along the causeway as required during the operation as the supernatant pond moves away from the TSF embankment to allow for seasonal fluctuations.

The decant system pumps, pipelines, pump controls, electrical supply and associated infrastructure will be designed by others. The decant pump(s) will operate automatically, reclaiming water from the TSF and pumping it via a pipeline to the process plant.

Regular movement of the decant turret will be required to ensure it is located in sufficient water depth to reduce the risk of tailings solids being pumped back to the process plant and to ensure that good quality recycle water is returned to the process plant. The decant turret trench will be excavated to a depth of approximately 2.0 m to ensure sufficient water depth for the turret at all times, and to allow for some flexibility when moving the pump. The turret requires that the maximum vertical height between the turret (in the trench) and the pump (on the track) is less than 6 m at all times.

Typical decant system sections and details are shown on Drg. Nos. 301-821-C3000-401.

7.5 EMERGENCY SPILLWAY

The TSF has sufficient capacity to completely contain all design criteria storm events and rainfall sequences, as listed in Table 1.1.

Under normal operating conditions, with the TSF managed in accordance with standard operating procedures, the available stormwater storage capacity will be in excess of the design storm event volumes and no discharge from the TSF is expected.

In the event that a storm event greater than the TSF design criteria occurs, that exceeds the available storage capacity during operation, rainfall and supernatant water which cannot be attenuated and stored within the supernatant pond will discharge from the TSF in a controlled manner via an engineered spillway. Discharge under these conditions is required in order to protect the integrity of the embankments from overtopping failure.

The operational emergency spillway will be constructed as part of each embankment raise. The spillway will be relocated in subsequent raises to higher ground as the embankments are raised. In all cases, the spillway channel is designed to discharge downstream of the TSF into the existing natural drainage course east of the TSF. For all stages, the emergency spillway inlet will be lined with smooth HDPE geomembrane liner.

The emergency spillway system will be designed on the basis that attenuation of the storm event occurs within the supernatant pond. The attenuation in the TSF and spillway design will allow single storm events with an average recurrence interval of up to PMP to be discharged from the TSF whilst protecting the embankment from overtopping.

The closure spillway will be constructed by excavating a channel from the lowest point of the final tailings beach south of the east embankment discharging into the adjacent water course. The TSF will be a fully water-shedding structure on closure. The closure spillway will allow conveyance of PMP storm events without attenuation in the TSF.

7.6 TAILINGS DEPOSITION SYSTEM

The deposition of tailings into the TSF will be sub-aerially from the TSF embankment, to locate the supernatant pond against the northern hillside within the TSF basin. The tailings distribution line will run adjacent to the deposition areas.

The deposition will occur from multiple spigots inserted along the tailings distribution line. The deposition location(s) will be moved progressively along the distribution line as required to control the location of the supernatant pond. After initial establishment of the tailings beaches, a suitable cycle time will be determined in order to evenly deposit the tailings around the TSF, thereby maintaining the supernatant pond at a suitable location and maintaining the formation of the tailings beach.

Tailings deposition locations are shown on Drg. Nos. 301-821-C3000-601 and 301-821-C3000-625. Details of spigot offtakes are shown on Drg. Nos. 301-821-C3000-725. Further information of deposition management is provided in Section 7.7.

7.7 TAILINGS STORAGE FACILITY OPERATION

7.7.1 Deposition Objectives

The tailings deposition strategy was designed and will be managed throughout the operation to meet the following objectives:

- Deposition of a basin lining within the inundation area.
- Maintenance of freeboard against the upstream embankment face.
- Deposition to improve sub-aerial drying and consolidation of tailings.
- Deposition to effectively utilise the net available storage capacity.
- Effective management of the size and location of the supernatant pond.
- Reduce the volume of water stored on the TSF at any time.
- Reduce the operating costs of the tailings distribution system.
- Reduce down time by providing operational flexibility.
- Facilitate the implementation of the storage closure strategy.
- Reduce potential for dust generation.

7.7.2 Deposition Techniques

The deposition of tailings into the TSF will be sub-aerially from the TSF embankment, to locate the supernatant pond against the northern hillside within the TSF basin. The TSF deposition extents are shown on Drg. No. 301-821-C3000-601 and 301-821-C3000-625.

The tailings delivery pipeline will run from the Plant Site to the TSF embankment in an HDPE-lined trench or along the TSF perimeter and then adjacent to the deposition areas.

The deposition will occur from multiple spigots inserted along the tailings distribution line. The deposition location(s) will be moved progressively along the distribution line as required to control the location of the supernatant pond. After the initial establishment of the tailings beaches, a suitable cycle time will be determined to evenly deposit the tailings around the TSF, thereby maintaining the supernatant pond at a suitable location and maintaining the formation of the tailings beach.

The proposed tailings deposition method is the sub-aerial technique, which allows for the maximum amount of water removal from the facility by the formation of a large beach for drying and draining.

In conjunction with a small supernatant pond size, sub-aerial deposition should increase the settled density of the tailings, and hence improve the storage potential and efficiency of the facility.

During the early stages of operation, the deposition plan will be modified to improve the return water efficiency (limiting exposed tailings beach areas to reduce evaporation losses).

During the first year of operation, deposition will be undertaken from the eastern and western embankment spigots, with supplementary deposition from the southern side of the TSF via the designated deposition pathway. Southern deposition will be maintained at a relatively higher elevation to promote migration of the supernatant pond toward the northern hillside, thereby facilitating effective pond control.

From Year 5, following construction of the southern embankment, deposition will continue from the eastern and western embankment spigots, together with the southern, south-eastern, and south-western deposition pathways, into the basin. Deposition from these southern locations will be maintained at marginally elevated levels to consistently drive the supernatant pond toward the northern section of the basin.

Tailings deposition will commence at the lowest point within the TSF basin area (adjacent to the TSF embankment). The deposition will then be moved on either side of this initial point to line the basin area whilst controlling the location of the supernatant pond. As such, the supernatant pond will be pushed into the northern valley within the TSF basin.

The tailings will initially be deposited in the TSF from the deposition areas in a manner that encourages the formation of beaches over which the slurry will flow in a laminar non-turbulent manner and allow the supernatant pond to migrate up the valley. The solids will settle as deposition continues and water will be released to form a thin film on the surface of the tailings. A degree of segregation of the tailings will occur against the embankment, promoting de-watering of the tailings through the toe drain and thus enhancing stability, consolidation and reducing basin drainage.

Deposition of tailings will be carried out on a cyclic basis with the tailings being deposited over one area of the storage until the required layer thickness has been built up. The deposition will then be moved to an adjacent part of the storage to allow the deposition layer to dry and consolidate. This will facilitate optimum storage to be achieved over the whole area.

After deposition on a particular area of beach ceases and settling of the tailings has been completed, further de-watering will take place due partly to drainage into the underdrainage system but mainly due to evaporation.

As water evaporates and the moisture content drops, the volume of tailings will reduce to maintain a condition of full saturation within the tailings. This process will continue until the interaction between the tailings particles hinders volume reduction.

7.8 SEEPAGE ASSESSMENT

Seepage analyses were undertaken for the TSF embankment and basin to estimate the position of the phreatic surface within the embankment for both Stage 1 and final configurations.

The seepage model was developed in the analysis program SEEP/W (Ref. 10). The seepage assessment is reported in detail in Appendix H.

The phreatic surfaces obtained from the seepage modelling were incorporated into the stability assessment.

7.9 STABILITY ASSESSMENT

The stability of the proposed Stage 1 and final TSF embankment sections were assessed under static and seismic loading conditions using limit equilibrium methods. 'SLOPE/W' (Ref. 11), is a limit equilibrium program that will be used for the analysis.

The stability of the TSF was assessed in order to confirm the factors of safety against slope failure considering long-term drained conditions, short-term undrained conditions and post seismic conditions. The effect of pore water pressures on embankment stability was modelled during the stability assessment. Critical failure surfaces for the TSF were identified for the stability modelling. A critical failure surface is the potential failure surface that gives the lowest factor of safety and represents a failure that would likely cause significant damage if failure were to occur. Shallow failure surfaces that give low factors of safety, but do not represent a critical breaching of the embankment have not been included.

The minimum stability criteria based on ANCOLD guidelines (Ref. 1) are provided in Table 1.1. The stability assessment is reported in detail in Appendix I and summarised below.

Based on the slope stability assessment, the Doropo TSF will have satisfactory factors of safety based on the recommended minimum factors of safety by ANCOLD (Ref. 1), and therefore should be stable as designed.

The stability analyses indicate that during operation the embankment profile satisfies all requirements for operational minimum factors of safety. All stability models were completed with the minimum embankment profiling. During operation, embankments will be further buttressed by ongoing mine waste placement by mining.

8. TAILINGS STORAGE FACILITY DAM BREAK ASSESSMENT

8.1 INTRODUCTION

A dam breach assessment based on ANCOLD guidelines (Ref. 1) was carried out for the Doropo TSF to estimate the Population at Risk (PAR), business risk and environmental impact in the event of a dam failure. The likelihood of failure is not considered in the ANCOLD Consequence Category Assessment. The dam break is included in full in Appendix J, and summarised in this section.

8.2 DAM BREACH CONSEQUENCE ASSESSMENT

The key design parameters relating to the dam break assessment are as follows:

- The final TSF configuration (61 Mt stored tailings) was assessed for each option.
- An emergency spillway exists as part of the TSF design.
- It was assumed that failure will occur at the ultimate facility height and at a location where the potential Population at Risk (PAR) will be the highest. This corresponds to a final embankment crest elevation of RL347 m for a maximum height of approximately 40.1 m.

The dam breach assessment comprises of assessing the breach under Newtonian and non-Newtonian conditions. The modelled inundation assists in determining the impact areas and PAR due to a dam breach. A significant failure of the embankment will result in a release of tailings and water depending on the location of the breach, its size and the cause.

In addition, a Newtonian breach for each scenario was considered to assess the impact in the event of pond mobilisation. If the supernatant pond (or a portion of the pond) mobilises during embankment failure, significant erosion of the tailings beach will occur during outflow. This will lead to tailings being carried downstream as suspended solids within the liquid outflow.

The critical dam breach scenario is a failure of the TSF East embankment at its highest point, due to the potential to mobilise the maximum volume of tailings downstream.

A dam breach would be expected to result in the following outcomes:

- The entirety of the Nokpa, Chegue South, are at risk of inundation if present.
- The plant site is located on high ground and is not expected to be inundated with tailings, access from several pits will be cut off.
- The settlements of Hierewedouo, Lassouri and Penoduo are located on higher ground and are not expected to be impacted, however, access to these locations may be cut off from certain directions.

- The public causeway connecting the Lassouri settlements and the proposed footpath linking the Lassouri and Hierewedouo villages.

8.3 POPULATION AT RISK ASSESSMENT

As part of the estimation of the hazard/consequence category for the TSF, an assessment of the indicative Population at Risk (PAR) was undertaken.

A breakdown of people estimated within the inundation area as a whole was based on experience of similar projects within the region, and should be reviewed by Resolute to confirm suitability of the assumptions. It is not anticipated that all people will be downstream of the TSF at the same time; hence a percentage estimate of each role was approximated. A total PAR was then calculated and is considered an indication of the potential PAR.

The modelling results indicate that while the plant site remains unaffected, the Nokpa and Chegue South pits are impacted under the simulated breach scenarios. None of the scenarios result in inundation of the surrounding villages of Hierewedouo, Lassouri, or Penoduo.

However, both the public causeway connecting the Lassouri settlements and the proposed footpath linking the Lassouri and Hierewedouo villages are expected to be impacted. To account for transient PAR and PLL, 1% of the population of the villages are assumed to be on the public causeway and proposed footpath at any given time.

Table 8.1 below summarises the site personnel and PAR considered for the assessment.

Table 8.1: Population estimates for PAR assessment

Population	Number
TSF Operation Personnel [1]	5
TSF Construction Personnel [2]	30
Mine Personnel – Nokpa Pit [3]	25
Mine Personnel - Chegue South Pit [3]	25
Hierewedouo [3]	796
Lassouri [3]	242
Penoduo [3]	200

1. The number of personnel has been estimated based on experience of similar projects within the region.
2. TSF construction personnel only within impact zones during TSF construction raises (6 months per year, day shift only).
3. Population estimate referenced from previous dam breach assessment, KP memorandum PE24-00766.

The indicative PAR and PLL for the assessed breach scenarios are summarised below in Table 8.2.

Table 8.2: Indicative Population at Risk (PAR) and Potential Loss of Life summary

Scenario	Embankment	PAR	PLL
Newtonian	East	33.5	19.3
	South	45.9	16.1
	West	12.9	6.4
Non-Newtonian	East	**58.5**	**27.2**
	South	8.5	6.4
	West	12.9	9.7

Based on the above estimate, a PAR of '≥10 to <100' and PLL of '≥5 to <50' for Dam Failure are recommended.

The PAR due to an environmental spill would be limited. The supernatant discharge is expected to flow directly into Nokpa pit. It is assumed that mine personnel within the Nokpa pit will be evacuated during extreme weather conditions, and on this basis a PAR of '<1' was adopted for the Environmental Spill Consequence Category as per ANCOLD 2019 (Ref.1).

8.4 ANCOLD CONSEQUENCE CATEGORY

8.4.1 Dam Failure Consequence Category

An assessment to determine the severity level of impacts from a large-scale failure of the facility (Dam Failure Severity Level) and a spillway flow or other water release (Environmental Spill Severity Level) was conducted.

On the basis of significant damage to infrastructure, business and public health the Severity Level of a dam failure would be 'Major', primarily due to the anticipated infrastructure and business impacts.

Based on this, as well as the PAR and PLL determined in Section 8.3, the consequence category for the TSF is provided in tables 8.3 and 8.4.

Table 8.3: TSF ANCOLD consequence category based on PAR

Population at Risk	Severity of Damage and Loss			
	Minor	Medium	Major	Catastrophic
<1	Very Low	Low	Significant	High C
>1 to 10	Significant [2]	Significant [2]	High C	High B
>10 to 100	High C	High C	High B	High A
>100 to 1,000	See note [1]	High B	High A	Extreme
>1,000	See note [1]	See note [1]	Extreme	Extreme

1. With a PAR in excess of 100, it is unlikely damage will be minor. Similarly, with a PAR in excess of 1,000 it is unlikely damage will be classified as medium.
2. Change to "High C" where there is the potential of one or more lives being lost.

Table 8.4: TSF ANCOLD consequence category based on PLL

Potential Loss of Life	Severity of Damage and Loss			
	Minor	Medium	Major	Catastrophic
<0.1	Very Low	Low	Significant	High C
≥0.1 to <1	Significant	Significant	High C	High B
≥1 to <5	See note [1]	High C	High B	High A
≥5 to <50		High A [2]	High A	Extreme
≥50		Note 1	Extreme	Extreme

1. With an incremental PLL equal to or greater than one (1), it is unlikely damage will be minor. Similarly, with an incremental PLL in excess of 50 it is unlikely damage will be classified as medium.
2. Where PLL is in the range of ≥5 to <10, the Category level can be reduced to High B.

8.4.2 Environmental Spill Consequence Category

The severity level of an environmental spill would be considered 'Medium' due to the impacts to public health and the natural environment. Based on this, and the PAR determined in Section 5, the consequence category is provided in Table 8.5.

Table 8.5: ANCOLD consequence category – Environmental Spill

Stage	PAR	Severity of Damage or Loss	ANCOLD Consequence Category
Final	<1	Medium	Low

It is noted that an environmental spill is unlikely to occur, if the facility is operated in accordance with the design.

8.4.3 ANCOLD Design Parameters

Based on the above assessment the design parameters recommended by ANCOLD are summarised in Table 8.6.

Table 8.6: ANCOLD (2019) Design Parameters

Dam Failure Consequence Category	High A
Dam Spill Consequence Category	Low
Design Storage Allowance Parameters	
Design Storage allowance	20% AEP [1] notional wet season runoff [2] (1 in 5)
Extreme Storm Storage	Determine by risk assessment
Contingency Freeboard (Wave Run-up)	Nil
Contingency Freeboard (Additional Freeboard)	Nil
Emergency Spillway Design Parameters	
Design Flood	PMF
Wave Freeboard Allowance	Nil
Design Earthquake Loadings	
Operating Basis Earthquake (OBE) [3]	0.1% AEP (1 in 1,000)
Safety Evaluation Earthquake (SEE) [4]	0.01% AEP (1 in 10,000) [5]
Factors of Safety	
Long-term drained	1.5 (Effective strength)
Short-term undrained (potential loss of containment)	1.5 (Consolidated Undrained Strength)
Short-term undrained (no potential loss of containment)	1.3 (Consolidated Undrained Strength)
Post-seismic	1.0-1.2 (Post seismic Shear Strength)

1. Annual Exceedance Probability (AEP).
2. Assuming no evaporation and 100% runoff coefficient.
3. To be determined by the Owner and other Stakeholders in consultation with the Dam Design Consultant and/or Engineer of Record.
4. The design of the dam should be such that there will be a low likelihood of the dam failing given the SEE.
5. 85th fractile. This is required so that the design is more likely to have a significantly low likelihood of failure given the SEE than if the median loading was used.

The emergency spillway shall be designed in a manner which can accommodate flows generated from the PMF. The TSF shall be designed to attenuate the operational pond plus the ‘Design Storm Allowance’ plus the ‘Extreme Storm Storage’ and Contingency Freeboard.

8.5 GISTM CONSEQUENCE CATEGORY

8.5.1 Dam Failure Consequence Category

An assessment was conducted to determine the Dam Failure Consequence Classification based on the Global Industry Standard on Tailings Management (GISTM) (Ref. 3) for the Doropo TSF.

The GISTM Consequence Class assessment considers credible failure modes only. For the purpose of this assessment the inundation extents, all assessed scenarios are considered credible failures. The dam failure consequence category would be considered 'Very High' due to the potential loss of life as outlined in Section 8.3.

8.5.2 GISTM Design Parameters

Based on the above assessment the design parameters recommended by the GISTM (Ref. 3) are summarised in Table 8.7.

Table 8.7: GISTM design parameters

Consequence Classification	Very High
Flood Design Criteria	
Operations and closure (active care) Passive-closure (passive care)	1/ 5,000 (0.02% AEP [1]) 1/10,000 (0.01% AEP [1])
Design Earthquake Loadings	
Operations and closure (active care) Passive-closure (passive care)	1/ 5,000 (0.02% AEP [1]) 1/10,000 (0.01% AEP [1])

1. Annual Exceedance Probability (AEP).

The emergency spillway is designed to accommodate flows generated from the Probable Maximum Flood (PMF) at all times (including closure) as required by ANCOLD (2019). Consequently, the TSF will also comply with the GISTM requirements.

ANCOLD (2019) stipulates that the TSF is designed for a Safety Evaluation Earthquake (SEE) of 0.01% Annual Exceedance Probability (AEP). Consequently, any resulting damage can be remediated and will not cause an uncontrolled release of water or tailings from the dams when exposed to the GISTM stipulated design earthquake loadings.

ANCOLD (2019) stipulates that the TSF is designed for a Safety Evaluation Earthquake (SEE) of 0.01% AEP and an Operating Basis Earthquake (OBE) of 0.1% AEP. GISTM prescribes that the design earthquake loadings for the Doropo TSF are 0.01% AEP for operations and short-term closure and 0.01% AEP for the long-term closure scenario.

As such, it is recommended that the GISTM stipulated design earthquake loadings for the TSF operating period be incorporated into the stability analyses for the TSF.

9. SURFACE WATER MANAGEMENT

9.1 WATER HARVESTING DAM

The Water Harvesting Dam (WHD) is the primary water collection structure, and is able to store up to 500,000 m^3 of water at the maximum operating level. The design intent of the WHD is that the reservoir is frequently pumped to the WSD during each wet season, with a view to filling the WSD reservoir to its maximum storage level prior to each dry season. The WHD general arrangement is shown on Drg. No. 301-821-C4000-500.

The embankment crest elevation for the WHD was determined based on the stage storage curve for the reservoir, shown in Figure 2.4 of Appendix F.

Design parameters for the WHD are provided in Table 1.2. The WHD has a catchment area of 43,000 ha, and when the pond volume is at maximum level the reservoir surface area will be 55 ha.

The water collected in the WHD will be pumped to the WSD. Water will be removed from the WHD by submersible pump(s) situated at the base of an abstraction tower. The abstraction tower will comprise a 25 MPa concrete base and 1.8 m square slotted precast concrete sections. The abstraction tower will be surrounded by free-draining coarse rockfill (Zone G), and an access causeway will be constructed to the tower. Abstraction system pumps, pipelines, pump controls, electrical supply and associated infrastructure will be designed by others.

The WHD embankment comprises a central low permeability core (Zone A), with upstream and downstream free draining coarse rockfill (Zone G). Intermediate zones comprising sand/gravel drainage materials (Zone F1/F2) and structural fill (Zone C1) will be placed between Zone A and Zone G. Typical specifications for material types are summarised as follows:

- Zone A material shall be won from borrow to form the low permeability core of the embankment. The material will be moisture conditioned, spread and compacted in 300 mm (uncompacted) layers. The target permeability of the zone shall be less than 1×10^{-8} m/s after conditioning and compaction.
- Zone G material shall be won from borrow (if available) or off-site.
- Zone F1/F2 shall be clean sand/gravel drainage material supplied to a stockpile adjacent to the works. The Zone F1 and Zone F2 material will be sourced from local borrow (if available) or off-site.
- Zone C1 material comprises fine structural fill and shall be won from borrow or pre-stripping activities.

A cut off trench will be located beneath the low permeability core (Zone A) of the embankment. The cut off trench will be cut to extend through to competent low permeability foundation material. The cutoff trench will be constructed continuously along the embankment and backfilled with low permeability fill (Zone A).

Discharge from the WHD will occur in a controlled manner via the outlet structure. As the WHD is expected to fill during each year of operation, it is anticipated that the overflow will occur frequently each wet season and discharged water will report to the existing stream bed downstream of the WHD.

WHD sections and details are shown on drawing Drg. No. 301-821-C4000-601 to Drg. No. 301-821-C4000-604.

9.2 WATER STORAGE DAM

The Water Storage Dam (WSD) is the primary storage pond for clean process water on site, and can store up to 6,100,000 m^3 of water at its maximum level. During operation, the required storage capacity is 2,000,000 m^3 of water. The WSD general arrangement is shown on Drg. No. 301-821-C4000-100.

The embankment crest elevation for the WSD was determined based on the stage storage curve for the reservoir, shown on Figure 2.3 of Appendix F.

Design parameters for the WSD are provided in Table 1.3. The WSD has a catchment area of 980 ha, with an operational extent limited to RL327 m and the maximum flood extent limited to RL331 m. The WSD is intended to be recharged by water abstracted from the Water Harvesting Dam (WHD) and rainfall runoff from its upstream catchment. Pit dewatering will also be pumped to the WSD. It is assumed that dust suppression and wash down water will be sourced from the WSD.

The water collected in the WSD will be pumped back to the plant to supply plant raw water requirements and process make-up water requirements. Water will be recovered from the WSD by an abstraction tower.

The WSD embankment comprises a central low permeability core (Zone A), with outer structural zones (Zone C1). A chimney drain comprising Zone F1 clean sand drainage layer is placed between Zone A and Zone C1. Typical specifications for material types are summarised as follows:

- Zone A material shall be won from borrow to form the low permeability core of the embankment. The material will be moisture conditioned, spread and compacted in 300 mm (uncompacted) layers. The target permeability of the zone shall be less than 1×10^{-8} m/s after conditioning and compaction.

- Zone C material shall be won from borrow to form the outer structural zones. The material will be moisture conditioned, spread and compacted in 500 mm (uncompacted) layers.
- Zone F1 shall be clean sand drainage material supplied to a stockpile adjacent to the works. The Zone F1 material will be sourced from local borrow (if available) or off-site.

A cut off trench will be located beneath the low permeability core (Zone A) of the embankment. The cut off trench will be cut to extend through to competent low permeability foundation material. The cutoff trench will be constructed continuously along the embankment and backfilled with low permeability fill (Zone A).

The WSD basin area will be cleared, grubbed and topsoil stripped to ensure that the process water supply remains free of organic material.

WSD sections and details are shown on drawing Drg. No. 301-821-B4000-201.

10. SEDIMENT MANAGEMENT

10.1 GENERAL

The main component of the site sediment control system will be Sediment Control Structures (SCSs). SCSs are sediment dams that will be constructed in the downstream reaches of catchments impacted by site infrastructure, to attenuate sediment-laden runoff and facilitate settling of sediments before discharge. Water quality in the SCS reservoirs should be monitored, and the water may be pumped back to the plant for treatment (if required) or may be used for process make-up water requirements and dust suppression (if suitable). Significant upstream vegetation clearing and grubbing should not occur prior to the construction of the SCS embankments. Design parameters for the SCSs are summarised in Table 1.4.

SCSs reduce flow velocities facilitating sediment settling. For minor events, and depending on storage within the structure prior to a rainfall event, they may completely contain runoff.

A total of 11 No. SCSs have been included based on the site layout. This requirement should be reviewed during the next design phase if the Open Pit were to expand or infrastructure is relocated. The SCSs are labelled SCS No. 1 through to SCS. No. 10. The SCS general arrangements are shown on Drg. No. 301-821-C5000-100. Typical SCS sections and details are shown on Drg. No. 301-821-C5000-201 to 301-821-C5000-202.

It is noted that the WHD will also act as a sediment basin downstream of some site infrastructure.

The SCSs were designed to limit maximum water depth to 2 m for safety reasons (drowning risk). As such, the maximum embankment height for the SCSs is approximately 3 m. The SCS embankment will be a homogeneous earth fill embankment comprising low permeability fill (Zone A), won from local borrow areas within the SCS basin if possible. The downstream face will be revegetated.

SCS embankment construction shall commence at the lowest point in the valley. This will capture runoff generated during the SCS construction period and reduce the risk of significant sediment release during SCS construction. Significant upstream vegetation clearing and grubbing should not occur prior to construction of the SCS embankments.

Details of the SCSs for Stage 1 are provided in Table 10.1.

Table 10.1: SCS design information for Stage 1

Structure	Embankment Height (m)	Height to Spillway (m)	Storage Capacity (m^3)	Catchment Area (Ha)	Reservoir Area (Ha)
SCS 01	2.1	1.3	1,190	155	0.3
SCS 02	2.9	1.8	4,830	116	0.5
SCS 03	2.1	1.3	1,520	59	0.3
SCS 04	1.7	0.4	2,490	371	1.0

SCS 04a to 10 are expected to be operational from year 3 onward. Consequently, their design was not included in the feasibility study. It is more prudent to design these systems once a deeper understanding of the operation and infrastructure is available. Discharge from the SCSs will be to the environment downstream of the project site via an engineered spillway. The spillway will be lined with erosion protection material (Zone E). As the SCS is expected to fill frequently, it is anticipated that the spillway will flow frequently during each wet season. Discharged water will report to the existing stream bed downstream of the SCS.

Diversion channels will be constructed upstream of SCSs to divert clean runoff around the sediment basin, to improve attenuation of sediment-laden runoff. Design parameters for the diversion channels are summarised in Table 1.5. Typical sections of the diversion channels are shown on Drg. No. 301-821-C5000-301.

Additional local sediment control measures may be incorporated into the system as required, with examples listed below:

- Brushwood Barriers.
- Geotextile Silt Fences.
- Drop Inlet Structures.
- Chute Structures.
- Rock Check Dams.
- Gabion Sediment Weirs.
- Rock Filter Dams.
- Level Spreaders.

11. SITE ACCESS ROADS

11.1 GENERAL

Site Access roads were designed to facilitate the following movements during operation:

- Process Site to A1 National Highway.
- Process Site to Accommodation Village.
- Process Site to Airstrip.

The total length of the site access roads is 16 km. Design parameters for the site access roads are provided in Table 1.6. The Site Access Road from the A1 National Highway will be constructed pre-commissioning to allow access to the site.

The site access road alignments are shown on Drg. No. 301-821-C7000-100 and typical road sections and details are shown on Drg. Nos. 301-821-C7000-301.

The road vertical alignments were designed to balance cut to fill where practicable. Local balancing of cut and fill volumes will be completed during the next design phase. The vertical alignment design included allowance for fill build-up around stream crossings to ensure correct operation of crossings, and for excavations in areas of steeper terrain, to meet design parameters and safety requirements.

The site access roads comprise two 3.5 m wide running lanes with a 1.5 m shoulder on each side of the road, for a total formation width of 10 m. The road crossfall will vary along the road alignment to suit drainage requirements. A 150 mm laterite wearing course will be placed over the subgrade/general fill.

Drainage ditches, turnouts and level spreaders will be incorporated into the site access road design during the next stage of design. A drainage ditch will run either side of the road formation as required, to convey runoff to level spreaders and culvert structures. The drainage ditch will be grader cut, with the excavated material pushed into the road formation to be used as general fill.

Culvert crossings were designed at significant stream-crossing locations to convey all runoff resulting from a 10-year annual recurrence interval (ARI). Culverts typically comprise either corrugated metal pipe structures or precast concrete box culverts, depending on the availability and costs. The culvert inlets and outlets will comprise stone pitched headwalls. A minimum cover of 800 mm was adopted for the design, which is greater than the minimum cover requirements over culverts. Typical culvert cross sections and details for the site access roads are shown on Drg. No. 301-821-C7000-201 and 301-821-C7000-202.

12. HAUL ACCESS ROADS

12.1 GENERAL

Site haul roads were designed to facilitate the following haulage movements during operation:

- Pits to ROM Pad.
- Pits to Mine Services Area (MSA).
- Northern Pits to Kilosegui Ore Bodies.

The total length of the haul access roads is 27 km. Design parameters for the site access roads are provided in Table 1.7. Access for the mining fleet to the TSF embankment for structural fill (Zone C1) placement will be via a haul road constructed from the western waste dump during the early stages of the operation.

The haul access road alignments are shown on Drg. No. 301-821-C7000-100 and typical road sections and details are shown on Drg. Nos. 301-821-C7000-401.

The road vertical alignments were designed to balance cut to fill where practicable. Local balancing of cut and fill volumes will be completed during the next design phase. The vertical alignment design included allowance for fill build-up around stream crossings to ensure correct operation of crossings, and for excavations in areas of steeper terrain, to meet design parameters and safety requirements.

The site haul roads will consist of two way passing 12 m wide running lanes, with 2 No. 1.0 m high safety bunds, for a total formation width of 17 m. A 200 mm laterite wearing course will be placed over the subgrade/general fill. Once competent waste rock is available from the operation, the site haul roads should be rock sheeted by the mining operation (this has not been included in the construction quantities).

Drainage ditches, turnouts and level spreaders will be incorporated into the haul access road design during the next stage of design. A drainage ditch will run either side of the road formation as required, to convey runoff to level spreaders and culvert structures. The drainage ditch will be grader cut, with the excavated material pushed into the road formation to be used as general fill.

Culvert crossings were designed at significant stream-crossing locations to convey all runoff resulting from a 10-year annual recurrence interval (ARI). Culverts typically comprise either corrugated metal pipe structures or precast concrete box culverts, depending on the availability and costs. The culvert inlets and outlets will comprise stone pitched headwalls.

A minimum cover of 800 mm was adopted for the design, which is greater than the minimum cover requirements over culverts.

Typical culvert cross sections and details for the site haul roads are shown on Drg. Nos. 301-821-C7000-201 and 301-821-C7000-202.

13. AIRSTRIP DESIGN

13.1 GENERAL

The airstrip design is included in Appendix I, and summarised below:

- The airstrip was designed to the Australian Government Civil Aviation Safety Authority (CASA), RACI 6001 Aerodrome Design and Operation (ANAC) and International Civil Aviation Organization (ICAO) guidelines (Ref. 4, 5 and 6). The airstrip design parameters are provided in Table 1.8.
- The design aircraft for the Doropo airstrip was a Cessna Caravanne.
- The prevailing wind direction of the Doropo project site is south west (SW) to south (S), based on data sourced from the Gaoua station (~67 km away from Doropo site). The airstrip will be orientated similarly to ensure optimal operability.
- A schematic layout of the airstrip is shown on Drg. No. 301-821-C8000-100, and typical airstrip sections and details are shown on Drg. No. 301-821-C8000-301 to 301-821-C8000-303.
- The runway running surface is 850 m long and 20 m wide. The surrounding runway strip is 80 m wide inclusive of the runway. The cross-fall on the runway is less than 2% from the crown. The airstrip vertical grade is less than 1% for the entire length. The vertical grade was nominated to reduce the overall earthworks volumes.
- For the design alignment, the longitudinal profile of the natural topography exceeds the maximum longitudinal runway slope of 2.0%, and/or exceeds the maximum allowable rate of change in slope. As a result, cut and fill operations will be required to achieve a design compliant with the ICAO guidelines.
- A clearway has been adopted and will extend to the end of the runway strip, 30 m beyond the airstrip running length with a width of 80 m (to match the runway strip width), to account for any locally raised topography.
- The apron is 100 m by 50 m and will comfortably park 2 No. design aircraft. At the narrowest point, the taxiway is 10.5 m wide and has a horizontal turning radius of 24 m for a speed limit of 20 kmph when following the centreline. The taxiway has a crossfall of 2.0 %. Both the taxiway and apron have a longitudinal slope of 0.75 %.
- The aircraft trafficked pavement design (runway, taxiway and apron) comprises two pavement layers constructed over a prepared subgrade. In order of foundation to surface, these can be summarised as follows:

  - Subgrade – scarified and moisture conditioned in-situ material to 200 mm depth, compacted to achieve a CBR of at least 15%. Subgrade material is expected to comprise in-situ material within the airstrip foundation, or material placed as part of the local cut / fill operations taking place as part of airstrip construction.
  - Base course – 150 mm well-graded sandy gravel material compacted to achieve a CBR of at least 35%. Base course material is expected to comprise in-situ material in some areas along the airstrip, supplemented by material sourced from local borrow areas where necessary.
  - Wearing course – 150 mm fine grained gravelly material compacted to achieve a CBR of at least 35%. Wearing course material is expected to comprise primarily material sourced from local borrow areas, external to the airstrip location.
- Site investigation of the proposed airstrip was completed during the Feasibility Design. The investigation indicated topsoil thickness varying from 100 mm to 400 mm with an average thickness of 200 mm. Gravel, sandy, dense to very dense were observed beneath the topsoil for a majority of the test pits. Based on the investigation, the in-situ material is generally expected to be suitable as bulk fill, subgrade and base course material for construction of the airstrip, subject to laboratory test results during construction. The higher specification wearing course for the runway sheeting may need to be sourced from external borrow source.
- External to the trafficked areas, the in-situ material will be graded to line and level, and proof rolled.
- The airstrip has been located in a manner which reduces the external runoff reporting across the airstrip alignment. The preliminary drainage concept includes surface water on both sides of the airstrip will be diverted and discharged into natural drainage courses by v-drains running on the sides of the runway strip and clearways; runoff from the airstrip will be collected in the v-drains on the sides of the airstrip and discharged via silt traps into a natural water course.
- Based on review of topographical data and the site infrastructure design available to date, no interactions were identified with the Obstacle Limitation Surfaces (OLS) for the airstrip based on the aerial survey data made available.

14. MONITORING

14.1 GENERAL

A monitoring programme for the TSF will be developed to monitor for any potential problems which may arise during operations. The monitoring will include:

- Monitoring bores and surface water sampling stations downstream of the TSF.
- Vibrating wire piezometers in the TSF to monitor the phreatic surface.
- Standpipe piezometers in the WSD and WHD embankments to monitor the phreatic surface.
- Survey pins to check embankment movement.

The proposed locations and typical details of the instrumentation are shown on Drg. Nos. 301-821-C3000-800 and 301-821-C3000-821.

If the monitoring programme indicates that potential problems are developing, an increase in monitoring frequency will be implemented and a response plan developed.

14.2 SEEPAGE MONITORING

The TSF design incorporates a number of measures to reduce the amount of seepage that will occur from the TSF, in order to mitigate the extent of any effects on the downstream environment.

A total of 2 No. groundwater monitoring stations will be installed downstream of the TSF to facilitate early detection of changes in groundwater level and/or quality, both during the operating life and following decommissioning. In some instances, a fill platform/causeway may be required to ensure year-round access to the monitoring station.

Proposed monitoring bore locations are shown on Drg. No. 301-821-C3000-800.

The monitoring bore station consists of one shallow bore, extending to a depth of 10 m in the deep surface horizon, and one deep bore terminating in fresh rock (depth to be assessed by Centamin based on hydrogeology assessment). The shallow bore is intended to detect any seepage from the TSF flowing within the surface sediment, whilst the deep bore will monitor the chemical composition of the groundwater. Each borehole will be cased and screened over an interval set in the field during installation and sealed to surface with low permeability grout. The PVC tube for the monitoring bores will be 100 mm diameter. A typical detail of a monitoring bore is shown in Drg. No. 301-821-C3000-821. It is recommended that the boreholes are constructed before commissioning of the TSF in order to accumulate baseline data specific to the TSF location.

14.3 STABILITY MONITORING

Pore water pressures will be monitored at several locations within the TSF and WSD embankments to allow the stability of the structures to be assessed. Vibrating wire and standpipe piezometers will be installed on the TSF, WSD and WHD embankments, as shown on Drg. No. 301-821-C3000-800 and 301-821-C4000-800.

The piezometers will be monitored at regular intervals and any rises in water level analysed to ensure that the phreatic surface does not reduce the overall stability of the embankments below acceptable levels.

Typical details of the piezometers are shown on Drg. No. 301-821-C3000-821.

Additional piezometers will be installed as the TSF embankments are raised, to monitor the development of the phreatic surface in the embankments. During each TSF embankment raise, existing standpipe piezometers if present will be sealed with cement/bentonite grout mix via tremie pipe and grout pump and new piezometers installed on the raised embankment crest. Alternatively, once the base of the piezometers is beneath the embankment phreatic surface (i.e. returning water level readings), vibrating wire piezometers may be installed in the standpipes and cables extended with each raise. This would preclude the requirement to decommission and install standpipes during each raise.

14.4 SURVEY PINS

Survey pins will be installed at regular intervals along the TSF, WSD and WHD embankment crests in order to monitor embankment movements and assess the effects of any such movement on the embankment. It is noted that the WHD crest survey pins should be monitored during the initial WHD filling only (as they will likely be disturbed by the WHD overflow). The details of each pin will be recorded on installation, and regular survey checks will be completed during operation with a view to detecting displacement. The locations of survey pins are shown on Drg. No. 301-821-C3000-800 and 301-821-C4000-800.

14.5 OPERATIONAL AUDITS

The TSF will undergo annual audits by the Engineer of Record (the Designer) to ensure that the facilities are operating in a safe and efficient manner in accordance with the design intent.

For the assumed TSF consequence category of ‘High A’, an additional third-party audit should be conducted by a Dams Specialist on a biennial basis (starting in Year 1), as per ANCOLD guidelines (Ref. 1).

15. REHABILITATION

15.1 GENERAL

At the end of the TSF operation, the downstream faces of the embankments will have a slope of 3H:1V, with 5 m wide benches located at 10 m height intervals, for an overall slope profile of approximately 3.5H:1V. The profile will be inherently stable under both normal and seismic loading conditions, will provide a stable drainage system, and will allow for revegetation.

Prior to rehabilitation of the embankment faces, temporary vegetation and geotextile silt fences can be used to limit erosion and sediment run-off from the embankment slopes.

Prior to commencing the earthworks component of the rehabilitation, the tailings delivery and distribution pipework will be removed from the facility.

The TSF closure spillway will be excavated after the remaining supernatant water is proven to be suitable for release and during rehabilitation of the tailings surface subsequent to decommissioning. The closure spillway will be excavated north of the east embankment and discharging into the existing water course that runs downstream of the TSF. Rehabilitation of the tailings surface will commence upon termination of deposition into the TSF. At closure, the TSF should be fully water shedding. The closure spillway will be constructed in such a manner as to allow rainfall runoff from the surface of the rehabilitated TSF to discharge via the closure spillway.

The final soil cover for the tailings surface subsequent to decommissioning will be confirmed during operation based on ongoing operational tailings geochemistry testing results. The following covering for the tailings beach has been adopted at this stage:

- Mine waste capillary break (500mm).
- Low permeability fill layer (300 mm).
- Topsoil growth medium layer (200 mm).
- The finished surface will be shallow ripped and seeded with shrubs and grasses.

The underdrainage system will need to continue to operate for some time after completion of capping and re-vegetation to drain excess water from the tailings deposit. The quantity of water recovered from the underdrainage system will reduce with time and experience with similar facilities suggests that water recovery may continue for a period of up to 5 years following decommissioning. During this time, water from the underdrainage will be pumped back into the TSF for removal by the decant system.

After the flow ceases, the underdrainage pumps will be removed and the underdrainage riser backfilled and sealed as part of the rehabilitation process.

The supernatant pond left on the surface of the TSF may need to be returned to the Plant Site for treatment until the supernatant water in the TSF can be shown to be suitable for discharge. After the water has been proven to be benign, the runoff can be allowed to discharge via the closure spillway.

In addition to these objectives, other aspects of the rehabilitation programme will be re-vegetation, erosion control and stormwater management. Establishing a surface cover of verdant vegetation will reduce the potential for adverse environmental impact such as dust generation and rainfall erosion, as well as improving aesthetics. To this end, rehabilitation trials will be undertaken during operation to determine the most efficient method to provide an effective cap and rehabilitate the surface of the TSF. The results of these trials will be used to design the most suitable cover which will be placed over the tailings surface.

The WHD may be decommissioned by breaching the embankments to achieve full drainage of the reservoir.

16. CONSTRUCTION QUANTITIES

16.1 GENERAL

On the basis of the design presented, and the parameters presented in Section 1.3, construction quantities have been determined and are summarised in detail in tables 16.1 to 16.8. The quantities given are to an overall accuracy of -10% to +25%.

The following exclusions are noted from the estimates. No allowance was made for:

- Crop compensation and re-settlement.
- Security measures (e.g. perimeter fencing).
- Surveying during the construction.
- EPCM during the construction.
- Power supply.
- Permitting costs and associated fees.
- Pump/s and associated infrastructure.
- Downstream seepage collection pump and associated infrastructure.
- WSD abstraction pumps / pipelines and associated infrastructure.
- WHD abstraction pumps / pipelines and associated infrastructure.
- Contingency.

The following items were included in quantity tables for information, but were not allocated a detailed breakdown of quantities or rates:

- Decant pumps and associated infrastructure.
- Underdrainage collection pump and associated infrastructure.
- LCRS collection pump and associated infrastructure.
- Tailings delivery pipeline and associated infrastructure.
- Tailings distribution pipeline and associated infrastructure.
- Spigot off-takes and associated infrastructure.
- Water return pipeline and associated infrastructure.
- Guide posts and road signs along road alignment.

Quantities for major cost items were determined based on the following assumptions:

- Average topsoil depth of 200 mm.
- Cut off trench depth of 2 m.

- The quantity of unsuitable foundation material that will be present within TSF basin areas and embankment footprints was estimated based on previous regional experiences and site investigation findings.
- The downstream bulk structural fill component of the TSF embankment (Zone C2) will be won, hauled, spread and traffic compacted as part of the mining operation as noted.
- All remaining fill material (Zone A, Zone C1, Zone D and wearing course) will be sourced by the civil contractor from a borrow area located within 5 km of the working area. These will be won, hauled, placed and compacted by a civil contractor.
- Drainage material (Zone F1 and Zone F2) will require importing from a local commercial supplier or sourced from river beds and/or local borrow. The material will be delivered to stockpile by the supplier/civil contractor.
- Erosion protection rockfill (Zone E) will require importing from a local commercial supplier or sourced from mining operations and/or local borrow. The material will be delivered to stockpile by the supplier/civil contractor.
- Coarse rockfill decant tower surround material (Zone G) will require importing from a local commercial supplier or sourced from mining operations and/or local borrow. The material will be delivered to stockpile by the supplier/civil contractor.
- No significant excavation will be required to facilitate drainage of the underdrainage network.
- Allowance for wastage, overlap and anchoring of HDPE liner of 10%.
- Allowance for wastage, overlap and anchoring of geotextile liner of 10%.

Table 16.1: Construction quantities – TSF

Item	Description	Unit	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12	Closure
1	**PRELIMINARIES AND GENERAL**														
1.1.1	Preliminaries and General	Item	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%
	Sub Total														
2	**MATERIAL SUPPLY**														
2.1	**Material Supply**														
2.1.1	Supply suitable Zone E erosion protection material to stockpile	m3	520	-	-	-	3,000	-	-	-	-	-	-	-	
2.1.2	Supply suitable Zone F1 sand drainage medium protection material to stockpile	m3	6,800	400	300	300	1,200	200	200	200	200	100	100	100	
2.1.3	Supply suitable Zone F2 gravel drainage medium protection material to stockpile	m3	2,200	-	-	-	-	-	-	-	-	-	-	-	
2.1.6	Supply Grade 1 geotextile (including 10% allowance for wasteage and overlap)	m2	80,400	3,200	2,800	2,400	10,500	1,600	1,600	1,300	1,100	800	600	500	
2.1.7	Supply Grade 2 geotextile (including 10% allowance for wasteage and overlap)	m2	75,100	3,200	2,800	2,400	10,500	1,600	1,600	1,300	1,100	800	600	500	
	Sub Total														
3	**SITE PREPARATION**														
3.1	**Site Preparation**														
3.1.1	Clear and grub TSF embankment footprints, haul vegetation to designated stockpile	m2	153,000	52,000	46,000	44,000	55,000	46,000	45,000	45,000	43,000	43,000	40,000	70,000	
3.1.2	Clear and grub area of TSF basin, haul vegetation to designated stockpile	m2	1,656,000	311,000	251,000	228,000	128,000	90,000	86,000	85,000	77,000	73,000	73,000	70,000	
3.1.3	Clear and grub TSF emergency spillway footprint, haul to designated stockpile	m2	11,400	8,600	9,400	9,200	10,100	13,300	14,100	11,600	11,500	10,400	9,800	9,300	
3.1.4	Strip topsoil (250 mm) from TSF embankment footprints, haul to designated stockpile	m3	38,300	13,000	11,500	11,000	13,800	11,500	11,300	11,300	10,800	10,800	10,000	17,500	
3.1.5	Strip topsoil (250 mm) from TSF basin area, haul to designated stockpile	m3	414,000	77,800	62,800	57,000	32,000	22,500	21,500	21,300	19,300	18,300	18,300	17,500	
3.1.6	Strip topsoil (250 mm) from TSF emergency spillway footprint, haul to designated	m3	2,900	2,200	2,400	2,300	2,600	3,400	3,600	2,900	2,900	2,600	2,500	2,400	
3.1.7	Excavate unsuitable material from the TSF embankment footprints and basin, haul to designated stockpile (nominal allowance)	m3	91,000	19,000	15,000	14,000	10,000	7,000	7,000	7,000	6,000	6,000	6,000	7,000	
3.2	**Stockpiles & Borrow Areas**														
3.2.1	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2	509,000	103,000	85,000	78,000	56,000	41,000	40,000	40,000	37,000	35,000	34,000	41,000	
3.2.2	Clear and grub designated borrow areas, push material to perimeter (1.5m deep)	m2	831,000	73,000	63,000	60,000	63,000	49,000	49,000	49,000	47,000	47,000	45,000	43,000	
3.2.3	Strip topsoil (250 mm) from borrow areas, haul to designated stockpiles	m3	207,800	18,300	15,800	15,000	15,800	12,300	12,300	12,300	11,800	11,800	11,300	10,800	
	Sub Total														
4	**TSF EMBANKMENT CONSTRUCTION**														
4.1	**TSF Embankment Construction**														
4.1.1	Excavate embankment cut-off trench, haul and place in Zone C1 material of embankment or designated stockpile	m3	29,000	6,000	5,000	5,000	19,000	3,000	3,000	2,000	2,000	2,000	1,000	1,000	
4.1.2	Scarify, condition and compact in-situ subgrade in cut-off trench (to 200 mm depth) prior	m2	9,700	1,900	1,600	1,400	6,200	900	900	700	600	400	400	200	
4.1.3	Extra over for breaking hard rock material (nominal allowance)	m3	2,900	600	500	500	1,900	300	300	200	200	200	100	100	
4.1.4	Win from borrow, load, haul, place, spread, condition and compact Zone A material in cut-	m3	31,900	6,600	5,500	5,500	20,900	3,300	3,300	2,200	2,200	2,200	1,100	1,100	
4.1.5	Scarify, condition and compact suitable insitu subgrade (200 mm depth) within	m2	153,000	52,000	46,000	44,000	55,000	46,000	45,000	45,000	43,000	43,000	40,000	70,000	
4.1.6	Win from borrow, load, haul, place, spread, condition and compact Zone A material in	m3	136,000	50,000	44,000	43,000	46,000	47,000	47,000	48,000	46,000	47,000	44,000	41,000	
4.1.7	Win from pre-stripping, load, haul, place, spread, condition and compact Zone C1	m3	828,000	-	-	-	-	-	-	-	-	-	-	-	
4.1.8	Win from mine waste, load, haul, place, spread, traffic compact Zone C1 material in	m3	-	474,000	472,000	496,000	449,000	467,000	487,000	552,000	559,000	611,000	609,000	934,000	
4.1.9	Win from embankment cut-off trench, load, haul, place, spread, condition and compact Zone C1 material in embankments (refer to Item 4.1.1)	m3	29,000	6,000	5,000	5,000	19,000	3,000	3,000	2,000	2,000	2,000	1,000	1,000	
4.1.10	Win from decant trench excavation, load haul, place, spread, condition and compact Zone C1 material in embankments (refer to Item 7.1.1)	m3	26,000	4,000	3,000	3,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	
4.1.11	Win from TSF spillway excavation, load haul, place, spread, condition and compact Zone C1 material in embankments	m3	22,000	12,000	14,000	13,000	14,000	18,000	21,000	13,000	16,000	13,000	11,000	9,000	
4.1.12	Win from supplied stockpile, load, haul, place and spread Zone F1 drainage medium in chimney and blanket drains	m3	-	-	-	-	-	-	-	-	-	-	-	-	
4.1.13	Win from borrow, load, haul, place, spread, condition and compact Zone B material over	m3	-	-	-	-	-	-	-	-	-	-	-	-	
4.1.14	Excavate anchor trench and backfill with Zone A material	m3	900	1,100	1,200	1,300	1,900	2,000	2,100	2,100	2,200	2,200	2,200	2,300	
4.1.16	Win from borrow, load, haul, place, spread, condition and compact wearing course (Zone H) on embankment crest	m3	2,100	2,500	2,800	3,100	4,400	4,600	4,800	5,000	5,100	5,200	5,300	5,300	
4.1.17	Win from borrow, load, haul, place, spread and shape Zone D safety bund on	m3	1,100	1,300	1,400	1,600	2,200	2,300	2,400	2,500	2,500	2,600	2,600	2,700	
	Sub Total														

Table 16.1: Construction quantities – TSF (cont.)

Item	Description	Unit	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12	Closure
5	**DOWNSTREAM SEEPAGE COLLECTION SYSTEM**														
5.1	**Downstream Toe Drain**														
5.1.1	Supply and install 160mm draincoil with all tees, bends and jointing complete in downstream toe drain (including filter sock)	lin m	1,490	-	-	-	-	-	-	-				-	
5.1.2	Win from supplied stockpile, load, haul, place and spread Zone F1 drainage material in downstream toe drain	m3	800	-	-	-	-	-	-	-				-	
5.1.3	Install Grade 2 geotextile in downstream toe drain	m2	3,300	-	-	-	-	-	-	-				-	
5.1.4	Win from suppled stockpile, load, haul, place and spread Zone E (200mm) erosion protection over downstream toe drain	m3	500	-	-	-	-	-	-	-				-	
5.2	**Seepage Outlet Channel**														
5.2.1	Excavate outlet trench from downstream toe to sump, haul and place in Zone C1 material of embankment or designated stockpile	m3	50	-	-	-	-	-	-	-				-	
5.2.2	Win from supplied stockpile, load, haul, place and spread Zone J bedding material to trench	m3	3	-	-	-	-	-	-	-				-	
5.2.3	Install 160mm PE100 PN2 SDR9 Solid HDPE outfall pipe with all tees and bends complete	lin m	130	-	-	-	-	-	-	-				-	
5.2.4	Backfill outfall pipe trench with excavated material	m3	50	-	-	-	-	-	-	-				-	
5.3	**Seepage Collection Sump**														
5.3.1	Excavate downstream seepage collection sump at low point of seepage collection trench, haul and place in Zone C1 material of embankment or designated stockpile	m3	60	-	-	-	-	-	-	-				-	
5.3.2	Supply and install 25MPa reinforced concrete base in seepage sump, as per drawings	Item	1	-	-	-	-	-	-	-				-	
5.3.3	Supply and install 1200mm diameter solid reinforced concrete pipe	lin m	3	-	-	-	-	-	-	-				-	
5.3.4	Win from borrow, load, haul, place, spread, condition and compact Zone A material in seepage sump	m3	60	-	-	-	-	-	-	-				-	
	Sub Total														
6	**TSF BASIN AND UNDERDRAINAGE SYSTEM**														
6.1	**Basin Liner Construction**														
6.1.1	Scarify, condition and compact suitable insitu subgrade (200 mm depth) as low permeability soil liner (including filter sock)	m2	497,000	94,000	76,000	69,000	39,000	27,000	26,000	26,000	24,000	22,000	22,000	21,000	
6.1.3	Win from borrow, load, haul, place, spread, condition and compact Zone A material (200mm depth) as low permeability soil liner	m3	229,000	44,000	36,000	18,000	13,000	13,000	12,000	11,000	11,000	11,000	11,000	11,000	
6.2	**Perimeter Access Track**														
6.2.1	Clear and grub access track footprint along basin perimeter to embankment	m2	27,100	27,500	27,700	27,300	14,700	14,400	14,500	14,600	14,600	14,800	15,300	14,400	
6.2.2	Win from borrow, load, haul, place, spread, condition and compact 150mm wearing course (Zone H) on access track	m3	1,900	1,900	1,900	1,900	1,000	1,000	1,000	1,000	1,000	1,000	1,100	1,000	
6.2.3	Win from borrow, load, haul and place safety bund (Zone D) on access track	m3	800	800	800	800	500	400	500	500	500	500	500	400	
6.2.4	Excavate anchor trench and backfill with Zone A material	m3	2,200	2,200	2,300	2,200	1,200	1,200	1,200	1,200	1,200	1,200	1,300	1,200	
6.3	**Upstream Toe Drain**														
6.3.1	Supply and install 160mm draincoil with all tees, bends and jointing complete in upstream toe drain (including filter sock)	lin m	2,410	470	390	340	1,540	220	220	170	150	100	80	50	
6.3.2	Win from supplied stockpile, load, haul, place and spread Zone F1 drainage material in upstream toe drain	m3	1,810	360	300	260	1,160	170	170	130	120	80	60	40	
6.3.3	Install Grade 1 geotextile inner wrap in upstream toe drain	m2	14,900	2,900	2,500	2,100	9,500	1,400	1,400	1,100	1,000	700	500	400	
6.3.4	Install Grade 2 geotextile outer cover in toe drain	m2	14,900	2,900	2,500	2,100	9,500	1,400	1,400	1,100	1,000	700	500	400	
6.4	**Finger Drains**														
6.4.1	Supply and install 63mm draincoil with all tees, bends and joints complete in finger drains (including filter sock)	lin m	16,560	-	-	-	-	-	-	-	-	-	-	-	
6.4.2	Win from supplied stockpile, load, haul, place and spread Zone F1 drainage material in finger drains	m3	1,500	-	-	-	-	-	-	-	-	-	-	-	
6.4.3	Install Grade 1 geotextile inner wrap in finger drain	m2	24,000	-	-	-	-	-	-	-	-	-	-	-	
6.4.4	Install Grade 2 geotextile outer cover in finger drain	m2	24,000	-	-	-	-	-	-	-	-	-	-	-	

Table 16.1: Construction quantities – TSF (cont.)

Item	Description	Unit	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12	Closure
6.5	**Main Collector Drain & Channel**														
6.5.1	Excavate and shape trench for collector drains including LCRS drains, spread and compact to cap finger and collector drains	m3	10,200	-	-	-	-	-	-	-	-	-	-	-	
6.5.2	Install Grade 1 geotextile in LCRS drains	m2	8,700	-	-	-	-	-	-	-	-	-	-	-	
6.5.3	Supply and install 100mm draincoil groundwater drain, with all tees, bends and joints complete, in LCRS drains (including filter sock)	lin m	2,530	-	-	-	-	-	-	-	-	-	-	-	
6.5.4	Win from supplied stockpile, load, haul, place and spread Zone F2 drainage medium in LCRS drains	m3	1,800	-	-	-	-	-	-	-	-	-	-	-	
6.5.5	Install Grade 1 geotextile inner wrap in collector drains	m2	25,000	-	-	-	-	-	-	-	-	-	-	-	
6.5.6	Install Grade 2 geotextile outer cover in collector drains	m2	25,000	-	-	-	-	-	-	-	-	-	-	-	
6.5.7	Supply and install 100mm draincoil with all tees, bends and joints complete and geotextile wrapped, in collector drains (including filter sock)	lin m	5,060	-	-	-	-	-	-	-	-	-	-	-	
6.5.8	Win from supplied stockpile, load, haul, place and spread Zone F1 drainage material in collector drains	m3	2,500	-	-	-	-	-	-	-	-	-	-	-	
6.5.9	Supply and install 160mm solid draincoil pipe, with all tees, bends and joints complete, in central main collector drain, conecting Western Embankment Toe drain to Underdrainage sump (including filter sock)	lin m	1,100												
6.6	**Underdrainage Collection Sump**														
6.6.1	Excavate and shape underdrainage collection sump, haul and place in Zone C1 material of embankment or designated stockpile	m3	240	-	-	-	-	-	-	-	-	-	-	-	
6.6.2	Install Grade 1 geotextile in underdrainage sump	m2	380	-	-	-	-	-	-	-	-	-	-	-	
6.6.3	Install Grade 2 geotextile outer cover in sump	m2	400	-	-	-	-	-	-	-	-	-	-	-	
6.6.4	Win from supplied stockpile, load, haul, place and spread Zone F1 drainage material in sump	m3	120	-	-	-	-	-	-	-	-	-	-	-	
6.6.5	Win from supplied stockpile, load, haul, place and spread Zone F2 drainage material in sump	m3	130	-	-	-	-	-	-	-	-	-	-	-	
6.7	**Underdrainage Riser Pipe**														
6.7.2	Supply and install DN630mm PN12.5 SDR 9 PE100 HDPE riser pipe (solid), including all fittings	lin m	133	20	16	14	11	10	9	9	9	9	8	7	
6.7.3	Supply and install DN630mm PN12.5 SDR 9 PE100 HDPE riser pipe (slotted), including all fittings	lin m	6	-	-	-	-	-	-	-	-	-	-	-	
6.7.4	Supply and install concrete for DN355 mm Solid HDPE (SDR21) ballast pipes	m3	27	8	7	6	5	4	4	4	4	4	4	3	
6.7.5	Supply and install concrete filled DN355 mm Solid HDPE (SDR21) ballast pipes	lin m	266	40	32	28	22	20	18	18	18	18	16	14	
6.7.6	Supply and install 316 stainless steel plate straps (1000 mm c/c)	item	133	20	16	14	11	10	9	9	9	9	8	7	
6.8	**LCRS Collection Sump**														
6.8.1	Excavate and shape ground water collection sump, haul and place in Zone C1 material of embankment or designated stockpile	m3	240	-	-	-	-	-	-	-	-	-	-	-	
6.8.2	Install Grade 2 geotextile in LCRS collection sump	m2	590	-	-	-	-	-	-	-	-	-	-	-	
6.8.3	Win from supplied stockpile, load, haul, place and spread Zone F2 drainage material in sump	m3	240	-	-	-	-	-	-	-	-	-	-	-	
6.9	**LCRS Riser Pipe**														
6.9.1	Excavate and shape LCRS riser channel, haul and place in Zone C1 material of embankment or designated stockpile	m3	180	30	30	20	20	20	20	20	20	20	20	10	
6.9.2	Supply and install DN630mm PN12.5 SDR 9 PE100 HDPE riser pipe (solid), including all fittings	lin m	133	20	16	14	11	10	9	9	9	9	8	7	
6.9.3	Supply and install DN630mm PN12.5 SDR 9 PE100 HDPE riser pipe (slotted), including all fittings	lin m	6	-	-	-	-	-	-	-	-	-	-	-	
6.9.4	Supply and install cement stabilised backfill surrounding ground water riser pipe	m3	140	30	30	20	20	20	20	20	20	20	20	10	
	Sub Total														

Table 16.1: Construction quantities – TSF (cont.)

Item	Description	Unit	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12	Closure
7	**DECANT RETURN SYSTEM**														
7.1	**Decant Turret Slot**														
7.1.1	Excavate decant trench and sump bases, load, haul, place, spread, condition and compact in Zone C1 of embankment or haul to stockpile	m3	26,000	4,000	3,000	3,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	
7.1.2	Supply and install decant turret and pump (including all associated infrastructure)	Item	1	-	-	-	-	-	-	-	-	-	-	-	
7.1.3	Relocate pump and decant turret infrastructure along causeway during operation	Item	-	1	1	1	1	1	1	1	1	1	1	1	
7.2	**Decant Access Road**														
7.2.2	Win from borrow, load, haul, place, spread, condition and compact Zone A material (500mm depth) protective soil liner for access track	m3	3,600	600	500	400	400	300	300	300	300	300	300	300	
7.2.3	Win from borrow, load, haul, place, spread, condition and compact wearing course (Zone H) on access track	m3	1,100	200	100	100	100	100	100	100	100	100	100	100	
7.2.4	Win from borrow, load, haul and place safety bund (Zone D) on access track	m3	600	100	100	100	100	100	100	100	100	100	100	100	
	Sub Total														
8	**EMERGENCY SPILLWAY**														
8.1	**TSF Emergency Spillway**														
8.1.1	Excavate and shape emergency spillway, haul, spread, condition and compact as Zone C1 material in embankments or haul to stockpile	m3	22,000	12,000	14,000	13,000	14,000	18,000	21,000	13,000	16,000	13,000	11,000	9,000	
8.1.2	Extra over for breaking hard rock material (nominal allowance)	m3	1,100	600	700	700	700	900	1,100	700	800	700	600	500	
8.1.3	Scarify, condition and compact base of spillway channel (200 mm depth)	m2	8,000	9,000	8,000	7,000	8,000	11,000	11,000	10,000	9,000	9,000	8,000	8,000	
8.1.4	Excavate anchor trench and backfill with Zone A material	m3	300	400	300	300	300	400	400	400	400	300	300	300	
8.1.6	Win from spillway excavation, spread, condition and compact spillway diversion bund	m3	-	-	-	-	-	-	-	-	-	-	-	-	
	Sub Total														
9	**MONITORING & INSTRUMENTATION**														
9.1.1	Supply and Install survey pins complete in TSF embankments	Item	10	12	13	15	21	22	23	23	24	25	25	25	
9.1.2	Install Vibrating Wire Piezometers piezometers complete in TSF embankments	Item	10	2	1	2	6	1	1	-	1	1	-	-	
9.1.3	Excavate and backfill vibrating wire piezometer cable trench with Zone A material	m3	340	60	30	60	180	30	30	-	30	30	-	-	
9.1.4	Supply and install vibrating wire piezometer cable in PVC pipe	lin m	1,800	300	200	300	900	200	200	-	200	200	-	-	
9.1.5	Install monitoring bores complete (10 m average depth)	Item	2	-	-	-	-	-	-	-	-	-	-	-	
9.1.6	Install monitoring bores complete (60 m average depth)	Item	2	-	-	-	-	-	-	-	-	-	-	-	
	Sub Total														
10	**DEPOSITION**														
10.1.1	Supply and install spigot offtakes, including reducing tees, high pressure rubber hose, clamps and signage	Item	98	16	16	13	62	9	9	7	7	4	4	17	
10.1.2	Supply and install 225 mm diameter slotted uPVC pipe for spigot droppers	lin m	6,460	1,120	990	950	1,100	1,020	990	1,020	980	990	930	860	
10.1.4	Supply and install decant water return pipeline (nominal alllowance)	lin m	4,600	-	-	-	-	-	-	-	-	-	-	-	
10.1.5	Supply and install tailings delivery pipeline (nominal alllowance)	lin m	3,000	-	-	-	-	-	-	-	-	-	-	-	
10.1.6	Supply and install tailings distribution pipeline	lin m	3,000	410	390	340	1,550	230	240	180	160	110	90	420	
10.1.7	Relocate tailings distribution pipeline and existing spigot offtakes	Item	-	1	1	1	1	1	1	1	1	1	1	1	
	Sub Total														

Table 16.1: Construction quantities – TSF (cont.)

Item	Description	Unit	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12	Closure
11	**TAILINGS AND DECANT RETURN TRENCH**														
11.1	**Tailings and Decant Return Trench**														
11.1.1	Clear and grub TDRT footprint haul to designated stockpile	m2	28,000	-	-	-	-	-	-	-				-	
11.1.2	Strip topsoil (250 mm) from TDRT, haul to designated stockpile	m3	7,000	-	-	-	-	-	-	-				-	
11.1.3	Excavate material along TDRT alignment, ancor trench, haul and place in Zone C1 of access road or stockpile	m3	14,000	-	-	-	-	-	-	-				-	
11.1.4	Win from borrow, load, haul, place, spread, condition and compact Zone A (200 mm depth) in TDRT	m3	7,000	-	-	-	-	-	-	-				-	
11.1.5	Win from borrow, load, haul, place and Backfill Zone A (in layers) HDPE geomembrane liner anchor trench in TDRT	m3	2,100	-	-	-	-	-	-	-				-	
11.2	**Culvert Installation**														
11.2.1	Excavate culvert trenches to finished profile, load, haul suitable material to fill areas of alignment (allowance)	m3	30	-	-	-	-	-	-	-				-	
11.2.2	Scarify, moisture condition and compact in-situ subgrade (200 mm depth) in culvert base to form subgrade prior to fill	m2	90	-	-	-	-	-	-	-				-	
11.2.3	Win from stockpile,load, haul, place, spread and compact Zone J bedding material	m3	10	-	-	-	-	-	-	-				-	
11.2.4	Supply and Install 1200 mm ID Corrugated Metal Pipe culverts	lin m	28	-	-	-	-	-	-	-				-	
11.2.5	Win from supplied stockpile, load, haul, place, spread and compact Zone J select backfill material for pipe culverts	m3	180	-	-	-	-	-	-	-				-	
11.2.6	Win from stockpile, load, haul, place and spread Zone E erosion protection material to culvert inlet and outlet	m3	10	-	-	-	-	-	-	-				-	
11.2.7	Win from stockpile, load, haul, place and spread Zone E erosion protection material to culvert headwall inlet and outlet	m3	10	-	-	-	-	-	-	-				-	
11.2.8	Install Grade 1 Geotextile in areas of placed erosion protection material	m2	30	-	-	-	-	-	-	-				-	
11.3	**Event Pond**														
11.3.1	Excavate material, haul and place in Zone C1 of event pond or designated stockpile	m3		-	-	-	-	-	-	-				-	
11.3.2	Win from borrow, load, haul, spread, condition and compact Zone A material in event pond bund	m2		-	-	-	-	-	-	-				-	
11.3.3	Excavate and backfill (in layers) HDPE geomembrane liner anchor trench in Event Pond	m3		-	-	-	-	-	-	-				-	
11.4	**Decant Return Pipeline**														
11.4.1	Supply and install decant return pipeline, including sleepers, sand bags, tees, valves and horizontal restraints	lin m	4,700	-	-	-	-	-	-	-				-	
	Sub Total														
12	**TSF DIVERSION CHANNEL**														
12.1.1	Excavate and shape emergency spillway, haul, spread, condition and compact as Zone C1 material in embankments or haul to stockpile	m3	-	-	-	-	23,000	-	-	-				-	-
12.1.2	Extra over for breaking hard rock material (nominal allowance)	m3	-	-	-	-	2,000	-	-	-				-	-
12.1.3	Scarify, condition and compact base of Diversion channel (200 mm depth)	m2	-	-	-	-	3,000	-	-	-				-	-
12.1.4	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3	-	-	-	-	3,000	-	-	-				-	-
	Sub Total														
13	**TSF REHABILITATION**														
13.1.1	Win from waste dump, load, haul, spread, capillary break rockfill layer (500 mm)	m3													1,720,000
13.1.2	Win from borrow, load, haul, spread, condition, and compact saprolite capping layer (300mm)	m3													1,032,000
13.1.3	Win from stockpile, load, haul, spread topsoil (200 mm)	m3													688,000
13.1.4	Rehabilitation of downstream embankment faces	m2													326,000
	Sub Total														

Table 16.1: Construction quantities – TSF (cont.)

Item	Description	Unit	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12	Closure
	SUMMARY														
1	PRELIMINARIES AND GENERAL														
2	MATERIAL SUPPLY														
3	SITE PREPARATION														
4	TSF EMBANKMENT CONSTRUCTION														
5	DOWNSTREAM SEEPAGE COLLECTION SYSTEM														
6	TSF BASIN AND UNDERDRAINAGE SYSTEM														
7	DECANT RETURN SYSTEM														
8	EMERGENCY SPILLWAY														
9	MONITORING & INSTRUMENTATION														
10	DEPOSITION														
11	TAILINGS AND DECANT RETURN TRENCH														
12	TSF DIVERSION CHANNEL														
13	TSF REHABILITATION														
	TOTAL														

Table 16.2: Construction quantities – WSD

Item	Description	Unit	Quantity
1.0	**PRELIMINARIES AND GENERAL COSTS**		
1.0.1	**Preliminary and General**		
1.0.1.1	Preliminary and general costs (including mobilization and demobilization)	Item	12%
	Sub Total		
1.1	**MATERIAL SUPPLY**		
1.1.1	**Material Supply**		
1.1.1.1	Supply 1.5 mm (60 mil) textured HDPE geomembrane (including 10% allowance for wasteage and overlap)	m2	-
1.1.1.2	Supply suitable Zone E erosion protection material to stockpile	m3	16,000
1.1.1.3	Supply suitable Zone G material to stockpile	m3	24,000
1.1.1.4	Supply suitable Zone F1 material to stockpile	m3	100
1.1.1.5	Supply Grade 1 geotextile material to stockpile	m2	240
	Sub Total		
1.2	**SITE PREPARATION**		
1.2.1	**Site Preparation**		
1.2.1.1	Clear and grub WSD embankment footprints, haul vegetation to designated stockpile	m2	66,000
1.2.1.2	Clear and grub WSD basin footprints, haul vegetation to designated stockpile	m2	1,192,000
1.2.1.3	Clear and grub WSD emergency spillway footprint, haul to designated stockpile	m2	-
1.2.1.4	Strip topsoil (250 mm) from WSD embankment footprints, haul to designated stockpile	m3	16,500
1.2.1.5	Strip topsoil (250 mm) from WSD basin footprints, haul to designated stockpile	m3	298,000
1.2.1.6	Strip topsoil (250 mm) from WSD emergency spillway footprint, haul to designated stockpile	m3	-
1.2.1.7	Excavate unsuitable material from the WSD embankment footprints, spillway and basin, haul to designated stockpile (nominal allowance)	m3	63,000
1.2.2	**Stockpiles & Borrow Areas**		
1.2.2.1	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2	315,000
1.2.2.2	Clear and grub designated borrow areas, push material to perimeter (1.5m deep)	m2	119,000
1.2.2.3	Strip topsoil (200mm) from borrow areas, haul to designated stockpiles	m3	29,800
	Sub Total		
1.3	**WSD EMBANKMENT CONSTRUCTION**		
1.3.1	**Embankment Construction**		
1.3.1.1	Excavate embankment cut-off trench, haul and place in Zone C1 material of embankment or designated stockpile	m3	14,000
1.3.1.2	Scarify, condition and compact in-situ subgrade in cut-off trench (to 200 mm depth) prior to fill placement	m2	4,700
1.3.1.3	Extra over for breaking hard rock material (nominal allowance)	m3	1,400
1.3.1.4	Win from borrow, load, haul, place, spread, condition and compact Zone A material in cut-off trench	m3	15,400
1.3.1.5	Scarify, condition and compact suitable insitu subgrade (200 mm depth) within embankment footprint area	m2	66,000
1.3.1.6	Win from borrow, load, haul, place, spread, condition and compact Zone A material in embankments	m3	161,000
1.3.1.7	Win from pre-stripping, load, haul, place, spread, condition and compact Zone C1 material in embankments	m3	241,000
1.3.1.8	Win from embankment cut-off trench, load, haul, place, spread, condition and compact Zone C1 material in embankments	m3	14,000
1.3.1.9	Win from spillway excavation, load haul, place, spread, condition and compact Zone C1 material in embankments	m3	-
1.3.1.10	Win from stockpile, load, haul and place Zone E erosion protection material along upstream side of WSD embankment	m3	7,200
1.3.1.11	Win from borrow, load, haul, place, spread, condition and compact wearing course on embankment crest	m3	1,000
1.3.1.12	Win from borrow, load, haul, place, spread and shape Zone D safety bund on embankment crest	m3	500
	Sub Total		

Table 16.2: Construction quantities – WSD (cont.)

Item	Description	Unit	Quantity
1.5	**DECANT TOWER**		
1.5.1	**WSD Decant Tower**		
1.5.1.1	Excavate decant tower sump and trench, haul to stockpile (includes rock breaking allowance)	m3	150
1.5.1.2	Supply and install 3200 mm square reinforced concrete tower base for decant tower	No	1
1.5.1.3	Supply and install 2250 mm diameter slotted precast concrete tower units	m	18
1.5.1.4	Win from stockpile or mine waste, load, haul, place, spread and compact Zone C3 (Rockfill) in decant access causeway	m3	47,690
1.5.1.5	Win from stockpile, load, haul and place Zone G material surrounding decant tower	m3	23,720
1.5.1.6	Win from .stockpile, load, haul and place Zone E erosion protection material along sides of decant access causeway	m3	740
1.5.1.7	Win from borrow, load, haul, place, spread, moisture condition and compact Zone H wearing course on decant access causeway	m3	160
1.5.1.8	Win from borrow, load, haul, place, spread and shape Zone D safety bund on decant access causeway crest	m3	100
1.5.1.9	Supply and install lockable steel cover for decant tower	Item	1
1.5.1.10	Supply and install pump bipod stand over the decant tower	Item	1
	Sub Total		
1.6	**MONITORING & INSTRUMENTATION**		
1.6.1	**WSD Monitoring Instrumentation**		
1.6.1.1	Supply and Install survey pins complete in WSD embankments	Item	5
1.6.1.2	Supply and Install Vibrating Wire Piezometers piezometers complete in WSD embankments	Item	5
	Sub Total		
1.7	**WSD PUBLIC ROAD CAUSEWAY**		
1.7.1	**Public Causeway**		
1.7.1.1	Scarify, moisture condition and compact in-situ subgrade (200 mm depth) prior to fill placement	m2	38,300
1.7.1.2	Win from stockpile, load, haul, place, spread, moisture condition and compact Zone C3 (Rockfill) in public road causeway	m3	154,000
1.7.1.3	Win from stockpile, load, haul and place Zone E erosion protection material along sides of causeway	m3	8,000
1.7.1.4	Win from borrow, load, haul, place, spread, moisture condition and compact wearing course (Zone H)	m3	900
1.7.1.5	Supply and Install c/w metal safety berms in either side of carriageway	lin m	1,650
1.7.1.6	Supply and Install c/w metal personnel protection safety berms in side of pedestrian passage	lin m	830
1.7.2	**Culvert Installation**		
1.7.2.1	Excavate culvert trenches to finished profile, load, haul suitable material to fill areas of alignment (allowance)	m3	200
1.7.2.2	Scarify, moisture condition and compact in-situ subgrade (200 mm depth) in culvert base to form subgrade prior to fill	m2	400
1.7.2.3	Win from stockpile,load, haul, place, spread and compact F1 bedding material	m3	100
1.7.2.4	Supply and Install 2500 mm x 2500 mm (H mm x W mm) box culverts	lin m	76
1.7.2.5	Win from stockpile, load, haul, place, spread and compact Zone C3 (Rockfill) in culverts	m3	4,000
1.7.2.6	Win from borrow, load, haul, place, spread and compact select backfill material for culverts	m3	1,000
1.7.2.7	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to culvert inlet and outlet	m3	20
1.7.2.8	Win from supplied stockpile, load, haul and place 200mm Zone E erosion protection to culvert inlet and outlet fill slope faces	m3	40
1.7.2.9	Install Grade 1 geotextile under erosion protection material	m2	200
	Sub Total		
	SUMMARY		
1.0	PRELIMINARIES AND GENERAL		
1.1	MATERIAL SUPPLY		
1.2	SITE PREPARATION		
1.3	WSD EMBANKMENT CONSTRUCTION		
1.4	DECANT TOWER		
1.5	MONITORING & INSTRUMENTATION		
1.6	WSD PUBLIC ROAD CAUSEWAY		
	TOTAL		

Table 16.3: Construction quantities – WHD

Item	Description	Unit	Quantity
1.0	**PRELIMINARIES AND GENERAL COSTS**		
1.0.1	**Preliminary and General**		
1.0.1.1	Preliminary and general costs (including mobilization and demobilization)	Item	12%
	Sub Total		
1.1	**MATERIAL SUPPLY**		
1.1.1	**Material Supply**		
1.1.1.1	Supply Grade 1 Geotextile (including 10% allowance for wastage and overlap)	m2	2,400
1.1.1.2	Supply suitable Zone F1 drainage material to stockpile	m3	-
1.1.1.3	Supply suitable Zone E erosion protection material to stockpile	m3	4,900
	Sub Total		
1.2	**SITE PREPARATION**		
1.2.1	**Site Preparation**		
1.2.1.1	Clear and grub embankment footprints, haul vegetation to designated stockpile	m2	6,200
1.2.1.2	Clear and grub area of basin, haul vegetation to designated stockpile	m2	549,000
1.2.1.3	Strip topsoil (200mm) from embankment footprints, haul to designated stockpile	m3	1,300
1.2.1.4	Strip topsoil (200mm) from basin area, haul to designated stockpile	m3	110,000
1.2.1.5	Excavate unsuitable material from the WHD embankment footprints, haul to designated stockpile (nominal allowance)	m3	1,900
1.2.1.6	Clear and grub access road footprint, haul vegetation to designated stockpile	m2	50,000
1.2.1.7	Strip topsoil (200 mm) from access road footprint, haul to designated stockpile	m3	10,000
1.2.2	**Stockpiles & Borrow Areas**		
1.2.2.1	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2	127,000
1.2.2.2	Clear and grub designated borrow areas, push material to perimeter (1.5m deep)	m2	21,000
1.2.2.3	Strip topsoil (200mm) from borrow areas, haul to designated stockpiles	m3	4,200
	Sub Total		
1.3	**WHD EMBANKMENT CONSTRUCTION**		
1.3.1	**Embankment Construction**		
1.3.1.1	Excavate embankment cut off trench, haul and place in designated stockpile	m3	2,600
1.3.1.2	Extra over for breaking hard rock material (nominal allowance)	m3	300
1.3.1.3	Win from borrow, load, haul, place, spread, condition and compact Zone A material in cutoff trench	m3	2,900
1.3.1.4	Scarify, condition and compact suitable insitu subgrade (200 mm depth) within embankment footprint area	m2	6,200
1.3.1.5	Win from borrow, load, haul, place, spread, condition and compact Zone A material in embankments	m3	1,700
1.3.1.6	Install Grade 1 Geotextile to Zone A core	m2	2,200
1.3.1.7	Win from stockpile, load, haul, place, spread, condition and compact Zone G material in embankments	m3	6,000
1.3.1.8	Excavate continuous sill wall and backfill with concrete	m3	100
1.3.1.9	Excavate the downstream banks of the overflow channel to allow placement of Zone E erosion protection layer	m3	4,600
1.3.1.10	Supply and install grade 1 geotextile to Zone E erosion protection layer	m2	15,100
1.3.1.11	Win from stockpile, load, haul, place, and spread the Zone E erosion-protection material over the downstream overflow channel banks	m3	4,600
	Sub Total		
1.4	**ABSTRACTION TOWER**		
1.4.1	**Abstraction Tower**		
1.4.1.1	Excavate Abstraction Tower Sump and Inlet Trench (nominal allowance)	m3	400
1.4.1.2	Supply and install 1800mm dia precast slotted concrete rings	lin m	7
1.4.1.3	Win from borrow, load, haul, place, spread, condition and compact Zone C1 material in abstraction tower causeway	m3	3,000
1.4.1.4	Win from stockpile, load, haul, place and spread Zone E erosion protection over protection layer and Zone C1 batters	m3	270
1.4.1.5	Win from borrow, load, haul, place, spread, condition and compact Zone G material in abstraction tower causeway	m3	2,000
1.4.1.6	Supply and install 900mm internal diameter precast concrete solid inlet pipe (including concrete collar)	lin m	14
1.4.1.7	Supply and install 25MPa reinforced concrete tower base for decant tower including foundation compaction, formwork and reinforcement	Item	1
1.4.1.8	Supply and install 1800mm square (I.D.) slotted reinforced concrete units for abstraction tower	lin m	8
1.4.1.9	Win from stockpile, load, haul, place and spread Zone F1 bedding material below solid inlet pipe	m3	10
	Sub Total		

Table 16.3: Construction quantities – WHD (cont.)

Item	Description	Unit	Quantity
1.5	**WHD ACCESS ROAD**		
1.5.1	**WHD Access Road**		
1.5.1.1	Scarify, condition and compact suitable insitu subgrade (200 mm depth) within access road footprint area	m2	50,000
1.5.1.2	Excavate V-drain and place suitable material in road general fill and above culverts	m3	3,000
1.5.1.3	Win from borrow, load, haul, place, spread, condition and compact Zone H wearing course on road profile	m3	14,900
1.5.1.4	Win from stockpile, haul, place and compact Zone F1 culvert bedding material	m3	-
1.5.1.5	Supply and install 1200mm inner diameter corrugated pipe culverts	lin m	-
1.5.1.6	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to culvert inlet and outlet	m3	-
1.5.1.7	Win from supplied stockpile, load, haul and place 200mm Zone E erosion protection to culvert inlet and outlet fill slope faces	m3	-
1.5.1.8	Supply and install Grade 2 geotextile under erosion protection material	m2	-
1.5.1.9	Supply and install decant return water pipeline (nominal allowance) - WHD to process plant	lin m	11,860
1.5.1.10	Supply and install decant return water pipeline (nominal allowance) - process plant to WSD	lin m	1,760
	Sub Total		
1.6	**MONITORING & INSTRUMENTATION**		
1.6.1	**WHD Monitoring Instrumentation**		
1.6.1.1	Supply and install survey pins complete in WHD embankments	Item	3
1.6.1.2	Supply and install Vibrating Wire Piezometers piezometers complete in WHD embankments	Item	3
	Sub Total		
	SUMMARY		
1.0	PRELIMINARIES AND GENERAL		
1.1	MATERIAL SUPPLY		
1.2	SITE PREPARATION		
1.3	WHD EMBANKMENT CONSTRUCTION		
1.4	ABSTRACTION TOWER		
1.5	WHD ACCESS ROAD		
1.6	MONITORING & INSTRUMENTATION		
	TOTAL		

Table 16.4: Construction quantities – SWM and SCS

Item	Description	Unit	Quantity Stage 1	Quantity Stage 2+
5.1	**PRELIMINARIES AND GENERAL COSTS**			
5.1.1	**Preliminary and General**			
5.1.1.1	Preliminary and general costs (including mobilization and demobilization)	Item	12%	12%
	Sub Total			
5.2	**DIVERSION CHANNEL CONSTRUCTION**			
5.2.1	**Diversion Channel DC02**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2	8,400	
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3	1,700	
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2	2,200	
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3	500	
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2	2,000	
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3	1,700	
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3	4,500	
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3	310	
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3	450	
5.2.1	**Diversion Channel DC03**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		98,800
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		19,800
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		24,800
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		12,700
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		47,300
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		48,100
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		14,200
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		3,120
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		11,460
5.2.1	**Diversion Channel DC04**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		56,400
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		11,300
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		14,200
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		6,800
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		29,600
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		16,400
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		5,200
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		1,080
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		6,130
5.2.1	**Diversion Channel DC05**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		67,000
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		13,400
	Stockpiles & Borrow Areas			0
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		16,800
	Material Supply			0
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		10,600
	Earthwork and Erosion Protection			0
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		33,700
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		24,100
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		7,300
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		1,570
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		9,630

Table 16.4: Construction quantities – SWM and SCS (cont.)

Item	Description	Unit	Quantity Stage 1	Quantity Stage 2+
5.2.1	**Diversion Channel DC06**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		61,000
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		12,200
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		15,300
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		16,500
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		12,700
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		12,700
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		15,200
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		1,400
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		14,990
5.2.1	**Diversion Channel DC07**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		17,000
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		3,400
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		4,300
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		4,500
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		4,800
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		4,900
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		12,000
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		850
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		4,080
5.2.1	**Diversion Channel DC08**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		5,600
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		1,200
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		1,500
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		400
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		1,700
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		1,400
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		2,800
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		210
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		300
5.2.1	**Diversion Channel DC08a**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		4,200
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		900
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		1,100
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		300
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		1,300
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		1,000
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		2,100
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		160
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		260
5.2.1	**Diversion Channel DC09**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		8,300
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		1,700
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		2,100
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		1,200
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		1,400
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		1,200
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		5,400
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		330
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		1,040

Table 16.4: Construction quantities – SWM and SCS (cont.)

Item	Description	Unit	Quantity Stage 1	Quantity Stage 2+
5.2.1	**Diversion Channel DC09a**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		14,800
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		3,000
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		3,800
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		2,200
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		3,400
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		3,600
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		11,700
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		770
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		1,970
5.2.1	**Diversion Channel DC10**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		6,300
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		1,300
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		1,600
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		800
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		2,100
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		2,400
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		1,600
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		200
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		650
5.2.1	**Diversion Channel DC11**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		193,500
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		38,700
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		48,400
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		50,100
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		23,400
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		36,400
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		637,000
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		33,670
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		45,480
	Sub Total			

Table 16.4: Construction quantities – SWM and SCS (cont.)

Item	Description	Unit	Quantity Stage 1	Quantity Stage 2+
5.3	**SEDIMENT CONTROL STRUCTURES**			
5.3.1	**Sediment Control Structures (SDS01)**			
	Site Preparation			
5.3.1.1	Clear and grub SCS footprint and haul vegetation to designated stockpiles	m2	13,000	
5.3.1.2	Strip topsoil (200 mm) from SCS footprints, haul to designated stockpile	m3	3,000	
5.3.1.3	Excavate unsuitable material from the embankment footprints, haul to designated stockpile (nominal allowance)	m3	800	
	Stockpiles & Borrow Areas			
5.2.5.4	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2	7,500	
5.2.5.5	Clear and grub designated borrow areas, push material to perimeter (4m deep)	m2	2,000	
5.2.5.6	Strip topsoil from borrow areas, haul to designated stockpiles	m3	400	
	Material Supply			
5.3.1.7	Supply suitable Zone E erosion protection material to stockpile (includes win, haul and place in stockpile)	m3	1,920	
	Earthwork and Erosion Protection			
5.3.1.8	Scarify, condition and compact in-situ material within embankment footprint (200 mm depth)	m2	5,000	
5.3.1.9	Win from borrow, load, haul, place, spread, condition and compact Zone A material in embankment	m3	7,000	
5.3.1.10	Win from stockpiles, load, haul, place, spread, condition and compact Zone F1 material in embankment finger drains	m3	500	
5.3.1.11	Supply and install Bidim non-woven geotextile under erosion protection material along Embankment Upstream Face	m2	800	
5.3.1.12	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to Embankment Upstream face	m3	300	
5.3.1.13	Excavate and shape SCS spillways, haul and place suitable material in designated stockpile	m3	400	
5.3.1.14	Extra over for breaking hard rock material (nominal allowance)	m3	20	
5.3.1.15	Scarify, condition and compact in-situ subgrade (200 mm depth) in spillway base prior to geotextile placement	m2	400	
5.3.1.16	Supply and install Bidim non-woven geotextile under erosion protection material	m2	400	
5.3.1.17	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to spillway	m3	200	
	Downstream Toe Collection Ditch Construction			
5.3.1.18	Excavate downstream toe collection ditch, haul to designated stockpile	m3	200	
	Drainage and Re-vegetation			
5.3.1.19	Win from stockpile, load, haul, place and spread topsoil (200 mm depth) to embankment downsream slopes and ditch collection drain	m3	1,800	
	Sediment Collection Drains			
5.3.1.20	Clear and grub sediment collection drains footprints and haul vegetation to designated stockpiles	m2	20,400	
5.3.1.21	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3	4,100	
5.3.1.22	Excavate drains, load and haul material to designated stockpile	m3	14,700	
5.3.1.23	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in drain	m3	2,240	
5.3.2	**Sediment Control Structures (SDS02)**			
	Site Preparation			
5.3.2.1	Clear and grub SCS footprint and haul vegetation to designated stockpiles	m2	15,000	
5.3.2.2	Strip topsoil (200 mm) from SCS footprints, haul to designated stockpile	m3	3,000	
5.3.2.3	Excavate unsuitable material from the embankment footprints, haul to designated stockpile (nominal allowance)	m3	1,000	
	Stockpiles & Borrow Areas			
5.3.2.4	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2	5,900	
5.3.2.5	Clear and grub designated borrow areas, push material to perimeter (4m deep)	m2	3,000	
5.3.2.6	Strip topsoil from borrow areas, haul to designated stockpiles	m3	600	
	Material Supply			
5.3.2.7	Supply suitable Zone E erosion protection material to stockpile (includes win, haul and place in stockpile)	m3	970	
	Earthwork and Erosion Protection			
5.3.2.8	Scarify, condition and compact in-situ material within embankment footprint (200 mm depth)	m2	6,000	
5.3.2.9	Win from borrow, load, haul, place, spread, condition and compact Zone A material in embankment	m3	9,000	
5.3.2.10	Win from stockpile, load, haul, place, spread, condition and compact Zone F1 material in embankment finger drains	m3	500	
5.3.2.11	Supply and install Bidim non-woven geotextile under erosion protection material along Embankment Upstream Face	m2	1,800	
5.3.2.12	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to Embankment Upstream face	m3	600	
5.3.2.13	Excavate and shape SCS spillways, haul and place suitable material in designated stockpile	m3	400	
5.3.2.14	Extra over for breaking hard rock material (nominal allowance)	m3	20	
5.3.2.15	Scarify, condition and compact in-situ subgrade (200 mm depth) in spillway base prior to geotextile placement	m2	400	
5.3.2.16	Supply and install Bidim non-woven geotextile under erosion protection material	m2	400	
5.3.2.17	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to spillway	m3	200	
	Downstream Toe Collection Ditch Construction			
5.3.2.18	Excavate downstream toe collection ditch, haul to designated stockpile	m3	200	
	Drainage and Re-vegetation			
5.3.2.19	Win from stockpile, load, haul, place and spread topsoil (200 mm depth) to embankment downsream slopes and ditch collection drain	m3	3,300	
	Sediment Collection Drains			
5.3.2.20	Clear and grub sediment collection drains footprints and haul vegetation to designated stockpiles	m2	6,200	
5.3.2.21	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3	1,300	
5.3.2.22	Excavate drains, load and haul material to designated stockpile	m3	3,800	
5.3.2.23	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in drain	m3	680	

Table 16.4: Construction quantities – SWM and SCS (cont.)

Item	Description	Unit	Quantity Stage 1	Quantity Stage 2+
5.3.3	**Sediment Control Structures (SDS03)**			
	Site Preparation			
5.3.3.1	Clear and grub SCS footprint and haul vegetation to designated stockpiles	m2	9,000	
5.3.3.2	Strip topsoil (200 mm) from SCS footprints, haul to designated stockpile	m3	2,000	
5.3.3.3	Excavate unsuitable material from the embankment footprints, haul to designated stockpile (nominal allowance)	m3	600	
	Stockpiles & Borrow Areas			
5.3.3.4	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2	5,300	
5.3.3.5	Clear and grub designated borrow areas, push material to perimeter (4m deep)	m2	2,000	
5.3.3.6	Strip topsoil from borrow areas, haul to designated stockpiles	m3	400	
	Material Supply			
5.3.3.7	Supply suitable Zone E erosion protection material to stockpile (includes win, haul and place in stockpile)	m3	1,470	
	Earthwork and Erosion Protection			
5.3.3.8	Scarify, condition and compact in-situ material within embankment footprint (200 mm depth)	m2	4,000	
5.3.3.9	Win from borrow, load, haul, place, spread, condition and compact Zone A material in embankment	m3	5,000	
5.3.3.10	Win from stockpile, load, haul, place, spread, condition and compact Zone F1 material in embankment finger drains	m3	300	
5.3.3.11	Supply and install Bidim non-woven geotextile under erosion protection material along Embankment Upstream Face	m2	1,000	
5.3.3.12	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to Embankment Upstream face	m3	300	
5.3.3.13	Excavate and shape SCS spillways, haul and place suitable material in designated stockpile	m3	400	
5.3.3.14	Extra over for breaking hard rock material (nominal allowance)	m3	20	
5.3.3.15	Scarify, condition and compact in-situ subgrade (200 mm depth) in spillway base prior to geotextile placement	m2	400	
5.3.3.16	Supply and install Bidim non-woven geotextile under erosion protection material	m2	400	
5.3.3.17	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to spillway	m3	200	
	Downstream Toe Collection Ditch Construction			
5.3.3.18	Excavate downstream toe collection ditch, haul to designated stockpile	m3	200	
	Drainage and Re-vegetation			
5.3.3.19	Win from stockpile, load, haul, place and spread topsoil (200 mm depth) to embankment downsream slopes and ditch collection drain	m2	2,200	
	Sediment Collection Drains			
5.3.3.20	Clear and grub sediment collection drains footprints and haul vegetation to designated stockpiles	m2	10,300	
5.3.3.21	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3	2,100	
5.3.3.22	Excavate drains, load and haul material to designated stockpile	m3	6,200	
5.3.3.23	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in drain	m3	1,130	
5.3.4	**Sediment Control Structures (SDS04)**			
	Site Preparation			
5.3.4.1	Clear and grub SCS footprint and haul vegetation to designated stockpiles	m2	31,000	
5.3.4.2	Strip topsoil (200 mm) from SCS footprints, haul to designated stockpile	m3	7,000	
5.3.4.3	Excavate unsuitable material from the embankment footprints, haul to designated stockpile (nominal allowance)	m3	200	
	Stockpiles & Borrow Areas			
5.3.4.4	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2	8,300	
5.3.4.5	Clear and grub designated borrow areas, push material to perimeter (4m deep)	m2	400	
5.3.4.6	Strip topsoil from borrow areas, haul to designated stockpiles	m3	100	
	Material Supply			
5.3.4.7	Supply suitable Zone E erosion protection material to stockpile (includes win, haul and place in stockpile)	m3	400	
	Earthwork and Erosion Protection			
5.3.4.8	Scarify, condition and compact in-situ material within embankment footprint (200 mm depth)	m2	1,600	
5.3.4.9	Win from borrow, load, haul, place, spread, condition and compact Zone A material in embankment	m3	1,300	
5.3.4.10	Win from stockpile, load, haul, place, spread, condition and compact Zone F1 material in embankment finger drains	m3	100	
5.3.4.11	Supply and install Bidim non-woven geotextile under erosion protection material along Embankment Upstream Face	m2	500	
5.3.4.12	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to Embankment Upstream face	m3	200	
5.3.4.13	Excavate and shape SCS spillways, haul and place suitable material in designated stockpile	m3	800	
5.3.4.14	Extra over for breaking hard rock material (nominal allowance)	m3	100	
5.3.4.15	Scarify, condition and compact in-situ subgrade (200 mm depth) in spillway base prior to geotextile placement	m2	800	
5.3.4.16	Supply and install Bidim non-woven geotextile under erosion protection material	m2	800	
5.3.4.17	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to spillway	m3	300	
	Downstream Toe Collection Ditch Construction			
5.3.4.18	Excavate downstream toe collection ditch, haul to designated stockpile	m3	70	
	Drainage and Re-vegetation			
5.3.4.19	Win from stockpile, load, haul, place and spread topsoil (200 mm depth) to embankment downsream slopes and ditch collection drain	m3	700	
	Sediment Collection Drains			
5.3.4.20	Clear and grub sediment collection drains footprints and haul vegetation to designated stockpiles	m2	33,700	
5.3.4.21	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3	6,800	
5.3.4.22	Excavate drains, load and haul material to designated stockpile	m3	30,300	
5.3.4.23	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in drain	m3	3,690	
5.3.6	**Silt Fences**			
5.3.6.1	Supply necessary materials and construct silt fences	m	2,000	
	Sub Total			
	SUMMARY			
5.1	**PRELIMINARIES AND GENERAL COSTS**			
5.2	**DIVERSION CHANNEL CONSTRUCTION**			
5.3	**SEDIMENT CONTROL STRUCTURES**			
	TOTAL			

Table 16.5: Construction quantities – Airstrip

Item	Description	Unit	Quantity
1.0	**PRELIMINARY AND GENERAL COSTS**		
	Preliminary and General		
1.0.1	Preliminary and general costs (including mobilization and demobilization)	Item	12%
	Sub Total		
1.1	**MATERIAL SUPPLY**		
	Material Supply		
1.1.1	Supply suitable Zone E erosion protection material to stockpile	m3	1,500
	Sub Total		
1.2	**SITE PREPARATION**		
	Aerodrome Site Preparation		
1.2.1	Clear and grub aerodrome footprint, haul to designated stockpile	m2	91,000.0
1.2.2	Strip topsoil (200 mm) from footprint, haul to designated stockpile	m3	18,100
1.2.3	Excavate unsuitable material in footprint, haul to designated stockpile (allowance)	m3	1,000
	Aerodrome Stockpiles & Borrow Areas		
1.2.4	Clear and grub designated stockpiles and push material to perimeter (nominal 4m height)	m2	7,000
1.2.5	Clear and grub designated stockpiles for stipped topsoil and push material to perimeter (nominal 2m height)	m2	10,000
1.2.6	Clear and grub designated borrow areas and push material to perimeter (4 m deep)	m2	1,100
1.2.7	Strip topsoil from borrow areas and haul to designated stockpiles (nominal 200 mm)	m3	220
1.2.8	Rehabilitate borrow areas, including landform shaping, topsoil spreading, deep ripping and re-vegetation	m2	1,100
	Sub Total		
1.3	**AIRFIELD CONSTRUCTION**		
	Aerodrome Earthworks		
1.3.1	Scarify, moisture condition and compact runway and apron footprint	m2	47,100
1.3.2	Excavate airstrip and apron from cut areas, including v-drain, load and haul to stockpile	m3	1,000
1.3.3	Excavate airstrip and apron from cut areas, including v-drain, load and haul, place, moisture condition and compact as general fill in airstrip subgrade	m3	28,000
1.3.4	Excavate and shape Aerodrome runway finger drains, load and haul to stockpile	m3	900
1.3.5	Win from borrow, load, haul, spread, moisture condition and compact as general fill in airstrip subgrade	m3	8,000
1.3.6	Win from borrow, load, haul, spread, moisture condition and compact airstrip pavement sub-base	m3	2,600
1.3.7	Win from borrow, load, haul, spread, moisture condition and compact airstrip pavement wearing course	m3	2,600
1.3.8	Win from borrow, load, haul and spread erosion protection layer (200 mm depth) on V-drain	m3	1,500
1.3.9	Win from borrow, load, haul,spread, moisture condition, and compact suitable sub-base course material in Aerodrome runway finger drains	m3	850
	Sub Total		
1.4	**MISCELLANEOUS**		
1.4.1	Supply and install reinforced concrete parking pad to Aerodrome Apron	Item	1
1.4.2	Supply and install blue taxiway and apron concrete edge markers flush with ground	Item	8
1.4.3	Supply and install unserviceability cone markers	Item	10
1.4.4	Supply and install white runway concrete markers flush with ground	Item	22
1.4.5	Supply and install marker anchor pins (4 per item)	Item	40
1.4.6	Supply and install unserviceability cross marker	Item	1
1.4.7	Supply and install primary wind direction indicator (3.65 m wind sock and painted concrete kerbing)	Item	1
1.4.8	Supply and install threshold and runway designation markings to Airstrip	Item	1
	Sub Total		
	SUMMARY		
1.0	PRELIMINARY AND GENERAL COSTS		
1.1	MATERIAL SUPPLY		
1.2	SITE PREPARATION		
1.3	AIRFIELD CONSTRUCTION		
1.4	MISCELLANEOUS		
	TOTAL		

Table 16.6: Construction quantities – Site Access Road

Item	Description	Unit	Quantity
1.0	**PRELIMINARY AND GENERAL COSTS**		
	Preliminary and General		
1.0.1	Preliminary and general costs (including mobilization and demobilization)	Item	12%
	Sub Total		
1.1	**MATERIAL SUPPLY**		
	Material Supply		
1.1.1	Supply Zone E erosion protection material to stockpile	m3	650
1.1.2	Supply Zone F protection material to stockpile	m3	330
	Sub Total		
1.2	**SITE PREPARATION**		
	Site Access Road		
1.2.1	Clear and grub road footprint, haul to designated stockpile	m2	245,000
1.2.2	Strip topsoil (200 mm) from footprint, haul to designated stockpile	m3	49,000
1.2.3	Excavate unsuitable material in footprint, haul to designated stockpile (allowance)	m3	2,500
	Stockpiles & Borrow Areas		
1.2.4	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2	73,000
1.2.5	Clear and grub designated borrow areas, push material to perimeter (1.5m deep)	m2	18,000
1.2.6	Strip topsoil (200mm) from borrow areas, haul to designated stockpiles	m3	3,600
1.2.7	Rehabilitate borrow areas, including landform shaping, topsoil spreading, deep ripping and re-vegetation	m2	18,000
	Sub Total		
1.3	**SITE ACCESS ROAD CONSTRUCTION**		
	Site Access Road		
1.3.1	Scarify, moisture condition and compact in-situ subgrade (200 mm depth) prior to fill placement	m2	75,000
1.3.2	Win from cut areas along alignment, haul suitable material to excess/unsuitable stockpile	m3	4,400
1.3.3	Win from cut areas from along alignment, haul to fill areas, moisture condition and compact suitable material as general fill	m3	58,000
1.3.4	Extra over for breaking hard rock material (nominal allowance)	m3	6,300
1.3.5	Win from borrow, load, haul, place, spread, moisture condition and compact suitable material as general fill	m3	-
1.3.6	Win from borrow, load, haul, place, spread, moisture condition and compact Zone H wearing course	m3	24,000
1.3.7	Win from stockpile, load, haul, place and spread safety bunds	m3	400
	Drainage and Re-vegetation		
1.3.8	Scarify and re-vegetate drain surfaces and road shoulders	m2	90,000
1.3.9	Win from stockpile, load, haul, place and spread topsoil (200 mm depth) to road batter slopes	m3	18,000
	Sub Total		
1.4	**CULVERT SUPPLY& INSTALLATION**		
	Site Access Road		
1.4.1	Excavate culvert trenches to finished profile, load, haul suitable material to fill areas of alignment	m3	900
1.4.2	Scarify, moisture condition and compact in-situ subgrade (200 mm depth) in culvert base to form subgrade prior to fill	m2	3,000
1.4.3	Win from stockpile, haul, place and compact Zone J culvert bedding material	m3	300
1.4.4	Suppy and Install 600 mm ID Corrugated Metal Pipe culverts	lin m	220
1.4.5	Suppy and Install 900 mm ID Corrugated Metal Pipe culverts	lin m	-
1.4.6	Suppy and Install 1200 mm ID Corrugated Metal Pipe culverts	lin m	50
1.4.7	Suppy and Install 1200 mm x 1200 mm (H mm x W mm) box culverts	lin m	1,610
1.4.8	Win from borrow, load, haul, place, spread and compact General fill material for culverts	m3	3,000
1.4.9	Win from borrow, load, haul, place, spread and compact Zone J select backfill material for culverts	m3	2,000
1.4.10	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to culvert inlet and outlet	m3	370
1.4.11	Win from supplied stockpile, load, haul and place 200mm Zone E erosion protection to culvert inlet and outlet fill slope faces	m3	220
1.4.12	Supply and install 300 mm of concrete for floodway	m3	-
1.4.13	Supply and Install Thrace P500 non-woven geotextile under erosion protection material	m2	2,910
1.4.14	Supply and Install 300mm of cement stabilised fill as erosion protection material to floodway crest, upstream and downstream batters	m3	-
	Sub Total		
1.5	**MISCELLANEOUS**		
	Miscellaneous		
1.5.1	Supply and install guide posts along road alignment	Item	320
1.5.2	Supply and install road signs along road alignment	Item	80
	Sub Total		
	SUMMARY		
1.0	PRELIMINARY AND GENERAL COSTS		
1.1	MATERIAL SUPPLY		
1.2	SITE PREPARATION		
1.3	SITE ACCESS ROAD CONSTRUCTION		
1.4	CULVERT INSTALLATION		
1.4	MISCELLANEOUS		
	Sub Total		

Table 16.7: Construction quantities – Haul Access Roads

Item	Description	Unit	Quantity Stage 1	Overpass (Stage 2+)	Quantity Stage 2+
1.0	**PRELIMINARY AND GENERAL COSTS**				
	Preliminary and General				
1.0.1	Preliminary and general costs (including mobilization and demobilization)	Item	12%	12%	12%
	Sub Total				
1.1	**MATERIAL SUPPLY**				
	Material Supply				
1.1.1	Supply Zone E erosion protection material to stockpile	m3	-	20	680
1.1.2	Supply Zone F bedding material to stockpile	m3	-	200	200
1.1.3	Supply 600 mm ID Corrugated Metal Pipe culverts	lin m	-		180
1.1.4	Supply 900 mm ID Corrugated Metal Pipe culverts	lin m	-		170
1.1.5	Supply 1200 mm ID Corrugated Metal Pipe culverts	lin m	-		80
1.1.6	Supply 1200 mm x 1200 mm (H mm x W mm) box culverts	lin m	-		1,730
	Sub Total				
1.2	**SITE PREPARATION**				
	Haul Road - Section 1 (Station 0+000 to Station 2+800)				
1.2.1	Clear and grub road footprint, haul to designated stockpile	m2	-		-
1.2.2	Strip topsoil (250 mm) from footprint, haul to designated stockpile	m3	-		-
1.2.3	Excavate unsuitable material in footprint, haul to designated stockpile (allowance)	m3	-		-
	Haul Road - Section 2 (Station 2+800 to Station 29+611)				
1.2.4	Clear and grub road footprint, haul to designated stockpile	m2	-		748,000
1.2.5	Strip topsoil (250 mm) from footprint, haul to designated stockpile	m3	-		150,000
1.2.6	Excavate unsuitable material in footprint, haul to designated stockpile (allowance)	m3	-		7,500
	Public Road Overpass Preparation				
1.2.7	Clear and grub overpass foundation and bypass areas, haul to designated stockpile	m^2	-	30,000	-
1.2.8	Strip topsoil (250 mm) from footprint, haul to designated stockpile	m^3	-	1,500	-
1.2.9	Scarify, moisture condition and compact in-situ subgrade (200 mm depth) prior to fill placement	m^2	-	5,000	-
	Stockpiles & Borrow Areas				
1.2.10	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2	-	3,000	192,000
1.2.12	Clear and grub designated borrow areas, push material to perimeter (4m deep)	m2	-	12,700	18,000
1.2.13	Strip topsoil (250 mm) from footprint, haul to designated stockpile	m3	-	2,540	3,600
1.2.14	Rehabilitate borrow areas, including landform shaping, topsoil spreading, deep ripping and re-vegetation	m2	-	12,700	18,000
	Sub Total				
1.3	**HAUL ROAD CONSTRUCTION**				
	Haul Road - Section 1 (Station 0+000 to Station 2+800)				
1.3.1	Scarify, moisture condition and compact in-situ subgrade (200 mm depth) prior to fill placement	m2	-		-
1.3.2	Win from cut areas along alignment, haul suitable material to excess/unsuitable stockpile	m3	-		-
1.3.3	Win from cut areas from along alignment, haul to fill areas, moisture condition and compact suitable material as general fill	m3	-		-
1.3.4	Extra over for breaking hard rock material (nominal allowance) rippable	m3	-		-
1.3.5	Extra over for breaking hard rock material (nominal allowance) blasting	m3	-		-
1.3.6	Win from borrow, load, haul, place, spread, moisture condition and compact suitable material as general fill	m3	-		-
1.3.7	Win from borrow, load, haul, place, spread, moisture condition and compact wearing course	m3	-		-
1.3.8	Win from borrow load, haul, place and spread safety bunds	m3	-		-
	Haul Road - Section 2 (Station 2+800 to Station 29+611)				
1.3.9	Scarify, moisture condition and compact in-situ subgrade (200 mm depth) prior to fill placement	m2	-		282,100
1.3.10	Win from cut areas along alignment, haul suitable material to excess/unsuitable stockpile	m3	-		-
1.3.11	Win from cut areas from along alignment, haul to fill areas, moisture condition and compact suitable material as general fill	m3	-		255,000
1.3.12	Extra over for breaking hard rock material (nominal allowance) rippable	m3	-		38,300
1.3.13	Extra over for breaking hard rock material (nominal allowance) blasting	m3	-		-
1.3.14	Win from borrow, load, haul, place, spread, moisture condition and compact suitable material as general fill	m3	-		3,000
1.3.15	Win from borrow, load, haul, place, spread, moisture condition and compact wearing course	m3	-		65,000
1.3.16	Win from borrow load, haul, place and spread safety bunds	m3	-		68,000
	Drainage and Re-vegetation				
1.3.17	Scarify and re-vegetate drain surfaces and road shoulders	m2	-		292,000
1.3.18	Win from stockpile, load, haul, place and spread topsoil (200 mm depth) to road batter slopes	m3	-		58,300
	Sub Total				

Table 16.7: Construction quantities – Haul Access Roads (cont.)

Item	Description	Unit	Quantity Stage 1	Overpass (Stage 2+)	Quantity Stage 2+
1.4	**CULVERT SUPPLY & INSTALLATION**				
1.4.1	Excavate culvert trenches to finished profile, load, haul suitable material to fill areas of alignment	m3	-		500
1.4.2	Scarify, moisture condition and compact in-situ subgrade (200 mm depth) in culvert base to form subgrade prior to fill	m2	-		1,500
1.4.3	Win from stockpile, haul, place and compact Zone F culvert bedding material	m3	-		150
1.4.4	Install 600 mm ID Corrugated Metal Pipe culverts	lin m	-		180
1.4.5	Install 900 mm ID Corrugated Metal Pipe culverts	lin m	-		170
1.4.6	Install 1200 mm ID Corrugated Metal Pipe culverts	lin m	-		80
1.4.7	Install 1200 mm x 1200 mm (H mm x W mm) concrete box culverts	lin m	-		1,730
1.4.8	Win from borrow, load, haul, place, spread and compact select backfill material for culverts	m3	-		2,000
1.4.9	Win from borrow, load, haul, place, spread and compact General fill material for culverts	m3	-		2,000
1.4.10	Supply and install 300 mm of concrete for floodway	m3	-		-
1.4.11	Win from borrow, load, haul, place and spread 200mm Zone E erosion protection material to culvert inlet and outlet	m3	-		300
1.4.12	Win from borrow, load, haul and place 200mm Zone E erosion protection to culvert inlet and outlet fill slope faces	m3	-		200
1.4.13	Supply&Install Bidim A24 geotextile under erosion protection material	m2	-		2,100
1.4.14	Supply and Install 300mm of cement stabilised fill as erosion protection material to floodway crest, upstream and downstream batters	m3	-		-
	Sub Total				
1.5	**OVERPASS INSTALLATION**				
	Earthworks				
1.5.1	Win from borrow, load, haul, place, spread and compact select backfill material to form arch foundation	m^3	-	4,000	-
1.5.2	Win from borrow, load, haul, place, spread, moisture condition and compact suitable material as general fill	m^3	-	4,500	-
1.5.3	Win from borrow, load, haul, place, spread and compact select backfill material around steel arch	m^3	-	10,000	-
1.5.4	Install MSE wall system around arch openings (rock, geotextile and mesh materials supplied)	m^2	-	600	-
1.5.5	Install gabion road barrier on haul road surface (gabion baskets and rock supplied)	m^3	-	280	-
1.5.6	Supply and install concrete bollards ('sonotubes')	Each	-	8	-
	Drainage and Sediment Control				
	Ditch Earthworks				
1.5.7	Prepare ditch subgrade	m^2	-	100	-
1.5.8	Win from stockpile, load, haul, place and spread Zone E erosion protection material	m^3	-	30	-
	Brushwood Barriers				
1.5.9	Supply and construct brushwood barrier (incl. geotextile, stakes and anchor trench)	No.	-	4	-
	Revegetation				
1.5.10	Load, haul, place and spread topsoil to road shoulder	m^3	-	100	-
1.5.11	Scarify and re-vegetate ditch surface and road shoulder	m^2	-	100	-
	New Pipe Culverts				
1.5.12	Excavate culvert trenches to finished profile and stockpile suitable material for re-use. Haul unsuitable material to spoil.	m^3	-	50	-
1.5.13	Scarify and compact culvert and headwall trench base	m^2	-	200	-
1.5.14	Win from stockpile, haul, place and Zone F compact bedding material (150 mm)	m^2	-	200	-
1.5.15	Win from borrow, load, haul, place and compact select backfill and side support material	m^3	-	500	-
1.5.16	Supply and install 1200mm ID reinforced concrete pipe culverts, includes all fittings	lin m	-	100	-
1.5.17	Win, load, haul, place, spread and compact general trench backfill material to culverts	m^3	-	100	-
1.5.18	Win from stockpile, load, haul, place and spread Zone E erosion protection material	m^3	-	20	-
1.5.19	Install Bidim A24 geotextile liner to Rip Rap areas	m^2	-	60	-
	Concrete Footing Installation				
1.5.20	Supply and install concrete strip footings for steel arch	m^3	-	112	-
	Pedestrian Barrier Installation				
1.5.21	Supply and install concrete barrier between road and pedestrian path	m^3	-	19	-
1.5.22	Supply and install security mesh for the pedestrian path (1200mm height)	lin m	-	96	-
	Multiplate Arch Installation				
1.5.23	Assemble multiplate arch (materials supplied)	m	-	41	-
	Sub Total				
1.6	**MISCELLANEOUS**				
1.6.1	Supply and install guide posts along road alignment	Item	0.00		540
1.6.2	Supply and install road signs along road alignment	Item	0.00		140
1.6.3	Supply and maintain temporary illumination and traffic control during overpass construction	LS	0.00	1	-
1.6.4	Maintain bypass road during overpass construction	LS	0.00	1	-
1.6.5	Reinstate public road after overpass construction	LS	0.00	1	-
	Sub Total				
	SUMMARY				
1.0	PRELIMINARY AND GENERAL COSTS				
1.1	MATERIAL SUPPLY				
1.2	SITE PREPARATION				
1.3	HAUL ROAD CONSTRUCTION				
1.4	CULVERT SUPPLY & INSTALLATION				
1.5	OVERPASS INSTALLATION				
1.6	MISCELLANEOUS				
	TOTAL				

Table 16.8: Construction quantities – HDPE Liner

Item	Description	Unit	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12
1	**PRELIMINARIES AND GENERAL**													
1.1.1	Preliminaries and General	Item	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%
	Sub Total													
2	**MATERIAL SUPPLY**													
2.1	**Material Supply**													
2.1.1	Supply 1.5 mm (60 mil) smooth HDPE geomembrane (including 10% allowance for wasteage and overlap)	m2	1,855,000	353,000	289,000	263,000	148,000	115,000	112,000	108,000	100,000	94,000	95,000	91,000
2.1.2	Supply 1.5 mm (60 mil) textured HDPE geomembrane (including 10% allowance for wasteage and overlap)	m2	117,100	41,500	38,700	38,300	50,100	44,400	45,400	46,500	45,300	45,300	44,200	41,800
2.1.3	Supply geomembrane wearsheet (including 10% allowance for wastage)	m2	7,300	1,300	1,200	1,100	1,300	1,200	1,100	1,200	1,100	1,100	1,100	1,000
3	**TSF EMBANKMENT CONSTRUCTION**													
3.1	**TSF Embankment Construction**													
3.1.1	Install 1.5 mm (60 mil) double sided textured HDPE geomembrane to upstream embankment slope (including trimming embankment face for placement)	m2	88,000	35,000	33,000	33,000	44,000	39,000	40,000	41,000	40,000	40,000	39,000	37,000
4	**TSF BASIN AND UNDERDRAINAGE SYSTEM**													
4.1	**Basin Liner Construction**													
4.1.1	Install 1.5 mm (60 mil) smooth HDPE geomembrane to TSF basin (including anchor trench backfill and excavation)	m2	1,633,000	311,000	252,000	229,000	123,000	90,000	86,000	85,000	78,000	74,000	75,000	72,000
4.2	**Finger Drains**													
4.2.1	Install 1.5 mm (60 mil) smooth HDPE geomembrane erosion protection sheet (including HDPE strap at 25m spacing)	m2	8,280	-	-	-	-	-	-	-	-	-	-	-
4.3	**Underdrainage Sump**													
4.3.1	Install 1.5 mm (60 mil) double sided textured HDPE geomembrane to the Basin Underdrainage sump	m2	340	-	-	-	-	-	-	-	-	-	-	-
4.4	**Underdrainage Riser Pipe**													
4.4.1	Install geomembrane wearsheet to embankment face at riser channel	m2	140	20	20	20	20	10	10	10	10	10	10	10
5	**DECANT RETURN SYSTEM**													
5.1	**Decant Access Road**													
5.1.1	Install 1.5 mm (60 mil) double sided textured HDPE geomembrane liner to decant access track footprint	m2	18,100	2,700	2,100	1,800	1,500	1,300	1,200	1,200	1,100	1,100	1,100	1,000
6	**EMERGENCY SPILLWAY**													
6.1	**TSF Emergency Spillway**													
6.1.1	Install 1.5 mm (60 mil) smooth HDPE geomembrane to spillway footprint (including trimming batters for placement)	m2	13,000	9,500	10,100	9,900	10,900	14,300	15,100	12,600	12,400	11,200	10,600	10,000
7	**DEPOSITION**													
7.1.1	Install geomembrane wearsheet to embankment face at spigot offtake locations	lin m	6,460	1,120	990	950	1,100	1,020	990	1,020	980	990	930	860
8	**TDRT**													
8.1.1	Install 1.5 mm (60 mil) smooth HDPE geomembrane to TDRT (including trimming batters for placement)	m2	31,600	-	-	-	-	-	-	-	-	-	-	-

17. RISKS AND OPPORTUNITIES

17.1 INTRODUCTION

An evaluation of risks and opportunities was conducted for the design presented in this report. The risks generally cover technical aspects of the work although some cost aspects are also addressed.

17.2 BEACH SLOPE

The design is based on an average tailings beach slope of 1% (100H:1V). However, the beach slope is heavily dependent on the grind size and the ore blend. Thus, small changes in plant performance or design, ore type, or the ore blend have the potential to change the tailings beach slope.

There are a number of approaches which can be used in response to measured beach slopes that are consistently different to the beach slope used for design. One advantage of staging construction on an annual basis is the ability to modify the design each year based on measured data obtained from the TSF. In these cases, the timing and height of the subsequent embankment raises can be modified to bring the schedule back into line with the design, and the subsequent lifts will be on an annual basis essentially as per the design raised heights.

17.2.1 Steeper Beach Slope

If the measured beach slope is steeper than the design slope, the tailings rate of rise against the TSF embankment will be faster than expected, and the Stage 1 TSF will reach its tailings storage capacity earlier than the design. If this were to become an issue, the response would be to move Stage 2 construction of the TSF forward. Commencing the construction one or two months earlier would not have a significant impact as the construction would still be predominantly in the dry season. It should be noted that Stage 1 capacity is 18 months, allowing for a controllable adjustment of the construction sequence. In addition, the deposition line could be extended further southwest to provide additional tailings storage capacity without impacting the operation significantly.

It should be noted that for steeper beach slopes the potential tailings storage would be reduced, but the storm water storage capacity would be increased accordingly.

17.2.2 Flatter Beach Slope

If the measured tailings beach slope is flatter than the design slope, the capacity of the Stage 1 TSF to store tailings would be increased. The overall TSF stormwater storage capacity will not be affected, unless Stage 2 construction is deferred beyond the original construction schedule.

17.3 ACHIEVED DENSITIES

The staged TSF embankment crest elevations are based on the ore blend and throughput used for the water balance modelling (refer Section 5). Changes in these characteristics and/or throughput will result in changes in the achieved densities in the TSF. Similar to the variations in tailings beach slope, this may result in an adjusted construction schedule for the first raise, either earlier or later than the design timing. It is recommended that monitoring of throughput, ore blend, rate of rise and achieved densities be undertaken so that suitable planning and staging of the future embankment construction can occur.

17.4 LIFE OF MINE PLANNING

Any changes to the life of mine plan or throughput will impact upon the tailings management requirements for the site. Any significant increases in throughput may result in lower tailing densities being achieved within the TSF, thus increasing construction costs. Any decrease to the total tonnage may require reconsideration of the proposed closure plan, as the closure spillway may become prohibitively deep.

In addition to the impacts on the TSF design, any changes to the operating throughput and percent solids of the tailings may impact water demands.

17.5 ENGINEERED SOIL COVER

The current design for closure and decommissioning of the TSF includes an engineered fill cover constructed over the tailings beach as the most suitable long-term solution. The configuration of this cover has been assumed for this study. On-going tailings geochemistry characterisation testing during operation may indicate that it will be possible to grow plants on the final (drained) tailings surface subsequent to compaction. If this is the case, the costs for rehabilitation of the tailings surface could be significantly reduced.

17.6 OPERATING TSF EMBANKMENT DOWNSTREAM PROFILE

If the TSF embankment Zone C material comprises coarse, clean rockfill of high strength sourced from the open pit, the stability of the TSF embankment downstream face using a steeper slope (2.5H:1V) could be considered subject to confirmation by a stability assessment once the rockfill properties are known. The final profile of 3.5H:1V (overall) is required for rehabilitation purposes.

17.7 AVAILABILITY OF MINE WASTE

Design of the TSF is based on structural fill material being sourced from the open pit mining operations. Based on initial review of the mining schedule, this should be suitable for Stage 2 and the construction of future raises. If waste from pre-stripping is not readily available during the Stage 1 construction, additional borrows will be required in the proximity of the TSF. Although this is possible, the capital cost will increase. Utilising a civil earthworks fleet to win materials from the Open Pit footprints of Souwa and Nokpa pits are to be assessed in terms of economic viability considering haulage distances.

Likewise, suitable low permeability fill material may be stockpiled by the mining operation at locations in close proximity to the TSF embankment, for use by civil contractors in future stages. This may reduce earthworks rates during future raise construction.

17.8 WET SEASON CONSTRUCTION

The ability to construct earthworks during wet seasons can be limited, so construction over the life of the project needs to be carefully planned and monitored so that approval, budgeting and logistics are in place to allow works to be completed promptly and prior to the onset of wet conditions.

17.9 SEDIMENT GENERATED BY ARTISANAL MINING WORKS

Significant artisanal mining works have been noted within the stream bed upstream of the Han diversion and WHD. Stream flows in these areas may collect a significant amount of sediment, which may impact the clarity available in the WHD reservoir (for abstraction to the WSD). This should be assessed by the environmental consultant to determine the requirement for additional source control upstream of the Han diversion and WHD reservoir to reduce this sediment load. This may comprise a series of rockfill check dams within the main stream bed.

17.10 RUNOFF COEFFICIENTS

The WHD is the primary supply of makeup water at Doropo, therefore the accurate estimation of the undisturbed runoff coefficient is critical to ensure that sufficient makeup water is available to avoid project shortfalls. The estimation of undisturbed runoff coefficients was limited to a desktop study and the actual values may vary. If runoff is lower than estimated then the WHD capacity may need to be increased. Conversely, if the runoff is higher than estimated additional erosion protection measures and/or regular maintenance may be required. It is recommended that the initial filling of the WHD is monitored so that the water balance model can be calibrated and site-specific runoff coefficients can be determined.

17.11 SURVEY

Inaccurate base survey is a common cause of variations between expected and actual quantities, particularly in reference to bulk fill earthworks volumes. Topographical contours at times can be generated with small amounts of survey pickup, and as such there is significant interpolation by computer programs.

Accurate basin pickup is required as this will have a significant impact on both bulk fill volumes and the storage capacity of the facility.

If there is less storage capacity than currently designed, an earlier start to Stage 2 construction may be required in order to continue to provide the required stormwater storage capacity. It is recommended that a stripped ground survey be completed during construction of the TSF, WSD and WHD to reconcile the required embankment heights prior to embankment construction. This may result in some cost reductions (or increases).

18. REFERENCES

1. ANCOLD, "*Guidelines on Tailings Dams, Planning, Design, Construction, Operation and Closure*", July 2019.
2. ANCOLD, "*Guidelines for Design of Dams for Earthquakes*", 1998.
3. Global Tailings Review, "*Global Industry Standard on Tailings Management*", August 2020.
4. Civil Aviation Safety Authority (Australian Government), "*Manual of Standards Part 139 – Aerodromes Version 1.11"*, November 2013.
5. International Civil Aviation Organization (ICAO), "*Aerodrome Design Manual"*, 2006.
6. Authorite National De L'Aviation Civile De Cote D'Ivoire (ANAC). "*Aeronautical Regulations of Cote D'Ivoire relating to the design and technical operation aerodromes RACI 6001*", November 2020.
7. Standards Australia, "*Australian Standard - Geotechnical Site Investigations*", AS1726 – 2017.
8. IFC, Environmental, "*Health and Safety Guidelines for Mining"*, 2007.
9. Rico M., Benito G., and Díez-Herrero A. "*Floods from tailings dam failures (Science Direct: Journal of Hazardous Materials)*" 2007.
10. GEO-SLOPE International Ltd., "SEEP/W" (software), 2007.
11. GEO-SLOPE International Ltd., "SLOPE/W" (software), 2007.
12. ANCOLD, "Guidelines on the Consequence Categories for Dams", October 2012.
13. GEM (2017), The openquake-engine User Instruction Manual.
14. Australian and New Zealand Environment and Conservation Council, "Australian and New Zealand Guidelines for Fresh and Marine Water Quality", Agriculture and Resource Management Council of Australia and New Zealand, 2000.
15. World Health Organisation, "Guidelines for Drinking-water Quality", Fourth Edition, 2011.
16. NHMRC, "Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy", National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra, 2011.
17. Centre Ivoirien Antipollution (CIAPOL)," Water *Discharge Limits*", Decree No. 01164, 4 November 2008.

DRAWINGS

DOROPO GOLD MINE

TAILINGS STORAGE FACILITY AND INFRASTRUCTURE

ISSUED FOR DEFINITIVE FEASIBILITY STUDY
DECEMBER, 2025

Prepared for:

Resolute

Prepared by:

Knight Piésold CONSULTING

A.B.N. 67 001 040 419
A.C.N. 001 040 419

Knight Piésold Pty. Ltd.
Level 1, 184 Adelaide Terrace
EAST PERTH, WA 6004
AUSTRALIA

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

SHEET SIZE A3
REFERENCES
REFERENCE DRAWINGS
REVISIONS

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
TITLE PAGE

SCALE N.T.S.
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C0001-001**
REV **A**





INDEX OF DRAWINGS

DRAWING TILTE	REV.	DRAWING No.
TITLE PAGE	A	301-821-C0001-001
LOCATION MAP & INDEX OF DRAWINGS	A	301-821-C0001-002
ABBREVIATIONS COMMON LEGEND & SPECIFICATIONS	A	301-821-C0001-005
GREATER SITE GENERAL ARRANGEMENT	A	301-821-C0001-025
SITE GENERAL ARRANGEMENT PLAN	A	301-821-C3000-050
GENERAL ARRANGEMENT PLAN - STAGE 1	A	301-821-C3000-101
GENERAL ARRANGEMENT PLAN - FINAL STAGE	A	301-821-C3000-125
UNDERDRAINAGE LAYOUT - STAGE 1	A	301-821-C3000-135
EMBANKMENT SECTIONS & DETAILS-SHT 1	A	301-821-C3000-201
EMBANKMENT SECTIONS & DETAILS-SHT 2	A	301-821-C3000-202
EMBANKMENT SECTIONS & DETAILS-SHT 3	A	301-821-C3000-203
EMBANKMENT SECTIONS & DETAILS-SHT 4	A	301-821-C3000-204
UNDERDRAINAGE SECTIONS & DETAILS-SHT 1	A	301-821-C3000-301
UNDERDRAINAGE SECTIONS & DETAILS-SHT 2	A	301-821-C3000-302
UNDERDRAINAGE SECTIONS & DETAILS-SHT 3	A	301-821-C3000-303
TYPICAL RISER PIPE STRAP DETAILS	A	301-821-C3000-350
DECANT SYSTEM SECTIONS & DETAILS	A	301-821-C3000-401
SPILLWAY SECTIONS & DETAILS	A	301-821-C3000-501
DEPOSITION LAYOUT - STAGE 1	A	301-821-C3000-601
DEPOSITION LAYOUT - FINAL STAGE	A	301-821-C3000-625
SPIGOT PIPEWORK DETAILS	A	301-821-C3000-725
SPIGOT CLAMP DETAILS	A	301-821-C3000-750
MONITORING INSTRUMENTATION LAYOUT	A	301-821-C3000-800
MONITORING INSTRUMENTATION DETAILS-SHEET 1	A	301-821-C3000-821
MONITORING INSTRUMENTATION DETAILS-SHEET 2	A	301-821-C3000-822
TYPICAL CLOSURE SECTIONS & DETAILS	A	301-821-C3000-921
WSD GENERAL ARRANGEMENT PLAN	A	301-821-C4000-100

INDEX OF DRAWINGS

DRAWING TILTE	REV.	DRAWING No.
WSD SECTIONS & DETAILS-SHT 1	A	301-821-C4000-201
WHD GENERAL ARRANGEMENT PLAN	A	301-821-C4000-500
WHD SECTIONS & DETAILS-SHT 1	A	301-821-C4000-601
WHD SECTIONS & DETAILS-SHT 2	A	301-821-C4000-602
WHD SECTIONS & DETAILS-SHT 3	A	301-821-C4000-603
WHD SECTIONS & DETAILS-SHT 4	A	301-821-C4000-604
WSD MONITORING INSTRUMENTATION LAYOUT	A	301-821-C4000-800
MONITORING INSTRUMENTATION DETAILS	A	301-821-C4000-821
SWM GENERAL ARRANGEMENT PLAN	A	301-821-C5000-100
DIVERSION CHANNEL GENERAL ARRANGEMENT	A	301-821-C5000-110
SEDIMENT CONTROL STRUCTURE SECTIONS & DETAILS	A	301-821-C5000-201
SEDIMENTATION BASIN SPILLWAY LAYOUT & SECTIONS	A	301-821-C5000-202
TYPICAL PIT DIVERSION DETAILS	A	301-821-C5000-301
GENERAL ARRANGEMENT PLAN	A	301-821-C7000-100
CULVERT DETAILS-SHT 1	A	301-821-C7000-201
CULVERT SECTIONS & DETAILS-SHT 2	A	301-821-C7000-202
TYPICAL PUBLIC OVERPASS SECTIONS & DETAILS	A	301-821-C7000-250
TYPICAL ACCESS ROAD SECTIONS & DETAILS	A	301-821-C7000-301
TYPICAL HAUL ROAD SECTIONS & DETAILS	A	301-821-C7000-401
GENERAL ARRANGEMENT PLAN	A	301-821-C8000-100
OBSTACLE LIMITATION SURFACE LAYOUT	A	301-821-C8000-125
APRON GENERAL ARRANGEMENT PLAN	A	301-821-C8000-150
AIRSTRIP SECTIONS & DETAILS-SHT 1	A	301-821-C8000-301
AIRSTRIP SECTIONS & DETAILS-SHT 2	A	301-821-C8000-302
AIRSTRIP SECTIONS & DETAILS-SHT 3	A	301-821-C8000-303

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
LOCATION MAP & INDEX OF DRAWINGS

SCALE N.T.S.

STATUS: DEFINITIVE FEASIBILITY STUDY

DRAWING NUMBER 301-821-C0001-002

REV A

Q:\Doropo\Tasks\...\preliminary drawings\dwg\301-821-C0001-002.dwg

ABBREVIATIONS

C.M.	CONSTRUCTION MANAGER	OD	OUTSIDE DIAMETER
N.T.S.	NOT TO SCALE	OMC	OPTIMUM MOISTURE CONTENT
APPROX, ≈	APPROXIMATELY	PC	POINT OF CURVATURE
BOP	BOTTOM OF PIPE	PI	POINT OF INTERSECTION
℄	CENTRELINE	PT	POINT OF TANGENT
CPT	CORRUGATED POLYETHYLENE TUBING	PVC	POLYVINYL CHLORIDE
		RC	REINFORCED CONCRETE
DIA , Ø	DIAMETER	RCP	REINFORCED CONCRETE PIPE
ELEV	ELEVATION	REQ'D	REQUIRED
HDPE	HIGH DENSITY POLYETHYLENE	R.L.	REDUCED LEVEL
ID	INSIDE DIAMETER	SDR	STANDARD DIMENSIONAL RATIO
IL	INVERT LEVEL	SCH	SCHEDULE
LCRS	LEAKAGE COLLECTION & REMOVAL SYSTEM	SMDD	STANDARD MAXIMUM DRY DENSITY
		SOL	SETTING OUT LINE
LLDPE	LINEAR LOW DENSITY POLYETHYLENE	SOP	SETTING OUT POINT
		TSF	TAILINGS STORAGE FACILITY
MAX	MAXIMUM	TYP	TYPICAL
MIN	MINIMUM		
NOM	NOMINAL		

COMMON LEGEND

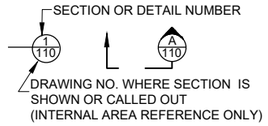

EXISTING GROUND SURFACE OR BOTTOM OF EXCAVATION

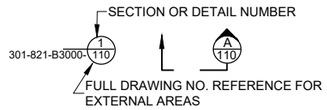
EXISTING GROUND CONTOUR AND ELEVATION (IN METRES)


SLOPE INDICATOR



SLOPE INDICATOR (HORIZONTAL TO VERTICAL)





GENERAL NOTES

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. ALL COORDINATES STATED IN GRID PROJECTION: UTM(WGS84) ZONE 30, NORTH.
3. ALL ELEVATIONS IN METRES, RELATIVE TO MEAN SEA LEVEL.
4. DRAWINGS ARE NOT TO BE SCALED.
5. DRAWINGS TO BE READ IN CONJUNCTION WITH THE TECHNICAL SPECIFICATIONS.

TABLE 1:

ZONE SPECIFICATIONS SUMMARY

ZONE KEY	ZONE TYPE	DESCRIPTION	MAXIMUM LAYER THICKNESS	COMPACTION SPECIFICATION	GRADING
	ZONE A	LOW PERMEABILITY FILL	300mm	98% OF SMDD -2%<OMC<+3%	D_{MAX} = 150mm % FINES > 20 PI_{FINES} > 8
	COMPACTED SOIL LINER	LOW PERMEABILITY FILL	300mm	98% OF SMDD -2%<OMC<+3%	D_{MAX} = 150mm % FINES > 20 PI_{FINES} > 8
	ZONE C1	STRUCTURAL FILL (BY CONTRACTOR)	500mm	95% OF SMDD	D_{MAX} = 300mm PI_{FINES} > 5
	ZONE C2-C4	STRUCTURAL FILL (BY MINING FLEET)	500mm TO 1500mm	TRAFFIC COMPACTED BY LOADED HAUL TRUCKS	D_{MAX} = ⅔ LAYER THICKNESS
	ZONE D	RANDOM FILL	500mm	92% OF SMDD -0%<OMC<+3%	N/A

ZONE KEY	ZONE TYPE	DESCRIPTION	MAXIMUM LAYER THICKNESS	COMPACTION SPECIFICATION	GRADING
	ZONE E	CLEAN ROCKFILL EROSION PROTECTION	300mm	TAMPED WITH EXCAVATOR BUCKET	D_{MAX} = 300mm % FINES < 5
	ZONE F1	DRAINAGE MEDIUM	N/A	UNIFORM DENSITY FREE FROM CAVITIES	D_{MAX} = 19mm % FINES < 5
	ZONE F2	DRAINAGE MEDIUM	N/A	UNIFORM DENSITY FREE FROM CAVITIES	D_{MAX} = 37.5mm % FINES < 5
	ZONE G	SELECT CLEAN ROCKFILL	N/A	FREE FROM SIGNIFICANT CAVITIES	D_{MAX} = 500mm % FINES < 5
	WEARING COURSE	GRAVEL	N/A	UNIFORM DENSITY FREE FROM CAVITIES	D_{MAX} = 37.5mm % FINES 5-15

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
ABBREVIATIONS COMMON LEGEND & SPECIFICATIONS

SCALE N.T.S.

STATUS: DEFINITIVE FEASIBILITY STUDY

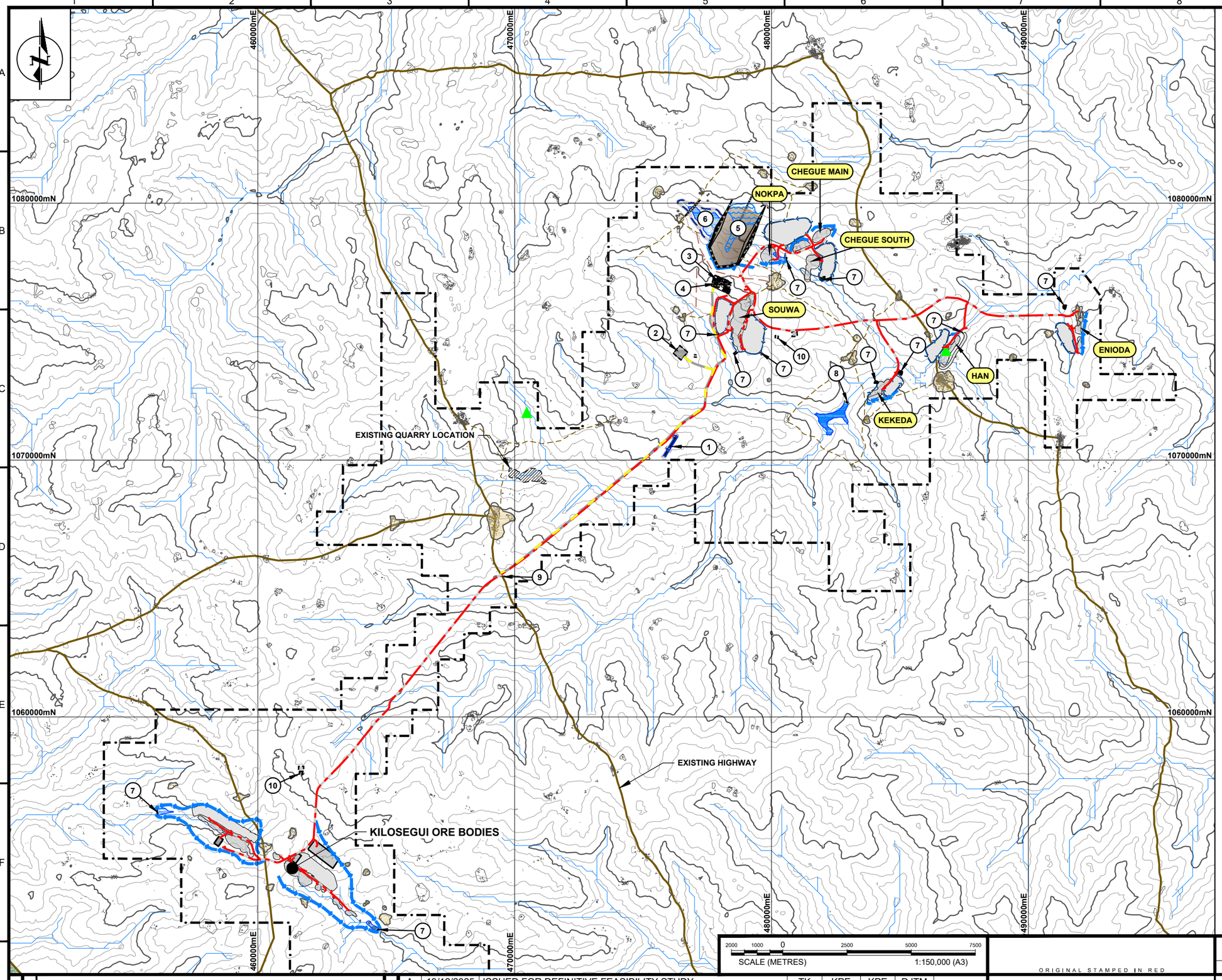
DRAWING NUMBER **301-821-C0001-005**

REV **A**

G:\2021\301821\documents\drawings\preliminary drawings\301-preliminary drawings.dwg, 301-821-C0001-005 - A

287

410



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MAJOR)
- EXISTING UNSEALED ROAD (MINOR)
- TENEMENT BOUNDARY
- OUTCROP LOCATION
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL
- ORE BODY NAME

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 10m CONTOUR INTERVALS SHOWN.
3. PIT SHELL EXTENTS PROVIDED BY RESOLUTE, OCTOBER 2025.
4. INDICATIVE LOCATIONS SHOWN FOR:
   - WASTE DUMP
   - PROCESS PLANT
   - ROM PAD
   - SITE ACCOMMODATION
5. FINAL STAGE TAILINGS STORAGE FACILITY SHOWN.

ITEM KEY:

1. PROPOSED SITE AIRSTRIP
2. PROPOSED SITE ACCOMMODATION
3. PROPOSED SITE PLANT
4. PROPOSED ADMIN AREA
5. PROPOSED TAILINGS STORAGE FACILITY
6. PROPOSED WATER STORAGE DAM
7. PROPOSED SEDIMENT CONTROL STRUCTURE
8. PROPOSED WATER HARVEST DAM
9. PROPOSED OVERPASS
10. PROPOSED EXPLOSIVE MAGAZINE LOCATION

2000 1000 0 2500 5000 7500
SCALE (METRES) 1:150,000 (A3)

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

Knight Piésold CONSULTING

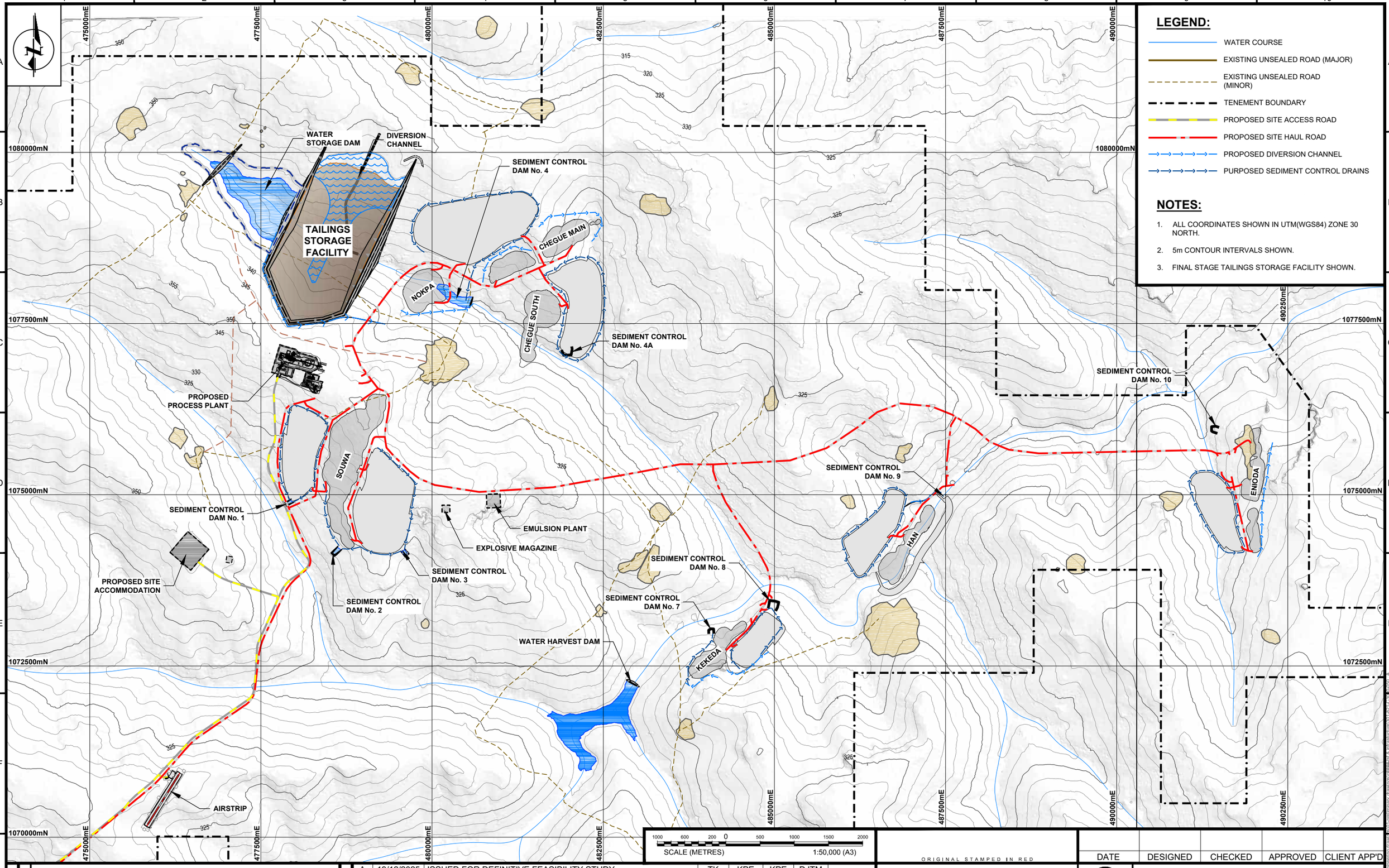
CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
GREATER SITE GENERAL ARRANGEMENT

SCALE 1:150,000
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C0001-025**
REV **A**

G:\pisoh\model\docsp...\preliminary drawings\civil & infrastructure\301-821-C0001-025 A



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MAJOR)
- EXISTING UNSEALED ROAD (MINOR)
- TENEMENT BOUNDARY
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL
- PURPOSED SEDIMENT CONTROL DRAINS

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 5m CONTOUR INTERVALS SHOWN.
3. FINAL STAGE TAILINGS STORAGE FACILITY SHOWN.

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS

REVISIONS

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D
ORIGINAL STAMPED IN RED					

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
SITE GENERAL ARRANGEMENT PLAN

SCALE AS SHOWN

STATUS: DEFINITIVE FEASIBILITY STUDY

DRAWING NUMBER **301-821-C3000-050**

REV **A**

D:\Doropo\Active\doropo_projects\engineering\drawings\figures\301-821\preliminary drawings\301-821-C3000-050 Rev A.dwg

287 410

PUBLIC ACCESS CAUSEWAY

RESERVOIR EXTENT

WATER STORAGE DAM

WATER STORAGE DAM FLOOD EXTENT

SUPERNATANT POND

DECANT TURRET TRACK

SPILLWAY

TAILINGS STORAGE FACILITY

C 203

A 201

TAILINGS BEACH EXTENT

DIVERSION CHANNEL

PROPOSED PROCESS PLANT

WASTE DUMP

CHEGUE MAIN PIT

CHEGUE SOUTH PIT

NOKPA PIT

SEDIMENT CONTROL DAM No.4

475500mE 477000mE 478500mE 480000mE 481500mE

1080000mN 1078500mN 1077000mN

LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MINOR)
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL
- PURPOSED SEDIMENT CONTROL DRAINS
- PROPOSED TEXTURED GEOMEMBRANE LINER
- PROPOSED SMOOTH GEOMEMBRANE LINER
- PROPOSED DECANT TURRET TRACK
- PROPOSED DECANT RETURN PIPELINE
- PROPOSED TAILINGS DELIVERY/DEPOSITION PIPELINE

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 1m CONTOUR INTERVALS SHOWN.

400 300 200 100 0 200 400 600 800
SCALE (METRES) 1:20,000 (A3)

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS
301-821-C3000-201 - EMBANKMENT SECTIONS & DETAILS-SHT 1
301-821-C3000-203 - EMBANKMENT SECTIONS & DETAILS-SHT 3

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

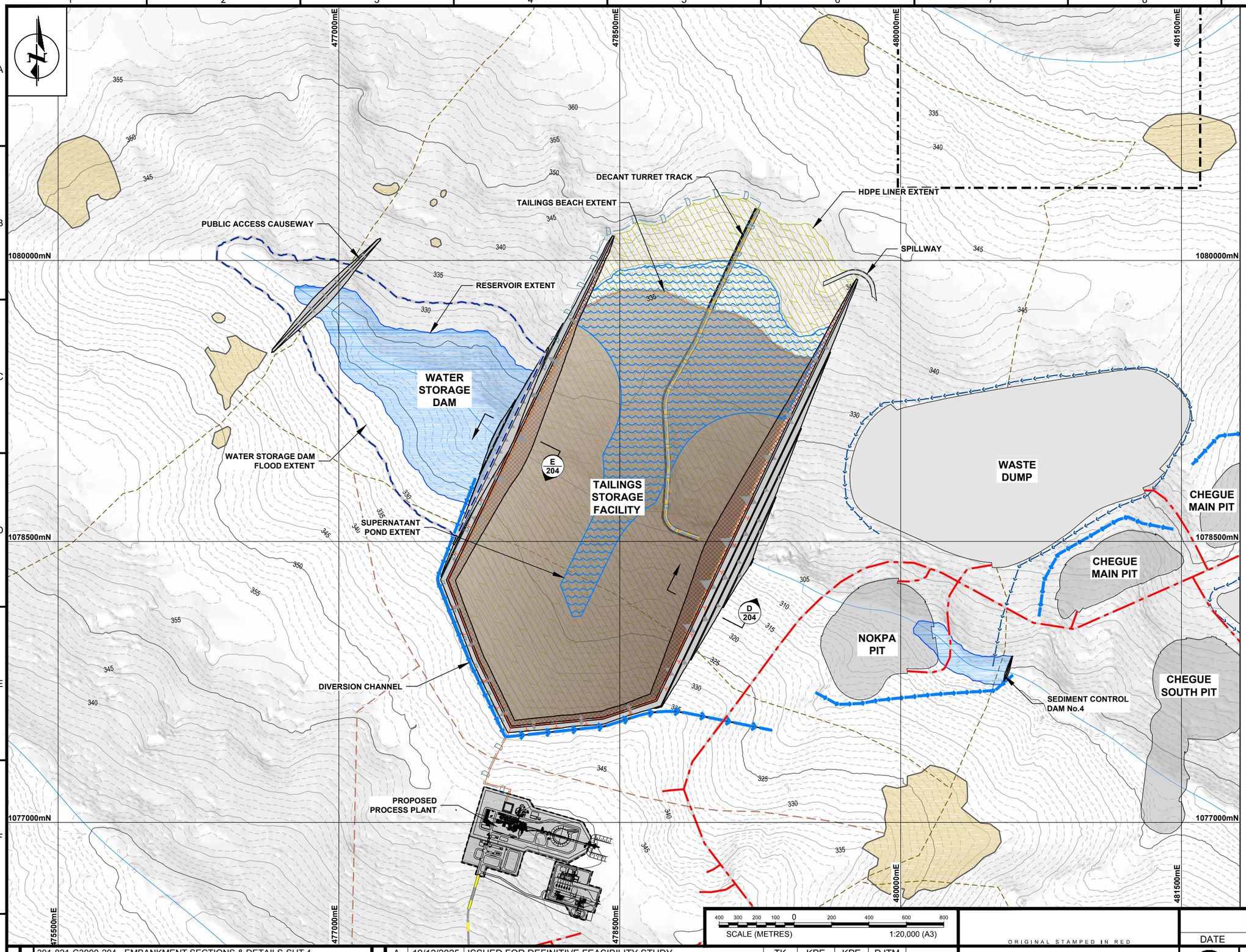
NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
GENERAL ARRANGEMENT PLAN - STAGE 1

SCALE 1:20,000
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER 301-821-C3000-101
REV A

G:\2024\0821 doropo_prospects\engineering\drawings\301-preliminary drawings\301-C3000-101 A

287



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MINOR)
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL
- PURPOSED SEDIMENT CONTROL DRAINS
- PROPOSED TEXTURED GEOMEMBRANE LINER
- PROPOSED SMOOTH GEOMEMBRANE LINER
- PROPOSED DECANT TURRET TRACK
- PROPOSED DECANT RETURN PIPELINE
- PROPOSED TAILINGS DELIVERY/DEPOSITION PIPELINE

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 1m CONTOUR INTERVALS SHOWN.

SHEET SIZE A3

REFERENCES

301-821-C3000-204 - EMBANKMENT SECTIONS & DETAILS-SHT 4

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
GENERAL ARRANGEMENT PLAN - FINAL STAGE

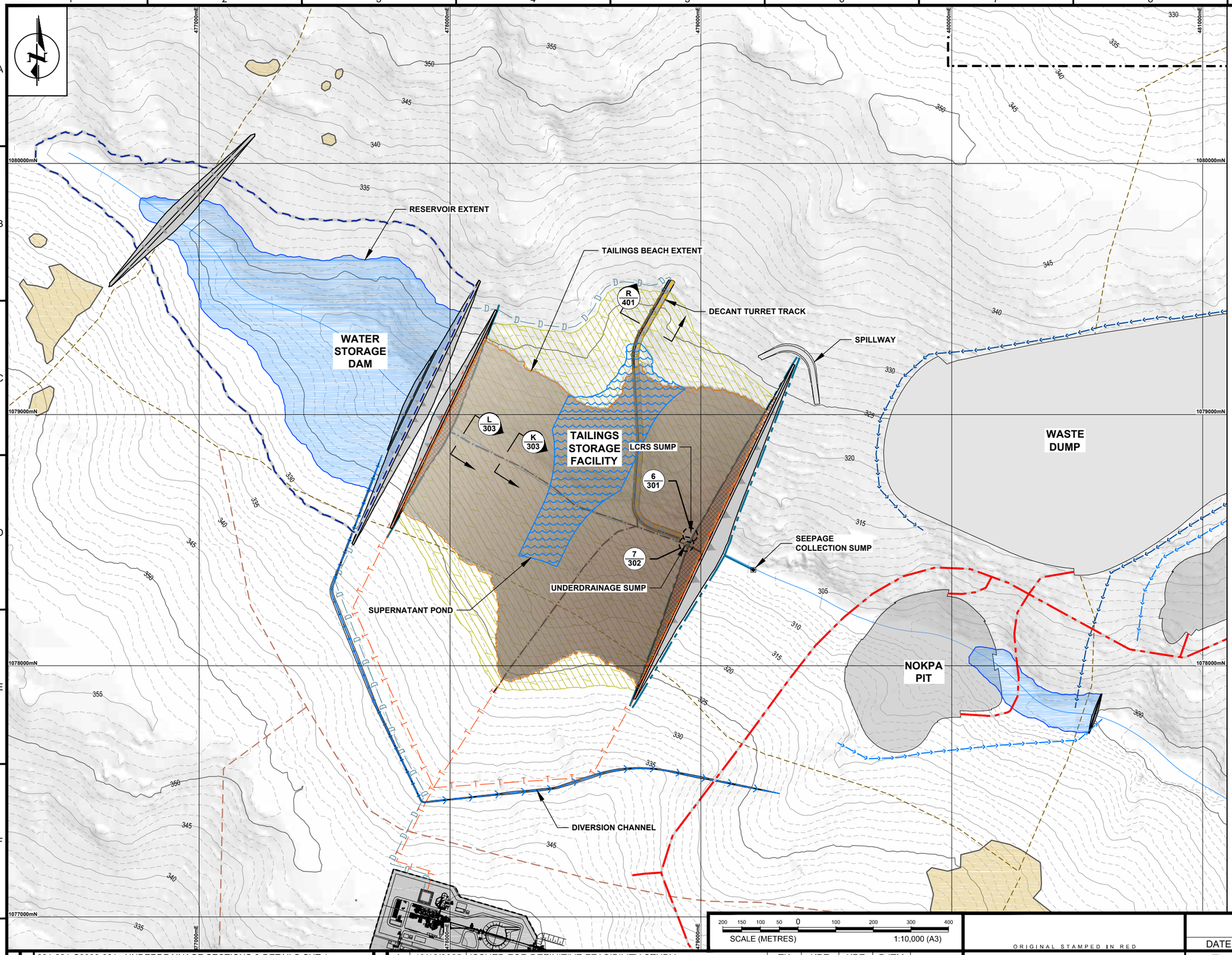
SCALE 1:20,000

STATUS: DEFINITIVE FEASIBILITY STUDY

DRAWING NUMBER 301-821-C3000-125

REV A

G:\pdoc\1821\dossiers_projet\dossier_engineering\drawings\301-821-C3000-125_A_infrastructure_GA_FS.dwg 19/12/2025 TK



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MINOR)
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL
- PURPOSED SEDIMENT CONTROL DRAINS
- PROPOSED TEXTURED GEOMEMBRANE LINER
- PROPOSED SMOOTH GEOMEMBRANE LINER
- PROPOSED TOE DRAIN ALIGNMENT
- PROPOSED TOE COLLECTOR/LCRS DRAIN ALIGNMENT
- PROPOSED MAIN COLLECTOR DRAIN ALIGNMENT
- PROPOSED DECANT TURRET TRACK ALIGNMENT WITH MAIN COLLECTOR AND LCRS DRAIN
- PROPOSED DECANT RETURN PIPELINE
- PROPOSED TAILINGS DELIVERY/DEPOSITION PIPELINE

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 1m CONTOUR INTERVALS SHOWN.
3. FINAL STAGE TAILINGS STORAGE FACILITY LAYOUT SHOWN.
4. FINGER DRAINS NOT SHOWN FOR CLARITY. TYPICALLY SPACED AT 100m c/c.

SCALE (METRES) 200 150 100 50 0 100 200 300 400 — 1:10,000 (A3)

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS
301-821-C3000-301 - UNDERDRAINAGE SECTIONS & DETAILS-SHT 1
301-821-C3000-302 - UNDERDRAINAGE SECTIONS & DETAILS-SHT 2
301-821-C3000-303 - UNDERDRAINAGE SECTIONS & DETAILS-SHT 3
301-821-C3000-401 - DECANT SYSTEM SECTIONS & DETAILS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

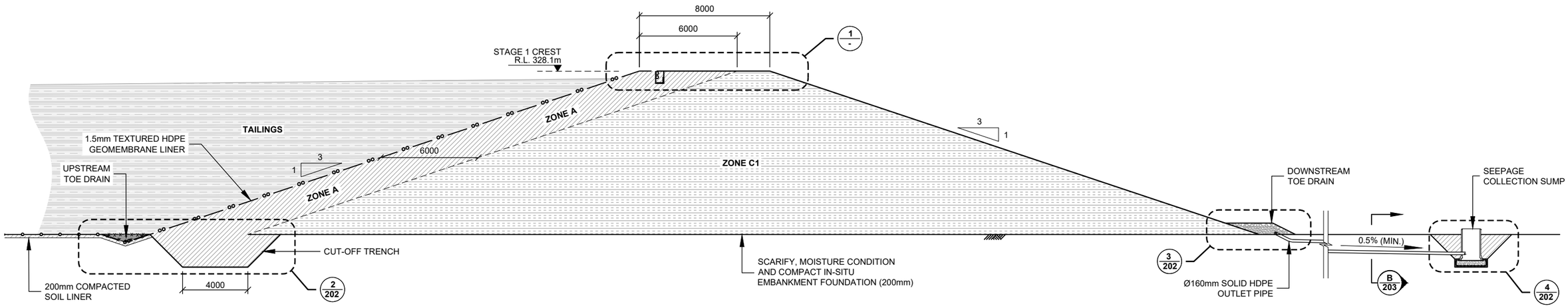
RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
UNDERDRAINAGE LAYOUT - STAGE 1

SCALE 1:15,000
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER 301-821-C3000-135
REV A

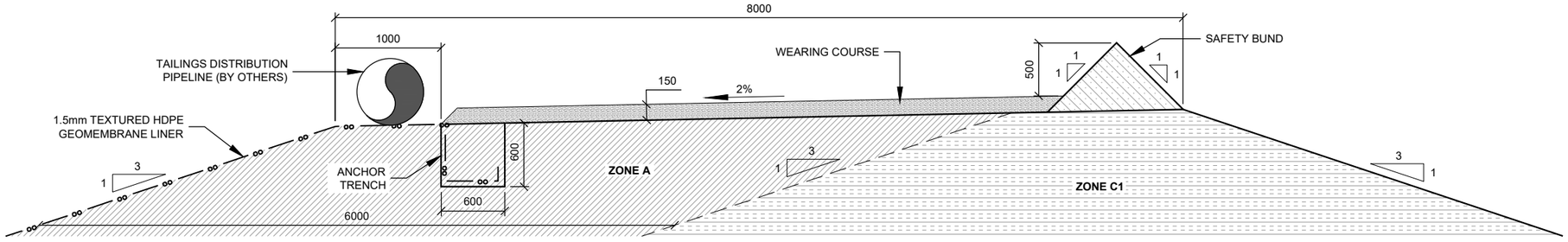
G:\pdoh\1000\1000-0\1000-0-0\1000-0-0-0\1000-0-0-0-0\1000-0-0-0-0-0\1000-0-0-0-0-0-0\1000-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0\1000-0

NOTES:

1. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-C0001-005.
2. SAFETY BUND TO BE CONSTRUCTED WHERE NO PIPELINE IS PRESENT ON UPSTREAM EMBANKMENT CREST. BREAKS IN UPSTREAM SAFETY BUND AT 50m CENTRES (TO ALLOW DRAINAGE OF RAINFALL RUNOFF).
3. CUT-OFF TRENCH TO BE EXCAVATED 1.0m (MIN.) INTO COMPETENT MATERIAL.
4. COMPACTED SOIL LINER IN TSF AS FOLLOWS:
   - WHERE IN-SITU MATERIAL IS UNSUITABLE AS COMPACTED SOIL LINER - 200mm IMPORTED SOIL ZONE A MATERIAL.
   - WHERE IN-SITU MATERIAL IS SUITABLE AS COMPACTED SOIL LINER - SCARIFY, MOISTURE CONDITION AND COMPACT IN-SITU MATERIAL (200mm).
5. EMBANKMENT FOUNDATION PREPARATION SHALL EXTEND 5000mm BEYOND THE TOE OF THE EMBANKMENT. UNSUITABLE MATERIAL IN VALLEY BASE TO BE REMOVED AND REPLACED AS NECESSARY.



A 101 TAILINGS STORAGE FACILITY STAGE 1 EMBANKMENT SECTION
1:250



1 - TYPICAL STAGE 1 EMBANKMENT CREST DETAIL
1:50

REFERENCES	REFERENCE DRAWINGS
	301-821-C3000-050 - SITE GENERAL ARRANGEMENT PLAN
	301-821-C3000-101 - GENERAL ARRANGEMENT PLAN - STAGE 1
	301-821-C3000-202 - EMBANKMENT SECTIONS & DETAILS-SHT 2
	301-821-C3000-203 - EMBANKMENT SECTIONS & DETAILS-SHT 3

SHEET SIZE A3

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
EMBANKMENT SECTIONS & DETAILS-SHT 1

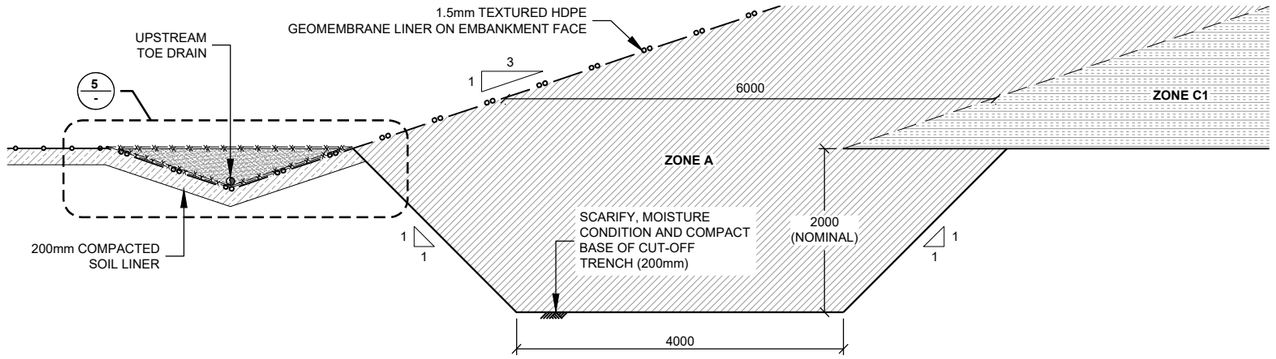
SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C3000-201**
REV **A**

G:\Shared\Jobs\301-821\Design\Engineering\Drawings\301 preliminary drawings\301-821-C3000-201 A - prospective-engineering-drawing-infrastructure.dwg

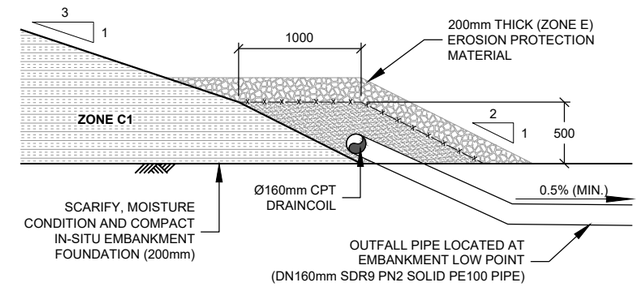
287
410

NOTES:

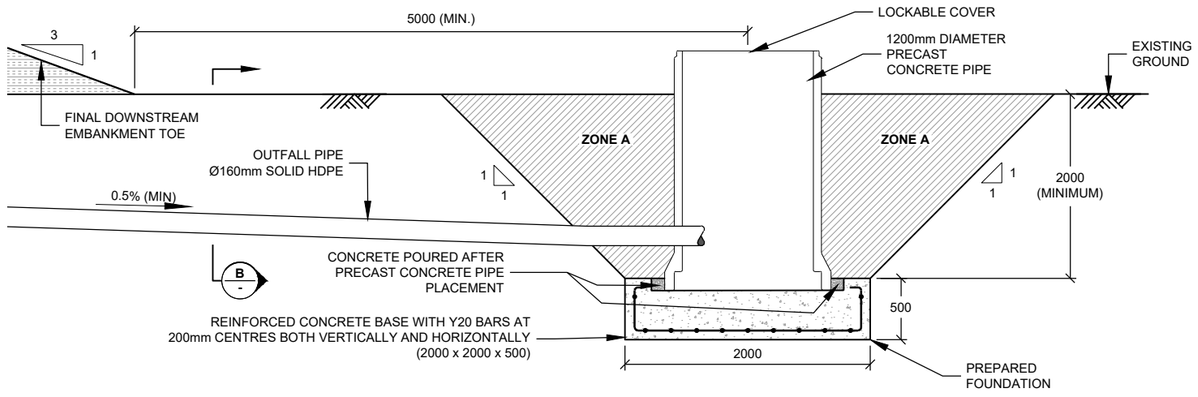
1. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-C0001-005.
2. SAFETY BUND TO BE CONSTRUCTED WHERE NO PIPELINE IS PRESENT ON UPSTREAM EMBANKMENT CREST. BREAKS IN UPSTREAM SAFETY BUND AT 50m CENTRES (TO ALLOW DRAINAGE OF RAINFALL RUNOFF).
3. CUT-OFF TRENCH TO BE EXCAVATED 1.0m (MIN.) INTO COMPETENT MATERIAL.
4. COMPACTED SOIL LINER IN TSF BASIN AS FOLLOWS:
   - WHERE IN-SITU MATERIAL IS UNSUITABLE AS COMPACTED SOIL LINER - 200mm IMPORTED SOIL ZONE A MATERIAL.
   - WHERE IN-SITU MATERIAL IS SUITABLE AS COMPACTED SOIL LINER - SCARIFY, MOISTURE CONDITION AND COMPACT IN-SITU MATERIAL (200mm).



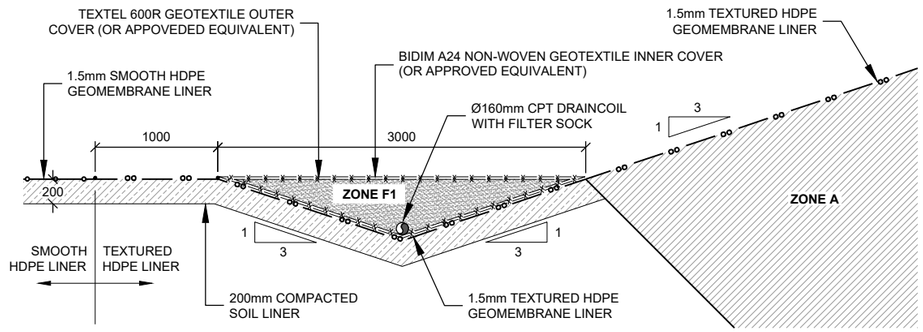
2 / 201 **TYPICAL CUT-OFF TRENCH DETAIL**
1:75



3 / 201 **TYPICAL DOWNSTREAM TOE DRAIN DETAIL**
1:100



4 / 201 **TYPICAL SEEPAGE COLLECTION SUMP DETAIL**
1:50



5 / - **TYPICAL UPSTREAM TOE DRAIN DETAIL**
1:50

REFERENCES	REFERENCE DRAWINGS
	301-821-C0001-005 - ABBREVIATIONS COMMON LEGEND & SPECIFICATIONS
	301-821-C3000-201 - EMBANKMENT SECTIONS & DETAILS-SHT 1

SHEET SIZE A3

REVISIONS	REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
	A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D
ORIGINAL STAMPED IN RED					

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
EMBANKMENT SECTIONS & DETAILS-SHT 2

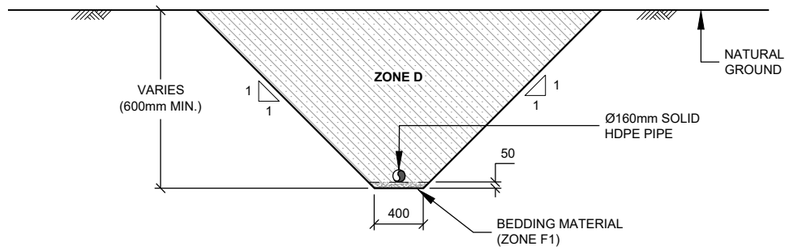
SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C3000-202** REV **A**

D:\2025\Roper Doropo - projects\02-engineering\drawings\301-preliminary drawings\civil & infrastructure\301-821-C3000-202.dwg

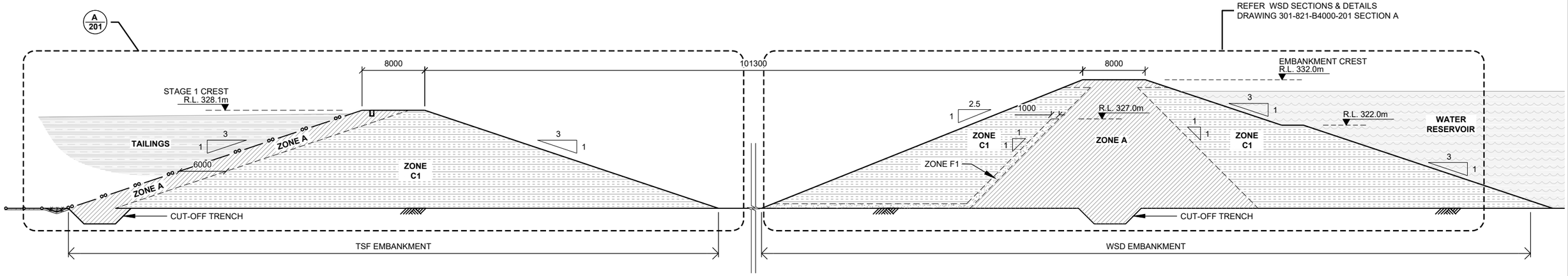
287 410

NOTES:

1. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-C0001-005.
2. SAFETY BUND TO BE CONSTRUCTED WHERE NO PIPELINE IS PRESENT ON UPSTREAM EMBANKMENT CREST. BREAKS IN UPSTREAM SAFETY BUND AT 50m CENTRES (TO ALLOW DRAINAGE OF RAINFALL RUNOFF).
3. CUT-OFF TRENCH TO BE EXCAVATED 1.0m (MIN.) INTO COMPETENT MATERIAL.
4. COMPACTED SOIL LINER IN TSF AS FOLLOWS:
   - WHERE IN-SITU MATERIAL IS UNSUITABLE AS COMPACTED SOIL LINER - 200mm IMPORTED SOIL ZONE A MATERIAL.
   - WHERE IN-SITU MATERIAL IS SUITABLE AS COMPACTED SOIL LINER - SCARIFY, MOISTURE CONDITION AND COMPACT IN-SITU MATERIAL (200mm).
5. EMBANKMENT FOUNDATION PREPARATION SHALL EXTEND 5000mm BEYOND THE TOE OF THE EMBANKMENT. UNSUITABLE MATERIAL IN VALLEY BASE TO BE REMOVED AND REPLACED AS NECESSARY.



B - / B 201 / B 204 **TYPICAL DOWNSTREAM SEEPAGE COLLECTION OUTFLOW TRENCH SECTION**
1:50



C 101 **TYPICAL TAILINGS STORAGE FACILITY STAGE 1 EMBANKMENT AND WATER STORAGE DAM EMBANKMENT SECTION**
1:500

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS
301-821-C0001-005 - ABBREVIATIONS COMMON LEGEND & SPECIFICATIONS
301-821-C3000-101 - GENERAL ARRANGEMENT PLAN - STAGE 1
301-821-C3000-201 - EMBANKMENT SECTIONS & DETAILS-SHT 1
301-821-C3000-204 - EMBANKMENT SECTIONS & DETAILS-SHT 4

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
EMBANKMENT SECTIONS & DETAILS-SHT 3

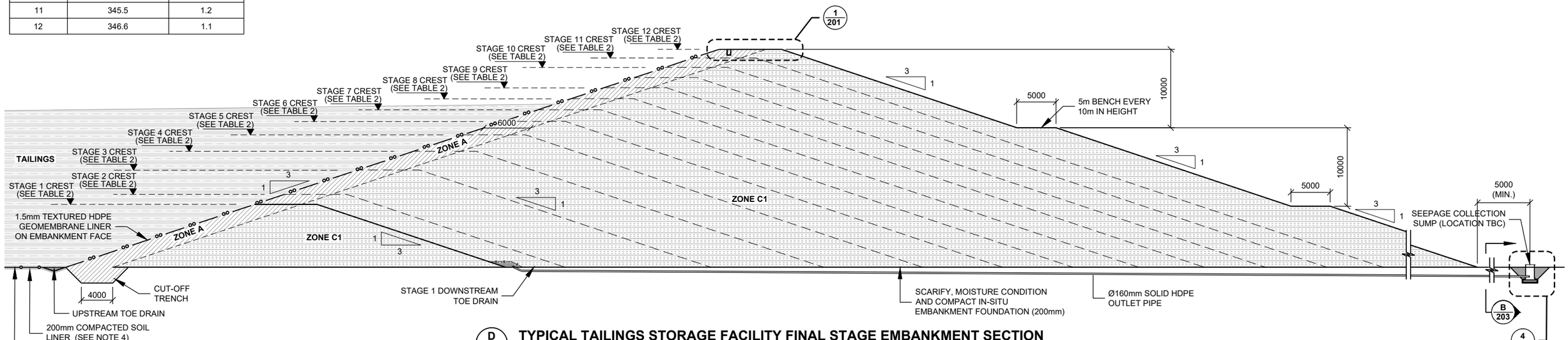
SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C3000-203** REV **A**

Q:\pert\Data\Projects\...\preliminary drawings\dwg\301-821-C3000-203.dwg

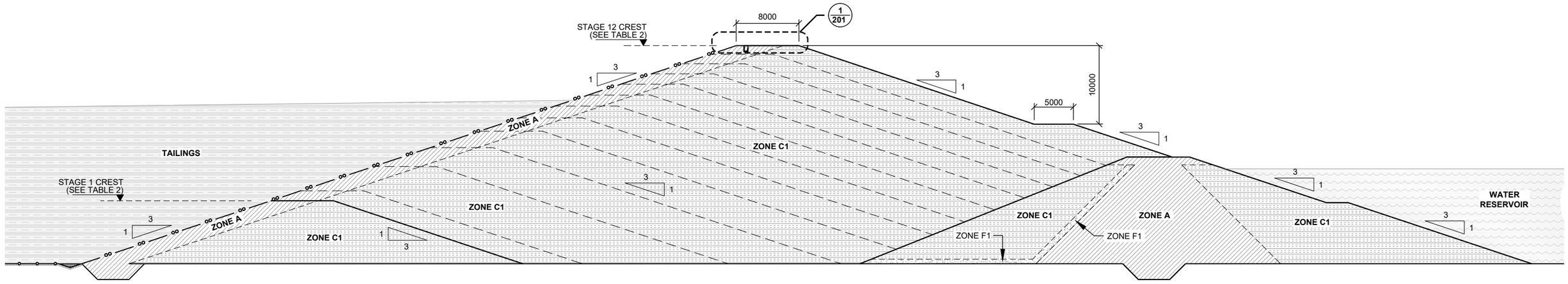
TABLE 2: STAGED CREST ELEVATIONS		
STAGE	**EMBANKMENT CREST LEVEL (m.R.L.)**	**RAISE HEIGHT (m)**
1	328.1	VARIES
2	331.2	3.1
3	333.6	2.4
4	335.7	2.1
5	337.4	1.7
6	338.9	1.5
7	340.3	1.4
8	341.7	1.4
9	343.0	1.3
10	344.3	1.3
11	345.5	1.2
12	346.6	1.1

NOTES:

1. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-C0001-005.
2. SAFETY BUND TO BE CONSTRUCTED WHERE NO PIPELINE IS PRESENT ON UPSTREAM EMBANKMENT CREST. BREAKS IN UPSTREAM SAFETY BUND AT 50m CENTRES (TO ALLOW DRAINAGE OF RAINFALL RUNOFF).
3. CUT-OFF TRENCH TO BE EXCAVATED 1.0m (MIN.) INTO COMPETENT MATERIAL.
4. COMPACTED SOIL LINER IN TSF AS FOLLOWS:
   - WHERE IN-SITU MATERIAL IS UNSUITABLE AS COMPACTED SOIL LINER - 200mm IMPORTED SOIL ZONE A MATERIAL.
   - WHERE IN-SITU MATERIAL IS SUITABLE AS COMPACTED SOIL LINER - SCARIFY, MOISTURE CONDITION AND COMPACT IN-SITU MATERIAL (200mm).
5. EMBANKMENT FOUNDATION PREPARATION SHALL EXTEND 5000mm BEYOND THE TOE OF THE EMBANKMENT. UNSUITABLE MATERIAL IN VALLEY BASE TO BE REMOVED AND REPLACED AS NECESSARY.



D 125 TYPICAL TAILINGS STORAGE FACILITY FINAL STAGE EMBANKMENT SECTION
1:500



E 125 TYPICAL TAILINGS STORAGE FACILITY FINAL STAGE EMBANKMENT AND WATER DAM EMBANKMENT SECTION
1:500

REFERENCES	REFERENCE DRAWINGS
SHEET SIZE A3	301-821-C0001-005 - ABBREVIATIONS COMMON LEGEND & SPECIFICATIONS
	301-821-C3000-125 - GENERAL ARRANGEMENT PLAN - FINAL STAGE
	301-821-C3000-201 - EMBANKMENT SECTIONS & DETAILS-SHT 1
	301-821-C3000-202 - EMBANKMENT SECTIONS & DETAILS-SHT 2
	301-821-C3000-203 - EMBANKMENT SECTIONS & DETAILS-SHT 3

REVISIONS								
REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

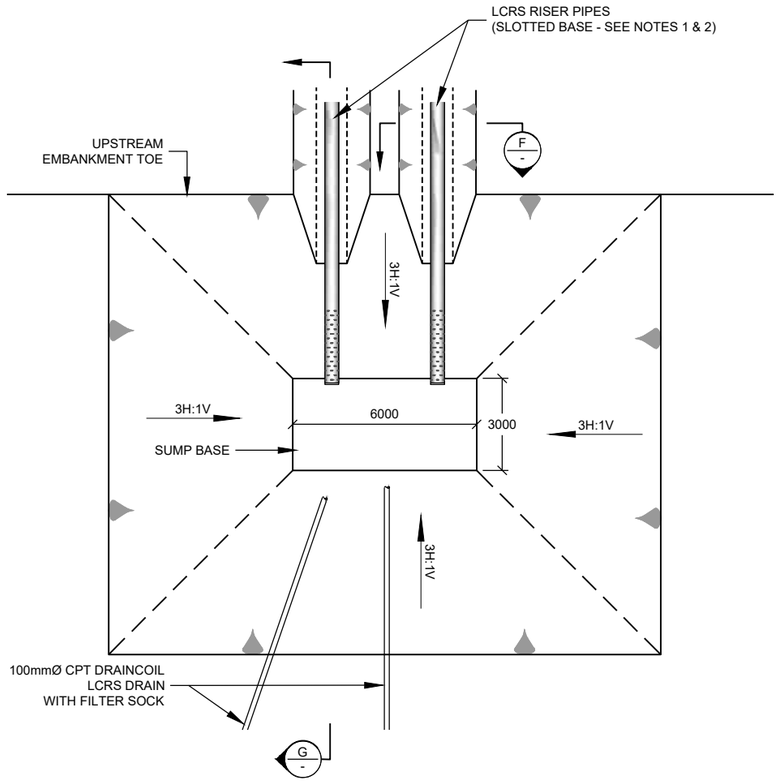
CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
EMBANKMENT SECTIONS & DETAILS-SHT 4

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C3000-204** REV **A**

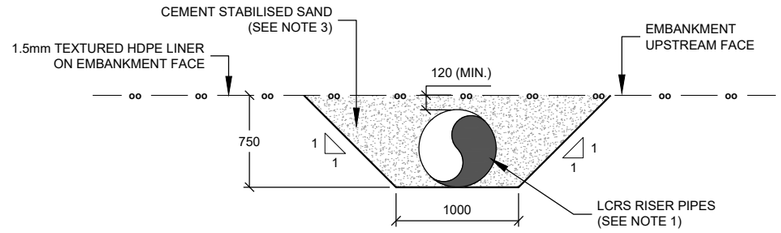
G:\pdoc\1000s\1000s\1000s



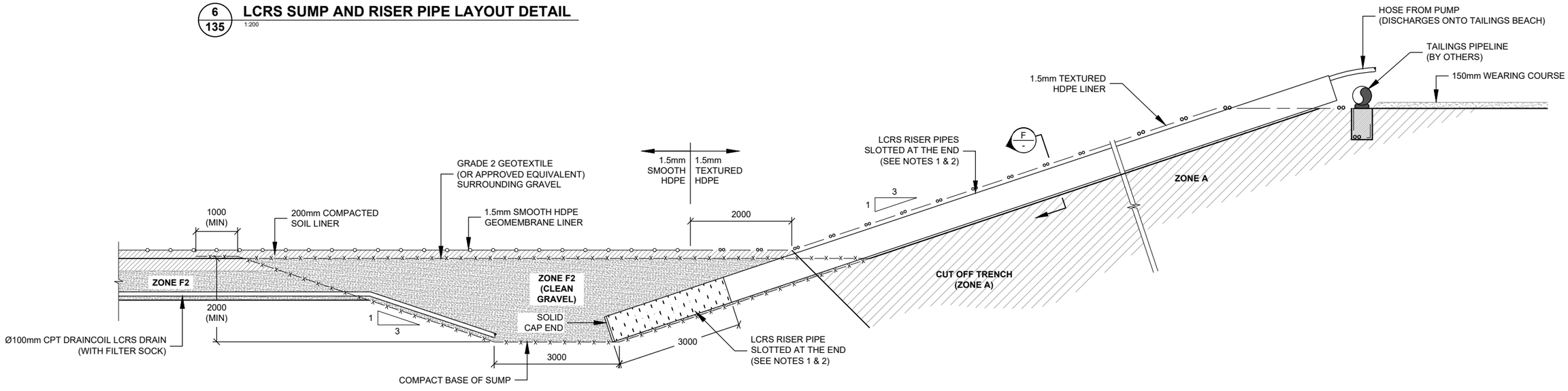
6 / 135 **LCRS SUMP AND RISER PIPE LAYOUT DETAIL**
1:200

NOTES:

1. LCRS RISER PIPE TO BE A DN630mm PN12.5 SDR 9 SOLID PE100 PIPE. ROWS OF THREE SLOTS SHALL BE EQUALLY SPACED AROUND THE BOTTOM OF THE PIPE. SLOTS TO BE 75mm x 6mm ON 150mm CENTRES.
2. LCRS PUMPS AND ACCESSORIES TO BE DESIGNED AND SPECIFIED BY OTHERS.
3. TRENCH EXCAVATED FOR RISER PIPE TO BE BACKFILLED WITH CEMENT STABILISED SAND (10% CEMENT BY WEIGHT).
4. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-B0001-005.



F / - **TYPICAL LCRS RISER AND TRENCH SECTION**
1:50



G / - **LCRS SUMP AND RISER PIPE SECTION**
1:100

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

SHEET SIZE A3

REFERENCES

301-821-C3000-135 - UNDERDRAINAGE LAYOUT - STAGE 1

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
UNDERDRAINAGE SECTIONS & DETAILS-SHT 1

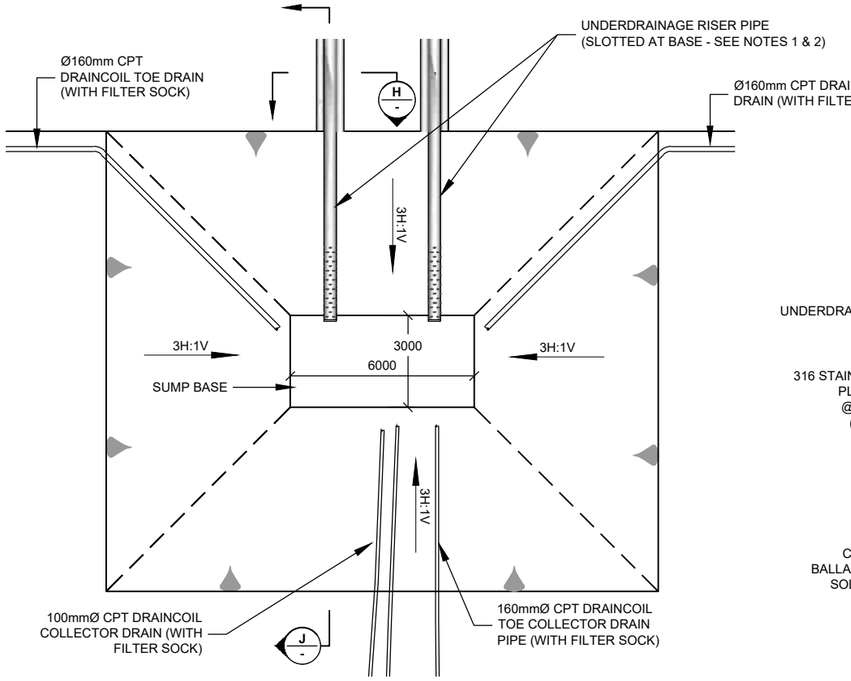
SCALE AS SHOWN

STATUS: DEFINITIVE FEASIBILITY STUDY

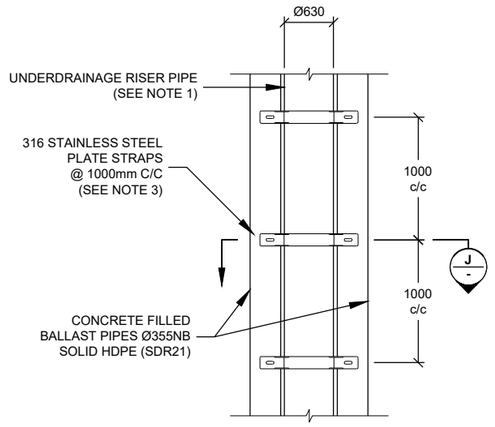
DRAWING NUMBER **301-821-C3000-301**

REV **A**

G:\2000\1000s\1082_doropo_proposed_engineering\drawings\301-preliminary drawings-stage 1\3 infrastructure\301-821-C3000-301 A



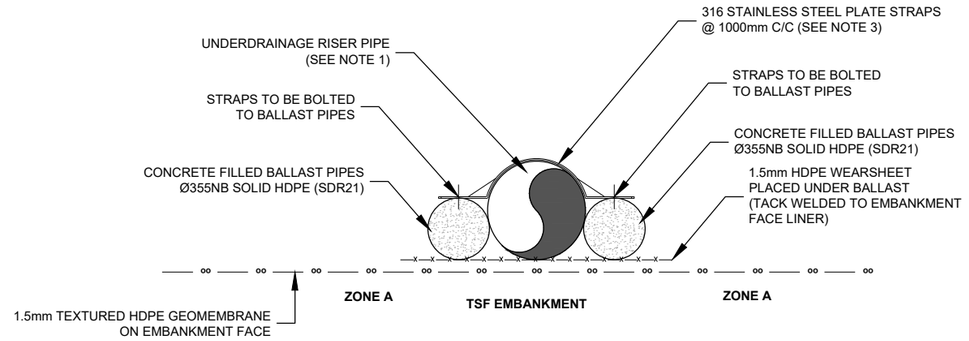
7 / 135 UNDERDRAINAGE SUMP AND RISER PIPE LAYOUT DETAIL
1:200



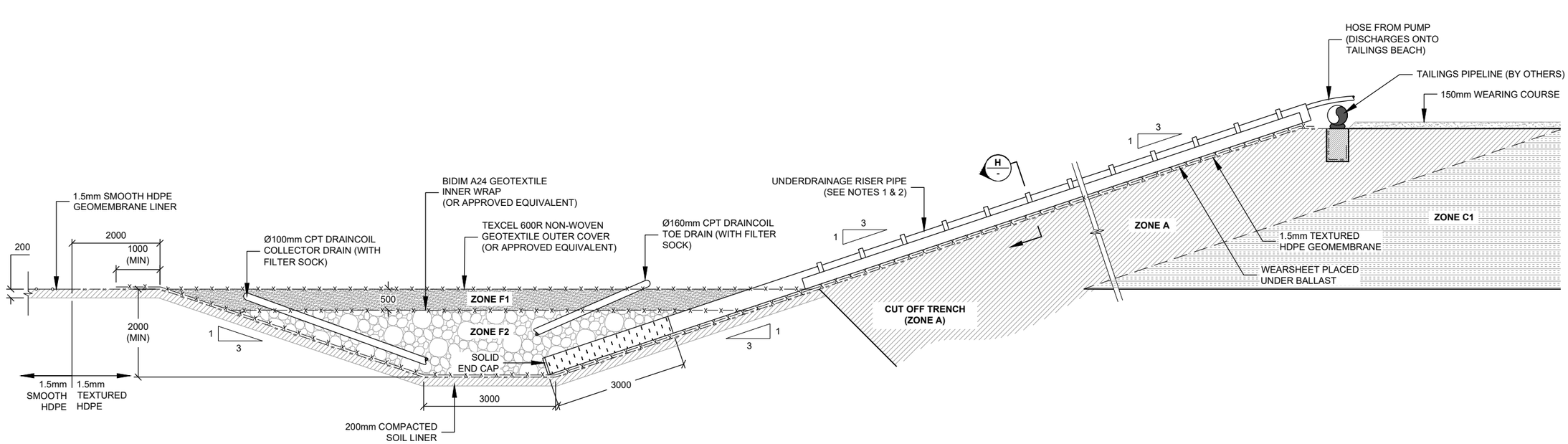
8 / - TYPICAL UNDERDRAINAGE RISER PIPE BALLAST SYSTEM DETAIL
1:50

NOTES:

1. UNDERDRAINAGE RISER PIPES TO BE A DN630mm PN12.5 SOLID PE100 SDR9 HDPE PIPE. ROWS OF THREE SLOTS SHALL BE EQUALLY SPACED AROUND THE BOTTOM OF THE PIPE. SLOTS TO BE 75mm x 6mm ON 150mm CENTRES.
2. UNDERDRAINAGE PUMPS AND ACCESSORIES TO BE DESIGNED AND SPECIFIED BY OTHERS.
3. RISER PIPES TO BE SECURED USING STEEL PLATE STRAPS AT 1000mm C/C. FOR STRAP MANUFACTURING DETAILS REFER DRAWING 301-852-B3000-350.
4. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-B0001-005.



H / - TYPICAL UNDERDRAINAGE RISER PIPE SECTION
1:50



J / - UNDERDRAINAGE SUMP AND RISER PIPE SECTION
1:100

ORIGINAL STAMPED IN RED

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

SHEET SIZE A3

REFERENCES

301-821-C3000-135 - UNDERDRAINAGE LAYOUT - STAGE 1

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
UNDERDRAINAGE SECTIONS & DETAILS-SHT 2

SCALE AS SHOWN

STATUS: DEFINITIVE FEASIBILITY STUDY

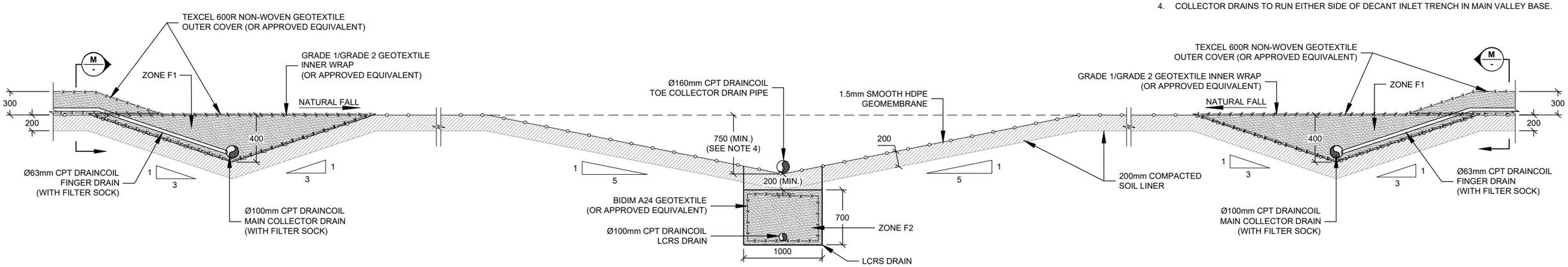
DRAWING NUMBER **301-821-C3000-302**

REV **A**

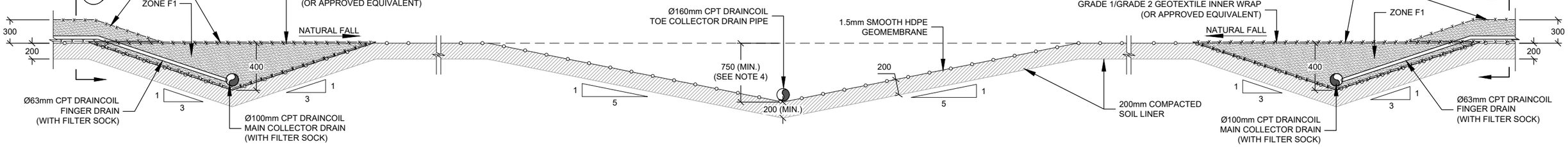
G:\pisol\0284\doropo_prospect\engineering\drawings\301-preliminary drawings\civil & infrastructure\301-821-c3000-302 A

NOTES:

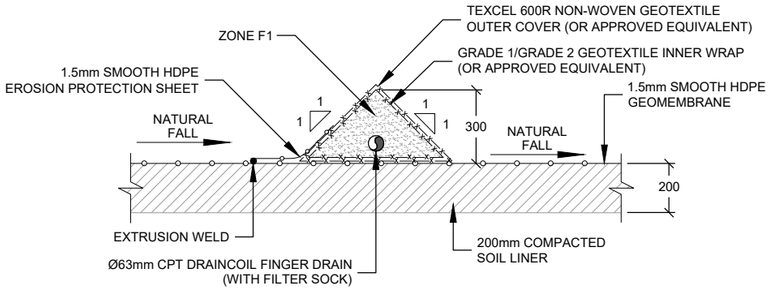
1. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-C0001-005.
2. FINGER DRAINS TYPICALLY SPACED AT 100m c/c.
3. COMPACTED SOIL LINER IN TSF AS FOLLOWS:
   - WHERE IN-SITU MATERIAL IS UNSUITABLE AS COMPACTED SOIL LINER - 200mm IMPORTED SOIL ZONE A MATERIAL.
   - WHERE IN-SITU MATERIAL IS SUITABLE AS COMPACTED SOIL LINER - SCARIFY, MOISTURE CONDITION AND COMPACT IN-SITU MATERIAL (200mm).
4. COLLECTOR DRAINS TO RUN EITHER SIDE OF DECANT INLET TRENCH IN MAIN VALLEY BASE.



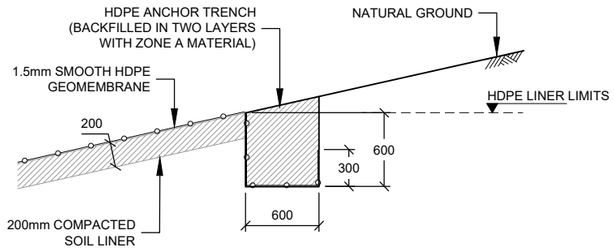
K 135 **TYPICAL COLLECTION DRAIN SECTION (WITH LCRS)** 1:50



L 135 **TYPICAL COLLECTION DRAIN SECTION (WITHOUT LCRS)** 1:50



M - **TYPICAL FINGER DRAIN SECTION** 1:25



N - **PERIMETER HDPE ANCHOR TRENCH SECTION** 1:50

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS
301-821-C0001-005 - ABBREVIATIONS COMMON LEGEND & SPECIFICATIONS
301-821-C3000-135 - UNDERDRAINAGE LAYOUT - STAGE 1

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

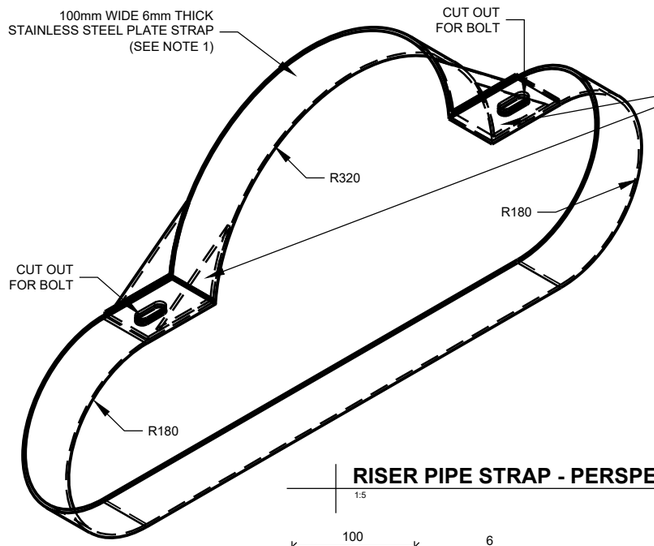
CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
UNDERDRAINAGE SECTIONS & DETAILS-SHT 3

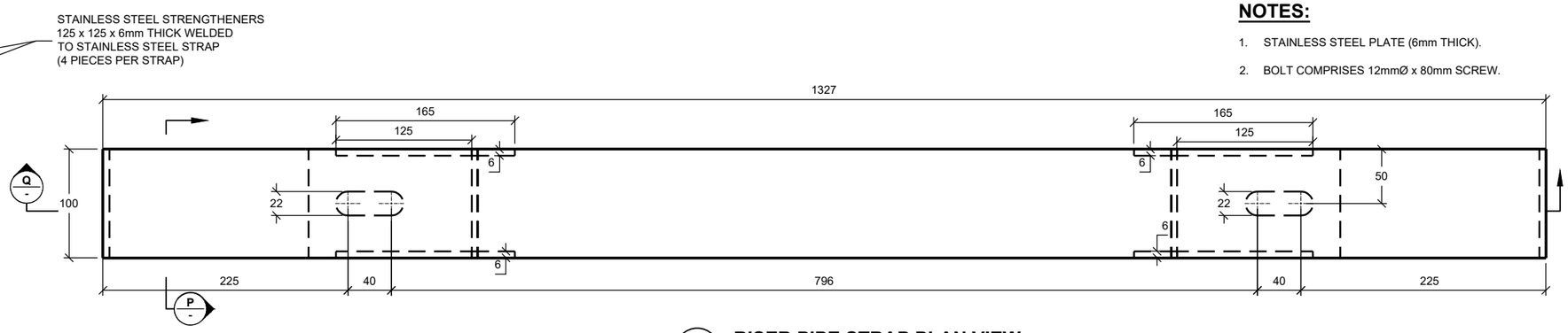
SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C3000-303**
REV **A**

Document Path: prospector-engineering.com\Projects\301-821-Doropo\4 Design\4.3 Drawings\4.3.1 Preliminary drawings\301-821-C3000-303 A



RISER PIPE STRAP - PERSPECTIVE

1:5

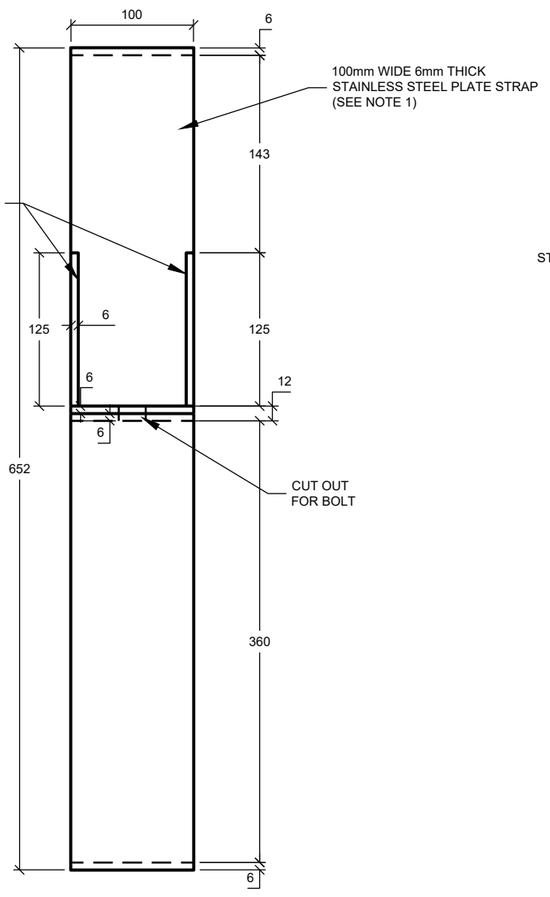


NOTES:

1. STAINLESS STEEL PLATE (6mm THICK).
2. BOLT COMPRISES 12mmØ x 80mm SCREW.

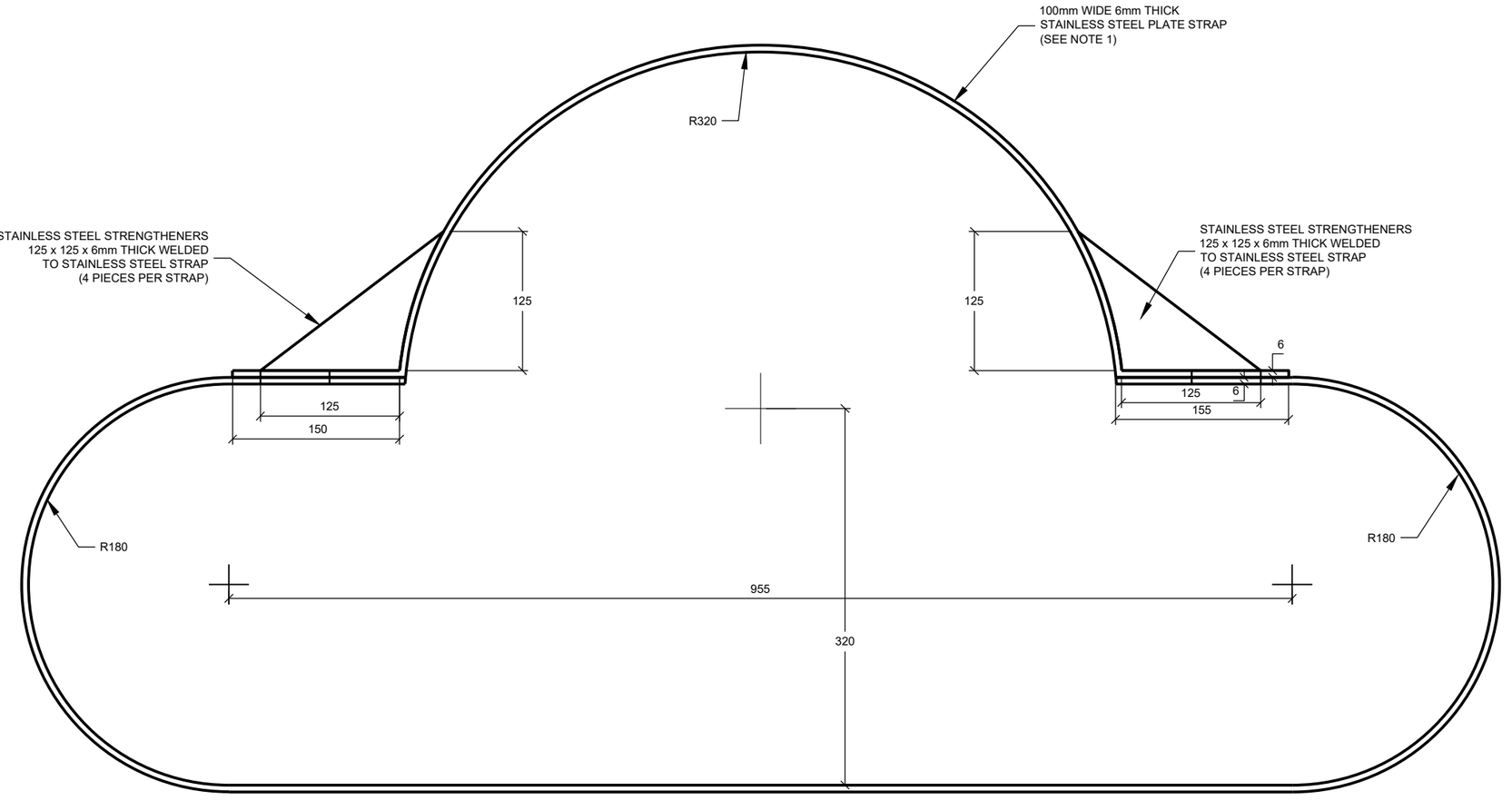
9 - RISER PIPE STRAP PLAN VIEW

1:5



P - RISER PIPE STRAP - SECTION SIDE VIEW

1:5



Q - RISER PIPE STRAP - SECTION FRONT VIEW

1:5

ORIGINAL STAMPED IN RED

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
TYPICAL RISER PIPE STRAP DETAILS

SCALE AS SHOWN

STATUS: DEFINITIVE FEASIBILITY STUDY

DRAWING NUMBER **301-821-C3000-350**

REV **A**

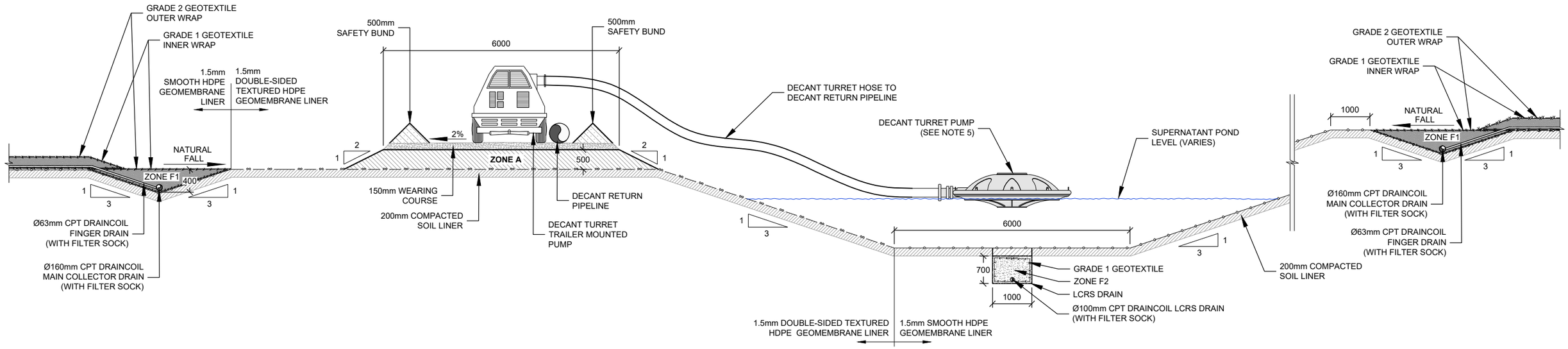
G:\2024\1082 doropo\4 prospects\engineering\drawings\301-preliminary drawings\civil & infrastructure\301-821-C3000-350 A

287

410

NOTES:

1. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-B0001-005.
2. PUMPS, CONTROLS AND PIPEWORK DESIGNED BY OTHERS.
3. COMPACTED SOIL LINER IN TSF AS FOLLOWS:
   - WHERE IN-SITU MATERIAL IS UNSUITABLE AS COMPACTED SOIL LINER - 200mm IMPORTED SOIL ZONE A MATERIAL.
   - WHERE IN-SITU MATERIAL IS SUITABLE AS COMPACTED SOIL LINER - SCARIFY, MOISTURE CONDITION AND COMPACT IN-SITU MATERIAL (200mm).
4. DECANT TURRET PUMP AND DECANT RETURN PIPELINE ARE DESIGNED TO RETREAT UP AND ALONG THE DECANT TURRET TRENCH AS THE SUPERNATANT POND LEVEL INCREASES. MINIMUM TURRET PUMP OPERATING DEPTH IS 1000mm. DECANT TURRET AND PUMP DESIGN BY OTHERS.



R 135 **DECANT TURRET ACCESS TRACK SECTION**
1:100

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

REVISIONS

REFERENCES: 301-821-C3000-135 - UNDERDRAINAGE LAYOUT - STAGE 1

REFERENCE DRAWINGS

SHEET SIZE A3

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

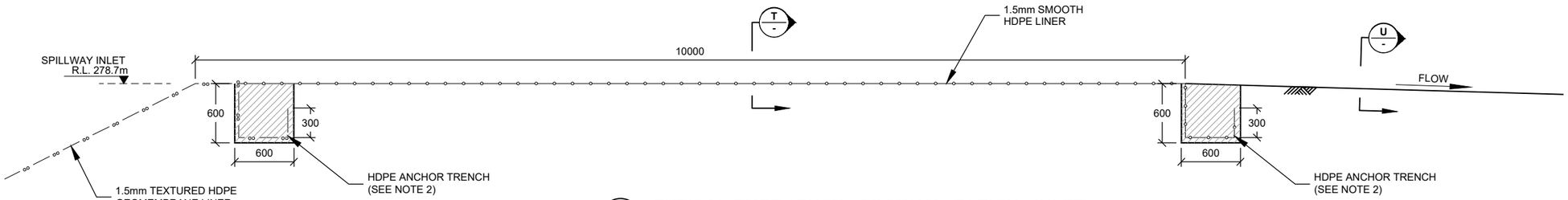
RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
DECANT SYSTEM SECTIONS & DETAILS

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C3000-401** REV **A**

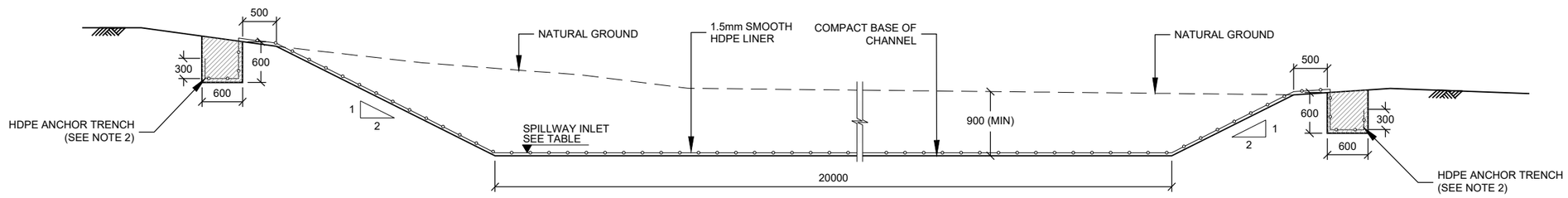
C:\pe301-00821 doropo_pdf_project\00-engineering drawings\01-preliminary drawings\cad\tsf & infrastructure\301-821-C3000-401 A

NOTES:

1. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-C0001-005.
2. HDPE ANCHOR TRENCH TO BE BACKFILLED IN TWO LAYERS.

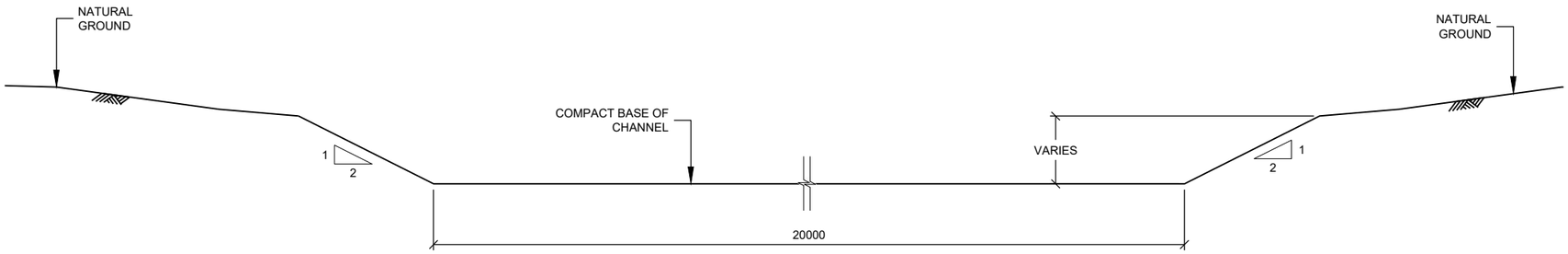


S - TYPICAL EMERGENCY SPILLWAY SECTION - INLET
1:50



T - TYPICAL EMERGENCY SPILLWAY CROSS SECTION
(INLET)
1:75

EMERGENCY SPILLWAY INVERT LEVELS	
STAGE	INVERT LEVELS
1	326.7
2	329.8
3	332.3
4	334.4
5	336.2
6	337.8
7	339.2
8	340.7
9	342.1
10	343.4
11	344.7
12	345.8



U - TYPICAL EMERGENCY SPILLWAY SECTION - OUTLET
(OUTLET)
1:75

SHEET SIZE A3

REFERENCES

301-821-C0001-005 - ABBREVIATIONS COMMON LEGEND & SPECIFICATIONS

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

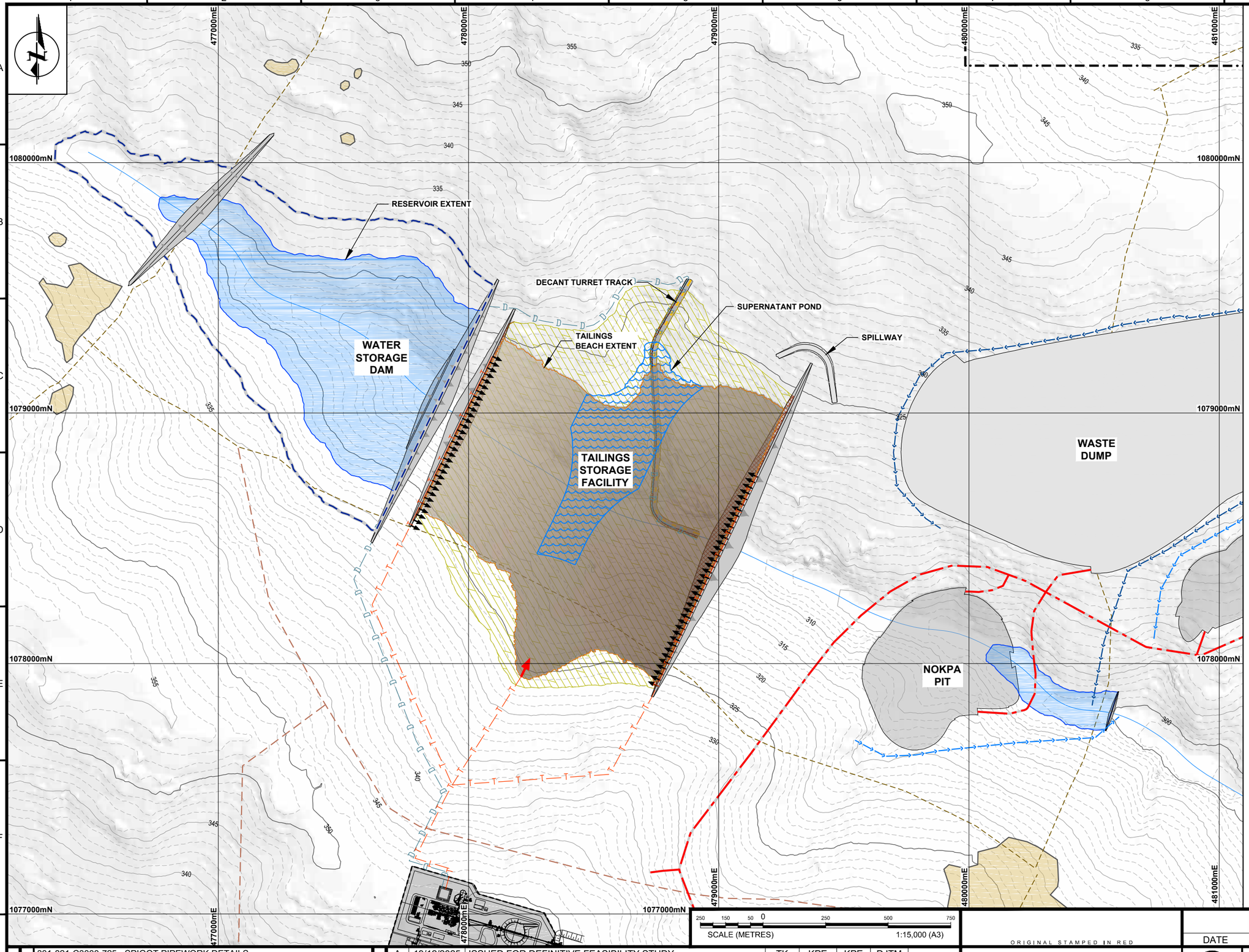
CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
SPILLWAY SECTIONS & DETAILS

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C3000-501**
REV **A**

C:\Docs\1082 docs\...\preliminary drawings\301-821-C3000-501 A.dwg



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MINOR)
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL
- PROPOSED DECANT TURRET TRACK ALIGNMENT WITH MAIN COLLECTOR AND LCRS DRAIN
- PROPOSED DECANT RETURN PIPELINE
- PROPOSED TAILINGS DELIVERY/DEPOSITION PIPELINE
- PROPOSED SPIGOT OFFTAKE
- INDICATIVE SINGLE POINT DISCHARGE SPIGOT

NOTES:

1. 1m CONTOUR INTERVALS SHOWN.
2. STAGE 1 TAILINGS STORAGE FACILITY LAYOUT SHOWN.
3. FOR SPIGOT OFFTAKE DETAILS REFER DRAWING 301-821-C3000-725.

SHEET SIZE A3

REFERENCES

301-821-C3000-725 - SPIGOT PIPEWORK DETAILS

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
DEPOSITION LAYOUT - STAGE 1

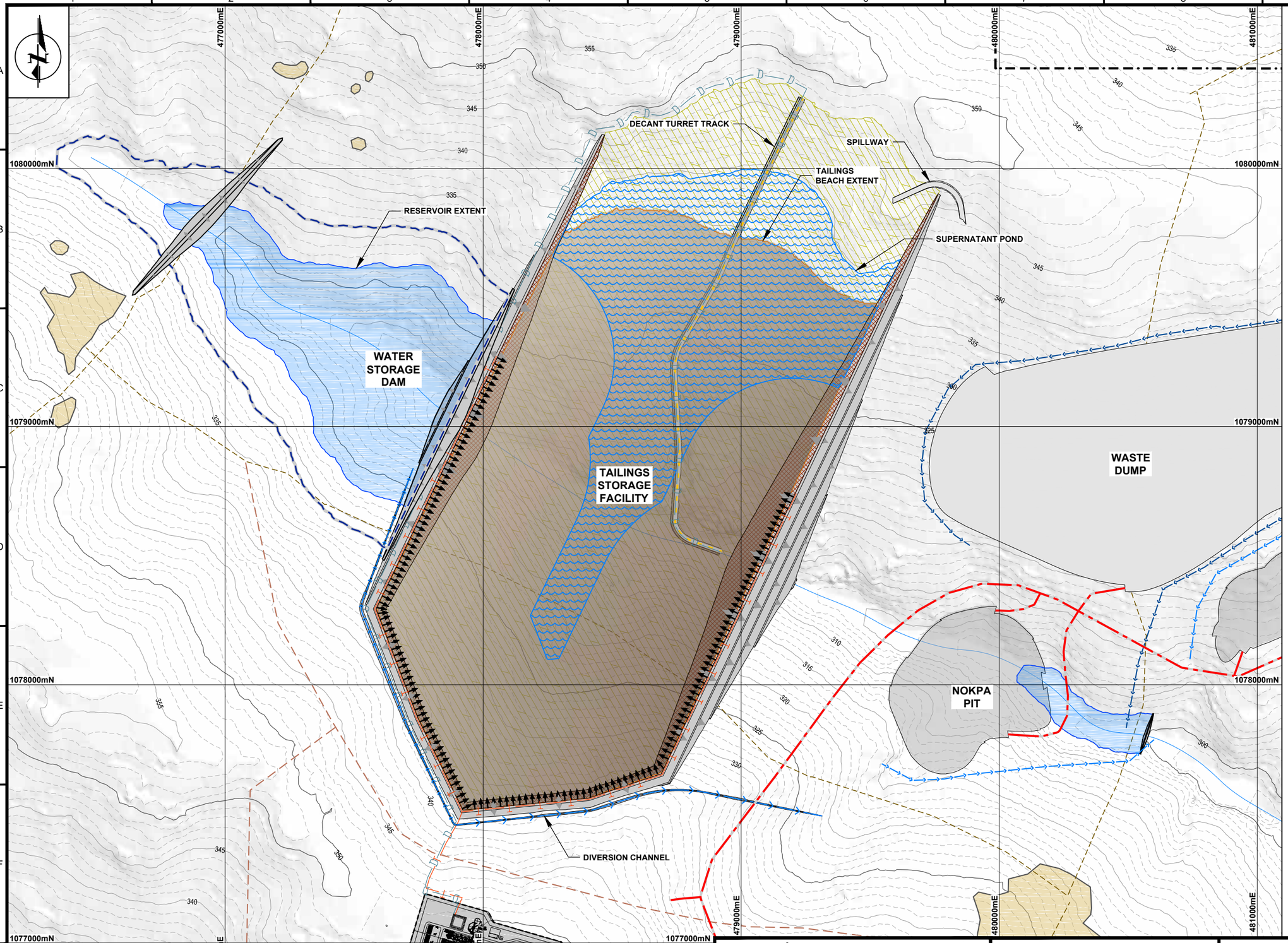
SCALE 1:15,000

STATUS: DEFINITIVE FEASIBILITY STUDY

DRAWING NUMBER **301-821-C3000-601**

REV **A**

Document Path: p:\projects\engineering\drawings\301-preliminary drawings\301-821-c3000-601 - a.dwg



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MINOR)
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL
- PROPOSED DECANT TURRET TRACK ALIGNMENT WITH MAIN COLLECTOR AND LCRS DRAIN
- PROPOSED DECANT RETURN PIPELINE
- PROPOSED TAILINGS DELIVERY/DEPOSITION PIPELINE
- PROPOSED SPIGOT OFFTAKE

NOTES:

1. 1m CONTOUR INTERVALS SHOWN.
2. FINAL STAGE TAILINGS STORAGE FACILITY LAYOUT SHOWN.
3. FOR SPIGOT OFFTAKE DETAILS REFER DRAWING 301-821-C3000-725.

SCALE (METRES) 250 150 50 0 250 500 750 — 1:15,000 (A3)

SHEET SIZE A3

REFERENCES

301-821-C3000-725 - SPIGOT PIPEWORK DETAILS

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
DEPOSITION LAYOUT - FINAL STAGE

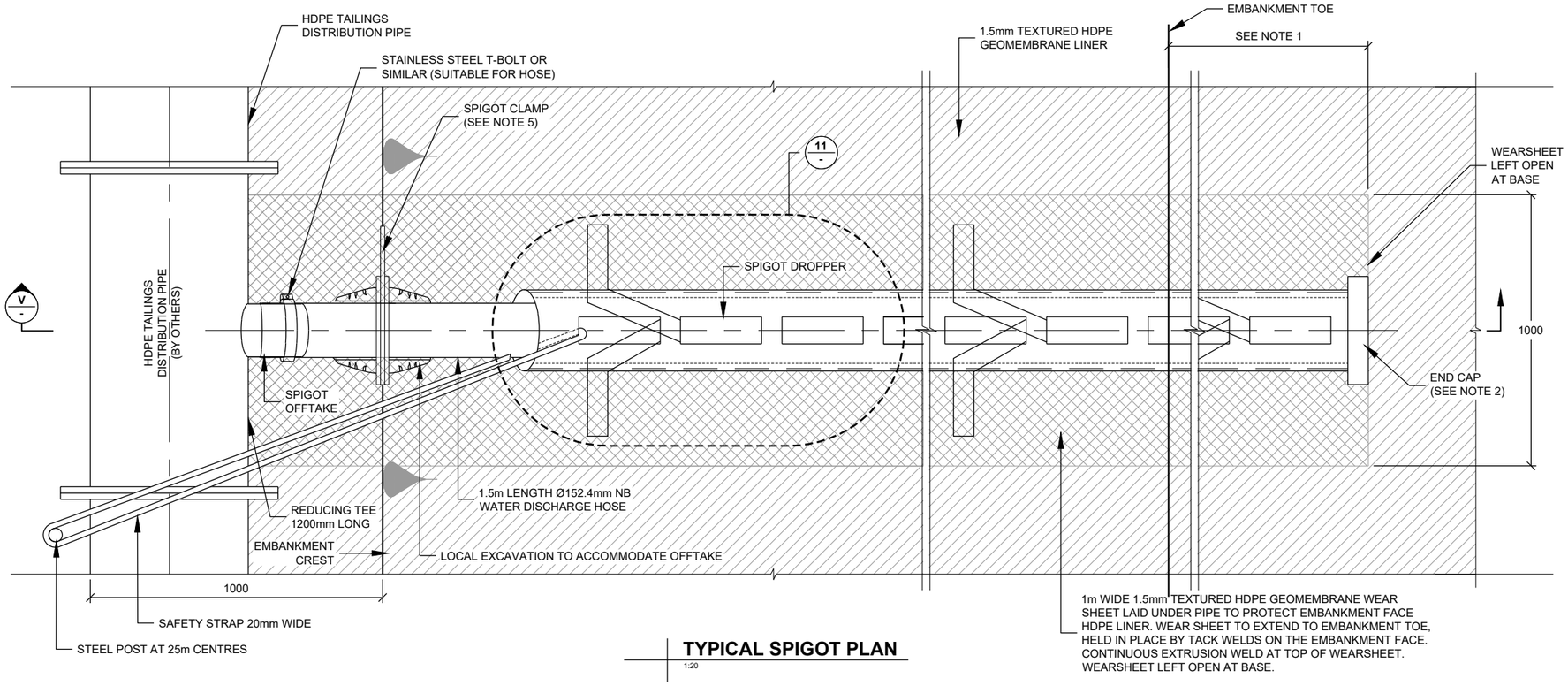
SCALE 1:15,000

STATUS: DEFINITIVE FEASIBILITY STUDY

DRAWING NUMBER **301-821-C3000-625**

REV **A**

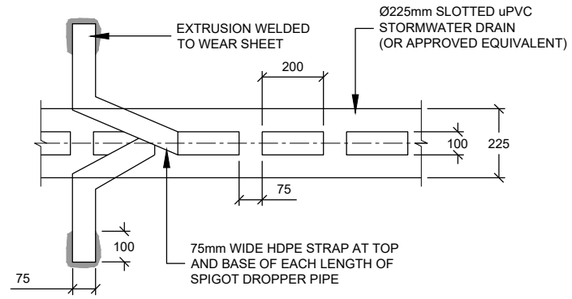
Document Path: p:\projects\doropo\engineering\drawings\301-821\c3000\301-821-c3000-625_a.dwg



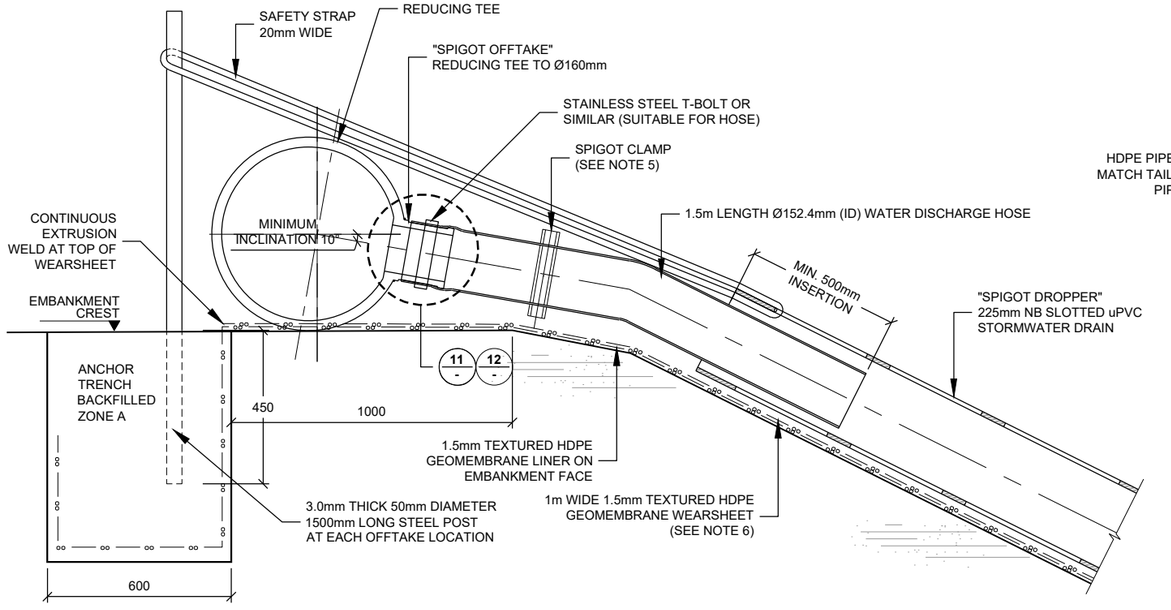
TYPICAL SPIGOT PLAN
1:20

NOTES:

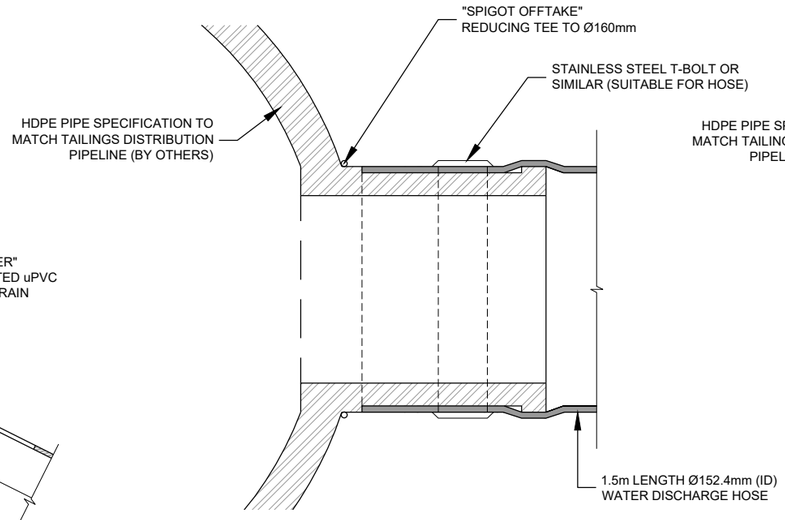
1. SPIGOT DROPPER TO EXTEND 2m BEYOND EMBANKMENT TOE DRAINS.
2. BOTTOM END OF SPIGOT DROPPER TO BE CAPPED, GLUED IN PLACE AND 6 No. SELF TAPPING SCREWS 6mm DIAMETER.
3. TYPICAL OFFTAKE SPACING NOMINALLY 25m c/c.
4. TAILINGS DISTRIBUTION PIPELINE DESIGN BY OTHERS.
5. FOR SPIGOT CLAMP DETAILS, REFER TO DRG 301-821-C3000-750.
6. WEARSHEET TACK WELDS TO BE MINIMUM 200mm LENGTHS AT 2000mm INTERVALS, BOTH SIDES.



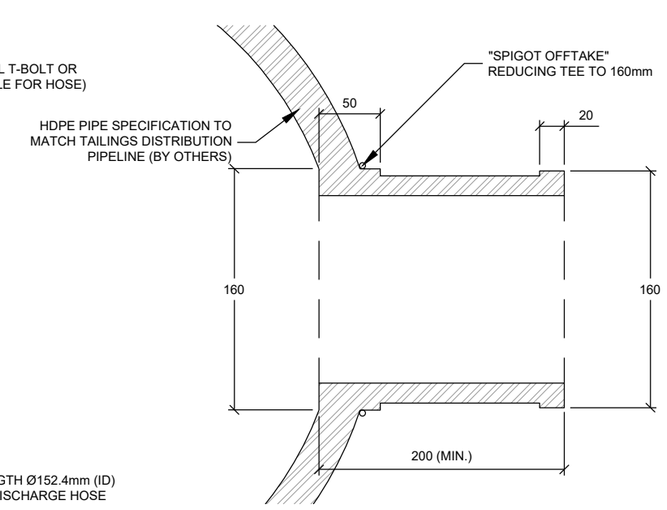
10 - SPIGOT DROPPER DETAIL
1:20



V - TYPICAL SPIGOT PIPEWORK SECTION
1:20



11 - SPIGOT OFFTAKE AND DISCHARGE HOSE DETAIL
1:5



12 - SPIGOT OFFTAKE DETAIL
1:5

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D
ORIGINAL STAMPED IN RED					

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

SHEET SIZE A3

REFERENCES: 301-821-C3000-750 - SPIGOT CLAMP DETAILS

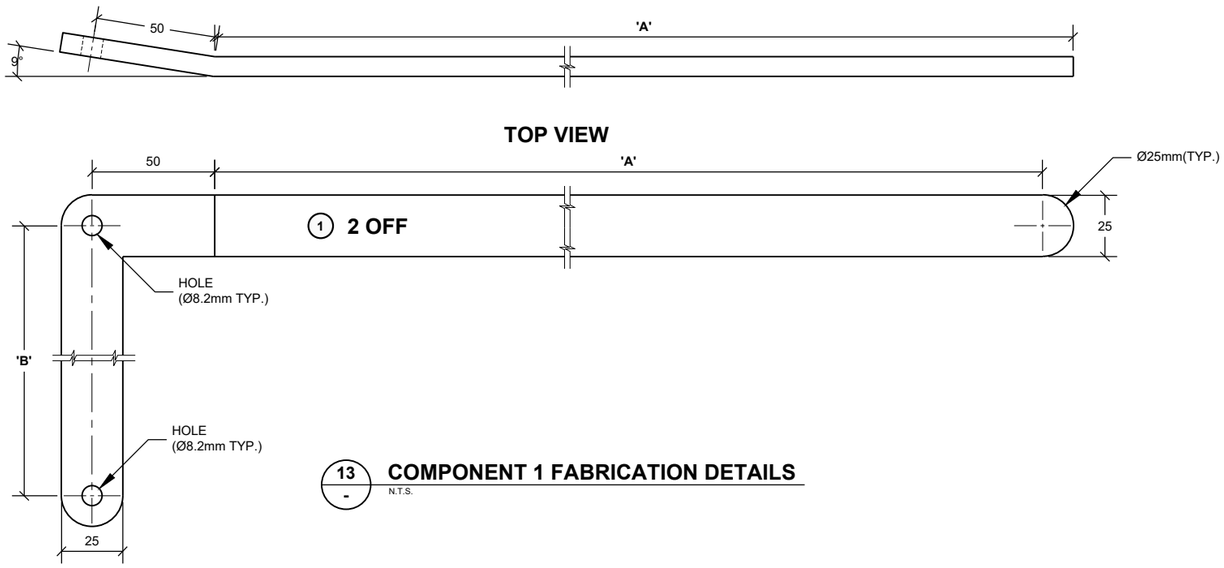
REFERENCE DRAWINGS

REVISIONS	REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
	A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

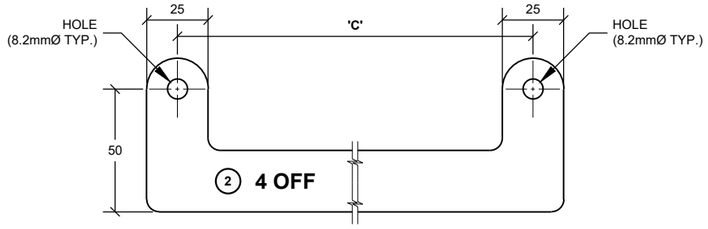
RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
SPIGOT PIPEWORK DETAILS

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER: **301-821-C3000-725**
REV: **A**

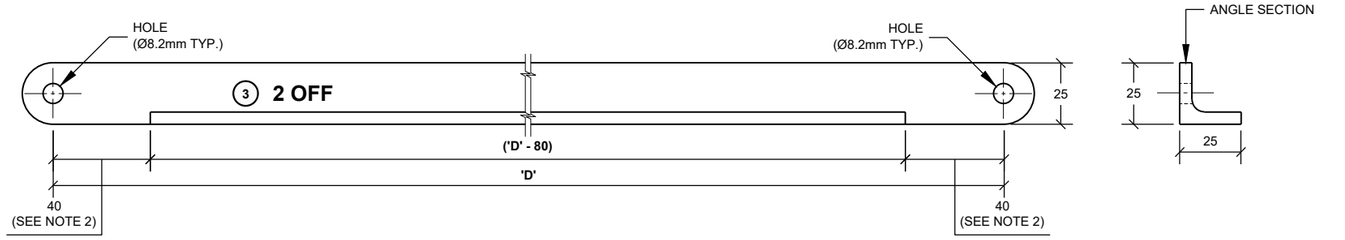
D:\2024\Roper Group\...\preliminary drawings\dwg\301-821-C3000-725.dwg



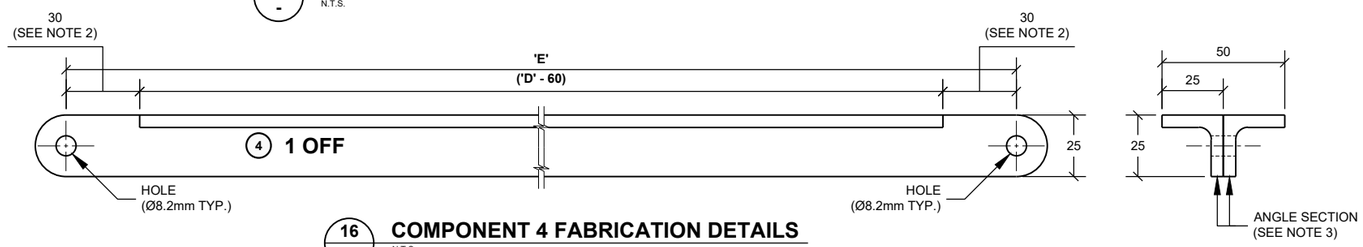
13 - **COMPONENT 1 FABRICATION DETAILS**
N.T.S.



14 - **COMPONENT 2 FABRICATION DETAILS**
N.T.S.



15 - **COMPONENT 3 FABRICATION DETAILS**
N.T.S.



16 - **COMPONENT 4 FABRICATION DETAILS**
N.T.S.

TABLE 4: COMPONENT SIZING	
LENGTH I.D.	LENGTH (mm)
'A'	550
'B'	110
'C'	145
'D'	430
'E'	420
SUITABLE PIPE SIZE	
INTERNAL PIPE Ø (mm)	152.4
HOSE WALL THICKNESS (mm)	T.B.C.

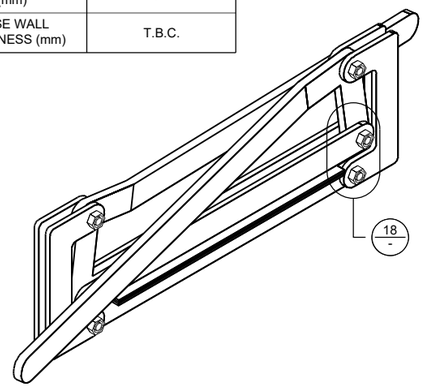
LEGEND:

1 2 — 25mm x 8mm STEEL PLATE

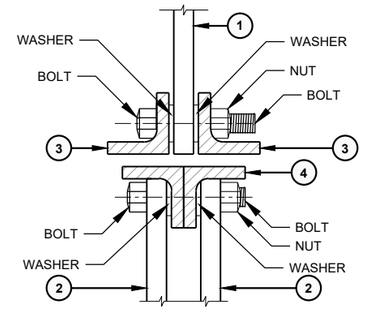
3 4 — 25mm x 5mm STEEL PLATE

NOTES:

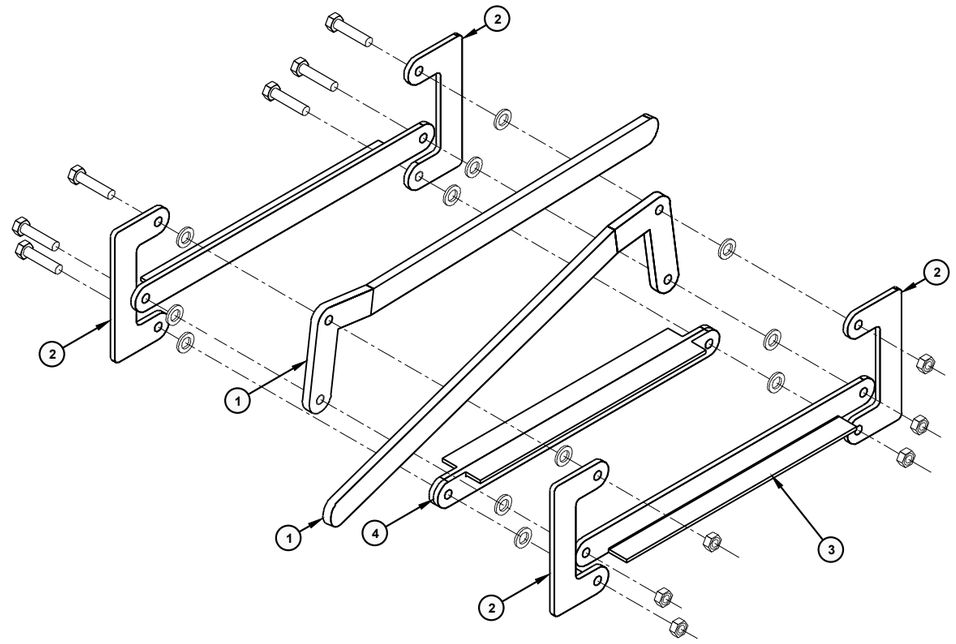
1. ASSEMBLE WITH 6 No. 8mmØ x 40mm LONG BOLTS EACH WITH 2 No. NYLON WASHERS AND ONE "LOCK ON" NUT
2. INDICATED AREAS OF THE ANGLE SECTIONS TO BE REMOVED TO ALLOW HANDLE OPERATION.
3. ANGLE SECTIONS ARE TO BE CONTINUOUSLY WELDED TOGETHER. TOP SURFACE TO BE GROUND FLAT.



17 - **SPIGOT CLAMP - ASSEMBLED VIEW**
N.T.S.



18 - **CLAMP ASSEMBLY DETAIL**
N.T.S.



19 - **SPIGOT CLAMP ASSEMBLY - EXPLODED VIEW**
N.T.S.

REVISIONS									
REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP		
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM			

SHEET SIZE A3
REFERENCES
REFERENCE DRAWINGS

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

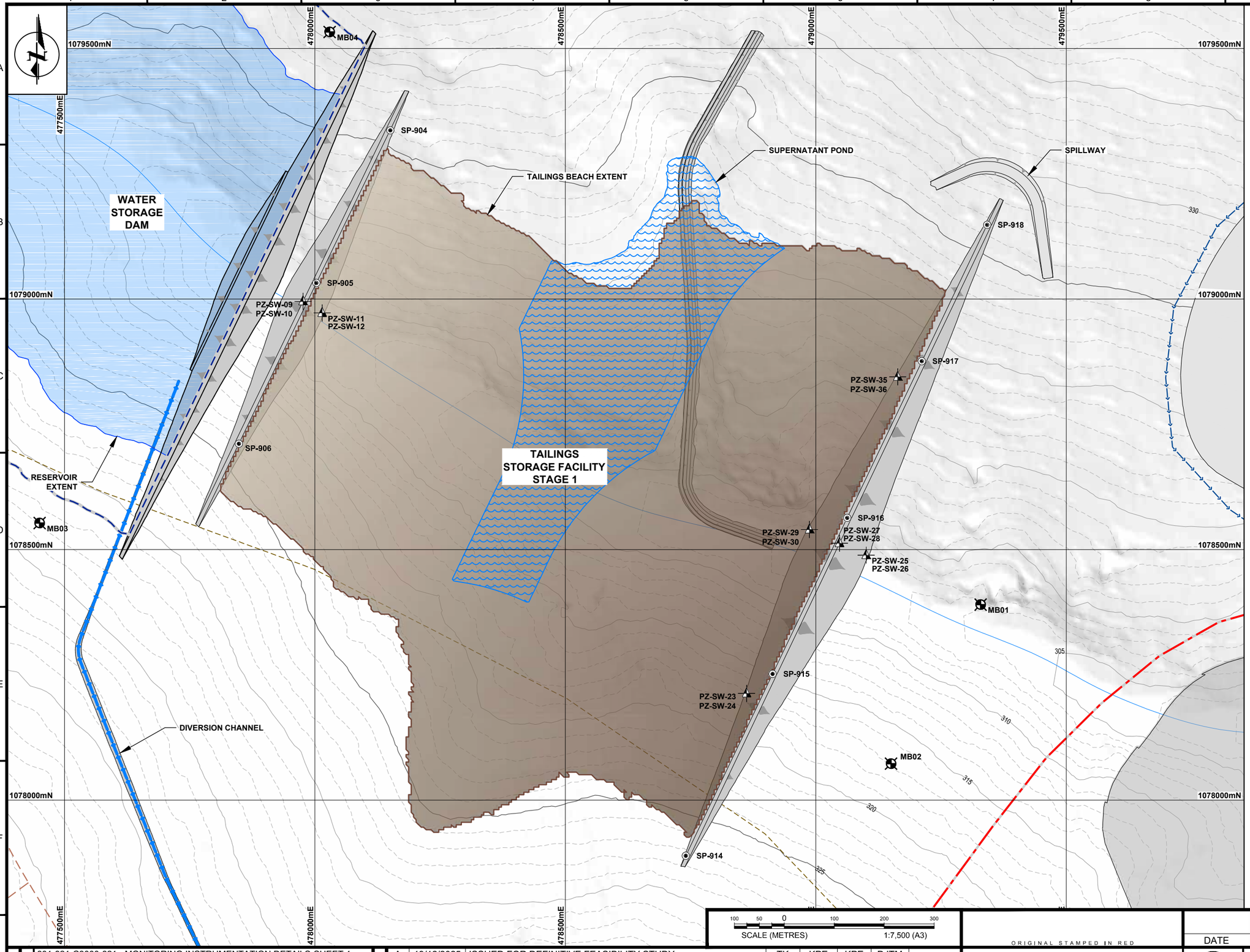
Knight Piésold CONSULTING
CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
SPIGOT CLAMP DETAILS

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER 301-821-C3000-750
REV A

G:\Doropo Project\Design_Engineering\Drawings\Preliminary drawings\Infrastructure\301-821-C3000-750 A



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MINOR)
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL
- PURPOSED SEDIMENT CONTROL DRAINS
- PROPOSED MONITORING BORE LOCATION
- PROPOSED STANDPIPE PIEZOMETER LOCATION
- PROPOSED SURVEY PIN LOCATION

NOTES:

1. 1m CONTOUR INTERVALS SHOWN.
2. FINAL STAGE TAILINGS STORAGE FACILITY SHOWN.
3. FOR TYPICAL MONITORING INSTALLATION DETAILS REFER DRAWING 301-821-C3000-821.

SHEET SIZE A3

REFERENCES: 301-821-C3000-821 - MONITORING INSTRUMENTATION DETAILS-SHEET 1

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

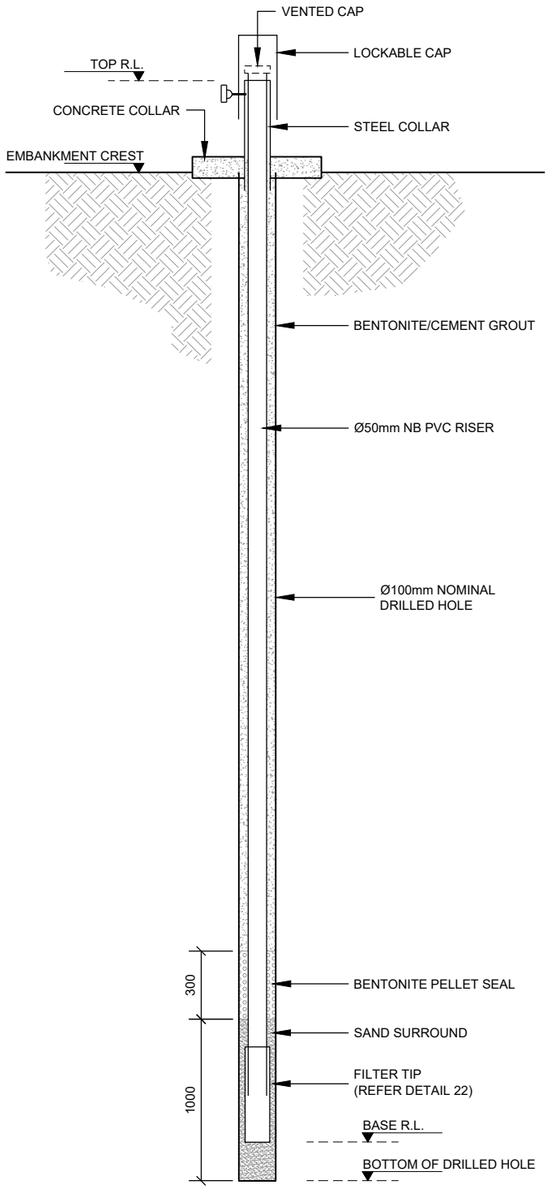
RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
MONITORING INSTRUMENTATION LAYOUT

SCALE 1:7.5,000

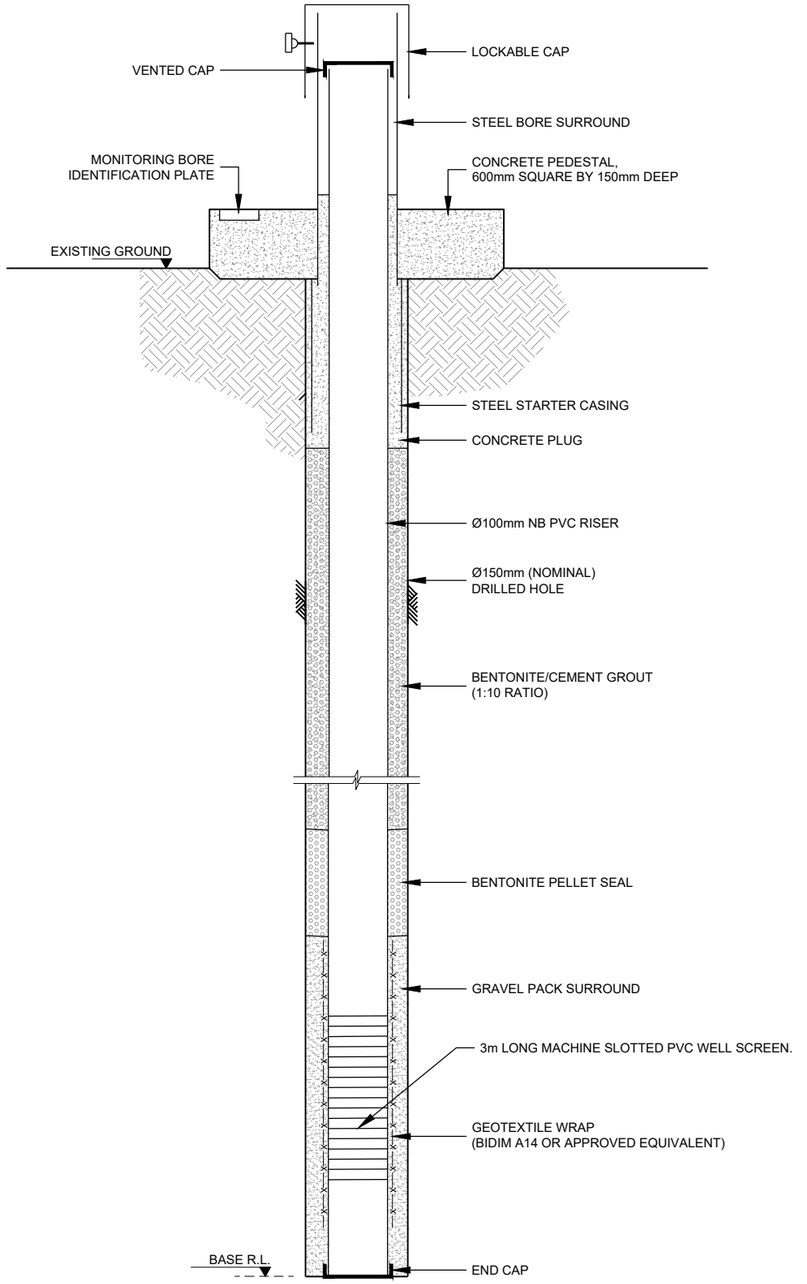
STATUS: DEFINITIVE FEASIBILITY STUDY

DRAWING NUMBER **301-821-C3000-800** REV **A**

G:\2024\0821 doropo\3 - projected engineering\drawings\301-preliminary drawings\301-821-C3000-800 A



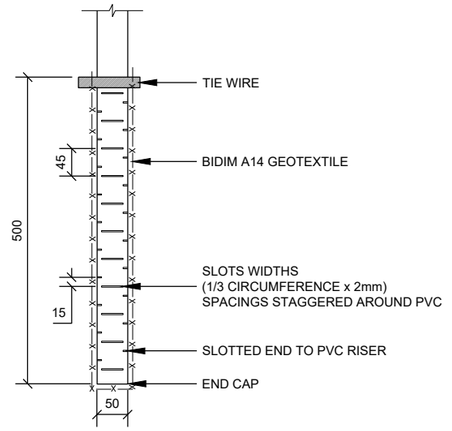
20 - TYPICAL STANDPIPE PIEZOMETER DETAIL
N.T.S



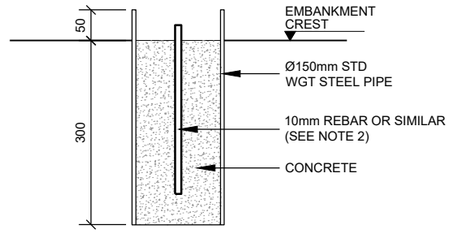
21 - MONITORING BORE INSTALLATION DETAIL
N.T.S.

NOTES:

1. SLOTTED CASING FORMED BY CUTTING 1/3 WAY THROUGH THE PVC PIPE ON ALTERNATING SIDES. SLOTS TO BE PLACED AT 15mm SPACING, CENTRE TO CENTRE.
2. FOR MONITORING INSTRUMENTATION LOCATIONS REFER DRAWING 301-821-C3000-800.



22 - TYPICAL FILTER TIP DETAIL
1:10



23 - SURVEY PIN
1:10

ORIGINAL STAMPED IN RED

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

SHEET SIZE A3

REFERENCES: 301-821-C3000-800 - MONITORING INSTRUMENTATION LAYOUT

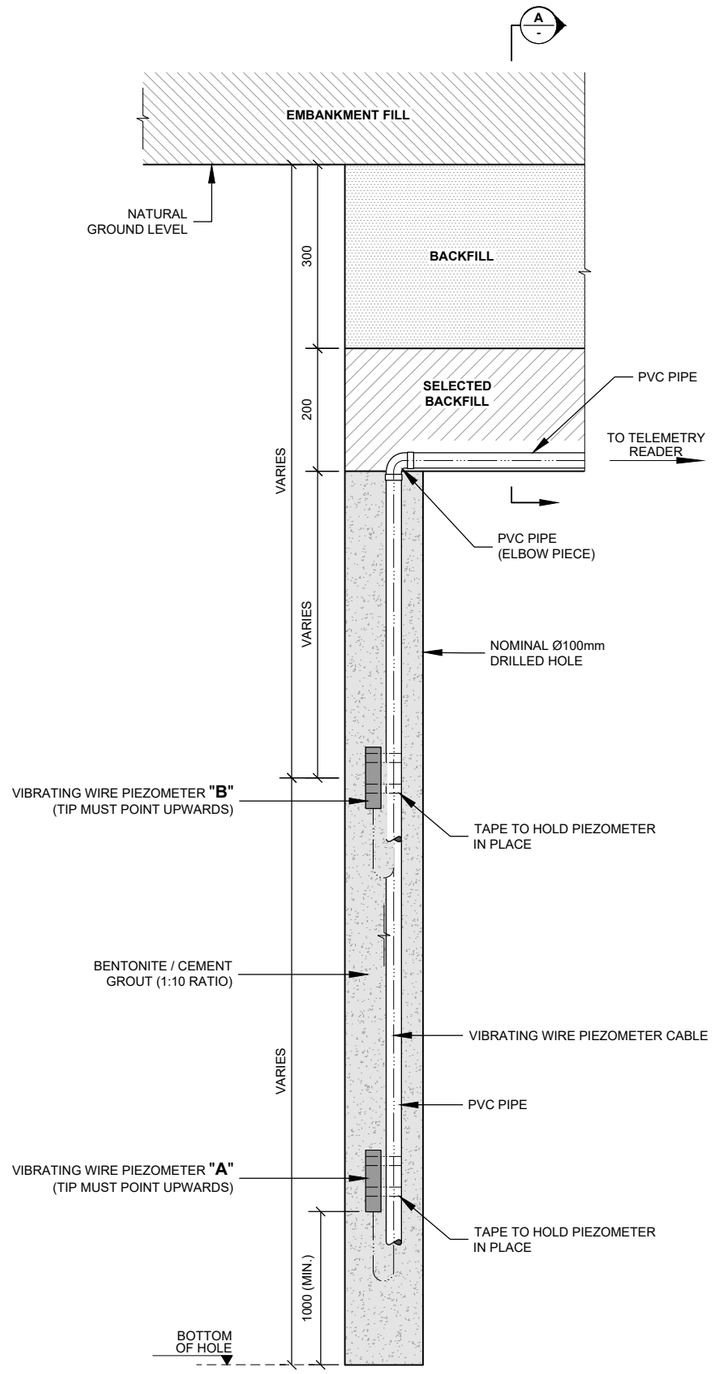
REFERENCE DRAWINGS

REVISIONS									
REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

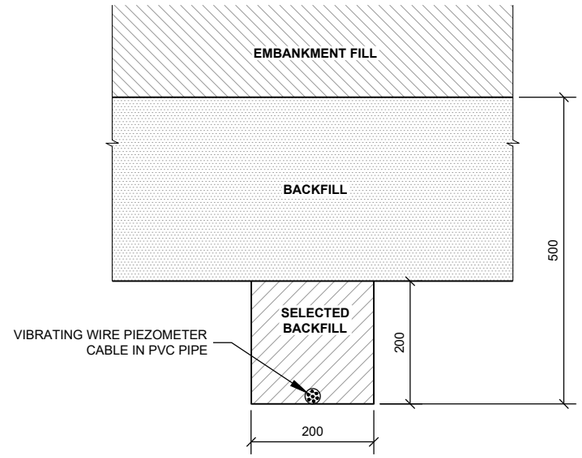
RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
MONITORING INSTRUMENTATION DETAILS-SHEET 1

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER: 301-821-C3000-821
REV: A

G:\pisol\301821\doc\pp_x_infrastructure\301-821-C3000-821 A Doropo TSF - Preliminary drawings\301-821-C3000-821 A.dwg



24 - **INITIAL VIBRATING WIRE PIEZOMETER**
1:10



A - **BURIED VIBRATING WIRE PIEZOMETER CABLE TRENCH SECTION**
1:10

NOTES:

1. FOR MONITORING INSTRUMENTATION LOCATIONS REFER DRAWING: 301-821-C4000-800.
2. PIEZOMETER DEPTHS IN EACH BOREHOLE SHALL BE CONFIRMED BASED ON FINDINGS DURING DRILLING.
3. DEEP VWP ("A") TO TARGET BASE OF MEDIUM STRENGTH HIGHLY WEATHERED ZONE.
4. SHALLOW VWP ("B") TO TARGET BASE OF SOILS ZONE.

REVISIONS								
REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

SHEET SIZE A3
REFERENCES
301-821-C4000-800 - WSD MONITORING INSTRUMENTATION LAYOUT
REFERENCE DRAWINGS

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

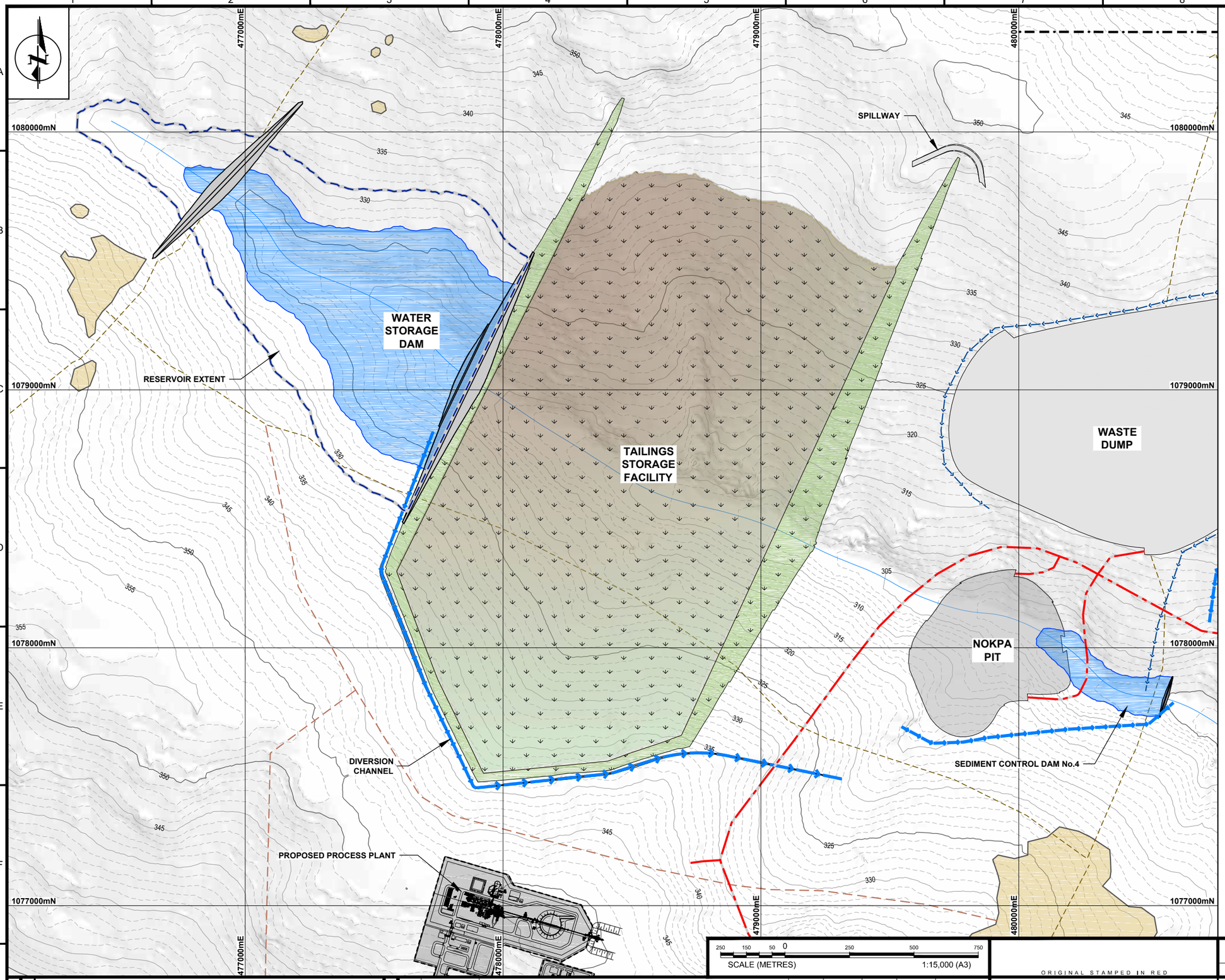
Knight Piésold CONSULTING
CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
MONITORING INSTRUMENTATION DETAILS-SHEET 2

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER 301-821-C3000-822
REV A

D:\2024\Abbot doropo_project\engineering\drawings\gad & infrastructure\301-821-C3000-822 A preliminary drawings.dwg

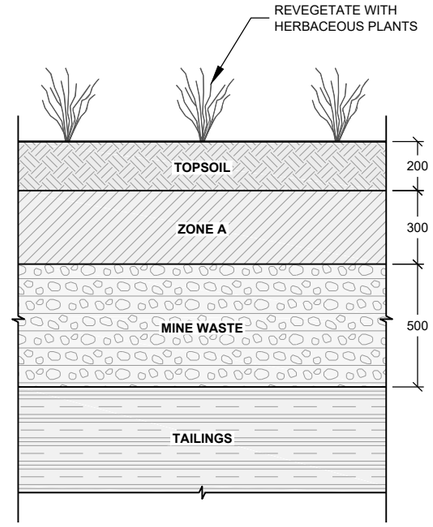


LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MINOR)
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL
- PURPOSED SEDIMENT CONTROL DRAINS
- CLOSURE COVER (REFER SECTION V)
- TOPSOIL COVER AND REVEGETATE

NOTES:

1. 1m CONTOUR INTERVALS SHOWN.
2. CLOSURE STAGE TAILINGS STORAGE FACILITY SHOWN.



W - **CLOSURE COVER SECTION**
1:25

SCALE (METRES) 250 150 50 0 250 500 750
1:15,000 (A3)

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

SHEET SIZE A3
REFERENCES
REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

Knight Piésold CONSULTING

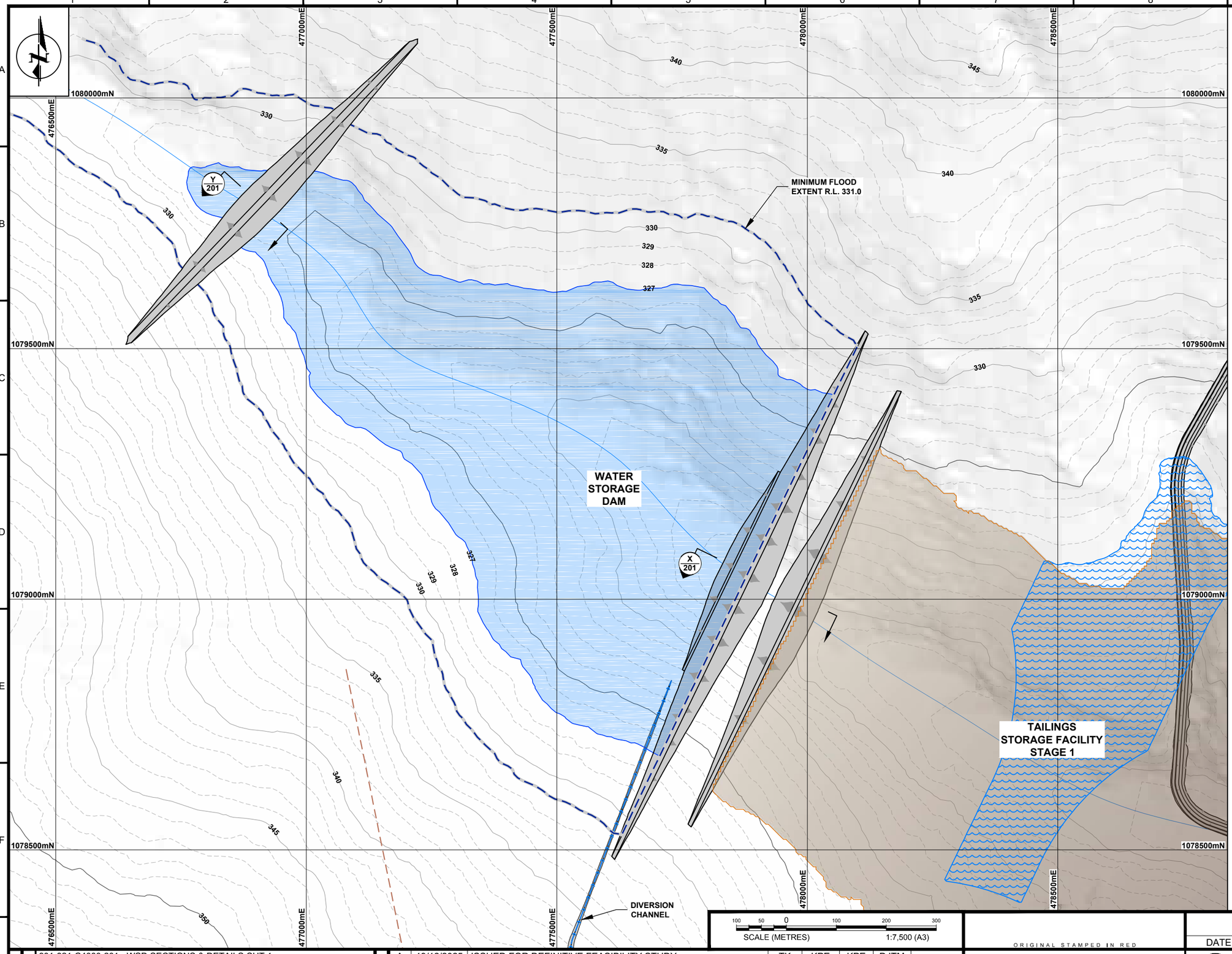
CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
TYPICAL CLOSURE SECTIONS & DETAILS

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER 301-821-C3000-921
REV A

G:\pdoc\1000s\1080s\301-821-C3000-921 A.dwg 19/12/2025 - 7:21:49 AM by Tim Kelly (Knight Piesold Consulting) Drawing: 301-821-C3000-921 A



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MINOR)
- PROPOSED DIVERSION CHANNEL

NOTES:

1. 1m CONTOUR INTERVALS SHOWN.
2. STAGE 1 TAILINGS STORAGE FACILITY SHOWN.

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

DATE | DESIGNED | CHECKED | APPROVED | CLIENT APP'D

ORIGINAL STAMPED IN RED

SHEET SIZE A3

REFERENCES

301-821-C4000-201 - WSD SECTIONS & DETAILS-SHT 1

REFERENCE DRAWINGS

REVISIONS

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
WSD GENERAL ARRANGEMENT PLAN

SCALE 1:7.500

STATUS: DEFINITIVE FEASIBILITY STUDY

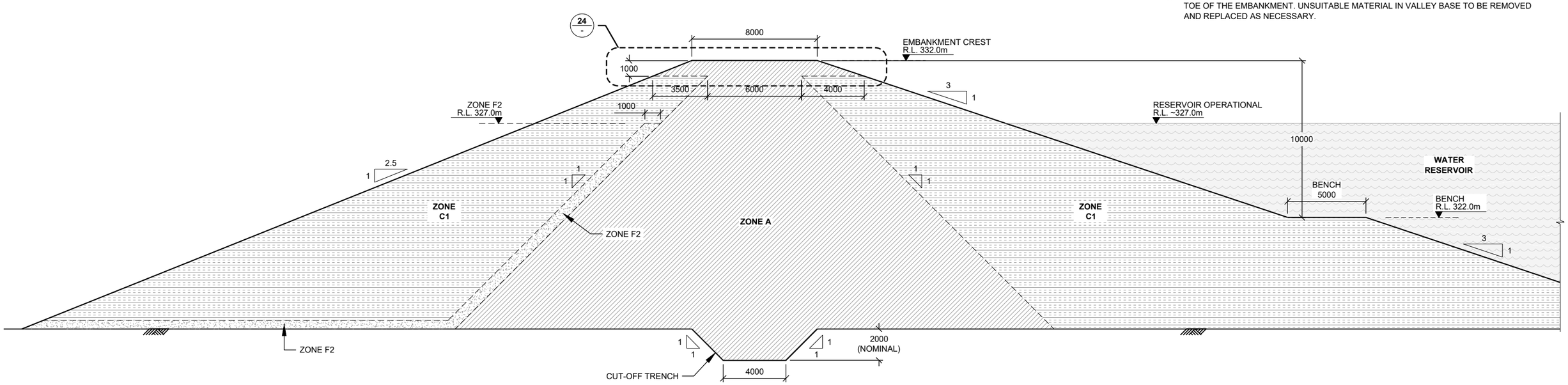
DRAWING NUMBER 301-821-C4000-100

REV A

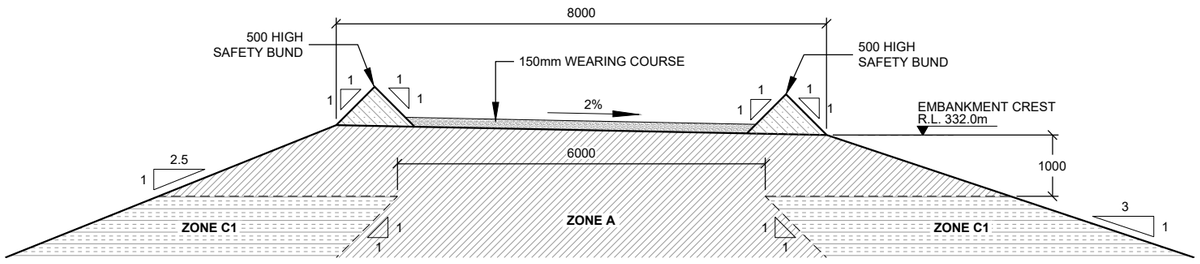
G:\projects\301\docs\...\engineering\drawings\civil\preliminary drawings\301-821-C4000-100 A

NOTES:

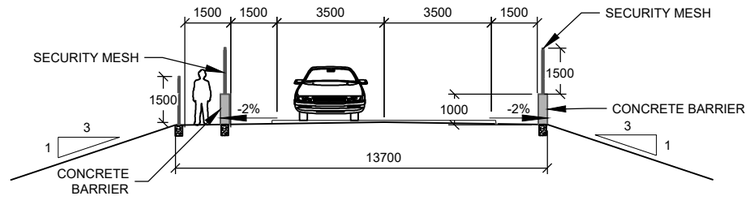
1. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-C0001-005.
2. SAFETY BUND TO BE CONSTRUCTED WHERE NO PIPELINE IS PRESENT ON UPSTREAM EMBANKMENT CREST. BREAKS IN UPSTREAM SAFETY BUND AT 50m CENTRES (TO ALLOW DRAINAGE OF RAINFALL RUNOFF).
3. CUT-OFF TRENCH TO BE EXCAVATED 1.0m (MIN.) INTO COMPETENT MATERIAL.
4. COMPACTED SOIL LINER IN TSF AS FOLLOWS:
   - WHERE IN-SITU MATERIAL IS UNSUITABLE AS COMPACTED SOIL LINER - 200mm IMPORTED SOIL ZONE A MATERIAL.
   - WHERE IN-SITU MATERIAL IS SUITABLE AS COMPACTED SOIL LINER - SCARIFY, MOISTURE CONDITION AND COMPACT IN-SITU MATERIAL (200mm).
5. EMBANKMENT FOUNDATION PREPARATION SHALL EXTEND 5000mm BEYOND THE TOE OF THE EMBANKMENT. UNSUITABLE MATERIAL IN VALLEY BASE TO BE REMOVED AND REPLACED AS NECESSARY.



X 100 **TYPICAL WATER STORAGE DAM EMBANKMENT SECTION**
1:250



24 - **TYPICAL WATER STORAGE DAM EMBANKMENT CREST DETAIL**
1:100



Y 100 **TYPICAL CROSS SECTION OF PUBLIC ACCESS CAUSEWAY**
N.T.S.

REFERENCES	REFERENCE DRAWINGS
SHEET SIZE A3	301-821-C0001-005 - ABBREVIATIONS COMMON LEGEND & SPECIFICATIONS
	301-821-C4000-100 - WSD GENERAL ARRANGEMENT PLAN

REVISIONS	REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
	A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

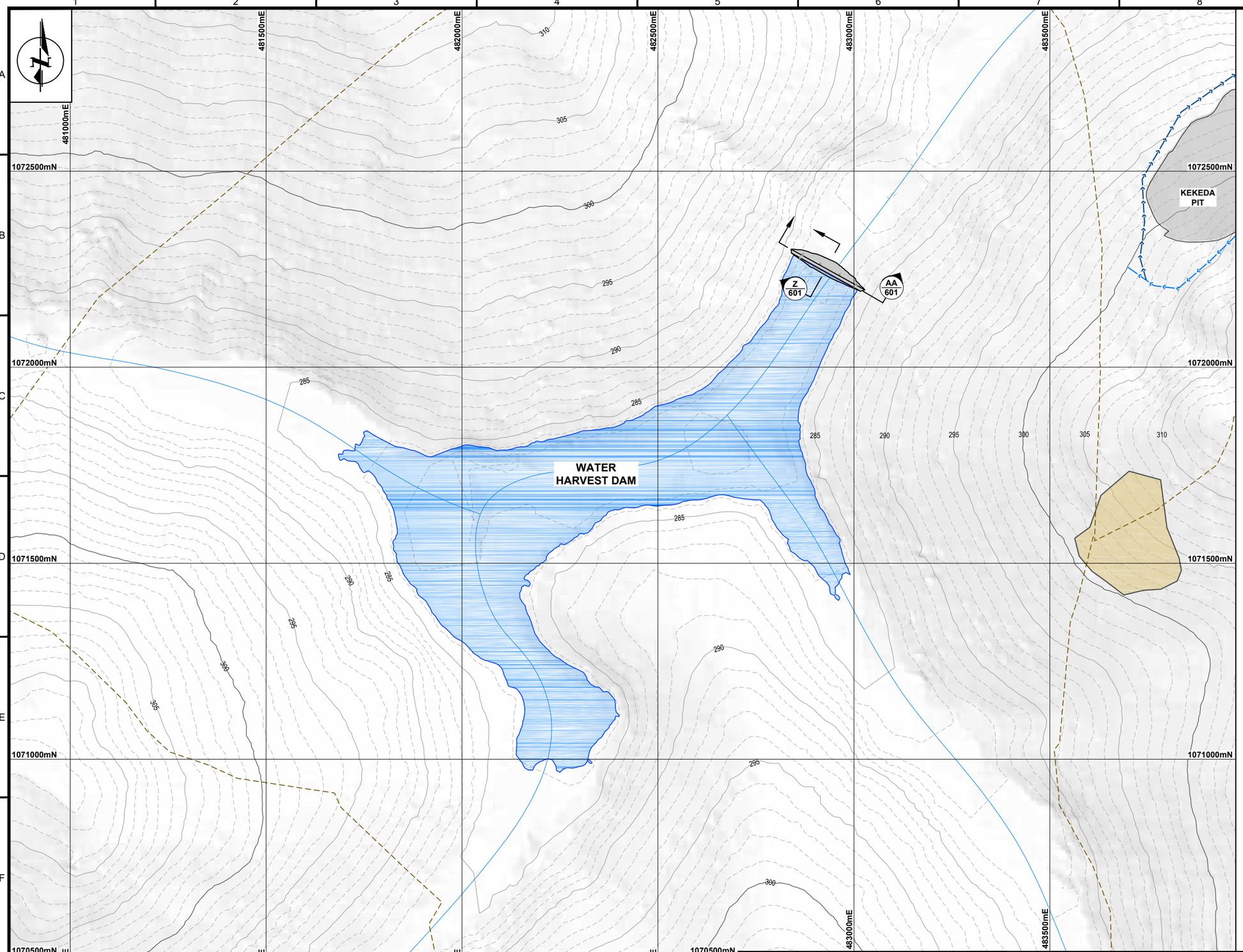
CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
WSD SECTIONS & DETAILS-SHT 1

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C4000-201** REV **A**

G:\pdoc\1000s\301-821-C4000-201 A.dgn



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MINOR)
- PROPOSED DIVERSION CHANNEL

NOTES:

1. 1m CONTOUR INTERVALS SHOWED.

SCALE (METRES) 200 150 100 50 0 100 200 300 400 — 1:10,000 (A3)

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

SHEET SIZE A3

REFERENCES

301-821-C4000-601 - WHD SECTIONS & DETAILS-SHT 1

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
WHD GENERAL ARRANGEMENT PLAN

SCALE 1:10,000

STATUS: DEFINITIVE FEASIBILITY STUDY

DRAWING NUMBER **301-821-C4000-500** REV **A**

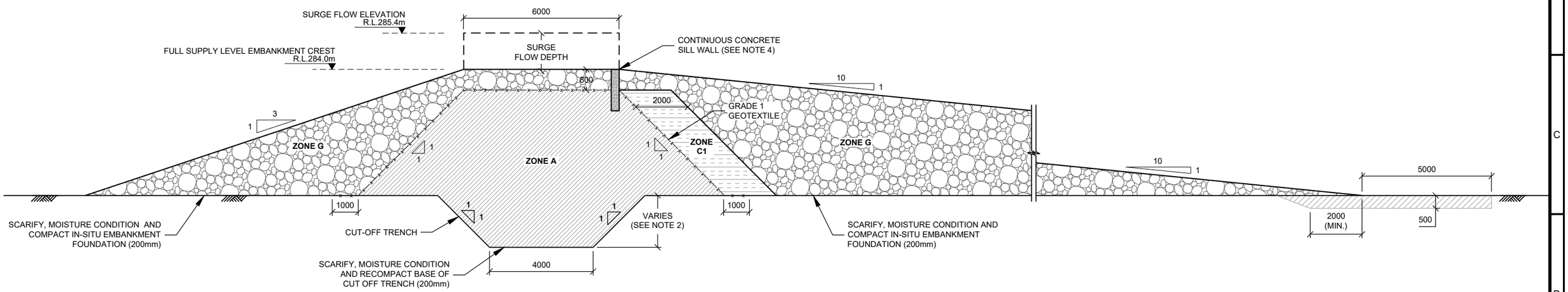
G:\Design\Models\Design_Projects\Engineering\Drawings\Preliminary drawings\301-821-C4000-500_A

287

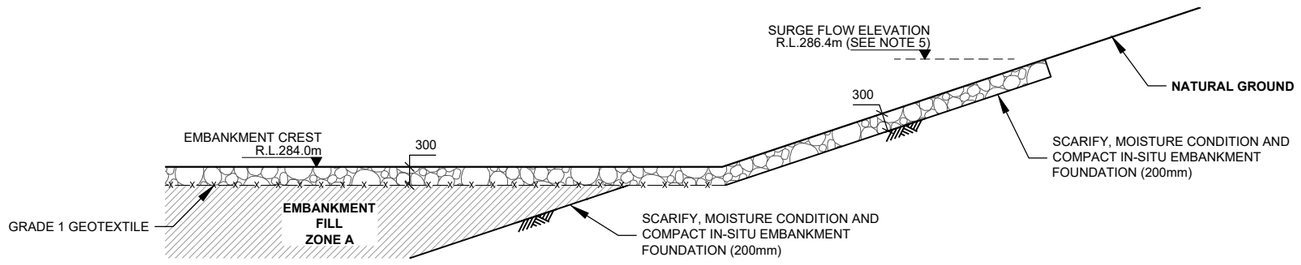
410

NOTES:

1. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-C0001-005.
2. CUT-OFF TRENCH TO BE EXCAVATED 1.0m (MIN.) INTO COMPETENT MATERIAL AS DEEMED BY ENGINEER ON SITE.
3. EMBANKMENT FOUNDATION PREPARATION SHALL EXTEND 5000mm BEYOND THE TOE OF THE EMBANKMENT. UNSUITABLE MATERIAL IN VALLEY BASE TO BE REMOVED AND REPLACED AS NECESSARY.
4. 1200mm X 300mm REINFORCED CONCRETE, ANCHORED INTO ZONE A.
5. EROSION PROTECTION ON WESTERN ABUTMENT INSTALLED TO R.L. 285.4m OR AS DEEMED BY ENGINEER ON SITE.



Z / 500 **TYPICAL WATER HARVEST DAM SECTION**
1:150



AA / 500 **SURGE SECTION OVER EMBANKMENT SECTION**
1:100

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS
301-821-C0001-005 - ABBREVIATIONS COMMON LEGEND & SPECIFICATIONS
301-821-C4000-500 - WHD GENERAL ARRANGEMENT PLAN

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
WHD SECTIONS & DETAILS-SHT 1

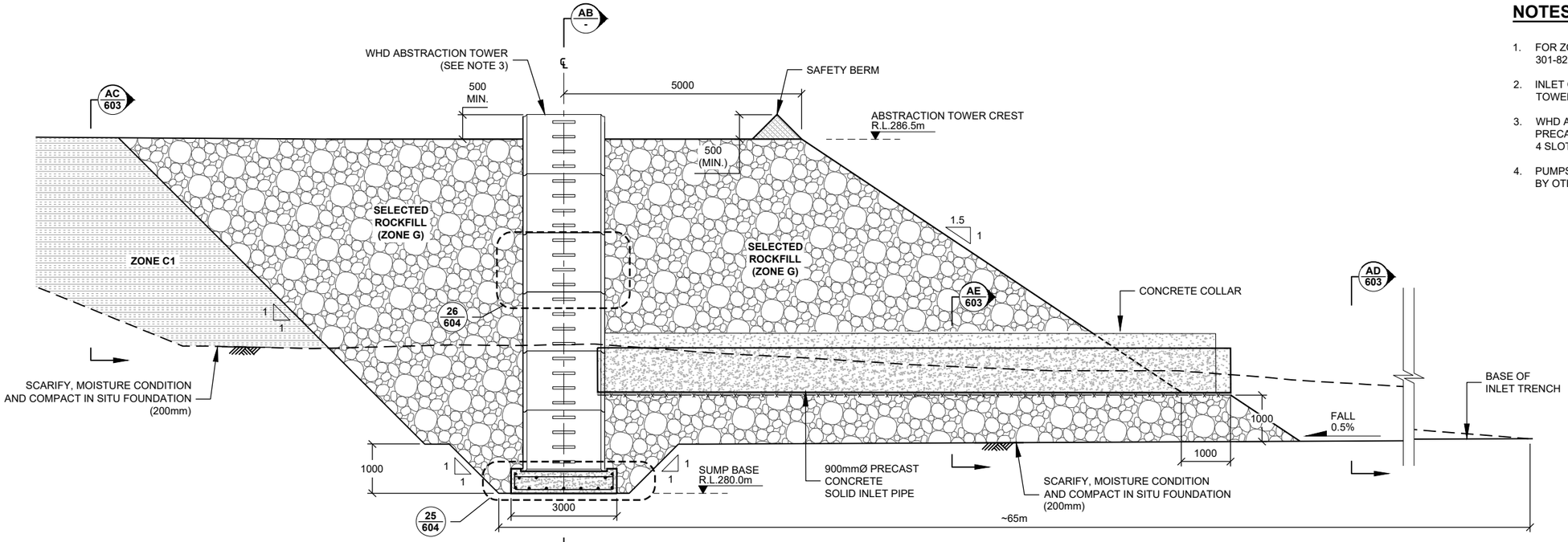
SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C4000-601**
REV **A**

D:\2501-0067 doropo_project\02engineering\drawings\01 preliminary drawings\gaf & infrastructure\301-821-C4000-601 A

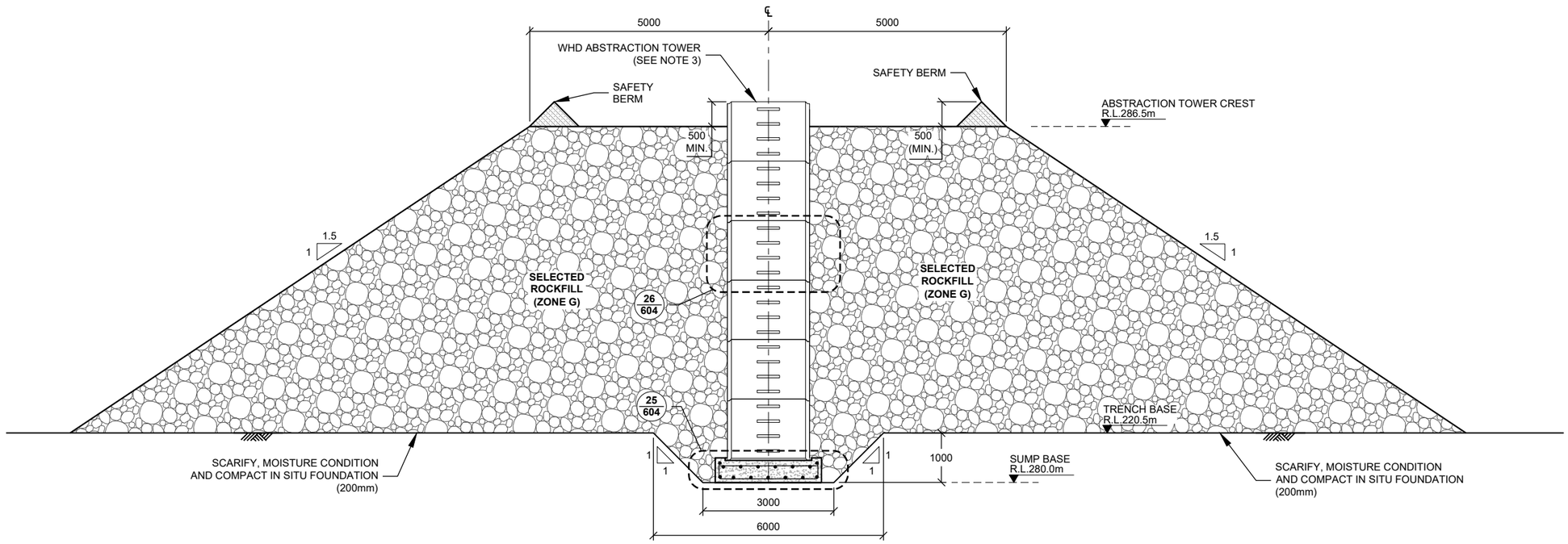
287
410

NOTES:

1. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-C0001-005.
2. INLET CHANNEL CUT TO BE USED FOR CAUSEWAY FILL OR TOWER BACKFILL.
3. WHD ABSTRACTION TOWER COMPRISES OF 1800mm SQUARE PRECAST CONCRETE SECTIONS, WITH 450mm x 50mm SLOTS, 4 SLOTS PER ROW. ROWS AT 300mm CENTRES.
4. PUMPS, CONTROL AND PIPEWORK DESIGNED AND SPECIFIED BY OTHERS.



Z - **WHD ABSTRACTION TOWER LONG SECTION**
1:100



AB - **WHD ABSTRACTION TOWER**
1:100

REFERENCES	REFERENCE DRAWINGS
SHEET SIZE A3	301-821-C0001-005 - ABBREVIATIONS COMMON LEGEND & SPECIFICATIONS
	301-821-C4000-603 - WHD SECTIONS & DETAILS-SHT 3
	301-821-C4000-604 - WHD SECTIONS & DETAILS-SHT 4

REVISIONS	REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
	A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

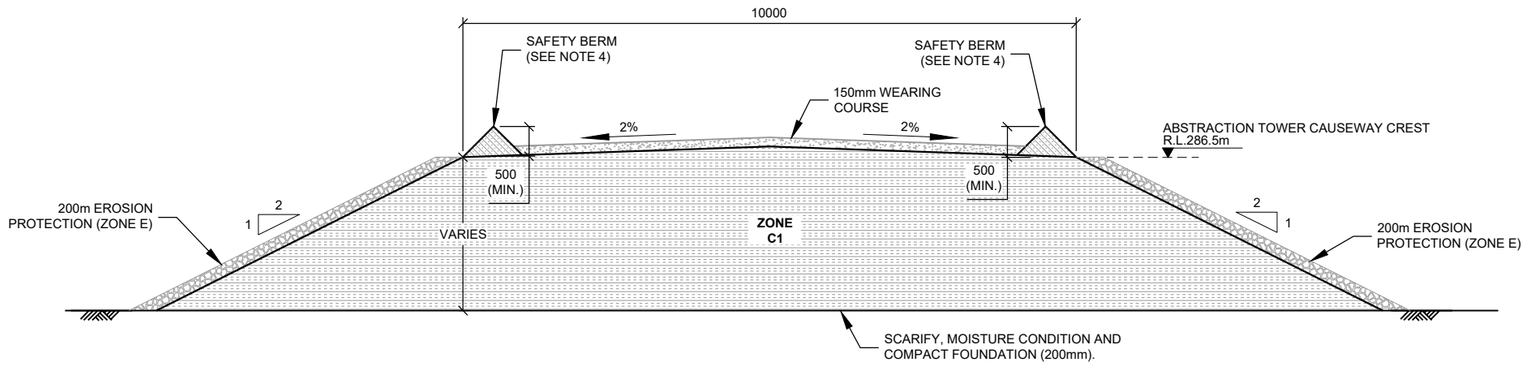
RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
WHD SECTIONS & DETAILS-SHT 2

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C4000-602**
REV **A**

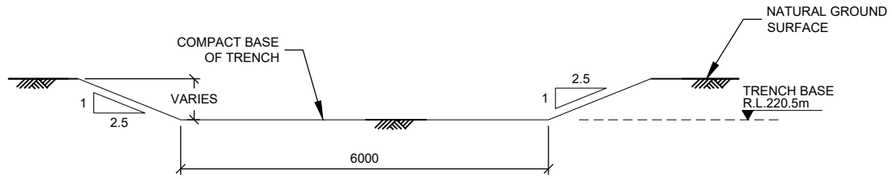
G:\DOROPO\Projects\Doropo_project\Engineering\Drawings\Preliminary drawings\Infrastructure\301-821-C4000-602.dwg

NOTES:

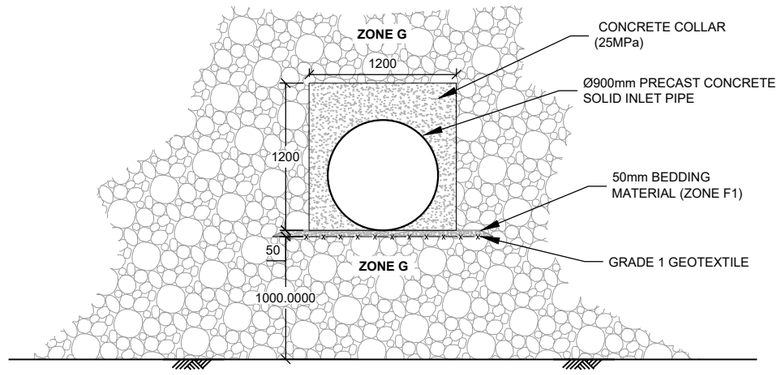
1. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-C0001-005.
2. WHD ABSTRACTION TOWER COMPRISES OF 1800mm SQUARE PRECAST CONCRETE SECTIONS, WITH 450mm x 50mm SLOTS, 4 SLOTS PER ROW. ROWS AT 300mm CENTRES.
3. PUMPS, CONTROLS AND PIPEWORK DESIGNED AND SPECIFIED BY OTHERS.
4. BREAKS IN SAFETY BUNDS FOR RUNOFF @20m C/C.



AC 602 **WHD ABSTRACTION TOWER CAUSEWAY** 1:100



AD 602 **WHD ABSTRACTION TOWER INLET TRENCH** 1:100



AE 602 **ABSTRACTION TOWER INLET PIPE** 1:50

REFERENCES	REFERENCE DRAWINGS
SHEET SIZE A3	301-821-C0001-005 - ABBREVIATIONS COMMON LEGEND & SPECIFICATIONS
	301-821-C4000-602 - WHD SECTIONS & DETAILS-SHT 2

REVISIONS	REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
	A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
WHD SECTIONS & DETAILS-SHT 3

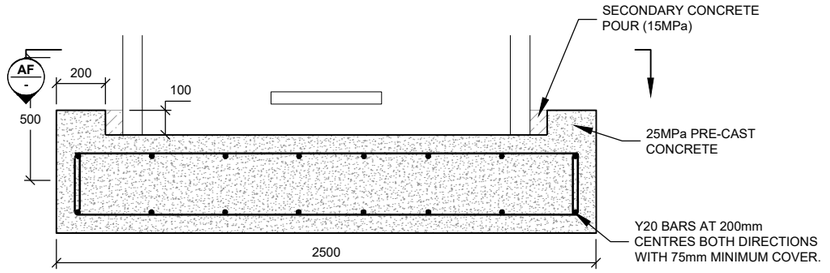
SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C4000-603**
REV **A**

D:\2024\Roper\doropo_project\engineering\drawings\301 preliminary drawings\civil & infrastructure\301-821-C4000-603_A

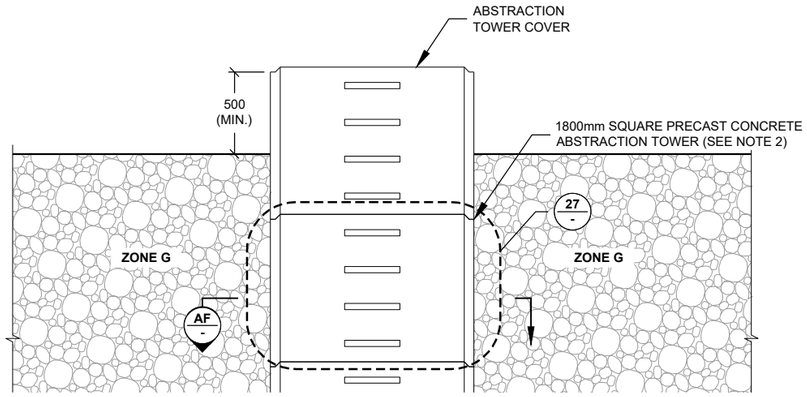
287 410

NOTES:

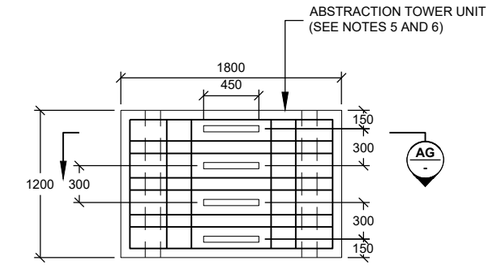
1. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-C0001-005.
2. WHD ABSTRACTION TOWER COMPRISES OF 1800mm SQUARE PRECAST CONCRETE SECTIONS, WITH 450mm x 50mm SLOTS, 4 SLOTS PER ROW. ROWS AT 300mm CENTRES.
3. PUMPS, CONTROLS AND PIPEWORK DESIGNED AND SPECIFIED BY OTHERS.
4. BREAKS IN SAFETY BUNDS FOR RUNOFF @20m C/C.
5. ALL REINFORCEMENT BARS N16 UNLESS OTHERWISE NOTED.
6. MINIMUM COVER 75mm



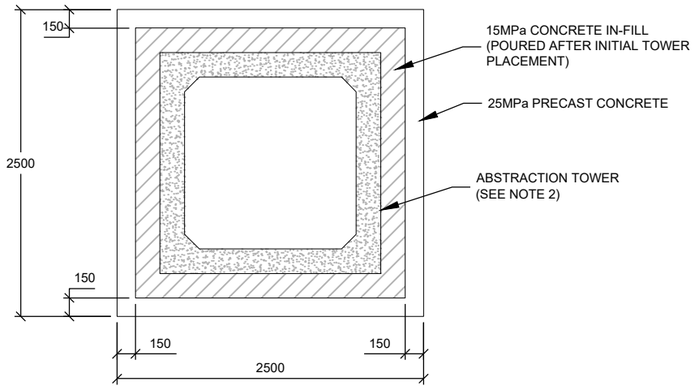
25/602 **ABSTRACTION TOWER BASE SLAB DETAIL**
1:25



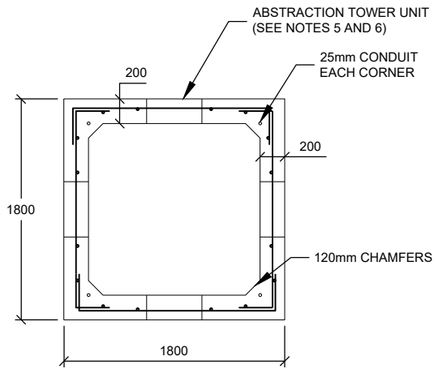
26/602 **TYPICAL ABSTRACTION TOWER DETAIL**
1:50



27/- **ABSTRACTION TOWER UNIT DETAIL**
1:50



AF/- **ABSTRACTION TOWER BASE SECTION**
1:50



AG/- **ABSTRACTION TOWER UNIT SECTION**
1:50

REFERENCES	
301-821-C0001-005 - ABBREVIATIONS COMMON LEGEND & SPECIFICATIONS	
301-821-C4000-602 - WHD SECTIONS & DETAILS-SHT 2	
REFERENCE DRAWINGS	

SHEET SIZE A3

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

REVISIONS

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

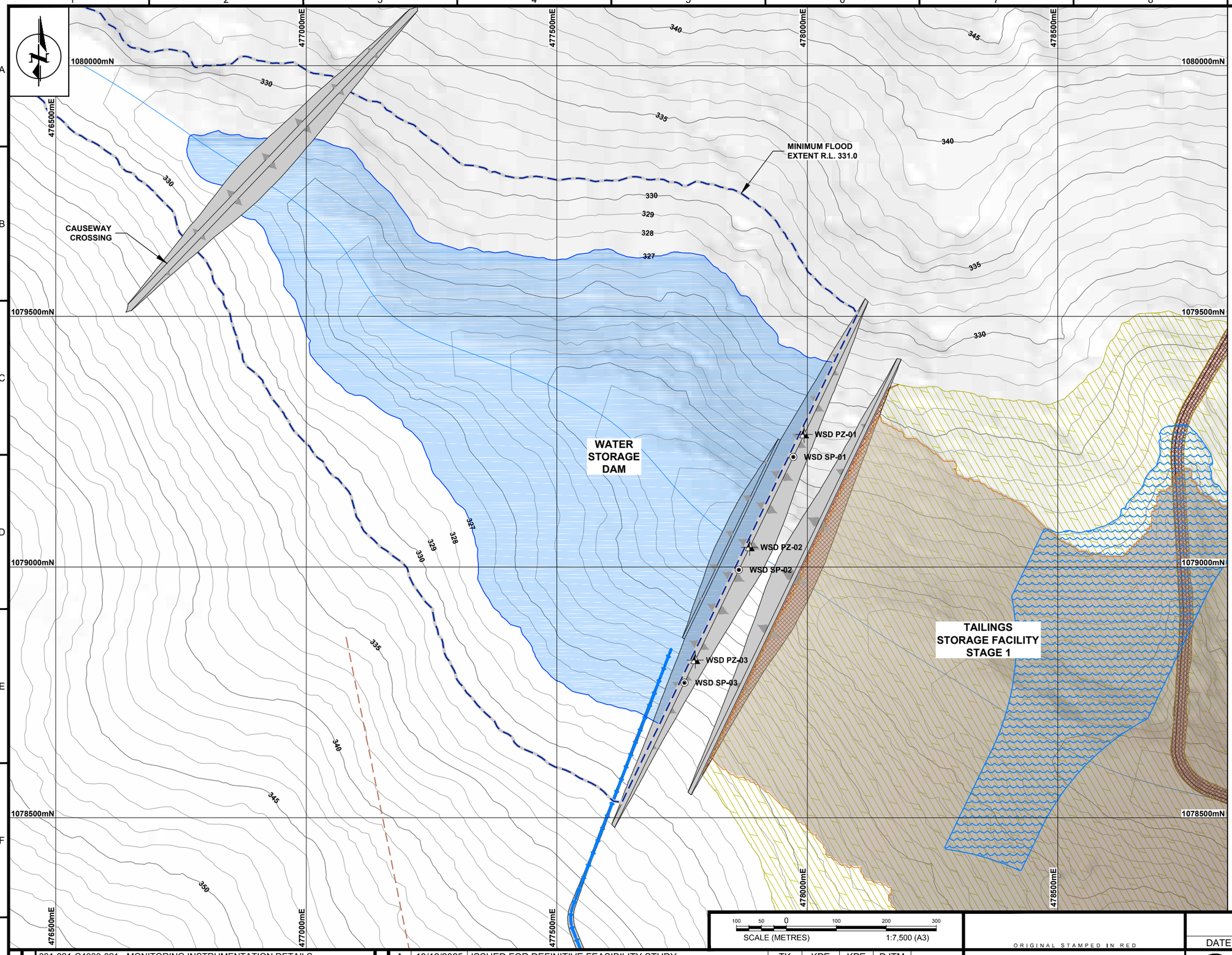
CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
WHD SECTIONS & DETAILS-SHT 4

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C4000-604** REV **A**

Q:\pe\301-00821 doropo_pty_project\00-engineering drawings\01-preliminary drawings\civil\civil & infrastructure\301-821-C4000-604 A



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MINOR)
- PROPOSED DIVERSION CHANNEL
- PROPOSED STANDPIPE PIEZOMETER LOCATION
- PROPOSED SURVEY PIN LOCATION

NOTES:

1. 1m CONTOUR INTERVALS SHOWN.
2. STAGE 1 TAILINGS STORAGE FACILITY SHOWN.
3. FOR TYPICAL MOINITORING INSTALLATION DETAILS REFER DRAWING 301-821-C4000-821.

SHEET SIZE A3

REFERENCES: 301-821-C4000-821 - MONITORING INSTRUMENTATION DETAILS

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D
ORIGINAL STAMPED IN RED					

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
WSD MONITORING INSTRUMENTATION LAYOUT

SCALE 1:7.500

STATUS: DEFINITIVE FEASIBILITY STUDY

DRAWING NUMBER: 301-821-C4000-800

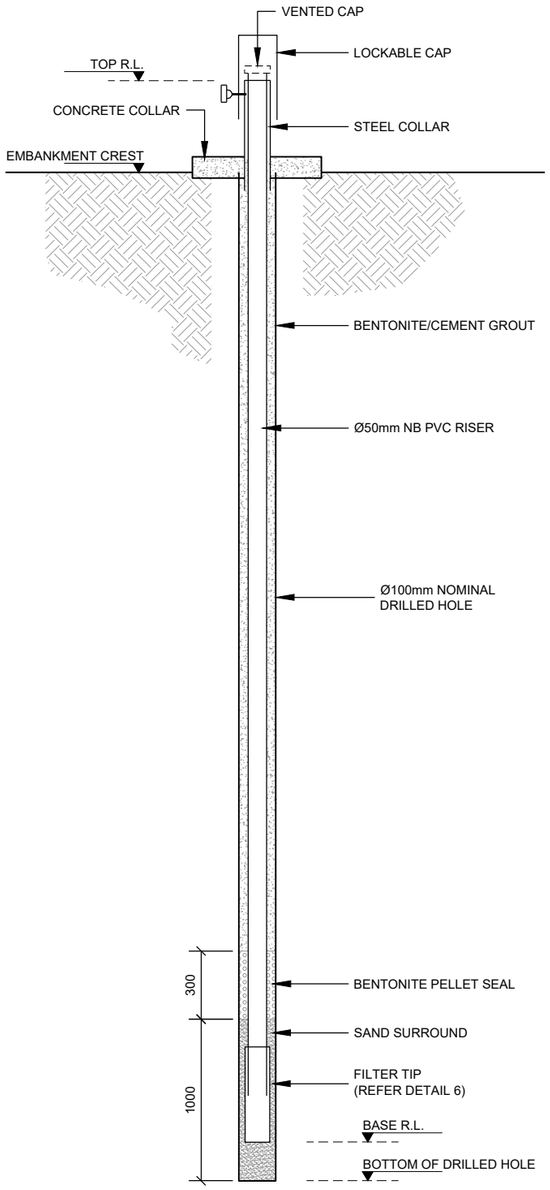
REV: A

Q:\Doroporesource_projects\engineering\drawings\civil & infrastructure\301-821-C4000-800_A

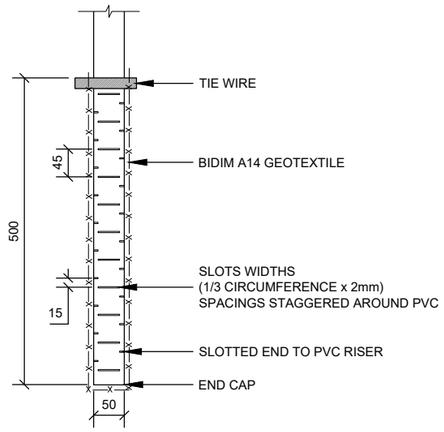
287 410

NOTES:

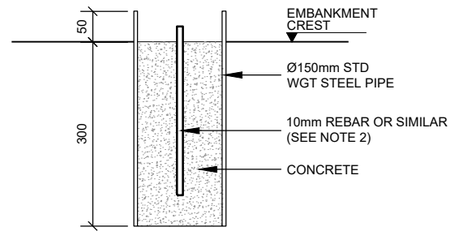
1. SLOTTED CASING FORMED BY CUTTING 1/3 WAY THROUGH THE PVC PIPE ON ALTERNATING SIDES. SLOTS TO BE PLACED AT 15mm SPACING, CENTRE TO CENTRE.
2. FOR WSD MONITORING INSTRUMENTATION LOCATIONS REFER DRAWING 301-821-C4000-800.



28 - **TYPICAL STANDPIPE PIEZOMETER DETAIL**
N.T.S



29 - **TYPICAL FILTER TIP DETAIL**
1:10



30 - **SURVEY PIN**
1:10

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

REFERENCE DRAWINGS

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

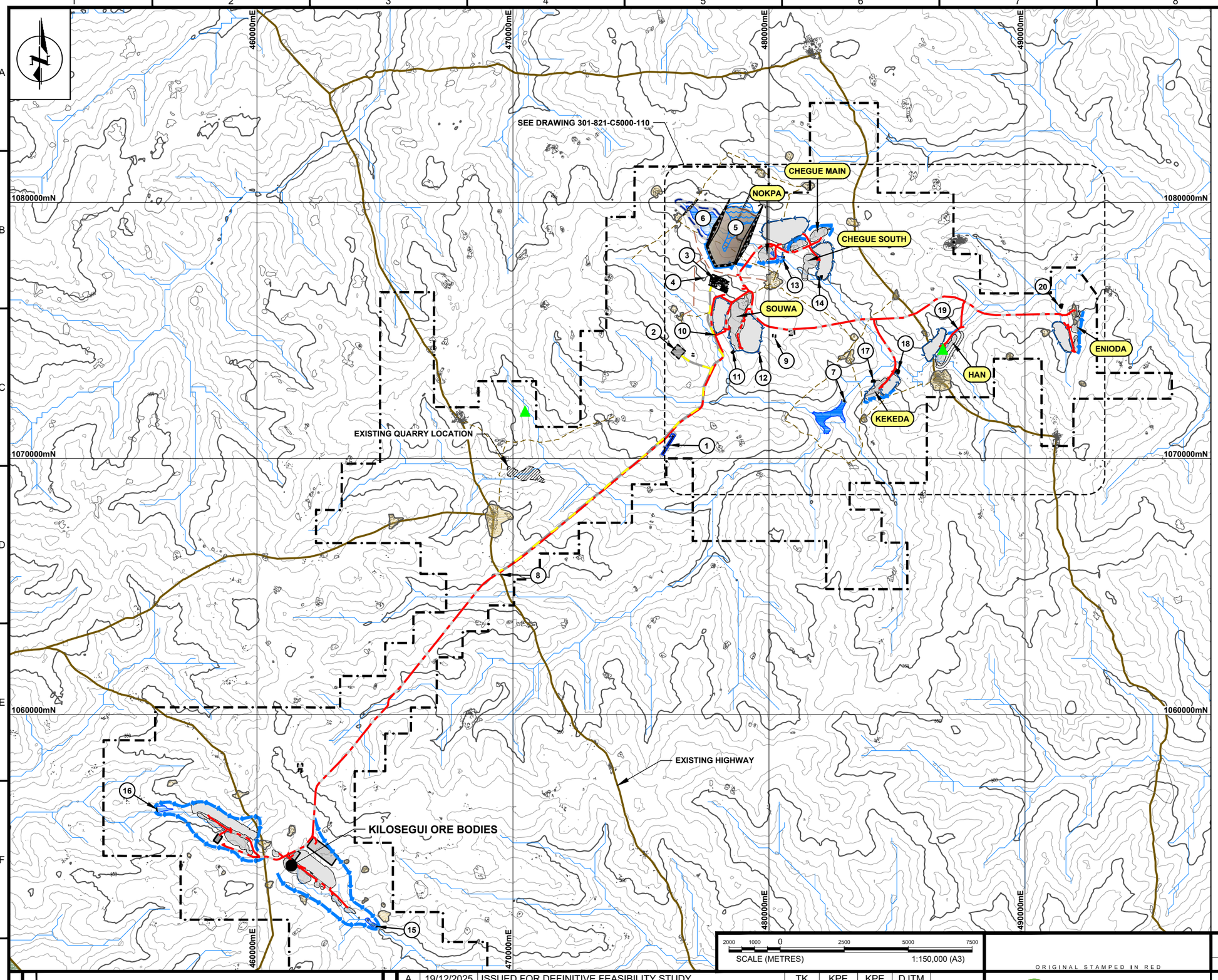
NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
MONITORING INSTRUMENTATION DETAILS

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C4000-821**
REV **A**

SHEET SIZE A3
REFERENCES
REVISIONS
287
410

G:\pisol-hobart\projects\301-821\engineering\drawings\civil\preliminary drawings\301-821-C4000-821.dwg 19/12/2025 7:41:44 AM



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MAJOR)
- EXISTING UNSEALED ROAD (MINOR)
- TENEMENT BOUNDARY
- OUTCROP LOCATION
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL
- ORE BODY NAME

NOTES:

1. 10m CONTOUR INTERVALS SHOWN.
2. PIT SHELL EXTENTS PROVIDED BY RESOLUTE, OCTOBER 2025.
3. INDICATIVE LOCATIONS SHOWN FOR:
   - WASTE DUMP
   - PROCESS PLANT
   - ROM PAD
   - SITE ACCOMMODATION
5. FINAL STAGE TAILINGS STORAGE FACILITY SHOWN.

ITEM KEY:

1. SITE AIRSTRIP
2. PROPOSED SITE ACCOMMODATION
3. PROPOSED SITE PLANT
4. PROPOSED ADMIN AREA
5. TAILINGS STORAGE FACILITY
6. WATER STORAGE DAM
7. WATER HARVEST DAM
8. OVERPASS
9. EXPLOSIVE MAGAZINE LOCATION
10. SEDIMENT CONTROL STRUCTURE No.1
11. SEDIMENT CONTROL STRUCTURE No.2
12. SEDIMENT CONTROL STRUCTURE No.3
13. SEDIMENT CONTROL STRUCTURE No.4
14. SEDIMENT CONTROL STRUCTURE No.4A
15. SEDIMENT CONTROL STRUCTURE No.5
16. SEDIMENT CONTROL STRUCTURE No.6
17. SEDIMENT CONTROL STRUCTURE No.7
18. SEDIMENT CONTROL STRUCTURE No.8
19. SEDIMENT CONTROL STRUCTURE No.9
20. SEDIMENT CONTROL STRUCTURE No.10

SCALE (METRES) 2000 1000 0 2500 5000 7500 — 1:150,000 (A3)

ORIGINAL STAMPED IN RED

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS

REVISIONS

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
SWM GENERAL ARRANGEMENT PLAN

SCALE #####,000

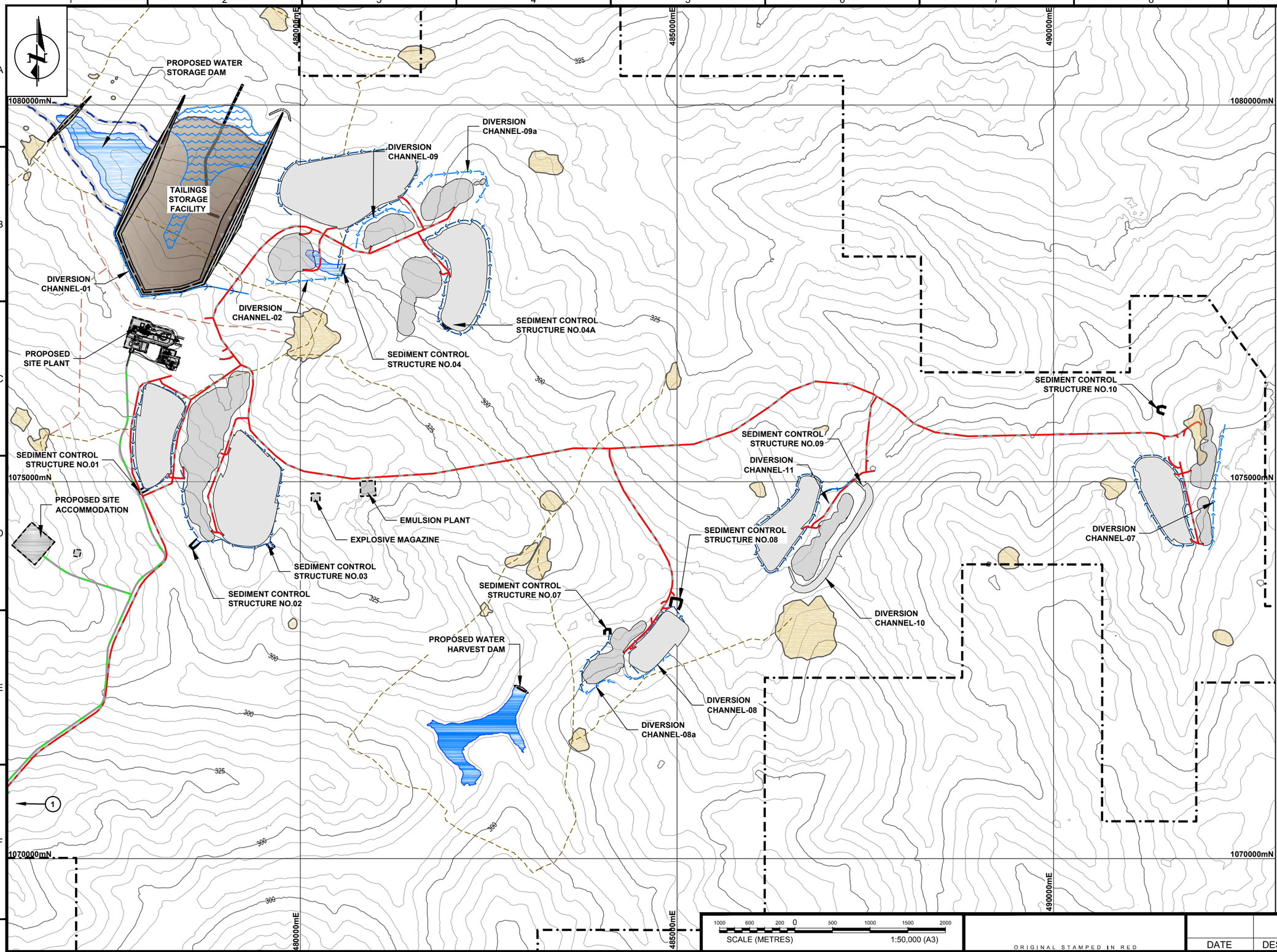
STATUS: DEFINITIVE FEASIBILITY STUDY

DRAWING NUMBER **301-821-C5000-100**

REV **A**

D:\2024\Roper doropo_project\engineering\drawings\civil & infrastructure\301-821-C5000-100_A

287



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MAJOR)
- EXISTING UNSEALED ROAD (MINOR)
- TENEMENT BOUNDARY
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL
- PURPOSED SEDIMENT CONTROL DRAINS

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 5m CONTOUR INTERVALS SHOWN.
3. PIT SHELL EXTENTS PROVIDED BY RESOLUTE, OCTOBER 2025.
4. INDICATIVE LOCATIONS SHOWN FOR:
   - WASTE DUMP
   - PROCESS PLANT
   - ROM PAD
   - SITE ACCOMMODATION
5. FINAL STAGE TAILINGS STORAGE FACILITY SHOWN.

SCALE (METRES) 1:50,000 (A3)

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
DIVERSION CHANNEL GENERAL ARRANGEMENT

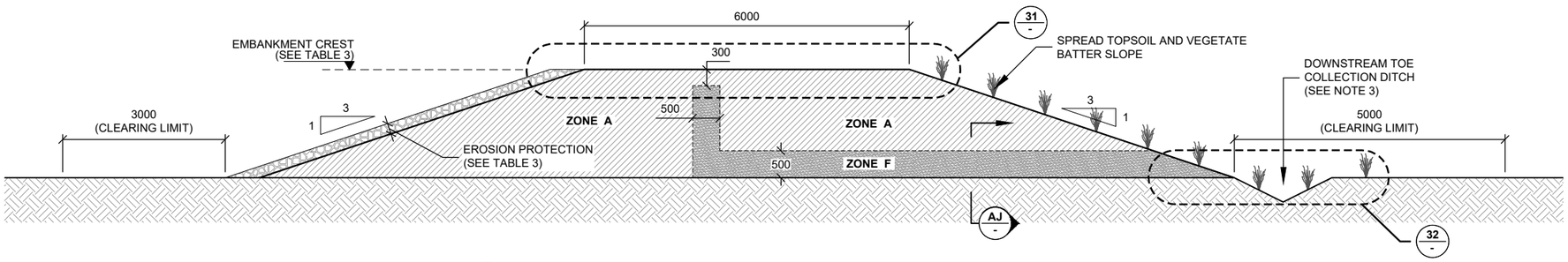
SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C5000-110** REV **A**

287

410

NOTES:

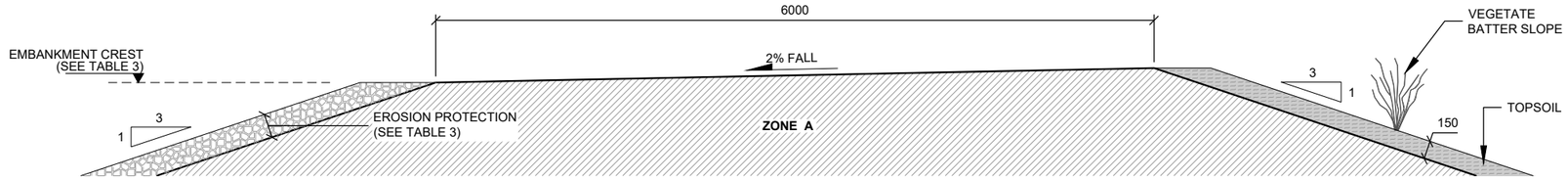
1. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-C0001-005.
2. SAFETY BUND TO BE CONSTRUCTED OF ZONE D (GENERAL FILL MATERIAL). BREAKS IN UPSTREAM SAFETY BUND AT 20m CENTRES TO ALLOW DRAINAGE OF RAINFALL RUNOFF.
3. DOWNSTREAM TOE COLLECTION DITCH TO DISCHARGE INTO EXISTING WATER COURSE DOWNSTREAM OF EMBANKMENT.
4. TRANSVERSE FINGER DRAINS AT 30m SPACING ALONG LENGTH OF EMBANKMENT.



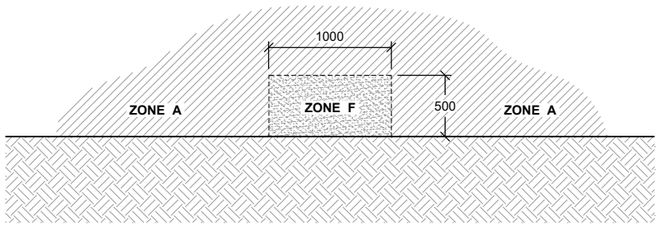
AH TYPICAL SEDIMENT CONTROL STRUCTURE EMBANKMENT SECTION
1:100

TABLE 3: SEDIMENT CONTROL STRUCTURE DETAILS

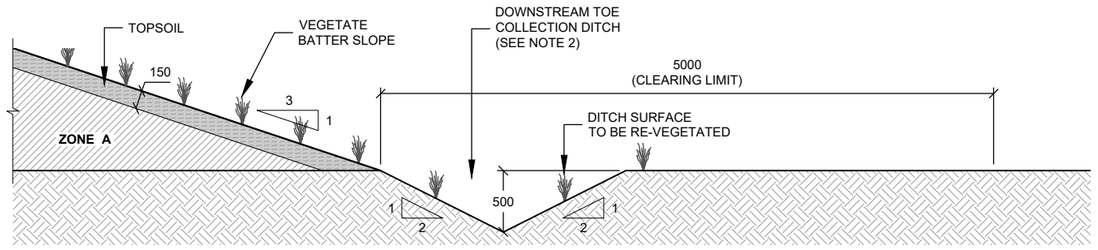
SEDIMENT CONTROL STRUCTURE I.D.	EMBANKMENT CREST LEVEL (mR.L.)	SPILLWAY INVERT LEVEL (mR.L.)	SPILLWAY WIDTH (m)	ZONE E EROSION PROTECTION LAYER THICKNESS (m)
SCS 01	314.1	313.3	25	0.2
SCS 02	318.7	317.5	10	0.3
SCS 03	322.8	322.0	10	0.2
SCS 04	301.5	300.2	30	0.2



31 TYPICAL EMBANKMENT CREST DETAIL
1:50



AJ TYPICAL TRANSVERSE FINGER DRAIN SECTION
1:100



32 TYPICAL DOWNSTREAM TOE COLLECTION DITCH DETAIL
1:50

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

REVISIONS

REFERENCES

REFERENCE DRAWINGS

SHEET SIZE A3

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

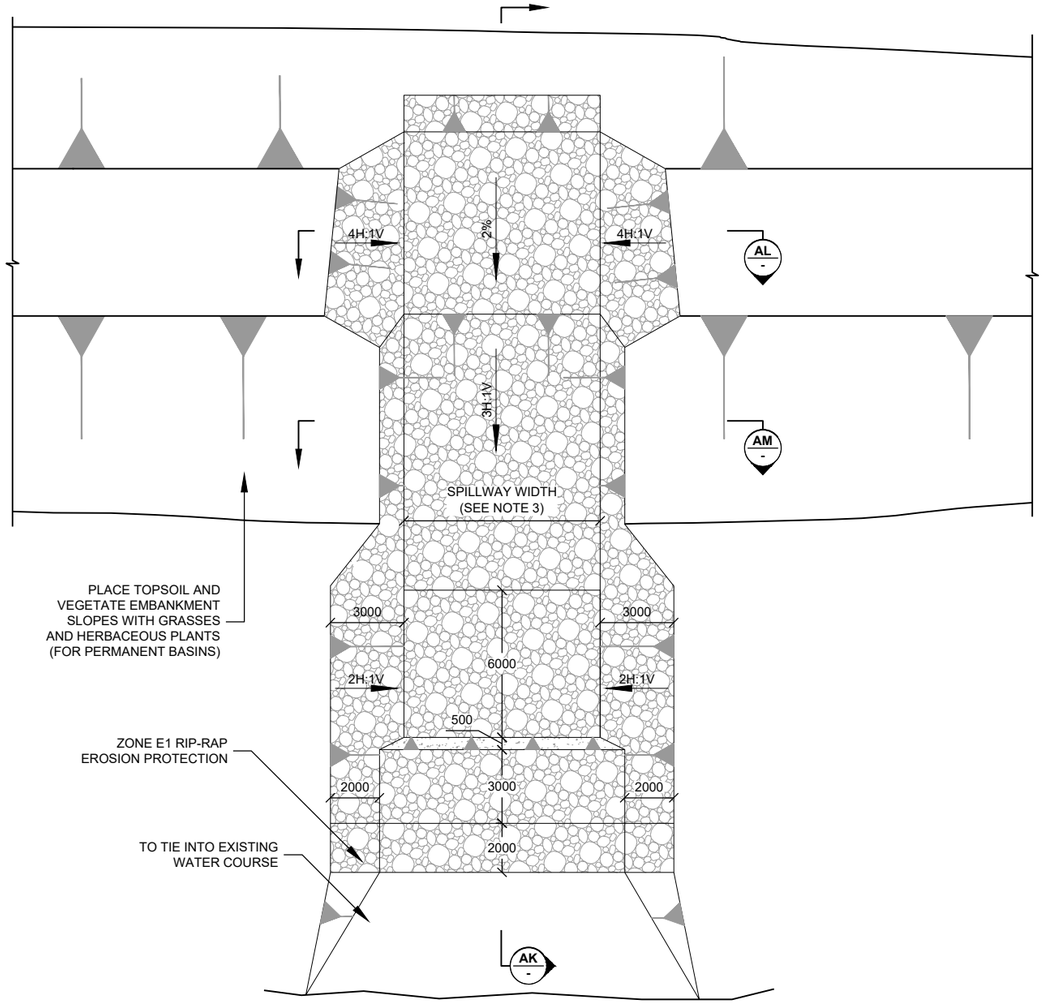
RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
SEDIMENT CONTROL STRUCTURE SECTIONS & DETAILS

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER 301-821-C5000-201
REV A

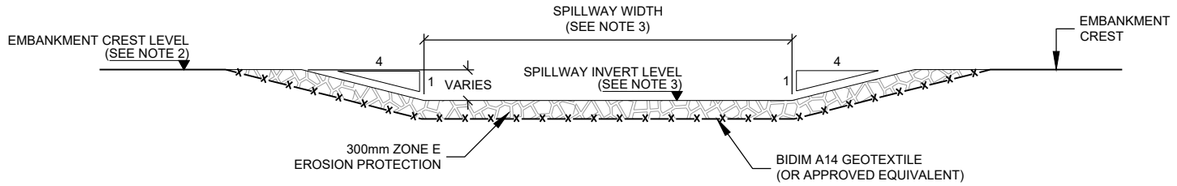
Q:\pe\301-00821 doropo_pdf_project\00-engineering drawings\01-preliminary drawings\civil\civil & infrastructure\301-821-C5000-201 A

NOTES:

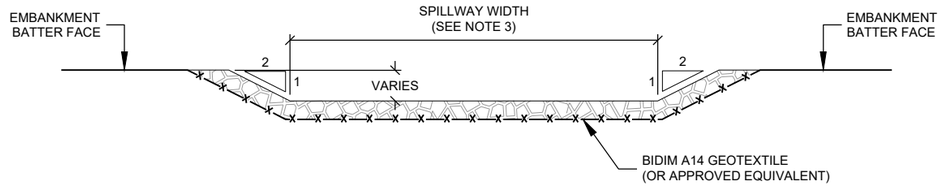
1. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 301-821-C0001-005.
2. FOR EMBANKMENT CREST LEVEL REFER TABLE 2 ON DRAWING 301-821-B5000-201.
3. FOR SPILLWAY WIDTH AND INVERT LEVEL REFER TABLE 2 ON 301-821-C5000-201.



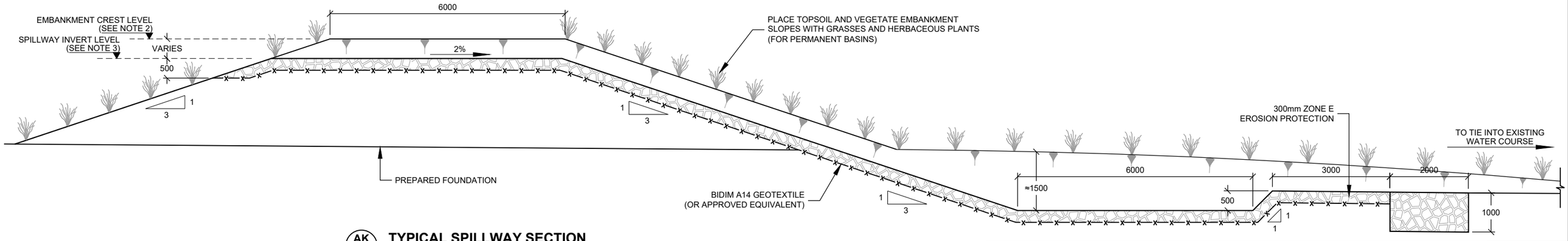
TYPICAL SEDIMENTATION BASIN SPILLWAY PLAN
1:250



TYPICAL SPILLWAY SECTION AT CREST
AL - 1:100



TYPICAL SPILLWAY SECTION ON BATTER
AM - 1:100



TYPICAL SPILLWAY SECTION
AK - 1:100

REFERENCES	REFERENCE DRAWINGS
SHEET SIZE A3	301-821-C0001-005 - ABBREVIATIONS COMMON LEGEND & SPECIFICATIONS
	301-821-C5000-201 - SEDIMENT CONTROL STRUCTURE SECTIONS & DETAILS

REVISIONS	REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
	A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

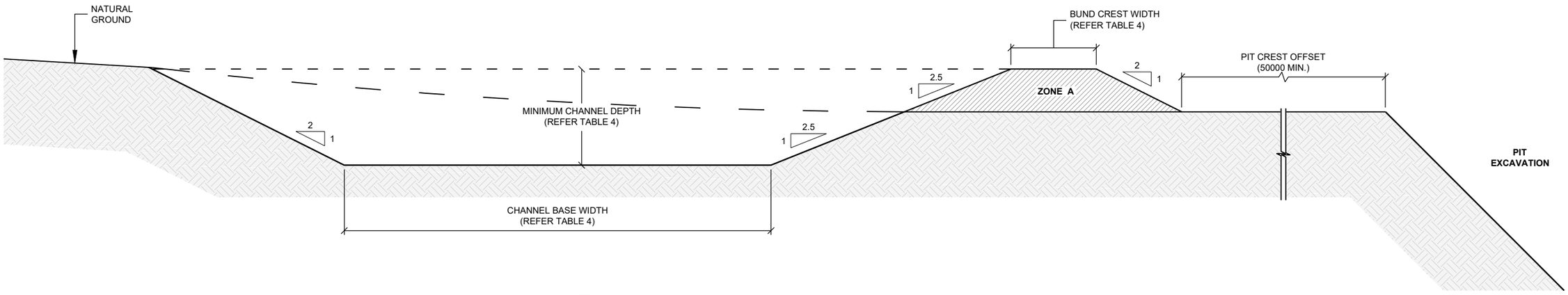
RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
SEDIMENTATION BASIN SPILLWAY LAYOUT & SECTIONS

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C5000-202** REV **A**

D:\2024\Roper Group\...\301-821-C5000-202_A

TABLE 4:
DIVERSION CHANNEL DETAILS

DIVERSION CHANNEL I.D.	CHANNEL BASE WIDTH (m)	MINIMUM CHANNEL DEPTH (m)	BUND CREST WIDTH (m)	EROSION PROTECTION LAYER THICKNESS (m)
DC-02	1.0	1.3	1.0	0.1
DC-03	2.0	1.5	1.0	0.3
DC-04	2.0	1.1	1.0	0.2
DC-05	2.0	1.4	2.0	0.3
DC-06	3.0	1.8	2.0	0.3
DC-07	1.0	1.4	1.0	0.3
DC-08	1.0	1.0	1.0	0.1
DC-08A	1.0	1.0	1.0	0.1
DC-09	1.0	1.0	1.0	0.2
DC-09A	1.0	1.2	1.0	0.2
DC-10	1.5	1.5	3.0	0.2
DC-11	70.0	2.6	10.0	0.2



AN - **TYPICAL PIT DIVERSION CHANNEL AND BUND SECTION**
1:100

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

SHEET SIZE A3
REFERENCES
REFERENCE DRAWINGS
REVISIONS

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING
CONSULT AUSTRALIA Member Firm

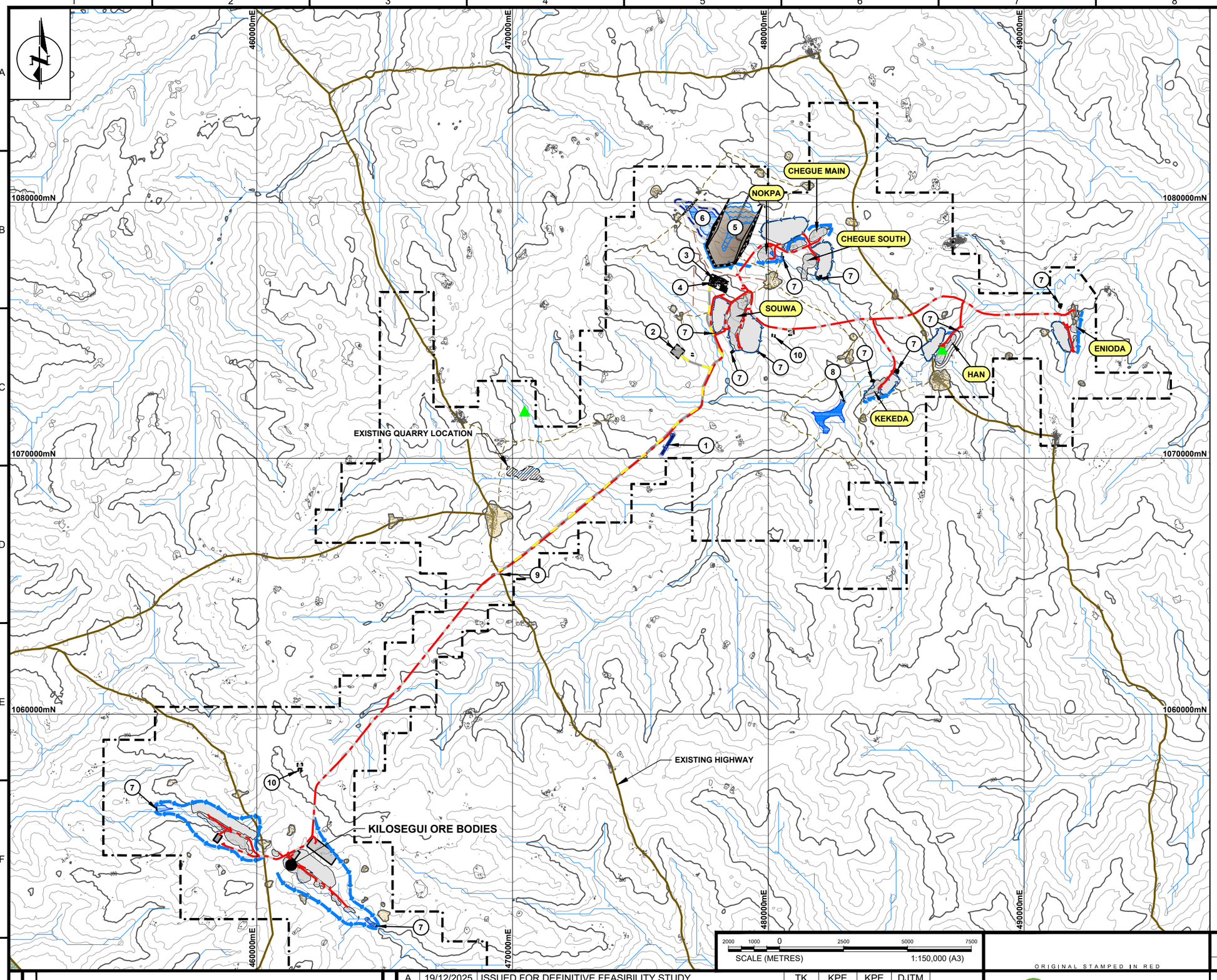
NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
TYPICAL PIT DIVERSION DETAILS

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C5000-301**
REV **A**

D:\DOROPO\Active\Doropo_projects\Doropo engineering\Civil & infrastructure\301-821-C5000-301 A Preliminary drawings.dwg

287
410



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MAJOR)
- EXISTING UNSEALED ROAD (MINOR)
- TENEMENT BOUNDARY
- OUTCROP LOCATION
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL
- ORE BODY NAME

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 10m CONTOUR INTERVALS SHOWN.
3. PIT SHELL EXTENTS PROVIDED BY RESOLUTE, OCTOBER 2025.
4. INDICATIVE LOCATIONS SHOWN FOR:
   - WASTE DUMP
   - PROCESS PLANT
   - ROM PAD
   - SITE ACCOMMODATION
5. FINAL STAGE TAILINGS STORAGE FACILITY SHOWN.

ITEM KEY:

1. PROPOSED SITE AIRSTRIP
2. PROPOSED SITE ACCOMMODATION
3. PROPOSED SITE PLANT
4. PROPOSED ADMIN AREA
5. PROPOSED TAILINGS STORAGE FACILITY
6. PROPOSED WATER STORAGE DAM
7. PROPOSED SEDIMENT CONTROL STRUCTURE
8. PROPOSED WATER HARVEST DAM
9. PROPOSED OVERPASS
10. PROPOSED EXPLOSIVE MAGAZINE LOCATION

2000 1000 0 2500 5000 7500
SCALE (METRES) 1:150,000 (A3)

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

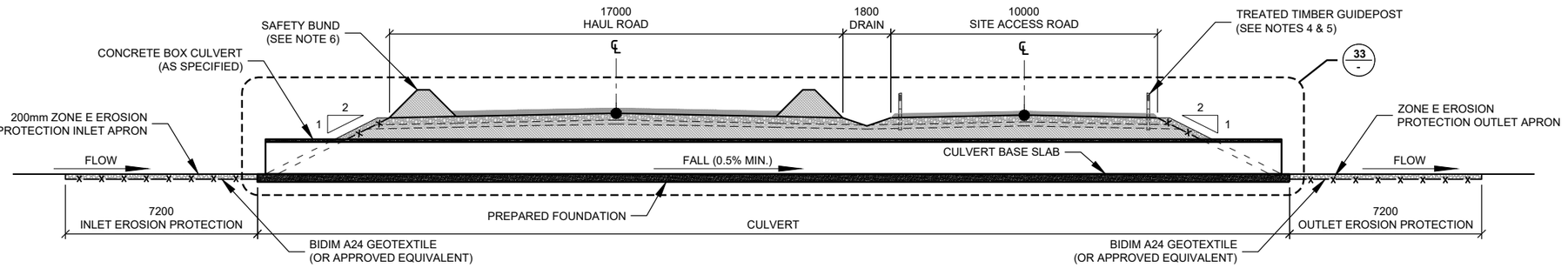
NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
GENERAL ARRANGEMENT PLAN

SCALE 1:150,000
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C7000-100**
REV **A**

G:\pdoc\1000\docpc...\preliminary drawings\301-821-C7000-100 A

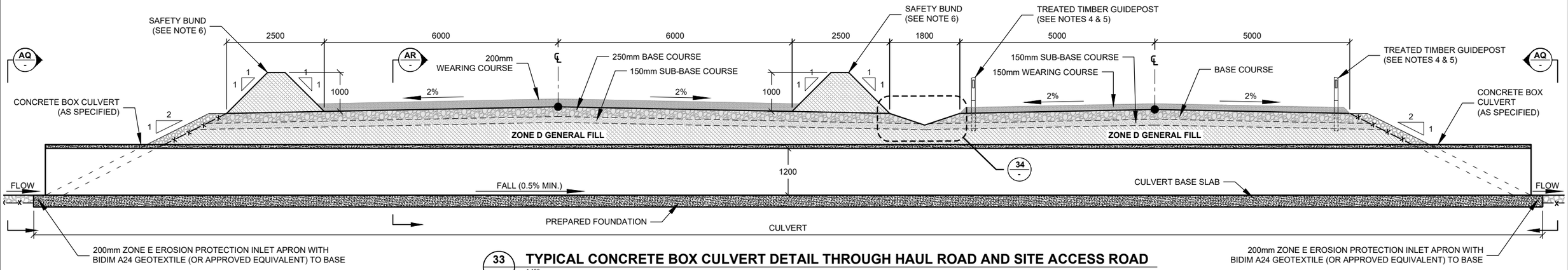
287



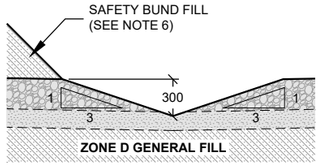
AP - TYPICAL CONCRETE BOX CULVERT SECTION THROUGH HAUL ROAD AND SITE ACCESS ROAD
1:200

NOTES:

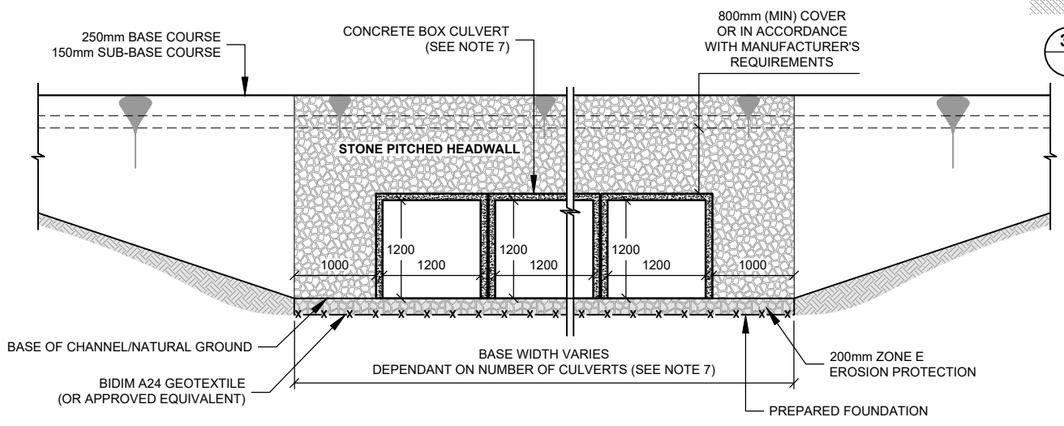
1. EXACT CHAINAGE OF CULVERT LOCATIONS, INLET AND OUTLET ELEVATIONS AND CULVERT ALIGNMENTS TO BE DETERMINED ON SITE.
2. CULVERT FOUNDATION PREPARATION AS DIRECTED BY THE ENGINEER.
3. EXTENT OF INLET AND OUTLET EROSION PROTECTION TO BE FIELD FITTED.
4. 100mm x 50mm TREATED STRUCTURAL GRADE TIMBER GUIDE POSTS TO BE INSTALLED ALONG THE ROAD ALIGNMENT AT 5m SPACING, WHERE FILL EXCEEDS 2m IN HEIGHT.
5. TREATED STRUCTURAL GRADE TIMBER POST TO BE EMBEDDED 800mm INTO FILL.
6. SAFETY BUNDS TO HAVE DRAINAGE BREAKS INSTALLED AT 20m CENTRES.
7. FOR THE REQUIRED NUMBER OF CONCRETE BOX CULVERTS, REFER TO TABLE 2.1 IN MEMO PE24-00581.
8. ADDITIONAL MINOR CULVERTS MUST BE FITTED ON SITE WHERE REQUIRED.
9. MINIMUM COVER REQUIREMENTS FOR CULVERTS TO BE BASED ON MANUFACTURE'S RECOMMENDATIONS.
10. ROAD SIDE DRAIN, DISCHARGE INTO CATCHPITS POSITIONED AT THE COMMENCEMENT AND TERMINATION POINTS OF THE CULVERT CROSSING.



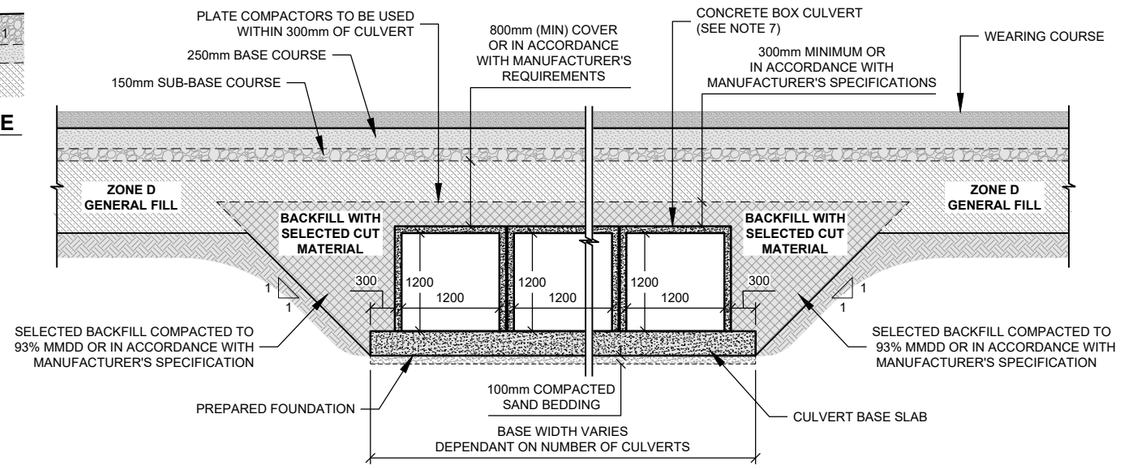
33 - TYPICAL CONCRETE BOX CULVERT DETAIL THROUGH HAUL ROAD AND SITE ACCESS ROAD
1:100



34 - TYPICAL ROAD SIDE DRAIN DETAIL
1:50



AQ - TYPICAL CONCRETE BOX CULVERT INLET/OUTLET HEADWALL SECTION
1:75



AR - TYPICAL CONCRETE BOX CULVERT EXCAVATION AND BACKFILL SECTION
1:75

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

SHEET SIZE A3
REFERENCES
REFERENCE DRAWINGS

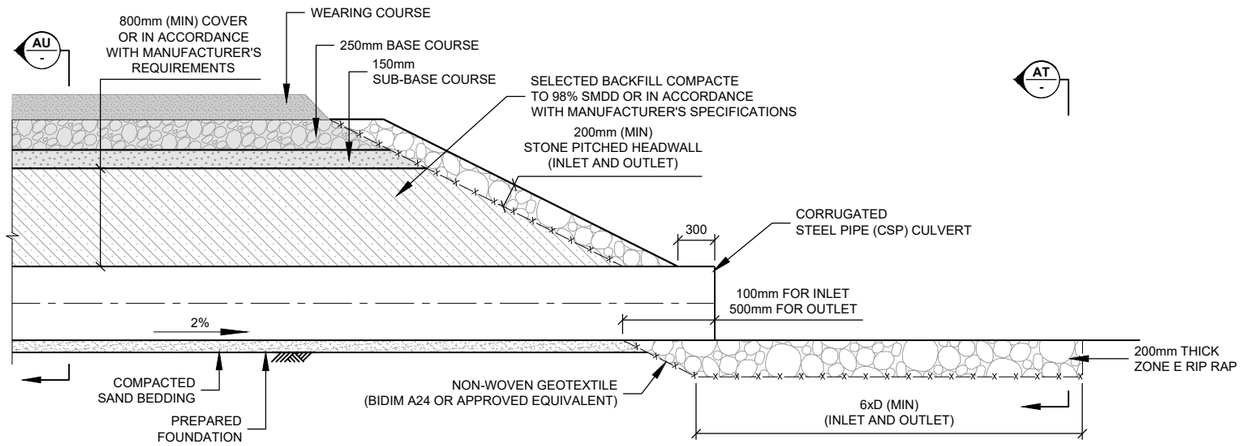
REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
CULVERT DETAILS-SHT 1

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C7000-201**
REV **A**

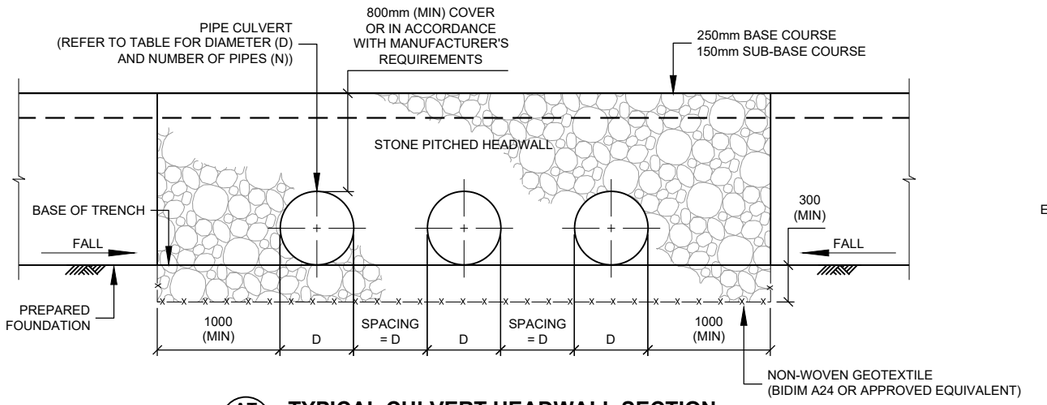
G:\pdoc\1000s\1000s...\Preliminary drawings\301-821-C7000-201 A.dwg



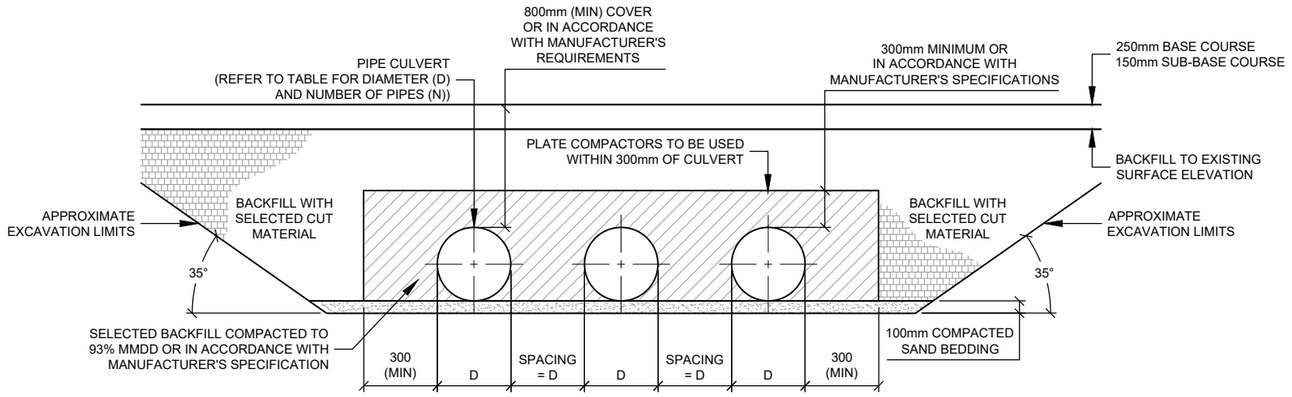
AS - **TYPICAL CULVERT INLET/OUTLET SECTION**
N.T.S.

NOTES:

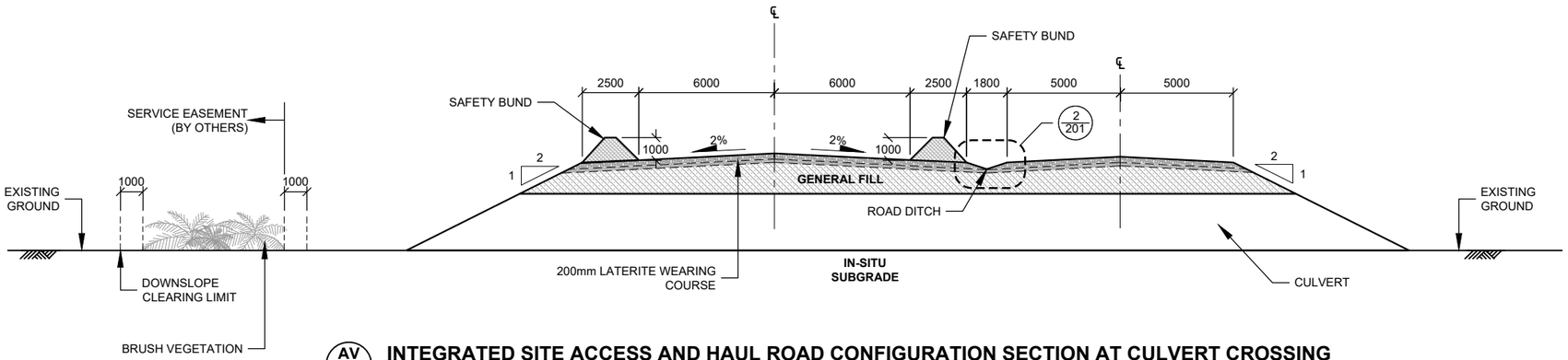
1. EXACT CHAINAGE OF CULVERT LOCATIONS, INLET AND OUTLET ELEVATIONS AND CULVERT ALIGNMENTS TO BE DETERMINED ON SITE.
2. CULVERT FOUNDATION PREPARATION AS DIRECTED BY THE ENGINEER.
3. EXTENT OF INLET AND OUTLET EROSION PROTECTION TO BE FIELD FITTED.
4. 100mm x 50mm TREATED STRUCTURAL GRADE TIMBER GUIDE POSTS TO BE INSTALLED ALONG THE ROAD ALIGNMENT AT 5m SPACING, WHERE FILL EXCEEDS 2m IN HEIGHT.
5. TREATED STRUCTURAL GRADE TIMBER POST TO BE EMBEDDED 800mm INTO FILL.
6. SAFETY BUNDS TO HAVE DRAINAGE BREAKS INSTALLED AT 20m CENTRES.
7. FOR THE REQUIRED NUMBER OF CORRUGATED METAL PIPE CULVERTS, REFER TO TABLE 2.1 IN MEMO PE24-00581.
8. ADDITIONAL MINOR CULVERTS MUST BE FITTED ON SITE WHERE REQUIRED.
9. MINIMUM COVER REQUIREMENTS FOR CULVERTS TO BE BASED ON MANUFACTURE'S RECOMMENDATIONS.
10. ROAD SIDE DRAIN, DISCHARGE INTO CATCHPITS POSITIONED AT THE COMMENCEMENT AND TERMINATION POINTS OF THE CULVERT CROSSING.
11. MINIMUM SPACING BETWEEN CULVERTS SHOULD BE MODIFIED BASED ON MANUFACTURE'S RECOMMENDATION AND AVAILABLE MACHINERY IF REQUIRED.



AT - **TYPICAL CULVERT HEADWALL SECTION**
N.T.S.



AU - **TYPICAL CULVERT TRENCH EXCAVATION & BACKFILL SECTION**
N.T.S.



AV - **INTEGRATED SITE ACCESS AND HAUL ROAD CONFIGURATION SECTION AT CULVERT CROSSING**
1:250

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

REVISIONS

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTANTS

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

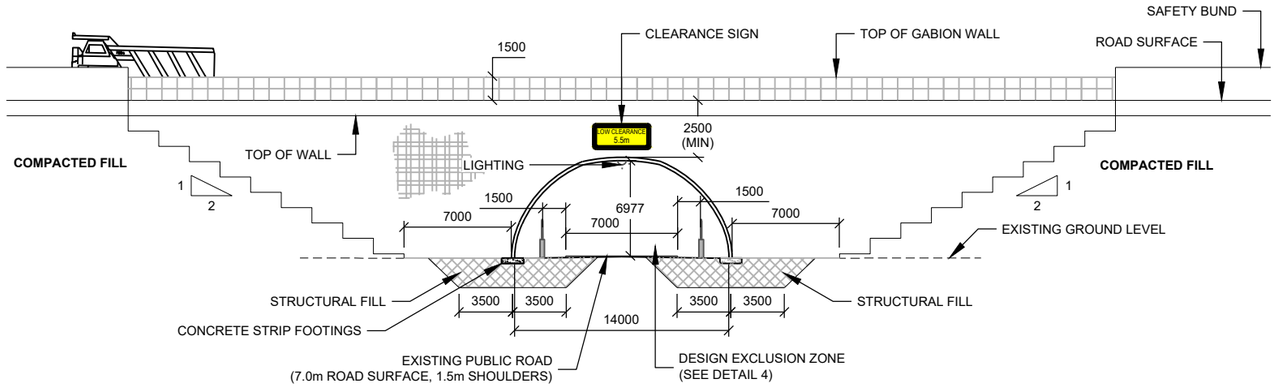
RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
CULVERT SECTIONS & DETAILS-SHT 2

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER 301-821-C7000-202
REV A

G:\pdoc\10001 dosso...\Preliminary drawings\civil & infrastructure\301-821-C7000-202 A

NOTES:

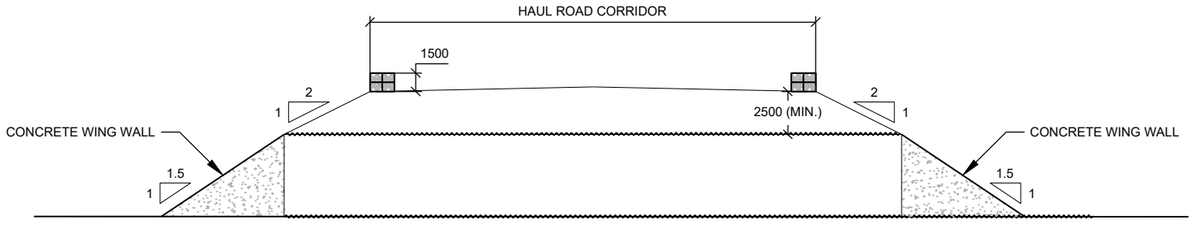
1. ARCH AND RETAINING WALL DESIGN BY OTHERS.



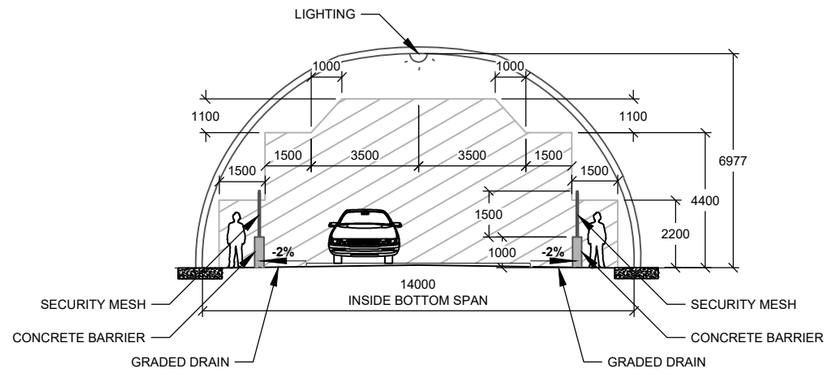
AW - **TYPICAL OVERPASS CROSS SECTION THROUGH ENTRANCE**
N.T.S.



35 - **TYPICAL CONSTRUCTION DETAIL OF A CORRUGATED METAL OVERPASS**
N.T.S.



AX - **TYPICAL LONG SECTION THROUGH OVERPASS**
N.T.S.



36 - **TYPICAL OVERPASS STRUCTURE EXCLUSION ZONE**
N.T.S.

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

REVISIONS

REFERENCES

REFERENCE DRAWINGS

SHEET SIZE A3

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

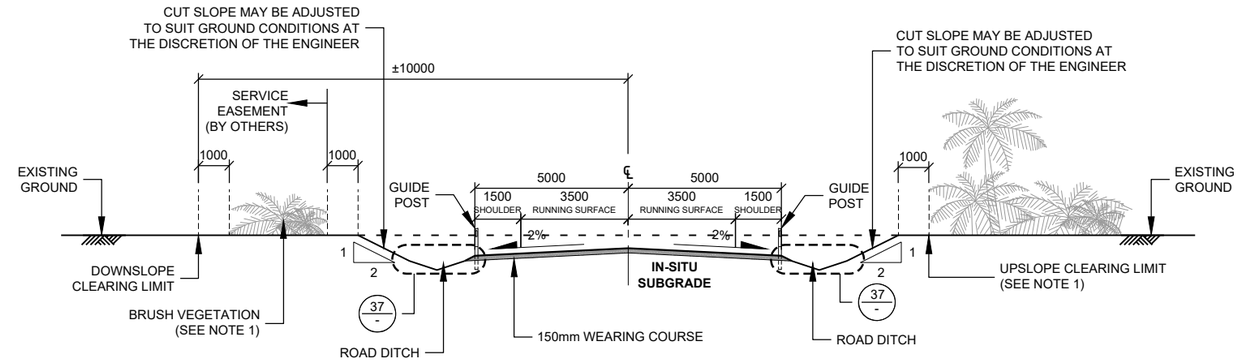
Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

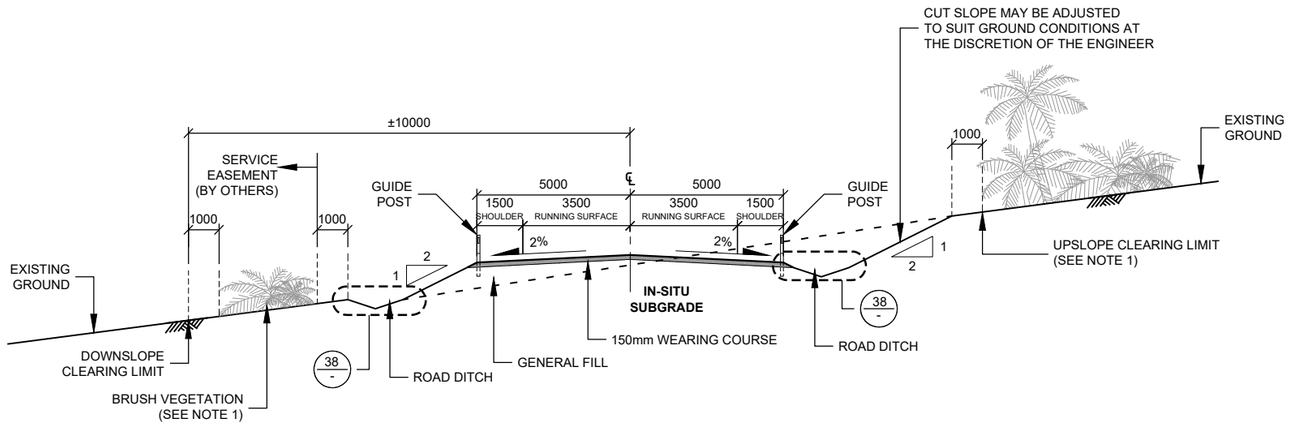
NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
TYPICAL PUBLIC OVERPASS SECTIONS & DETAILS

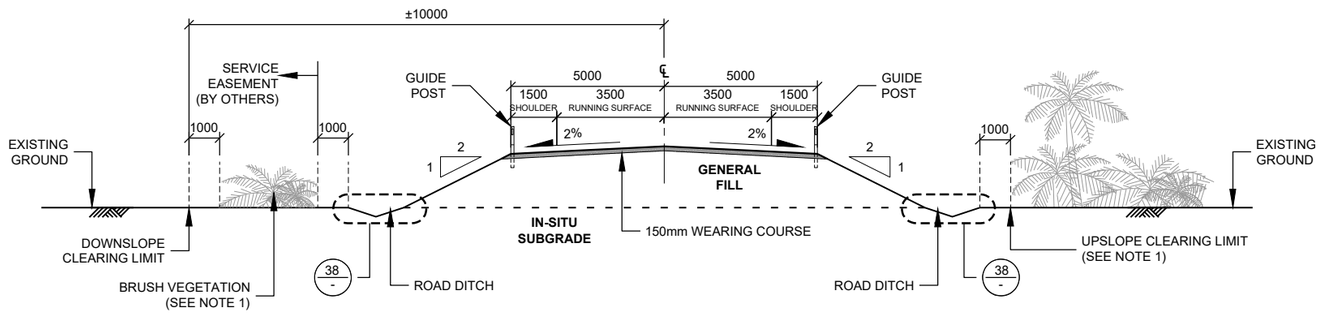
SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C7000-250**
REV **A**



AY - TYPICAL SITE ACCESS ROAD SECTION (IN CUT)
1:200



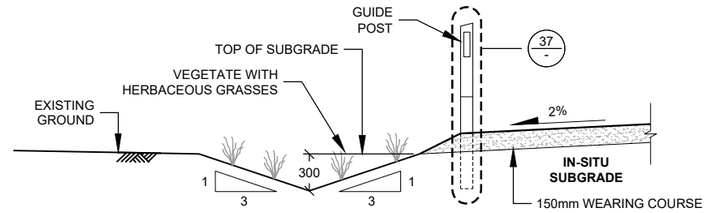
AZ - TYPICAL SITE ACCESS ROAD SECTION (IN CUT TO FILL)
1:200



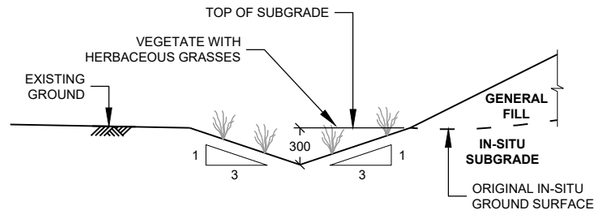
BA - TYPICAL SITE ACCESS ROAD SECTION (IN FILL)
1:200

NOTES:

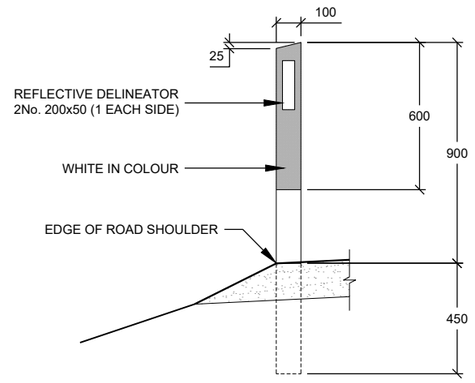
1. BRUSH VEGETATION CLEARED FROM THE ALIGNMENT TO BE STOCKPILED ALONG ALIGNMENT TO ACT AS A SEDIMENT BARRIER AS DIRECTED BY THE ENGINEER. IF EARTHWORKS IMPACT ON UPSLOPE SIDE OF ROAD IS NOT SIGNIFICANT, BRUSH VEGETATION SHALL BE PLACED ONLY TO DOWNSLOPE SIDE OF ROAD TO REDUCE UPSLOPE CLEARING LIMIT.
2. 500mm HIGH SAFETY BUNDS TO BE INSTALLED WHERE FILL BATTERS EXCEED 2m IN HEIGHT. BREAKS IN SAFETY BUNDS AT 50m INTERVALS AS DIRECTED BY THE ENGINEER.
3. WHERE IN-SITU MATERIAL MEETS WEARING COURSE SPECIFICATION SCARIFY, CONDITION AND COMPACT UPPER 200mm AS WEARING COURSE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION.
4. ALL DISTURBED AREAS TO BE REVEGETATED.
5. GENERAL FILL IS SHOWN. SUBGRADE AND SUB-BASE SHALL BE PROVIDED, IF REQUIRED, BASED ON IN-SITU MATERIAL AVAILABILITY TO ACHIEVE THE REQUIRED CBR VALUE, AS DIRECTED BY THE ENGINEER.



37 - TYPICAL ROAD DITCH DETAIL AT IN-SITU SUBGRADE
1:50



38 - TYPICAL ROAD DITCH DETAIL AT GENERAL FILL TOE
1:50



39 - TYPICAL GUIDE POST DETAIL
1:50

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D
ORIGINAL STAMPED IN RED					

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS

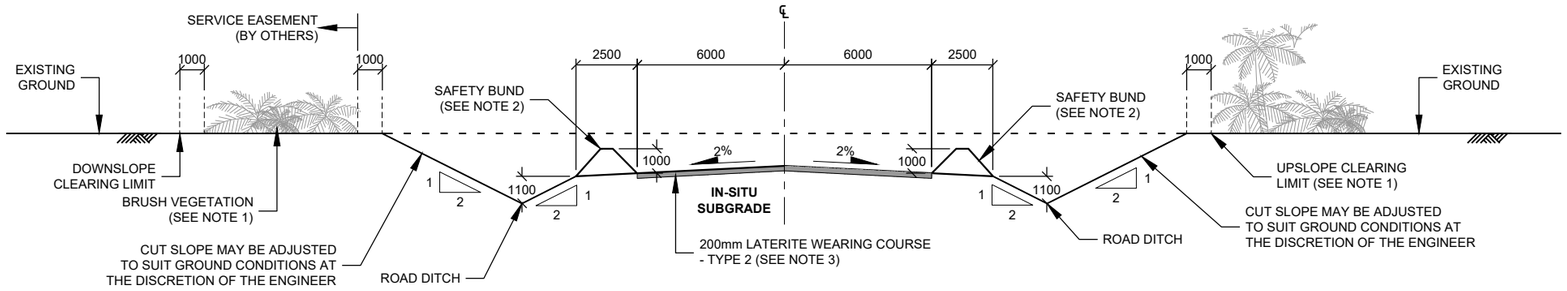
REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
TYPICAL ACCESS ROAD SECTIONS & DETAILS

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER 301-821-C7000-301
REV A

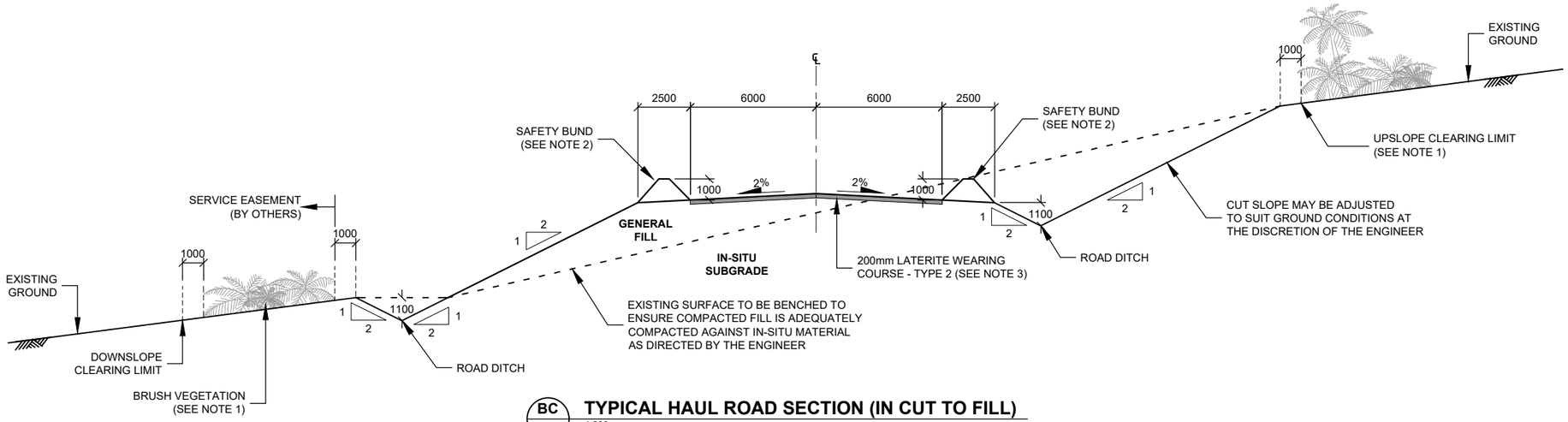
Q:\Doropo Project\Design\...\preliminary drawings\dwg\301-821-C7000-301.dwg



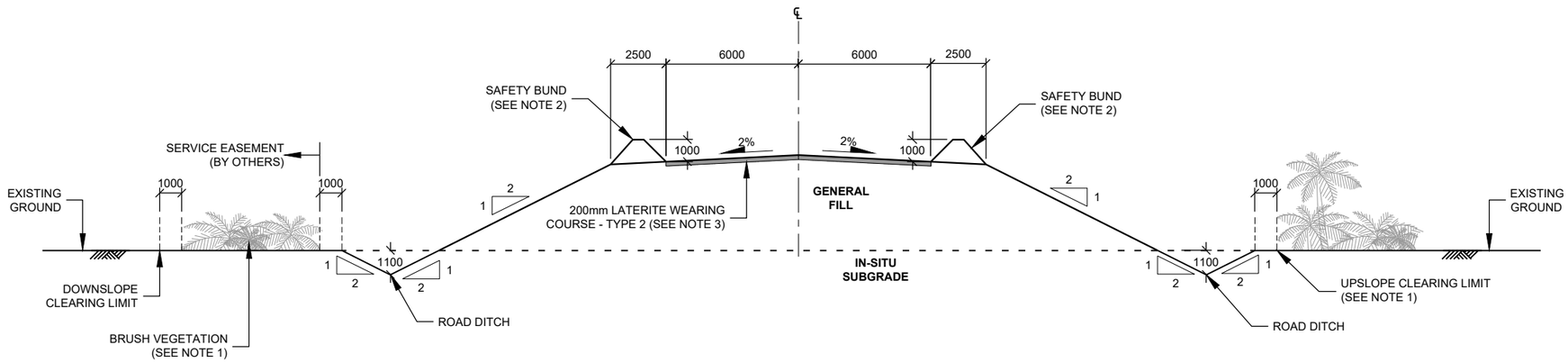
BB - **TYPICAL HAUL ROAD SECTION (IN CUT)**
1:200

NOTES:

1. BRUSH VEGETATION CLEARED FROM THE ALIGNMENT TO BE STOCKPILED ALONG ALIGNMENT TO ACT AS A SEDIMENT BARRIER AS DIRECTED BY THE ENGINEER. IF EARTHWORKS IMPACT ON UPSLOPE SIDE OF ROAD IS NOT SIGNIFICANT, BRUSH VEGETATION SHALL BE PLACED ONLY TO DOWNSLOPE SIDE OF ROAD TO REDUCE UPSLOPE CLEARING LIMIT.
2. SAFETY BUNDS TO BE 2m HIGH. BREAKS IN SAFETY BUNDS AT 50m INTERVALS AS DIRECTED BY THE ENGINEER.
3. WHERE IN-SITU MATERIAL MEETS WEARING COURSE SPECIFICATION SCARIFY, CONDITION AND COMPACT UPPER 200mm AS WEARING COURSE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION.
4. ALL DISTURBED AREAS TO BE REVEGETATED.
5. GENERAL FILL IS SHOWN. SUBGRADE AND SUB-BASE SHALL BE PROVIDED, IF REQUIRED, BASED ON IN-SITU MATERIAL AVAILABILITY TO ACHIEVE THE REQUIRED CBR VALUE, AS DIRECTED BY THE ENGINEER.



BC - **TYPICAL HAUL ROAD SECTION (IN CUT TO FILL)**
1:200



BD - **TYPICAL HAUL ROAD SECTION (IN FILL)**
1:200

REVISIONS								
REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

SHEET SIZE A3
REFERENCES
REFERENCE DRAWINGS

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

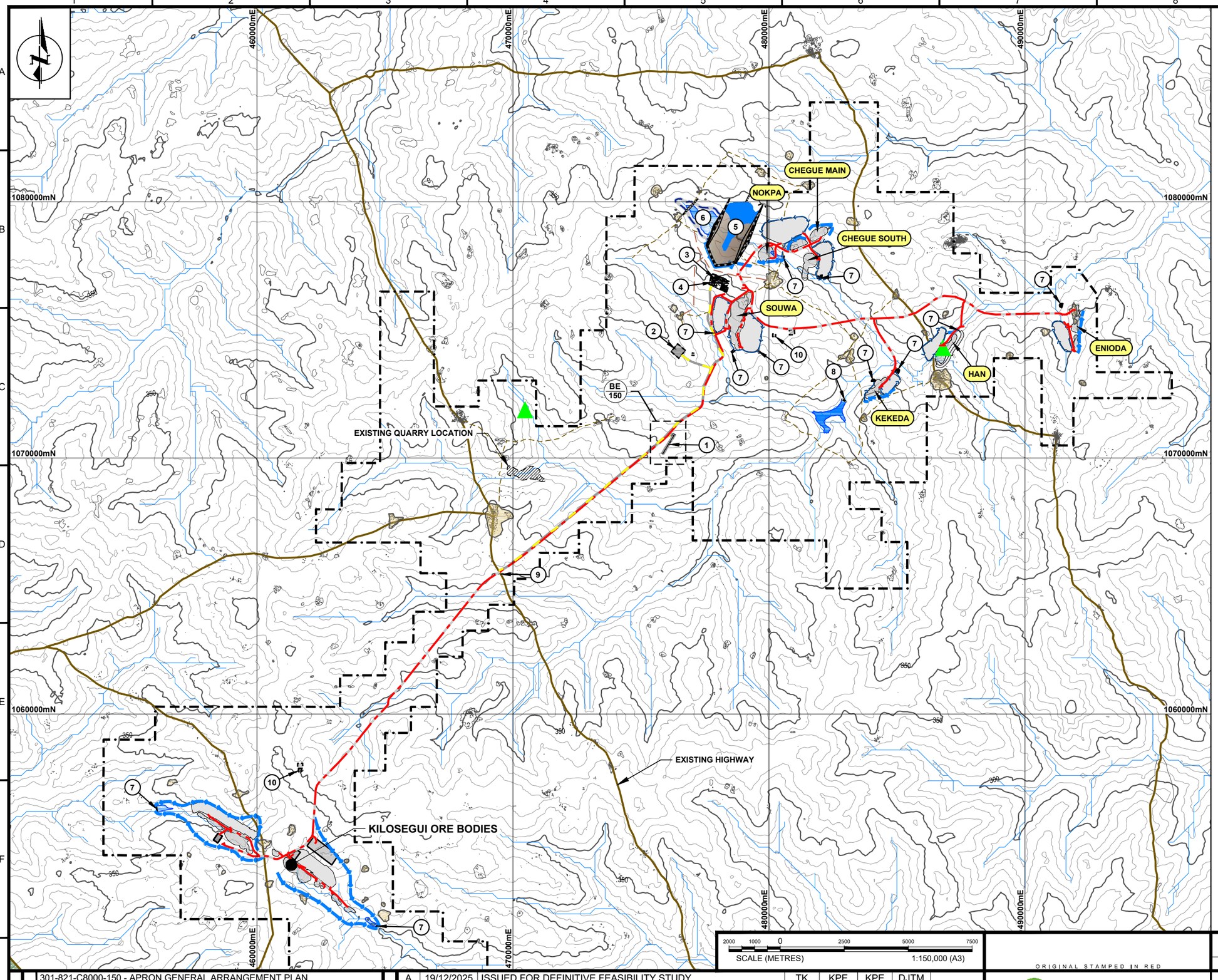
Knight Piésold CONSULTING
CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
TYPICAL HAUL ROAD SECTIONS & DETAILS

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER 301-821-C7000-401
REV A

G:\pdoc\1000\1 doroso...\Preliminary drawings\...\x infrastructure\301-821-C7000-401 A



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MAJOR)
- EXISTING UNSEALED ROAD (MINOR)
- TENEMENT BOUNDARY
- OUTCROP LOCATION
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL
- ORE BODY NAME

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 10m CONTOUR INTERVALS SHOWN.
3. PIT SHELL EXTENTS PROVIDED BY RESOLUTE, OCTOBER 2025.
4. INDICATIVE LOCATIONS SHOWN FOR:
   - WASTE DUMP
   - PROCESS PLANT
   - ROM PAD
   - SITE ACCOMMODATION
5. FINAL STAGE TAILINGS STORAGE FACILITY SHOWN.

ITEM KEY:

1. PROPOSED SITE AIRSTRIP
2. PROPOSED SITE ACCOMMODATION
3. PROPOSED SITE PLANT
4. PROPOSED ADMIN AREA
5. PROPOSED TAILINGS STORAGE FACILITY
6. PROPOSED WATER STORAGE DAM
7. PROPOSED SEDIMENT CONTROL STRUCTURE
8. PROPOSED WATER HARVEST DAM
9. PROPOSED OVERPASS
10. PROPOSED EXPLOSIVE MAGAZINE LOCATION

SCALE (METRES) 2000 1000 0 2500 5000 7500 — 1:150,000 (A3)

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

SHEET SIZE A3

REFERENCES

301-821-C8000-150 - APRON GENERAL ARRANGEMENT PLAN

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
GENERAL ARRANGEMENT PLAN

SCALE 1:150,000

STATUS: DEFINITIVE FEASIBILITY STUDY

DRAWING NUMBER **301-821-C8000-100** REV **A**

287

G:\pisoft\projects\301-821\engineering\drawings\gis\mxd\preliminary drawings\infrastructure\301-821-C8000-100_A

PROPOSED SITE ACCOMMODATION

SEDIMENT CONTROL STRUCTURES

472000mE
474000mE
476000mE
478000mE
480000mN

1074000mN
1072000mN
1070000mN
1068000mN

AIRSTRIP

10% DIVERGENCE
1600m (5% GRADE)
10% DIVERGENCE

R.L.350.0m
R.L.360.0m
R.L.370.0m
R.L.380.0m
R.L.387.0m

ARP R.L. 342m
ARP

207m (22% GRADE)

1768m

700m (5% GRADE)

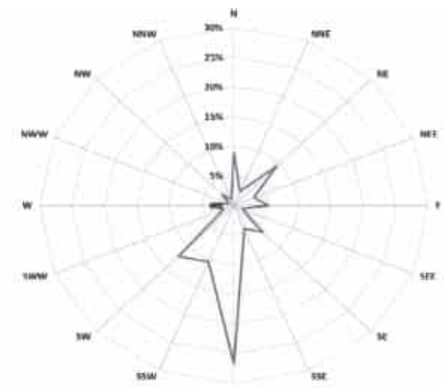
390.0m.R.L.
395.0m.R.L.
400.0m.R.L.
405.0m.R.L.
410.0m.R.L.
415.0m.R.L.
420.0m.R.L.
422.0m.R.L.

LEGEND:

- WATER COURSE
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- APPROACH / TAKE-OFF SURFACE
- TRANSITIONAL SURFACE
- INNER HORIZONTAL SURFACE (R.L 387.0m)
- CONICAL SURFACE (R.L 422.0m)
- AERODROME REFERENCE POINT (R.L 342.0m)

NOTES:

1. 5m CONTOUR INTERVALS SHOWN.



WIND ROSE

600 400 200 0 400 800 1200
SCALE (METRES) 1:30,000 (A3)

ORIGINAL STAMPED IN RED

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS

REVISIONS

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
OBSTACLE LIMITATION SURFACE LAYOUT

SCALE 1:30,000
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C8000-125**
REV **A**

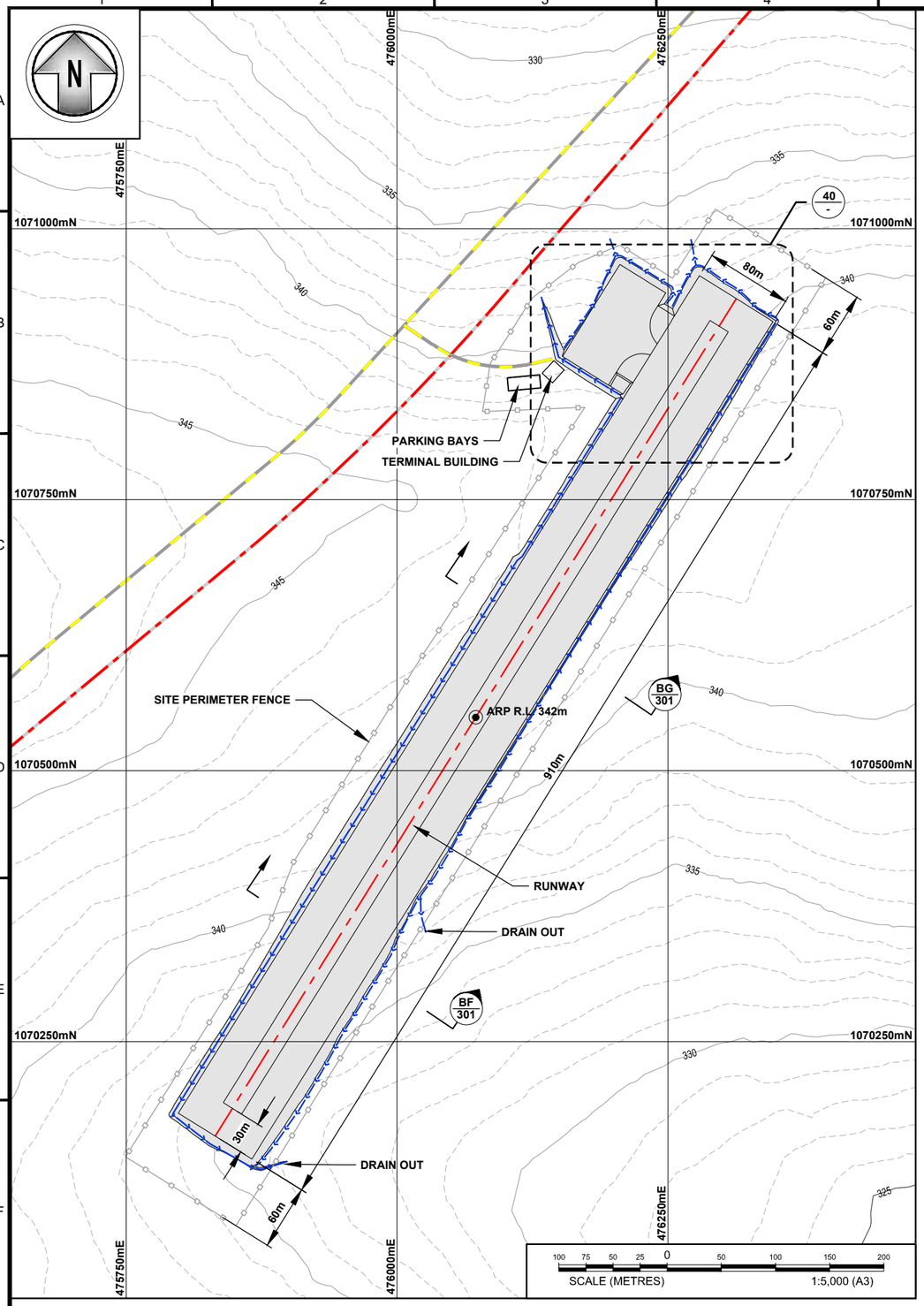
G:\Doropo\Doropo_prospective\engineering\drawings\current\preliminary drawings\infrastructure\301-821-C8000-125 - A

LEGEND:

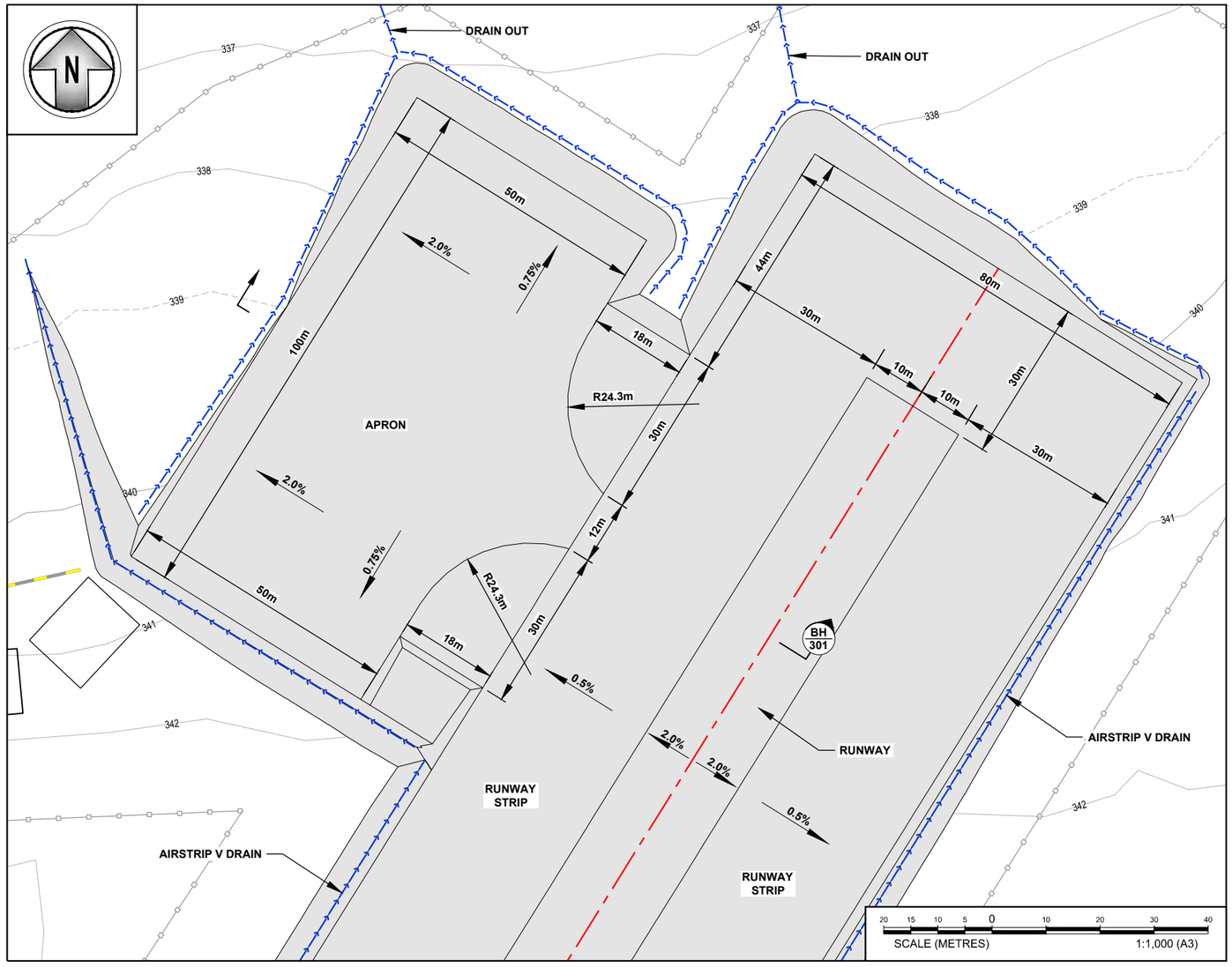
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- 0+000 — AIRSTRIP CENTRELINE AND CHAINAGE
- PROPOSED SECURITY FENCE
- DIVERSION DRAIN ALIGNMENT
- ARP — AERODROME REFERENCE POINT (R.L. 342.0m)

NOTES:

1. 1m CONTOUR INTERVALS SHOWN.



BE 150 **APRON AND TAXIWAY LAYOUT** 1:5,000



40 - **APRON DETAIL** 1:1,000

ORIGINAL STAMPED IN RED

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS
301-821-C8000-150 - APRON GENERAL ARRANGEMENT PLAN
301-821-C8000-301 - AIRSTRIP SECTIONS & DETAILS-SHT 1

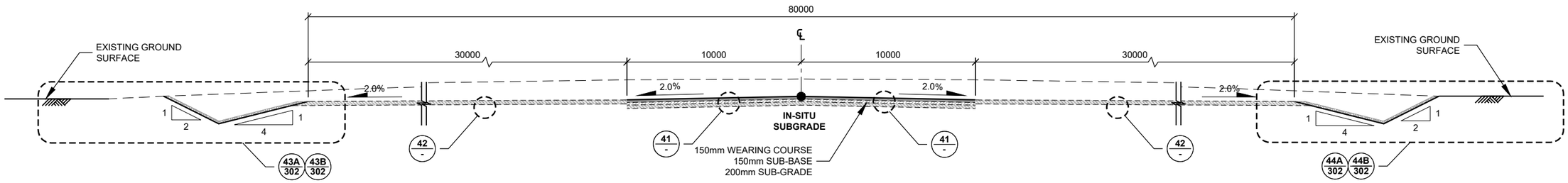
REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

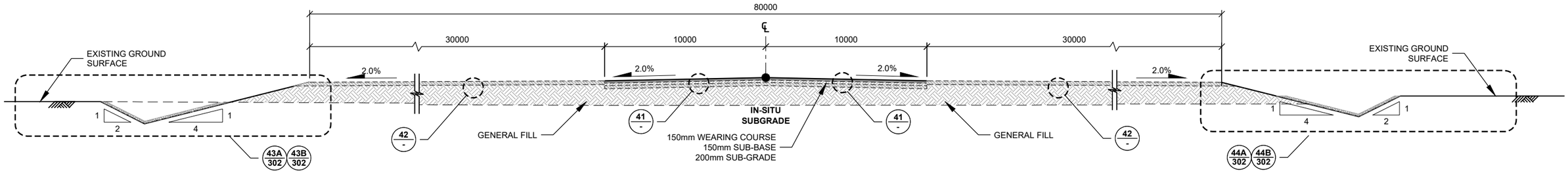
RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
APRON GENERAL ARRANGEMENT PLAN

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C8000-150** REV **A**

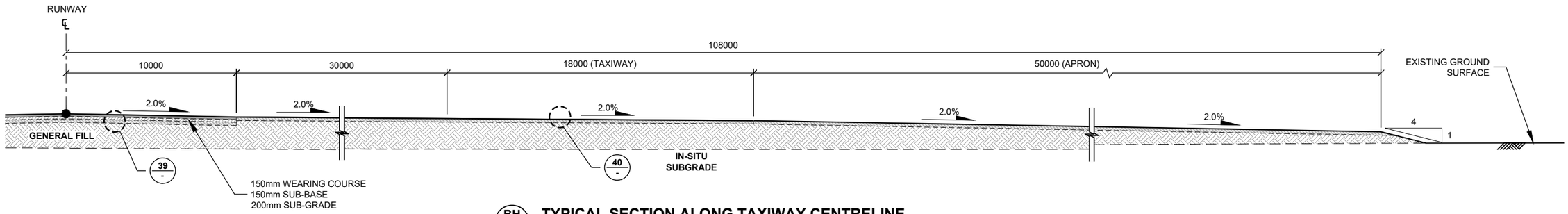
C:\Users\tkoch\Desktop\Doropo\Engineering\Drawings\Preliminary drawings\301-821-C8000-150 - A.dwg



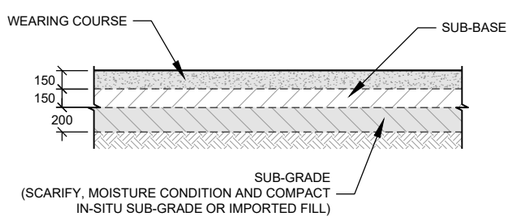
BF 150 **TYPICAL RUNWAY CROSS SECTION IN CUT**
1:250



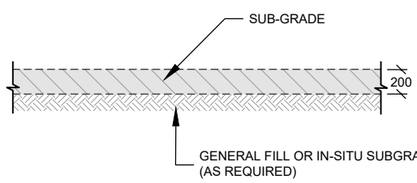
BG 150 **TYPICAL RUNWAY CROSS SECTION IN FILL**
1:250



BH 150 **TYPICAL SECTION ALONG TAXIWAY CENTRELINE**
1:250



41 - **TYPICAL RUNWAY RUNNING SURFACE PAVEMENT DETAIL**
1:50



42 - **TYPICAL RUNWAY STRIP PAVEMENT DETAIL**
1:50

SHEET SIZE A3

REFERENCES

REFERENCE DRAWINGS
301-821-C8000-150 - APRON GENERAL ARRANGEMENT PLAN
301-821-C8000-302 - AIRSTRIP SECTIONS & DETAILS-SHT 2

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

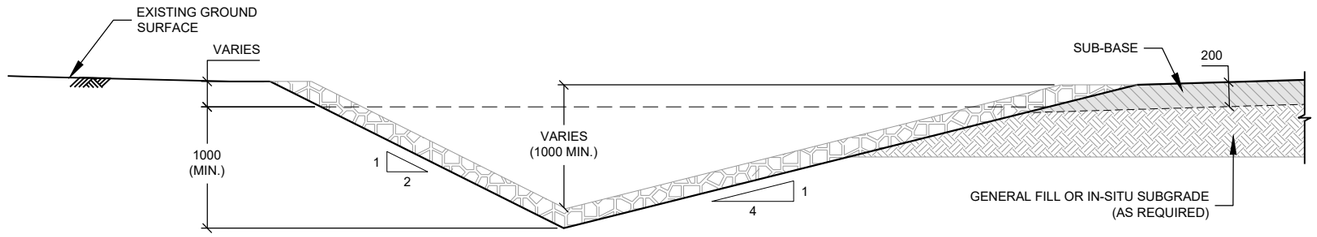
CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

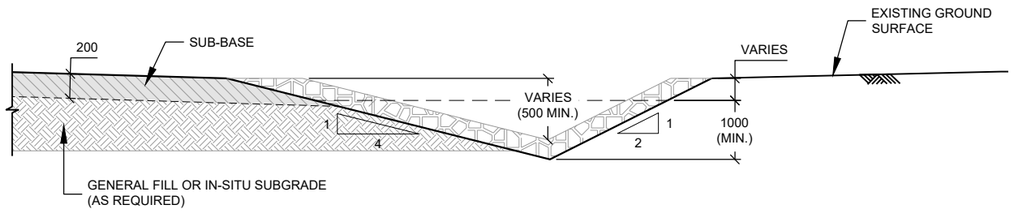
RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
AIRSTRIP SECTIONS & DETAILS-SHT 1

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER 301-821-C8000-301
REV A

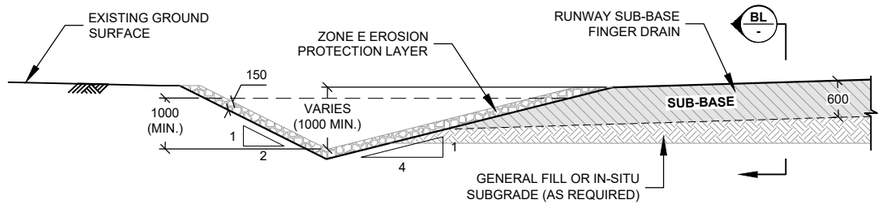
G:\pdoh\1000\docpc...\preliminary drawings\301-821-C8000-301 A infrastructure sht 1.dwg, 19/12/2025 8:47:51 AM, Adobe PDF



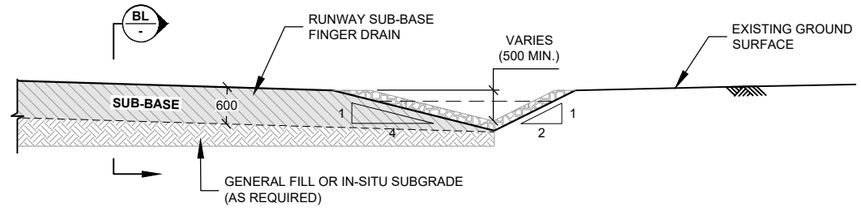
43A / 301 TYPICAL RUNWAY LEFT DIVERSION DRAIN DETAIL
1:50



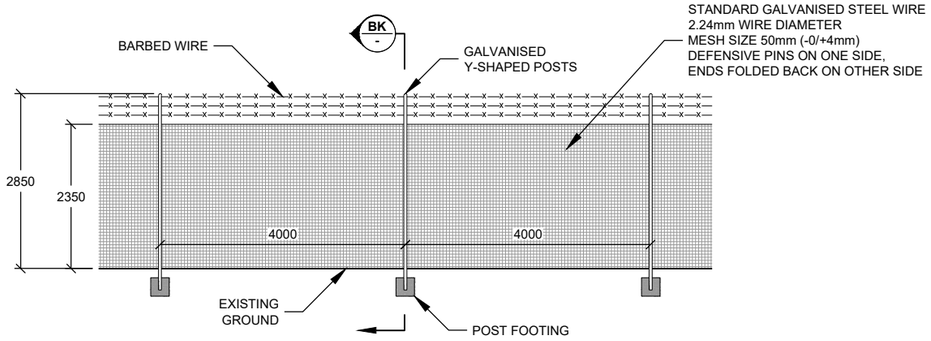
44A / 301 TYPICAL RUNWAY RIGHT DIVERSION DRAIN DETAIL
1:50



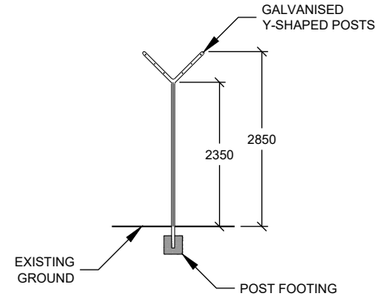
43B / 301 TYPICAL RUNWAY LEFT DIVERSION DRAIN DETAIL (AT SUB-BASE FINGER DRAIN)
1:100



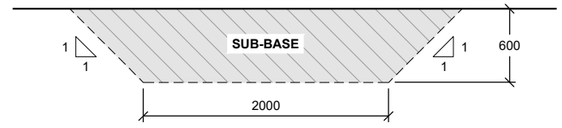
44B / 301 TYPICAL RUNWAY RIGHT DIVERSION DRAIN DETAIL (AT SUB-BASE FINGER DRAIN)
1:100



BJ / - TYPICAL FENCE ELEVATION
1:100



BK / - TYPICAL FENCE POST SECTION
1:100



BL / - RUNWAY SUB-BASE FINGER DRAIN SECTION
1:50

SHEET SIZE A3

REFERENCES

301-821-C8000-301 - AIRSTRIP SECTIONS & DETAILS-SHT 1

REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

ORIGINAL STAMPED IN RED

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
AIRSTRIP SECTIONS & DETAILS-SHT 2

SCALE AS SHOWN

STATUS: DEFINITIVE FEASIBILITY STUDY

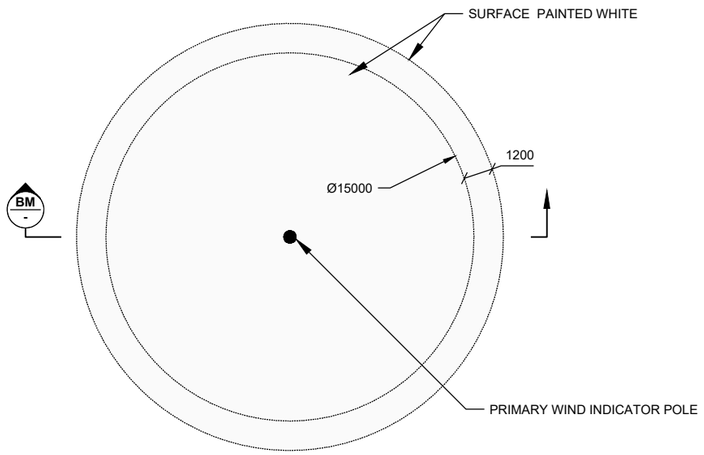
DRAWING NUMBER 301-821-C8000-302

REV A

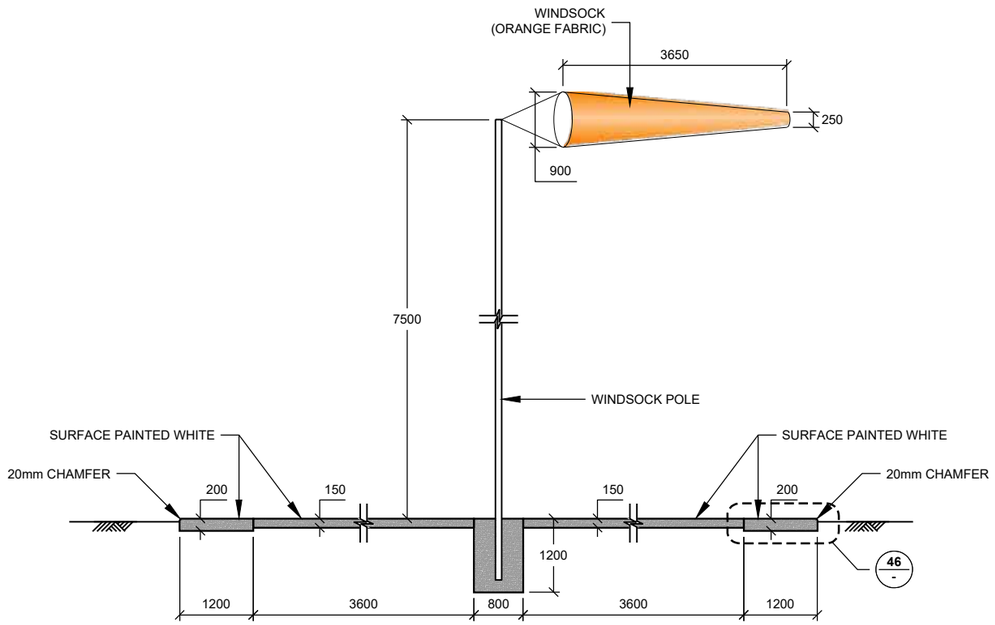
D:\2025\Roper\doropo_projects\engineering\drawings\civil & infrastructure\301-821-C8000-302.dwg [301 Preliminary drawings.ctb] Apr 20, 2026 - 10:52 A

NOTES:

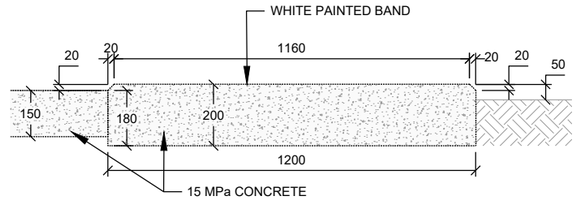
1. CONE OR SIMILAR SIZE MARKERS TO BE SPACED NOT MORE THAN 20m AT THE END OF RUNWAY.
2. MARKERS TO BE SPACED NOT MORE THAN 180m ALONG THE RUNWAY.



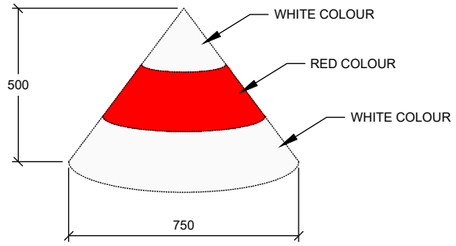
45 - TYPICAL PRIMARY WIND INDICATOR LAYOUT DETAIL
1:250



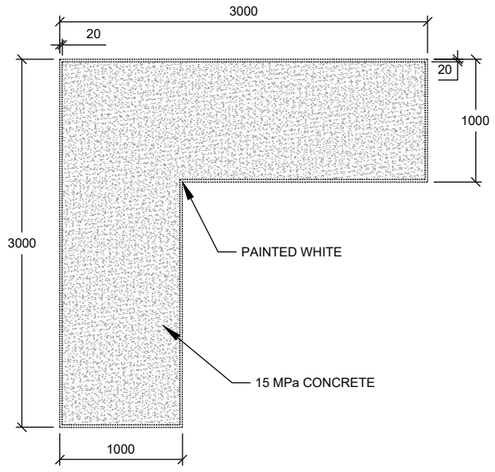
BM - TYPICAL PRIMARY WIND INDICATOR DETAIL
1:100



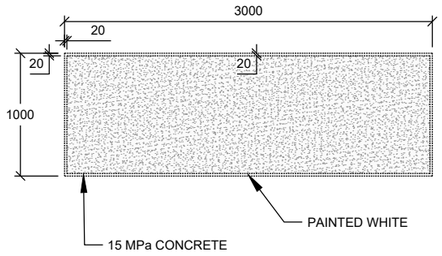
46 - WIND INDICATOR EDGE BAND SECTION
1:20



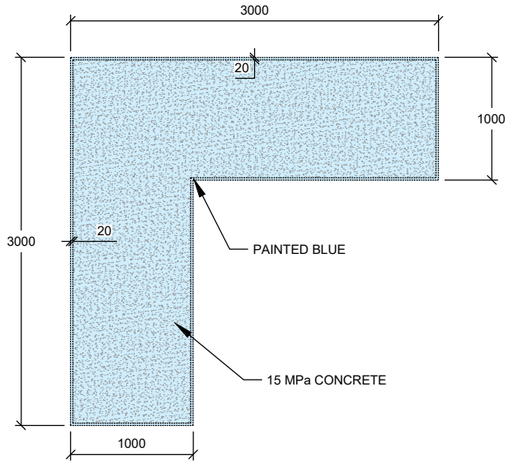
47 - UNSERVICEABILITY CONE MARKER DETAIL
1:20



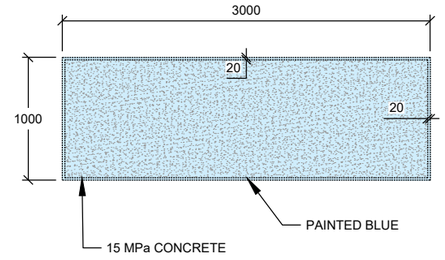
48 - TYPICAL RUNWAY CORNER MARKER
1:50



49 - TYPICAL RUNWAY EDGE MARKER
1:50



50 - TYPICAL TAXIWAY / APRON CORNER MARKER
1:50



51 - TYPICAL TAXIWAY / APRON EDGE MARKER
1:50

ORIGINAL STAMPED IN RED

	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

CONSULT AUSTRALIA Member Firm

NOTICE: This drawing has not been publicly disclosed and is the sole property of Knight Piesold Pty Ltd and is lent to the borrower for their confidential use only, and in consideration of the loan of this drawing, the borrower promises and agrees to return it upon request and agrees that it shall not be reproduced, copied, lent or otherwise disposed of directly or indirectly to any other person or entity, nor used for any purpose other than for which it is furnished.

RESOLUTE MINING
DOROPO GOLD MINE
TAILINGS STORAGE FACILITY AND INFRASTRUCTURE
AIRSTRIP SECTIONS & DETAILS-SHT 3

SCALE AS SHOWN
STATUS: DEFINITIVE FEASIBILITY STUDY
DRAWING NUMBER **301-821-C8000-303**
REV **A**

SHEET SIZE A3
REFERENCES
REFERENCE DRAWINGS

REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	19/12/2025	ISSUED FOR DEFINITIVE FEASIBILITY STUDY	TK	KPE	KPE	DJTM	

C:\Users\tkoch\Desktop\Doropo\Engineering\Drawings\Preliminary drawings\301-821-C8000-303 A.dwg

APPENDIX A

Memorandum Ref. PE25-01533

Doropo Gold Project –Design Climatology Rev 2

Knight Piésold CONSULTING

MEMORANDUM

To:	Resolute Mining	**Date:**	02 December 2025
Attn:	Rob Cicchini	**Our Ref:**	PE25-01533
		KP File Ref.:	PE301-00821/07-A acsb M25012
cc:	Luciano Giancristofaro	**From:**	Andrew Brown

RE: DOROPO GOLD PROJECT – DESIGN CLIMATOLOGY REV 2

EXECUTIVE SUMMARY

Please find herein an assessment of the engineering design criteria for the climatology of the Doropo Gold Project site in Côte d'Ivoire. The investigation and calculations discussed herein provide the hydrologic basis for the prefeasibility study surface water management and water balance modelling. It is noted that this memorandum supersedes M23-00348. The document update is limited to accounting for the change in ownership of the project.

It is noted that the Doropo Gold Project is located in an area that has a Köppen climate classification of Aw (tropical savanna climate). The critical design values generated in this memo are summarised in tables E.1 and E.2.

Table E.1: Monthly climate parameters

Month	Annual Precipitation (mm)			Average Pan Evap. (mm)	Average Lake Evap. (mm)
	100-yr ARI Wet	Average	100-yr ARI Dry		
Jan	0	0	0	199	143
Feb	56	7	0	210	148
Mar	93	0	48	234	164
Apr	149	85	133	204	146
May	189	121	69	189	136
Jun	258	64	100	152	111
Jul	366	229	79	128	94
Aug	303	267	111	111	82
Sep	394	223	77	121	89
Oct	83	84	88	146	107
Nov	26	2	0	162	118
Dec	14	50	0	181	131
1-year Totals	1,931	1,133	704	2,037	1,469

Table E.2: Storm events (1- and 3-day totals)

Duration (hours)	100-year ARI	1,000-year ARI	10,000-year ARI	PMP
24	202	282	362	602
72	220	307	394	654

1. DATA SOURCE/ACQUISITION

A number of climate stations were identified within the area. The climate stations in the vicinity and information regarding them are summarised in Table 1.1.

Table 1.1: Summary of nearby climate stations

Station Name	Distance to Site (km)	Data Available	First Reading	Last Reading
Doropo	18	Daily Precip.	01/03/1976	31/12/1996
		Monthly Precip.	03/1976	12/1996
Batie	34	Daily Precip.	16/06/1944	31/10/2000
		Monthly Precip.	06/1944	10/2001
		Daily Pan Evap.	01/02/1990	29/11/1990
Bouna	56	Daily Precip.	01/01/1920	31/12/2000
		Monthly Precip	01/1920	12/2000
Kampti	56	Daily Precip.	01/01/1950	30/09/2000
		Monthly Precip.	01/1950	11/2001
Tehini	56	Daily Precip.	01/01/1977	31/12/1996
		Monthly Precip.	01/1977	12/1996
Legmoin	57	Daily Precip.	01/01/1961	30/09/2000
		Monthly Precip.	01/1961	12/2000
Gaoua	67	Daily Precip.	01/01/1908	31/12/2009
		Monthly Precip.	01/1908	12/2001
		Daily Pan Evap.	01/01/1997	31/12/1997

After considering both the distance to the project site and the quantity and quality of the available data KP selected the Batie dataset for daily precipitation data and the Gaoua for daily pan evaporation data. The daily pan evaporation data from the Batie station were used to derive a relationship between pan evaporation at Gaoua and Batie in order to make the Gaoua data representative of the conditions on site.

Data from the Batie climate station was sourced from the Système d'Informations Environnementales sur les Ressources en Eau et leur Modélisation (SIEREM). The Batie daily precipitation dataset was analysed to obtain the following required design information:

- Depth/Duration/Frequency (DDF) curves for short-duration extreme rainfall events for a range of durations, with an Average Recurrence Interval (ARI) of 5 years up to the Probable Maximum Precipitation (PMP);
- Typical variability of annual precipitation;
- Typical variability of monthly precipitation;
- Extreme monthly precipitation (1-year sequence) for 5- to 100-year ARI wet/dry precipitation; and
- Extreme monthly precipitation (120-day sequence) for 5- to 100-year ARI wet precipitation.

Daily evaporation data were also sourced from SIEREM for the Batie and Gaoua stations. The Gaoua daily pan evaporation dataset was analysed to obtain the following required design information:

- Typical variability of annual pan evaporation;
- Typical variability of monthly pan evaporation;
- Typical variability of annual lake evaporation; and
- Typical variability of monthly lake evaporation.

Three-hour interval wind data were sourced from the Gaoua station from the World Meteorological Organisation dataset from National Center for Atmospheric Research Computational & Information Systems Lab. These data were used to determine the prevailing wind direction.

The nearby climate stations and the project site are shown on Figure 1.1.

2. PRECIPITATION ANALYSIS

Precipitation data from the Batie rain gauge were reduced into a standardised format and then analysed on daily, monthly, and annual timescales. Daily precipitation data are used to derive design extreme storms for sizing water conveyance infrastructure (spillways, channels, etc.). Monthly and annual precipitation data are used for water balance modelling purposes. The following sections summarise the analyses conducted and the results attained.

It is noted that the data in this assessment were assessed based on calendar years, due to the distinct dry and wet seasons lining up with a typical January to December calendar year.

2.1 DAILY PRECIPITATION ANALYSIS

KP performed frequency analysis on daily and 3-day annual maxima from 57 years of data from the Batie daily dataset to estimate the statistical likelihood of experiencing extreme storms at the Doropo Gold Project site. No years were excluded from the analysis as any missing data were typically during periods of the year when significant storms do not occur.

A large number (65) of different probability distributions (e.g. Log-Pearson 3, Generalised Extreme Value, Generalised Logistic, Wakeby, Frechet, etc.) were fitted to the annual maxima of the daily and 3-day precipitation data using EasyFit 5.4 Professional software.

For the analyses, three of the best fits were selected for comparison, as shown in figures 2.1 to 2.2.

For the 1-day assessment the Wakeby distribution was found to provide the best fit to the entire dataset whilst the Gen. Extreme Value and Log-Pearson 3 distributions are alternative standard distributions typically used to assess climate data. After reviewing the fits it was decided that the Wakeby distribution provided the best fit to the data.

For the 3-day assessment the Wakeby distribution was found to provide the best fit to the entire dataset whilst the Gen. Extreme Value and Log-Pearson 3 distributions are alternative standard distributions typically used to assess climate data. After reviewing the fits, it was decided that the Wakeby distribution provided the best fit to the data.

The results of the selected fits to historic precipitation records are presented in Table 2.1, noting that the values provided have been augmented by 14.3% and 4.4% for the daily and the 3 day results respectively to account for potential straddling errors in sampling which may occur from the usage of fixed 24 hour duration observational periods for deriving daily design storms (Ref. 1).

Table 2.1: Extreme 24 and 72 hour design precipitation

Annual Recurrence Interval (ARI) (yr)	24-h Duration Precipitation Depth (mm)	72-h Duration Precipitation Depth (mm)
5	121	135
10	138	155
20	156	175
50	182	201
100	202	220
Largest Recorded[1]	172	208

1. Unfactored daily values at the Batie gauge.

KP utilised the 24-hour design precipitation information in Table 2.1 to derive DDF curves for short duration storms. The Rainfall Ratio Method (Ref. 2) was employed for this purpose.

The results for the Doropo Gold Project are summarised in Table 2.2 and illustrated in Figure 2.3.

Table 2.2: Doropo Gold Project depth/duration/frequency data

Storm Duration	Precipitation Depth (mm) for given ARI (year) Storm							
	5	10	20	50	100	1,000[1]	10,000[1]	PMP
5 min	11.8	13.4	15.2	17.7	19.7	27.5	35.2	58.6
10 min	21.1	24.2	27.3	31.8	35.4	49.4	63.3	105
15 min	28.8	32.9	37.2	43.3	48.2	67.3	86.3	143
30 min	45.3	51.8	58.6	68.2	75.9	106	136	226
1 h	63.9	73.1	82.7	96.2	107	149	192	319
2 h	81.4	93.1	105	123	136	190	244	406
3 h	90.2	103	117	136	151	211	271	450
6 h	103	117	133	155	172	240	308	512
9 h	109	124	141	164	182	254	326	542
12 h	113	129	146	169	189	263	338	561
18 h	118	134	152	177	197	275	352	586
24 h	121	138	156	182	202	282	362	602
72 h	135	155	175	201	220	307[2]	394[2]	654[2]

1. The 1,000- and 10,000-year ARI depths are based on a logarithmic interpolation between the 24-hour 100-year ARI and the 24-hour PMP, assuming the PMP is equivalent to a 10-million-year ARI event.
2. 72-hour PMP depths were estimated by extrapolation as the Hershfield method is not valid for durations greater than 24 hours.

2.2 PROBABLE MAXIMUM PRECIPITATION

The PMP storm event was estimated using the Batie daily precipitation dataset, as above. The Hershfield Statistical Method (Refs. 3, 4, 5 and 6) was used to estimate PMP values for the site. To reduce the 24-hour PMP depth to sub-daily storm depths, the Rainfall Ratio Method was used, as described in Section 2.1. As the Hershfield method does not provide an estimate of the 72-hour duration PMP, it was estimated by factoring the 24-hour PMP based on the ratio of the 24-hour 100-year ARI storm and the 72-hour 100-year storm. The PMP storm depths estimated for the Doropo Gold Project are summarised in Table 2.2 above and shown on Figure 2.3.

2.3 MONTHLY PRECIPITATION ANALYSIS

Daily precipitation records from the Batie rain gauge were summed to produce monthly totals. Sampling statistics were computed on the monthly totals of the daily precipitation data from the Batie rain gauge to describe the variability of monthly precipitation at the Doropo Gold Project. The computed sampling statistics for the monthly precipitation data from Batie are summarised in Table 2.3. It is noted that the averages provided in Table 2.3 are not for use in any models as they do not adequately represent the variability of monthly precipitation.

Table 2.3: Monthly precipitation statistics (Batie)

Month	Average	Median	Std. Dev.	Min.	Max.	25th Pct.	75th Pct.
Jan	2.5	0.0	7.4	0.0	37.8	0.0	0.0
Feb	11.7	0.0	20.8	0.0	82.9	0.0	14.2
Mar	37.4	31.1	33.1	0.0	123.4	13.9	53.6
Apr	81.7	82.1	36.7	5.7	174.5	55.5	107.5
May	124.4	124.6	48.5	49.4	248.0	89.3	159.4
Jun	140.5	130.5	60.0	17.4	328.9	100.9	178.8
Jul	176.1	176.3	76.6	36.4	348.8	108.4	226.5
Aug	213.8	203.3	85.7	86.6	413.8	144.4	273.5
Sep	226.8	215.0	84.0	70.7	436.4	173.5	277.3
Oct	101.2	80.0	79.8	1.2	429.4	57.6	110.4
Nov	14.8	7.7	21.6	0.0	108.9	0.0	16.3
Dec	6.3	0.0	16.4	0.0	98.0	0.0	3.4

The sample statistics for monthly precipitation at the Batie rain gauge were also depicted as a “box and whisker” plot (Figure 2.4) to illustrate the variability of monthly precipitation at the Doropo Gold Project.

2.4 ANNUAL PRECIPITATION ANALYSIS

Daily precipitation records from the Batie rain gauge were summed to produce annual totals for the 55 years of available record. It is noted that, due to missing data, 2 years were excluded from the analysis.

Sampling statistics were computed on these values to provide a broad overview of the variability of annual precipitation at the Doropo Gold Project site, and are summarised in Table 2.4.

Table 2.4: Annual precipitation statistics

Selected Statistic	Statistic Value (mm)
Average	1,133
Median	1,077
Std. Deviation	247
Minimum	718
Maximum	1,838
25th Percentile	965
75th Percentile	1,263

2.5 WATER BALANCE SCENARIO ANALYSIS

KP performed frequency analysis on annual precipitation values similar to the method described (with daily data) in Section 2.1. As well as annual values, the 120-day maxima were also assessed in the same manner.
It is noted that 2 years of data were excluded from the analysis due to missing data. Exceedance and non-exceedance probabilities were assigned to the annual totals (rather than the annual daily maxima), by sorting the values in descending (for the "Wet" series) and ascending (for the "Dry" series) order. Probability distributions were fitted to the data and then plotted for comparison, as shown on figures 2.5 to 2.7 respectively. KP selected the Gen. Extreme Value distribution for both the annual dry series and the annual wet series. KP selected the Wakeby distribution for the 120-day wet series. The results of these calculations are summarised in Table 2.5.

Table 2.5: Extreme long duration design precipitation

Annual Recurrence Interval (ARI) (yr)	Annual Wet Precipitation Depth (mm)	Annual Dry Precipitation Depth (mm)	120 Day Wet Precipitation Depth (mm)
5	1,306	945	954
10	1,463	860	1,065
20	1,612	788	1,163
50	1,798	728	1,273
100	1,931	704	1,345

In order to apportion the statistically-computed annual to monthly time series for use in water balance modelling, the rainfall pattern observed in the median year (1990), wettest year (1968) and the driest year (1948) were used for the average, wet and dry series respectively. These monthly ratios were then multiplied by the computed statistical annual values to form the required synthetic scenarios. The results of this computation are provided in Table 2.6.

Table 2.6: 1-year duration synthetic precipitation scenarios

Month	Wet Scenarios (mm)			Average	Dry Scenarios (mm)		
	100-yr ARI	10-yr ARI	5-yr ARI	(mm)	5-yr ARI	10-yr ARI	100-yr ARI
Jan	0	0	0	0	0	0	0
Feb	56	43	38	7	0	0	0
Mar	93	70	63	0	64	58	48
Apr	149	113	101	85	179	163	133
May	189	143	128	121	92	84	69
Jun	258	195	174	64	134	122	100
Jul	366	278	248	229	107	97	79
Aug	303	229	205	267	149	135	111
Sep	394	299	267	223	103	93	77
Oct	83	63	56	84	118	107	88
Nov	26	20	18	2	0	0	0
Dec	14	11	9	50	0	0	0
1-year Totals	1,931	1,463	1,306	1,133	945	860	704

It is noted the synthetic wet years may have months where the precipitation is less than the average or the synthetic dry years. Similarly, the synthetic dry year may have months where the precipitation is greater than the average or the synthetic wet years. This is due to the rainfall recorded within the specific year selected to match the required scenario.

The 120-day period (29/06/1969 to 27/10/1969) was used to generate the pattern for the 120-day wet. These monthly ratios were then multiplied by the computed statistical annual values to form the required synthetic scenarios. The results of this computation are provided in Table 2.7.

Table 2.7: 120-day duration synthetic precipitation scenarios

Month	120-day Wet Scenarios (mm)		
	100-year ARI	10-year ARI	5-year ARI
Jul	291	231	206
Aug	257	204	183
Sep	476	377	337
Oct	321	254	228
Total	1,345	1,065	954

3. EVAPORATION ANALYSIS

Daily pan evaporation records from both the Batie and Gaoua stations were assessed to estimate monthly average values. Pan evaporation in West Africa generally increases as you head north and approach the Sahara Desert. Batie is 17.5 km further North of the project and Gaoua is 67.3 km further North. The dataset for Batie is quite limited, with only 7 months of data in 1990. In contrast, the dataset for Gaoua is more substantial, with 13 complete years of data.

As the two datasets overlap, a relationship between monthly pan evaporation between the two sites was found, as shown on Figure 3.1. This relationship was used to adjust the monthly pan evaporation values calculated from the Gaoua station to the lower values expected further south.

These values were then converted to estimates of average monthly lake evaporation using the relationship described in Stanhill 1976 (Ref. 7).

Table 3.1 presents the average monthly pan evaporation, the estimated monthly pan factor and the estimated average monthly lake evaporation.

Table 3.1: Average monthly pan evaporation and lake evaporation

Month	Pan Evaporation (mm)	Lake Evaporation (mm)	Estimated Pan Factor
Jan	199	143	0.72
Feb	210	148	0.70
Mar	234	164	0.70
Apr	204	146	0.71
May	189	136	0.72
Jun	152	111	0.73
Jul	128	94	0.74
Aug	111	82	0.74
Sep	121	89	0.74
Oct	146	107	0.73
Nov	162	118	0.73
Dec	181	131	0.72
Total	2,037	1,469	0.72

KP compared the values calculated from the Gaoua dataset to average monthly pan evaporation recorded at a station located 15 km south of the Doropo Gold Project, but 221 km away from the project in total to the West. These monthly pan evaporation values were taken from a study on sugarcane yield variations (Ref. 8). The comparison of the average monthly pan evaporation totals is shown on Figure 3.2, which showed a very similar pattern with an overall difference in annual pan evaporation of less than 2%. Given the difference is very minor KP believes the values adopted in Table 3.1 are reasonable.

4. WIND ANALYSIS

Wind data are often difficult to acquire in West Africa. Generally speaking the prevailing wind direction is southwest to northeast. To facilitate the design any infrastructure that is impacted by wind speed and direction, an automated weather station that monitors both wind speed and direction should be installed at the site. Preliminarily wind direction data sourced from the Gaoua station was analysed to produce the plot shown on Figure 4.1. As shown on Figure 4.1, the prevailing wind direction is from the Southwest and South.

5. RECOMMENDATIONS

KP recommends that the following actions be taken:

- The automatic weather station (AWS) should be installed on site as soon as practicable in order to provide additional site data to verify design assumptions. This station should include a tipping bucket or alternately accurate method of measuring rainfall at a temporal resolution of at least 10 minutes. This dataset will be used to provide guidance for the short duration storms which are currently estimated based on assumptions;
- A Class-A evaporation pan should be installed on site as soon as practicable to confirm the pan evaporation; and
- The design climatology should be reassessed in a nominal five years' time (August 2027) or when 1 full year of data (minimum) is collected from the AWS and/or evaporation pan.

We trust that this memorandum is sufficient for your requirements. Please contact us if you have any queries.

Yours faithfully
KNIGHT PIÉSOLD PTY LTD

ANDREW BROWN
Project Engineer

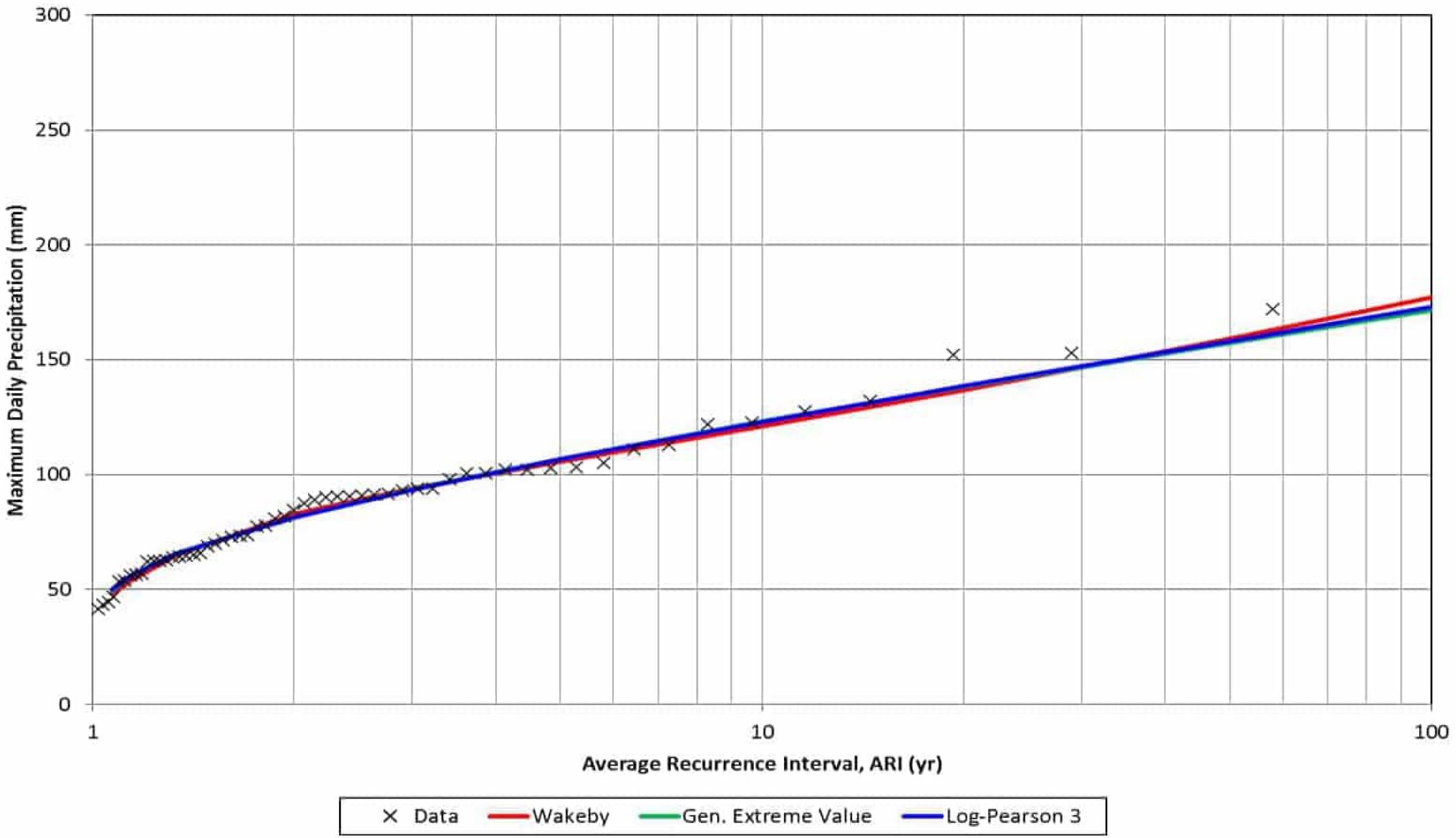
DAVID MORGAN
Managing Director

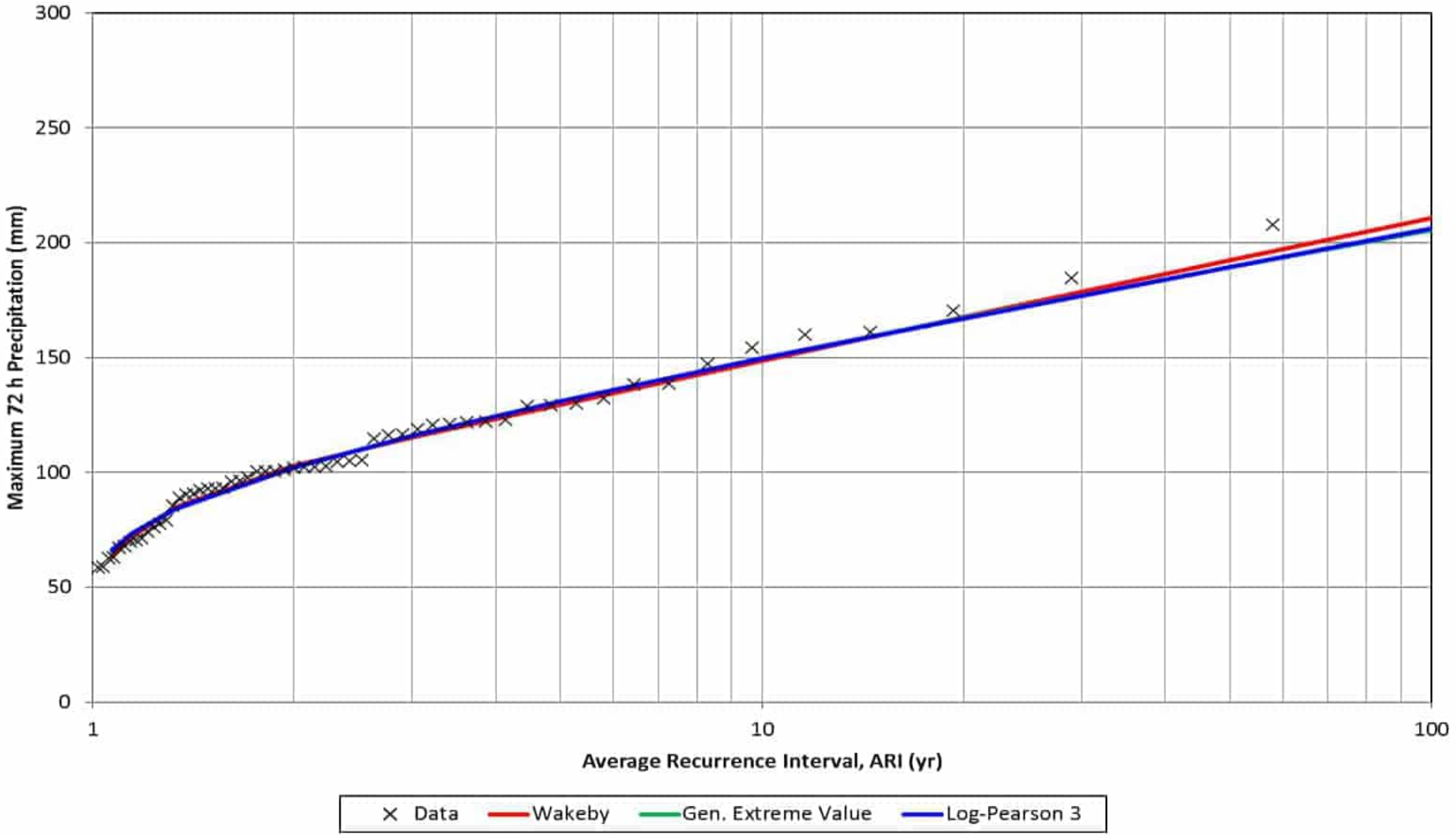
REFERENCES

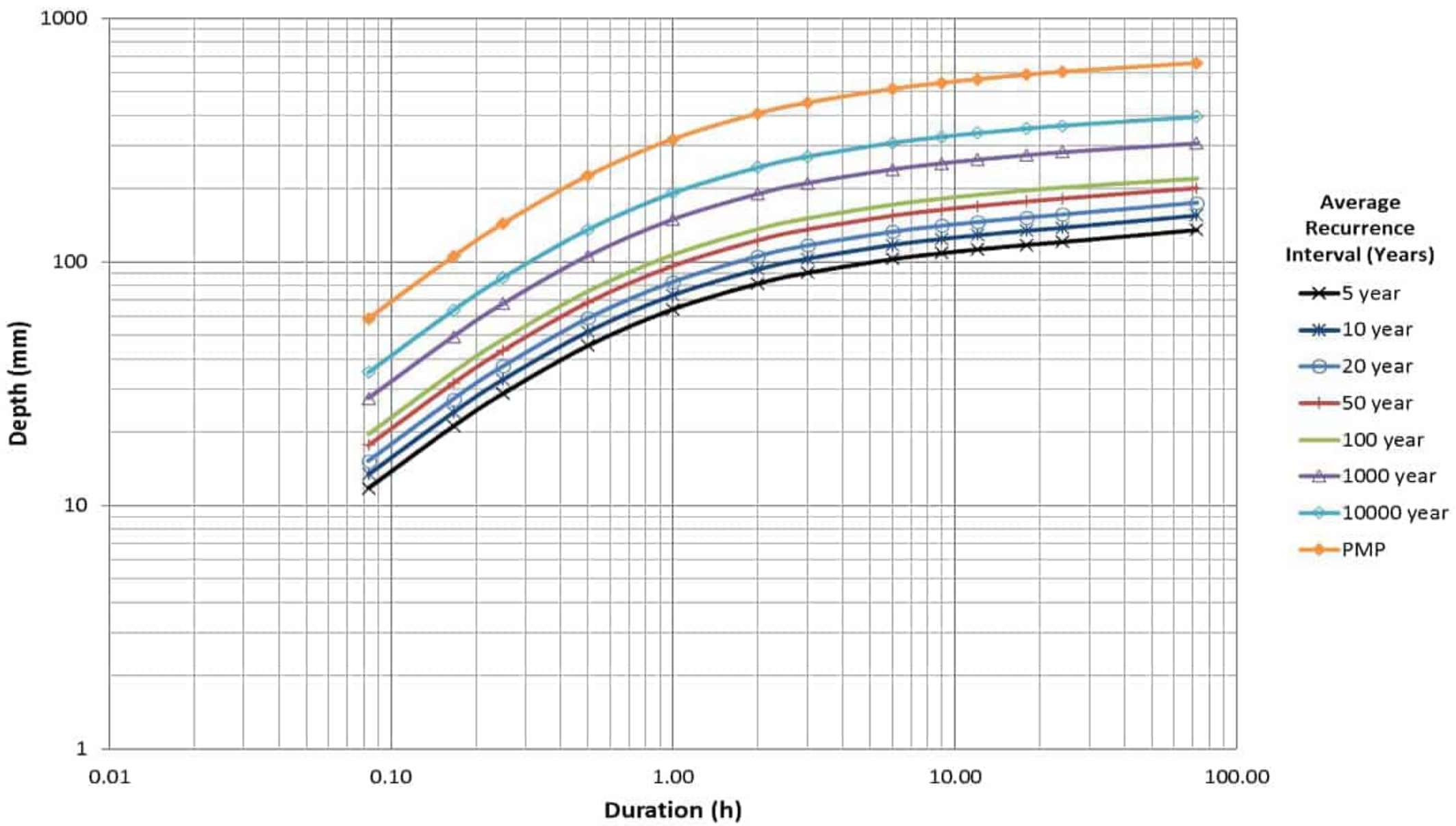
1. Weiss, L.L., 1964, "*Ratio of true to fixed-interval maximum rainfall*", American Society of Civil Engineers, Journal of Hydraulics Division, v. 90, HY-1, p. 77-82.
2. Watkins L.H., Fiddes D., 1984, "*Highway and Urban Hydrology in the Tropics*", London, Great Britain, Pentech Press Ltd.
3. World Meteorological Organization (WMO), 2009, "*Manual on Estimation of Probable Maximum Precipitation (PMP)*". WMO-No. 1045, Geneva, Switzerland.
4. Hershfield, D.M., 1961a, "*Rainfall Frequency Atlas of the United States*". Technical Paper No. 40, Weather Bureau, United States Department of Commerce, Washington, DC.
5. Hershfield, D.M., 1961b, "*Estimating the probable maximum precipitation*". Journal of the Hydraulics Division: Proceedings of the American Society of Civil Engineers, 87: 99-106.
6. Hershfield, D.M., 1965, "*Method for Estimating Probable Maximum Precipitation*". Journal of American Waterworks Association, 57:965-972.
7. Stanhill, G., 1976, "*The CIMO International Evaporimeter Comparisons.*" Publication 449 (World Meteorological Organisation, Geneva) pp.38.
8. Péné C. B., Koulibaly S. G., 2011, "*Sugarcane Yield Variations in Northern and Central Ivory Coast as Influenced by Soil Water Balance over Two Critical Growth Stages*". Journal of Agricultural Science and Technology, Volume 5, No. 2.

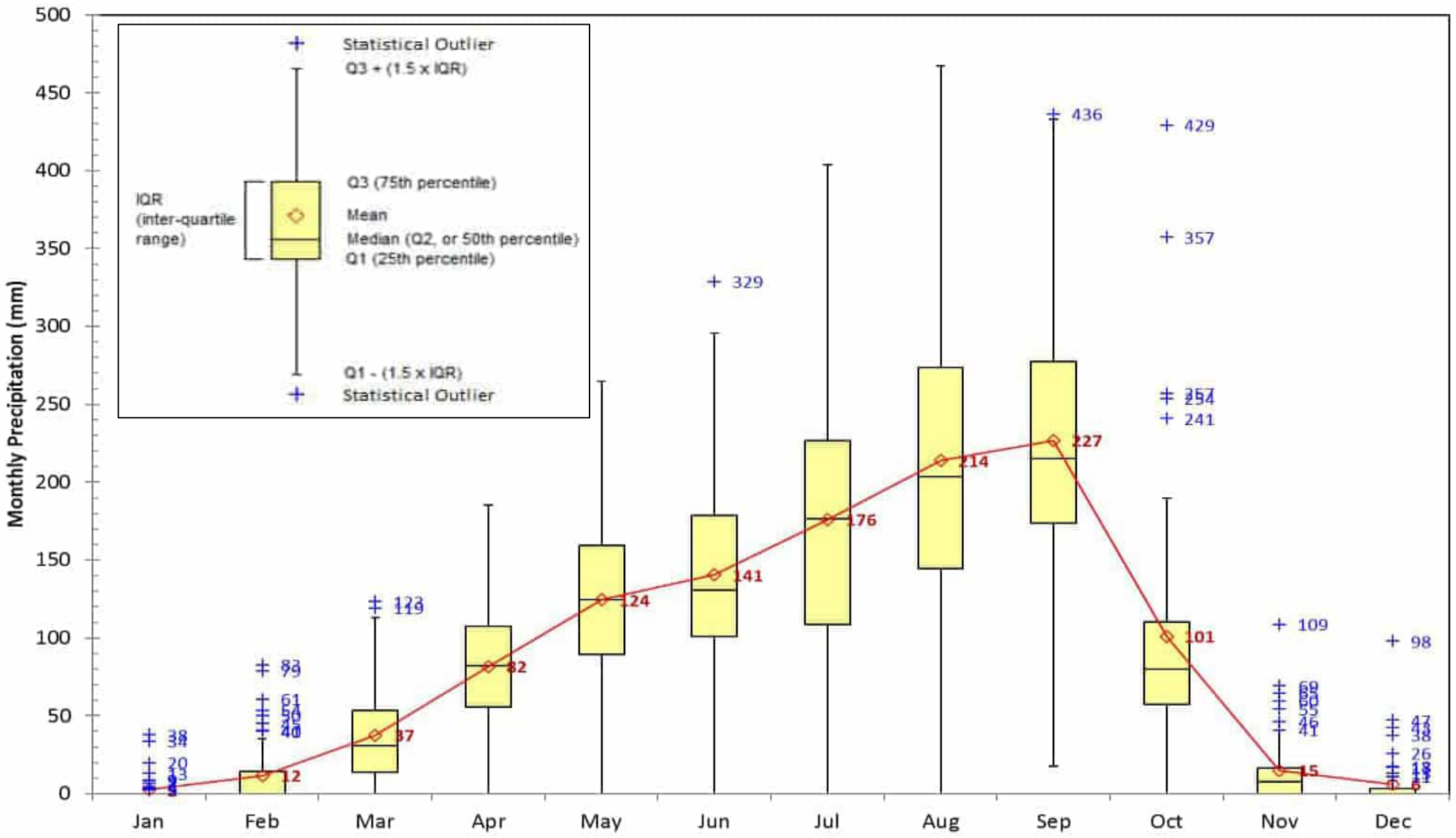
FIGURES

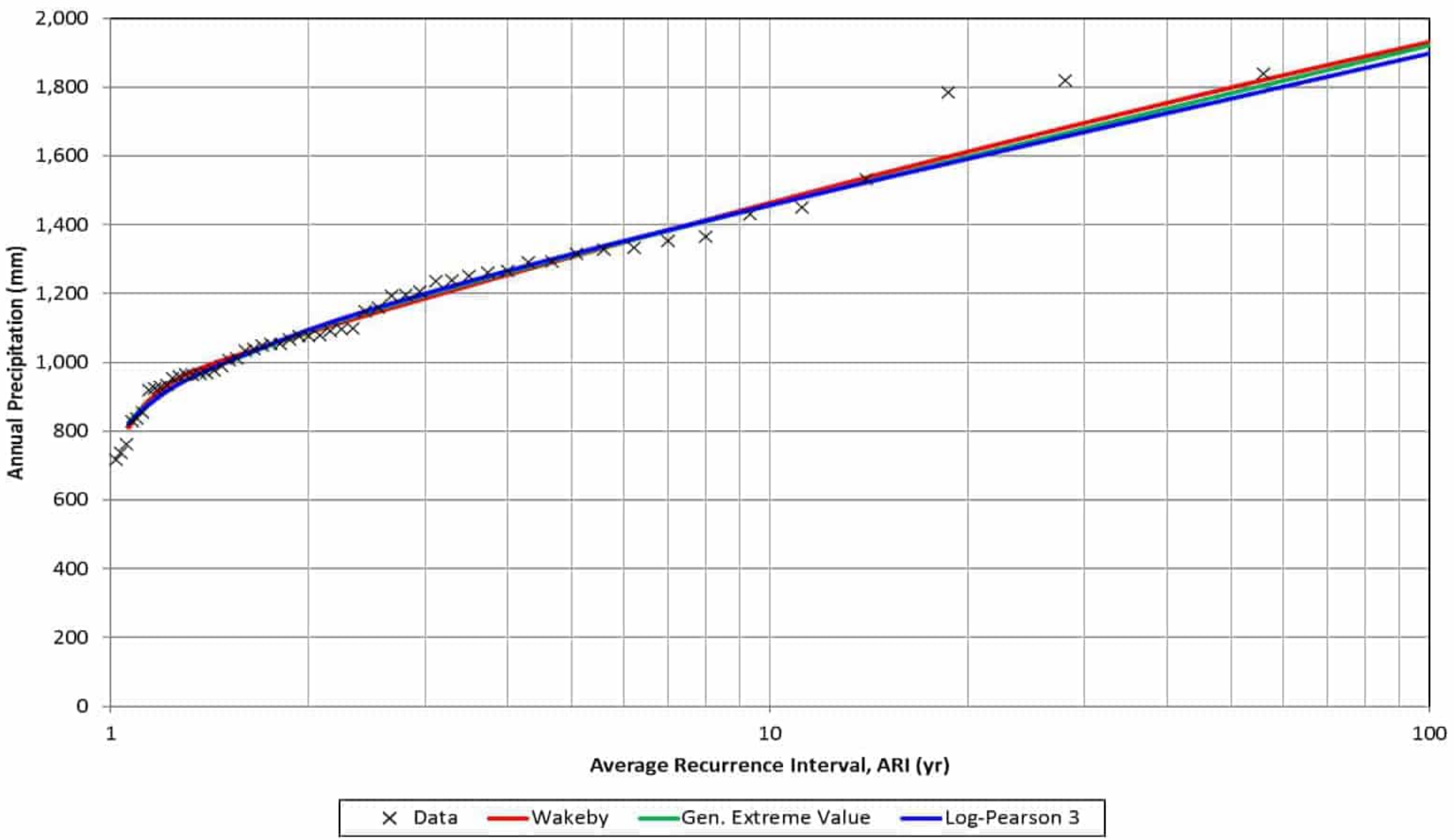

GAOUA
BURKINA FASO
KAMPTI
LEGMOIN
BATIE
GHANA
DOROPO
Doropo Gold Project
TEHINI
CÔTE D'IVOIRE
BOUNA
N
Google Earth
40 km

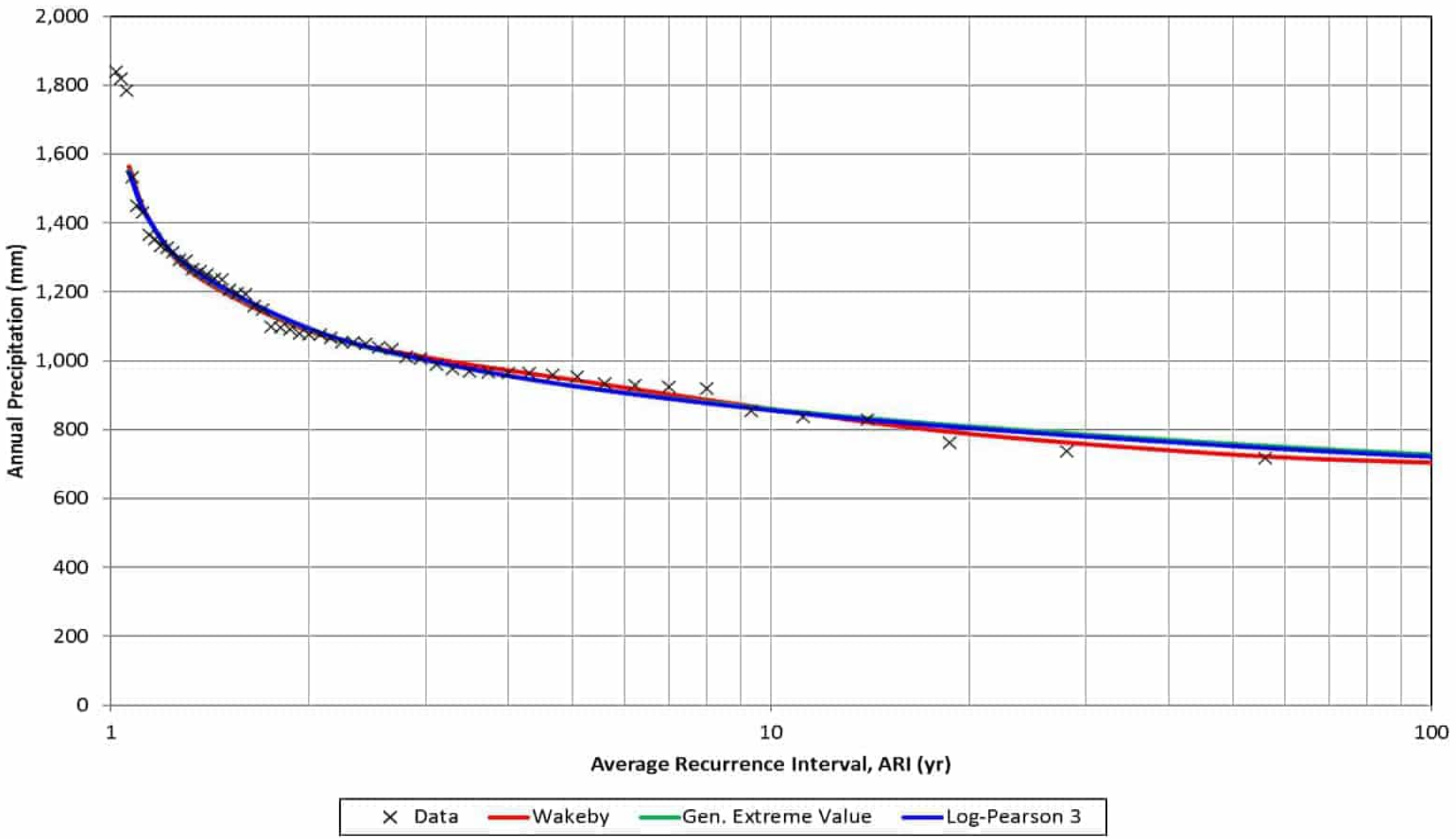

300
250
200
150
100
50
0
Maximum Daily Precipitation (mm)
1
10
100
Average Recurrence Interval, ARI (yr)
Data
Wakeby
Gen. Extreme Value
Log-Pearson 3

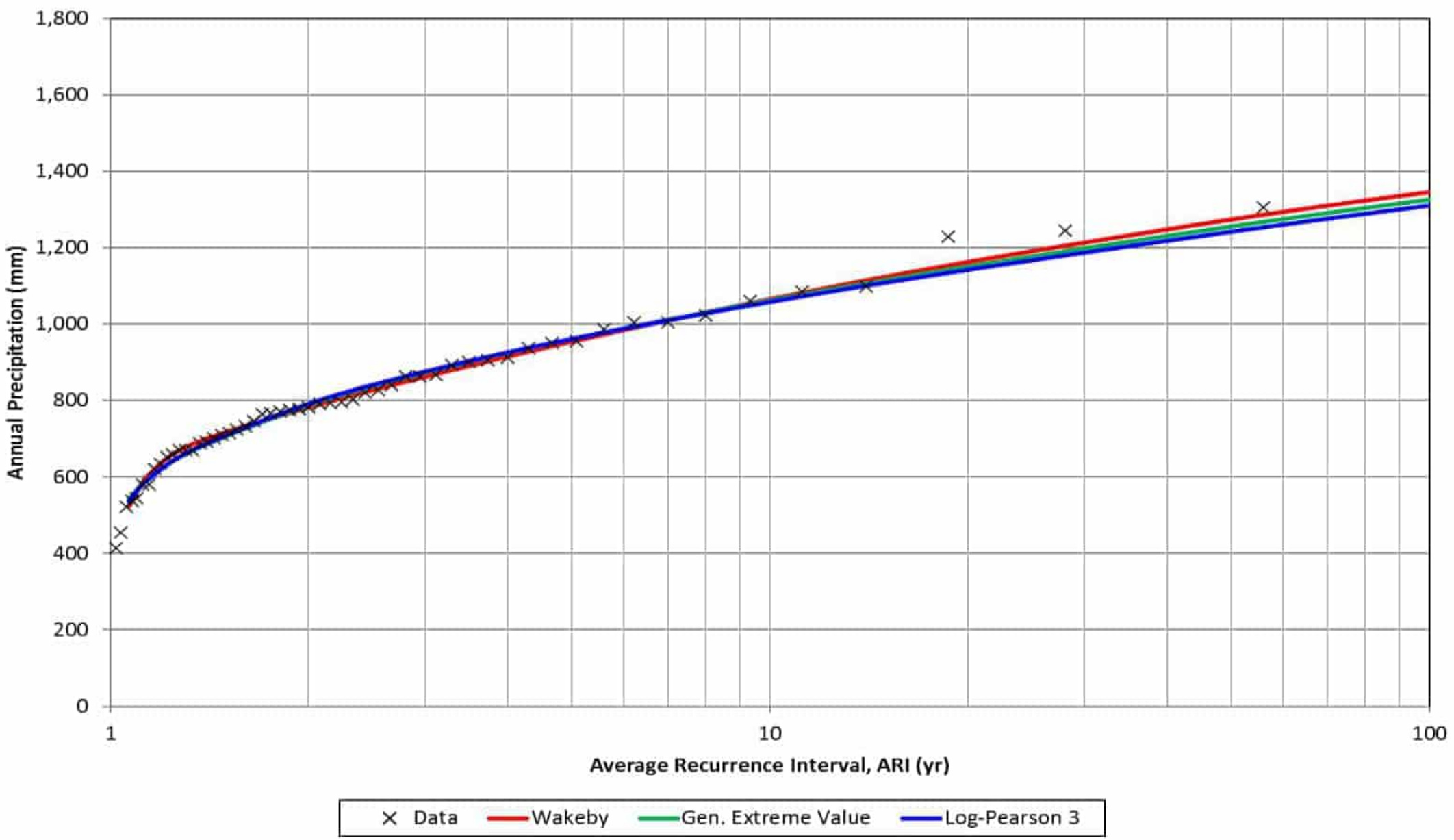

300
250
200
150
100
50
0
Maximum 72 h Precipitation (mm)
1
10
100
Average Recurrence Interval, ARI (yr)
Data
Wakeby
Gen. Extreme Value
Log-Pearson 3

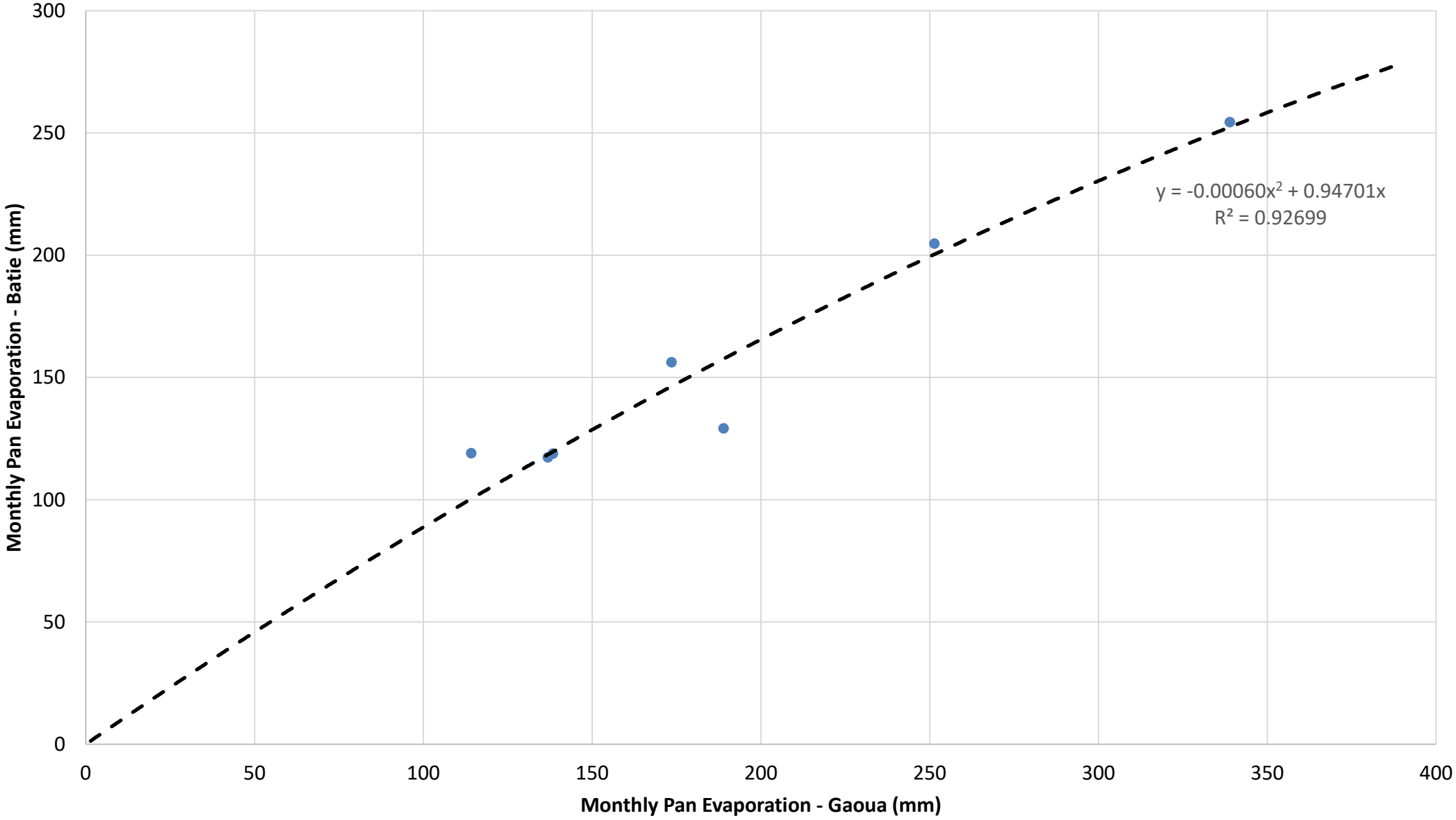

1000
100
10
1
Depth (mm)
0.01
0.10
1.00
10.00
100.00
Duration (h)
Average Recurrence Interval (Years)
5 year
10 year
20 year
50 year
100 year
1000 year
10000 year
PMP


Statistical Outlier
Q3 + (1.5 x IQR)
IQR
(inter-quartile
range)
Q3 (75th percentile)
Mean
Median (Q2, or 50th percentile)
Q1 (25th percentile)
Q1 - (1.5 x IQR)
Statistical Outlier
Monthly Precipitation (mm)
500
450
400
350
300
250
200
150
100
50
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
436
429
357
329
241
109
98
227
214
176
141
124
101
82
37
12
15


2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
Annual Precipitation (mm)
1
10
100
Average Recurrence Interval, ARI (yr)
Data
Wakeby
Gen. Extreme Value
Log-Pearson 3

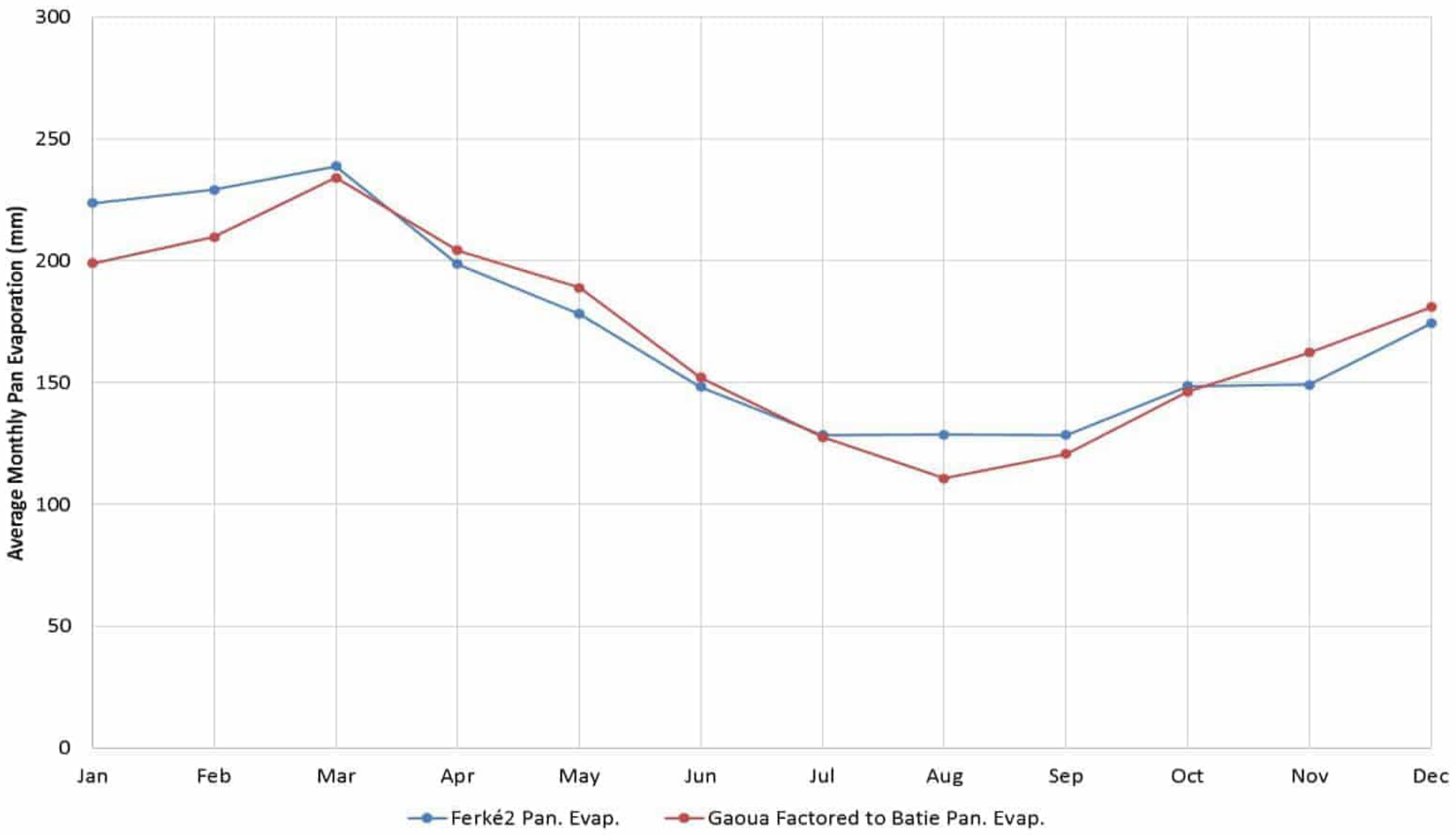

2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
Annual Precipitation (mm)
1
10
100
Average Recurrence Interval, ARI (yr)
Data
Wakeby
Gen. Extreme Value
Log-Pearson 3

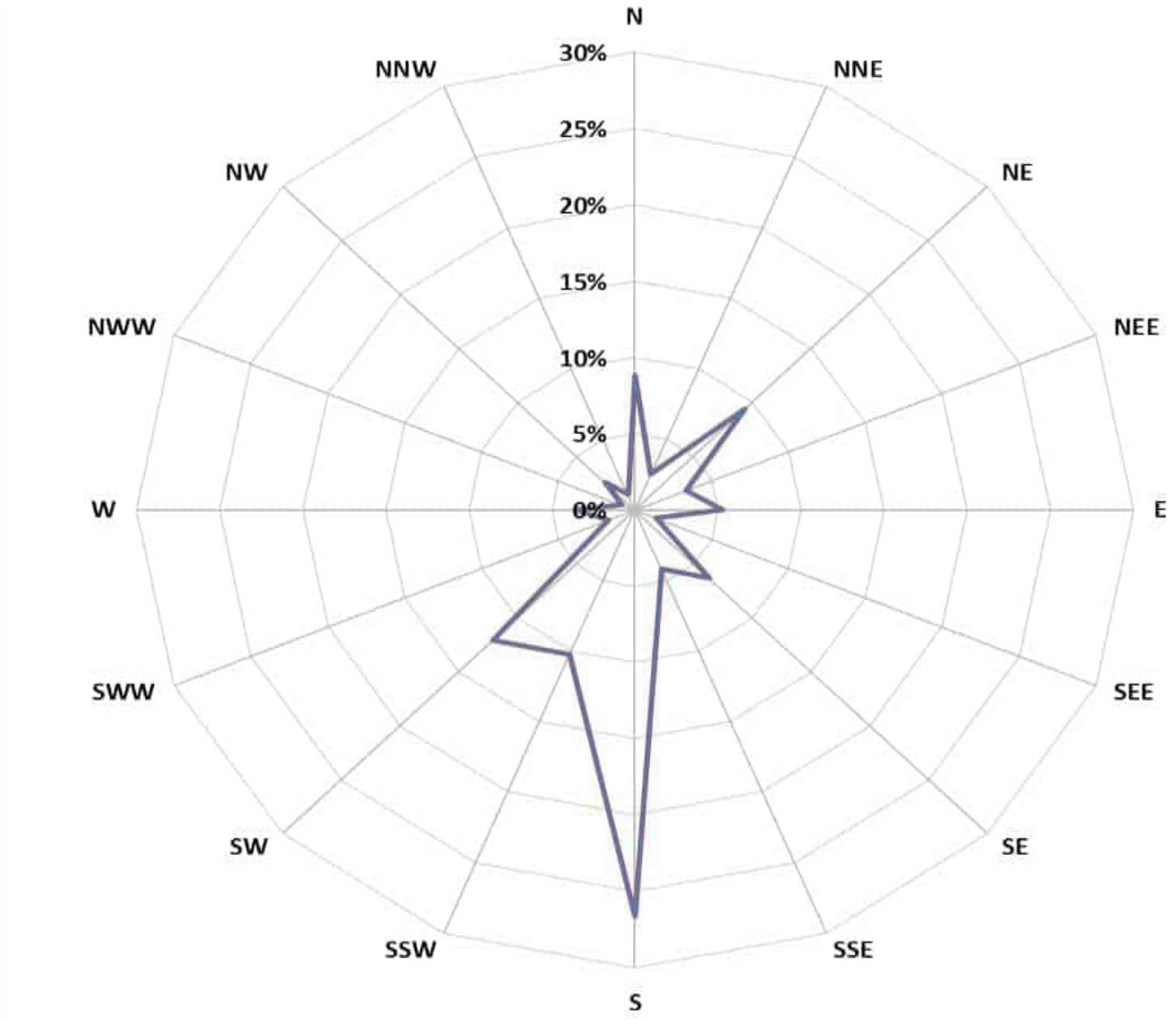

1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
Annual Precipitation (mm)
1
10
100
Average Recurrence Interval, ARI (yr)
Data
Wakeby
Gen. Extreme Value
Log-Pearson 3



DOROPO GOLD PROJECT
DESIGN CLIMATOLOGY REV 2
RELATIONSHIP BETWEEN PAN EVAPORATION AT BATIE AND GAOUA

PE301-00821 M25012
Figure 3.1


300
250
200
150
100
50
0
Average Monthly Pan Evaporation (mm)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ferké2 Pan. Evap.
Gaoua Factored to Batie Pan. Evap.


N
NNE
NE
NEE
E
SEE
SE
SSE
S
SSW
SW
SWW
W
NWW
NW
NNW
30%
25%
20%
15%
10%
5%
0%

APPENDIX B

Memorandum Ref. PE25-01562

Doropo Gold Project –Seismic Hazard Assessment Rev 1

Knight Piésold CONSULTING

MEMORANDUM

To:	Resolute Mining	**Date:**	05 December 2025
Attn:	Rob Cicchini	**Our Ref:**	PE25-01562
		KP File Ref.:	PE301-00821/07-A zs M25013
cc:	Luciano Giancristofaro	**From:**	Jim Luo

RE: DOROPO GOLD PROJECT – SEISMIC HAZARD ASSESSMENT REV 1

1. INTRODUCTION

A preliminary seismic hazard assessment has been carried out for the Doropo project in Côte d'Ivoire in 2023 (Ref. 1). This memorandum presents the seismic hazard assessment results to provide recommended seismic parameters for design based on the failure consequence category of the Tailing Storage Facility (TSF).

2. REGIONAL SEISMICITY

The Doropo Gold Project site is located in Northern Côte d'Ivoire at approximate co-ordinates of Latitude 9.75° and Longitude -3.2°.

Côte d'Ivoire is located on the African tectonic plate approximately 1,000 km north-east of the Mid-Atlantic Ridge (MAR), the closest plate boundary. Mid-ocean ridges such as the MAR and the East Pacific Rise form a continuous belt around the globe. The oceanic ridges are the result of sea-floor spreading at plate boundaries and consist of layers of igneous rock that are fractured and uplifted. Spreading rates between the tectonic plates range from 2 to 18 cm/year, with the highest rates found in the Pacific Ocean and the lowest along the MAR. Global plate boundaries, including the MAR, are illustrated on Figure 2.1.

The site is located within the West African Craton, which is one of five large masses, or cratons, of Precambrian basement rock that make up the African Plate. These land masses came together in the late Precambrian and early Palaeozoic eras to form the African continent. The West African Craton appears to have formed when three Archean cratons fused; Leo-Man-Ghana, Taoudeni and Reguibat. The first two docked around 2,100 Ma (million years ago) and the Reguibat Craton docked with the craton around 2,000 Ma. The roots of the combined craton extend to a depth of over 300 km in the subcontinental lithospheric mantle (Ref. 2). The West African Craton is illustrated on Figure 2.2.

The West African Craton stretches from the Little Atlas Mountains in Morocco to the Gulf of Guinea and is bounded by mobile belts of much younger rocks to the north, east and west. The oldest rocks were metamorphosed 2,900 to 2,500 Ma. In the Sahara they are mostly covered by more recent sediments from the Phanerozoic Eon. Further south, younger volcanic and sedimentary rocks outcrop in Ghana, Côte d'Ivoire, and Sierra Leone, surrounded by even younger sediments (Ref. 4).

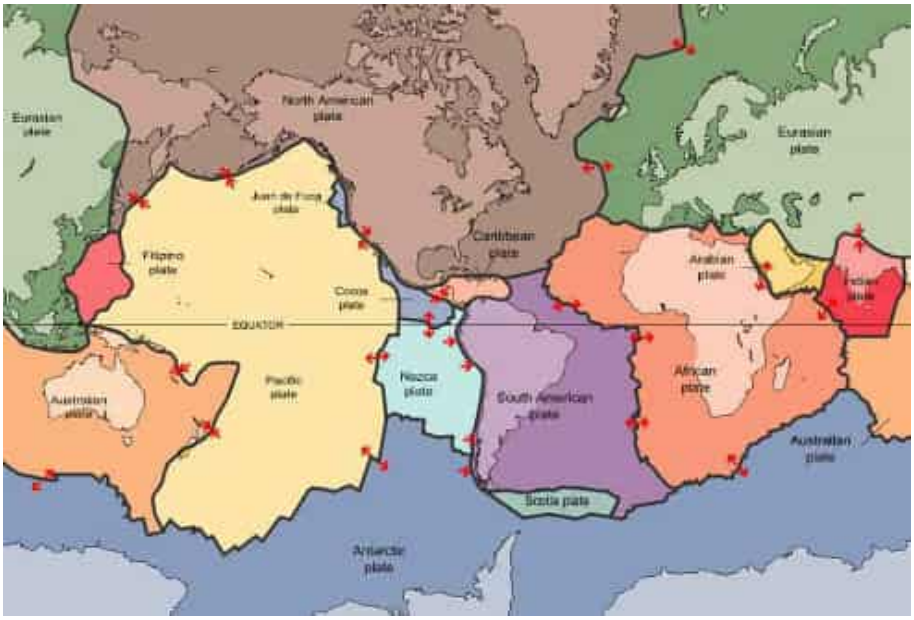


Figure 2.1: Global Plate Tectonic Map

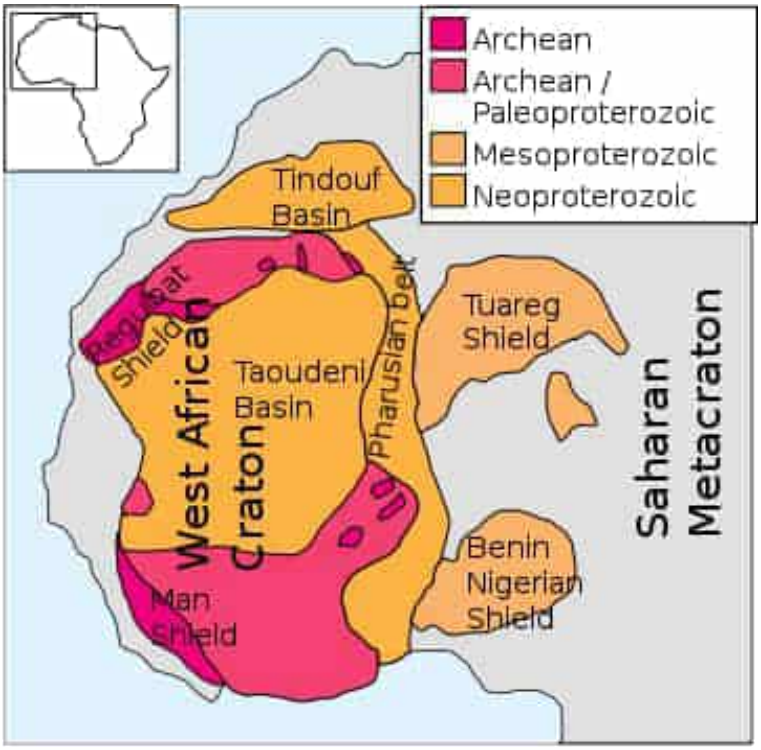


Figure 2.2: Western African Craton

In the southern region of the West African Craton, the geology is interrupted by the remains of weathered volcanoes that are younger than the craton itself. Overlaying the Man Shield, the Birimian sequence of metasediments and metavolcanics found in the Lower Proterozoic rocks of Ghana, Guinea, Mali, Burkina Faso, Côte d'Ivoire, Sierra Leone and Liberia are important as a source of major gold deposits (Ref. 5).

The seismicity of much of West Africa is typical of an intra-plate region, characterised by low levels of seismic activity and earthquakes apparently randomly distributed in location and time. The correlation between recorded earthquakes and geological features is typically not well known or understood.

Historical earthquake data for the region was obtained from the following sources:

- ISC-GEM Global Instrumental Earthquake Catalogue (1904-2019) (Ref. 8 and 9). The ISC-GEM global instrumental earthquake catalogue is a refined version of the ISC bulletin, which improves the accuracy of magnitude and location solutions for large global events.
- International Seismological Centre database (Ref. 10). The database includes earthquake data from 1900 to the present day from a number of agencies, i.e. National Earthquake Information Centre (NEIC or NEIS) catalogue from U.S. Geological Survey earthquake and International Data Centre (IDC).
- Global Centroid Moment Tensor (GCMT) Catalogue. It is a collection of moment tensor solutions for earthquakes with a Moment Magnitude (M_W) greater than 5. The catalogue covers the period 1976 to 2021.
- ISC-EHB Bulletin (Ref. 12). The ISC-EHB Dataset is a groomed version of the ISC Bulletin, covering the period from 1964 to 2020, with the location relocated using the EHB algorithm (Engdahl et al., 1998, Ref. 13) to minimise errors in location (particularly depth) due to assumed 3D Earth structure.
- Regional earthquake catalogue from Amponsah et al. (2012, Ref. 14).

Several different definitions of earthquake magnitude are included in the historical earthquake data, including Local (Richter) Magnitude (M_L), Surface Wave Magnitude (M_S), Body Wave Magnitude (M_B) and Moment Magnitude (M_W). Moment magnitude is similar to M_S for events greater than about Magnitude 6.0. Reference to earthquake magnitude in the ISC-GEM and GCMT catalogue corresponds to the recorded or approximate M_W value. Moment Magnitude is the scale typically used by the more recently published ground motion attenuation relationships. Earthquake magnitudes in the historical data were converted to Mw when required, using appropriate relationships developed by Weatherill et.al. (2016, Ref. 15) for earthquakes with M_S or M_B records from ISC and NEIC catalogues. Earthquakes from IDC with M_L Magnitude was converted using user defined relationship.

Duplicate earthquakes were removed according to a window of prescribed spatial (0.5°) and temporal width (120 seconds). As the basic assumption in probabilistic seismic hazard analysis is that the earthquakes occur as a Poisson process. The earthquakes used to estimate future seismic activity must be free of dependent events such as foreshocks and aftershocks. The Gardner and Knopoff (1974) declustering method was used in this study to identify independent earthquakes. After removal of foreshocks and aftershocks, the declustered earthquake catalogue contains 151 mainshocks. The declustered earthquakes are shown in Figure 2.3.

The focal depths of the recorded earthquakes were typically in the range of 0 to 33 km. As Côte d'Ivoire is an intra-plate region, all potential earthquakes would typically be expected at shallow depths within the Earth's crust (focal depths less than 40 km).

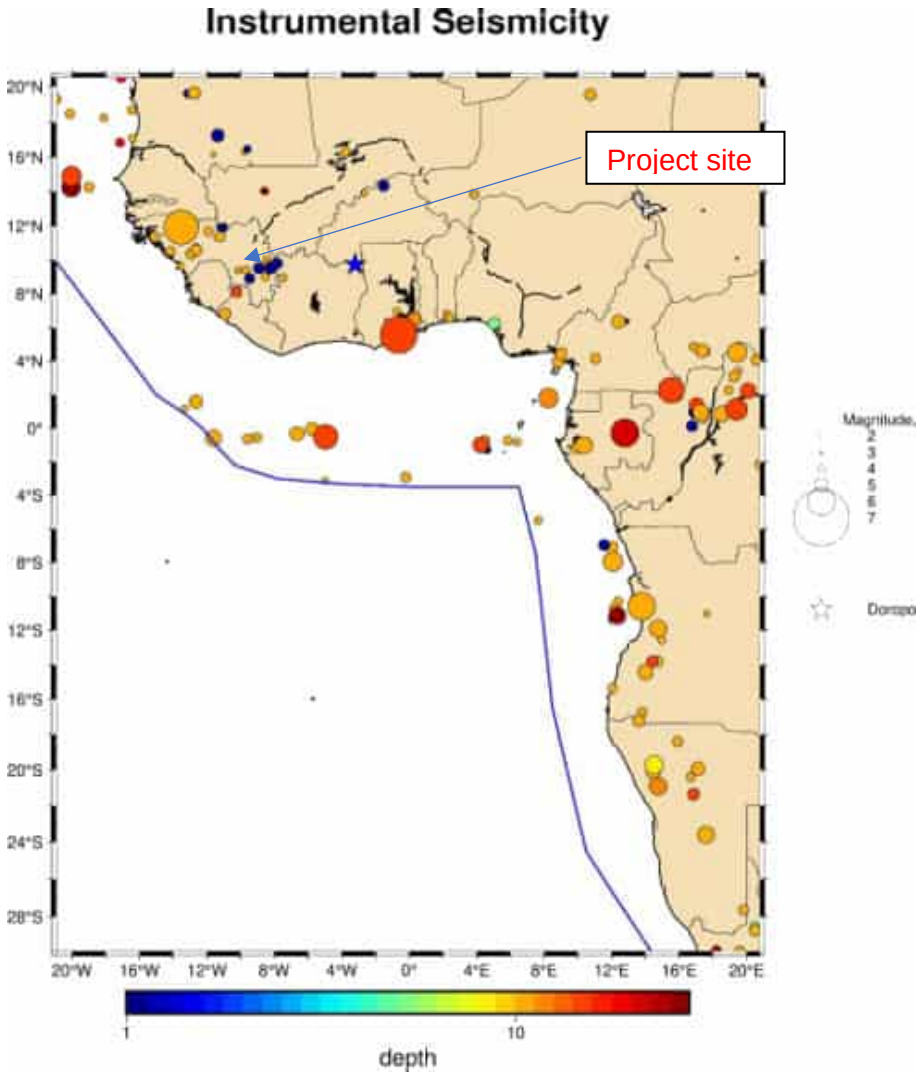


Figure 2.3: Western African Declustered Earthquakes Catalogue

3. SEISMIC HAZARD ANALYSIS

The seismic hazard for the project has been examined using both probabilistic and deterministic methods. Both methods require examination of historical earthquake data and regional tectonics to identify potential seismic sources and to determine the maximum earthquake magnitude for each seismic source. Appropriate ground motion models (GMMs) that estimate ground motions as a function of magnitude, distance and site conditions are also required.

The methodology used to complete the probabilistic and deterministic hazard analyses and the results of these analyses are described in the following sections.

3.1 PROBABILISTIC ANALYSIS

A probabilistic seismic hazard analysis (PSHA) has been carried out to define a unique probability of occurrence for each possible level of ground accelerations.

The methodology used for the probabilistic analysis is based on the methods defined by Cornell (1968, Ref. 10). The likelihood of occurrence of earthquakes within defined seismic source zones can be determined by examining seismicity data. Using historical earthquake records for the region, magnitude-frequency recurrence relationships can be established for potential earthquake source zones. The magnitude recurrence relationships are of the form derived by Gutenberg-Richter (1944, Ref. 17):

$$\log(N) = a - b(M) \qquad (3.1)$$

where: M = Earthquake magnitude
N = Annual frequency of occurrence for earthquakes exceeding magnitude M (1/N = Return Period)

The parameter “a” is dependent on the period of observation and the level of seismicity, whilst the parameter “b” is a measure of seismicity that describes the scaling relationship between the number of small and large earthquakes.

Application of the probabilistic method includes the following steps:

- Evaluation of the seismotectonic model for the site region in terms of seismic sources.
- For each source, evaluation of the maximum earthquake magnitude, rate of earthquake recurrence and earthquake recurrence model, together with the uncertainty associated with each evaluation.
- Evaluation of the attenuation of earthquake ground motion for the site region, and assessment of the uncertainty of the mean attenuation.
- Prediction of ground motion parameters (peak ground acceleration and response spectrum) for a particular return period.

A computer program OpenQuake (Global Earthquake Model (GEM), 2019, Ref. 18) was used for the probabilistic seismic hazard analysis.

3.1.1 Source Models

Area Sources

The area source models are approximately based on West Africa models presented by GEM (Ref. 19) with two additional sources for the continental Africa stable zone and one additional source for offshore south of Ghana. The area sources are shown in Figure 3.1.

Seismicity in each area source is assumed to follow a double truncated Gutenberg-Richter magnitude occurrence relation. Lower truncation is arbitrarily assigned to M_w 4.5. Due to the scarcity of calibration data, a unique Gutenberg-Richter b-value has been calculated from all events in the study region. Conversely, occurrence rates (a-values) have been calculated separately for each source zone by imposing the previously calibrated b-value. A different maximum magnitude ($M_{w\text{-}Max}$) estimate is derived independently for each source zone as the largest observed event plus an arbitrary - although quite conservative - increment of 0.5 magnitude units.

The source parameters are summarised in Table 3.1.

Table 3.1: Summary of Area Source Zones

Source	a	b	$M_{w\text{-}Max}$
1	4.2	1.067	5.9
2	4.1	1.067	6.49
3	4.3	1.067	6.5
4	3.75	1.067	5.43
5	3.8	1.067	6.9
6	3.8	1.067	6.79
7	3.8	1.067	5.34
8	3.3	1.067	5.16
10	4.1	1.067	6.3

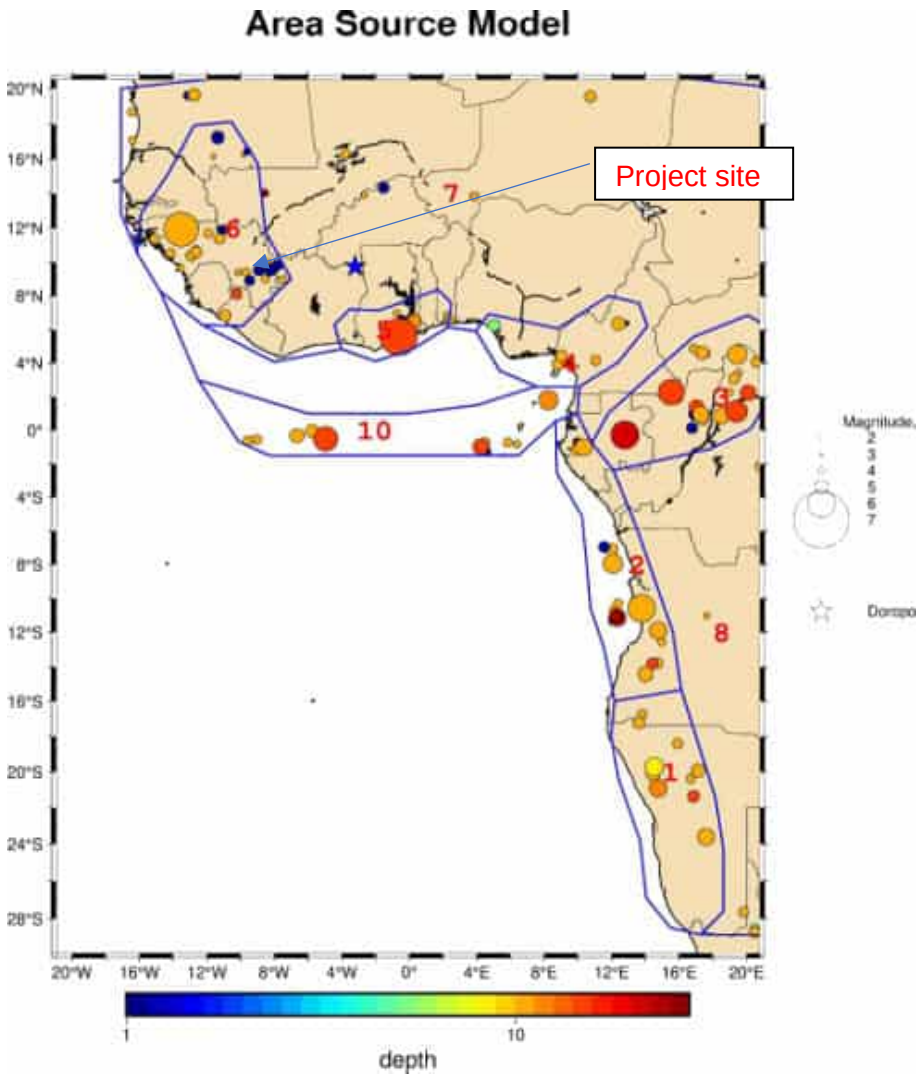


Figure 3.1: Western African Area Source Model

The uncertainty on the maximum magnitude and the b-value is considered in the logic tree. A relative possible error of ±0.2 was used to define the uncertainty of the maximum magnitude. For the b-value, an uncertainty of ±0.05 was assigned. In both cases, a weight of 0.5 was assigned for the central estimate and 0.25 for the edge values. The weighting used for the source model is presented in Table 3.2.

Table 3.2: Weighting Scheme used for Source Model Logic Tree

Item	Epistemic Uncertainty	Weight
Magnitude	M + 0.2	0.25
	M	0.5
	M – 0.2	0.25
b-value	b + 0.05	0.25
	b	0.5
	b – 0.05	0.25

Smoothed Seismicity (Gridded Seismicity)

To better represent the spatial variability of seismicity across the study area, the annual occurrence rates previously obtained for the homogeneous source zones were redistributed within each polygon using a procedure that accounts for the irregular spatial pattern of the observed events. The procedure shares some similarity with the popular smoothed seismicity approach (Frankel, 1995). A spacing of 0.1 degrees (about 11 km) was used. Spatial variation of earthquakes within each cell is modelled applying a Gaussian kernel to smooth the seismicity between neighbouring cells. A kernel bandwidth, which is the delay parameter that controls the influence of far events and the smoothing of the rates across the area, is chosen as 50 km. The higher values from the area source model and the smoothed seismic model were reported in this study.

3.1.2 Ground Motion Characterisation

GMMs relate earthquake source characteristics and propagation paths of the seismic waves to the ground motion at a specific site. The estimated ground motion is typically quantified as a function of magnitude, distance, style of faulting as observed in a certain seismotectonic regime.

Five GMMs were used in assessment in the logic-tree model with equal weighting factor:

- Atkinson and Boore, 2006 (Ref. 21).
- Pezeshk et al., 2011 (Ref. 22).
- Allen 2012 for Australia (Ref. 23).
- Somerville et.al., 2009 for Yilgarn Craton in Australia (Ref. 24).
- Yenier and Atkinson 2015 NGA GMM for East North America (Ref. 25).

Three standard deviations was considered in the PSHA for the accelerations.

3.1.3 PSHA Results

The probabilistic analysis was used to estimate the peak ground accelerations for seismic events with various frequencies of occurrence. The peak ground acceleration (PGA) was calculated for each attenuation model and the mean values of peak ground acceleration have been determined for average return periods ranging from 100 to 10,000 years.

Table 3.3 presents the estimated peak ground accelerations and probabilities of exceedance corresponding to earthquake average return periods of between 100 and 10,000 years and a project design life of 10, 20, 30 and 50 years.

The peak ground accelerations are the weighted mean, 50% fractile and 85% fractile values calculated from the GMMs used in OpenQuake.

Table 3.3: Summary of Horizontal PGA

Return Period (Years)	Annual Probability of Exceedance	Probability of Exceedance for Design Life				PGA Mean	PGA 50% Percentile (g)	PGA 85% Percentile (g)
		10 years	20 years	30 years	50 years			
100	0.0100	9.5%	18.1%	25.9%	39.3%	0.001	0.001	0.002
200	0.0050	4.9%	9.5%	13.9%	22.1%	0.002	0.002	0.003
475	0.0021	2.1%	4.1%	6.1%	10.0%	0.004	0.004	0.005
1,000	0.0010	1.0%	2.0%	3.0%	4.9%	0.006	0.006	0.007
2,000	0.0005	0.5%	1.0%	1.5%	2.5%	0.008	0.009	0.010
2,500	0.0004	0.4%	0.8%	1.2%	2.0%	0.009	0.010	0.011
5,000	0.0002	0.2%	0.4%	0.6%	1.0%	0.014	0.014	0.018
10,000	0.0001	0.1%	0.2%	0.3%	0.5%	0.021	0.019	0.029

Results in this table are for Site Class B/C condition with an average shear wave velocity of 760 m/s in the top 30 m.

GEM published the global seismic hazard assessment results as PGA maps for a 475-year return period (Ref. 26). Figure 3.2 provides a PGA map and shows a PGA of less than 0.01 g at the project site for a return period of 475 years, which is similar to the probabilistic analysis results.

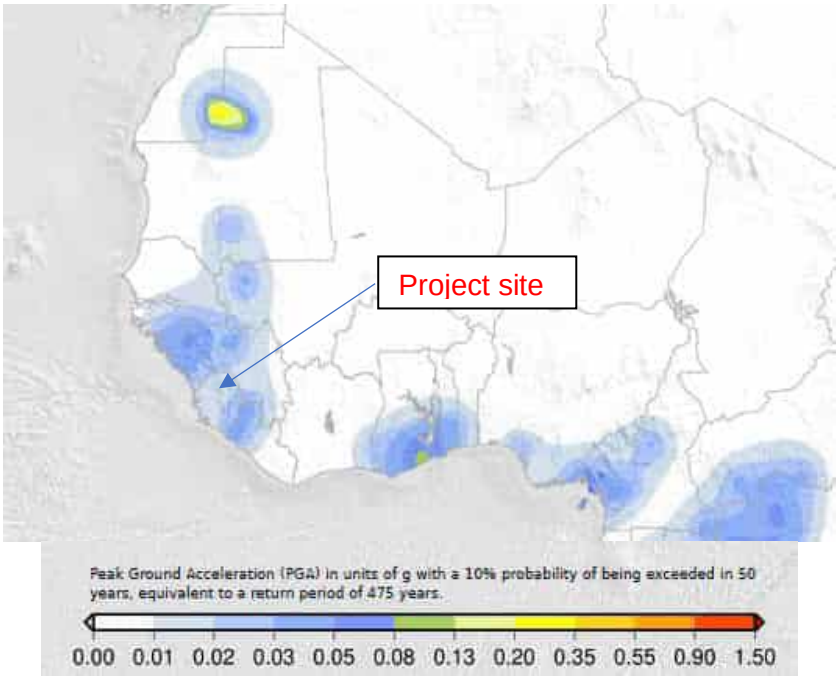


Figure 3.2: GEM Seismic Hazard Map 475 Year Return Period (Site Class B)

The probabilistic seismic hazard model was used to develop design response spectra by calculating mean horizontal spectral acceleration values (5% damping) for a range of periods of motion, from 0.01 seconds to 4 seconds. These values are used to develop Uniform Hazard Spectra (UHS) for the range of return periods considered (100 to 10,000 years). PGA and spectral acceleration values are included in Table 3.4 and illustrated on Figure 3.3 for the mean spectral accelerations. The spectral acceleration plots for 15th, 50th and 85th percentile values are included in Appendix B.

Table 3.4: Mean Horizontal Response Spectra (g)

Return Periods	Periods (seconds)										
	PGA	0.05	0.1	0.2	0.3	0.5	0.75	1	2	3	4
100	0.001	0.002	0.003	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000
200	0.002	0.004	0.005	0.006	0.005	0.003	0.002	0.001	0.000	0.000	0.000
475	0.004	0.007	0.009	0.010	0.009	0.006	0.003	0.002	0.000	0.000	0.000
1,000	0.006	0.011	0.014	0.015	0.013	0.009	0.005	0.003	0.001	0.000	0.000
2,000	0.008	0.018	0.022	0.021	0.018	0.012	0.008	0.005	0.002	0.001	0.000
2,475	0.009	0.021	0.025	0.023	0.020	0.014	0.009	0.006	0.002	0.001	0.000
5,000	0.014	0.032	0.037	0.032	0.027	0.019	0.012	0.009	0.003	0.002	0.001
10,000	0.021	0.051	0.055	0.044	0.036	0.025	0.017	0.012	0.005	0.003	0.002

Results in this table are for Site Class B (Rock) conditions with an average shear wave velocity of 760 m/s in the top 30 m.

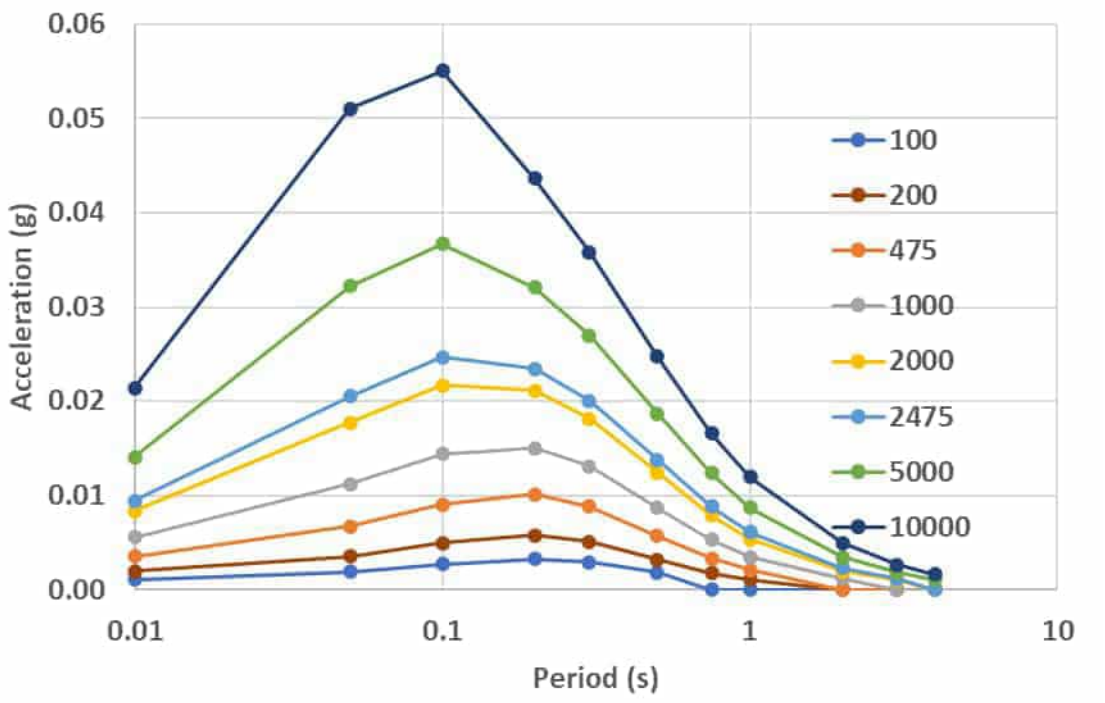


Figure 3.3: Mean Horizontal Uniform Hazard Spectra (Site Class B)

3.1.4 Amplification

The maximum accelerations presented in Table 3.3 are based on rock site conditions, as defined by the ASCE/SEI 7-10 (Ref. 27) with an average shear wave velocity of 760 m/s in the top 30 m. Peak ground accelerations within the embankments/dumps/tailings deposit may be higher due to amplification of ground motion through the tailings. Simple empirical charts such as the approximate relationship between peak accelerations on soft soil sites indicates that ground accelerations may amplify by a factor of about 1.5 to 3.0 (Ref. 28).

The amount of ground motion amplification will depend on the characteristics (amplitude and frequency) of the earthquake ground motion, the site geometry and the stiffness and damping characteristics of the foundation soils and TSF materials (tailings and embankment). It is also possible for attenuation (de-amplification) of ground motions to occur when the ground accelerations imposed by the earthquake are very high (due to material damping under large strains). Dynamic site response analyses may be carried out to determine the amplification/de-amplification of ground motions as seismic waves propagate through the foundation soils, tailings deposit and tailings embankment.

Based on geotechnical site investigation result, the site can be assumed as Site Class C, “Very dense soil and soft rock” based on Standard Penetration Test (SPT) results. It is recommended to undertake Multichannel Analysis of Surface Waves (MASW) geophysical survey, to confirm the average shear velocity in the top 30 m (V_{s30}) and the shear velocity in the bed rock (V_{s30ref}) for critical structures like TSF etc if practical.

3.1.5 Deaggregation

Deaggregation of the probabilistic seismic hazard was carried out using Openquake to provide the relative contributions of all potential seismic sources, and to more accurately define the characteristics of design earthquakes required for the design of critical facilities at the project.

Embankment dams typically have a natural period between 0.5 to 1.5 second. The deaggregation of the seismic hazard is carried out at the period of PGA and 0.75 seconds. Figures that show the deaggregation of the seismic hazard at short periods (represented by the PGA) and long period (represented by 0.75 spectral acceleration) for each of the return periods (200, 1,000, 2,475, 5,000 and 10,000 years) are included in Appendix C.

The deaggregation information provided in Appendix C indicates the following:

- The Zone 5, which is the in the southern Ghana as shown in Figure 3.1, controls the hazard for the site.
- Deaggregation at short periods shows that the dominant source of ground motion would be produced by earthquake sources between 535 km with small to moderate sized magnitude events between M_w 5.5 to 6.7.
- Deaggregation at long periods shows that the dominant source of ground motion would be produced earthquake sources between 535 and 545 km with moderate to large sized magnitude events between M_w 5.9 to 6.7.

3.2 DETERMINISTIC ANALYSIS

3.2.1 General

The Maximum Credible Earthquake (MCE) is the largest earthquake that could be expected to occur along a recognised fault or within a defined tectonic zone, under the presently known or inferred tectonic framework (Ref. 36). Unlike the probabilistic analysis, the Deterministic Seismic Hazard Analysis (DSHA) method does not account for the likelihood of occurrence of a predicted ground acceleration. A potential seismic source in the region is defined and a maximum earthquake magnitude assigned to the source. The resulting deterministic PGA at the study site is considered to be the maximum acceleration that can occur, on the basis of available seismic and tectonic information.

The MCE is typically associated with the PGA calculated using the median plus one standard deviation (84th percentile) ground motion prediction value. The PGA and corresponding spectral accelerations defining the response spectrum were calculated using the seven GMMs for the seismic source under consideration. Weighted mean and 84th percentile values of PGA were calculated using the GMMs.

Active faults, based on ICOLD (Ref. 37), are defined as faults which show evidence of movements in Holocene time (i.e., in the last 11,000 years), large faults which show evidence of movements in Latest Pleistocene time (i.e., between 11,000 and 35,000 years ago) or major faults which show evidence of repeated movements in Quaternary time (1.8 million years).

West Africa is a low seismicity zone, a number of authors have discussed active fault in the region (Ref. 29 and 30) and the mapped fault is shown in Figure 3.4.

The nearest fault to the project site is the fault near Accra in Southern Ghana, more than 500 km away from the project site. The MCE spectral acceleration would be very small and insignificant. As such, the PGA calculated for the 10,000-year ARI interval of 0.021 g based on probabilistic analysis is selected as the MCE, which is indicative of the long return period associated with such a large earthquake occurring in the region.

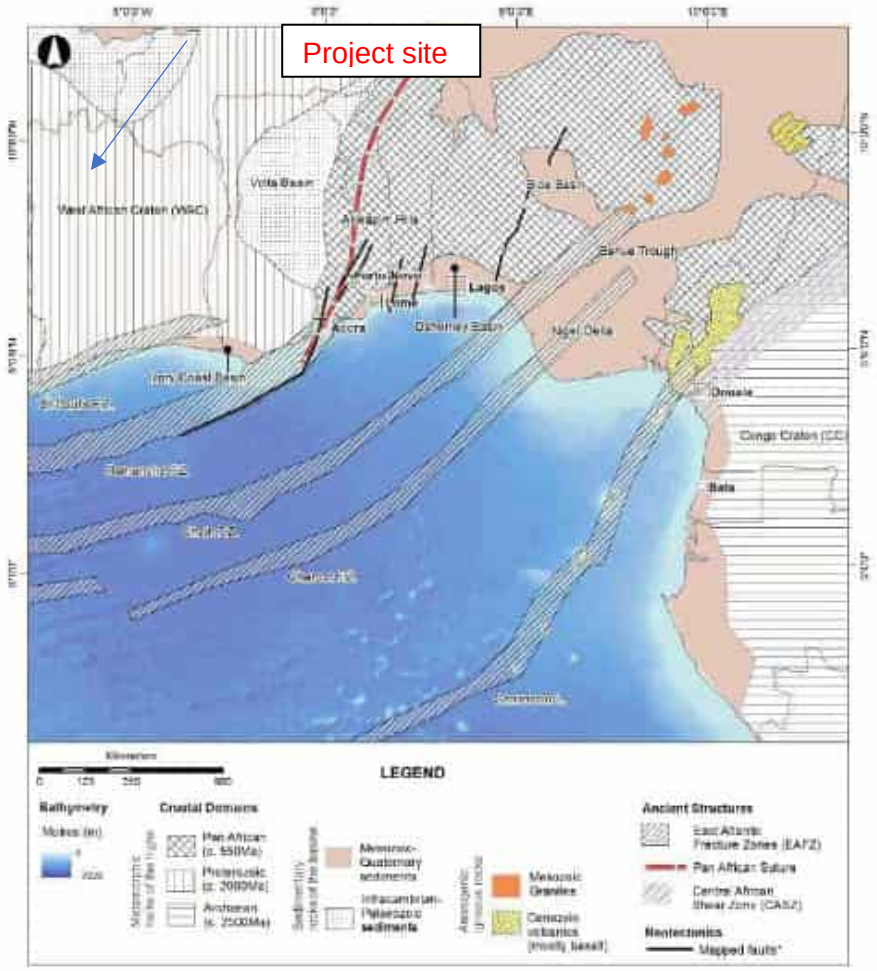


Figure 3.4: Mapped Fault

4. SELECTION OF SEISMIC DESIGN PARAMETERS

In accordance with the Global Industry Standard on Tailings Management (GISTM, Ref. 35), two levels of design earthquakes are to be considered: Operations and Closure (Active Care) and Passive-Closure (Passive Care).

Appropriate return intervals for the design earthquakes need to be determined based on the consequence category for the TSF, which considers the consequences of failure. This assessment typically includes consideration of the potential loss of life and environmental and economic impacts due to failure (Ref. 32). For the purposes of this assessment, all consequence categories based on GISTM have been assessed.

Table 4.1 summarises the recommended Annual Exceedance Probability (AEP) corresponding to different earthquakes and failure consequence categories according to GISTM. The appropriate failure consequence category should be selected based on the dam break assessment.

Table 4.1: Recommended GISTM Design Earthquake Loadings (AEP)

Consequence Classification	Seismic Criteria[1,2] - Annual Exceedance Probability	
	Operations and Closure (Active care)	Passive-Closure (Passive Care)
Low	1/200[1]	1/10,000[1]
Significant	1/1,000[1]	1/10,000[1]
High	1/2,475[1]	1/10,000[1]
Very High	1/5,000[1]	1/10,000[1]
Extreme	1/10,000[1]	1/10,000[1]

1. The selection of the design ground motion should consider the seismic setting and the reliability and applicability of the probabilistic and deterministic methods for seismic hazard assessment. The Maximum Credible Earthquake (MCE) is part of a deterministic approach that can govern in some areas. The method that produces the most appropriate ground motion for the facility safety should be used for the design.
2. For existing tailings facilities the EOR, with review by an ITRB or a senior independent technical reviewer, may determine that the upgrade to this design criteria is not feasible or cannot be retroactively applied. In this case, the Accountable Executive shall approve and document the implementation of measures to reduce both the probability and the consequences of a tailings facility failure in order to reduce the risk to a level as low as reasonably practicable (ALARP). The basis and timing for addressing the upgrade of existing tailings facilities shall be risk-informed and carried out as soon as reasonably practicable.

For the low to very high hazard consequence facilities in the operation and closure (active care) condition, seismic parameters are evaluated based on probabilistic analysis and a selected return period. For the extreme failure consequence and the passive closure, the seismic parameters can be evaluated based on the probabilistic analysis using a 10,000-year average return period or MCE from the deterministic analysis.

ICOLD guidelines (Ref. 37) suggest that the seismic input parameters used for analysis of a dam, including peak ground acceleration, can be developed by either deterministic or probabilistic methods.

In all the aforementioned guidelines/standards, it is recommended that the selection of analysis approach should consider the seismic setting, the reliability of data and the applicability of the probabilistic and deterministic methods for the project site.

The TSF has been classified as "Very High". The recommended seismic design parameters corresponding to the failure consequences category according to GISTM are summarised in Table 4.2. The earthquake scenarios were selected based on a review of historical seismicity and the findings of the seismic hazard analyses including deaggregation of the seismic hazard.

Table 4.2: Recommended Seismic Design Parameters (GISTM)

Consequence	Design Event	Average Return Period (years)	PGA - Rock Site (g)	PGA - Class C (g)	Magnitude*	Distance from site (km)*
Very High	Active Care	5,000	0.014	0.017	6.7 (6.5)	535 (559)
Very High	Passive Care	10,000	0.021	0.026	6.7 (6.6)	535 (552)

* Mode (Mean) deaggregation magnitude and distance, based on deaggregation at a period of 0.75 seconds.

According to the ANCOLD (Ref. 31) guidelines for earthquake design of Dams and Appurtenant Structures, three levels of design earthquake are typically considered: Operating Basis Earthquake (OBE); Safety Evaluation Earthquake (SEE); and Maximum Credible Earthquake (MCE). The TSF has been classified as "High A". Table 4.3 summarises the recommended Annual Exceedance Probability (AEP) corresponding to the failure consequence category.

Table 4.3: Recommended Seismic Design Parameters (ANCOLD)

Consequence	Design Event	Average Return Period (years)	PGA Rock Site (g)	PGA Class C (g)	Magnitude	Distance from site (km)
High A	OBE	1,000*	0.006	0.007	6.5 (6.3)	545 (576)
	SEE	10,000^	0.019	0.023	6.7 (6.6)	535 (552)

^ 50% percentile Mode (Mean) deaggregation magnitude and distance, based on deaggregation at a period of 0.75 seconds.

5. STRUCTURAL DESIGN

Building structures for the project should be designed to an appropriate seismic design code, such as the International Building Code (Ref. 38). Seismic design to the International Building Code requires determination of seismic coefficients, S_{MS} and S_{M1}, defined as follows:

- Seismic coefficient, S_{MS}: maximum considered earthquake ground motion of 0.2 seconds spectral response acceleration (5% of critical damping).
- Seismic coefficient, S_{M1}: maximum considered earthquake ground motion of 1.0 second spectral response acceleration (5% of critical damping).

In accordance with the International Building Code, the maximum considered earthquake ground motion has been defined as the ground motion with a 2% probability of exceedance in 50 years (average return period of 2,475 years).

Seismic parameters for use with IBC are provided below for the site based on the probabilistic seismic hazard analysis results.

Table 5.1: Recommended structural design parameters

Seismic coefficient	Return Period (years)	S_{MS} and S_{M1} Rock Site (g)	S_{MS} and S_{M1} Class C (g)
S_{MS}	2,475	0.023	0.028
S_{M1}	2,475	0.006	0.010

The uniform hazard spectra for return periods of 2,475 years are included in Appendix B. Figures that show the deaggregation of the seismic hazard at periods of 0.2 second and 1 second are included in Appendix C.

For geotechnical foundation design of mine site structures, an earthquake magnitude of M6.3 at a distance of 535 km (short period) or M6.7 at a distance of 535 km (long period) is recommended for seismic design analyses.

The structural engineer needs to determine the suitable return periods and seismic design parameters to comply with relevant codes according to the types and importance of structures. The seismic design parameters may need to be updated after confirmation of the return period.

6. SUMMARY

A seismic hazard assessment has been carried out for the Doropo Project in Côte d'Ivoire.

The computer program OpenQuake was used to develop a probabilistic seismic hazard model for the site. Appropriate attenuation models defining the relationship between earthquake magnitude, source to site distance and peak ground acceleration have been used in the probabilistic hazard analysis.

Seismic design parameters have been recommended for the tailings storage facility. Seismic ground motion parameters (including peak ground acceleration and earthquake magnitude) have been estimated based on probabilistic seismic hazard analysis.

The site was assumed as Site Class C, "Very dense soil and soft rock" based on the geotechnical site investigation being undertaken. It is recommended to undertake a Multichannel Analysis of Surface Waves (MASW) geophysical survey, to confirm the average shear velocity in the top 30 m (V_{s30}) and the shear velocity (V_{s30ref}) in the bed rock when it is practical. This assessment may need to be updated after the review of the site investigation findings and the geophysical survey.

The structural engineer needs to determine the suitable return periods and seismic design parameters to comply with relevant codes according to the types and importance of structures. The seismic design parameters may need to be updated after confirmation of the return period.

We trust this memorandum is sufficient for your current requirements. Please contact us should you require any additional information.

Yours faithfully
KNIGHT PIÉSOLD PTY LTD

ZHENHE SONG
Senior Geotechnical Engineer

JIM LUO
Manager Geotechnical Services

REFERENCES

1. Knight Piésold Pty Ltd, "*Doropo Gold Project – Seismic Hazard Assessment"*, Ref. PE23-01394, 2023.
2. USGS, (2011), http://pubs.usgs.gov/publications/text/slabs.html
3. G.C. Begg, W.L. Griffin, L.M. Natapov, Suzanne Y. O'Reilly, S.P. Grand, C.J. O'Neill, J.M.A. Hronsky, Y. Poudjom Djomani, C.J. Swain, T. Deen and P. Bowden, (2009), "*The lithospheric architecture of Africa: Seismic tomography, mantle petrology, and tectonic evolution*", Geosphere 5 (1):23–50, doi:10.1130/GES00179.1.
4. Peter Evans, (2009). "*African Geology*", Fortune City Internet Archive.
5. Liberty International Mining Corp, (2008), "*Projects Liberia: Geological Background*".
6. ISC-GEM Global Instrumental Earthquake Catalogue, (1904-2019), http://www.isc.ac.uk/iscgem/
7. Storchak, D. A., Di Giacomo, D., Engdahl, E. R., Harris, J., Bondár, I., Lee, W.I., ... and Villaseñor, A., (2015), "*The ISC-GEM global instrumental earthquake catalogue (1900–2009): introduction*", Physics of the Earth and Planetary Interiors, 239, pp.48-63.
8. ISC-GEM Global Instrumental Earthquake Catalogue (1904-2019) (http://www.isc.ac.uk/iscgem/).
9. Storchak, D. A., Di Giacomo, D., Engdahl, E. R., Harris, J., Bondár, I., Lee, W.I., ... and Villaseñor, A., (2015), "*The ISC-GEM global instrumental earthquake catalogue (1900–2009): introduction*", Physics of the Earth and Planetary Interiors, 239, pp.48-63.
10. International Seismological Centre, http://www.isc.ac.uk/
11. U.S. Geological Survey earthquake catalogue, https://earthquake.usgs.gov/earthquakes/search/
12. Weston, J., Engdahl, E. R., Harris, J., Di Giacomo, D., & Storchak, D. A., (2018), "*ISC-EHB: reconstruction of a robust earthquake data set*", Geophysical Journal International, 214(1), pp.474-484.
13. Engdahl, E. R., van der Hilst, R., and Buland, R., (1998), "*Global teleseismic earthquake relocation with improved travel times and procedures for depth determination*", Bulletin of the Seismological Society of America, 88(3), pp.722-743.
14. Amponsah, P., Leydecker, G., and Muff, R., (2012), "*Earthquake catalogue of Ghana for the time period 1615–2003 with special reference to the tectono-structural evolution of south-east Ghana*", Journal of African Earth Sciences, 75, pp.1-13.
15. Weatherill, G. A., Pagani, M., and Garcia, J., (2016), "*Exploring earthquake databases for the creation of magnitude-homogeneous catalogues: tools for application on a regional and global scale*", Geophysical Journal International, 206(3), pp.1652-1676.
16. Cornell, C.A., (1968), "*Engineering Seismic Risk Analysis*", Bulletin of the Seismological Society of America, Vol. 58, pp.1583-1606.
17. Gutenberg, B. and Richter, C.F., (1944), "*Frequency of Earthquakes in California*", Bulletin of the Seismological Society of America, Vol. 34, pp.185-188.

18. GEM, (2017), "*The openquake-engine User Instruction Manual*".
19. https://hazard.openquake.org/gem/models/WAF/
20. Poggi, V., Durrheim, R., Mavonga Tuluka, G., Weatherill, G., Gee, R., Pagani, M., Nyblade, A., Delvaux, D., (2017), "*Assessing Seismic Hazard of the East African Rift: a pilot study from GEM and AfricaArray*", Bulletin of Earthquake Engineering, doi:10.1007/s10518-017-0152-4.
21. Atkinson, G., Boore, D., (2006), "*Earthquake ground-motion prediction equations for eastern North America*", Bull Seismol Soc Am 96:2181–2205.
22. Pezeshk, S., Zandieh, A., Tavakoli, B., (2011), "*Hybrid empirical ground-motion prediction equations for eastern North America using NGA models and updated seismological parameters*", Bull Seismol Soc Am 101:1859–1870.
23. Allen, T. I., (2012), "*Stochastic ground motion prediction equations for south-eastern Australian earthquakes using updated source and attenuation parameters*", Geoscience Australia Record, 2012/69.
24. Paul Somerville, P.; Graves, R.; Collins, N.; Song, S.G.; Ni, S.; and Cummins, P., (2009), "*Source and Ground Motion Models for Australia Earthquakes*".
25. Yenier, E., and Atkinson, G. M., (2015), "*Regionally adjustable generic ground-motion prediction equation based on equivalent point-source simulations: Application to central and eastern North America*", Bulletin of the Seismological Society of America, 105(4), pp.1989-2009.
26. K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani, (2023), "*Global Earthquake Model (GEM) Seismic Hazard Map*", Version 2023.1 – June 2023, DOI: https://doi.org/10.5281/zenodo.8409647.
27. American Society of Civil Engineers (ASCE)/Structural Engineering Institute (SEI), (2013), "*Minimum Design Loads for Buildings and Other Structures*", ASCE/SEI 7-10.
28. Idriss, (1990), "*H. Bolton Seed Memorial Symposium Proceeding*", Vol 2, pp.285, BiTech Publishers, Ltd.
29. Blundell, D. J., (1976), "*Active faults in west Africa*", Earth and Planetary Science Letters, 31(2), pp.287-290.
30. Campbell, G., Lubkowski, Z., Villani, M., and Polidoro, B., (2018), "*A Seismic source model for West Africa*", In 16th proceedings of European conference on Earthquake Engineering, Thessaloniki (pp.16-18).
31. Australian National Committee on Large Dams (ANCOLD), (2019), "*Guidelines for Design of Dams and Appurtenant Structures for Earthquake"*.
32. ANCOLD, (2012), "*Guidelines on the Consequence Categories for Dams*".
33. ANCOLD, (2019) "*Guidelines on Tailings Dams – Planning, Design, Construction, Operation and Closure*".
34. International Code Council, (2015), "*International Building Code*".
35. GISTM, (2020), "*Global Industry Standard on Tailings Management*".
36. Barrick, "*Tailings Management Standard*", Ref. BCG-MI-ST-01 Rev.002., 2022.
37. ICOLD, (2016), "*Selecting Seismic Parameters for Large Dams Guidelines*".
38. International Code Council, (2015), "*International Building Code*".

APPENDIX A
Earthquake Catalogue

Table A.1: Earthquake Catalogue

Date	Latitude	Longitude	Depth km)	Mw	ISC event id
20/11/1906	6.5	0.3	12	5	N/A
24/05/1914	-10.6	13.773	10	5.99	913983
22/06/1939	5.568	-0.625	15	6.4	902037
12/09/1945	2.279	15.532	15	5.88	899094
9/07/1968	-10.6658	12.1393	10	4.41	818845
12/08/1968	-10.3285	13.4648	10	4.44	817933
9/02/1969	5.605	-0.138	13.7	5.2	812036
30/09/1971	-0.514	-4.956	15	5.8	780752
23/09/1974	-0.286	12.791	20	6	737868
22/02/1976	-11.1299	12.3398	25	5.28	718118
12/03/1976	-0.42	12.677	10	5.37	716514
15/05/1976	4.525	19.442	10	5.45	714096
9/01/1979	4.61	17.37	10	4.95	670802
9/05/1979	-14.418	14.01	10	5.13	664799
23/01/1980	-19.9315	17.1304	10	4.95	653122
23/07/1981	2.23	20.09	15	5.16	624136
18/06/1983	-0.994	4.245	15	5.17	574291
22/12/1983	11.925	-13.521	10	6.29	563420
17/05/1985	11.3658	-15.1	10	4.52	525210
26/06/1985	1.5916	-12.6289	10	4.95	523548
21/05/1986	14.254	-20.039	25	5.44	496208
21/05/1986	14.9	-20.02	15	5.47	105583
17/06/1986	4.0677	20.5811	10	4.56	493358
26/01/1987	6.359	12.415	10	4.93	106081
10/07/1987	11.381	-11.2412	10	4.63	461811
2/11/1987	11.5338	-13.3135	10	4.41	452072
26/11/1987	-16.7413	13.8199	10	4.44	453925
7/01/1988	0.8448	18.5204	10	5.17	447397
27/02/1988	5.522	-0.386	10	3.51	446557
10/03/1988	-17.2256	13.6092	10	4.79	442722
29/03/1988	5.597	-0.109	10	3.66	444391
5/06/1989	-11.895	14.756	10	5.32	401163
9/01/1990	-0.0476	-5.7504	10	4.95	380729
12/02/1990	5.583	-0.326	10	2.48	378299
14/04/1990	5.615	-0.318	10	2.93	372416
20/09/1990	4.4398	9.0212	10	4.79	357005
23/12/1992	-23.6011	17.6011	10	5.28	258784
3/09/1993	19.6443	-12.7567	10	4.84	205945
4/06/1995	-7.0809	12.0505	10	4.63	97045
8/06/1995	3.0842	19.2674	10	4.63	97698
25/09/1995	1.134	19.407	14.7	5.62	85894
25/11/1995	6.842	-10.924	10	4.74	71298
20/11/1996	-10.1485	13.3685	10	4.3	997969
14/02/1997	6.9802	-0.7517	10	3.98	1011201
6/03/1997	5.572	-0.209	10	4.63	1014736
5/03/1998	1.38	17.04	15	5.08	115023
26/04/1998	0.942	17.293	10	5.21	1094763
11/01/1999	14.038	-8.5763	28	4.19	1438514
27/03/1999	3.9589	8.8179	10	4.74	1547149
16/10/1999	16.8288	-17.1462	18	4.34	1644004
14/12/1999	13.9255	-2.6411	10	3.87	1720715
7/03/2000	6.253	5.036	5	4.77	1789986
25/03/2000	0.9385	17.3956	10	4.41	1791402
17/10/2000	0.9725	16.988	0	4.98	2783135
17/01/2001	8.112	-10.234	15	4.59	1835452
6/04/2001	-29.8021	19.5989	10	4.52	3018339
19/10/2001	-7.942	12.078	10	5.49	2252741
18/03/2002	0.9988	17.4364	10	4.09	3764709
9/05/2002	18.676	-16.436	10	4.34	3032040

Date	Latitude	Longitude	Depth km)	Mw	ISC event id
18/08/2002	-0.556	-9.031	10	4.46	3261560
13/10/2002	-0.02	-5.7722	10	4.3	3808774
23/03/2003	-13.812	14.43	15	4.65	6620323
18/05/2003	17.2382	-11.355	0	4.87	6843315
2/03/2004	10.522	-14.143	10	4.41	7301871
29/05/2004	1.1782	-13.3093	10	3.98	7349906
2/07/2004	9.6678	-13.5582	10	3.98	7367211
13/12/2004	-10.3093	12.3888	10	4.41	7448109
13/01/2005	0.6344	17.3913	10	4.74	7982365
19/03/2005	4.175	11.056	10	4.53	7482951
29/04/2005	18.2543	-18.0983	10	4.09	8303798
10/06/2005	4.5661	17.5614	10	4.41	8307429
27/11/2005	-20.4012	16.6971	10	4.34	8316441
25/01/2006	9.5195	-8.911	0	4.66	9485837
8/10/2006	-11.0181	17.619	10	3.87	9678981
18/06/2007	-13.8	14.72	10	4.59	12682759
15/09/2007	16.3048	-3.7878	10	4.53	12964814
26/04/2008	-21.367	16.871	15	4.77	11000032
29/04/2008	13.8466	3.853	10	4.34	12695961
24/05/2008	-0.2548	12.806	0	4.55	10973575
25/07/2008	20.5062	-17.078	19	4.53	13390109
28/02/2009	-11.3138	12.0383	0	4.23	15957505
28/02/2009	16.446	-9.6028	0	4.12	15957543
17/03/2009	19.6111	-13.1467	0	4.22	12703541
29/05/2009	-10.3403	14.1421	0	4.4	16156295
6/07/2009	-1.2591	4.5938	0	4.28	16102121
31/07/2009	-20.92	14.759	11.8	5.33	13535953
11/09/2009	6.587	2.41	10	4.4	13759145
2/03/2010	-6.9659	11.5569	0	4.66	17150316
18/03/2010	16.2733	-9.7939	10	3.65	17152474
11/04/2010	-18.4113	15.9022	10	4.53	14569155
26/05/2010	-0.8201	6.3979	10	4.09	17173719
9/11/2010	0.134	16.7673	0	4.66	17185125
19/12/2010	8.9844	-7.4575	10	4.12	17187255
15/01/2011	14.2546	-18.9739	10	4.46	15931015
11/03/2011	-28.731	20.4911	10	4.66	16425308
13/05/2011	-0.6319	-9.5828	10	4.53	16709775
3/11/2011	14.3475	-1.5164	0	4.66	600086613
18/12/2011	-28.5159	20.4915	4	4.3	600089762
19/03/2012	9.4071	-9.6956	10	4.23	600955619
24/03/2012	-20.127	14.449	10	4.98	136626
6/08/2012	9.0143	-8.5166	10	4.19	601765560
23/08/2012	11.7547	-13.0759	10	4.28	601615610
15/04/2013	-5.5029	7.654	10	4.16	602945523
5/08/2013	-2.1614	20.776	10	4.4	603306216
20/08/2013	-2.9499	-0.2	10	4.53	603458384
19/11/2013	-11.8675	14.7391	10	4.34	606907404
26/01/2014	2.2692	18.9425	10	4.3	604062275
24/07/2014	5.8781	-0.5973	10	4.34	606920320
28/07/2014	17.0843	-16.4043	10	4.16	606920456
4/09/2014	4.8713	16.8778	10	4.3	605596669
10/11/2014	-12.5513	14.9736	10	4.16	606734297
8/08/2015	6.8599	2.213	10	3.98	608095531
12/12/2015	9.6725	-8.4521	10	4.44	608187574
3/02/2016	-19.9768	14.4294	10	4.34	608498345
4/03/2016	-0.7139	4.4946	10	4.46	608587050
14/04/2016	-0.594	-11.599	10	5.2	608553392
27/06/2016	19.2914	-20.9366	10	4.46	609084042
14/10/2016	-15.3534	12.0428	10	4.4	609596788
18/01/2017	19.553	10.738	10	4.71	610101658

Date	Latitude	Longitude	Depth km)	Mw	ISC event id
17/03/2017	8.9182	-9.455	0	4.53	610546345
29/03/2017	16.1465	-11.6136	10	3.54	610543881
27/07/2017	1.9984	15.4726	10	4.46	617440805
4/10/2017	18.4713	-20.113	10	4.4	617442850
1/11/2017	3.454	19.5325	10	3.97	617443721
19/02/2018	11.7056	-11.9075	10	4.41	611775467
18/04/2018	-0.322	-6.644	10	5.03	611885383
22/04/2018	11.9105	-11.1678	0	4.23	617451111
24/05/2018	-19.769	14.586	10	5.19	611944948
21/08/2018	9.3838	-10.1499	10	3.87	617456399
5/10/2018	-11.1601	12.2675	10	4.89	612859103
9/12/2018	5.6849	-0.4578	0	5.09	617460989
10/12/2018	-0.7323	5.851	10	4.34	614459759
6/09/2019	-0.2089	-6.7067	10	3.91	616492671
21/11/2019	-19.859	14.678	15	4.77	616913446
19/12/2019	1.81	8.249	11.9	5.48	616996821
9/04/2020	11.8751	-11.0371	0	4.28	618144908
24/06/2020	5.9495	-0.4048	0	4.01	618671092
28/07/2020	-3.1372	-4.9847	10	3.97	618704300
26/08/2020	9.5369	-8.2182	0	4.76	618988710
5/11/2020	10.5796	-12.6241	10	4.66	619546755
19/12/2020	10.0225	-8.4378	10	4.09	619629577
3/02/2021	10.3699	-12.9249	10	4.59	619795683
17/02/2021	-1.1862	9.94	10	4.77	619839511
9/03/2021	-1.0116	10.3512	11	5.3	619924951
22/03/2021	9.7989	-7.8051	0	4.55	620226246
29/03/2021	12.051	-12.7613	10	4.4	620293467
4/04/2021	-19.7141	14.5257	8	5.4	620221930
4/05/2021	10.4023	-12.9242	10	4.46	620397682
2/06/2021	10.7646	-12.6538	10	4.09	620514663
27/06/2021	-27.6567	19.8241	10	4.46	620567850
5/07/2021	-29.7643	18.2141	23	4.44	621401403

APPENDIX B
Uniform Hazard Spectra

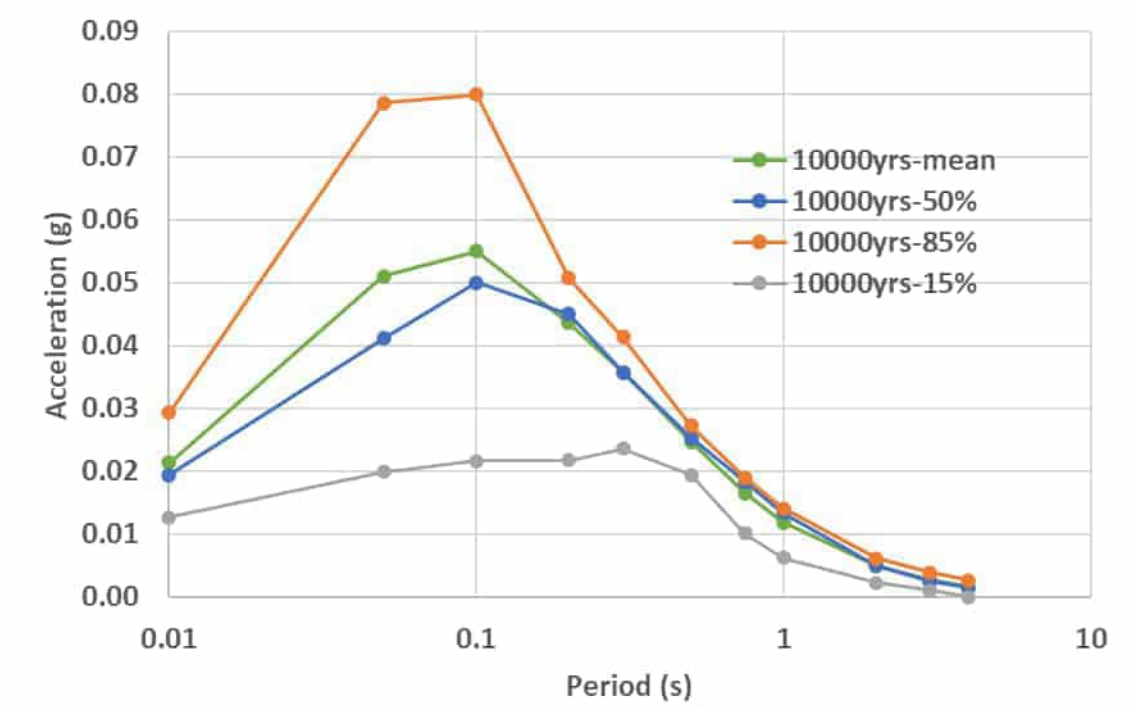


Figure B.1: Mean, 50%, 85%, and 15% percentile UHS – 10,000 Return Period

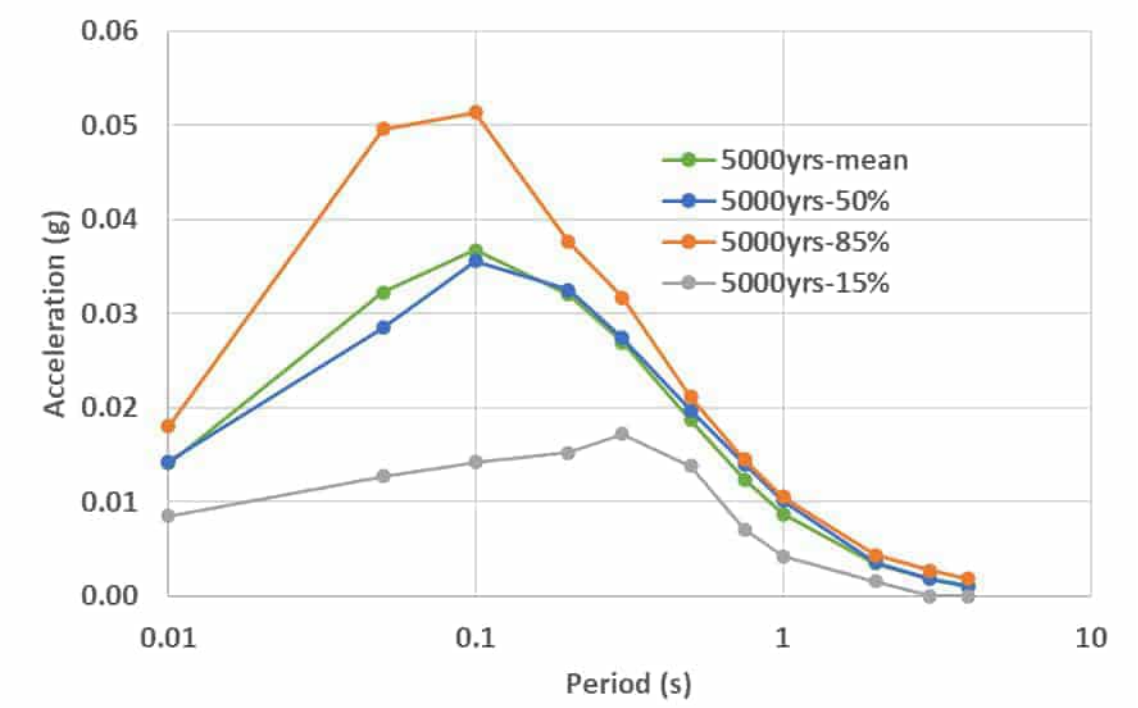


Figure B.2: Mean, 50%, 85%, and 15% percentile UHS – 5,000 Return Period

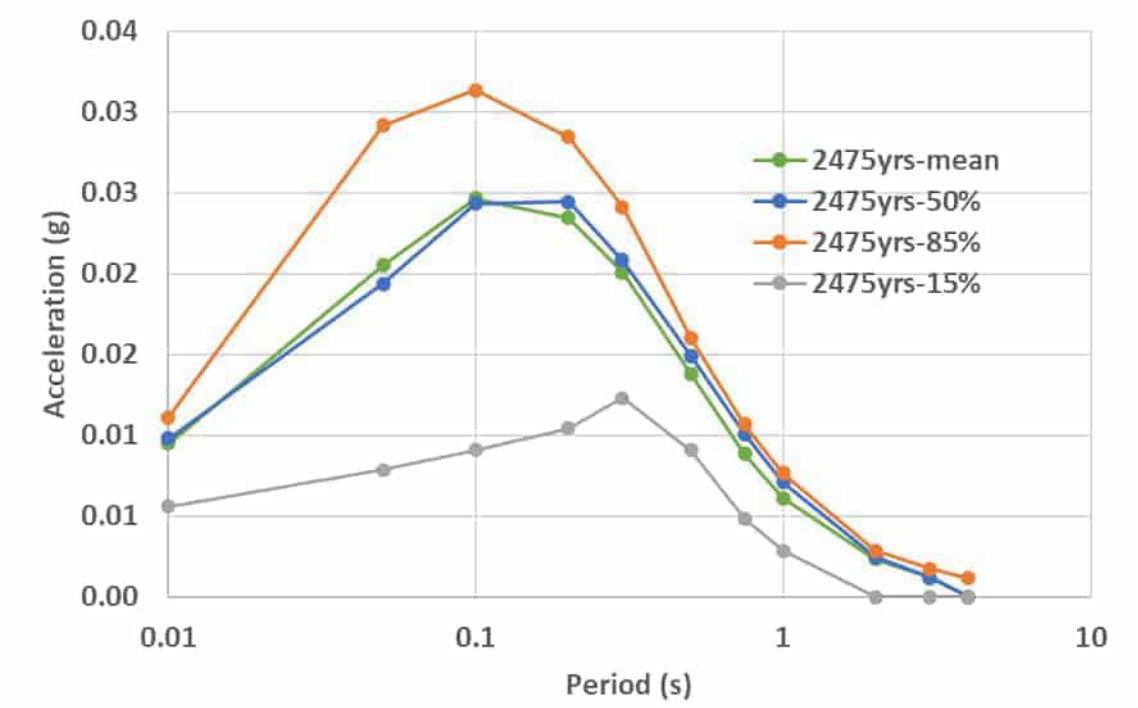


Figure B.3: Mean, 50%, 85%, and 15% percentile UHS – 2,475 Return Period

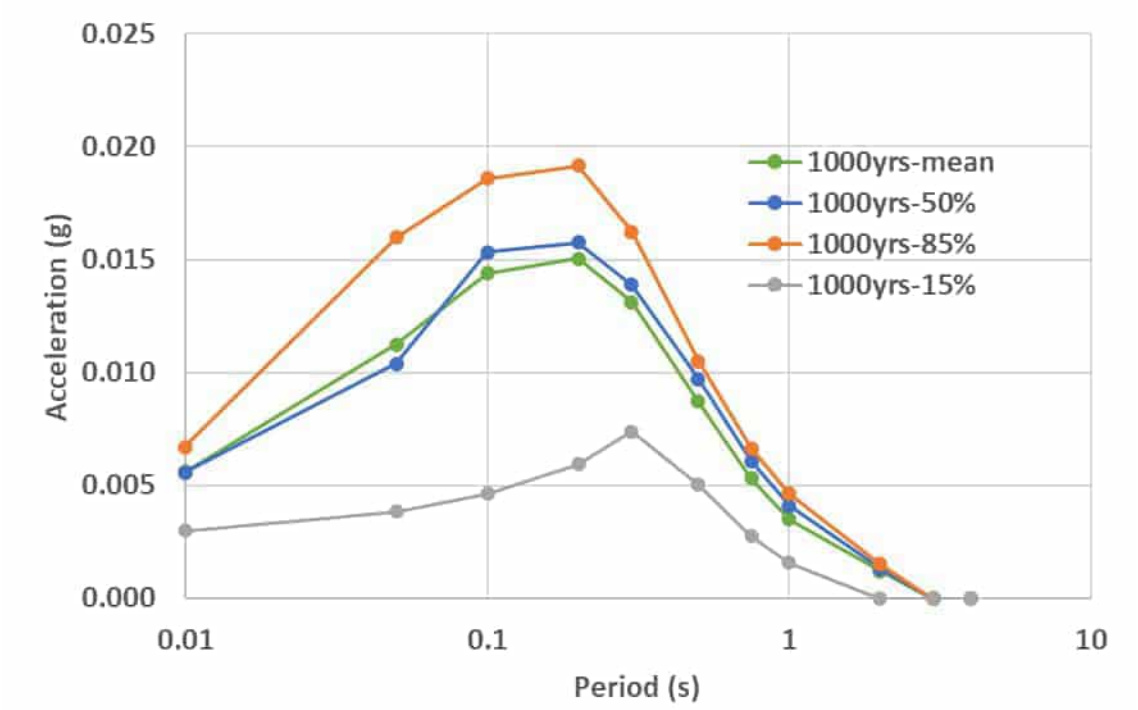


Figure B.4: Mean, 50%, 85%, and 15% percentile UHS – 1,000 Return Period

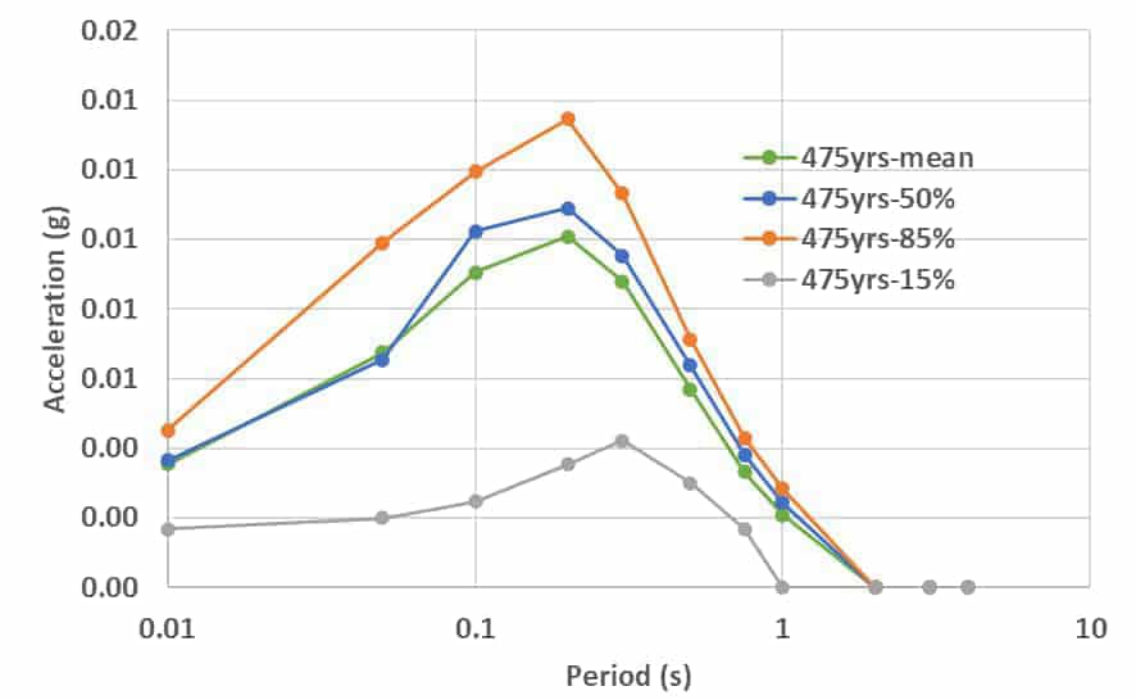


Figure B.5: Mean, 50%, 85%, and 15% percentile UHS – 475 Return Period

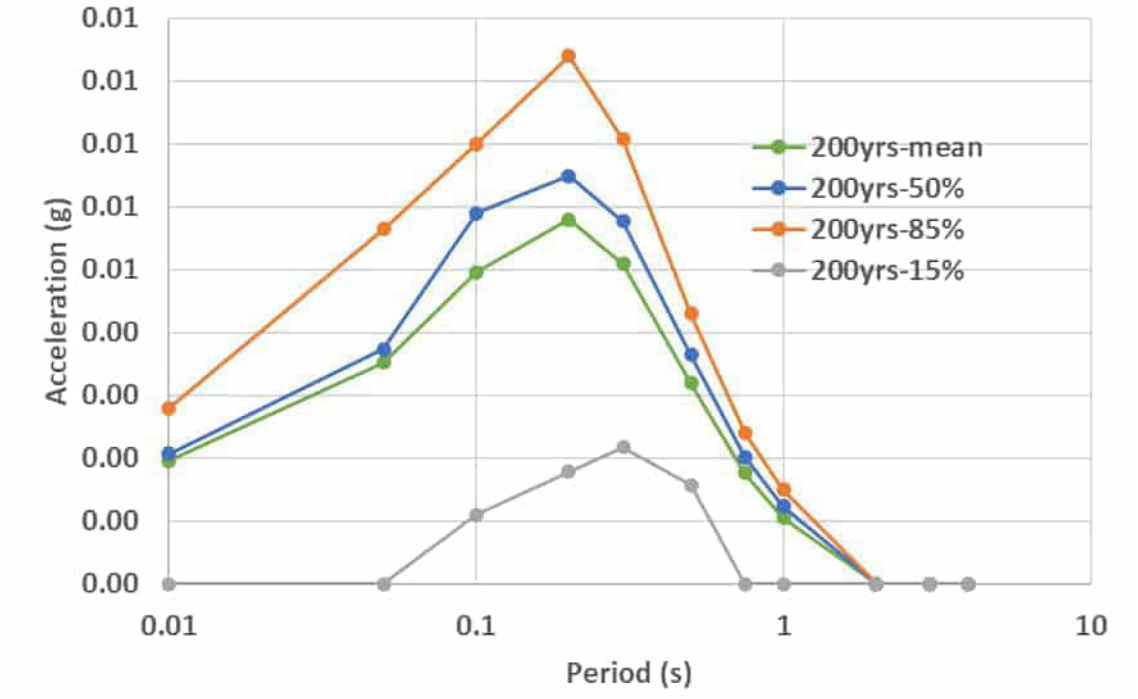


Figure B.6: Mean, 50%, 85%, and 15% percentile UHS – 200 Return Period

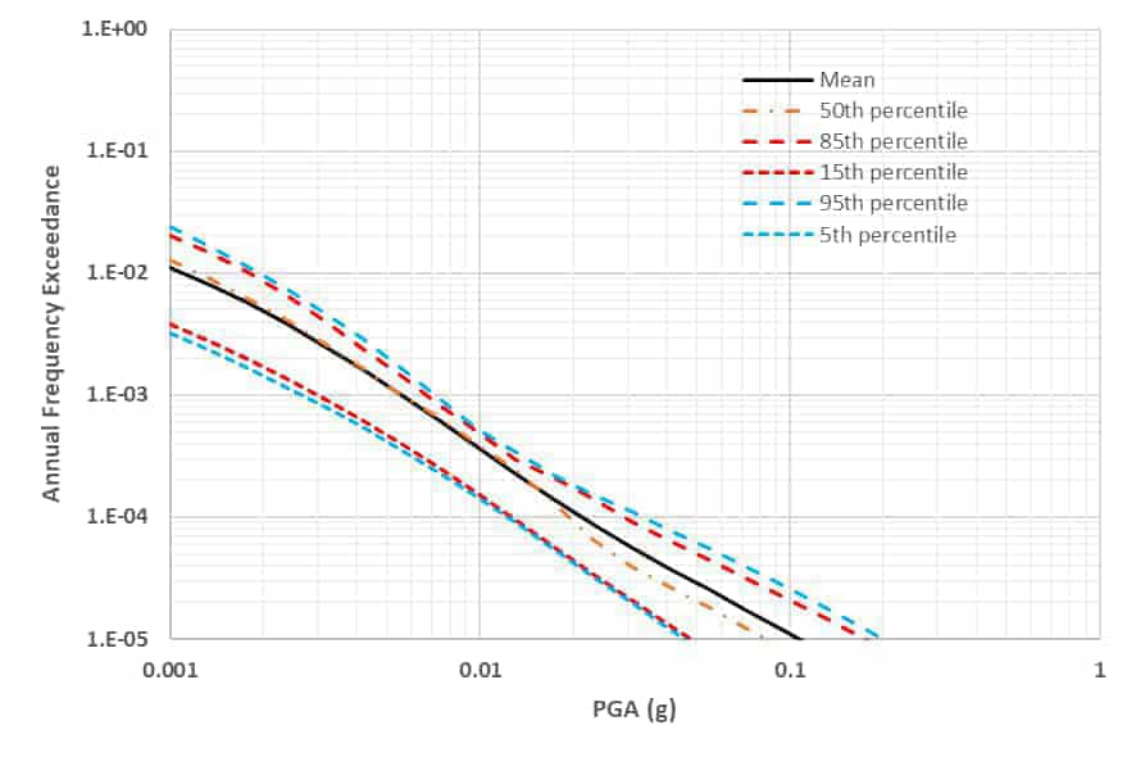


Figure B.7: Hazard Curves for Horizontal Peak Ground Acceleration

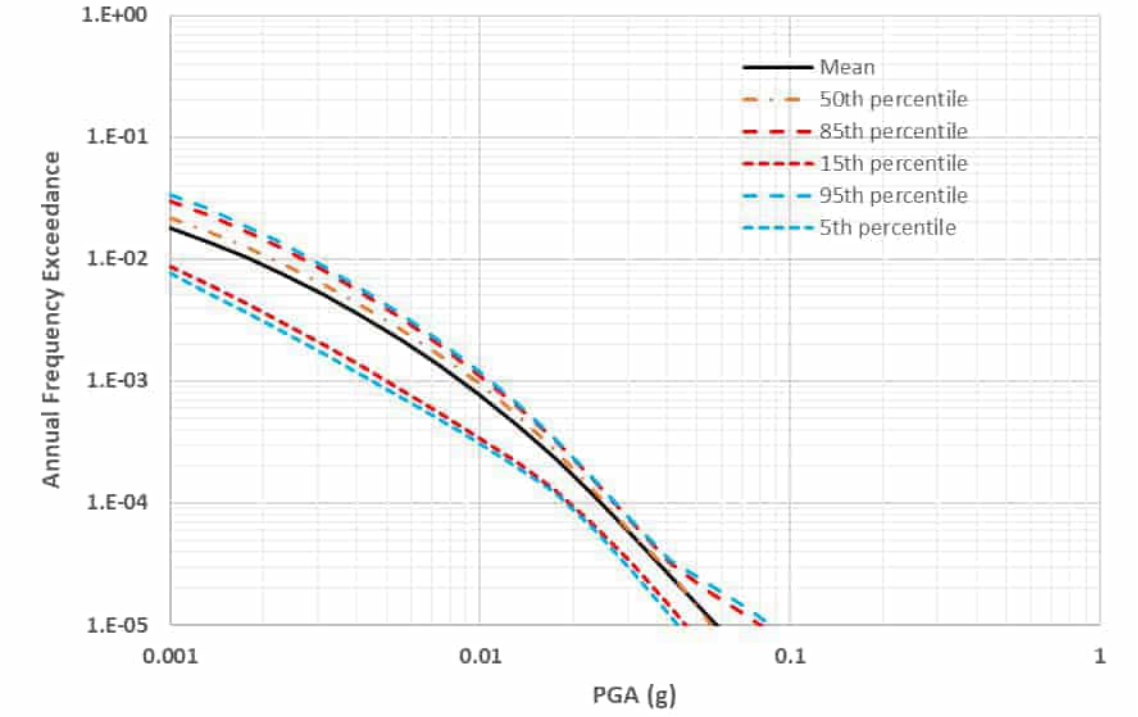


Figure B.8: Hazard Curves for Horizontal Spectral Acceleration 0.5 Second – SA 0.5

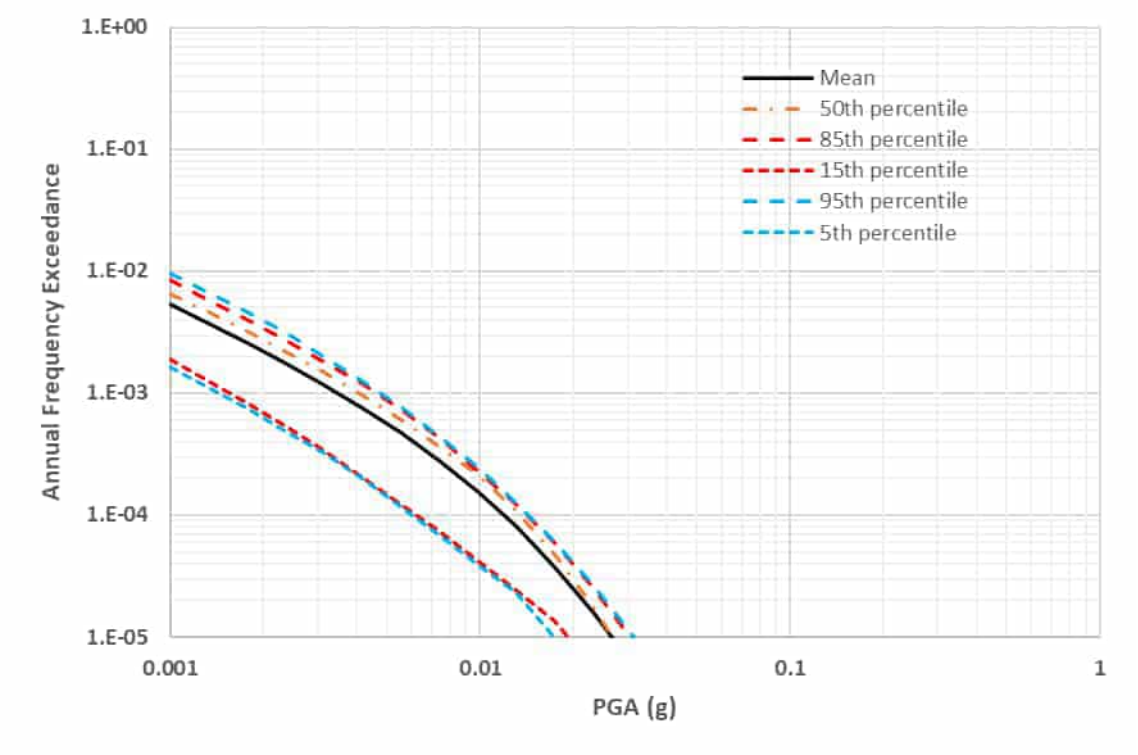


Figure B.9: Hazard Curves for Horizontal Spectral Acceleration 1.0 Second – SA 1.0

APPENDIX C
Deaggregation Results

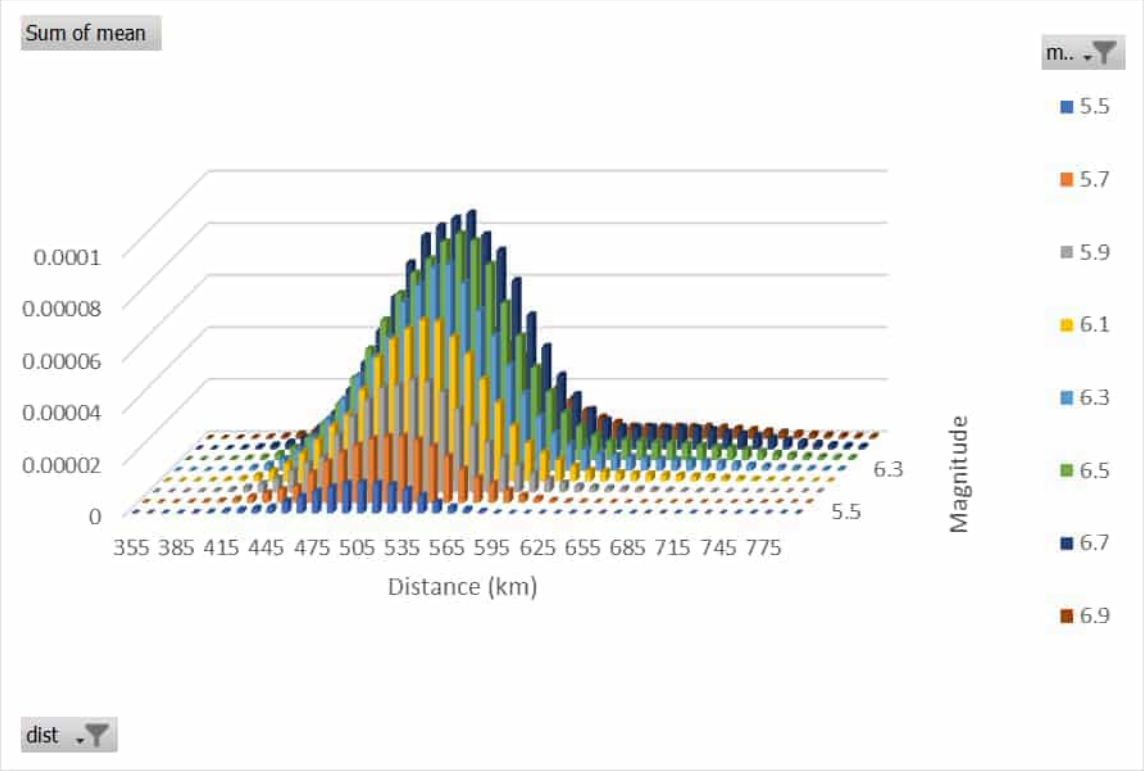


Figure C.1: Deaggregation 10,000 Return Period – PGA

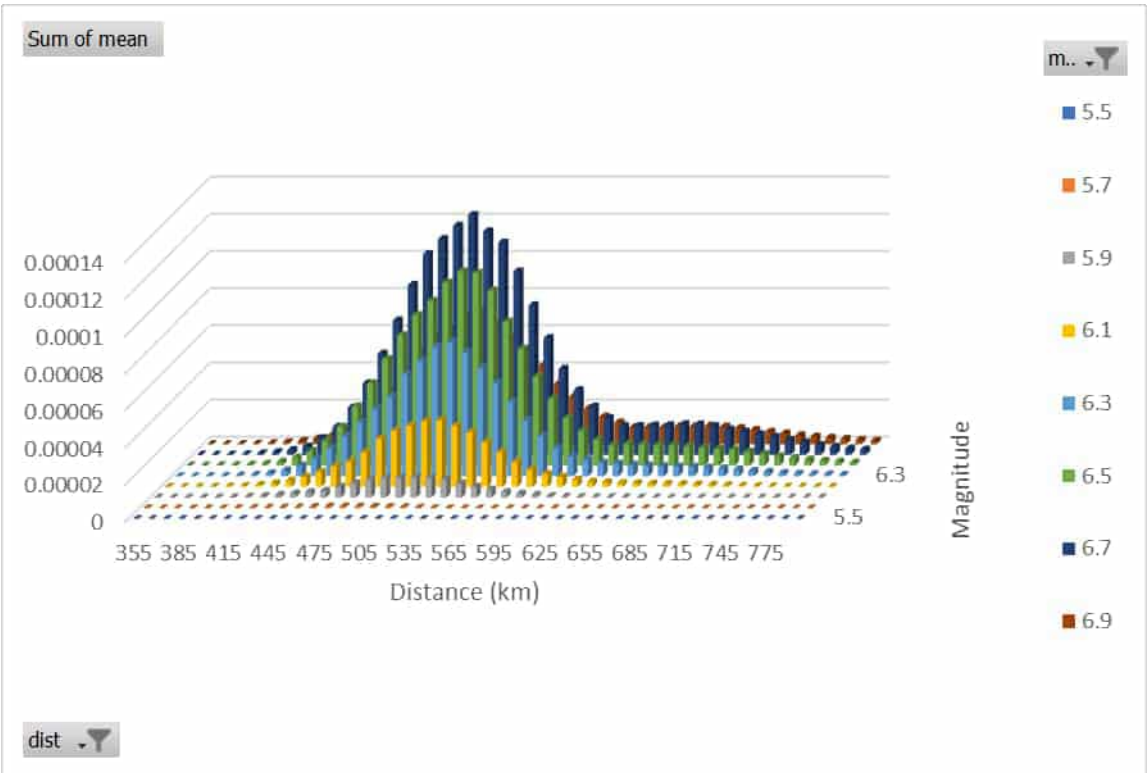


Figure C.2: Deaggregation 10,000 Return Period – SA = 0.75 second

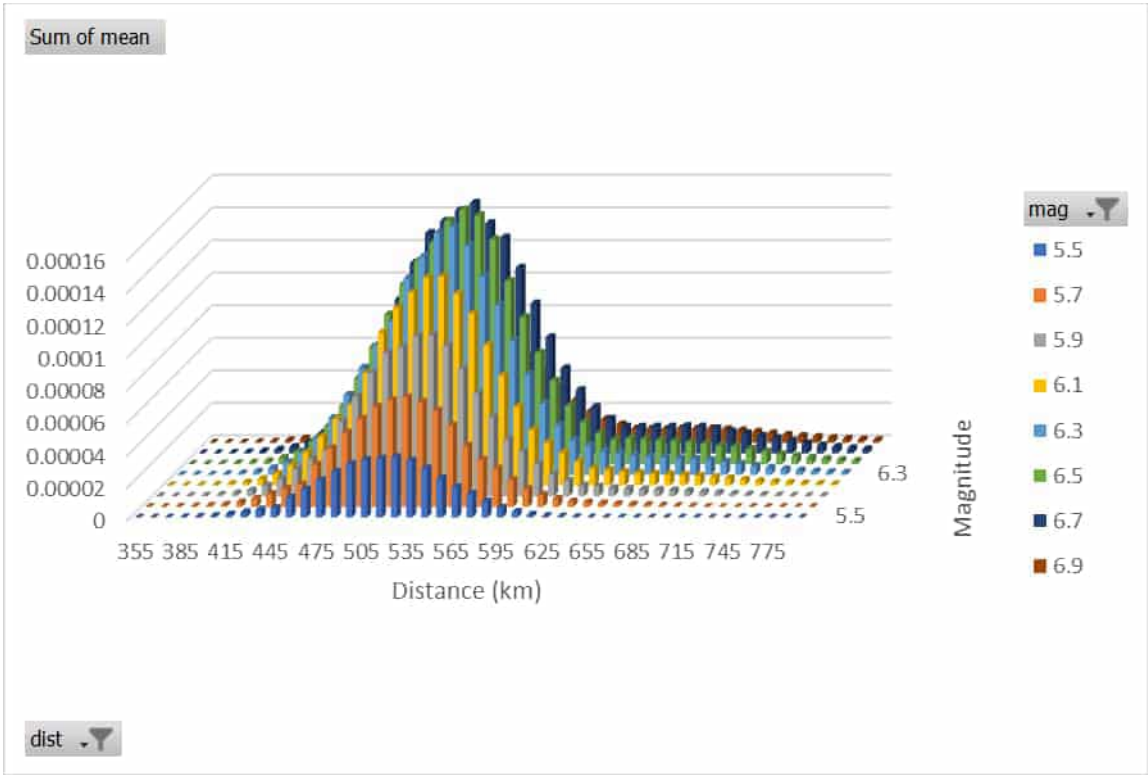


Figure C.3: Deaggregation 5,000 Return Period – PGA

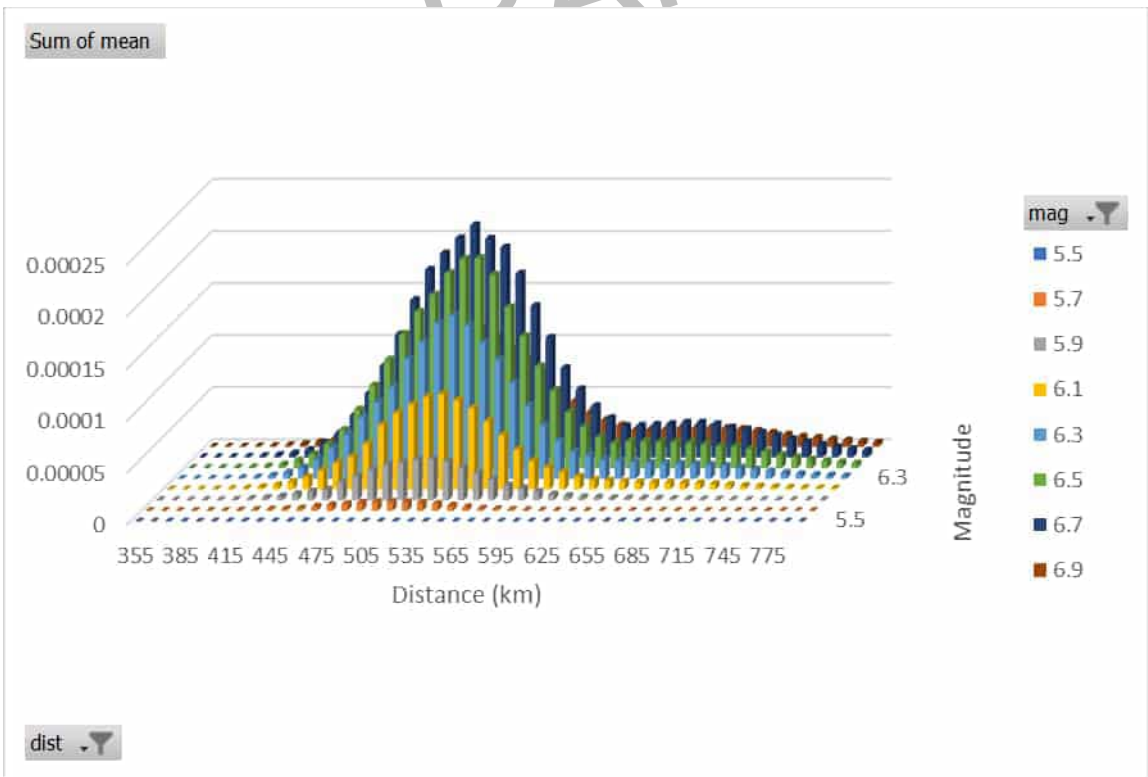


Figure C.4: Deaggregation 5,000 Return Period – SA = 0.75 second

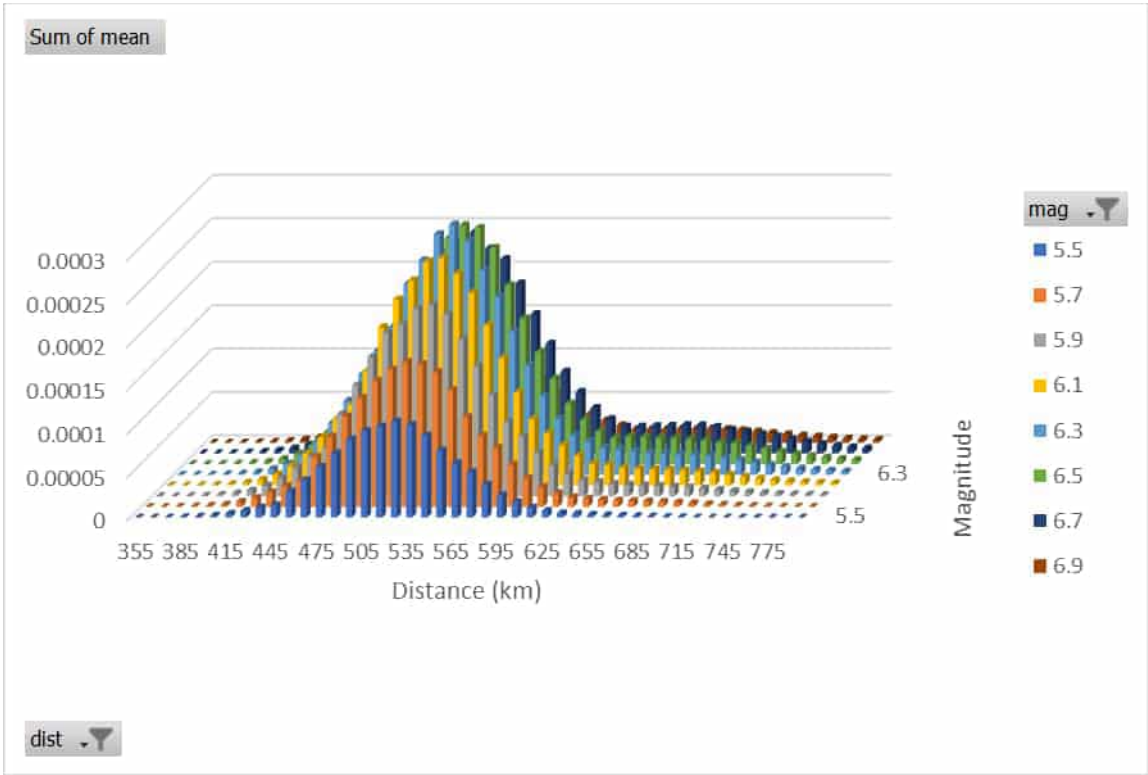


Figure C.5: Deaggregation 2,475 Return Period – PGA

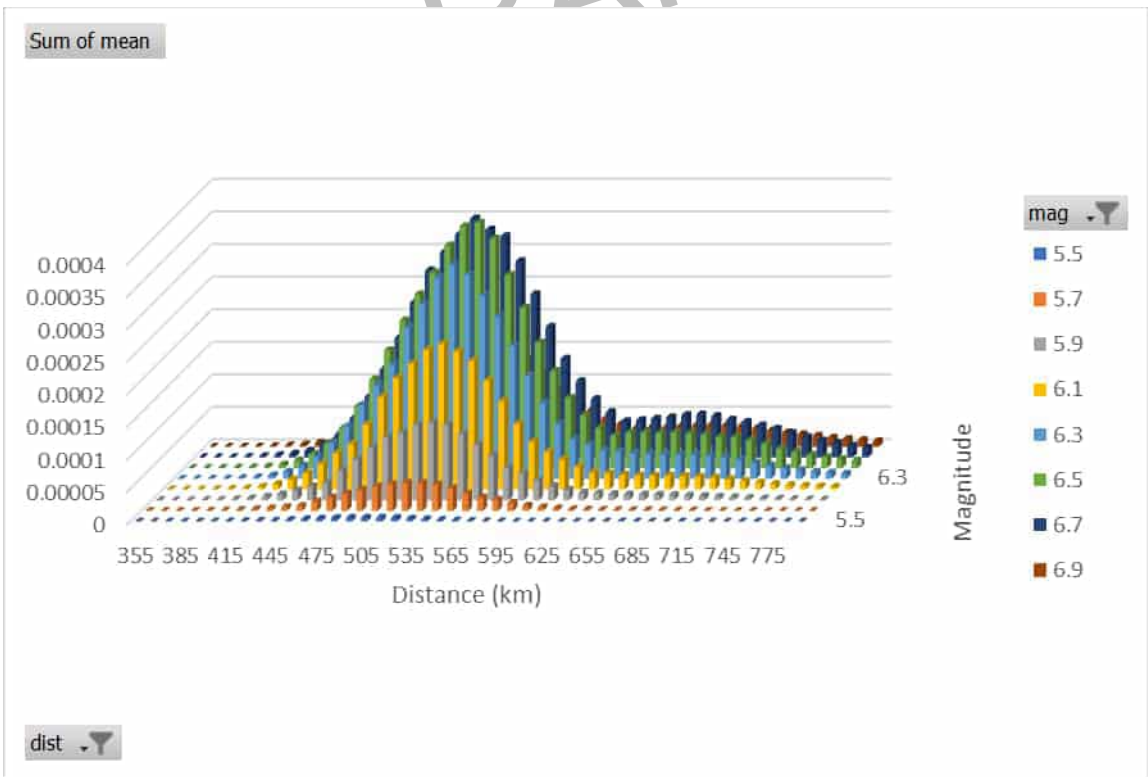


Figure C.6: Deaggregation 2,475 Return Period – SA = 0.75 second

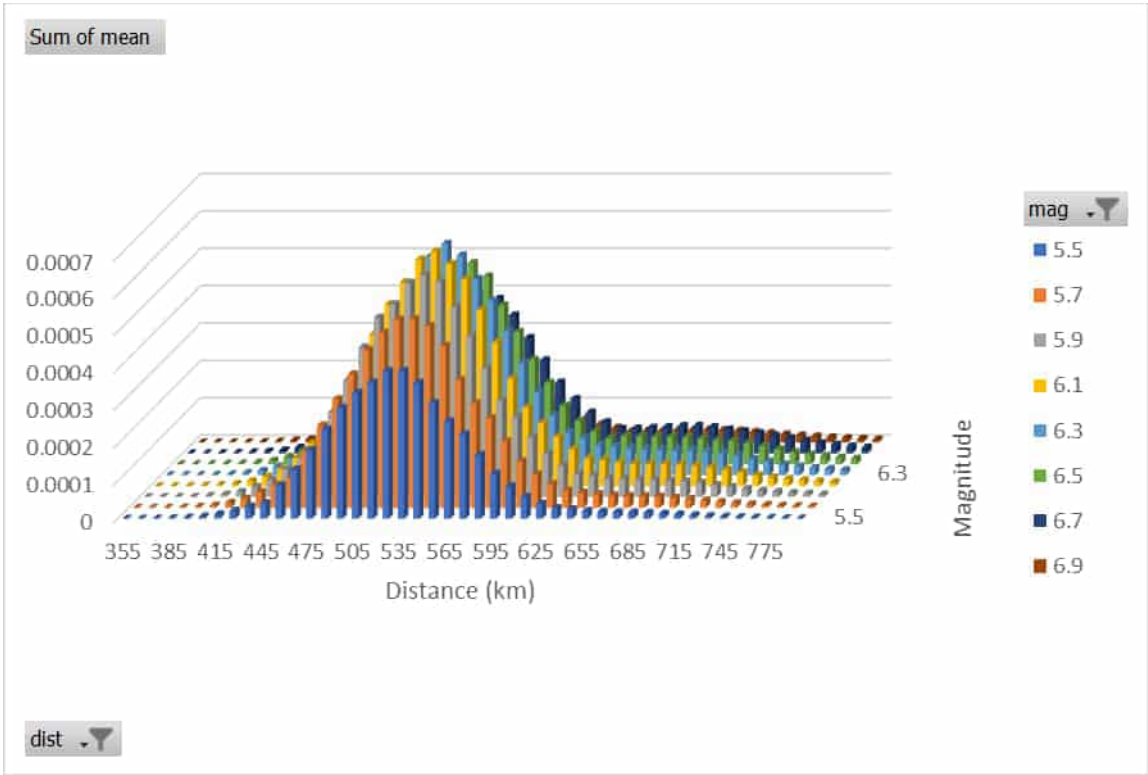


Figure C.7: Deaggregation 1,000 Return Period – PGA

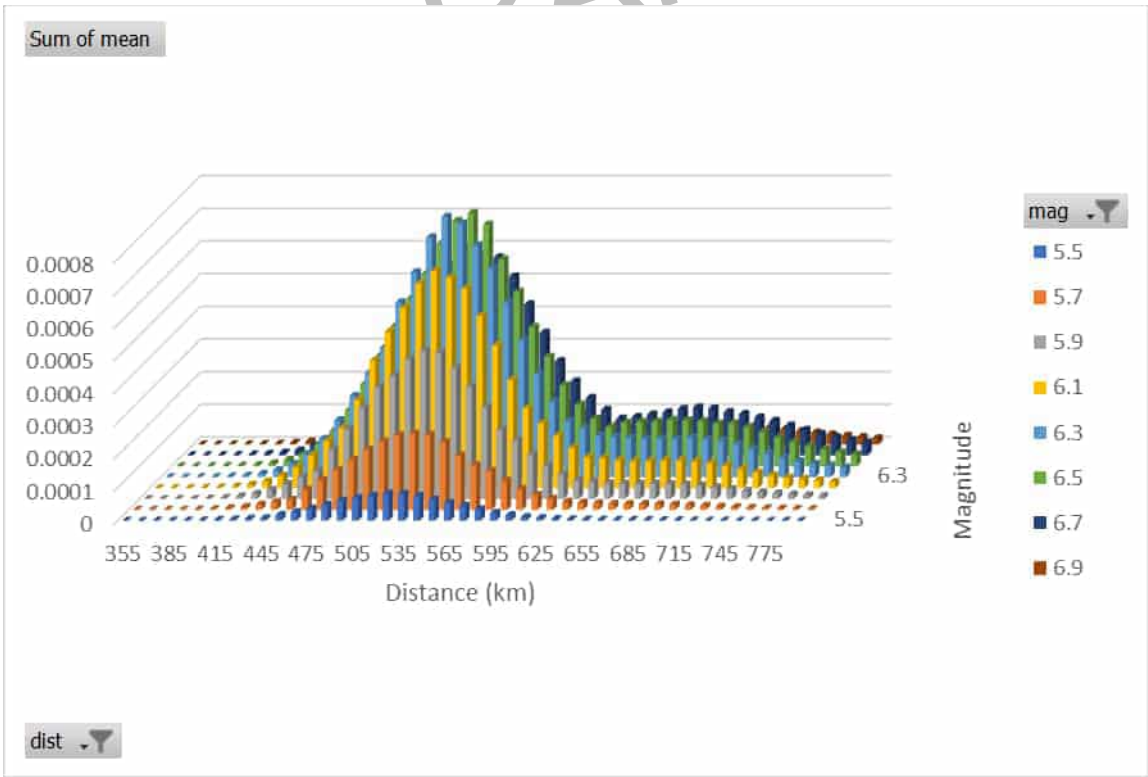


Figure C.8: Deaggregation 1,000 Return Period – SA = 0.75 second

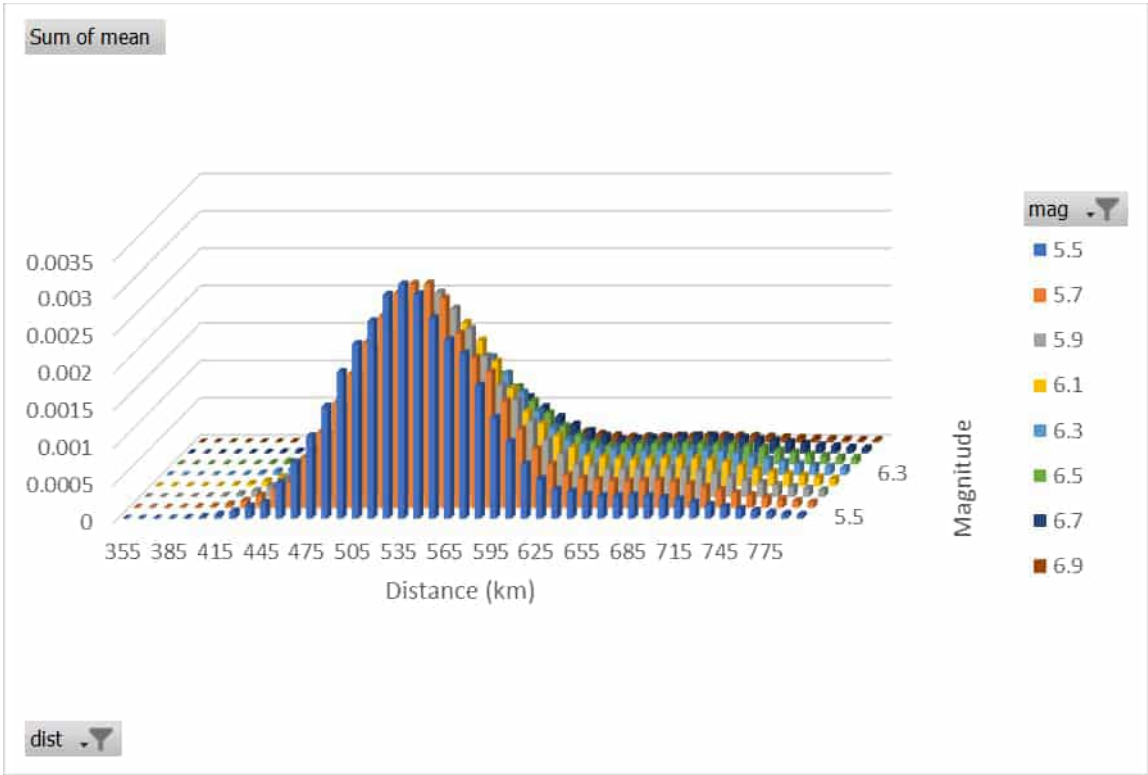


Figure C.9: Deaggregation 200 Return Period – PGA

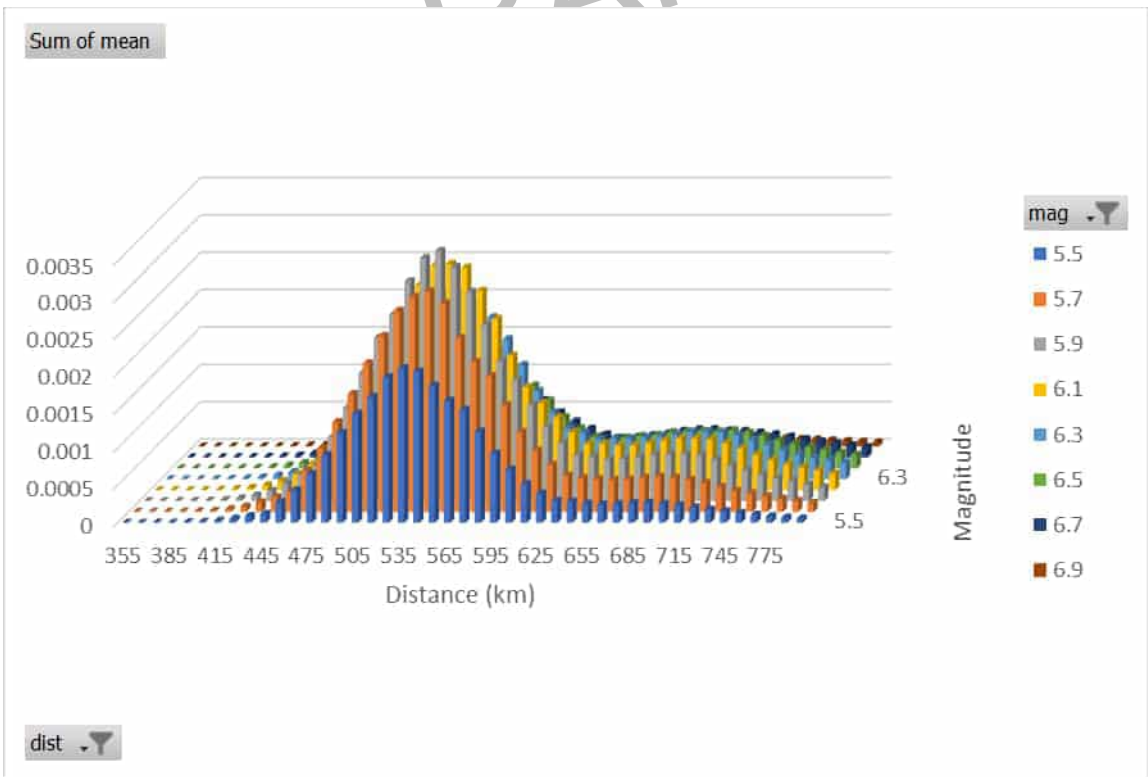


Figure C.10: Deaggregation 200 Return Period – SA = 0.75 second

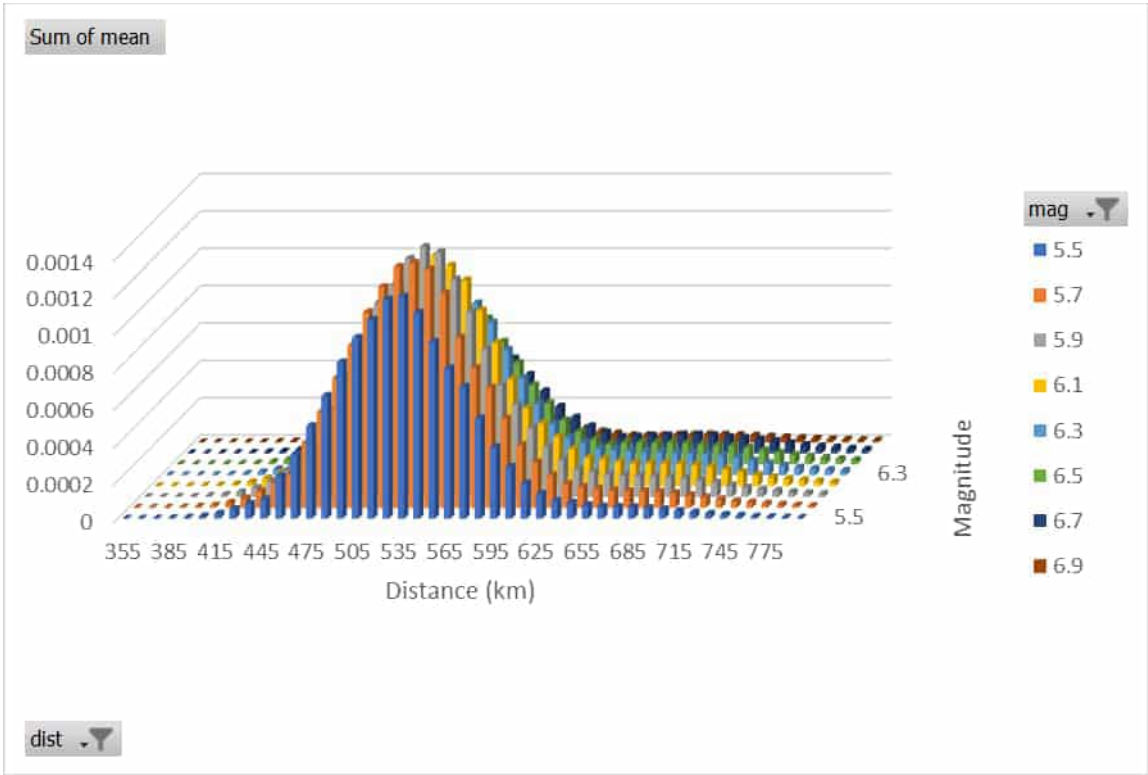


Figure C.11: Deaggregation 475 Return Period – 0.2 second

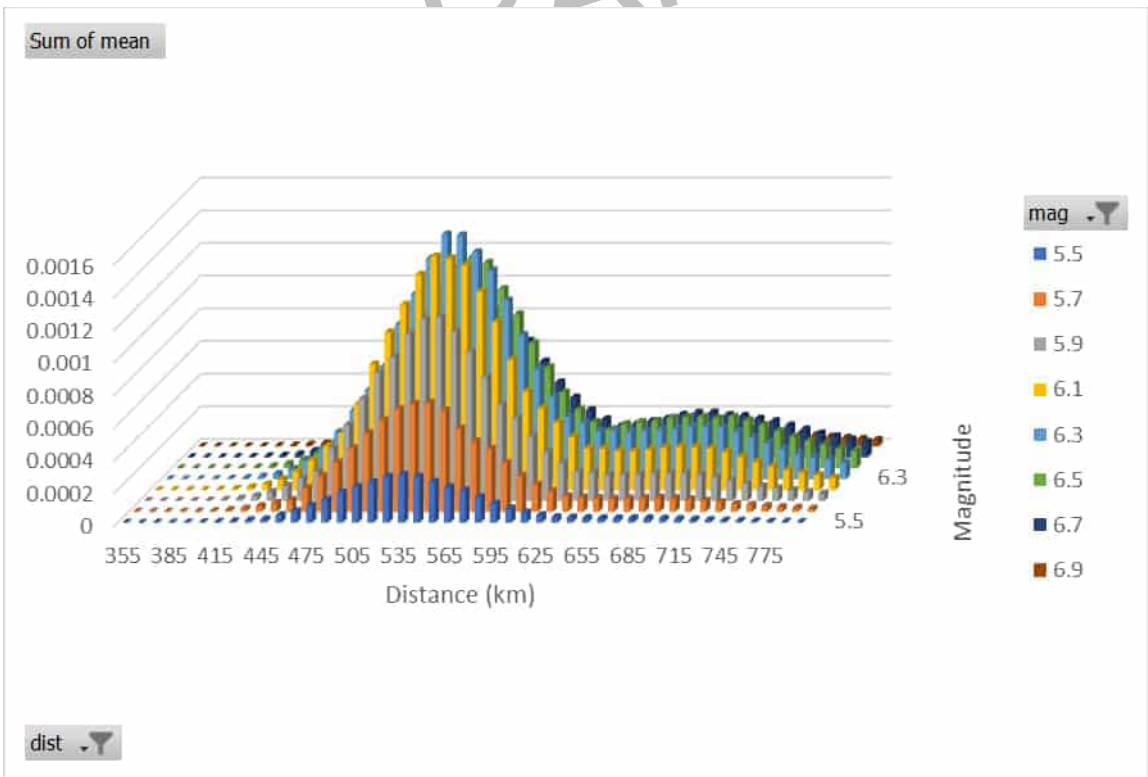


Figure C.12: Deaggregation 475 Return Period – SA = 1.0 second

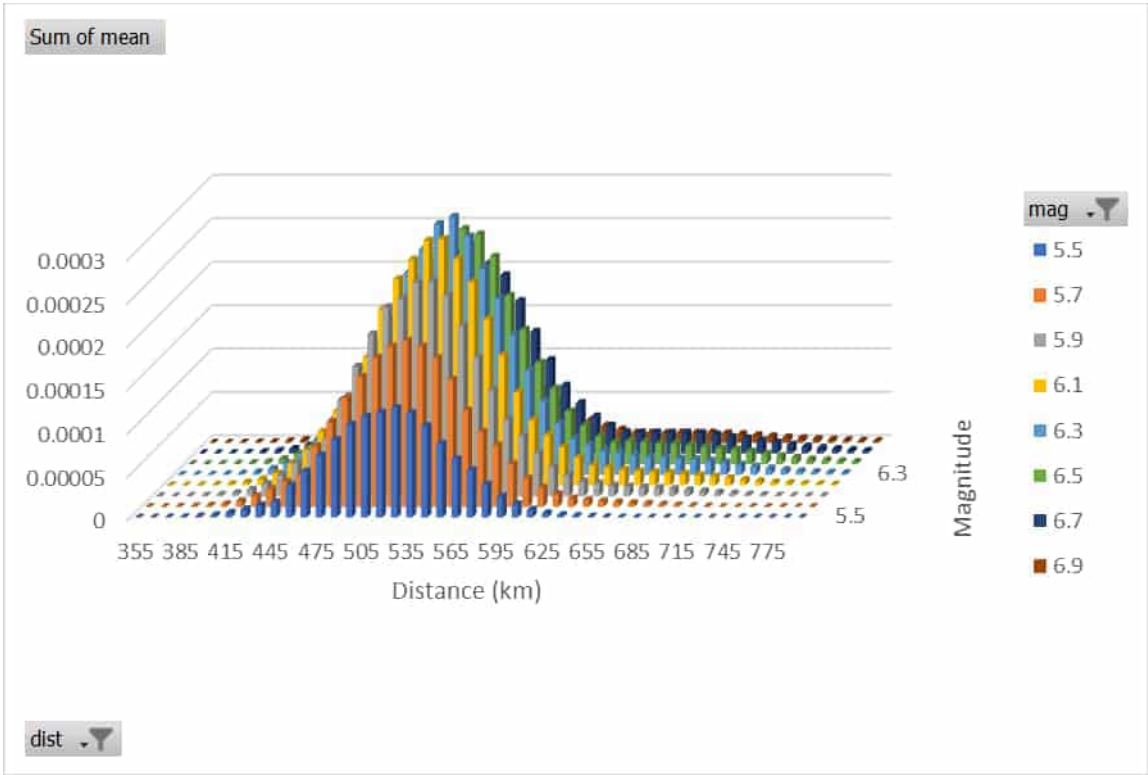


Figure C.13: Deaggregation 2,475 Return Period – 0.2 second

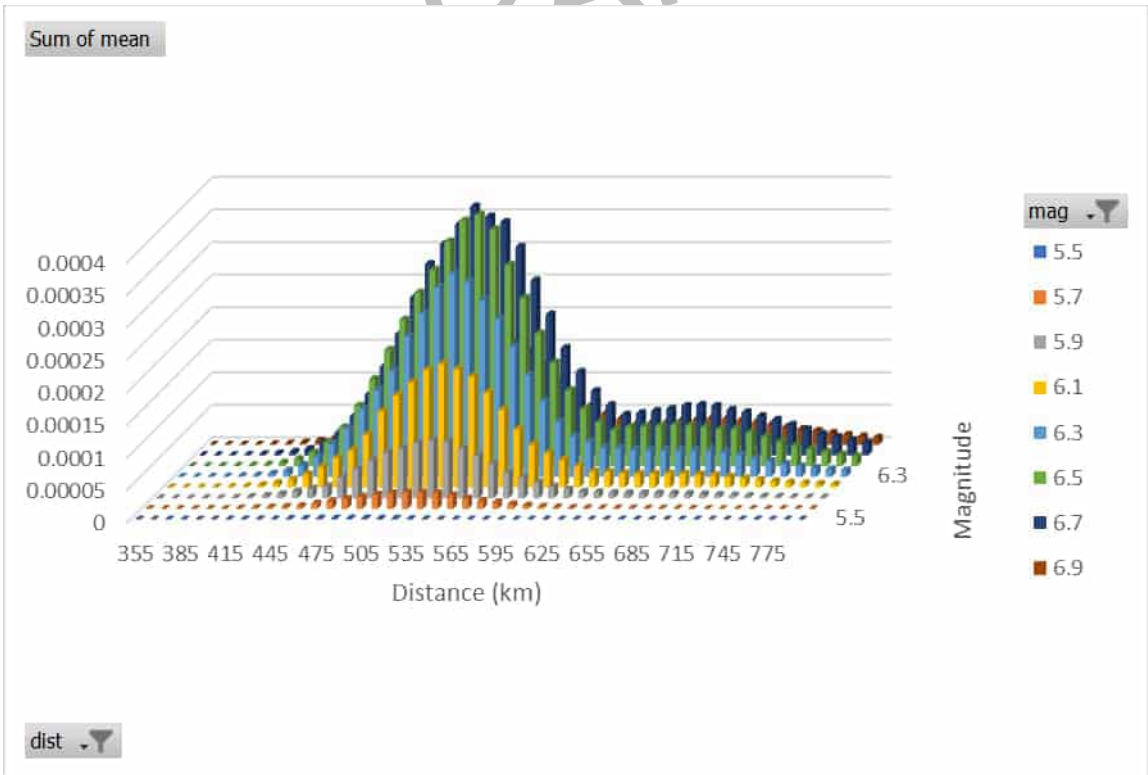


Figure C.14: Deaggregation 2,475 Return Period – 1.0 second

APPENDIX C

Report Ref. PE301-00821/04 Rev 0

Doropo Gold Project – Definitive Feasibility Study

Geotechnical Interpretative Report

Knight Piésold CONSULTING

APPENDIX D

Memorandum Ref. PE25-01627

Doropo Gold Project – Tailings Physical Testing Rev 1

Knight Piésold CONSULTING

MEMORANDUM

To:	Resolute Mining	**Date:**	18 December 2025
Attn:	Rob Cicchini	**Our Ref:**	PE25-01627
		KP File Ref.:	PE301-00821/05 dss M25017
cc:	Luciano Giancristofaro	**From:**	Dean Sawyer

RE: DOROPO GOLD PROJECT – TAILINGS PHYSICAL TESTING REV 1

1. INTRODUCTION

Knight Piésold Pty Ltd (KP) was engaged to undertake the design work for the Tailings Storage Facility (TSF) for the Doropo Gold Project located in north-eastern Côte d'Ivoire near Doropo, 480 km north of the capital Abidjan.

As part of the early DFS study in 2023 – 2024, 7 tailing samples were generated for testing in order to determine the physical and settling characteristics of the tailings. Additional physical tests were performed to determine the air drying achieved density, rate of water release and permeability of three of the samples. This memorandum summarises the findings of the study and supersedes the document PE23-01297.The document update is limited to accounting for the change in ownership of the project. Geochemical test results are provided in a separate memorandum.

Subsequent to the testing program and in conjunction with the DFS study update, revisions were made to the tailings blend and percent solids. Further testing is scheduled for 2026, and this memorandum will be revised upon completion of the 2026 physical testing of tailings.

2. SAMPLES DESCRIPTION AND TESTING

Tailings samples were sent to the KP laboratory in Perth in October 2023 from ALS Metallurgy. The following samples were provided, all labelled A23136:

- Souwa Oxide Tailings Slurry: at 54% solids w/w.
- Souwa Transition Tailings Slurry: at 54% solids w/w.
- Souwa Fresh Tailings Slurry: at 63% solids w/w.
- Nokpa Transition Tailings Slurry: at 54% solids w/w.
- Nokpa Fresh Tailings Slurry: at 63% solids w/w.
- Kilosegui Transition Tailings Slurry: at 54% solids w/w.
- Kilosegui Fresh Tailings Slurry: at 63% solids w/w.

No adjustments were made to the as received percent solids for the purpose of testing on the basis it matches the planned operation target. The following tests were carried out on all 7 samples:

- Received percent solids (to confirm the provided values).
- Particle Size Distribution (PSD) of the tailings.
- Supernatant liquor density and pH.
- Tailings solids particle density.
- Atterberg limits of the tailings solids.
- Undrained sedimentation tests.

The following tests were carried out only on the 3 Souwa Samples:

- Drained Sedimentation tests.
- Air drying tests.
- Permeability tests.
- Consolidation testing.

During laboratory testing it is Knight Piésold's normal practice to duplicate each test as a means to verify the consistency of the test results. The results of each individual test are plotted on the corresponding figures. The interpreted mean values are given in the tables and text of the document. A brief description of the method employed in each test is also provided.

3. CLASSIFICATION TESTING

The following section discusses the physical classification testing results of all 7 samples. Classification testing was completed by Western Geotechnical & Laboratory Services (WGLS) in Perth.

Where appropriate, classification tests were conducted in accordance with relevant Australian Standards. The results of the classification tests for the samples and relevant standards are summarised in Table 3.1. The classification laboratory test reports for the samples are presented in Appendix A.

Table 3.1: Classification testing – results and relevant standards

Test	Souwa Oxide	Souwa Transition	Souwa Fresh	Nokpa Transition	Nokpa Fresh	Kilosegui Transition	Kilosegui Fresh	AS1289
Solids Particle Density (t/m^3)	2.66	2.60	2.62	2.67	2.64	2.70	2.61	3.5.1
Supernatant Density (t/m^3)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	(hydrometer)
Supernatant pH	8.8	8.6	8.5	8.6	8.6	9.1	8.7	(pH meter)
Liquid Limit (%)	N.O.	N.O.	N.O.	N.O.	N.O.	N.O.	N.O.	3.1.2
Plastic Limit (%)	NP	NP	NP	NP	NP	NP	NP	3.2.1
Plasticity Index (%)	NP	NP	NP	NP	NP	NP	NP	3.3.1
Linear Shrinkage (%)	1.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4.1

N.O. Not Obtainable.
NP Non-Plastic.

The Particle Size Distribution (PSD) analyses for the samples were completed in accordance with AS1289 3.6.3. The PSD for the samples are presented in Table 3.2 and the grading curves are shown in Figure 3.1.

Table 3.2: Particle size distribution

Fraction	Particle size (µm)	Percent Passing (%)						
		Souwa Oxide	Souwa Transition	Souwa Fresh	Nokpa Transition	Nokpa Fresh	Kilosegui Transition	Kilosegui Fresh
Sand	1180	100	100	100	100	100	100	100
	600	99	99	99	99	100	99	99
	200	90	91	88	83	96	90	91
Silt	75	66	59	64	58	61	54	69
	20	41	29	25	23	33	28	30
	6	20	13	9	12	15	15	13
Clay	2	9	7	3	5	8	8	5

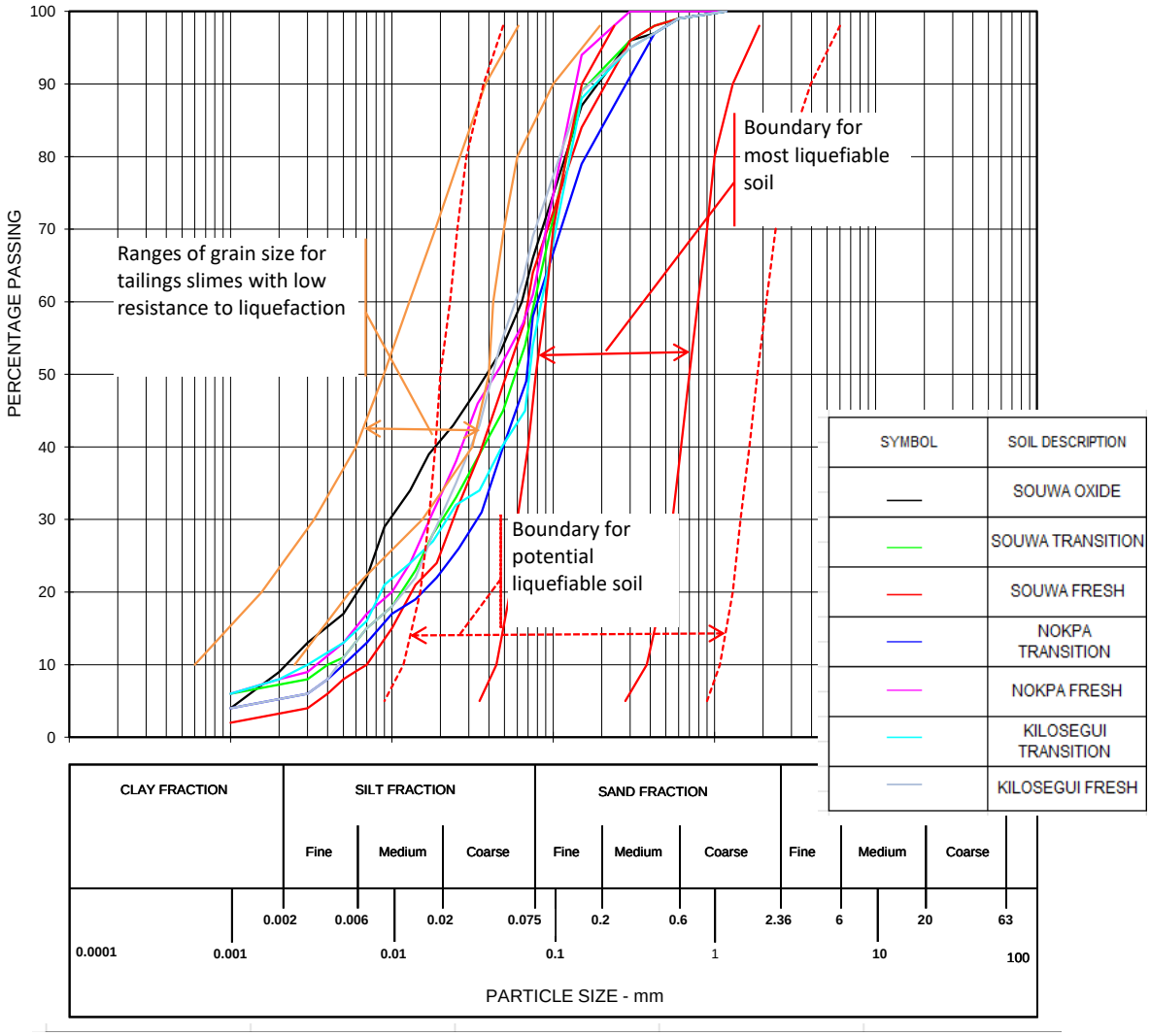


Figure 3.1: Particle Size Distribution

All samples have similar P_{80} of around 120 µm with the exception of Nokpa Transition with a P_{80} of around 160 µm. All samples classify as non-plastic sandy SILT with the classification ML in accordance with AS1726:2017. The Souwa Oxide sample showed slightly higher silt content as would be expected for an oxide ore; however, not a corresponding higher clay content as would be expected.

The grading curves indicate all samples fall inside the boundary for potentially liquefiable soils and therefore liquefaction of the tailings mass needs to be considered in design.

4. PHYSICAL TESTING

The following section discusses the physical testing results for the samples.

All 7 samples were tested for undrained sedimentation tests and only the 3 Souwa samples (Oxide, Transition and Fresh) were tested for drained sedimentation, air drying, consolidation and permeability. This was conducted on the basis the Transition and Fresh samples behaved very similar to the corresponding Souwa samples. All the tests were performed at the as received solid content (w/w).

4.1 SEDIMENTATION TESTS

Drained and undrained sedimentation tests were carried out to determine the settling rate, volume of supernatant, and settled dry density of the tailings.

In the undrained sedimentation test, tailings slurry is allowed to settle in a measuring cylinder. This is equivalent to the deposition of tailings under water. The results indicate the expected rate and quantity of supernatant release and enable the minimum expected dry density of the tailings to be determined.

In the drained sedimentation test, tailings slurry is allowed to settle and drain in a cylinder with a fine sand filter drain at the base. This simulates the deposition of tailings where both settling and free drainage can occur. The results indicate the relative quantities of supernatant and underdrainage released by the settling slurry and enables the dry density of the drained tailings to be determined. The underdrainage values are maximum values, as the drainage layer is free-draining without back pressure and the tailings is deposited directly over the drainage medium.

The results of the sedimentation tests are presented in figures 4.1 and 4.2. Table 4.1 presents a summary of the measured sedimentation test data.

Table 4.1: Sedimentation test results

	Test	Initial Solids (%)	Supernatant (% of initial water volume)	Underdrainage (% of initial water volumes)	Time to Achieve Final Density (days)	Final Dry Density (t/m^3)	Final Void Ratio	Figure
Souwa Oxide	Undrained	53	32	-	3	1.02	1.60	4.1
	Drained	54	23	21	5	1.18	1.26	4.2
Souwa Transition	Undrained	52	44	-	<1	1.12	1.33	4.1
	Drained	53	29	24	<1	1.23	1.11	4.2
Souwa Fresh	Undrained	61	34	-	<1	1.26	1.09	4.1
	Drained	63	23	19	<1	1.38	0.90	4.2
Nokpa Transition	Undrained	52	43	-	<1	1.12	1.39	4.1
Nokpa Fresh		63	29	-	<1	1.25	1.11	4.1
Kilosegui Transition	Undrained	52	45	-	<1	1.14	1.37	4.1
Kilosegui Fresh		62	32	-	<1	1.26	1.07	4.1

The sedimentation tests indicate that the Transition and Fresh samples settle very quickly with settlement completed in hours. All three Transition samples release approximately 44% of water in slurry (starting at a similar initial solids) to supernatant in the undrained test, with the Souwa Transition reducing to about 29% in the drained test. The samples achieved a moderate dry density from settlement before air drying or consolidation with a void ratio less than 1.4.

All three Fresh samples released approximately 32% of water in slurry (starting at a similar initial solids) to supernatant in the undrained test, with the Souwa Fresh reducing to about 23% in the drained test. The samples achieved a moderate to high dry density from settlement before air drying or consolidation with a void ratio less than 1.1.

The Souwa Oxide sample settles slowly taking more than 3 days to complete the settlement. The sample releases approximately 32% of water in slurry to supernatant in the undrained test, reducing to about 23% in the drained test. The sample achieved a low dry density from settlement before air drying or consolidation with a void ratio of around 1.6.

4.2 AIR DRYING TESTS

Air drying tests were carried out on the slurry samples to determine the effect of natural drying of the tailings after initial settling and removal of supernatant liquor, thereby simulating conditions expected following sub-aerial deposition. Continuous monitoring of weight and volume of each specimen was carried out in order to quantify the relationship between dry density, moisture content, volumetric change and the degree of saturation of the tailings against a measured evaporation rate.

A direct relationship exists between dry density and moisture content up to breakaway point, at which the degree of saturation falls below 100%. At this point negative pore water pressures are developed, which further consolidate the tailings. Drying below a limiting saturation produces no further consolidation, and the density at this point represents the maximum that can be achieved via air drying of the tailings.

The results of the air-drying tests are presented in figures 4.3 to 4.8, and are summarised in Table 4.2.

Table 4.2: Results of air-drying tests

	Moisture Content at Breakaway Point	Dry Density at Breakaway Point	Final Dry Density	Final Void Ratio	Figures
	(%MC)	(t/m^3)	(t/m^3)		
Souwa Oxide	28	1.52	1.60	0.66	4.3, 4.4
Souwa Transition	38	1.35	1.41	0.84	4.5, 4.6
Souwa Fresh	28	1.45	1.46	0.80	4.7, 4.8

The Souwa Oxide sample achieved a dry density of 1.60 t/m^3 after 6 – 7 days of air drying at an average evaporation rate of ~8.1 mm/day (approximately 55 mm of total evaporation). This is an increase of about 36% over the dry density achieved in the drained sedimentation test. The dry density is high with a void ratio of about 0.7.

The Souwa Transition sample achieved a dry density of 1.41 t/m^3 after 5 – 6 days of air drying at an average evaporation rate of ~7.7 mm/day (approximately 42 mm of total evaporation). This is an increase of 15% over the dry density achieved in the drained sedimentation test. The dry density is high with a void ratio of about 0.8.

The Souwa Fresh achieved a dry density of 1.46 t/m^3 after 1 – 2 days of air drying at average evaporation rate of 7.9 mm/day (approximately 16 mm of total evaporation). This is an increase of 6% over the dry density achieved in the undrained sedimentation tests. The dry density is high with a void ratio of about 0.8.

4.3 CONSOLIDATION TESTS

The consolidation of the tailings can be quantified in terms of the compression index C_c and the coefficient of consolidation C_v. The compression index relates the void ratio or tailings density to the effective stress of the tailing's samples. The larger the value of C_c, the more compressible the tailings are. The coefficient of consolidation defines the rate of excess pore water dissipation, and hence the rate of increase in effective stress within the tailings. Higher values of C_v indicate more rapid consolidation of the samples.

The void ratio and dry density relative to the stress condition are presented in figures 4.9 to 4.11 and the results of the consolidation tests are summarised in Table 4.3.

Table 4.3: Consolidation test results

	Void Ratio Range	Dry Density	Effective Stress Range	Coeff. of Consolidation, C_v	Coeff. of Volume Decrease, M_v	Comp Index, C_c
		(t/m^3)	(kPa)	(m^2/y)	(m^2/kN)	
Souwa Oxide	1.62 – 1.44	1.01 – 1.09	1.5 – 4.7	23	0.022	0.373
Souwa Transition	1.36 – 1.23	1.10 – 1.16	1.6 – 5.0	263	0.016	0.263
Souwa Fresh	1.10 – 0.95	1.24 – 1.34	1.9 – 5.0	737	0.023	0.355

The results indicate that all the samples are moderately compressible and will consolidate rapidly with loading, except for the Souwa Oxide sample which will consolidate more slowly.

4.4 PERMEABILITY TESTS

Falling head permeability tests were completed on three Souwa Tails tailings samples, with drainage through the drained sedimentation samples being measured. In addition, permeability values were derived from the results of the consolidation tests. Measured permeability data are summarised in Table 4.4 and shown on figure 4.9 to 4.11 versus dry density.

Table 4.4: Permeability test results

	Test Type	Dry Density (t/m^3)	Void Ratio	Permeability (m/s)
Souwa Oxide	Falling Head	1.17	1.27	2×10^{-7}
	Consolidation Test	1.03	1.56	8×10^{-7}
		1.09	1.45	2×10^{-7}
Souwa Transition	Falling Head	1.23	1.11	1×10^{-6}
	Consolidation Test	1.13	1.31	6×10^{-6}
		1.16	1.23	1×10^{-6}
Souwa Fresh	Falling Head	1.38	0.90	2×10^{-6}
	Consolidation Test	1.28	1.04	1×10^{-5}
		1.34	0.96	2×10^{-6}

These results represent the vertical permeability of saturated tailings prior to additional consolidation due to additional deposition loading or negative suction due to air drying. In the range of expected settled densities, the vertical permeability of the Souwa Oxide sample is approximately 2×10^{-7} m/s. In the range of expected settled densities, the vertical permeability of the Souwa Transition and Souwa Fresh samples are approximately 1×10^{-6} m/s. As the tailings consolidates, it is anticipated that the permeability may reduce by about another half order of magnitude.

5. INTERPRETATION OF RESULTS

Based on the physical testing of the samples the behaviour of the tailings can be predicted. It should be noted that field results are also dependent on the processing plant operation (such as tailings ore blending), and the layout and design of the tailings storage facility. The interpretation of the test results provided herein is based on the target operating percent solids of corresponding tailings samples.

5.1 WATER PRODUCTION

The release of supernatant and underdrainage following deposition can be estimated based on the climatic conditions, particle size distribution and permeability of the tailings, and the results of the undrained and drained sedimentation tests. The rate of supernatant release will also affect the potential decant recovery.

The testing indicated that the rate of supernatant release for all the Transition and Fresh samples was relatively quick, with the majority of water released in hours. Not accounting for rainfall, evaporation or the loss of water to re-saturate lower tailings layers, the expected water release is in the range of 29 – 44% and 23 – 34% of the water in slurry for Transition and Fresh samples respectively.

The rate of supernatant release for the Souwa Oxide sample was relatively slow, with the majority of water released after 3 days. Not accounting for rainfall, evaporation or the loss of water to re-saturate lower tailings layers, the expected water release would be around 23 – 32% of the water in slurry.

The quantity of underdrainage release in the field would be expected to be lower than the values indicated by the test work, due to the thickness of the deposited tailings, layering effect, further consolidation of the tailings, drying of intermediate layers and underdrainage collection efficiency. Underdrainage release will be relatively quick due to the tailings sample permeability. A recovery rate between 5% and 10% could be expected depending on the arrangement of the underdrainage collection and basin treatment.

5.2 TAILINGS DENSITY

The settled dry density deposited into a TSF can be predicted from the laboratory test work, facility design and site climatic conditions. It has been observed over a number of years that densities achieved in the field are generally lower than those obtained in the laboratory for air drying. In addition, field densities achieved are dependent on the area available for drying and the thickness of deposited layers.

The tests provided final dry density values as follows:

Souwa Oxide Sample:

- Undrained test 1.02 t/m^3
- Drained test 1.18 t/m^3
- Air drying test 1.60 t/m^3

Transition Samples:

- Undrained test 1.12 t/m^3
- Drained test 1.23 t/m^3
- Air drying test 1.41 t/m^3

Fresh Samples:

- Undrained test 1.26 t/m^3
- Drained test 1.38 t/m^3
- Air drying test 1.46 t/m^3

The test work indicated that the tailings samples achieved low to moderate dry densities from settling with significant improvement in density achieved when exposed to air drying. This suggests that having an exposed tailings beach will benefit the dry density and should be targeted if possible. With suitable underdrainage and air drying of the tailings slurry, a settled density of approximately 1.2 to 1.3 t/m^3 is expected in the facility.

A suitable deposition plan and efficient operation of the facility can improve the settled density for the project. It is recommended that water balance and full tailings density modelling are undertaken for the TSF across the full range of climatic conditions to forecast the achieved in situ density with a higher degree of confidence. The achieved density in operation will depend on the percentage of solids discharged and blends of the three types of tailings to the facility.

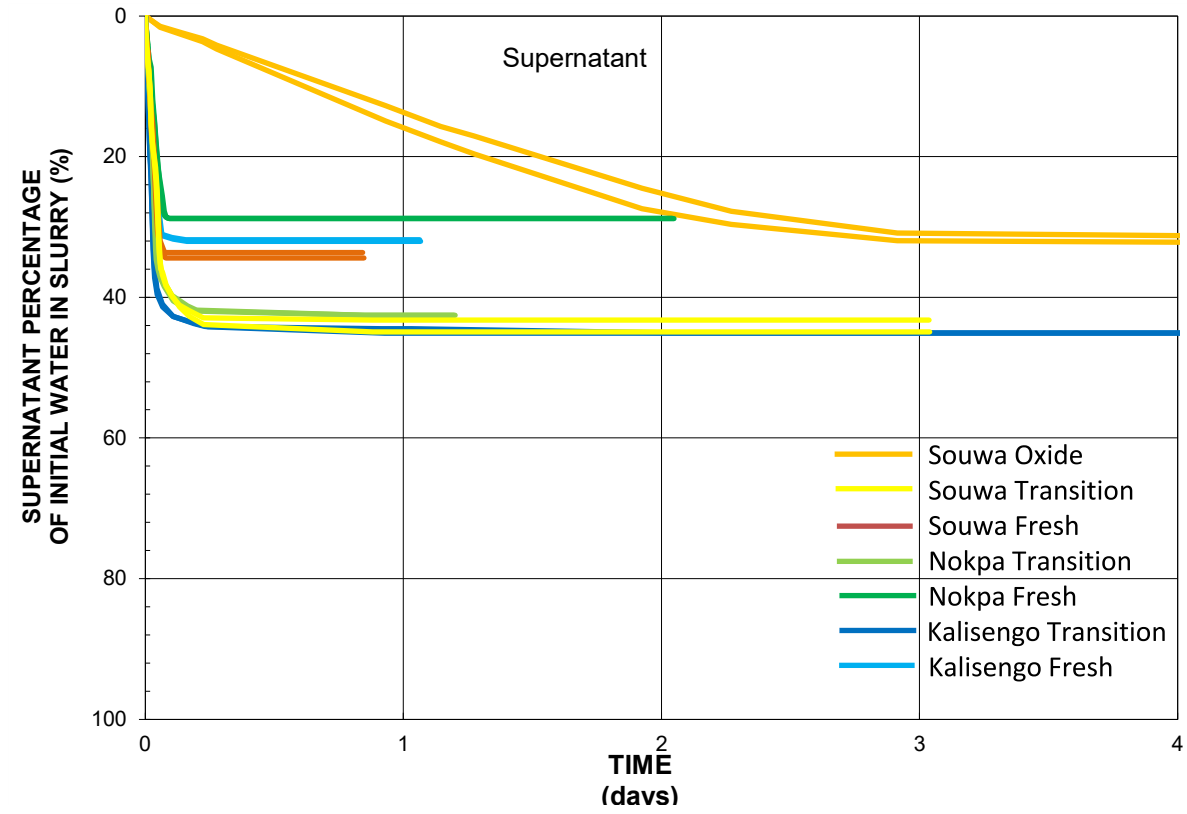
We trust this is sufficient information for your current requirements, however please contact us if you have any questions.

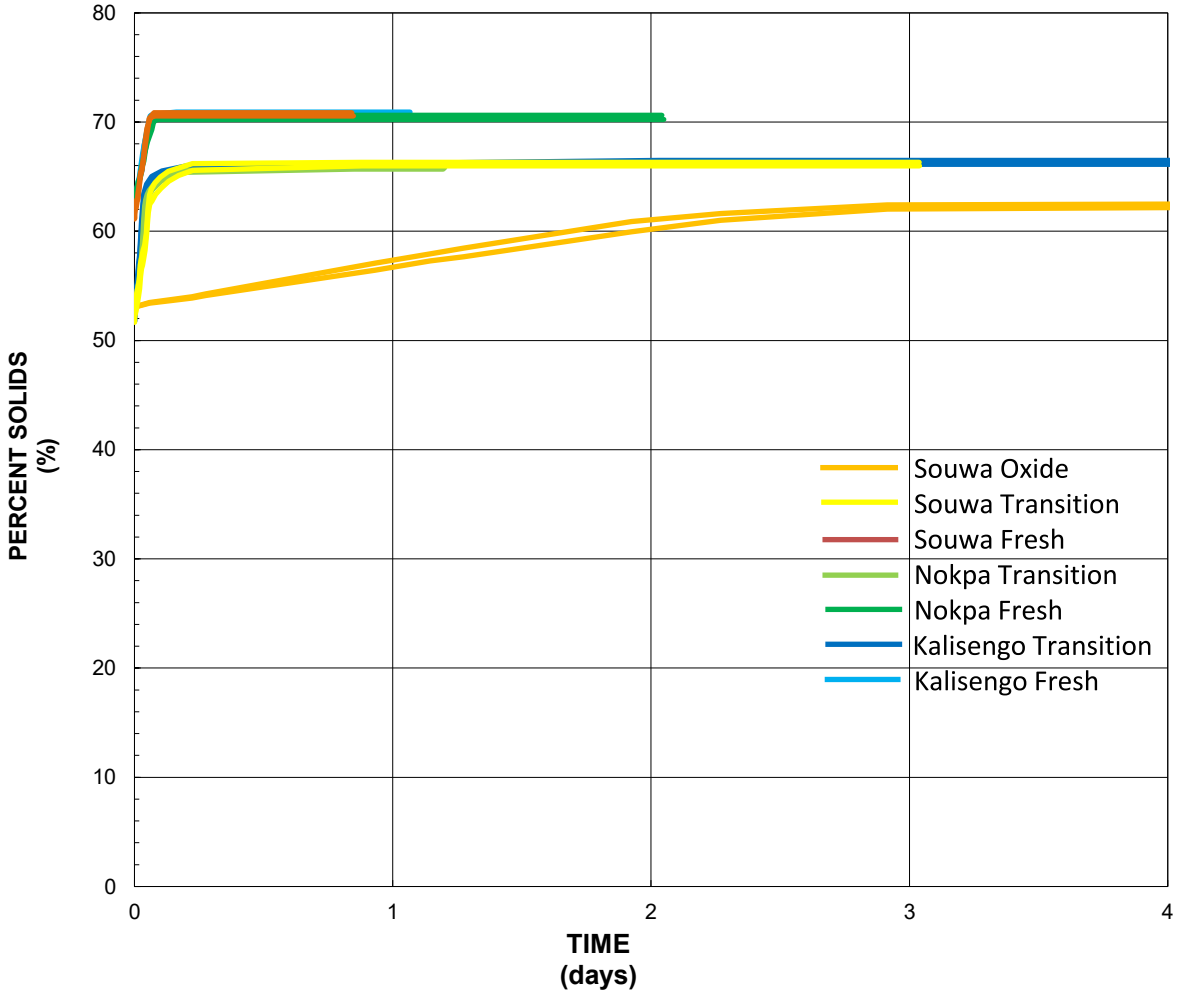
Yours faithfully
KNIGHT PIÉSOLD PTY LTD

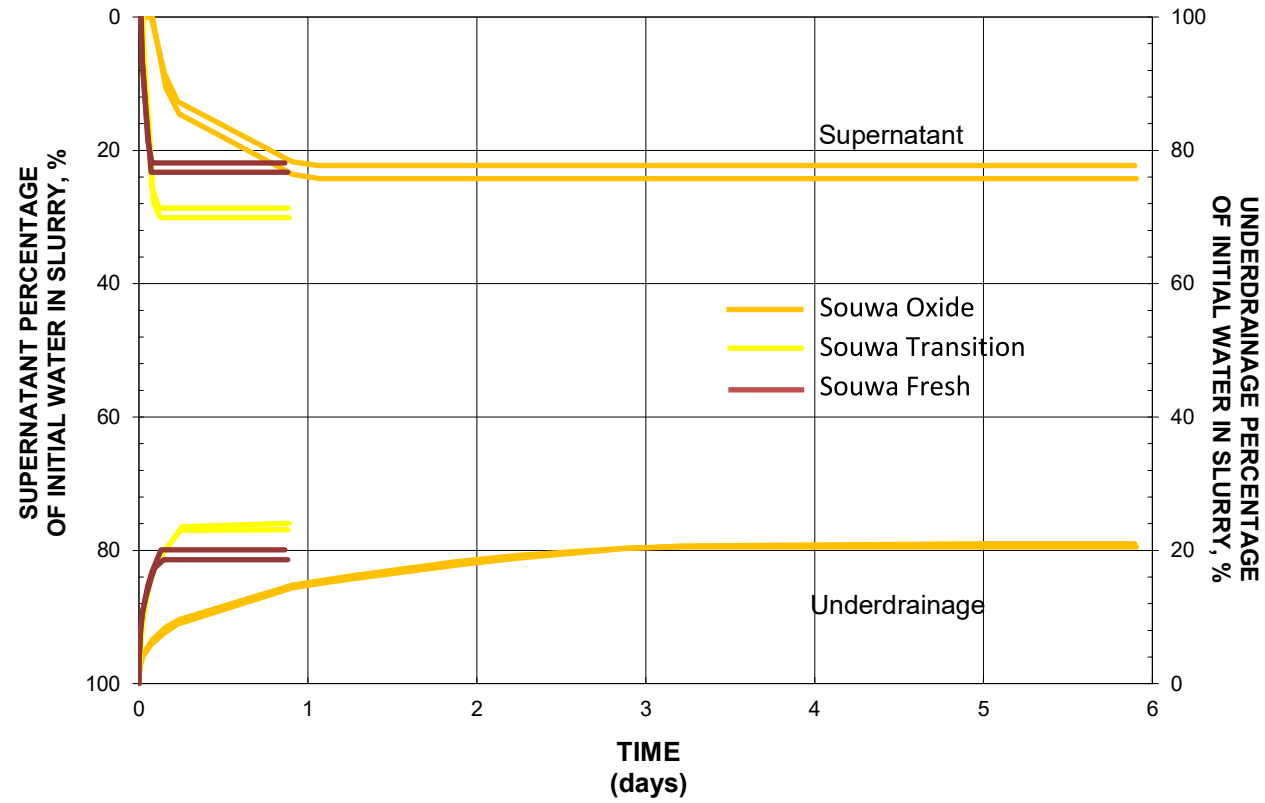
DEAN SAWYER
Principal Engineer

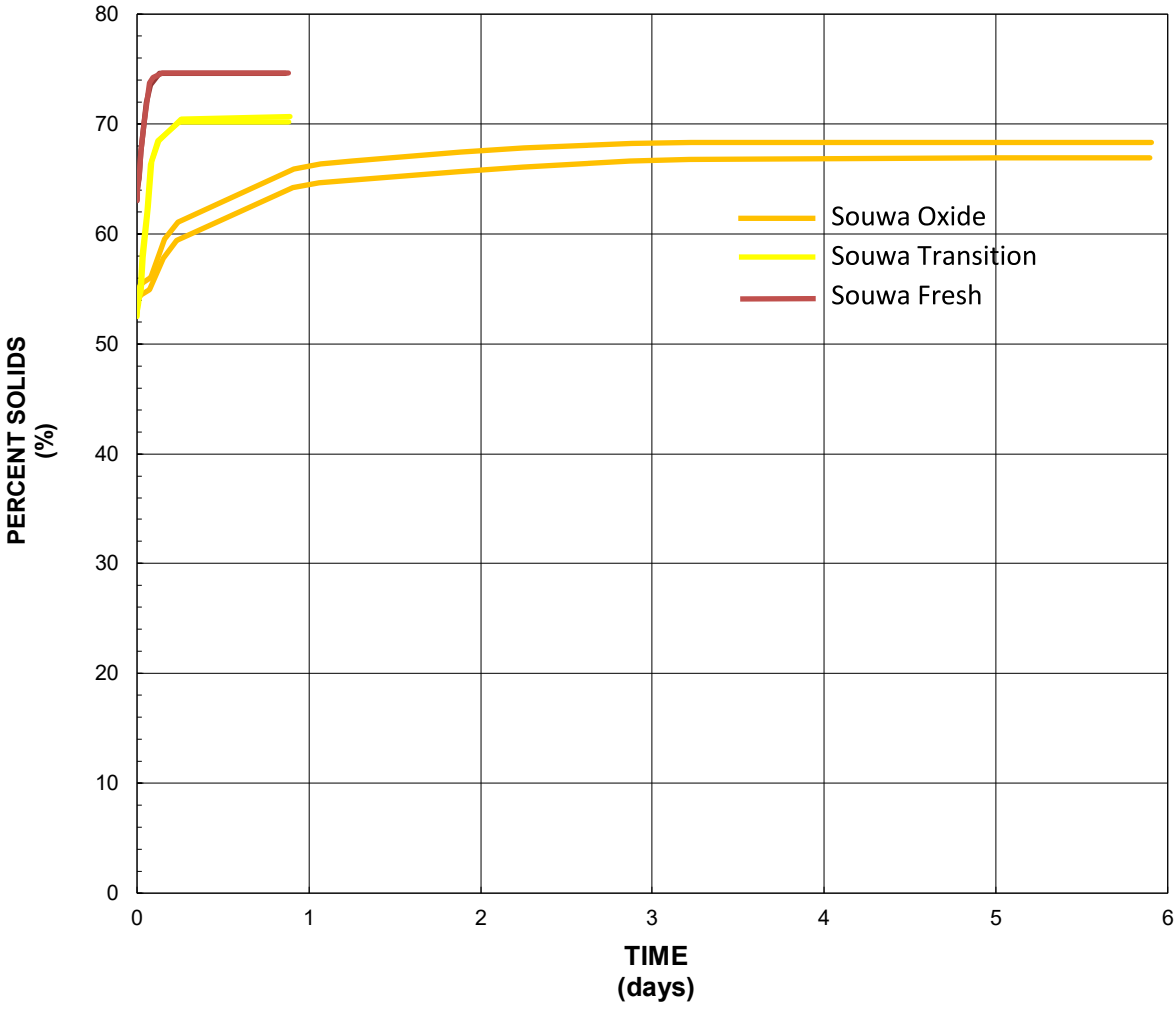
DAVID MORGAN
Managing Director

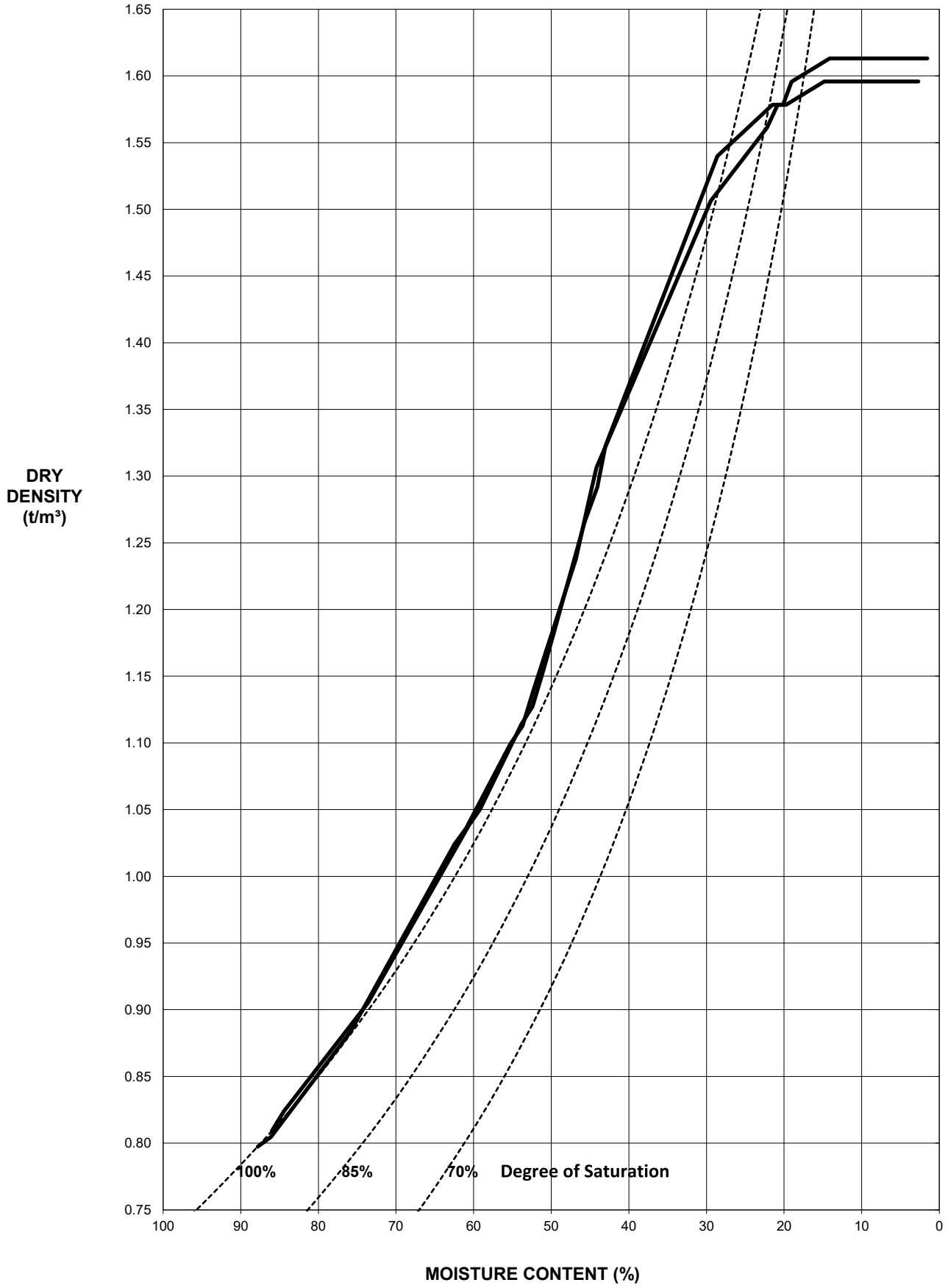
FIGURES

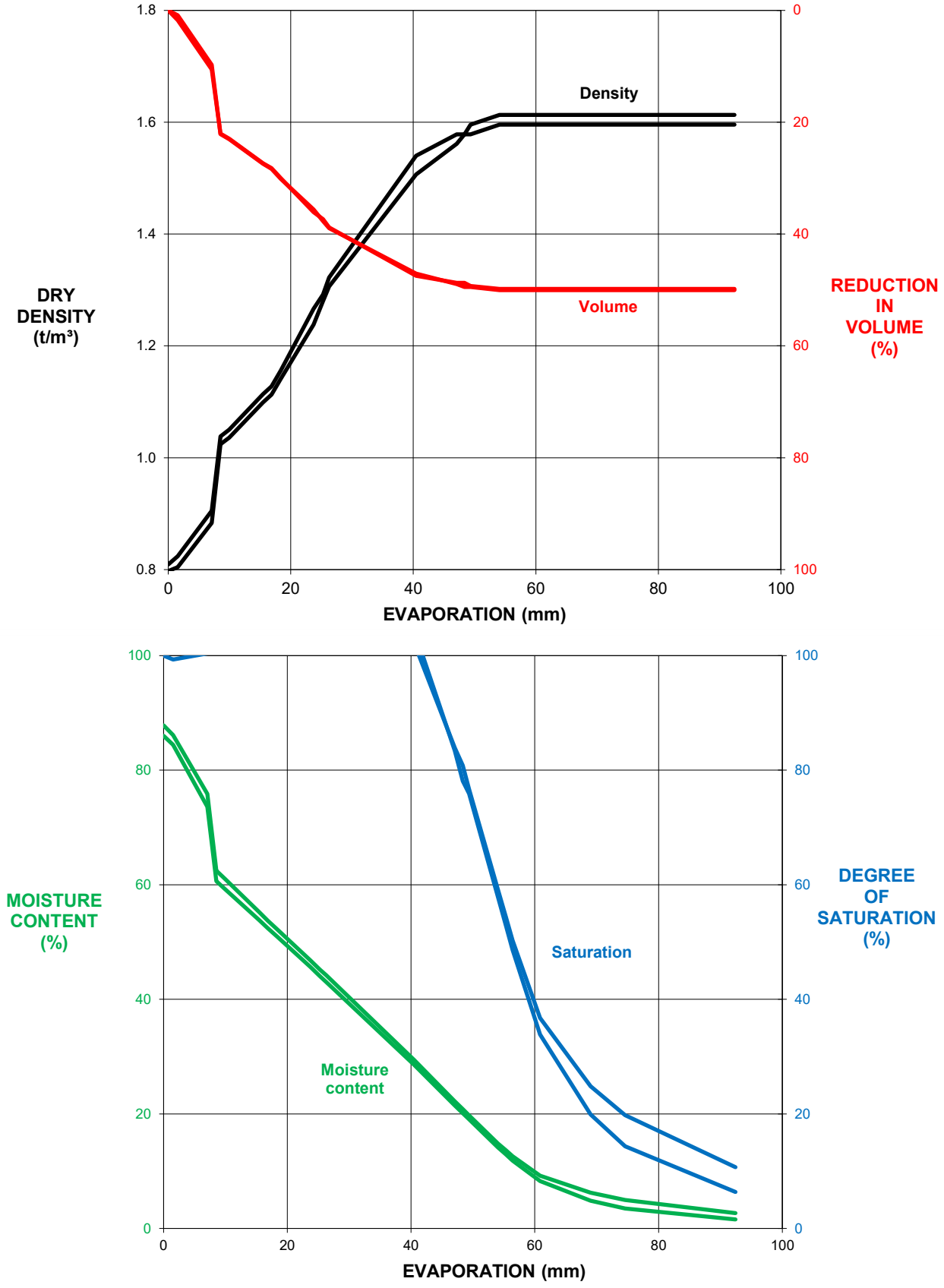

Supernatant
SUPERNATANT PERCENTAGE OF INITIAL WATER IN SLURRY (%)
0
20
40
60
80
100
0
1
2
3
4
TIME
(days)
Souwa Oxide
Souwa Transition
Souwa Fresh
Nokpa Transition
Nokpa Fresh
Kalisengo Transition
Kalisengo Fresh

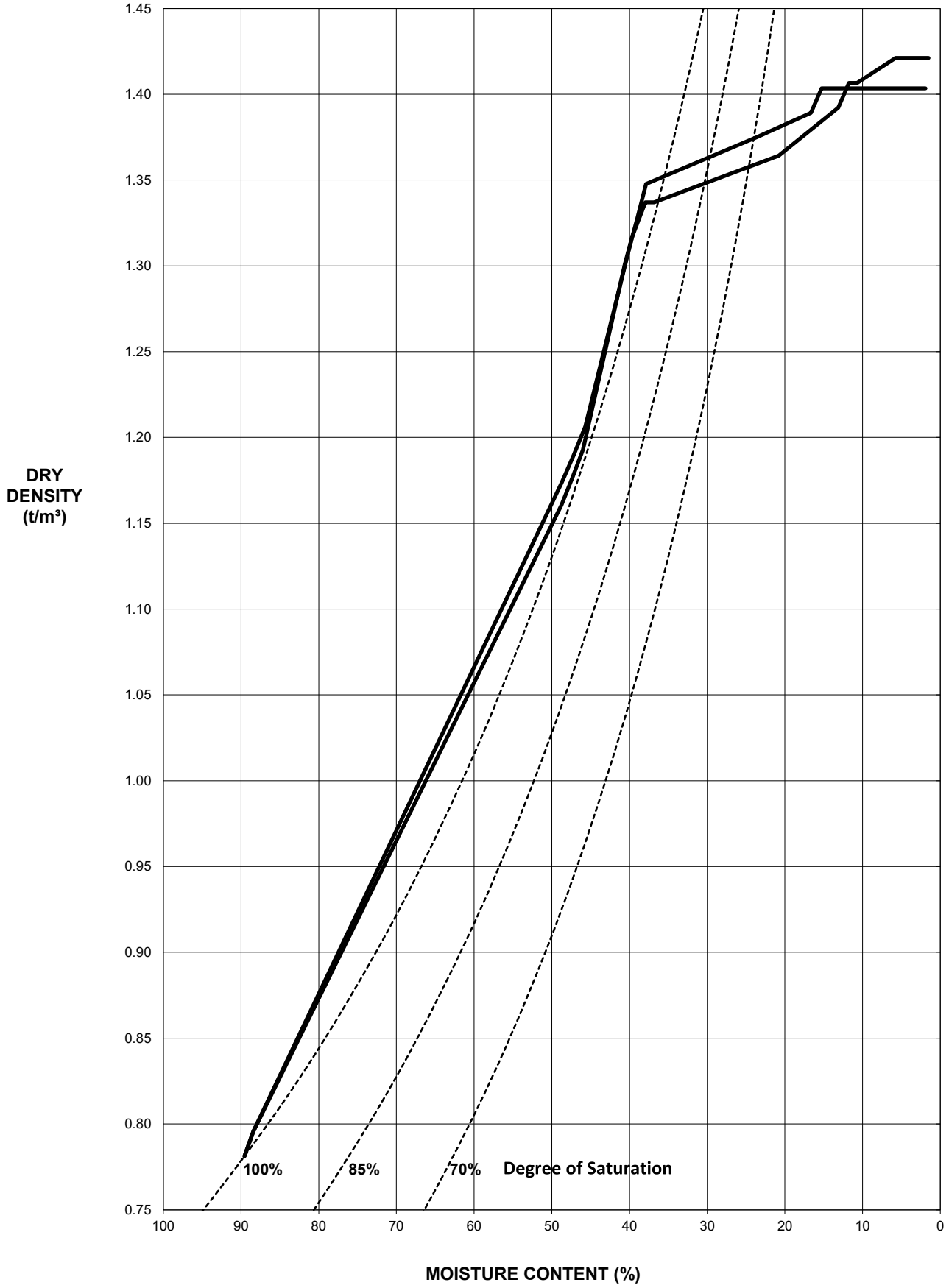

PERCENT SOLIDS (%)
0
10
20
30
40
50
60
70
80
0
1
2
3
4
TIME
(days)
Souwa Oxide
Souwa Transition
Souwa Fresh
Nokpa Transition
Nokpa Fresh
Kalisengo Transition
Kalisengo Fresh

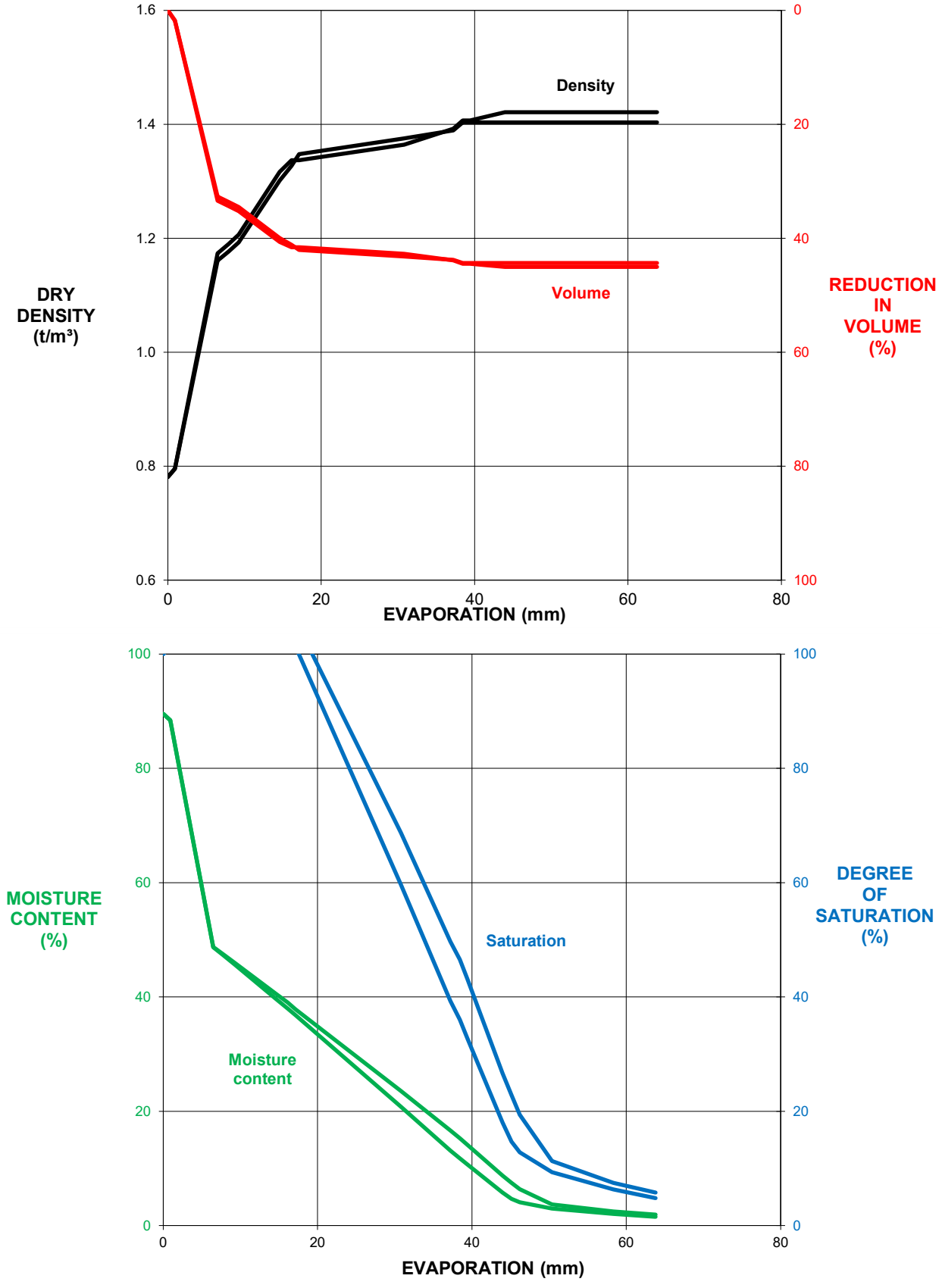

SUPERNATANT PERCENTAGE OF INITIAL WATER IN SLURRY, %
UNDERDRAINAGE PERCENTAGE OF INITIAL WATER IN SLURRY, %
Supernatant
Underdrainage
Souwa Oxide
Souwa Transition
Souwa Fresh
TIME (days)

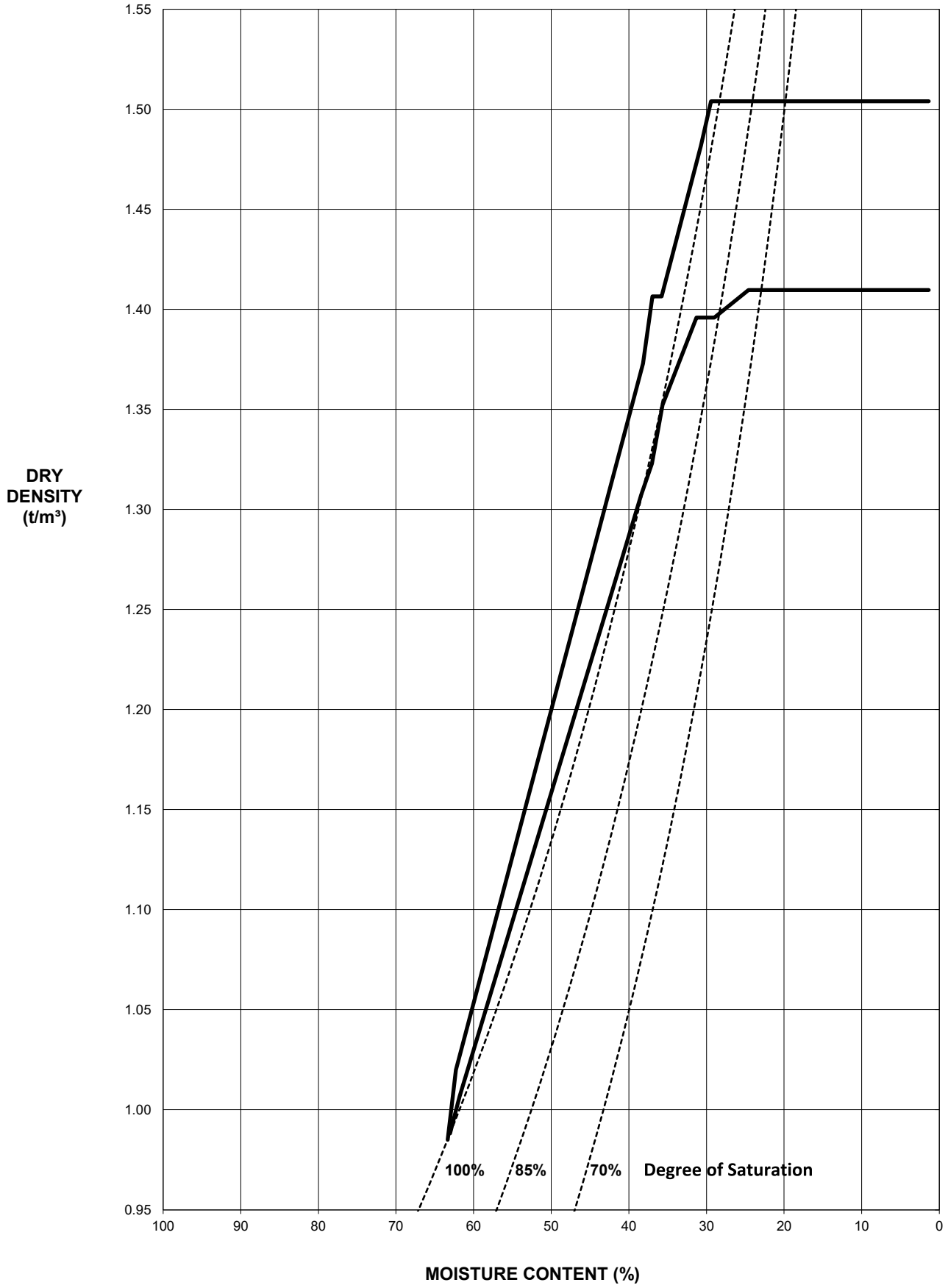

PERCENT SOLIDS (%)
Souwa Oxide
Souwa Transition
Souwa Fresh
TIME (days)

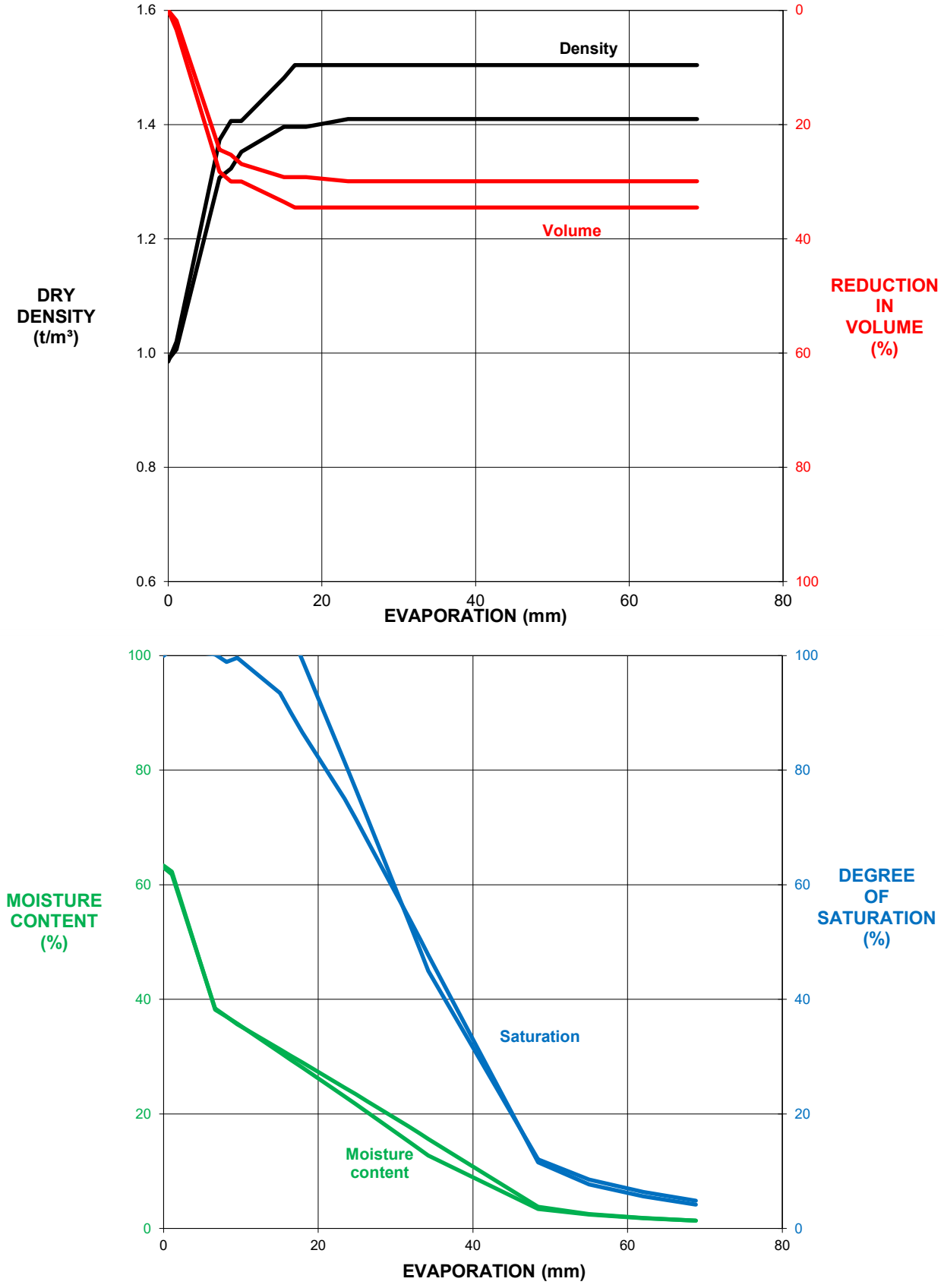

DRY DENSITY (t/m³)
1.65
1.60
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
100%
85%
70%
Degree of Saturation
100
90
80
70
60
50
40
30
20
10
0
MOISTURE CONTENT (%)

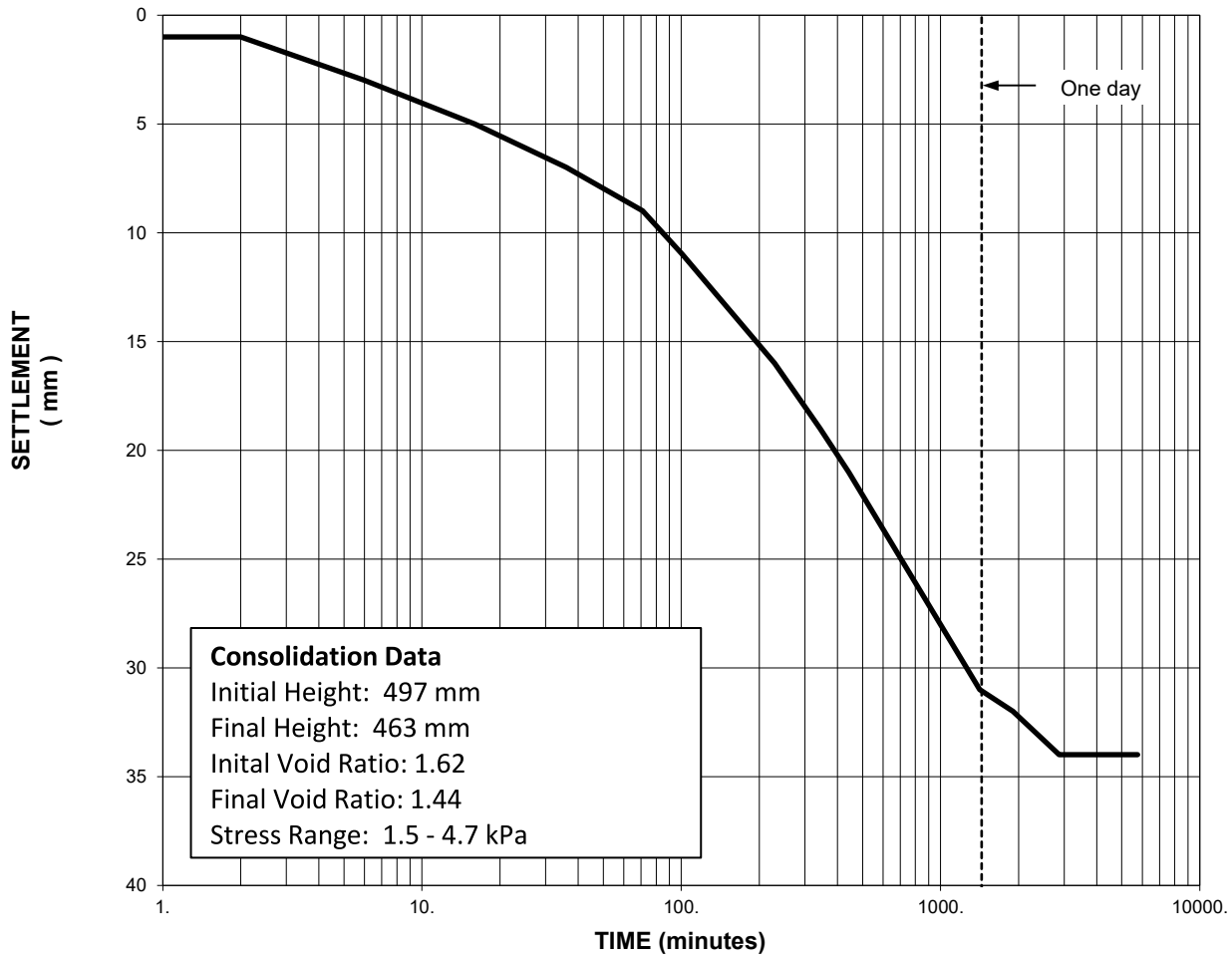

DRY DENSITY (t/m³)
REDUCTION IN VOLUME (%)
Density
Volume
1.8
1.6
1.4
1.2
1.0
0.8
0
20
40
60
80
100
EVAPORATION (mm)
MOISTURE CONTENT (%)
DEGREE OF SATURATION (%)
Saturation
Moisture content
EVAPORATION (mm)

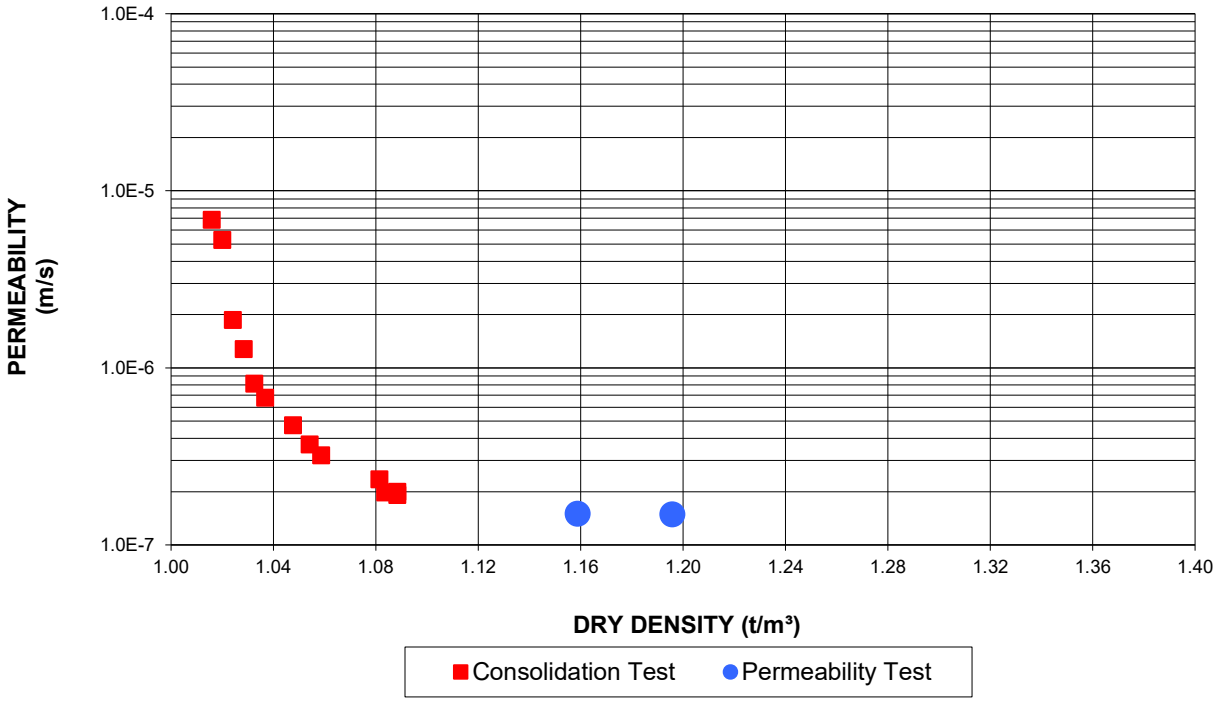

DRY DENSITY (t/m³)
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
0.80
0.75
100
90
80
70
60
50
40
30
20
10
0
100%
85%
70%
Degree of Saturation
MOISTURE CONTENT (%)

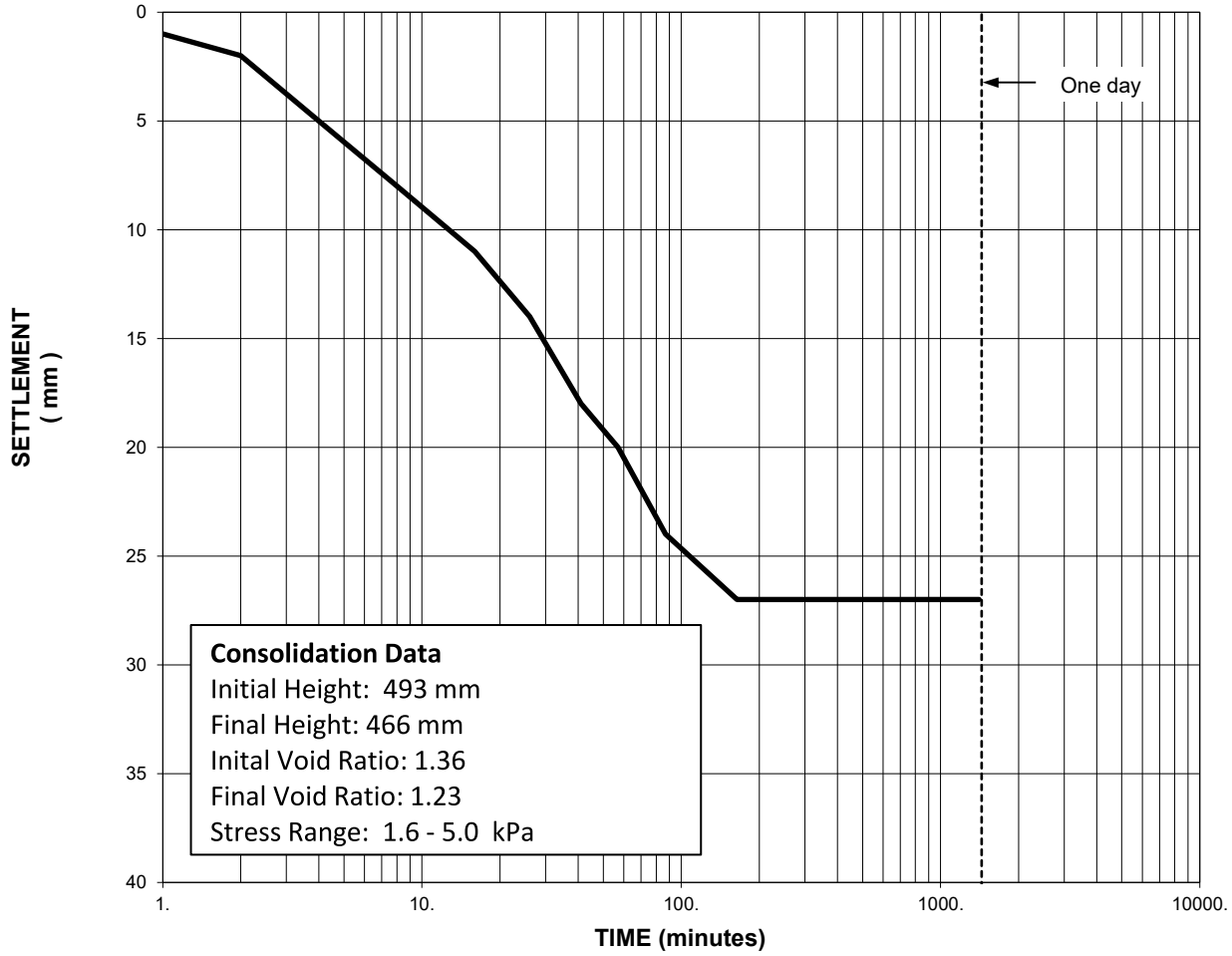

DRY DENSITY (t/m³)
REDUCTION IN VOLUME (%)
Density
Volume
1.6
1.4
1.2
1.0
0.8
0.6
0
20
40
60
80
100
EVAPORATION (mm)
MOISTURE CONTENT (%)
DEGREE OF SATURATION (%)
Saturation
Moisture content
EVAPORATION (mm)

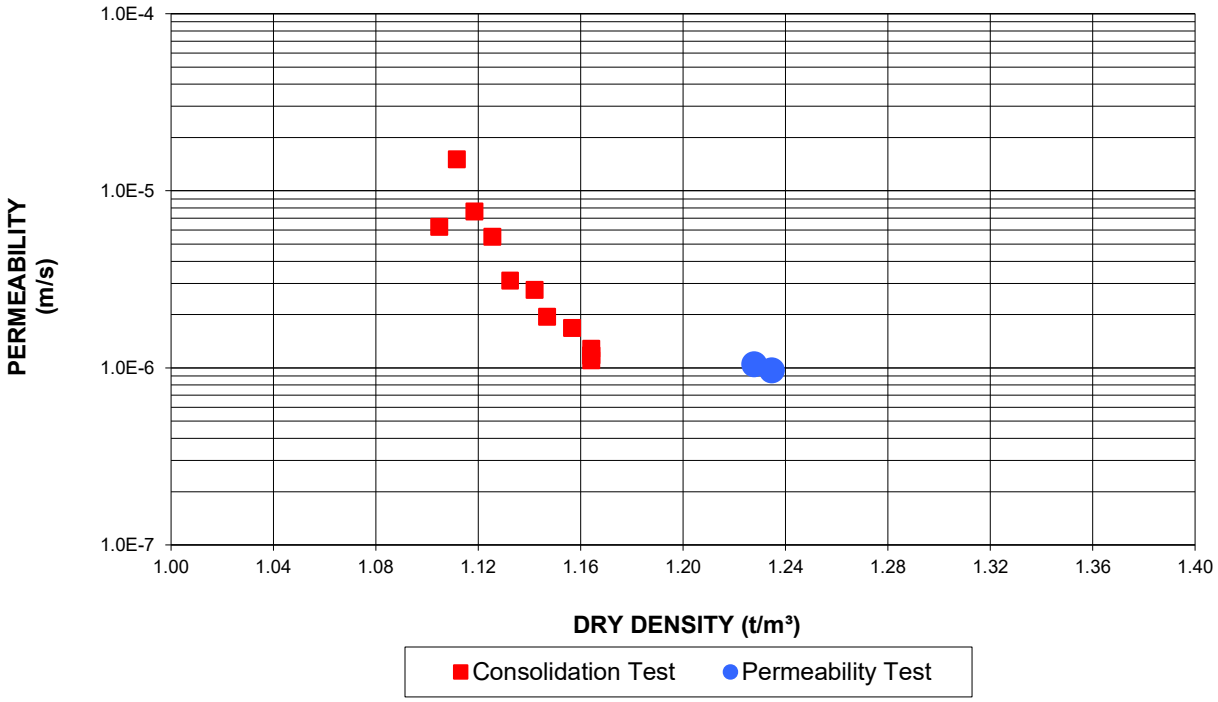

DRY DENSITY (t/m³)
1.55
1.50
1.45
1.40
1.35
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
100
90
80
70
60
50
40
30
20
10
0
100%
85%
70%
Degree of Saturation
MOISTURE CONTENT (%)

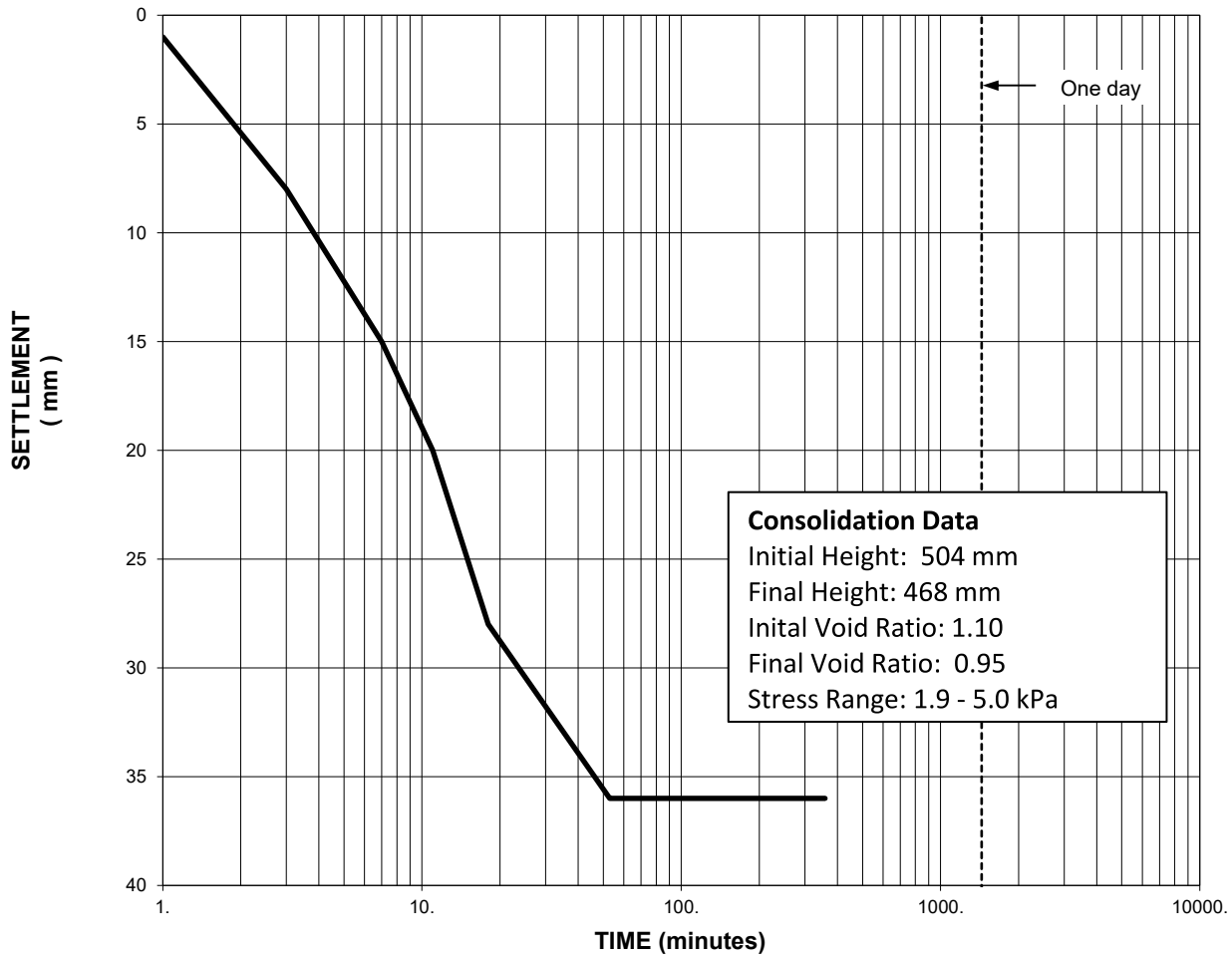

DRY DENSITY (t/m³)
REDUCTION IN VOLUME (%)
Density
Volume
1.6
1.4
1.2
1.0
0.8
0.6
0
20
40
60
80
100
EVAPORATION (mm)
MOISTURE CONTENT (%)
DEGREE OF SATURATION (%)
Saturation
Moisture content
EVAPORATION (mm)

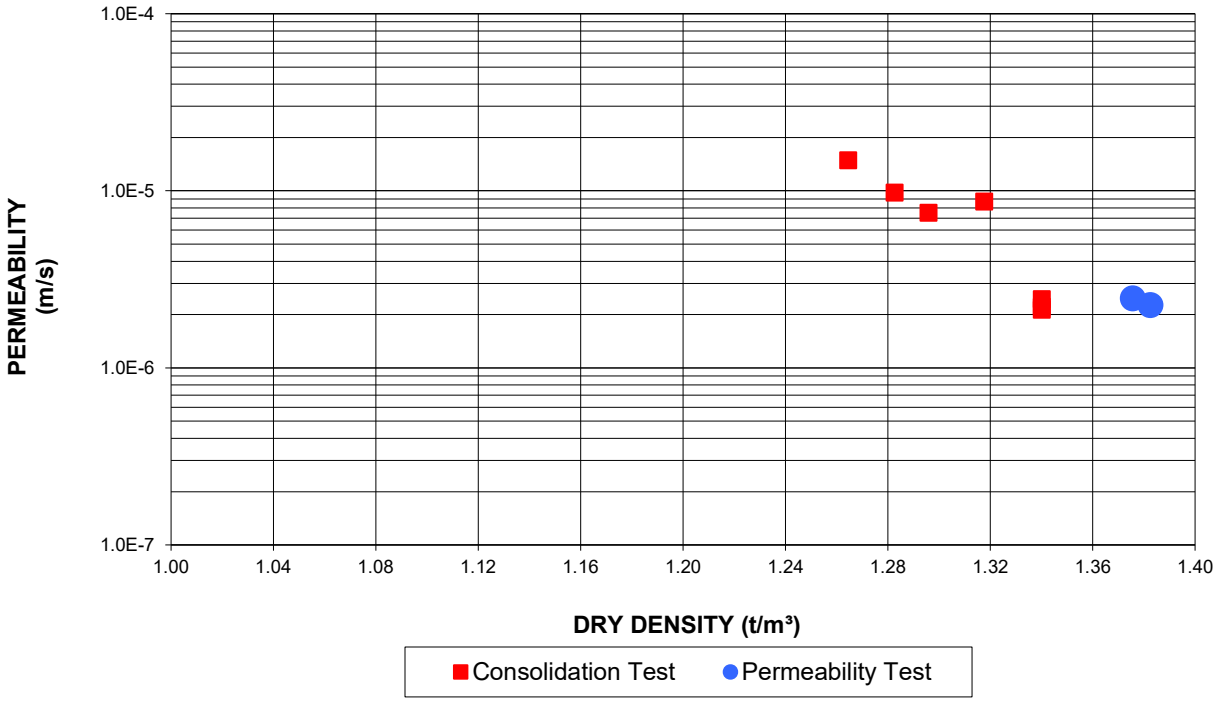

SETTLEMENT (mm)
0
5
10
15
20
25
30
35
40
One day
Consolidation Data
Initial Height: 497 mm
Final Height: 463 mm
Inital Void Ratio: 1.62
Final Void Ratio: 1.44
Stress Range: 1.5 - 4.7 kPa
1.
10.
100.
1000.
10000.
TIME (minutes)


PERMEABILITY (m/s)
1.0E-4
1.0E-5
1.0E-6
1.0E-7
1.00
1.04
1.08
1.12
1.16
1.20
1.24
1.28
1.32
1.36
1.40
DRY DENSITY (t/m³)
Consolidation Test
Permeability Test


SETTLEMENT (mm)
0
5
10
15
20
25
30
35
40
One day
Consolidation Data
Initial Height: 493 mm
Final Height: 466 mm
Inital Void Ratio: 1.36
Final Void Ratio: 1.23
Stress Range: 1.6 - 5.0 kPa
1.
10.
100.
1000.
10000.
TIME (minutes)


PERMEABILITY (m/s)
1.0E-4
1.0E-5
1.0E-6
1.0E-7
1.00
1.04
1.08
1.12
1.16
1.20
1.24
1.28
1.32
1.36
1.40
DRY DENSITY (t/m³)
Consolidation Test
Permeability Test


SETTLEMENT (mm)
0
5
10
15
20
25
30
35
40
One day
Consolidation Data
Initial Height: 504 mm
Final Height: 468 mm
Inital Void Ratio: 1.10
Final Void Ratio: 0.95
Stress Range: 1.9 - 5.0 kPa
1.
10.
100.
1000.
10000.
TIME (minutes)


PERMEABILITY (m/s)
1.0E-4
1.0E-5
1.0E-6
1.0E-7
1.00
1.04
1.08
1.12
1.16
1.20
1.24
1.28
1.32
1.36
1.40
DRY DENSITY (t/m³)
Consolidation Test
Permeability Test

APPENDIX A
Laboratory Results

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.5.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17874_1_PD
Project:	Doropo Gold Project	*Sample No.*	WG23.17874
Location:	Cote d'Ivoire	*Date Sampled:*	31-10-2023
Sample Identification:	SOUWA OXIDE TAILINGS SLURRY 54% SOLIDS	*Date Tested:*	9-11-2023

TEST RESULTS - SOIL PARTICLE DENSITY

Sampling Method: **Sampled by Client, Tested as Received**

Particle Density - Fraction Passing 2.36mm	
Temperature at test (°C)	21.0
Passing 2.36mm Soil apparent particle density (g/cm^3)	2.66

Particle Density - Fraction Retained 2.36mm	
Retained 2.36mm Soil apparent particle density (g/cm^3)	N/A

Particle Density - Total Soil Sample	
Total Sample Soil particle density (g/cm^3)	N/A

Comments:

Approved Signatory:

Name: Brooke Elliott

Date: 13-11-23

NATA

Accreditation No. 20599
Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.5.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17869_1_PD
Project:	Doropo Gold Project	*Sample No.*	WG23.17869
Location:	Cote d'Ivoire	*Date Sampled:*	31-10-2023
Sample Identification:	SOUWA TRANSITION TAILINGS SLURRY 54% WW	*Date Tested:*	9-11-2023

TEST RESULTS - SOIL PARTICLE DENSITY

Sampling Method: **Sampled by Client, Tested as Received**

Particle Density - Fraction Passing 2.36mm	
Temperature at test (°C)	**21.0**
Passing 2.36mm Soil apparent particle density (g/cm^3)	**2.60**

Particle Density - Fraction Retained 2.36mm	
Retained 2.36mm Soil apparent particle density (g/cm^3)	**N/A**

Particle Density - Total Soil Sample	
Total Sample Soil particle density (g/cm^3)	**N/A**

Comments:

Approved Signatory:

Name: Brooke Elliott

Date: 13-11-23

NATA

Accreditation No. 20599
Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.5.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17870_1_PD
Project:	Doropo Gold Project	*Sample No.*	WG23.17870
Location:	Cote d'Ivoire	*Date Sampled:*	2-11-2023
Sample Identification:	SOUWA FRESH TAILINGS SLURRY 63% WW	*Date Tested:*	9-11-2023

TEST RESULTS - SOIL PARTICLE DENSITY

Sampling Method: **Sampled by Client, Tested as Received**

Particle Density - Fraction Passing 2.36mm	
Temperature at test (°C)	21.0
Passing 2.36mm Soil apparent particle density (g/cm^3)	2.62

Particle Density - Fraction Retained 2.36mm	
Retained 2.36mm Soil apparent particle density (g/cm^3)	N/A

Particle Density - Total Soil Sample	
Total Sample Soil particle density (g/cm^3)	N/A

Comments:

Approved Signatory:

Name: Brooke Elliott

Date: 13-11-23

NATA

Accreditation No. 20599
Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.5.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17871_1_PD
Project:	Doropo Gold Project	*Sample No.*	WG23.17871
Location:	Cote d'Ivoire	*Date Sampled:*	3-11-2023
Sample Identification:	NOKPA TRANSITION TAILINGS SLURRY 54% WW	*Date Tested:*	9-11-2023

TEST RESULTS - SOIL PARTICLE DENSITY

Sampling Method: **Sampled by Client, Tested as Received**

Particle Density - Fraction Passing 2.36mm	
Temperature at test (°C)	**21.0**
Passing 2.36mm Soil apparent particle density (g/cm^3)	**2.67**

Particle Density - Fraction Retained 2.36mm	
Retained 2.36mm Soil apparent particle density (g/cm^3)	**N/A**

Particle Density - Total Soil Sample	
Total Sample Soil particle density (g/cm^3)	**N/A**

Comments:

Approved Signatory:

Name: Brooke Elliott

Date: 13-11-23

NATA

Accreditation No. 20599
Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.5.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17868_1_PD
Project:	Doropo Gold Project	*Sample No.*	WG23.17868
Location:	Cote d'Ivoire	*Date Sampled:*	1-11-2023
Sample Identification:	NOKPA FRESH TAILINGS SLURRY 63% WW	*Date Tested:*	10-11-2023

TEST RESULTS - SOIL PARTICLE DENSITY

Sampling Method: **Sampled by Client, Tested as Received**

Particle Density - Fraction Passing 2.36mm	
Temperature at test (°C)	**21.0**
Passing 2.36mm Soil apparent particle density (g/cm^3)	**2.64**

Particle Density - Fraction Retained 2.36mm	
Retained 2.36mm Soil apparent particle density (g/cm^3)	**N/A**

Particle Density - Total Soil Sample	
Total Sample Soil particle density (g/cm^3)	**N/A**

Comments:

Approved Signatory:

Name: Brooke Elliott

Date: 13-11-23

NATA

Accreditation No. 20599
Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.5.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17873_1_PD
Project:	Doropo Gold Project	*Sample No.*	WG23.17873
Location:	Cote d'Ivoire	*Date Sampled:*	30-10-2023
Sample Identification:	KILOSEGUI TRANSITION TAILINGS SLURRY	*Date Tested:*	9-11-2023

TEST RESULTS - SOIL PARTICLE DENSITY

Sampling Method: **Sampled by Client, Tested as Received**

Particle Density - Fraction Passing 2.36mm	
Temperature at test (°C)	21.0
Passing 2.36mm Soil apparent particle density (g/cm^3)	2.70

Particle Density - Fraction Retained 2.36mm	
Retained 2.36mm Soil apparent particle density (g/cm^3)	N/A

Particle Density - Total Soil Sample	
Total Sample Soil particle density (g/cm^3)	N/A

Comments:

Approved Signatory:

Name: Brooke Elliott

Date: 13-11-23

NATA

Accreditation No. 20599
Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.5.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17872_1_PD
Project:	Doropo Gold Project	*Sample No.*	WG23.17872
Location:	Cote d'Ivoire	*Date Sampled:*	3-11-2023
Sample Identification:	KILOSEGUI FRESH TAILINGS SLURRY 63% WW	*Date Tested:*	9-11-2023

TEST RESULTS - SOIL PARTICLE DENSITY

Sampling Method: **Sampled by Client, Tested as Received**

Particle Density - Fraction Passing 2.36mm	
Temperature at test (°C)	**21.0**
Passing 2.36mm Soil apparent particle density (g/cm^3)	**2.61**

Particle Density - Fraction Retained 2.36mm	
Retained 2.36mm Soil apparent particle density (g/cm^3)	**N/A**

Particle Density - Total Soil Sample	
Total Sample Soil particle density (g/cm^3)	**N/A**

Comments:

Approved Signatory:

Name: Brooke Elliott

Date: 13-11-23

NATA

Accreditation No. 20599
Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.1.2, 3.2.1, 3.3.1 & 3.4.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17874_1_PI
Project:	Doropo Gold Project	*Sample No.*	WG23.17874
Location:	Cote d'Ivoire	*Date Sampled:*	31/10/2023
Sample Identification:	SOUWA OXIDE TAILINGS SLURRY 54% SOLIDS	*Date Tested:*	10/11/2023

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method:	**Sampled by Client, Tested as Received**
History of Sample:	**Oven Dried <50°C**
Method of Preparation:	**Dry Sieved**

AS 1289.3.1.2	**Liquid Limit (%)**	**Not Obtainable**
AS 1289.3.2.1	**Plastic Limit (%)**	**Non-Plastic**
AS 1289.3.3.1	**Plasticity Index (%)**	**Non-Plastic**
AS 1289.3.4.1	**Linear Shrinkage (%)**	**1.0**
AS 1289.3.4.1	**Length of Mould (mm)**	**250**
AS 1289.3.4.1	**Condition of Dry Specimen**	**-**

Comments:

Approved Signatory:

Name: Linda Chiu

Date: 13/November/2023

NATA

Accreditation No. 20599

Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.1.2, 3.2.1, 3.3.1 & 3.4.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17869_1_PI
Project:	Doropo Gold Project	*Sample No.*	WG23.17869
Location:	Cote d'Ivoire	*Date Sampled:*	31/10/2023
Sample Identification:	SOUWA TRANSITION TAILINGS SLURRY 54% WW	*Date Tested:*	10/11/2023

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method:	**Sampled by Client, Tested as Received**
History of Sample:	**Oven Dried <50°C**
Method of Preparation:	**Dry Sieved**

AS 1289.3.1.2	**Liquid Limit (%)**	**Not Obtainable**
AS 1289.3.2.1	**Plastic Limit (%)**	**Non-Plastic**
AS 1289.3.3.1	**Plasticity Index (%)**	**Non-Plastic**
AS 1289.3.4.1	**Linear Shrinkage (%)**	**0.0**
AS 1289.3.4.1	**Length of Mould (mm)**	**250**
AS 1289.3.4.1	**Condition of Dry Specimen**	**0.0**

Comments:

Approved Signatory:

Name: Linda Chiu

Date: 13/November/2023

NATA

Accreditation No. 20599

Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.1.2, 3.2.1, 3.3.1 & 3.4.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17870_1_PI
Project:	Doropo Gold Project	*Sample No.*	WG23.17870
Location:	Cote d'Ivoire	*Date Sampled:*	2/11/2023
Sample Identification:	SOUWA FRESH TAILINGS SLURRY 63% WW	*Date Tested:*	10/11/2023

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method:	**Sampled by Client, Tested as Received**
History of Sample:	**Oven Dried <50°C**
Method of Preparation:	**Dry Sieved**

AS 1289.3.1.2	**Liquid Limit (%)**	**Not Obtainable**
AS 1289.3.2.1	**Plastic Limit (%)**	**Non-Plastic**
AS 1289.3.3.1	**Plasticity Index (%)**	**Non-Plastic**
AS 1289.3.4.1	**Linear Shrinkage (%)**	**0.0**
AS 1289.3.4.1	**Length of Mould (mm)**	**250**
AS 1289.3.4.1	**Condition of Dry Specimen**	**-**

Comments:

Approved Signatory:

Name: Linda Chiu

Date: 13/November/2023

NATA

Accreditation No. 20599

Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.1.2, 3.2.1, 3.3.1 & 3.4.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17871_1_PI
Project:	Doropo Gold Project	*Sample No.*	WG23.17871
Location:	Cote d'Ivoire	*Date Sampled:*	3/11/2023
Sample Identification:	NOKPA TRANSITION TAILINGS SLURRY 54% WW	*Date Tested:*	10/11/2023

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method:	**Sampled by Client, Tested as Received**
History of Sample:	**Oven Dried <50°C**
Method of Preparation:	**Dry Sieved**

AS 1289.3.1.2	**Liquid Limit (%)**	**Not Obtainable**
AS 1289.3.2.1	**Plastic Limit (%)**	**Non-Plastic**
AS 1289.3.3.1	**Plasticity Index (%)**	**Non-Plastic**
AS 1289.3.4.1	**Linear Shrinkage (%)**	**0.0**
AS 1289.3.4.1	**Length of Mould (mm)**	**250**
AS 1289.3.4.1	**Condition of Dry Specimen**	**-**

Comments:

Approved Signatory:

Name: Linda Chiu

Date: 13/November/2023

NATA

Accreditation No. 20599

Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.1.2, 3.2.1, 3.3.1 & 3.4.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17868_1_PI
Project:	Doropo Gold Project	*Sample No.*	WG23.17868
Location:	Cote d'Ivoire	*Date Sampled:*	1/11/2023
Sample Identification:	NOKPA FRESH TAILINGS SLURRY 63% WW	*Date Tested:*	1/11/2023

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method:	**Sampled by Client, Tested as Received**
History of Sample:	**Oven Dried <50°C**
Method of Preparation:	**Dry Sieved**

AS 1289.3.1.2	**Liquid Limit (%)**	**Not Obtainable**
AS 1289.3.2.1	**Plastic Limit (%)**	**Non-Plastic**
AS 1289.3.3.1	**Plasticity Index (%)**	**Non-Plastic**
AS 1289.3.4.1	**Linear Shrinkage (%)**	**0.0**
AS 1289.3.4.1	**Length of Mould (mm)**	**250**
AS 1289.3.4.1	**Condition of Dry Specimen**	**-**

Comments:

Approved Signatory:

Name: Linda Chiu

Date: 13/November/2023

NATA

Accreditation No. 20599

Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.1.2, 3.2.1, 3.3.1 & 3.4.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17873_1_PI
Project:	Doropo Gold Project	*Sample No.*	WG23.17873
Location:	Cote d'Ivoire	*Date Sampled:*	30/10/2023
Sample Identification:	KILOSEGUI TRANSITION TAILINGS SLURRY	*Date Tested:*	10/11/2023

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method:	**Sampled by Client, Tested as Received**
History of Sample:	**Oven Dried <50°C**
Method of Preparation:	**Dry Sieved**

AS 1289.3.1.2	**Liquid Limit (%)**	**Not Obtainable**
AS 1289.3.2.1	**Plastic Limit (%)**	**Non-Plastic**
AS 1289.3.3.1	**Plasticity Index (%)**	**Non-Plastic**
AS 1289.3.4.1	**Linear Shrinkage (%)**	**0.0**
AS 1289.3.4.1	**Length of Mould (mm)**	**250**
AS 1289.3.4.1	**Condition of Dry Specimen**	**-**

Comments:

Approved Signatory:

Name: Linda Chiu

Date: 13/November/2023

NATA

Accreditation No. 20599

Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT - AS 1289.3.1.2, 3.2.1, 3.3.1 & 3.4.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17872_1_PI
Project:	Doropo Gold Project	*Sample No.*	WG23.17872
Location:	Cote d'Ivoire	*Date Sampled:*	3/11/2023
Sample Identification:	KILOSEGUI FRESH TAILINGS SLURRY 63% WW	*Date Tested:*	10/11/2023

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method:	**Sampled by Client, Tested as Received**
History of Sample:	**Oven Dried <50°C**
Method of Preparation:	**Dry Sieved**

AS 1289.3.1.2	**Liquid Limit (%)**	**Not Obtainable**
AS 1289.3.2.1	**Plastic Limit (%)**	**Non-Plastic**
AS 1289.3.3.1	**Plasticity Index (%)**	**Non-Plastic**
AS 1289.3.4.1	**Linear Shrinkage (%)**	**0.0**
AS 1289.3.4.1	**Length of Mould (mm)**	**250**
AS 1289.3.4.1	**Condition of Dry Specimen**	**-**

Comments:

Approved Signatory:

Name: Linda Chiu

Date: 13/November/2023

NATA

Accreditation No. 20599

Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

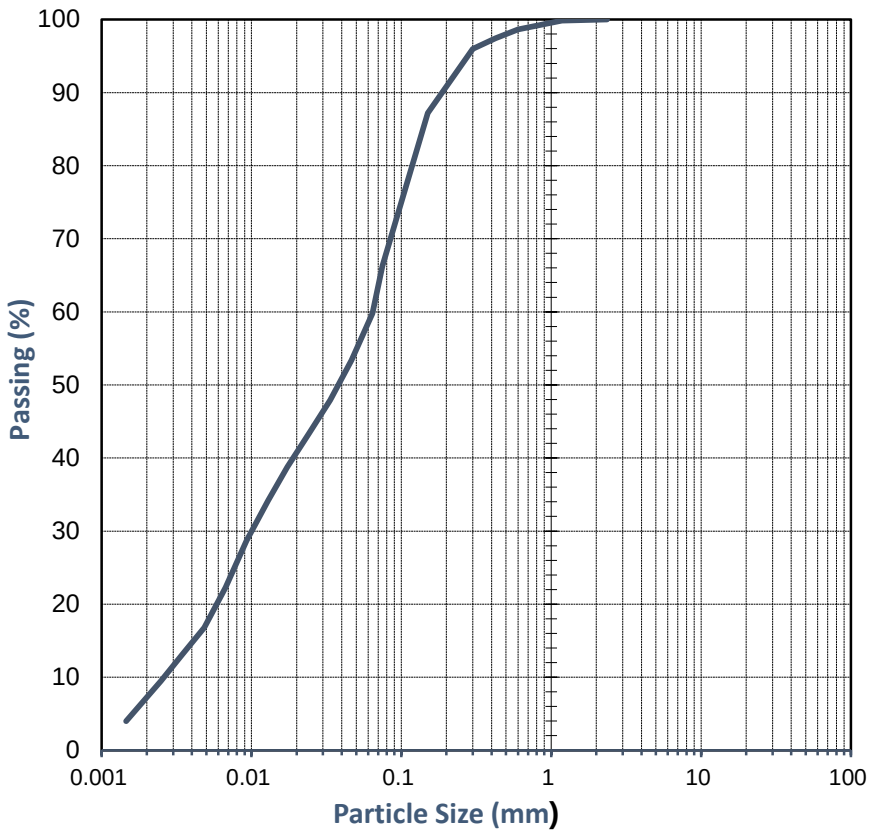
TEST REPORT - AS 1289.3.6.1, 3.6.3, 3.5.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17874_1_PSDHY
Project:	Doropo Gold Project	*Sample No.*	WG23.17874
Location:	Cote d'Ivoire	*Date Sampled:*	31/10/2023
Sample Identification:	SOUWA OXIDE TAILINGS SLURRY 54% SOLIDS	*Date Tested:*	8/11 - 10/11/23

TEST RESULTS - Particle Size Distribution of Soil & Hydrometer Analysis

Sampling method:	**Sampled by Client, Tested as Received**
Sample description:	**Tailings**
Sample preparation:	**Oven Dried <50°C**
Loss in pre-treatment (%):	**N/A**
Type of hydrometer:	**g/L**
Method of dispersion:	**Mechanical Device**

Sieve Size (mm)	Passing (%)
75	
37.5	
19	
9.5	
4.75	
2.36	100
1.18	100
0.6	99
0.425	97
0.3	96
0.15	87
0.075	66
0.064	60
0.047	53
0.034	48
0.024	43
0.017	39
0.013	34
0.009	29
0.007	22
0.005	17
0.003	13
0.002	9
0.001	4



AS 1289.3.5.1 -2.36mm Particle Density (g/cm^3)
2.66

Comments:

Approved Signatory:

Name: Cody O'Neill
Date: 13/November/2023

Accreditation No. 20599
Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

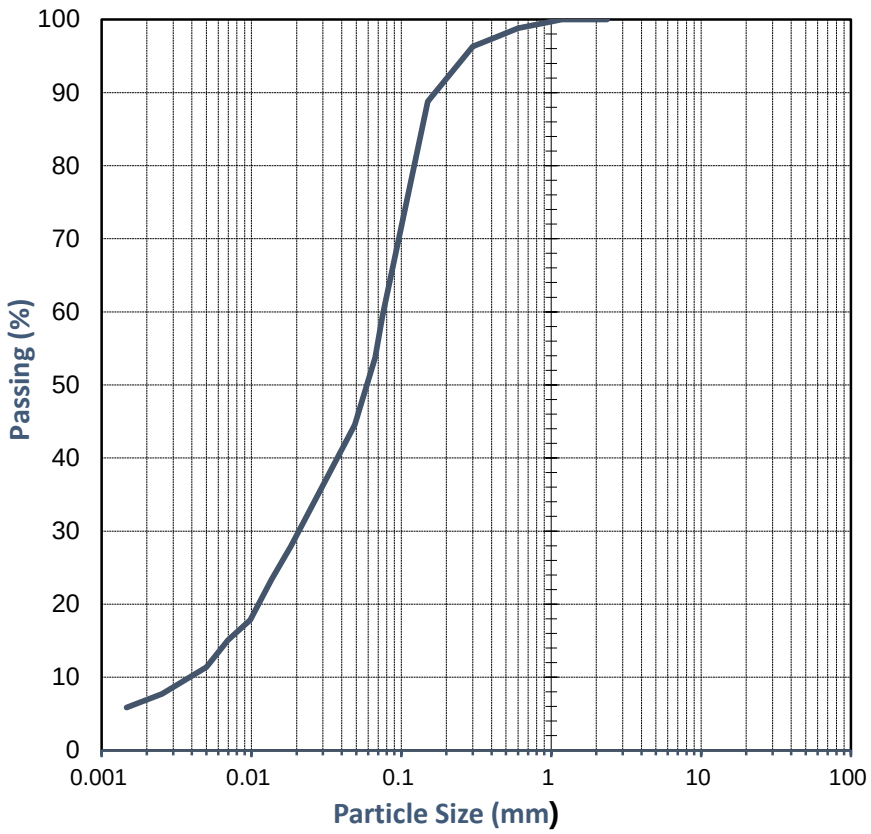
TEST REPORT - AS 1289.3.6.1, 3.6.3, 3.5.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17869_1_PSDHY
Project:	Doropo Gold Project	*Sample No.*	WG23.17869
Location:	Cote d'Ivoire	*Date Sampled:*	31/10/2023
Sample Identification:	SOUWA TRANSITION TAILINGS SLURRY 54% WW	*Date Tested:*	8/11 - 10/11/23

TEST RESULTS - Particle Size Distribution of Soil & Hydrometer Analysis

Sampling method:	**Sampled by Client, Tested as Received**
Sample description:	**Tailings**
Sample preparation:	**Oven Dried <50°C**
Loss in pre-treatment (%):	**N/A**
Type of hydrometer:	**g/L**
Method of dispersion:	**Mechanical Device**

Sieve Size (mm)	Passing (%)
75	
37.5	
19	
9.5	
4.75	
2.36	100
1.18	100
0.6	99
0.425	98
0.3	96
0.15	89
0.075	59
0.067	54
0.049	45
0.035	39
0.025	33
0.018	28
0.014	23
0.010	18
0.007	15
0.005	11
0.004	10
0.003	8
0.001	6



AS 1289.3.5.1 -2.36mm Particle Density (g/cm^3)
2.60

Comments:

Approved Signatory:

Name: Cody O'Neill
Date: 13/November/2023

NATA **Accreditation No. 20599**
Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

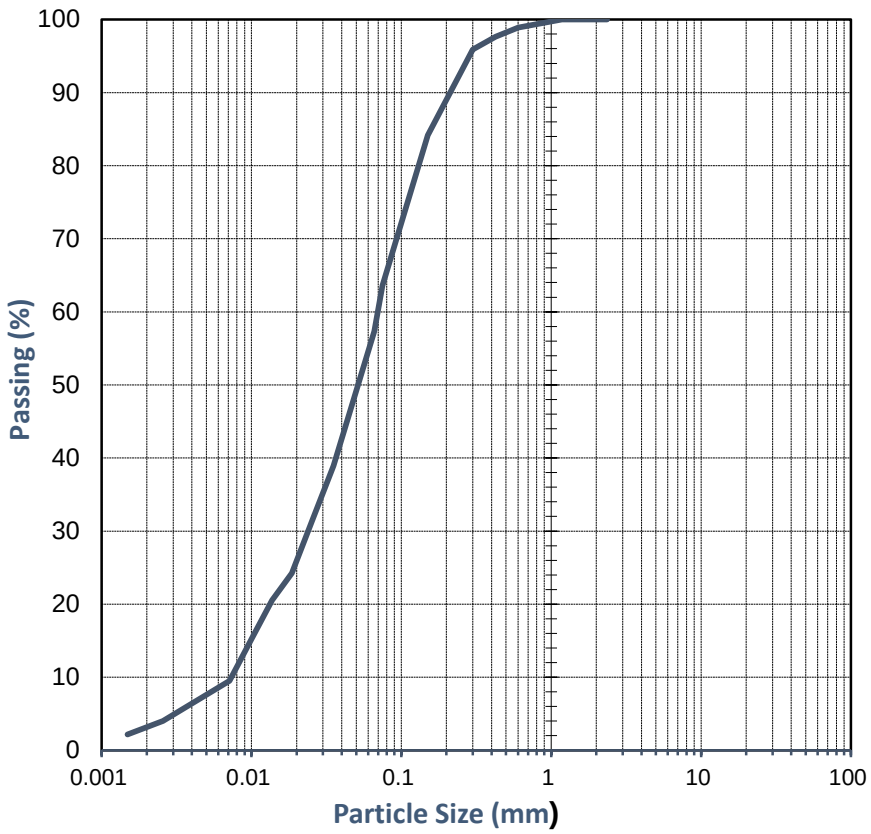
TEST REPORT - AS 1289.3.6.1, 3.6.3, 3.5.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17870_1_PSDHY
Project:	Doropo Gold Project	*Sample No.*	WG23.17870
Location:	Cote d'Ivoire	*Date Sampled:*	2/11/2023
Sample Identification:	SOUWA FRESH TAILINGS SLURRY 63% WW	*Date Tested:*	8/11 - 10/11/23

TEST RESULTS - Particle Size Distribution of Soil & Hydrometer Analysis

Sampling method:	**Sampled by Client, Tested as Received**
Sample description:	**Tailings**
Sample preparation:	**Oven Dried <50°C**
Loss in pre-treatment (%):	**N/A**
Type of hydrometer:	**g/L**
Method of dispersion:	**Mechanical Device**

Sieve Size (mm)	Passing (%)
75	
37.5	
19	
9.5	
4.75	
2.36	100
1.18	100
0.6	99
0.425	98
0.3	96
0.15	84
0.075	64
0.066	57
0.048	48
0.035	39
0.026	32
0.019	24
0.014	21
0.010	15
0.007	10
0.005	8
0.004	6
0.003	4
0.001	2



AS 1289.3.5.1 -2.36mm Particle Density (g/cm^3)
2.62

Comments:

Approved Signatory:

Name: Cody O'Neill
Date: 13/November/2023

Accreditation No. 20599
Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

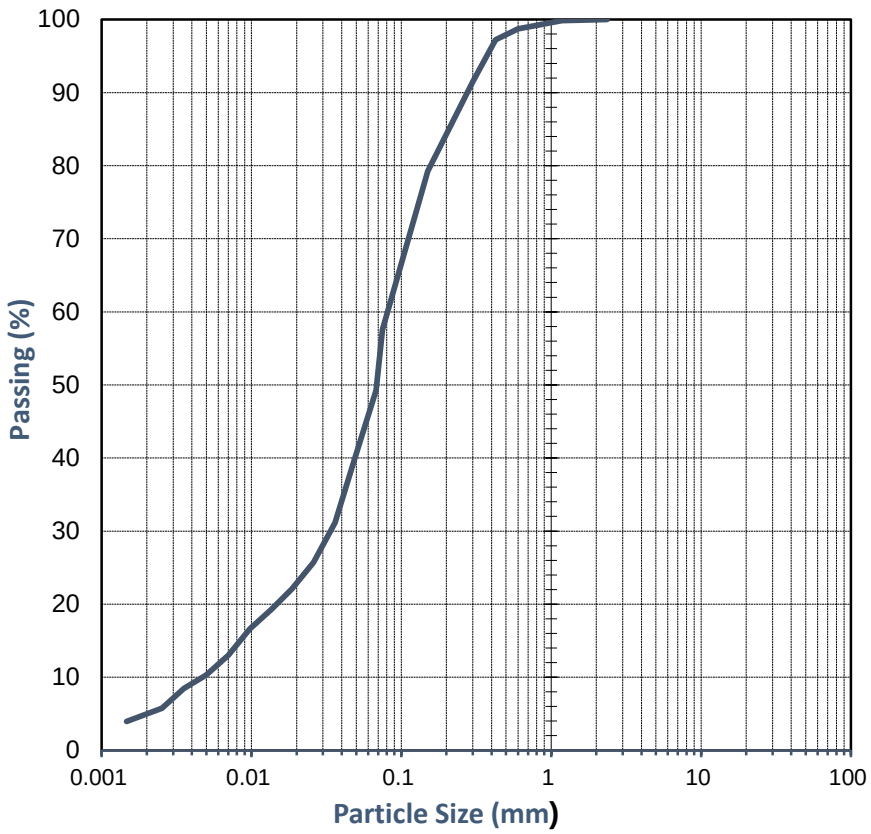
TEST REPORT - AS 1289.3.6.1, 3.6.3, 3.5.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17871_1_PSDHY
Project:	Doropo Gold Project	*Sample No.*	WG23.17871
Location:	Cote d'Ivoire	*Date Sampled:*	3/11/2023
Sample Identification:	NOKPA TRANSITION TAILINGS SLURRY 54% WW	*Date Tested:*	8/11 - 10/11/23

TEST RESULTS - Particle Size Distribution of Soil & Hydrometer Analysis

Sampling method:	**Sampled by Client, Tested as Received**
Sample description:	**Tailings**
Sample preparation:	**Oven Dried <50°C**
Loss in pre-treatment (%):	**N/A**
Type of hydrometer:	**g/L**
Method of dispersion:	**Mechanical Device**

Sieve Size (mm)	Passing (%)
75	
37.5	
19	
9.5	
4.75	
2.36	100
1.18	100
0.6	99
0.425	97
0.3	91
0.15	79
0.075	58
0.068	49
0.049	40
0.036	31
0.026	26
0.019	22
0.014	19
0.010	17
0.007	13
0.005	10
0.004	8
0.003	6
0.001	4



AS 1289.3.5.1 -2.36mm Particle Density (g/cm^3)
2.67

Comments:

Approved Signatory:

Name: Cody O'Neill
Date: 13/November/2023

Accreditation No. 20599
Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

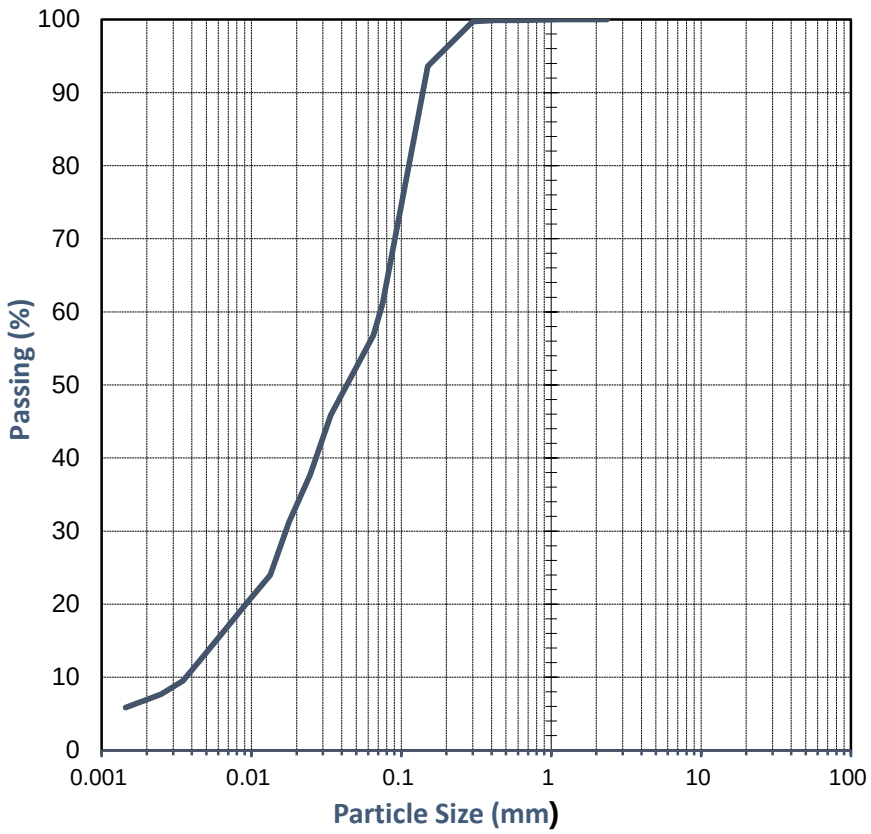
TEST REPORT - AS 1289.3.6.1, 3.6.3, 3.5.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17868_1_PSDHY
Project:	Doropo Gold Project	*Sample No.*	WG23.17868
Location:	Cote d'Ivoire	*Date Sampled:*	1/11/2023
Sample Identification:	NOKPA FRESH TAILINGS SLURRY 63% WW	*Date Tested:*	08/11 - 10/11/2023

TEST RESULTS - Particle Size Distribution of Soil & Hydrometer Analysis

Sampling method:	**Sampled by Client, Tested as Received**
Sample description:	**Tailings**
Sample preparation:	**Oven Dried <50°C**
Loss in pre-treatment (%):	**N/A**
Type of hydrometer:	**g/L**
Method of dispersion:	**Mechanical Device**

Sieve Size (mm)	Passing (%)
75	
37.5	
19	
9.5	
4.75	
2.36	100
1.18	100
0.6	100
0.425	100
0.3	100
0.15	94
0.075	61
0.065	57
0.047	51
0.034	46
0.025	38
0.018	31
0.013	24
0.010	20
0.007	17
0.005	13
0.003	9
0.002	8
0.001	6



AS 1289.3.5.1 -2.36mm Particle Density (g/cm^3)
2.64

Comments:

Approved Signatory:

Name: Cody O'Neill
Date: 13/November/2023

NATA **Accreditation No. 20599**
Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

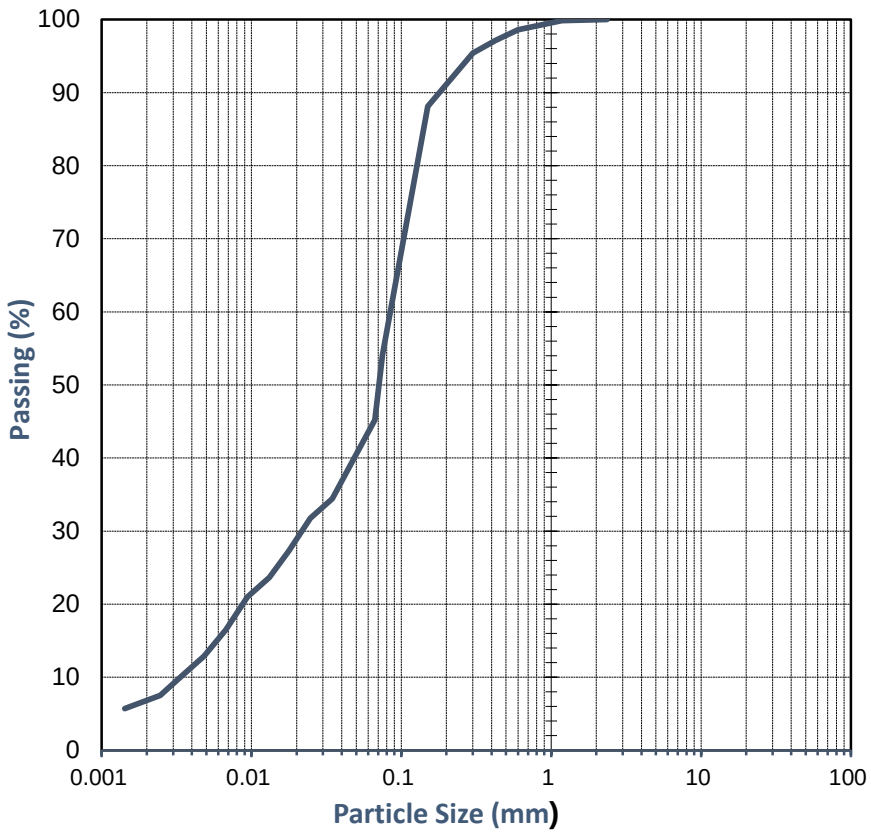
TEST REPORT - AS 1289.3.6.1, 3.6.3, 3.5.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17873_1_PSDHY
Project:	Doropo Gold Project	*Sample No.*	WG23.17873
Location:	Cote d'Ivoire	*Date Sampled:*	30/10/2023
Sample Identification:	KILOSEGUI TRANSITION TAILINGS SLURRY	*Date Tested:*	8/11 - 10/11/23

TEST RESULTS - Particle Size Distribution of Soil & Hydrometer Analysis

Sampling method:	**Sampled by Client, Tested as Received**
Sample description:	**Tailings**
Sample preparation:	**Oven Dried <50°C**
Loss in pre-treatment (%):	**N/A**
Type of hydrometer:	**g/L**
Method of dispersion:	**Mechanical Device**

Sieve Size (mm)	Passing (%)
75	
37.5	
19	
9.5	
4.75	
2.36	100
1.18	100
0.6	99
0.425	97
0.3	95
0.15	88
0.075	54
0.067	45
0.048	40
0.035	34
0.025	32
0.018	27
0.013	24
0.009	21
0.007	16
0.005	13
0.003	10
0.002	8
0.001	6



AS 1289.3.5.1 -2.36mm Particle Density (g/cm^3)
2.70

Comments:

Approved Signatory:

Name: Cody O'Neill
Date: 13/November/2023

Accreditation No. 20599
Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

WESTERN GEOTECHNICAL & Laboratory Services

SOIL | AGGREGATE | CONCRETE | CRUSHING

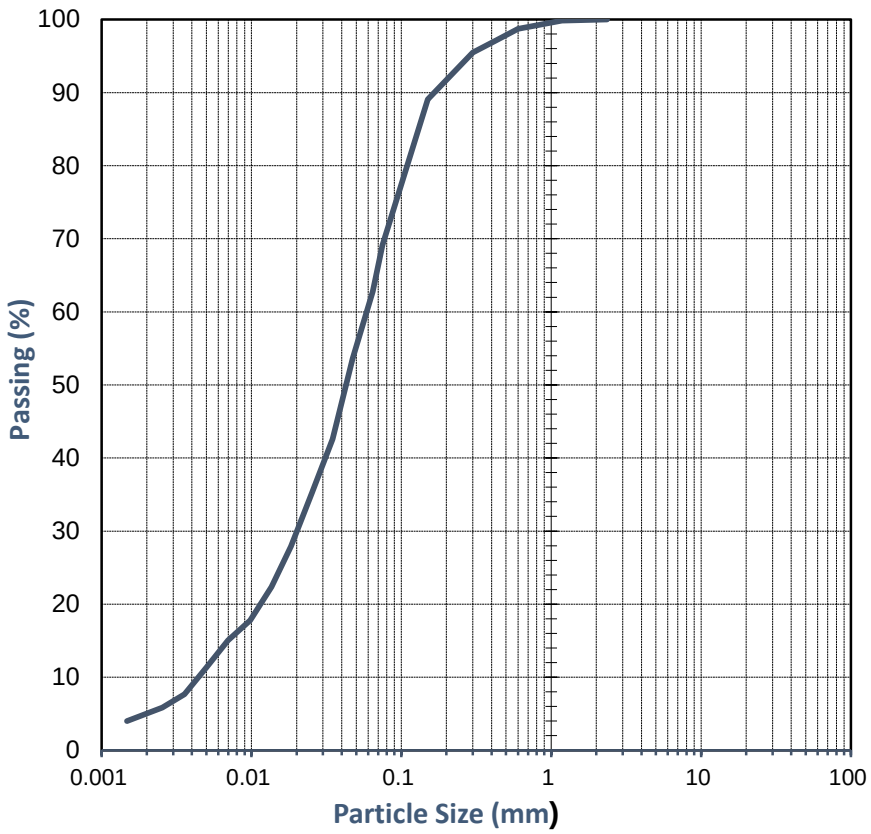
TEST REPORT - AS 1289.3.6.1, 3.6.3, 3.5.1

Client:	Knight Piesold	*Ticket No.*	S11535
Client Address:	184 Adelaide Terrace, Perth WA 6004	*Report No.*	WG23.17872_1_PSDHY
Project:	Doropo Gold Project	*Sample No.*	WG23.17872
Location:	Cote d'Ivoire	*Date Sampled:*	3/11/2023
Sample Identification:	KILOSEGUI FRESH TAILINGS SLURRY 63% WW	*Date Tested:*	8/11 - 10/11/23

TEST RESULTS - Particle Size Distribution of Soil & Hydrometer Analysis

Sampling method:	**Sampled by Client, Tested as Received**
Sample description:	**Tailings**
Sample preparation:	**Oven Dried <50°C**
Loss in pre-treatment (%):	**N/A**
Type of hydrometer:	**g/L**
Method of dispersion:	**Mechanical Device**

Sieve Size (mm)	Passing (%)
75	
37.5	
19	
9.5	
4.75	
2.36	100
1.18	100
0.6	99
0.425	97
0.3	95
0.15	89
0.075	69
0.065	63
0.047	54
0.035	43
0.025	35
0.018	28
0.014	22
0.010	18
0.007	15
0.005	11
0.004	8
0.003	6
0.001	4



AS 1289.3.5.1 -2.36mm Particle Density (g/cm^3)
2.61

Comments:

Approved Signatory:

Name: Cody O'Neill
Date: 13/November/2023

NATA **Accreditation No. 20599**
Accredited for compliance with ISO/IEC 17025 - Testing

This document shall not be reproduced except in full

APPENDIX E

Memorandum Ref. PE25-01628

Doropo Gold Project – Tailings Geochemistry Rev 1

Knight Piésold CONSULTING

Knight Piésold CONSULTING

MEMORANDUM

To:	Resolute Mining	**Date:**	18 December 2025
Attn:	Rob Cicchini	**Our Ref:**	PE25-01628
		KP File Ref.:	PE301-00821/07-A djtm M25018
cc:	Luciano Giancristofaro	**From:**	Dave Morgan

RE: DOROPO GOLD PROJECT - TAILINGS GEOCHEMISTRY REV 1

The Doropo project is a gold prospect in the north-eastern Côte d'Ivoire, 480 km north of the capital Abidjan. Resolute Mining Limited (Resolute) is developing this project.

Knight Piésold Pty Ltd (KP) was engaged to undertake geochemical testing of tailings as part of the early DFS study in 2023-2024, and a memorandum PE24-00223 summarising the findings were presented.

This memorandum supersedes the memorandum PE24-00223. The document update is limited to accounting for the change in ownership of the project.

Subsequent to the testing program and in conjunction with the DFS study update, revisions were made to the tailings blend. Further testing is scheduled for 2026, and this memorandum will be revised upon completion of the 2026 testing of tailings.

Physical test results are provided in a separate memorandum.

1. GEOCHEMICAL CHARACTERISTICS

1.1 INTRODUCTION

The test results are discussed in the following sections with summary tables provided. Copies of all laboratory test reports are provided in Appendix A. Expanded data tables are also provided in various appendices as referenced in the following sections.

1.2 ACID BASE ACCOUNTING

The seven samples varied in sulfur concentrations with the Souwa Oxide Sample being devoid of sulfur, the transitional samples had very low sulfur contents (ranging from 0.03 to 0.06% total sulfur) and the fresh samples had moderate sulfur contents (ranging from 0.3 to 0.5% total sulfur). Where present the majority of the sulfur was found to be sulfide sulfur.

The maximum potential acidity (MPA) was calculated from the sulfide content and ranged from 0.3 to 1.5 kg H_2SO_4 per tonne for the transitional samples and from 8.6 to 14.7 kg H_2SO_4 per tonne for the fresh samples.

The acid neutralising capacity (ANC) of the samples was determined along with the carbonate content. The two results can be used as a check against one another and to identify the contribution of ANC from carbonates and other non-carbonate minerals.

The samples showed decreasing carbonate content as degree of weathering increased, which is common as carbonate minerals are normally leached as part of the weathering process. The oxide sample was essentially devoid of carbonate, with a carbonate content of the transitional samples ranging 0.25% to 0.33% calcite equivalent. The carbonate content of fresh samples was high ranging from 3.9% to 5.9% calcite equivalent.

As part of the ANC testing KP specified a siderite correction step to discount the contribution of iron carbonate in the ANC testing. Siderite does not provide any net neutralising benefit because the acid consumed during dissolution is re-released upon oxidation of aqueous iron and precipitation of iron oxyhydroxides. The ANC test method requested by KP allows for the possible presence of siderite by adding hydrogen peroxide (H_2O_2) during back titration leading to precipitation of iron oxyhydroxides, as indicated by a colour change if present. The colour change was noted in all the fresh samples suggesting that some of the carbonate is likely iron carbonate and therefore the use of the carbonate content should be avoided when classifying samples with the measure ANC a more accurate measure of available total ANC.

The non carbonate acid neutralising capacity (the difference between the measured ANC and Carbonate ANC) was similar in all samples averaging 5 kg H_2SO_4 per tonne. Suggesting the non-carbonate ANC is more resistant to weathering and this base ANC, albeit low, should be present in all material at site.

The measured ANC for the oxide samples was 5 kg H_2SO_4 per tonne., increasing to between 6 and 9 kg H_2SO_4 per tonne for the transitional samples and further increasing to between 43 and 59 kg H_2SO_4 per tonne for the fresh samples.

Based on the MPA and ANC results, all the samples recorded negative net acid producing potential (NAPP) values. Fresh samples ranged from -30 to -43 kg H_2SO_4 per tonne while transitional/oxide was only between -1 kg and -3 kg H_2SO_4 per tonne.

The results of the acid base accounting assessment are summarised in Tables 1.1 and 1.2.

1.3 NET ACID GENERATION

The net acid generation (NAG) test aids in interpretation of acid formation potential classifications. It also identifies whether the sulfides and neutralising minerals contained in the sample are readily available to produce or consume acid.

No samples produced measurable acid during the test. The final pH of the NAG solutions was very alkaline for the fresh samples, and slightly alkaline for the oxide and transitional samples. The results of the NAG test are given in Table 1.2.

1.4 ACID FORMATION POTENTIAL

The acid formation potential of the sample is calculated based on the acid base accounting results and the NAG test. All results indicate material that is classified as Non-Acid Forming (NAF) with negative NAPP values and no acid generated during the NAG testing. The classifications are also shown in Figure 1.1.

Table 1.1: Acid Base Accounting Results

Sample	Sulfur Species			ANC	Carbon Species				Paste pH
	Sulfur %	Sulfate %	Sulfide %	kgH2SO4/t	Carbon %	Acid Insoluble Carbon %	Calcite Equivalent % CaCO3	CaCO3-ANC kgH2SO4/t	
A23136 Kilosegui Fresh Tailings	0.37	0.01	0.36	43	0.56	0.01	4.58	45	8.8
A23136 Kilosegui Transition Tailings	0.06	0.01	0.05	6	0.04	0.01	0.25	2	9.1
A23136 Nokpa Fresh Tailings	0.30	0.02	0.28	45	0.48	0.01	3.92	38	8.6
A23136 Nokpa Transition Tailings	0.03	0.02	0.01	9	0.05	0.01	0.33	3	9.1
A23136 Souwa Fresh Tailings	0.50	0.02	0.48	59	0.72	0.01	5.92	58	8.9
A23136 Souwa Oxide Tailings	0.01	0.01	0.00	5	0.03	0.02	0.08	1	9.1
A23136 Souwa Transition Tailings	0.04	0.01	0.03	9	0.04	0.01	0.25	2	9.3

Note: Values provided in the tables have been rounded.

Table 1.2: Acid Base Accounting Results and NAG Test Results

Sample	Calculations			NAG Results			Acid Forming Potential
	MPA kgH_2SO_4/t	ANC/MPA Ratio	NAPP kgH_2SO_4/t	NAG (7.0) kgH_2SO_4/t	NAG (4.5) kgH_2SO_4/t	NAG pH	
A23136 Kilosegui Fresh Tailings	11	3.9	-32	0	0	10.2	Non-Acid Forming (NAF)
A23136 Kilosegui Transition Tailings	2	3.9	-4	0	0	7.8	Non-Acid Forming (NAF)
A23136 Nokpa Fresh Tailings	9	5.3	-36	0	0	10.6	Non-Acid Forming (NAF)
A23136 Nokpa Transition Tailings	0	-	-9	0	0	8.3	Non-Acid Forming (NAF)
A23136 Souwa Fresh Tailings	15	4.0	-44	0	0	10	Non-Acid Forming (NAF)
A23136 Souwa Oxide Tailings	0	-	-5	0	0	7.9	Non-Acid Forming (NAF)
A23136 Souwa Transition Tailings	1	9.8	-8	0	0	8.4	Non-Acid Forming (NAF)

1.5 MULTI-ELEMENT ANALYSIS

1.5.1 Element Enrichments

Whole rock multi-element analysis of the tailings was conducted to assess element enrichments. The analysis results were compared to average crustal abundances (ACAs) to calculate the geochemical abundance indices (GAIs). The GAI quantifies an assay result for a particular element in terms of ACA. The assay results with the ACA values and GAIs shown in Table 1.3.

The results of the analysis show that the samples had a low number of enriched elements, with the level of enrichment varying from slight to high. Molybdenum was the only highly enriched element only seen at this high level of enrichment in the Kilosegui Fresh sample while the others samples were significantly enriched with the element.

The levels of Sulfur and Carbon were also significantly enriched in fresh samples with further elements, Silver, Arsenic, Bismuth and Selenium being only slightly enriched, primarily in fresh samples.

1.5.2 Soil Quality Screening

The results of the multi-element analysis have also been compared to a set of soil quality screening guidelines for human health, ecology and site contamination.

The comparison indicated that all samples met the human health guidelines. However, no samples met the ecology guidelines due to elevated chromium, nickel and sulfur. The samples also did not satisfy the site contamination guidelines due to elevated barium, chromium and nickel.

Summarised assay results compared to the assessment criteria are presented in tables 1.4 to 1.6, with the implications for tailings management discussed in Section 2.

Table 1.3: Multi-element Assay Results, Average Crustal Abundance and Geochemical Abundance Indices

Element	ACA (ppm)	GAI						
		Kilo Fre	Kilo Trs	Nok Fre	Nok Trs	Sou Fre	Sou Ox	Sou Trs
Ag	0.07	1	1	1	2	1	1	1
Al	82000	0	0	0	0	0	0	0
As	1.5	2	0	0	0	0	0	0
B	10	1	1	1	1	1	1	1
Ba	500	0	0	0	0	0	0	0
Be	2.6	0	0	0	0	0	0	0
Bi	0.048	0	0	2	1	0	0	0
C	480	2	0	2	0	3	0	0
Ca	41000	0	0	0	0	0	0	0
Cd	0.11	0	0	0	0	0	0	0
Cl	130	0	0	0	0	0	0	0
Co	20	0	0	0	0	0	0	0
Cr	100	1	0	1	1	1	0	1
Cu	50	0	0	0	0	0	0	0
F	950	0	0	0	0	0	0	0
Fe	41000	0	0	0	0	0	0	0
Hg	0.05	0	0	0	0	0	0	0
K	21000	0	0	0	0	0	0	0
Mg	23000	0	0	0	0	0	0	0
Mn	950	0	0	0	0	0	0	0
Mo	1.5	5	3	4	4	4	4	4
Na	23000	0	0	0	0	0	0	0
Ni	80	1	0	1	1	1	0	1
P	1000	0	0	0	0	0	0	0
Pb	14	0	0	0	0	0	0	0
S	260	3	0	2	0	3	0	0
Sb	0.2	0	0	0	0	0	0	0
Se	0.05	2	1	2	0	1	0	0
Sn	2.2	0	0	0	0	0	0	0
Sr	370	0	0	0	0	0	0	0
Th	12	0	0	0	0	0	0	0
U	2.4	0	0	0	0	0	0	0
V	160	0	0	0	0	0	0	0
Zn	75	0	0	0	0	0	0	0

Legend:

Not Enriched	0 – 1
Slightly Enriched	2
Significantly Enriched	3 – 4
Highly Enriched	5 – 6

Table 1.4: Multi-Element Analysis and Human Health Screening Guidelines

Element	Human Health-Based Investigation Levels [1]	Kilo Fresh	Kilo Trans	Nokpa Fresh	Nokpa Trans	Souwa Fresh	Souwa Oxide	Souwa Trans
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Sliver	N/G	0.3	0.3	0.4	0.5	0.4	0.4	0.3
Arsenic	300	11	3	1	1	1	1	1
Boron	20000	50	50	50	50	50	50	50
Barium	N/G	626.1	487.1	974.5	449.5	726.2	622.6	515.9
Beryllium	90	0.8	0.9	0.7	1	1.3	1.9	1.1
Cadmium	90	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Cobalt	300	15.1	5.2	12.6	11.3	11.8	15.7	16.8
Chromium	N/G	305	141	397	367	391	182	309
Copper	17000	20	7	25	23	31	25	21
Mercury	80	0.088	0.008	0.071	0.007	0.089	0.062	0.007
Manganese	19000	280	147	226	195	321	405	337
Molybdenum	N/G	95.6	27.4	62.2	51.3	60.4	38.8	53.7
Nickel	1200	421	116	380	264	387	199	302
Phosphorus	N/G	360	162	319	282	375	95	246
Lead	600	9	8	23	14	39	21	19
Sulfur	N/G	3700	600	3000	300	5000	100	400
Antimony	N/G	0.24	0.11	0.15	0.1	0.14	0.1	0.18
Selenium	700	0.46	0.25	0.39	0.09	0.21	0.02	0.06
Tin	N/G	1	0.7	0.7	0.6	0.9	0.7	0.7
Vanadium	N/G	19	13	32	49	88	53	52
Zinc	30000	32	22	39	34	38	73	42

Values in red bold indicate where a guideline value has been exceeded.

[1] National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1). Health Investigation Levels for Soil Contaminants, Generic Land Use HIL C – Recreational.

Table 1.5: Multi-Element Analysis and Ecological Screening Guidelines

Element	Ecological Soil Screening Levels [1,2]	Kilo Fresh	Kilo Trans	Nokpa Fresh	Nokpa Trans	Souwa Fresh	Souwa Oxide	Souwa Trans
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Sliver	14	0.3	0.3	0.4	0.5	0.4	0.4	0.3
Arsenic	46	11	3	1	1	1	1	1
Boron	N/G	50	50	50	50	50	50	50
Barium	2000	626.1	487.1	974.5	449.5	726.2	622.6	515.9
Beryllium	21	0.8	0.9	0.7	1	1.3	1.9	1.1
Cadmium	0.36	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Cobalt	230	15.1	5.2	12.6	11.3	11.8	15.7	16.8
Chromium	34	**305**	**141**	**397**	**367**	**391**	**182**	**309**
Copper	49	20	7	25	23	31	25	21
Mercury	N/G	0.088	0.008	0.071	0.007	0.089	0.062	0.007
Manganese	4000	280	147	226	195	321	405	337
Molybdenum	N/G	95.6	27.4	62.2	51.3	60.4	38.8	53.7
Nickel	130	**421**	116	**380**	**264**	**387**	**199**	**302**
Phosphorus	2000	360	162	319	282	375	95	246
Lead	56	9	8	23	14	39	21	19
Sulfur	600	**3700**	600	**3000**	300	**5000**	100	400
Antimony	0.27	0.24	0.11	0.15	0.1	0.14	0.1	0.18
Selenium	0.63	0.46	0.25	0.39	0.09	0.21	0.02	0.06
Tin	N/G	1	0.7	0.7	0.6	0.9	0.7	0.7
Vanadium	280	19	13	32	49	88	53	52
Zinc	79	32	22	39	34	38	73	42

Values in red bold indicate where a guideline value has been exceeded.

[1] United States Environmental Protection Agency (U.S. EPA) Ecological Soil Screening Levels (Eco-SSLs), http://www.epa.gov/ecotox/ecossl/ (mammalian wildlife).

[2] Ecological guideline values for phosphorous, sulfur and sulfate are based on National Environment Protection (Assessment of Site Contamination) Measure (NEPC, 1999). These former Australian ecological investigation levels for urban areas have been included for reference purposes in the absence of other more applicable ecological assessment criteria.

Table 1.6: Multi-Element Analysis and Contamination Intervention Guidelines

Element	Soil Remediation Intervention Values [1]	Kilo Fresh	Kilo Trans	Nokpa Fresh	Nokpa Trans	Souwa Fresh	Souwa Oxide	Souwa Trans
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Sliver	15	0.3	0.3	0.4	0.5	0.4	0.4	0.3
Arsenic	55	11	3	1	1	1	1	1
Boron	N/G	50	50	50	50	50	50	50
Barium	625	**626.1**	487.1	**974.5**	449.5	**726.2**	622.6	515.9
Beryllium	30	0.8	0.9	0.7	1	1.3	1.9	1.1
Cadmium	12	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Cobalt	240	15.1	5.2	12.6	11.3	11.8	15.7	16.8
Chromium	380	305	141	**397**	367	**391**	182	309
Copper	190	20	7	25	23	31	25	21
Mercury	10	0.088	0.008	0.071	0.007	0.089	0.062	0.007
Manganese	N/G	280	147	226	195	321	405	337
Molybdenum	200	95.6	27.4	62.2	51.3	60.4	38.8	53.7
Nickel	210	**421**	116	**380**	**264**	**387**	199	**302**
Phosphorus	N/G	360	162	319	282	375	95	246
Lead	530	9	8	23	14	39	21	19
Sulfur	N/G	3700	600	3000	300	5000	100	400
Antimony	15	0.24	0.11	0.15	0.1	0.14	0.1	0.18
Selenium	100	0.46	0.25	0.39	0.09	0.21	0.02	0.06
Tin	900	1	0.7	0.7	0.6	0.9	0.7	0.7
Vanadium	250	19	13	32	49	88	53	52
Zinc	720	32	22	39	34	38	73	42

Values in red bold indicate where a guideline value has been exceeded.

1 Netherlands Ministry of Housing, Spatial Planning and the Environment (VROM) 2000. Circular on Target Values and Intervention Values for Soil Remediation, Reference DBO/1999226863. Soil remediation intervention values. In the absence of intervention values for beryllium, selenium, silver, tin and vanadium, “indicative levels for serious soil contamination” have been applied.

2

1.6 SUPERNATANT WATER QUALITY ANALYSIS

The supernatant water quality was assessed to examine the solubility of various elements during processing. The results of the testing give an indication of the water quality at the point of tailings discharge.

The results of the supernatant water testing have been compared to three sets of reference water quality standards:

- Reference Set 1 – Côte d'Ivoire water discharge limits (Ref. 17)
- Reference Set 2 – IFC guidelines for release of water from mining operations (Ref. 18). As these guidelines only cover a limited number of elements, KP has supplemented the guidelines with ANZECC livestock drinking water guidelines (Ref. 19) to allow a more comprehensive assessment.
- Reference Set 3 – WHO Guidelines for Drinking Water Quality (Ref. 19) supplement by Australian Drinking Water Guidelines (Ref. 20).

It is noted that determination of cyanide was not included in the analysis due to the time from production of samples to receipt of samples by KP and subsequent transference to the laboratory. This delay would have made any cyanide analysis misrepresentative due the natural degradation of cyanide.

The water chemistry indicates limited of leaching occurring during the production of the samples and that no parameters analysed exceeded the Côte d'Ivoire water discharge limits.

Molybdenium was found to exceed the IFC/ANZECC water quality reference standard in all samples except for the Souwa oxide and transitional samples

Drinking water standards were exceeded for molybdenium for all sample except for the Souwa oxide and transitional samples. Manganese also exceeded drinking water standard for the transitional samples from Kilosegui and Nokpa. The chloride concentration in Souwa oxide also exceeded drinking water standards.

The Results of the analysis are provided in Table 1.7

Table 1.7: Tailings Supernatant Water Chemistry and Reference Water Quality Standards

Element / Parameter	Unit	Reference Standards			Analysis Results						
		Côte d'Ivoire Water Discharge	Release (IFC & ANZEC)	Drinking Water (WHO & Aus)	Kilo Fresh	Kilo Trans	Nokpa Fresh	Nokpa Trans	Souwa Fresh	Souwa Oxide	Souwa Trans
Ag	mg/l	N/G	N/G	0.1	0.00001	0.00001	<0.00001	<0.00002	0.00001	<0.00001	0.00001
Al	mg/l	5	5	0.9	0.05	0.03	0.04	0.04	0.045	0.04	0.03
As	mg/l	0.05	0.1	0.01	0.0053	0.0045	0.0017	0.0074	0.0007	0.0006	0.0092
B	mg/l	N/G	5	2.4	0.18	0.14	0.15	0.17	0.225	0.09	0.13
Ba	mg/l	N/G	N/G	0.7	0.12611	0.12985	0.11924	0.19471	0.104685	0.2113	0.17608
Be	mg/l	N/G	N/G	N/G	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001
Bi	mg/l	N/G	N/G	N/G	<0.000005	<0.000005	<0.000005	<0.000005	0.000005	<0.000005	0.000005
Ca	mg/l	N/G	1000	N/G	42.54	38.98	41.65	45.52	55.145	39.44	46.78
Cd	mg/l	N/G	0.05	0.003	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	0.0005
Cl	mg/l	N/G	N/G	250	228	232	238	233	214.5	**255**	244
Co	mg/l	N/G	1	N/G	0.0006	0.0008	0.0006	0.0011	0.0005	0.0088	0.0029
Cr	mg/l	0.5	1	0.05	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01
Cu	mg/l	0.5	0.3	2	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01
EC	mS/cm	N/G	N/G	N/G	1.14	1.03	1.11	1.02	1.13	1.06	1.07
F	mg/l	15	2	1.5	0.9	0.9	1.1	1.1	1.3	1.1	0.9
Fe-Sol	mg/l	5	2	0.3	<0.01	<0.01	0.01	0.01	0.01	<0.05	0.02
Hg	mg/l	N/G	0.002	0.006	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001
K	mg/l	N/G	N/G	N/G	13.6	4.5	13.4	3.1	15.7	9.2	4.7
Mg	mg/l	N/G	2000	N/G	16.32	6.26	10.68	7.61	16.7	7.73	6.49
Mn	mg/l	1	N/G	0.1	0.049	**0.215**	0.038	**0.119**	0.04	0.01	0.018
Mo	mg/l	N/G	0.15	0.07	**0.55804**	**0.20645**	**0.43831**	**0.19417**	**0.35749**	0.03133	0.04317
Na	mg/l	N/G	N/G	200	192.8	185.4	190.7	176.8	173.55	184.1	187
Ni	mg/l	0.5	0.5	0.07	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01
P	mg/l	N/G	N/G	N/G	0.05	<0.16	<0.05	0.06	0.05	<0.05	0.13
Pb	mg/l	0.5	0.2	0.01	0.002	<0.002	<0.002	<0.004	0.002	<0.002	0.002
pH	NONE	5.5 to 8.5	6 to 9	6.5 to 8.5	8	7.9	8	7.9	7.8	8.1	8.2
S^1	mg/l	N/G	333.8	83.5	31.2	15.3	27.5	13.7	43.55	15.2	17.5
Sb	mg/l	N/G	N/G	0.02	0.00215	0.0007	0.00064	0.00054	0.00082	0.00077	0.00094
Se	mg/l	N/G	0.02	0.04	<0.0049	0.0027	<0.0035	<0.0005	0.00305	0.0005	0.0005
Sn	mg/l	2	N/G	N/G	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001
Sr	mg/l	N/G	N/G	N/G	0.96079	0.36388	1.18416	0.67178	4.055055	0.68247	0.78955
TDSEva	mg/Kg	N/G	2000	1000	667	560	644	577	658	587	607
Th	mg/l	N/G	N/G	N/G	<0.000005	<0.000005	<0.000005	<0.000005	0.000005	<0.000005	0.000005
U	mg/l	N/G	0.2	0.03	0.012589	0.005487	0.001876	0.001825	0.0008025	0.003634	0.002899
V	mg/l	N/G	N/G	N/G	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01
Zn	mg/l	2	0.5	3	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01

[1] Converted from SO_4 Concentration.
Number in red exceed drinking water reference standard.
Number in orange highlight exceed release reference standard.

2. IMPLICATIONS FOR TAILINGS MANAGEMENT

The tailings sample was classified as Non-Acid Forming due to a negative NAPP and alkaline NAG pH values, all samples which had measurable sulfur had ANC/MPA ratios of greater than 3 indicating a high factor of safety against acidification.

Therefore, provided that the tailings sample tested are representative of the tailings to be produced during the life of the project, then there would be no specific controls required in relation to the acid formation potential of the tailings.

The tailings recorded a low number of element enrichments, with molybdenum found to be the only highly enriched element with minor enrichments in Silver, Arsenic, Bismuth and Selenium. Based on the level of enrichment a basic cover system comprising benign waste rock will be required on closure to isolate the tailings from the environment.

The level of enrichment is not considered to be a risk to human health but standard measures to reduce dust generation should be implemented during operation and closure prior to application of the basic cover system.

The supernatant samples demonstrated low level of metal leaching and salinity during processing and as such the cyanide concentration of the tailings will determine the lining requirements and stormwater capacity requirement in the facility.

If high cyanide (non-detoxified) tailings are proposed a robust lining system should be employed with sufficient stormwater capacity to ensure any release from the facility will be suitable dilute. If full detoxification of cyanide is undertaken a basic liner system to reduce seepage rate may be appropriate providing no sensitive groundwater receptors are located downstream of the facility.

We trust this memorandum report meets your current requirements, however, please do not hesitate to contact us should have any queries.

Yours faithfully
KNIGHT PIÉSOLD PTY LTD

DEAN SAWYER
Principal Engineer

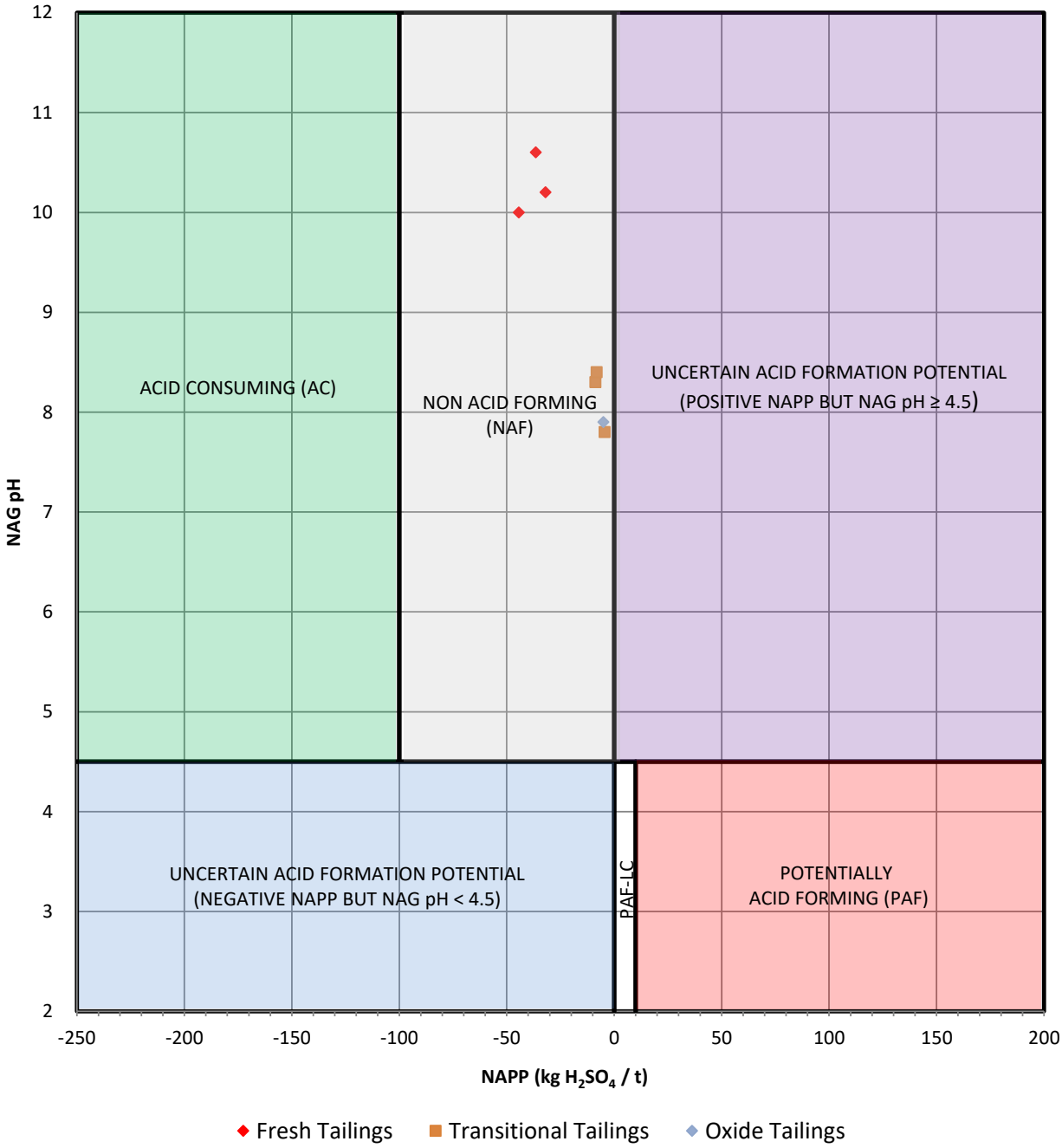
DAVID MORGAN
Managing Director

REFERENCES

1. Mine Environment Neutral Drainage (MEND) Program, (1991) "*Acid Rock Drainage Prediction Manual*", Mend Project 1.16.16.
2. British Columbia Ministry of Energy and Mines, (August 1998), "*Guidelines for Metal Leaching and Acid Rock Drainage at Mine Sites in British Columbia*".
3. Sobek, A.A., Schuller, W.A., Freeman, J.R. and Smith, R.M., (1978), "*Field and laboratory methods applicable to overburden and mine soils*", EPA 600/2-78-054.
4. Stewart, W.A., Miller, S.D., Smart, R., (2006), "*Advances in Acid Rock Drainage (ARD) Characterisation of Mine Wastes*", presented at the Seventh International Conference on Acid Rock Drainage (St. Louis MO).
5. Miller, S., Robertson A., Donohue, T., (1997), "*Advances in acid drainage prediction using the net acid generation test*", in Proceedings of the Forth International Conference on Acid Rock Drainage (Vancouver B.C.), pp.535-547.
6. Stewart, W., Miller, S., Smart, R., Gerson, A., Thomas, J., Skinner, W., Levay, G. and Schumann, R., (2003), "*Evaluation of the Net Acid Generation (NAG) Test for Assessing the Acid Generating Capacity of Sulfide Minerals*", in Proceeding of the 6th International Conference on Acid Rock Drainage (Cairns, Australia), pp.617-625.
7. Australian Government, Department of Industry, Tourism and Resources, (February 2007), "*Managing Acid and Metalliferous Drainage*".
8. AMIRA International, (May 2002), "*ARD Test Handbook*".
9. The International Network for Acid Prevention (INAP), (2009), "*Global Acid Rock Drainage Guide (GARD Guide)*", http://www.gardguide.com/
10. Bowen, H.J.M., (1979), "*Environmental Chemistry of the Elements*", Academic Press, New York.
11. Australian Government, (2013), "*National Environment Protection (Assessment of Site Contamination) Amendment Measure*".
12. United States Environmental Protection Agency (US EPA), "*Ecological Soil Screening Levels (Eco-SSLs)*", http://www.epa.gov/ecotox/ecossl/.
13. NEPC, (1999), "*National Environment Protection (Assessment of Site Contamination) Measure*".
14. VROM, (2000), "*Circular on Target Values and Intervention Values for Soil Remediation*", Reference DBO/1999226863, Ministry of Housing, Spatial Planning and the Environment, Bilthoven, Netherlands.
15. Centre Ivoirien Antipollution (CIAPOL), (2008), "*Water Discharge Limits*", Decree No. 01164.
16. IFC, (2007), "*IFC Environmental, Health and Safety Guidelines for Mining*".
17. Australian and New Zealand Environment and Conservation Council, Agriculture and Resource Management Council of Australia and New Zealand, (2000), "*ANZ Guidelines for Fresh and Marine Water Quality*".
18. World Health Organisation, (2011), "*Guidelines for Drinking-water Quality*", 4th Edition.
19. NHMRC, (2011), "*Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy*", National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra.

FIGURES

Acid Formation Potential



Acid Formation Potential	NAPP (kg H_2SO_4 / t)	NAG pH
Potentially Acid Forming (PAF)	>10	<4.5
Potentially Acid Forming - Low Capacity (PAF - LC)	0 to 10	<4.5
Non Acid Forming (NAF)	Negative	≥4.5
Acid Consuming (AC)	Less than - 100	≥4.5
Uncertain	Positive	≥4.5
	Negative	<4.5

APPENDIX A
Testwork Methods and Interpretation Principles

A. TESTWORK METHODS

A.1 ACID BASE ACCOUNTING

Acid base accounting (ABA) assesses a sample's potential to form acid from the oxidation of sulfides and the ability to neutralise acid by the dissolution of minerals, especially carbonates, contained in the sample. The test work methods used were based on the ABA methodology defined in the Mine Environment Neutral Drainage (MEND) Acid Rock Drainage Prediction Manual (Ref. 1) and Guidelines for Metal Leaching and Acid Rock Drainage at Mine Sites in British Columbia (Ref. 2), as detailed below.

Total carbon and total inorganic carbon were determined by LECO induction furnace, with infrared detection. Sulfate sulfur was determined by HCl digest with ICP detection. Acid Neutralising Capacity (ANC) was determined by digestion in a standard solution of HCl, followed by back titration with NaOH to determine the amount of acid consumed. The technique used was based on Sobek et al (Ref. 3), however, a siderite correction step has been added to the method, after Stewart et al (Ref. 4).

The results of the ABA test work are used to calculate the Maximum Potential Acidity (MPA) which is a measure of the maximum amount of sulfuric acid which can be produced from the total oxidation of all sulfides within the sample, assuming all sulfide is present as pyrite.

The Net Acid Producing Potential (NAPP) is the balance between the Maximum Potential Acidity and the Acid Neutralising Capacity. A negative NAPP indicates that there is an excess neutralising capacity and a positive NAPP indicates there is excess potential acidity.

A.2 NET ACID GENERATION

Net Acid Generation (NAG) test work is a direct measure of the sample's ability to produce acid through sulfide oxidation. The addition of hydrogen peroxide to samples causes rapid oxidation of the contained sulfides to produce sulfuric acid.

The procedure employed is based upon the Static NAG Test (Ref. 5 and 6). The static NAG test involves the addition of 250 mL of 15% hydrogen peroxide to 2.5 g of pulverised sample. The sample is allowed to react overnight prior to heating for a period of three hours. Once the sample has cooled the pH of the sample is measured prior to titration back to pH 4.5 and 7 to determine the acidity produced by the oxidation reactions.

A.3 ACID FORMING POTENTIAL

The acid formation potential of a sample is calculated based on the acid base accounting, i.e. the balance between a sample's ability to produce acid from the oxidation of sulfide minerals (MPA) and the sample's ability to neutralise acid by the dissolution of alkaline minerals contained within the sample (ANC).

Historically a safety margin was applied to ratio between the ANC and MPA to allow for variability in the rates of acid production and neutralisation processes and the potential for geographic separation of the acid producing and acid neutralising phases. This safety margin was generally set by industry at 2 in North America and 3 in Australia.

With recent advances in the understanding and acceptance of the NAG test there has been a move away from this method of classifying materials based solely on the ANC and MPA as these calculated parameters do not take into consideration the true availability of acid producing and acid neutralising phases.

Knight Piésold prefers to utilise the results of the acid base accounting in combination with the NAG testing results to classify the acid formation potential of materials. Knight Piésold's classification system is summarised in Table A.1.

It is based on the Australian Government publication; Managing Acidic and Metalliferous Drainage (Ref. 7) and is broadly similar to the classification system contained within the AMIRA ARD Test Handbook (Ref. 8), which is advocated by the Global Acid Rock Drainage Guidelines (Ref. 9).

Table A.1: Acid Formation Potential Classification System

Acid Formation Potential Class	NAPP (kg H_2SO_4 /t)	NAG pH
Potentially Acid Forming (PAF)	>10	<4.5
Potentially Acid Forming – Low Capacity (PAF-LC)	0 to 10	<4.5
Non-Acid Forming (NAF)	Negative	≥4.5
Acid Consuming (AC)	Less than –100	≥4.5
Uncertain (UC)	Positive	≥4.5
	Negative	<4.5

A.4 MULTI-ELEMENT ANALYSIS OF SOLIDS

A.4.1 Geochemical Enrichments

Multi-element analysis of the tailings solids was conducted to assess element enrichments within the sample. The four acid digestion method used results in near total digestion of the sample to assess the whole rock geochemistry.

Multi-element analysis results were compared to average crustal abundances to calculate the geochemical abundance indices. The Geochemical Abundance Index (GAI) quantifies an assay result for a particular element in terms of average crustal abundance.

The GAI is calculated from the following formula:

$$\mathbf{GAI = Log_2 (C_n / (1.5 \times B_n))}$$

where:
Cn = measured concentration of element in sample.
Bn = average crustal abundance (Bowen, Ref. 10).

The GAI is expressed on a scale of 0 to 6, with 0 indicating that the element concentration is less than or similar to average crustal abundance, and a GAI of 6 indicating an element concentration of more than 96 times the average crustal abundance. The enrichment ranges for GAIs are as follows:

- GAI = 0 represents <3 times crustal abundance.
- GAI = 1 represents 3 to 6 times crustal abundance.
- GAI = 2 represents 6 to 12 times crustal abundance.
- GAI = 3 represents 12 to 24 times crustal abundance.
- GAI = 4 represents 24 to 48 times crustal abundance.
- GAI = 5 represents 48 to 96 times crustal abundance.
- GAI = 6 represents more than 96 times crustal abundance.

Knight Piésold has assigned an arbitrary scale to the GAI, with indices of 0 and 1 being classified as “not enriched”, an index of 2 being classed as “slightly enriched”, indices of 3 and 4 being classed as “significantly enriched” and indices of 5 and 6 being classified as “highly enriched”.

A.4.1 Soil Quality Screening for Closure Planning

The multi-element analysis results were also compared to guideline concentrations for soil quality based on risk to human health and ecology for preliminary assessment of possible closure requirements, such as construction of engineered cover systems or limiting land use/access.

The Australian National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (Ref. 11) has been used to assess risk to human health, based on an assumed 'recreational' closure land use. This assumes the final landform will comprise public open space such as parks and playing fields rather than undeveloped public open space where the potential for exposure will be lower. However, these values assume that no planting of crops for human consumption will occur.

To assess ecological risk, the U.S. Environmental Protection Agency Ecological Soil Screening Levels (Eco-SSLs) (Ref. 12) have been applied. These values apply to sites where terrestrial organisms may be exposed directly or indirectly to contaminated soil. The Eco-SSL values for mammalian wildlife have been adopted for this study. The Eco-SSLs do not provide guideline values for sulfur, sulfate or phosphorous. Therefore, the former National Environment Protection (Assessment of Site Contamination) Measure (NEPC, 1999) (Ref. 13) ecological investigation levels for these substances have been included for reference purposes in the absence of other more applicable ecological assessment criteria.

The Netherlands Ministry of Housing, Spatial Planning and the Environment (VROM) has developed a series of soil-screening values for contaminated sites as part of the Dutch Soil Protection Act (VROM 2000) (Ref. 14). Soil quality is assessed and managed using target and intervention values which are independent of land use. Soils with contaminant concentrations below target values are considered to be at no risk and no restrictions on their use have been set. Soils with contaminant concentrations exceeding the intervention values require remediation as a matter of urgency, as the functional properties of the soil for humans, plant and animal life is seriously impaired or threatened. Therefore, for preliminary screening purposes, the intervention values have been applied in this study. For certain substances where intervention values have not been set, so-called "indicative levels for serious contamination" have been provided. These have also been included in this study, where appropriate.

The establishment of these soil quality screening values is to allow for evaluation only and it is not implied by production of these values that the project will be required to meet these reference levels or that these reference levels should be used as the regulatory framework.

A.5 SUPERNATANT WATER QUALITY

Characterisation of the tailings supernatant has been conducted to assess the potential for the supernatant to cause environmental impacts to surface water or groundwater. These tests differ from the multi-element tests conducted on the solids in that they only record the readily soluble elements, whereas the multi-element tests give the total element enrichment of the tailings solids.

The pH and the conductivity of the tailings slurries were measured and the bottles left to stand for a minimum of three hours. The supernatant was then siphoned off and filtered through 0.45 µm membrane before preservation of the solution by acid addition prior to analysis. The analysis was by Inductively Coupled Plasma Mass Spectrometry (ICP-MS) or Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES), depending on the element being analysed and the detection limits required.

The results have been compared to a set of reference water quality standards, which are discussed in Section A.6.

A.6 REFERENCE WATER QUALITY STANDARDS

To allow assessment of the results of the distilled water extract analysis, four sets of reference values have been established as follows:

- Reference Set 1: Côte d'Ivoire water discharge limits (Ref. 15). These reference values are presented in Table A.2.
- Reference Set 2: IFC guidelines for release of water from mining operations (Ref. 16) As these guidelines only cover a limited number of elements, KP has supplemented the guidelines with ANZECC livestock drinking water guidelines (Ref. 17) to allow a more comprehensive assessment. These reference values are presented in Table A.2.
- Reference Set 3: WHO Guidelines for Drinking-Water Quality (Ref. 18).and supplement by Australian Drinking Water Guidelines (Ref. 19). These reference values are presented in Table A.2.

The establishment of these reference water quality values is to allow for evaluation only and it is not implied by production of the reference water quality values that the project will be required to meet these reference levels or that these reference levels should be used as the regulatory framework.

Table A.2: Reference Guidelines

Parameter	Unit	Côte d'Ivoire Release Guidelines	IFC/ANZECC Release Guidelines	WHO/Aus Drinking Water Guidelines
Ag	mg/L	N/G	N/G	0.1
Al	mg/l	5	5	0.2
As	mg/L	0.05	0.1	0.01
B	mg/l	N/G	5	2.4
Ba	mg/L	N/G	N/G	0.7
Be	mg/L	N/G	N/G	N/G
Bi	mg/L	N/G	N/G	N/G
Ca	mg/l	N/G	1000	N/G
Cd	mg/L	N/G	0.05	0.003
Cl	mg/l	N/G	N/G	250
Co	mg/L	N/G	1	N/G
Cr	mg/l	0.5	1	0.05
Cu	mg/l	0.5	0.3	2
EC	mS/cm	N/G	N/G	N/G
F	mg/l	15	2	1.5
Fe	mg/l	5	2	0.3
Hg	mg/L	N/G	0.002	0.006
K	mg/l	N/G	N/G	N/G
Mg	mg/l	N/G	2000	N/G
Mn	mg/l	1	N/G	0.1
Mo	mg/L	N/G	0.15	0.07
Na	mg/l	N/G	N/G	200
Ni	mg/l	0.5	0.5	0.07
P	mg/l	N/G	N/G	N/G
Pb	mg/L	0.5	0.2	0.01
pH	NONE	5.5 to 8.5	6 to 9	6.5 to 8.5
S	mg/l	N/G	N/G	N/G
S04	mg/L	N/G	1000	250
Sb	mg/L	N/G	N/G	0.02
Se	mg/L	N/G	0.02	0.04
Sn	mg/L	2	N/G	N/G
Sr	mg/L	N/G	N/G	N/G
TDSEva	mg/kg	N/G	2000	1000
Th	mg/L	N/G	N/G	N/G
U	mg/L	N/G	0.2	0.03
V	mg/l	N/G	N/G	N/G
Zn	mg/l	2	0.5	3

APPENDIX B
Laboratory Reports

MINERALS
TEST REPORT

CLIENT

RORY SPLETTER
KNIGHT PIESOLD PTY LIMITED
36 Cordelia Street
SOUTH BRISBANE, QLD 4101
AUSTRALIA

JOB INFORMATION

JOB CODE	: 752.0/2321271
NO. SAMPLES	: 7
NO. ELEMENTS	: 36
CLIENT ORDER NO.	: PE301-00821/05 (Job 2 of 2)
SAMPLE SUBMISSION NO.	: PE301-00821/05
PROJECT	: DOROPO GOLD PROJECT
SAMPLE TYPE	: Solutions
DATE RECEIVED	: 08/11/2023
DATE TESTED	: 27/11/2023 - 05/12/2023
DATE REPORTED	: 05/12/2023
DATE PRINTED	: 05/12/2023

REPORT NOTES

TESTED BY

Intertek
544 Bickley Road, Maddington 6109, Western Australia
PO Box 144, Gosnells 6990, Western Australia
Tel: +61 8 9263 0100
Email: min.aus.per@intertek.com

APPROVED SIGNATURE FOR



Andrew RILEY
Regional Manager
Geochemistry Western Australia

This report relates specifically to the sample(s) tested that were drawn and/or provided by the client or their nominated third party to Intertek. The reported result(s) provide no warranty or verification on the sample(s) representing any specific goods and/or shipment. This report was prepared solely for the use of the client named in this report. Intertek accepts no responsibility for any loss, damage or liability suffered by a third party as a result of any reliance upon or use of this report. The results provided are not intended for commercial settlement purposes.
Except where explicitly agreed in writing, all work and services performed by Intertek is subject to our standard Terms and Conditions which can be obtained at our website: intertek.com/terms/
In nominating Intertek for this work, you hereby undertake that the performance of such work will not constitute a breach of, or cause Intertek to be in breach of, any applicable sanctions or other legislation.

SIGNIFICANT FIGURES

It is common practice to report data derived from analytical instrumentation to a maximum of two or three significant figures. Some data reported herein may show more figures than this. The reporting of more than two or three figures in no way implies that figures beyond the least significant digit have significance.

For more information on the uncertainty on individual reported values, please contact the laboratory.

MEASUREMENT OF UNCERTAINTY

Measurement of uncertainty estimates are available for most tests upon request.

SAMPLE STORAGE

All solid samples (assay pulps, bulk pulps and residues) will be stored for 60 days without charge. Following this samples will be stored at a daily rate until clients written advice regarding return, collection or disposal is received. If storage information is not supplied on the submission, or arranged with the laboratory in writing the default will be to store the samples with the applicable charges. Storage is charged at $4.00 per m3 per day, expenses related to the return or disposal of samples will also be charged. Current disposal costs including packaging in a Class2 waste disposal facility is charged at $175.00 per m3.

Samples received as liquids, waters or solutions will be held for 60 days free of charge then disposed of, unless written advice fo return or collection is received.

LEGEND	X	= Less than Detection Limit		NA	= Not Analysed
	SNR	= Sample Not Received		UA	= Unable to Assay
	LNR	= Lab Not Received		>	= Value beyond Limit of Method
	DTF	= Result still to come		+	= Extra Sample Received Not Listed
	I/S	= Insufficient Sample for Analysis			

UNITS	ppm for Solid Samples	= mg/Kg
	ppb for Solid Samples	= µg/Kg
	ppm for Liquid Samples	= mg/L
	ppb for Liquid Samples	= µg/L

ELEMENTS	Ag	Al	As	B	Ba	Be
UNITS	ug/l	mg/l	ug/l	mg/l	ug/l	ug/l
DETECTION LIMIT	0.01	0.01	0.1	0.01	0.05	0.1
DIGEST						
ANALYTICAL FINISH	/MS	/OE	/MS	/OE	/MS	/MS
SAMPLE NUMBERS						
0001 A23136 Kilosegui Fresh Tailings	<0.01	0.05	5.3	0.18	126.11	<0.1
0002 A23136 Kilosegui Transition Tailings	<0.01	0.03	4.5	0.14	129.85	<0.1
0003 A23136 Nokpa Fresh Tailings	<0.01	0.04	1.7	0.15	119.24	<0.1
0004 A23136 Nokpa Transition Tailings	0.02	0.04	7.4	0.17	194.71	<0.1
0005 A23136 Souwa Fresh Tailings	0.01	0.05	0.7	0.23	106.86	<0.1
0006 A23136 Souwa Oxide Tailings	<0.01	0.04	0.6	0.09	211.30	<0.1
0007 A23136 Souwa Transition Tailings	<0.01	0.03	9.2	0.13	176.08	<0.1
CHECKS						
0001 A23136 Souwa Fresh Tailings	<0.01	0.04	0.7	0.22	102.51	<0.1
STANDARDS						
0001 ICP-AM-MISA6		99.49		99.51		
0002 CRM-TMDW-500	1.98		81.0		49.97	20.1
0003 GWS-5						
0004 GWS-5						
0005 GWS-5						
0006 QCI-084						
BLANKS						
0001 Control Blank	<0.01	<0.01	<0.1	<0.01	<0.05	<0.1

ELEMENTS	Bi	Ca	Cd	Cl	Co	Cr
UNITS	ug/l	mg/l	ug/l	mg/l	ug/l	mg/l
DETECTION LIMIT	0.005	0.01	0.5	2	0.1	0.01
DIGEST						
ANALYTICAL FINISH	/MS	/OE	/MS	/COL	/MS	/OE
SAMPLE NUMBERS						
0001 A23136 Kilosegui Fresh Tailings	<0.005	42.54	<0.5	228	0.6	<0.01
0002 A23136 Kilosegui Transition Tailings	<0.005	38.98	<0.5	232	0.8	<0.01
0003 A23136 Nokpa Fresh Tailings	<0.005	41.65	<0.5	238	0.6	<0.01
0004 A23136 Nokpa Transition Tailings	<0.005	45.52	<0.5	233	1.1	<0.01
0005 A23136 Souwa Fresh Tailings	<0.005	55.32	<0.5	215	0.5	<0.01
0006 A23136 Souwa Oxide Tailings	<0.005	39.44	<0.5	255	8.8	<0.01
0007 A23136 Souwa Transition Tailings	<0.005	46.78	<0.5	244	2.9	<0.01
CHECKS						
0001 A23136 Souwa Fresh Tailings	<0.005	54.97	<0.5	214	0.5	<0.01
STANDARDS						
0001 ICP-AM-MISA6		101.85				100.23
0002 CRM-TMDW-500	9.856		10.1		25.3	
0003 GWS-5						
0004 GWS-5				38		
0005 GWS-5						
0006 QCI-084						
BLANKS						
0001 Control Blank	<0.005	<0.01	<0.5	<2	<0.1	<0.01

ELEMENTS	Cu	EC	F	Fe-Sol	Hg	K
UNITS	mg/l	mS/cm	mg/l	mg/l	ug/l	mg/l
DETECTION LIMIT	0.01	0.01	0.1	0.01	0.1	0.1
DIGEST						
ANALYTICAL FINISH	/OE	/MTR	/SIE	/OE	/MS	/OE
SAMPLE NUMBERS						
0001 A23136 Kilosegui Fresh Tailings	<0.01	1.14	0.9	<0.01	<0.1	13.6
0002 A23136 Kilosegui Transition Tailings	<0.01	1.03	0.9	0.01	<0.1	4.5
0003 A23136 Nokpa Fresh Tailings	<0.01	1.11	1.1	<0.01	<0.1	13.4
0004 A23136 Nokpa Transition Tailings	<0.01	1.02	1.1	<0.01	<0.1	3.1
0005 A23136 Souwa Fresh Tailings	<0.01	1.13	1.3	<0.01	<0.1	15.8
0006 A23136 Souwa Oxide Tailings	<0.01	1.06	1.1	0.05	<0.1	9.2
0007 A23136 Souwa Transition Tailings	<0.01	1.07	0.9	0.02	<0.1	4.7
CHECKS						
0001 A23136 Souwa Fresh Tailings	<0.01	1.13	1.3	<0.01	<0.1	15.6
STANDARDS						
0001 ICP-AM-MISA6	101.32			100.36		100.9
0002 CRM-TMDW-500					<0.1	
0003 GWS-5			0.6			
0004 GWS-5						
0005 GWS-5		0.31				
0006 QCI-084						
BLANKS						
0001 Control Blank	<0.01	<0.01	<0.1	<0.01	<0.1	<0.1

ELEMENTS	Mg	Mn	Mo	Na	Ni	P
UNITS	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l
DETECTION LIMIT	0.01	0.001	0.05	0.1	0.01	0.05
DIGEST						
ANALYTICAL FINISH	/OE	/OE	/MS	/OE	/OE	/OE
SAMPLE NUMBERS						
0001 A23136 Kilosegui Fresh Tailings	16.32	0.049	558.04	192.8	<0.01	<0.05
0002 A23136 Kilosegui Transition Tailings	6.26	0.215	206.45	185.4	<0.01	0.16
0003 A23136 Nokpa Fresh Tailings	10.68	0.038	438.31	190.7	<0.01	<0.05
0004 A23136 Nokpa Transition Tailings	7.61	0.119	194.17	176.8	<0.01	0.06
0005 A23136 Souwa Fresh Tailings	16.74	0.040	360.54	174.4	<0.01	<0.05
0006 A23136 Souwa Oxide Tailings	7.73	0.010	31.33	184.1	<0.01	<0.05
0007 A23136 Souwa Transition Tailings	6.49	0.018	43.17	187.0	<0.01	0.13
CHECKS						
0001 A23136 Souwa Fresh Tailings	16.66	0.040	354.44	172.7	<0.01	<0.05
STANDARDS						
0001 ICP-AM-MISA6	100.26	98.141		98.8	100.76	101.05
0002 CRM-TMDW-500			100.50			
0003 GWS-5						
0004 GWS-5						
0005 GWS-5						
0006 QCI-084						
BLANKS						
0001 Control Blank	<0.01	<0.001	<0.05	<0.1	<0.01	<0.05

ELEMENTS	Pb	pH	S	Sb	Se	Sn
UNITS	ug/l	NONE	mg/l	ug/l	ug/l	ug/l
DETECTION LIMIT	2	0.1	0.1	0.01	0.5	0.1
DIGEST						
ANALYTICAL FINISH	/MS	/MTR	/OE	/MS	/MS	/MS
SAMPLE NUMBERS						
0001 A23136 Kilosegui Fresh Tailings	<2	8.0	31.2	2.15	4.9	<0.1
0002 A23136 Kilosegui Transition Tailings	<2	7.9	15.3	0.70	2.7	<0.1
0003 A23136 Nokpa Fresh Tailings	<2	8.0	27.5	0.64	3.5	<0.1
0004 A23136 Nokpa Transition Tailings	4	7.9	13.7	0.54	<0.5	<0.1
0005 A23136 Souwa Fresh Tailings	<2	7.8	43.8	0.81	3.0	<0.1
0006 A23136 Souwa Oxide Tailings	<2	8.1	15.2	0.77	<0.5	<0.1
0007 A23136 Souwa Transition Tailings	<2	8.2	17.5	0.94	<0.5	<0.1
CHECKS						
0001 A23136 Souwa Fresh Tailings	<2	7.8	43.3	0.83	3.1	<0.1
STANDARDS						
0001 ICP-AM-MISA6			<0.1			
0002 CRM-TMDW-500	40			10.10	10.1	<0.1
0003 GWS-5						
0004 GWS-5						
0005 GWS-5		8.9				
0006 QCI-084						
BLANKS						
0001 Control Blank	<2	5.8	<0.1	0.01	<0.5	<0.1

ELEMENTS	Sr	TDSEva	Th	U	V	Zn
UNITS	ug/l	mg/Kg	ug/l	ug/l	mg/l	mg/l
DETECTION LIMIT	0.02	20	0.005	0.005	0.01	0.01
DIGEST						
ANALYTICAL FINISH	/MS	/GR	/MS	/MS	/OE	/OE
SAMPLE NUMBERS						
0001 A23136 Kilosegui Fresh Tailings	960.79	667	<0.005	12.589	<0.01	<0.01
0002 A23136 Kilosegui Transition Tailings	363.88	560	<0.005	5.487	<0.01	<0.01
0003 A23136 Nokpa Fresh Tailings	1184.16	644	<0.005	1.876	<0.01	<0.01
0004 A23136 Nokpa Transition Tailings	671.78	577	<0.005	1.825	<0.01	<0.01
0005 A23136 Souwa Fresh Tailings	4095.91	656	<0.005	0.804	<0.01	<0.01
0006 A23136 Souwa Oxide Tailings	682.47	587	<0.005	3.634	<0.01	<0.01
0007 A23136 Souwa Transition Tailings	789.55	607	<0.005	2.899	<0.01	<0.01
CHECKS						
0001 A23136 Souwa Fresh Tailings	4014.20	660	<0.005	0.801	<0.01	<0.01
STANDARDS						
0001 ICP-AM-MISA6					99.47	100.69
0002 CRM-TMDW-500	255.62		<0.005	9.743		
0003 GWS-5						
0004 GWS-5						
0005 GWS-5						
0006 QCI-084		572				
BLANKS						
0001 Control Blank	<0.02	<20	<0.005	<0.005	<0.01	<0.01

METHOD CODE DESCRIPTION

Method Code Date Tested	Analysing Laboratory NATA Laboratory Accreditation	NATA Scope of Accreditation
/COL **05/12/23 11:59**	Intertek Genalysis Perth **3244 3237** No digestion or other pre-treatment undertaken. Analysed by UV-Visible Spectrometry.	*
/GR **05/12/23 11:59**	Intertek Genalysis Perth **3244 3237** Analysed by Gravimetric Technique.	*
/MS **27/11/23 06:18**	Intertek Genalysis Perth **3244 3237** No digestion or other pre-treatment undertaken. Analysed by Inductively Coupled Plasma Mass Spectrometry.	**MS_IM_001**
/MTR **05/12/23 11:59**	Intertek Genalysis Perth **3244 3237** No digestion or other pre-treatment undertaken. Analysed with Electronic Meter Measurement	*
/OE **23/11/23 10:00**	Intertek Genalysis Perth **3244 3237** Analysed by Inductively Coupled Plasma Optical (Atomic) Emission Spectrometry.	**ICP_IM_001**
/SIE **15/11/23 14:22**	Intertek Genalysis Perth **3244 3237** No digestion or other pre-treatment undertaken. Analysed by Specific Ion Electrode.	*

* Denotes not on Scope of Accreditation

MINERALS
TEST REPORT

CLIENT

RORY SPLETTER
KNIGHT PIESOLD PTY LIMITED
36 Cordelia Street
SOUTH BRISBANE, QLD 4101
AUSTRALIA

JOB INFORMATION

JOB CODE	: 752.0/2321270
NO. SAMPLES	: 7
NO. ELEMENTS	: 49
CLIENT ORDER NO.	: PE301-00821/05 (Job 1 of 2)
SAMPLE SUBMISSION NO.	: PE301-00821/05
PROJECT	: DOROPO GOLD PROJECT
SAMPLE TYPE	: Slurry
DATE RECEIVED	: 08/11/2023
DATE TESTED	: 16/11/2023 - 29/11/2023
DATE REPORTED	: 29/11/2023
DATE PRINTED	: 29/11/2023

REPORT NOTES

TESTED BY

Intertek
544 Bickley Road, Maddington 6109, Western Australia
PO Box 144, Gosnells 6990, Western Australia
Tel: +61 8 9263 0100
Email: min.aus.per@intertek.com

APPROVED SIGNATURE FOR



Andrew RILEY
Regional Manager
Geochemistry Western Australia

This report relates specifically to the sample(s) tested that were drawn and/or provided by the client or their nominated third party to Intertek. The reported result(s) provide no warranty or verification on the sample(s) representing any specific goods and/or shipment. This report was prepared solely for the use of the client named in this report. Intertek accepts no responsibility for any loss, damage or liability suffered by a third party as a result of any reliance upon or use of this report. The results provided are not intended for commercial settlement purposes.
Except where explicitly agreed in writing, all work and services performed by Intertek is subject to our standard Terms and Conditions which can be obtained at our website: intertek.com/terms/
In nominating Intertek for this work, you hereby undertake that the performance of such work will not constitute a breach of, or cause Intertek to be in breach of, any applicable sanctions or other legislation.

SIGNIFICANT FIGURES

It is common practice to report data derived from analytical instrumentation to a maximum of two or three significant figures. Some data reported herein may show more figures than this. The reporting of more than two or three figures in no way implies that figures beyond the least significant digit have significance.

For more information on the uncertainty on individual reported values, please contact the laboratory.

MEASUREMENT OF UNCERTAINTY

Measurement of uncertainty estimates are available for most tests upon request.

SAMPLE STORAGE

All solid samples (assay pulps, bulk pulps and residues) will be stored for 60 days without charge. Following this samples will be stored at a daily rate until clients written advice regarding return, collection or disposal is received. If storage information is not supplied on the submission, or arranged with the laboratory in writing the default will be to store the samples with the applicable charges. Storage is charged at $4.00 per m3 per day, expenses related to the return or disposal of samples will also be charged. Current disposal costs including packaging in a Class2 waste disposal facility is charged at $175.00 per m3.

Samples received as liquids, waters or solutions will be held for 60 days free of charge then disposed of, unless written advice fo return or collection is received.

LEGEND	X	= Less than Detection Limit		NA	= Not Analysed
	SNR	= Sample Not Received		UA	= Unable to Assay
	LNR	= Lab Not Received		>	= Value beyond Limit of Method
	DTF	= Result still to come		+	= Extra Sample Received Not Listed
	I/S	= Insufficient Sample for Analysis			

UNITS	ppm for Solid Samples	= mg/Kg
	ppb for Solid Samples	= µg/Kg
	ppm for Liquid Samples	= mg/L
	ppb for Liquid Samples	= µg/L

ELEMENTS	Ag	Al	ANC	As	B	Ba
UNITS	ppm	ppm	kgH2SO4/t	ppm	ppm	ppm
DETECTION LIMIT	0.1	50	1	1	50	0.1
DIGEST	4AB/	4AB/	ANCx/	4AB/	FP1/	4AB/
ANALYTICAL FINISH	MS	OE	VOL	MS	OE	MS
SAMPLE NUMBERS						
0001 A23136 Kilosegui Fresh Tailings	0.3	6.90%	43	11	<50	626.1
0002 A23136 Kilosegui Transition Tailings	0.3	7.20%	6	3	<50	487.1
0003 A23136 Nokpa Fresh Tailings	0.4	5.83%	45	<1	<50	974.5
0004 A23136 Nokpa Transition Tailings	0.5	6.27%	9	1	<50	449.5
0005 A23136 Souwa Fresh Tailings	0.4	6.11%	59	<1	<50	726.2
0006 A23136 Souwa Oxide Tailings	0.4	8.86%	5	<1	<50	622.6
0007 A23136 Souwa Transition Tailings	0.3	6.49%	9	1	<50	515.9
CHECKS						
0001 A23136 Souwa Transition Tailings	0.5	6.48%	8	1	<50	514.3
STANDARDS						
0001 AMIS0167	0.9	1.26%		167		83.4
0002 OREAS 97.01						
0003 Se 0.1ppm						
0004 Se 1.0 ppm						
0005 HgSTD-8						
0006 AMIS0343					182	
0007 AMIS0342						
0008 OREAS 278						
0009 ANC-6			98			
0010 NAG Std 3						
0011 GWS-5						
0012 0.5%NaCl-1						
0013 PD-1						
0014 OREAS 279						
BLANKS						
0001 Control Blank	0.1	98	0	<1	<50	<0.1

ELEMENTS	Be	Bi	C	C-Acinsol	C-CO3	Ca
UNITS	ppm	ppm	%	%	%	ppm
DETECTION LIMIT	0.1	0.01	0.01	0.01	0.01	50
DIGEST	4AB/	4AB/		C71/		4AB/
ANALYTICAL FINISH	MS	MS	/CSA	CSA	/CALC	OE
SAMPLE NUMBERS						
0001 A23136 Kilosegui Fresh Tailings	0.8	0.10	0.56	<0.01	0.56	1.54%
0002 A23136 Kilosegui Transition Tailings	0.9	0.03	0.04	<0.01	0.04	2234
0003 A23136 Nokpa Fresh Tailings	0.7	0.35	0.48	<0.01	0.48	1.58%
0004 A23136 Nokpa Transition Tailings	1.0	0.16	0.05	0.01	0.04	3393
0005 A23136 Souwa Fresh Tailings	1.3	0.13	0.72	<0.01	0.72	2.17%
0006 A23136 Souwa Oxide Tailings	1.9	0.11	0.03	0.02	<0.01	1862
0007 A23136 Souwa Transition Tailings	1.1	0.11	0.04	<0.01	0.04	3907
CHECKS						
0001 A23136 Souwa Transition Tailings	1.1	0.08	0.05	0.01	0.04	3927
STANDARDS						
0001 AMIS0167	0.5	1.02				936
0002 OREAS 97.01						
0003 Se 0.1ppm						
0004 Se 1.0 ppm						
0005 HgSTD-8						
0006 AMIS0343						
0007 AMIS0342						
0008 OREAS 278			1.40			
0009 ANC-6						
0010 NAG Std 3						
0011 GWS-5						
0012 0.5%NaCl-1						
0013 PD-1						
0014 OREAS 279				0.21		
BLANKS						
0001 Control Blank	<0.1	0.01	<0.01	<0.01	<0.01	<50

ELEMENTS	Cd	Cl	Co	olourChange	Cr	Cu
UNITS	ppm	%	ppm	NONE	ppm	ppm
DETECTION LIMIT	0.1	0.02	0.1	0	5	1
DIGEST	4AB/	CL1/	4AB/	ANCx/	4AB/	4AB/
ANALYTICAL FINISH	MS	COL	MS	QUAL	OE	OE
SAMPLE NUMBERS						
0001 A23136 Kilosegui Fresh Tailings	<0.1	<0.02	15.1	Yes	305	20
0002 A23136 Kilosegui Transition Tailings	<0.1	<0.02	5.2	No	141	7
0003 A23136 Nokpa Fresh Tailings	<0.1	<0.02	12.6	Yes	397	25
0004 A23136 Nokpa Transition Tailings	<0.1	<0.02	11.3	No	367	23
0005 A23136 Souwa Fresh Tailings	<0.1	<0.02	11.8	Yes	391	31
0006 A23136 Souwa Oxide Tailings	<0.1	<0.02	15.7	No	182	25
0007 A23136 Souwa Transition Tailings	<0.1	<0.02	16.8	No	309	21
CHECKS						
0001 A23136 Souwa Transition Tailings	<0.1	<0.02	16.1	No	288	22
STANDARDS						
0001 AMIS0167	0.4		37.5		354	60
0002 OREAS 97.01						
0003 Se 0.1ppm						
0004 Se 1.0 ppm						
0005 HgSTD-8						
0006 AMIS0343						
0007 AMIS0342						
0008 OREAS 278						
0009 ANC-6						
0010 NAG Std 3						
0011 GWS-5						
0012 0.5%NaCl-1		0.32				
0013 PD-1						
0014 OREAS 279						
BLANKS						
0001 Control Blank	<0.1	<0.02	<0.1		<5	<1

ELEMENTS	EC	F	Fe	Final-pH	Fizz-Rate	Hg
UNITS	uS/cm	ppm	%	NONE	NONE	ppb
DETECTION LIMIT	10	50	0.01	0.1	1	1
DIGEST	Paste/	FC7/	4AB/	ANCx/	ANCx/	AR005/
ANALYTICAL FINISH	MTR	SIE	OE	MTR	QUAL	MSHg
SAMPLE NUMBERS						
0001 A23136 Kilosegui Fresh Tailings	232	92	1.64	1.3	2	88
0002 A23136 Kilosegui Transition Tailings	135	137	1.14	1.5	<1	8
0003 A23136 Nokpa Fresh Tailings	196	307	1.51	1.3	2	71
0004 A23136 Nokpa Transition Tailings	146	370	1.57	1.6	<1	7
0005 A23136 Souwa Fresh Tailings	133	528	1.69	1.3	2	89
0006 A23136 Souwa Oxide Tailings	175	444	2.16	1.6	<1	62
0007 A23136 Souwa Transition Tailings	127	381	1.74	1.6	<1	7
CHECKS						
0001 A23136 Souwa Transition Tailings	134	405	1.75	1.7	<1	7
STANDARDS						
0001 AMIS0167			2.35			
0002 OREAS 97.01						
0003 Se 0.1ppm						
0004 Se 1.0 ppm						
0005 HgSTD-8						3014
0006 AMIS0343						
0007 AMIS0342		1068				
0008 OREAS 278						
0009 ANC-6				1.4		
0010 NAG Std 3						
0011 GWS-5	313					
0012 0.5%NaCl-1						
0013 PD-1						
0014 OREAS 279						
BLANKS						
0001 Control Blank	<10	<50	<0.01	1.5		<1

ELEMENTS	K	Mg	Mn	Mo	MPA	Na
UNITS	ppm	ppm	ppm	ppm	kgH2SO4/t	ppm
DETECTION LIMIT	20	20	1	0.1	1	20
DIGEST	4AB/	4AB/	4AB/	4AB/		4AB/
ANALYTICAL FINISH	OE	OE	OE	MS	/CALC	OE
SAMPLE NUMBERS						
0001 A23136 Kilosegui Fresh Tailings	1.26%	2410	280	95.6	11	4.38%
0002 A23136 Kilosegui Transition Tailings	9061	1260	147	27.4	2	4.65%
0003 A23136 Nokpa Fresh Tailings	6844	3043	226	62.2	9	3.36%
0004 A23136 Nokpa Transition Tailings	9264	2108	195	51.3	<1	3.23%
0005 A23136 Souwa Fresh Tailings	1.05%	3329	321	60.4	15	2.97%
0006 A23136 Souwa Oxide Tailings	1.29%	2303	405	38.8	<1	1.33%
0007 A23136 Souwa Transition Tailings	9647	2316	337	53.7	1	3.02%
CHECKS						
0001 A23136 Souwa Transition Tailings	9624	2308	343	54.0	1	3.03%
STANDARDS						
0001 AMIS0167	4060	1446	181	3.7		601
0002 OREAS 97.01						
0003 Se 0.1ppm						
0004 Se 1.0 ppm						
0005 HgSTD-8						
0006 AMIS0343						
0007 AMIS0342						
0008 OREAS 278					28	
0009 ANC-6						
0010 NAG Std 3						
0011 GWS-5						
0012 0.5%NaCl-1						
0013 PD-1						
0014 OREAS 279						
BLANKS						
0001 Control Blank	<20	<20	<1	<0.1	<1	<20

ELEMENTS	NAG	NAGpH	NAG(4.5)	NAPP	Ni	P
UNITS	kgH2SO4/t	NONE	kgH2SO4/t	kgH2SO4/t	ppm	ppm
DETECTION LIMIT	1	0.1	1	1	1	50
DIGEST	NAGx/	NAGx/	NAGx/		4AB/	4AB/
ANALYTICAL FINISH	VOL	MTR	VOL	/CALC	OE	OE
SAMPLE NUMBERS						
0001 A23136 Kilosegui Fresh Tailings	0	10.2	0	-32	421	360
0002 A23136 Kilosegui Transition Tailings	0	7.8	0	-4	116	162
0003 A23136 Nokpa Fresh Tailings	0	10.6	0	-36	380	319
0004 A23136 Nokpa Transition Tailings	0	8.3	0	-8	264	282
0005 A23136 Souwa Fresh Tailings	0	10.0	0	-44	387	375
0006 A23136 Souwa Oxide Tailings	0	7.9	0	-5	199	95
0007 A23136 Souwa Transition Tailings	0	8.4	0	-8	302	246
CHECKS						
0001 A23136 Souwa Transition Tailings	0	8.4	0	-7	300	250
STANDARDS						
0001 AMIS0167					94	132
0002 OREAS 97.01						
0003 Se 0.1ppm						
0004 Se 1.0 ppm						
0005 HgSTD-8						
0006 AMIS0343						
0007 AMIS0342						
0008 OREAS 278						
0009 ANC-6						
0010 NAG Std 3	23	2.7	18			
0011 GWS-5						
0012 0.5%NaCl-1						
0013 PD-1						
0014 OREAS 279						
BLANKS						
0001 Control Blank	3	5.1	0	0	<1	<50

ELEMENTS	Pb	pH	pH Drop	S	S-SO4	Sb
UNITS	ppm	NONE	NONE	%	%	ppm
DETECTION LIMIT	2	0.1	0.1	0.01	0.01	0.05
DIGEST	4AB/	Paste/	ANCx/		S71/	4AB/
ANALYTICAL FINISH	MS	MTR	MTR	/CSA	OE	MS
SAMPLE NUMBERS						
0001 A23136 Kilosegui Fresh Tailings	9	8.8	3.5	0.37	<0.01	0.24
0002 A23136 Kilosegui Transition Tailings	8	9.1	4.0	0.06	<0.01	0.11
0003 A23136 Nokpa Fresh Tailings	23	8.6	3.6	0.30	0.02	0.15
0004 A23136 Nokpa Transition Tailings	14	9.1	4.1	0.03	0.02	0.10
0005 A23136 Souwa Fresh Tailings	39	8.9	3.6	0.50	0.02	0.14
0006 A23136 Souwa Oxide Tailings	21	9.1	4.2	<0.01	<0.01	0.10
0007 A23136 Souwa Transition Tailings	19	9.3	4.0	0.04	0.01	0.18
CHECKS						
0001 A23136 Souwa Transition Tailings	19	9.3	4.0	0.04	<0.01	0.13
STANDARDS						
0001 AMIS0167	240					6.08
0002 OREAS 97.01						
0003 Se 0.1ppm						
0004 Se 1.0 ppm						
0005 HgSTD-8						
0006 AMIS0343						
0007 AMIS0342						
0008 OREAS 278				0.93		
0009 ANC-6						
0010 NAG Std 3						
0011 GWS-5		8.9				
0012 0.5%NaCl-1						
0013 PD-1					4.16	
0014 OREAS 279						
BLANKS						
0001 Control Blank	2	5.8		<0.01	<0.01	<0.05

ELEMENTS	Se	Sn	Sr	Th	U	V
UNITS	ppm	ppm	ppm	ppm	ppm	ppm
DETECTION LIMIT	0.01	0.1	0.05	0.01	0.01	2
DIGEST	SE1/	4AB/	4AB/	4AB/	4AB/	4AB/
ANALYTICAL FINISH	MS	MS	MS	MS	MS	OE
SAMPLE NUMBERS						
0001 A23136 Kilosegui Fresh Tailings	0.46	1.0	319.85	4.95	1.47	19
0002 A23136 Kilosegui Transition Tailings	0.25	0.7	233.52	3.26	1.01	13
0003 A23136 Nokpa Fresh Tailings	0.39	0.7	272.13	0.69	0.25	32
0004 A23136 Nokpa Transition Tailings	0.09	0.6	298.32	0.79	0.32	49
0005 A23136 Souwa Fresh Tailings	0.21	0.9	409.34	0.82	0.20	88
0006 A23136 Souwa Oxide Tailings	0.02	0.7	159.53	1.16	0.45	53
0007 A23136 Souwa Transition Tailings	0.06	0.7	317.84	0.94	0.34	52
CHECKS						
0001 A23136 Souwa Transition Tailings	0.06	0.6	312.78	1.02	0.32	52
STANDARDS						
0001 AMIS0167		1.4	19.85	46.69	462.49	57
0002 OREAS 97.01	0.64					
0003 Se 0.1ppm	0.10					
0004 Se 1.0 ppm	1.03					
0005 HgSTD-8						
0006 AMIS0343						
0007 AMIS0342						
0008 OREAS 278						
0009 ANC-6						
0010 NAG Std 3						
0011 GWS-5						
0012 0.5%NaCl-1						
0013 PD-1						
0014 OREAS 279						
BLANKS						
0001 Control Blank	<0.01	0.1	<0.05	<0.01	<0.01	<2

ELEMENTS	Zn
UNITS	ppm
DETECTION LIMIT	1
DIGEST	4AB/
ANALYTICAL FINISH	OE
SAMPLE NUMBERS	
0001 A23136 Kilosegui Fresh Tailings	32
0002 A23136 Kilosegui Transition Tailings	22
0003 A23136 Nokpa Fresh Tailings	39
0004 A23136 Nokpa Transition Tailings	34
0005 A23136 Souwa Fresh Tailings	38
0006 A23136 Souwa Oxide Tailings	73
0007 A23136 Souwa Transition Tailings	42

CHECKS	
0001 A23136 Souwa Transition Tailings	42

STANDARDS	
0001 AMIS0167	156
0002 OREAS 97.01	
0003 Se 0.1ppm	
0004 Se 1.0 ppm	
0005 HgSTD-8	
0006 AMIS0343	
0007 AMIS0342	
0008 OREAS 278	
0009 ANC-6	
0010 NAG Std 3	
0011 GWS-5	
0012 0.5%NaCl-1	
0013 PD-1	
0014 OREAS 279	

BLANKS	
0001 Control Blank	<1

METHOD CODE DESCRIPTION

Method Code Date Tested	Analysing Laboratory NATA Laboratory Accreditation	NATA Scope of Accreditation
/CALC **29/11/23 15:13**	Intertek Genalysis Perth **3244 3237** No digestion or other pre-treatment undertaken. Results Determined by calculation from other reported data.	*
/CSA **29/11/23 15:09**	Intertek Genalysis Perth **3244 3237** Induction Furnace Analysed by Infrared Spectrometry	**ENV_W061(Per), MPL_W161(Adl)**
4AB/MS **24/11/23 09:51**	Intertek Genalysis Perth **3244 3237** Multi-acid digest including Hydrofluoric, Nitric, Perchloric and Hydrochloric acids in Teflon Beakers. Analysed by Inductively Coupled Plasma Mass Spectrometry.	**MPL_W001, MS_IM_001**
4AB/OE **24/11/23 09:51**	Intertek Genalysis Perth **3244 3237** Multi-acid digest including Hydrofluoric, Nitric, Perchloric and Hydrochloric acids in Teflon Beakers. Analysed by Inductively Coupled Plasma Optical (Atomic) Emission Spectrometry.	**MPL_W001, ICP_IM_001**
ANCx/MTR **27/11/23 18:41**	Intertek Genalysis Perth **3244 3237** Acid Neutralizing Capacity Digestion Procedure. Analysed with Electronic Meter Measurement	**ENV_W035**
ANCx/QUAL **27/11/23 18:41**	Intertek Genalysis Perth **3244 3237** Acid Neutralizing Capacity Digestion Procedure. Analysed by Qualitative Inspection	**ENV_W035**
ANCx/VOL **27/11/23 18:41**	Intertek Genalysis Perth **3244 3237** Acid Neutralizing Capacity Digestion Procedure. Analysed by Volumetric Technique.	**ENV_W035**
AR005/MSHg **24/11/23 08:40**	Intertek Genalysis Perth **3244 3237** 0.5 gram mini Aqua-Regia digest. Analysed by Inductively Coupled Plasma Mass Spectrometry.	*

METHOD CODE DESCRIPTION

Method Code Date Tested	Analysing Laboratory NATA Laboratory Accreditation	NATA Scope of Accreditation
C71/CSA **27/11/23 08:40**	Intertek Genalysis Perth **3244 3237** Digestion by hot acid(s) and Induction Furnace Analysed by Infrared Spectrometry	**ENV_W063**
CL1/COL **24/11/23 08:20**	Intertek Genalysis Perth **3244 3237** Carbonate leach specific for Chlorine. Analysed by UV-Visible Spectrometry.	**ENV_W014**
FC7/SIE **24/11/23 09:40**	Intertek Genalysis Perth **3244 3237** Alkaline fusion (Nickel crucible) specific for Fluorine. Analysed by Specific Ion Electrode.	**ENV_W012**
FP1/OE **25/11/23 18:16**	Intertek Genalysis Perth **3244 3237** Sodium peroxide fusion (Zirconia crucibles) and Hydrochloric acid to dissolve the melt. Analysed by Inductively Coupled Plasma Optical (Atomic) Emission Spectrometry.	**MPL_W011, MS_IM_001**
NAGx/MTR **27/11/23 19:02**	Intertek Genalysis Perth **3244 3237** Net Acid Generation Extraction of samples with H2O2 Analysed with Electronic Meter Measurement	**ENV_W036**
NAGx/VOL **27/11/23 19:02**	Intertek Genalysis Perth **3244 3237** Net Acid Generation Extraction of samples with H2O2 Analysed by Volumetric Technique.	**ENV_W036**
Paste/MTR **29/11/23 15:09**	Intertek Genalysis Perth **3244 3237** Water Extraction using a specific sample:water ratio. Analysed with Electronic Meter Measurement	****
S71/OE **24/11/23 08:28**	Intertek Genalysis Perth **3244 3237** Digestion to eliminate sulphides. Analysed by Inductively Coupled Plasma Optical (Atomic) Emission Spectrometry.	**ENV_W062, ICP_IM_001**

METHOD CODE DESCRIPTION

Method Code Date Tested	Analysing Laboratory NATA Laboratory Accreditation	NATA Scope of Accreditation
SE1/MS **27/11/23 07:18**	Intertek Genalysis Perth **3244 3237** Aqua-Regia digest followed by Precipitation and Concentration. Specific for Selenium. Analysed by Inductively Coupled Plasma Mass Spectrometry.	**MPL_W005, MS_IM_001**

* Denotes not on Scope of Accreditation

APPENDIX F

Memorandum Ref. PE25-01492

Doropo Gold Project –Water Balance Modelling Update

MEMORANDUM

To:	Resolute Mining	**Date:**	26 November 2025
Attn:	Rob Cicchini	**Our Ref:**	PE25-01492
		KP File Ref.:	PE301-00821/07-A dj M25002
cc:	Luciano Giancristofaro	**From:**	Dave Morgan

RE: DOROPO GOLD PROJECT – WATER BALANCE MODELLING UPDATE

1. INTRODUCTION

As part of the Definitive Feasibility Study (DFS) design update, site water balance modelling was completed for the Doropo Gold Project (Doropo). The Plant Site, Tailings Storage Facility (TSF), Water Storage Dam (WSD), and Water Harvesting Dam (WHD) have been incorporated into the modelling.

Modelling was undertaken for average, design wet, and design dry climatic conditions with tailings parameters obtained from testing undertaken by Knight Piésold (KP) in 2023. The system has been designed to prevent shortfalls during dry climatic conditions by pumping from the WHD to the WSD in the previous wet season.

2. MODELLING PARAMETERS

2.1 OBJECTIVES

The primary objectives of the tailings deposition and water balance modelling are summarised below:

- Establish the filling rate for tailings solids within the TSF.
- Estimate the in-situ tailings density within the TSF, taking into consideration tailings properties from laboratory testing and the TSF basin storage parameters.
- Determine supernatant pond volumes within the TSF under average climatic conditions throughout operation.
- Determine supernatant pond volumes within the TSF for design wet rainfall sequences and storm events, check TSF storm water storage capacity and confirm the suitability of the current TSF design philosophy.
- Determine staged embankment crest elevations, to ensure containment of tailings and design supernatant pond volumes.
- Prevent recycle water shortfalls during average conditions and design dry rainfall sequences.
- Determine the WSD capacity to store make-up water to prevent shortfalls.
- Determine the required WHD capacity and abstraction rate (from WHD to WSD) to provide additional make-up water to prevent shortfalls.
- Assess risk factors for water balance modelling.

2.2 MODEL PARAMETERS AND ASSUMPTIONS

2.2.1 General

The water balance was completed using a monthly time step. Tailings behaviour parameters were incorporated into the model using in-house tailings density modelling software. The model allows for the build-up of tailings solids and area, then calculates the tailings densities, supernatant release, and water losses from within the TSF due to evaporation, seepage etc.

2.2.2 Tailings Storage Facility (TSF)

For the water management model, the following inputs into the TSF were included:

- Water in the slurry from the process plant.
- Rainfall runoff from the tailings and supernatant pond surface and surrounding catchments.

Outputs from the TSF included:

- Evaporation losses.
- Seepage losses.
- Water trapped in void space not available for return or consolidation.
- Water returned to the plant as process make-up water (via a decant system).
- No spillway flows were assumed.

2.2.3 Water Storage Dam (WSD)

For the water management model, the following inputs into the WSD were included:

- Rainfall runoff from the pond surface and upstream catchments into the WSD.
- Water pumped from the WHD.

Outputs from the WSD included:

- Evaporation losses.
- Seepage losses.
- Water returned to the plant as process raw/make-up water (via an abstraction system).
- Water discharged from the overflow spillway.

2.2.4 Water Harvesting Dam (WHD)

The water balance model includes the WHD as the main source of external water supply for processing operations. Water harvested from the WHD basin is pumped directly into the WSD for storage. An independent water balance model with a daily time-step utilising historical daily rainfall data was developed to estimate monthly water supply potential from the WHD for average, design wet and design dry conditions. It is noted that the water supply determined by the daily model was transferred into the monthly time-step model.

For the water management model, rainfall runoff from the pond surface and upstream catchment was included.

Outputs from the WHD included:

- Evaporation losses.
- Seepage losses.
- Water pumped to the WSD (via the abstraction system).
- Water discharged from the overflow spillway.

2.3 WATER USAGE PRIORITY

For the water management model, the following water requirements and priorities were assumed to supply the required process plant water demand in order:

- The water present in the ore.
- Water collected from Plant Site runoff was not included as surface water management within the plant site is yet to be confirmed.
- The minimum raw water requirement (for use in the process plant) is sourced from the WSD.
- The additional raw water requirement for dust suppression and wash down (external to the process) is sourced from the WSD. Seasonal variation for dust suppression was considered.
- After allowing for the items above, the model attempts to supply the remaining process water requirement from the TSF supernatant pond.
- If there are any shortfalls in the process water return from the TSF (due to a defined minimum pond), further water requirements (make-up water) are sourced again from the WSD.
- If the process water requirement is not met from the WSD, the model then determines the shortfall volume for which the target is zero.

A block model of the interactions is shown in Figure 2.1.

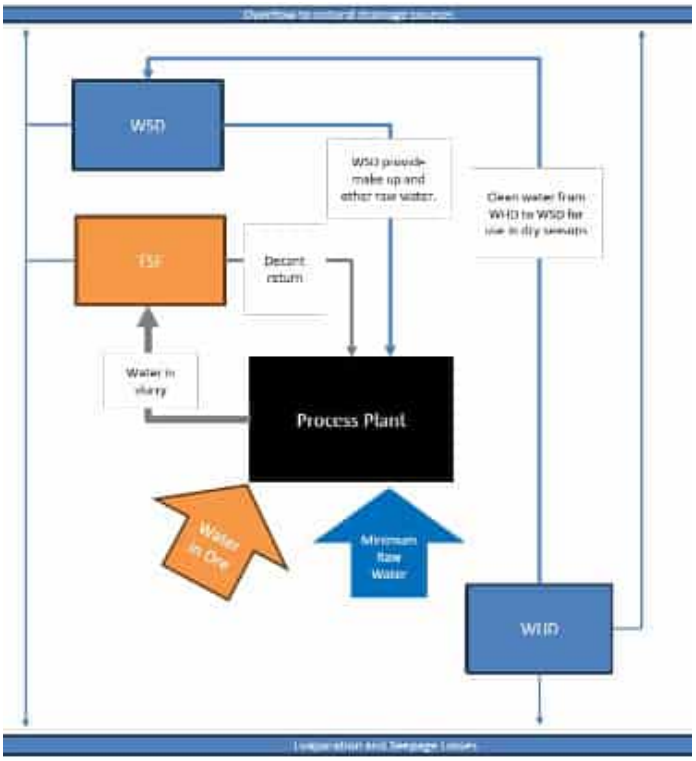


Figure 2.1: Water balance block model

2.4 MODELLING SCENARIOS

For water management modelling, various design rainfall conditions were included for selected operational years. The following rainfall sequences were modelled:

- Average rainfall conditions.
- 100-year Average Recurrence Interval (ARI), 1-year dry rainfall sequence.
- 100-year ARI, 1-year wet rainfall sequence.
- 100-year ARI, 72-hour duration storm event superimposed over average rainfall sequence.
- 5-year ARI wet season (120 days duration), with 100% runoff and no evaporation.

When design rainfall sequences were modelled in a selected year, it was assumed that average climatic conditions occurred prior to, and subsequent to, the design sequence.

Average and design wet/dry monthly rainfall and evaporation values were used in the modelling, as documented in the Baseline Climatology Assessment (Memorandum Ref. PE23-00348, April 2023). Monthly rainfall and lake evaporation values are provided in Table 2.1.

Table 2.1: Design rainfall and evaporation annual sequences

Month	Average Rainfall (mm)	100-year ARI Wet Annual Rainfall (mm)	100-year ARI Dry Annual Rainfall (mm)	Average Lake Evap. (mm)
January	0	0	0	143
February	7	56	0	148
March	0	93	48	164
April	85	149	133	146
May	121	189	69	136
June	64	258	100	111
July	229	366	79	94
August	267	303	111	82
September	223	394	77	89
October	84	83	88	107
November	2	26	0	118
December	50	14	0	131
TOTAL	1,132	1,931	705	1,469

Design storm events from the baseline climatology assessment are provided in Table 2.2.

Table 2.2: Design storm events

10	100-year ARI	1,000-year ARI	10,000-year ARI	PMP*
24	202	282	362	602
72	220	307	394	654

*PMP: Probable Maximum Precipitation.

The design wet season was modelled as a 120-day duration rainfall sequence where the period in which 70% of the annual rainfall occurs on average, as defined by ANCOLD (Ref. 1). This sequence is summarised in Table 2.3.

Table 2.3: Design wet season rainfall sequence

Month	Wet Season Scenarios (mm)		
	100-year ARI	10-year ARI	5-year ARI
July	291	231	206
August	257	204	183
September	476	377	337
October	321	254	228
TOTAL	1,345	1,065	954

2.5 CATCHMENT AND RUNOFF ESTIMATION

Catchment and runoff characteristics used in the water balance modelling are shown in Table 2.4. Runoff coefficients shown in Table 2.4 were assumed based on similar regional project experience.

Table 2.4: Catchment characteristics

Parameter	Value
TSF Catchment Area - Stage 1 – 5 - Stage 5+	 479 Ha 400 Ha
WSD Catchment Area	980 Ha
WHD Catchment Area	43,095 Ha
TSF Storage Curve	Refer Figure 2.2
WSD Storage Curve	Refer Figure 2.3
WHD Storage Curve	Refer Figure 2.4
Plant Site Catchment Area	Not currently utilised in model
Runoff Coefficients (Long-term) - Undisturbed (external to basins) - Compacted Soil Liner - HDPE Liner - Tailings beach - Ponds	 Refer Table 2.5 40% 90% 80% 100%
Runoff Coefficients (Short-term event*) - Undisturbed (external to basins) - Compacted Soil Liner - HDPE Liner - Tailings beach - Ponds	 15% 80% 100% 85% 100%

*100-year ARI, 72-hour duration storm event.

Undisturbed runoff coefficients were estimated as adjusted runoff coefficients based on rainfall magnitude and intensity, preceding rainfall conditions and local topography.

For long term average conditions, the full set of daily rainfall data from the Batie meteorological station (1944 – 2000) was used, and average runoff coefficients for each month of the year determined. For design wet and dry rainfall sequences, factored daily rainfall sequences were used.

An initial Curve Number (CN) value was selected based on land use and hydrologic soil type, using reference tables from TR-55 (Ref. 2). This CN was adjusted for the preceding 5-day rainfall total (the antecedent moisture condition) using the reference table provided in NEH-4 (Ref. 3), as follows:

- Less than 13 mm in preceding 5 days – Dry conditions AMC I, 30% initial loss (quantity of retention prior to runoff).
- 13 mm to 28 mm rainfall in preceding 5 days – Normal conditions AMC II, 20% initial loss.
- Greater than 28 mm rainfall in preceding 5 days – Wet conditions AMC III 10% initial loss.
- Ongoing losses (due to retention) were assumed based on the designated hydrologic soil properties (Ref. 2).
- The CN values were converted to runoff coefficients for varying rainfall intensities using published formulae (Ref. 3), taking into account initial and ongoing losses.
- The runoff coefficients were finally adjusted for local climate type and topography based on published conversion tables (Ref. 4).

The relationships between daily rainfall and runoff coefficient for each preceding condition are plotted on Figure 2.5.

To convert rainfall intensity to a daily rainfall value (to facilitate the site water management model daily time step), it was assumed that all site rainfall occurred over a period of 3 hours per day. This assumption was based on previous site experience in Côte d'Ivoire. The monthly undisturbed runoff coefficients determined by the modelling for the wettest year (1968) on record, driest year (1948) on record and average conditions are summarised below in Table 2.5. The average runoff coefficient provided in Table 2.5 is a weighted average, considering monthly rainfall measurements if annual rainfall is considered.

Table 2.5: Monthly runoff coefficients – Undisturbed areas

Month	Runoff Coefficient (%)		
	Average Rainfall (mm)	1 in 100 ARI Wet Annual Rainfall (mm)	1 in 100 ARI Dry Annual Rainfall (mm)
January	0.0	0.0	0.0
February	0.0	0.0	0.0
March	1.0	1.0	0.0
April	1.5	1.5	0.0
May	2.5	3.5	1.0
June	3.0	8.0	1.5
July	3.5	12.0	2.0
August	5.0	15.0	2.5
September	5.0	15.0	2.5
October	5.0	15.0	1.5
November	1.5	3.0	0.0
December	0.0	0.0	0.0
AVERAGE	3.8	9.9	1.4

2.6 TAILINGS CHARACTERISTICS

Modelling parameters for the tailings were obtained from physical testing carried out by KP in 2023 (Memo Ref. PE23-01297). Three different types of tailings were considered, Fresh, Transition and Oxide. The difference between Souwa, Nokpa and Kilosegui pits was not included as they were considered to be similar.

Tailings adjusted parameters used in the water balance modelling are summarised in Table 2.6.

Table 2.6: Tailings characteristics

Parameter	Fresh	Transition	Oxide
Tailings percent Solids w/w	43%	42%	42%
Undrained Dry Density (minimum)	0.98 t/m^3	1.12 t/m^3	1.16 t/m^3
Air Dry Density (maximum)	1.60 t/m^3	1.41 t/m^3	1.46 t/m^3
Water Released (percent of water in slurry)			
- Supernatant	53	50	42
- Underdrainage	9	10	10

The process schedule was provided by Oreology via email (V5 dated 8 October 2025) and is summarised in Table 2.7.

Table 2.7: Tailings throughput

Year	Throughput (Mtpa)
1	5.3
2	4.9
3	4.9
4	4.9
5	4.9
6	4.9
7	4.9
8	4.9
9	4.9
10	4.9
11	4.9
12	4.9
13	2.0
Total	61.2

It is noted that while the lithological breakdown of ore types has been provided on a year-on-year basis, the interaction between the tailings types is not yet known and no blended samples have been tested.

2.7 PIT DEWATERING/GROUNDWATER SUPPLY

A water management study was conducted by Piteau Associated UK Ltd. in May 2023 (Ref. 5) which concluded that pit dewatering and groundwater would provide insufficient quantities to supply raw water requirements. To allow for a conservative design of the WSD and WHD, KP has excluded pit dewatering from the water balance model. However, if pit water is available adjacent to the plant site, it could be used as a supplementary water supply.

2.8 PROCESS PARAMETERS

Process parameters used in the water balance modelling were obtained from Lycopodium via email dated 20 October 2025 and are summarised in Table 2.8. The assumed Process Plant commissioning date is October of Year 1.

Table 2.8: Adopted Process parameters

Parameter	Fresh	Transition/Oxide
	Percent of water in slurry	
Water in Slurry (Plant Tailings)	100	100
Water in Ore	5	15
Minimum Raw Water Required (e.g. reagents, gland)	16	16
Maximum Allowable TSF Recycle	79	69

2.9 ADDITIONAL PARAMETERS

Additional modelling parameters used are listed in Table 2.9. If the planned commissioning dates vary from these assumptions, the impacts on water balance modelling should be reviewed.

Table 2.9: Additional modelling parameters

Parameter	Value
TSF	
Commissioning date (storage)	01 Jan Year 1
Commissioning date (operation)	01 Jan Year 1
Tailings beach slope	100H:1V
Minimum operating pond volume	50,000 m^3
Tailings permeability	
- Fresh	1 x 10^{-6} m/s
- Oxide	2 x 10^{-7} m/s
TSF basin permeability (HDPE liner)	1 x 10^{-11} m/s
WSD	
Commissioning date	01 Jan Year 0
WSD storage capacity	6.2 Mm^3
WSD basin permeability	1 x 10^{-7} m/s
Minimum pond volume (for abstraction)	10,000 m^3
WHD	
Commissioning date	01 Jan Year 0
WHD storage capacity	500,000 m^3
WHD basin permeability	1 x 10^{-7} m/s
Minimum pond volume (for abstraction)	5,000 m^3
General Parameters	
Evaporation pan factor (pond)	0.70
Evaporation pan factor (beach)	0.50 to 1.0

3. WATER BALANCE MODELLING RESULTS

3.1 GENERAL

As the lithological breakdown of the tailings is currently unknown, KP has undertaken two water balance models to provide a general range of expected outcomes:

- Case 1 – With 100% Fresh ore tailings for the LOM.
- Case 2 – With 100% Oxide ore tailings for the LOM.

It is expected that the final TSF behaviour will lie somewhere between these two scenarios, and the outcomes of the water balance modelling should be reviewed once lithology is confirmed.

3.2 WATER HARVESTING DAM

Historical daily rainfall data from Batie West Site (34 km north east of Doropo) were used to assess the filling characteristics of the WHD, and determine the proportion of the catchment runoffs that would be intercepted by the WHD.

Modelling of the WHD filling for the Batie rainfall was completed, with a view to assess the following:

- Estimate total runoff volume to the WHD embankment.
- Determine filling time for the WHD each wet season.
- Determine the stored volume in the WHD on a daily time-step, taking into account storage losses (evaporation and seepage) and indicative abstraction rates possible from the WHD to the WSD.
- Calculate the total discharge volumes from the WHD spillway (reporting to downstream catchments), and express as a proportion of the total runoff volume.

For the water balance modelling, 12-month sequences of measured daily rainfall records were factored to correspond with average, design wet and design dry rainfall sequences as provided in Table 2.1 and modelled.

The WHD abstraction rates/volumes were then summated into monthly totals for each design scenario and used in the site wide water balance modelling (monthly time-step). A plot of the WHD pond volume over the time period is shown on Figure 3.1. This indicates the WHD will discharge for several months of the year, providing adequate supply to pump to the WSD.

3.3 AVERAGE CONDITIONS

Water management modelling using average climatic conditions allows general expected long term trends in the behaviour of the water management system to be determined.
Modelling results for the TSF under average climatic conditions are plotted on figures 3.2 and 3.3 for Case 1 and Case 2 respectively. Plant Site water usage for average conditions is plotted on figures 3.4 and 3.5 for Case 1 and Case 2 respectively. The WSD reservoir volume and elevation for the average conditions are presented in figures 3.6 and 3.7 for Case 1 and Case 2 respectively.

Observations from the average conditions modelling are summarised below.

Tailings Storage Facility – General

- TSF recycle rates for each year of operation are provided in tables 3.1 and 3.2 for each year of Case 1 and Case 2 respectively. The recycle rates are expressed as a percentage of the water in slurry reporting to the TSF.
- The supernatant pond volume peaks in September each year (at the end of the wet season).
- The facility ceases operating in June Year 13 with the water balance being positive after decommissioning (increasing pond volume).

Table 3.1: Average conditions – TSF recycle rates (Case 1)

Year	Total Annual Water in Slurry Volume (m^3/year)	Total Recycle Volume (m^3/year)	Average Monthly Recycle Rate (%)	Maximum Monthly Recycle Rate (%)	Minimum Monthly Recycle Rate (%)
1	6,167,000	4,335,000	70%	79%	39%
2	5,768,000	4,458,000	77%	79%	57%
3	5,753,000	4,552,000	79%	79%	79%
4	5,753,000	4,552,000	79%	79%	79%
5	5,753,000	4,552,000	79%	79%	79%
6	5,753,000	4,552,000	79%	79%	79%
7	5,753,000	4,552,000	79%	79%	79%
8	5,753,000	4,552,000	79%	79%	79%
9	5,753,000	4,552,000	79%	79%	79%
10	5,753,000	4,552,000	79%	79%	79%
11	5,753,000	4,552,000	79%	79%	79%
12	5,753,000	4,552,000	79%	79%	79%
13*	2,358,000	1,866,000	79%	79%	79%

* Year 13 operation comprises January – June only.

Table 3.2: Average conditions – TSF recycle rates (Case 2)

Year	Total Annual Water in Slurry Volume (m^3/year)	Total Recycle Volume (m^3/year)	Average Monthly Recycle Rate (%)	Maximum Monthly Recycle Rate (%)	Minimum Monthly Recycle Rate (%)
1	6,421,000	3,887,000	61%	72%	25%
2	6,006,000	4,276,000	71%	72%	65%
3	5,989,000	4,296,000	72%	72%	72%
4	5,989,000	4,296,000	72%	72%	72%
5	5,989,000	4,296,000	72%	72%	72%
6	5,989,000	4,296,000	72%	72%	72%
7	5,989,000	4,296,000	72%	72%	72%
8	5,989,000	4,296,000	72%	72%	72%
9	5,989,000	4,296,000	72%	72%	72%
10	5,989,000	4,296,000	72%	72%	72%
11	5,989,000	4,296,000	72%	72%	72%
12	5,989,000	4,296,000	72%	72%	72%
13*	2,455,000	1,761,000	72%	72%	72%

* Year 13 operation comprises January – June only.

Plant Site and Water Supply

- Process water shortfalls are expected to occur under average climatic conditions for the first two years, summarised in tables 3.3 and 3.4 of Case 1 and Case 2 respectively. All make-up water requirements can be provided by the WSD (supplemented by the WHD).

Table 3.3: Average conditions – Recycle water shortfall (without WSD supply, Case 1)

Year	Recycle Water Shortfall Volume (m^3/year)	Recycle Water Shortfall (% of water in slurry)	Raw Water Required (m^3/year)	Total Water Demand (m^3/year)
1	545,000	9%	1,025,000	1,570,000
2	106,000	2%	958,000	1,064,000
3	-	0%	957,000	957,000
4	-	0%	957,000	957,000
5	-	0%	957,000	957,000
6	-	0%	957,000	957,000
7	-	0%	957,000	957,000
8	-	0%	957,000	957,000
9	-	0%	957,000	957,000
10	-	0%	957,000	957,000
11	-	0%	957,000	957,000
12	-	0%	957,000	957,000
13*	-	0%	392,000	392,000

* Year 13 operation comprises January – June only.

Table 3.4: Average conditions – Recycle water shortfall (without WSD supply, Case 2)

Year	Recycle Water Shortfall Volume (m^3/year)	Recycle Water Shortfall (% of water in slurry)	Raw Water Required (m^3/year)	Total Water Demand (m^3/year)
1	720,000	11%	1,027,000	1,747,000
2	32,000	0.5%	961,000	993,000
3	-	0%	959,000	959,000
4	-	0%	959,000	959,000
5	-	0%	959,000	959,000
6	-	0%	959,000	959,000
7	-	0%	959,000	959,000
8	-	0%	959,000	959,000
9	-	0%	959,000	959,000
10	-	0%	959,000	959,000
11	-	0%	959,000	959,000
12	-	0%	959,000	959,000
13*	-	0%	393,000	393,000

* Year 13 operation comprises January – June only.

Water Storage Dam

- The WSD will not fill to capacity without being supplemented by the WHD.
- The required WSD and WHD storage capacities are governed by design dry conditions modelling, as outlined in Section 3.5.

3.4 WET CONDITIONS

Modelling of design wet rainfall sequences and storm events were completed for each year of operation. The design cases considered were:

- 100-year ARI 12-month wet rainfall sequence.
- 100-year ARI, 72-hour storm event on top of average conditions.
- 5-year ARI, wet season runoff (120 days duration), with 100% runoff and no evaporation.

For all scenarios, average climatic conditions were modelled prior to and following the design events. In addition, the supernatant pond volume prior to design event is based on the assumption that the TSF is managed appropriately and the accumulation of excess water reduced by recycling water to the plant to the maximum extent practicable, as assumed in the overall design concept.

Wet condition modelling results for the TSF are presented in figures 3.8 and 3.9 for Case 1 and Case 2 respectively with multiple results overlayed.

Average and design wet conditions supernatant pond volumes are summarised in tables 3.5 and 3.6. It is noted that the values shown are the highest recycle rates for design wet conditions, which generally occur in the year subsequent to the 100-year ARI wet year.

Table 3.5: Wet conditions – Peak supernatant pond volumes (Case 1)

Year (in which event occurs)	Peak Supernatant Pond Volume (m^3)		
	Average Conditions	100-year ARI, 12-month wet sequence	100-Yyar ARI, 72-hour storm event + 5 Year ARI, Wet Season Runoff *2
1	704,000	1,757,000	**5,781,000**
2	937,000	2,152,000	**5,902,000**
3	1,158,000	2,634,000	**5,890,000**
4	1,381,000	3,030,000	**5,887,000**
5	1,548,000	3,320,000	**4,945,000**
6	1,663,000	3,532,000	**4,716,000**
7	1,731,000	3,665,000	**4,657,000**
8	1,806,000	3,813,000	**4,612,000**
9	1,932,000	4,007,000	**4,631,000**
10	2,120,000	4,303,000	**4,738,000**
11	2,348,000	4,648,000	**4,889,000**
12	2,614,000	5,036,000	**5,069,000**
13*1	1,886,000	3,970,000	**3,916,000**

*1 Year 13 operation comprises January – June only.

*2 No evaporation and 100% runoff.

Table 3.6: Wet conditions – Peak supernatant pond volumes (Case 2)

Year (in which event occurs)	Peak Supernatant Pond Volume (m^3)		
	Average Conditions	100-year ARI, 12 month wet sequence	100-year ARI, 72-hour storm event + 5 Year ARI, Wet Season Runoff *2
1	732,000	1,768,000	**5,698,000**
2	1,039,000	2,364,000	**5,928,000**
3	1,431,000	3,009,000	**6,118,000**
4	1,841,000	3,614,000	**6,334,000**
5	2,201,000	4,104,000	**5,639,000**
6	2,509,000	4,498,000	**5,636,000**
7	2,777,000	4,845,000	**5,818,000**
8	3,052,000	5,200,000	**6,003,000**
9	3,330,000	5,556,000	**6,200,000**
10	3,650,000	5,983,000	**6,455,000**
11	4,006,000	6,449,000	**6,744,000**
12	4,392,000	6,945,000	**7,072,000**
13*1	3,648,000	5,910,000	**6,131,000**

*1 Year 13 operation comprises January – June only.

*2 No evaporation and 100% runoff.

Key observations from the wet conditions modelling are as follows:

- The TSF is designed to hold the tailings plus the design rainfall conditions and thus has sufficient storm water storage capacity for all design storm events and rainfall sequences.
- The TSF has a minimum stormwater storage capacity of 7.0 Mm^3 (Stage 1) to 15.9 Mm^3 (final).
- The critical design rainfall event in terms of pond elevation is the design storm event occurring in the last month of each stage of operation, when the TSF storm water capacity is at a minimum. There is sufficient stormwater storage capacity in the TSF for this situation during all stages of operation.

3.5 DRY CONDITIONS

Modelling of design dry rainfall sequences were completed for each year of operation. The design case considered was a 100-year ARI interval, 12-month dry rainfall sequence. Average climatic conditions were modelled prior to and following the design event.

TSF recycle rates for each year of operation under design dry conditions are provided in tables 3.7 and 3.8 for Case 1 and Case 2 respectively. The maximum and minimum rates show the range of monthly values throughout each year. The recycle rates are expressed as a percentage of the water in slurry reporting to the TSF. Plant Site water usage for selected design dry conditions (dry year occurring in year 3 and dry year occurring in year 7) are plotted on figures 3.10 to 3.13. WSD reservoir volumes for design dry conditions are presented in figures 3.14 and 3.15 for Case 1 and Case 2 respectively. The values shown are the lowest recycle rates for design dry conditions, which occur during the year in which the 100-year ARI dry sequence occurs.

Table 3.7: Dry conditions – TSF recycle rates (Case 1)

Year	Total Annual Water in Slurry Volume (m^3/year)	Total Recycle Volume (m^3/year)	Average Monthly Recycle Rate (%)	Maximum Monthly Recycle Rate (%)	Minimum Monthly Recycle Rate (%)
1	6,167,000	4,121,000	67%	79%	39%
2	5,768,000	4,208,000	73%	79%	53%
3	5,753,000	4,160,000	72%	79%	49%
4	5,753,000	4,133,000	72%	79%	46%
5	5,753,000	4,191,000	73%	79%	44%
6	5,753,000	4,251,000	74%	79%	44%
7	5,753,000	4,169,000	72%	79%	44%
8	5,753,000	4,224,000	73%	79%	44%
9	5,753,000	4,308,000	75%	79%	44%
10	5,753,000	4,407,000	77%	79%	49%
11	5,753,000	4,502,000	78%	79%	69%
12	5,753,000	4,552,000	79%	79%	79%
13*	2,358,000	1,866,000	79%	79%	79%

* Year 13 operation comprises January – June only.

Table 3.8: Dry conditions – TSF recycle rates (Case 2)

Year	Total Annual Water in Slurry Volume (m^3/year)	Total Recycle Volume (m^3/year)	Average Monthly Recycle Rate (%)	Maximum Monthly Recycle Rate (%)	Minimum Monthly Recycle Rate (%)
1	6,421,000	3,720,000	58%	72%	25%
2	6,006,000	3,994,000	67%	72%	50%
3	5,989,000	4,022,000	67%	72%	52%
4	5,989,000	4,232,000	71%	72%	59%
5	5,989,000	4,296,000	72%	72%	72%
6	5,989,000	4,296,000	72%	72%	72%
7	5,989,000	4,296,000	72%	72%	72%
8	5,989,000	4,296,000	72%	72%	72%
9	5,989,000	4,296,000	72%	72%	72%
10	5,989,000	4,296,000	72%	72%	72%
11	5,989,000	4,296,000	72%	72%	72%
12	5,989,000	4,296,000	72%	72%	72%
13*	2,455,000	1,761,000	72%	72%	72%

* Year 13 operation comprises January – June only.

Key observations from dry conditions modelling are as follows:

- Process water shortfall is expected to occur under dry climatic conditions, summarised in tables 3.9 and 3.10.
- The maximum shortfalls govern the required storage capacity of the WSD.

Table 3.9: Dry conditions – Recycle water shortfall (without WSD supply, Case 1)

Year	Average Conditions				Design Dry Conditions			
	Recycle Water Shortfall Volume (m^3/year)	Recycle Water Shortfall (% of water in slurry)	Raw Water Required (m^3/year)	Total Water Demand (m^3/year)	Recycle Water Shortfall Volume (m^3/year)	Recycle Water Shortfall (% of water in slurry)	Raw Water Required (m^3/year)	Total Water Demand (m^3/year)
1	545,000	9%	1,025,000	1,570,000	759,000	12%	1,025,000	1,784,000
2	106,000	2%	958,000	1,064,000	357,000	6%	958,000	1,315,000
3	-	0%	957,000	957,000	392,000	7%	957,000	1,349,000
4	-	0%	957,000	957,000	419,000	7%	957,000	1,376,000
5	-	0%	957,000	957,000	361,000	6%	957,000	1,318,000
6	-	0%	957,000	957,000	301,000	5%	957,000	1,258,000
7	-	0%	957,000	957,000	383,000	7%	957,000	1,340,000
8	-	0%	957,000	957,000	328,000	6%	957,000	1,285,000
9	-	0%	957,000	957,000	244,000	4%	957,000	1,201,000
10	-	0%	957,000	957,000	145,000	3%	957,000	1,102,000
11	-	0%	957,000	957,000	51,000	1%	957,000	1,008,000
12	-	0%	957,000	957,000	-	0%	957,000	957,000
13*	-	0%	392,000	392,000	-	0%	392,000	392,000

* Year 13 operation comprises January – June only.

Table 3.10: Dry conditions – Recycle water shortfall (without WSD supply, Case 2)

Year	Average Conditions				Design Dry Conditions			
	Recycle Water Shortfall Volume (m^3/year)	Recycle Water Shortfall (% of water in slurry)	Raw Water Required (m^3/year)	Total Water Demand (m^3/year)	Recycle Water Shortfall Volume (m^3/year)	Recycle Water Shortfall (% of water in slurry)	Raw Water Required (m^3/year)	Total Water Demand (m^3/year)
1	720,000	11%	1,027,000	1,747,000	894,000	14%	1,027,000	1,921,000
2	32,000	0.5%	961,000	993,000	314,000	5%	961,000	1,275,000
3	-	0%	959,000	959,000	275,000	5%	959,000	1,234,000
4	-	0%	959,000	959,000	65,000	1%	959,000	1,024,000
5	-	0%	959,000	959,000	-	0%	959,000	959,000
6	-	0%	959,000	959,000	-	0%	959,000	959,000
7	-	0%	959,000	959,000	-	0%	959,000	959,000
8	-	0%	959,000	959,000	-	0%	959,000	959,000
9	-	0%	959,000	959,000	-	0%	959,000	959,000
10	-	0%	959,000	959,000	-	0%	959,000	959,000
11	-	0%	959,000	959,000	-	0%	959,000	959,000
12	-	0%	959,000	959,000	-	0%	959,000	959,000
13*	-	0%	393,000	393,000	-	0%	393,000	393,000

* Year 13 operation comprises January – June only.

4. CONCLUSION

For the WSD with a basin permeability of 1 x 10^{-7} m/s, a storage capacity of 2,000,000 m^3 is required to provide make-up water for the shortfall volumes provided, supplemented by an abstraction rate of 125 L/s (unfactored for availability) from the WHD. This includes allowance for storage losses due to evaporation and seepage in both the WSD and WHD reservoirs.

For the purpose of modelling, the same basin permeability has been applied to both the WSD and WHD. A WHD capacity of 500,000 m^3 is required to prevent shortfalls under design dry conditions.

We trust that this is sufficient for your current requirements. If you have any further queries, please contact us.

Yours faithfully
KNIGHT PIÉSOLD PTY LTD

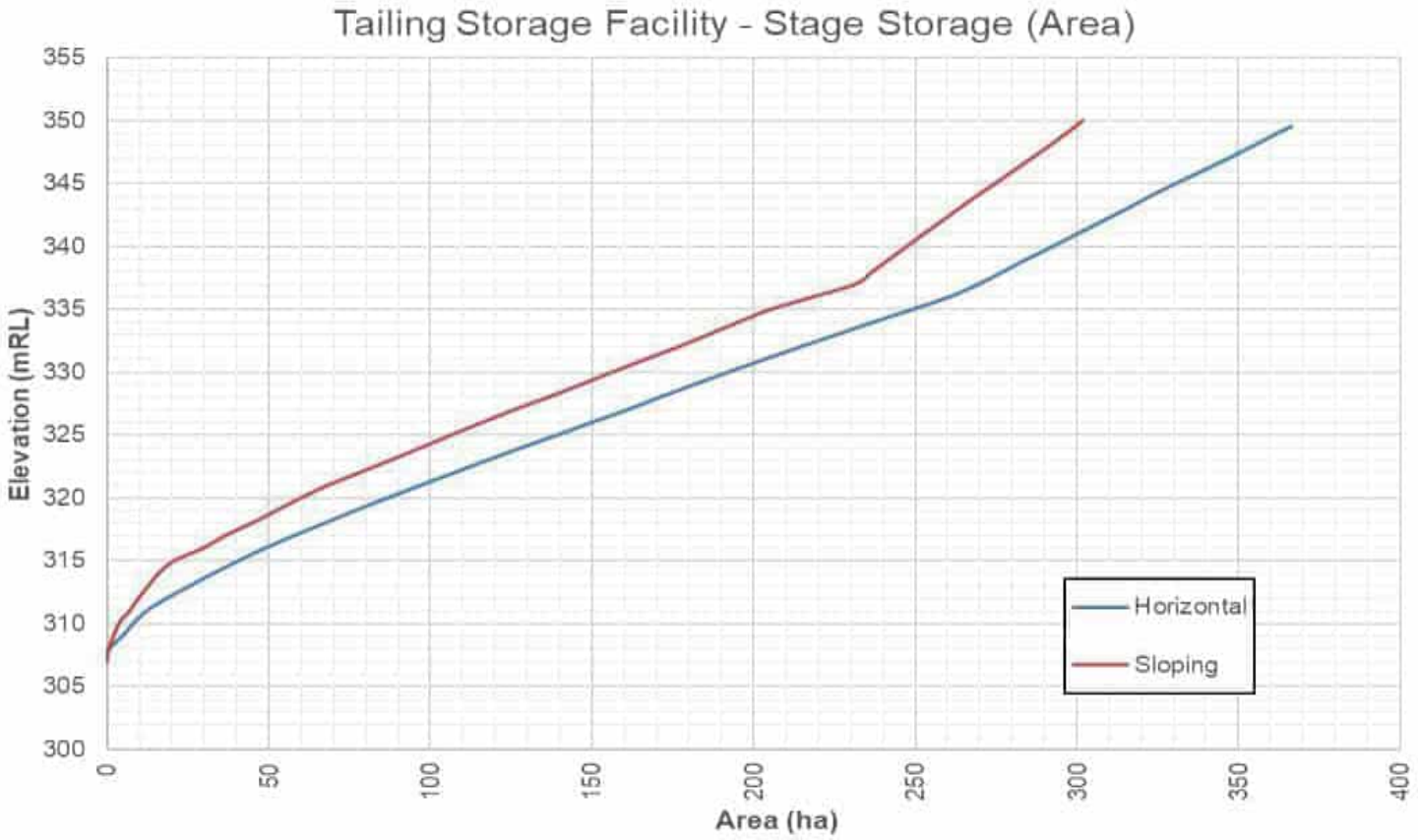
DEAN SAWYER
Principal Engineer

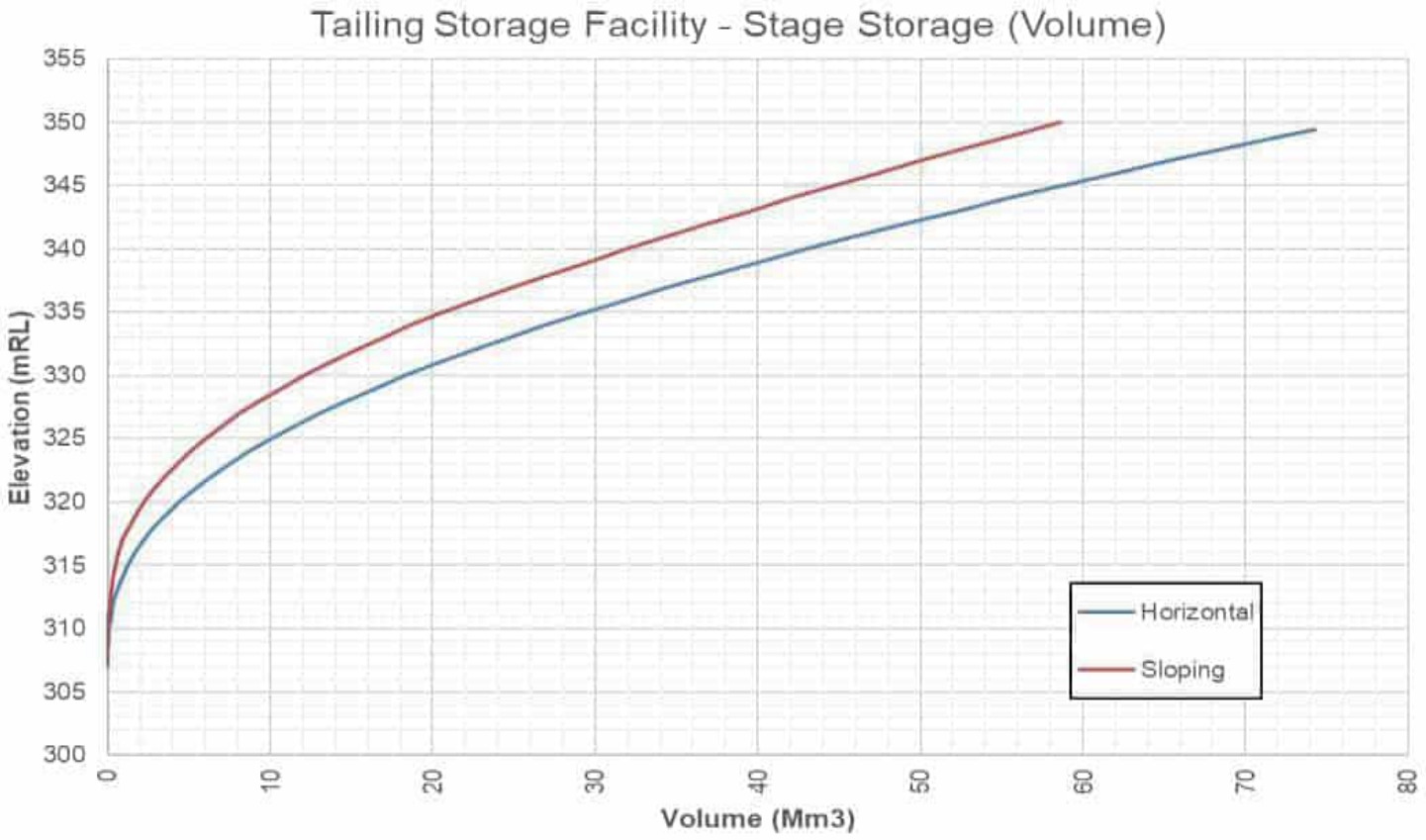
DAVID MORGAN
Managing Director

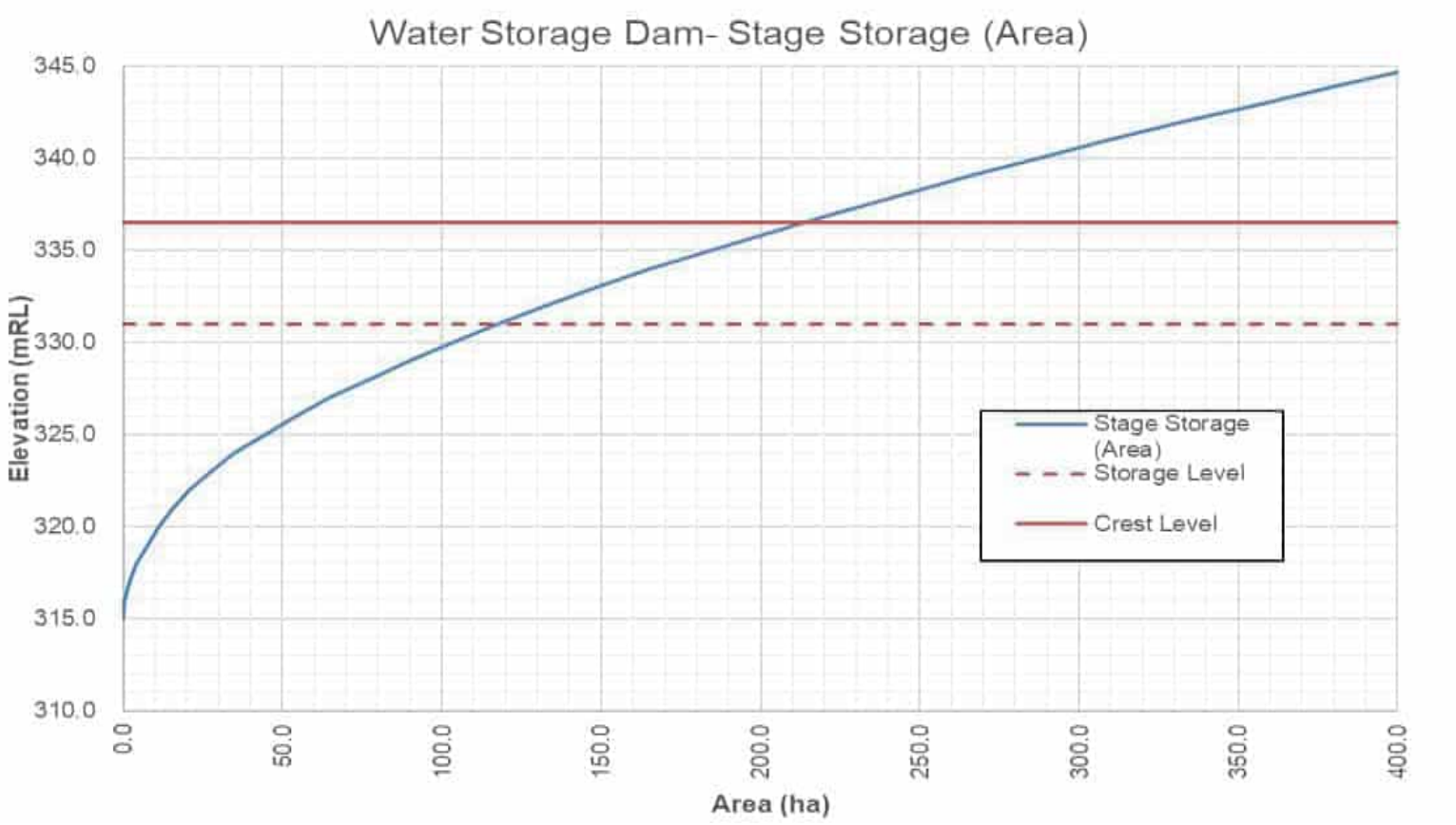
REFERENCES

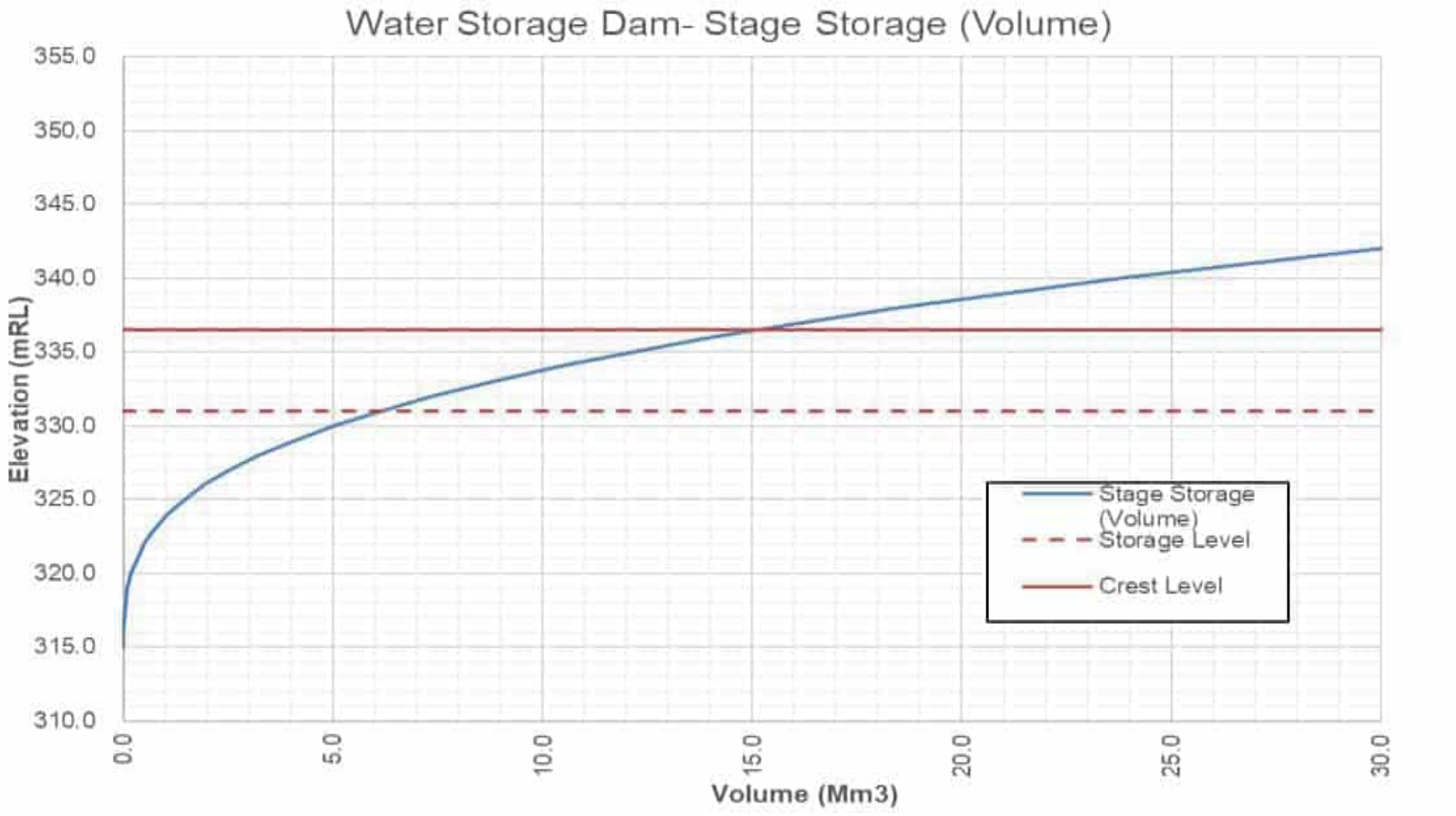
1. ANCOLD, "*Guidelines on Tailings Dams, Planning, Design, Construction, Operation and Closure*", July 2019.
2. USDA Soil Conservation Service ,(1986), "*Technical Release 55 – Urban Hydrology for small Watersheds*".
3. NRCS, (2001), "*National Engineering Handbook (Part 630), Section 4 – Hydrology*".
4. Fiddes, D. and Watkins, L., (1984), "*Highway and Urban Hydrology in the Tropics*", Pentech, London.
5. Piteau Associates UK Ltd, "D*oropo Gold Project, Ivory Coast, Pre-feasibility water management study for the Doropo open pits, Cote d'Ivoire*", Report Ref. 4609R1v2, May 2023.

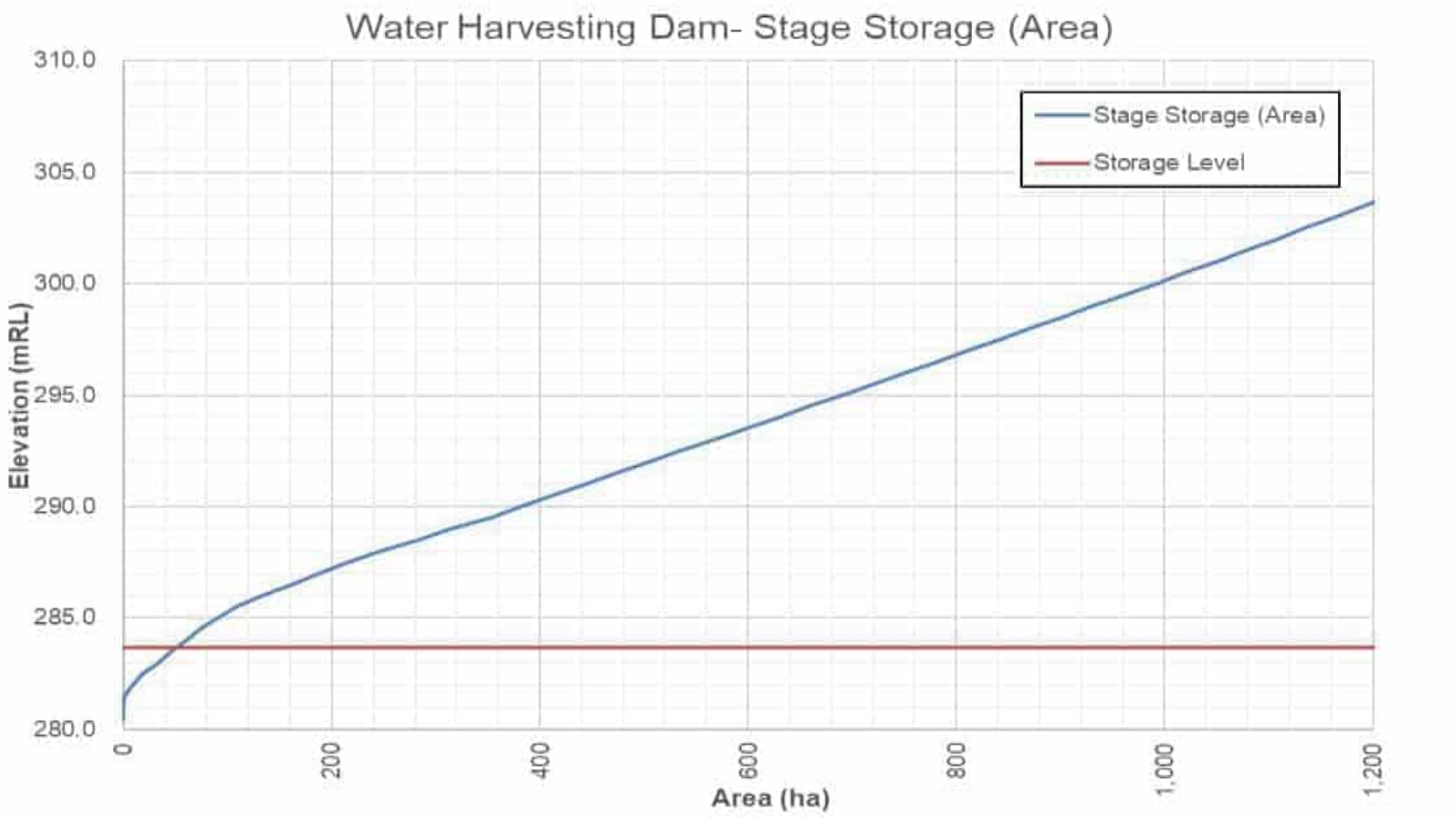
FIGURES

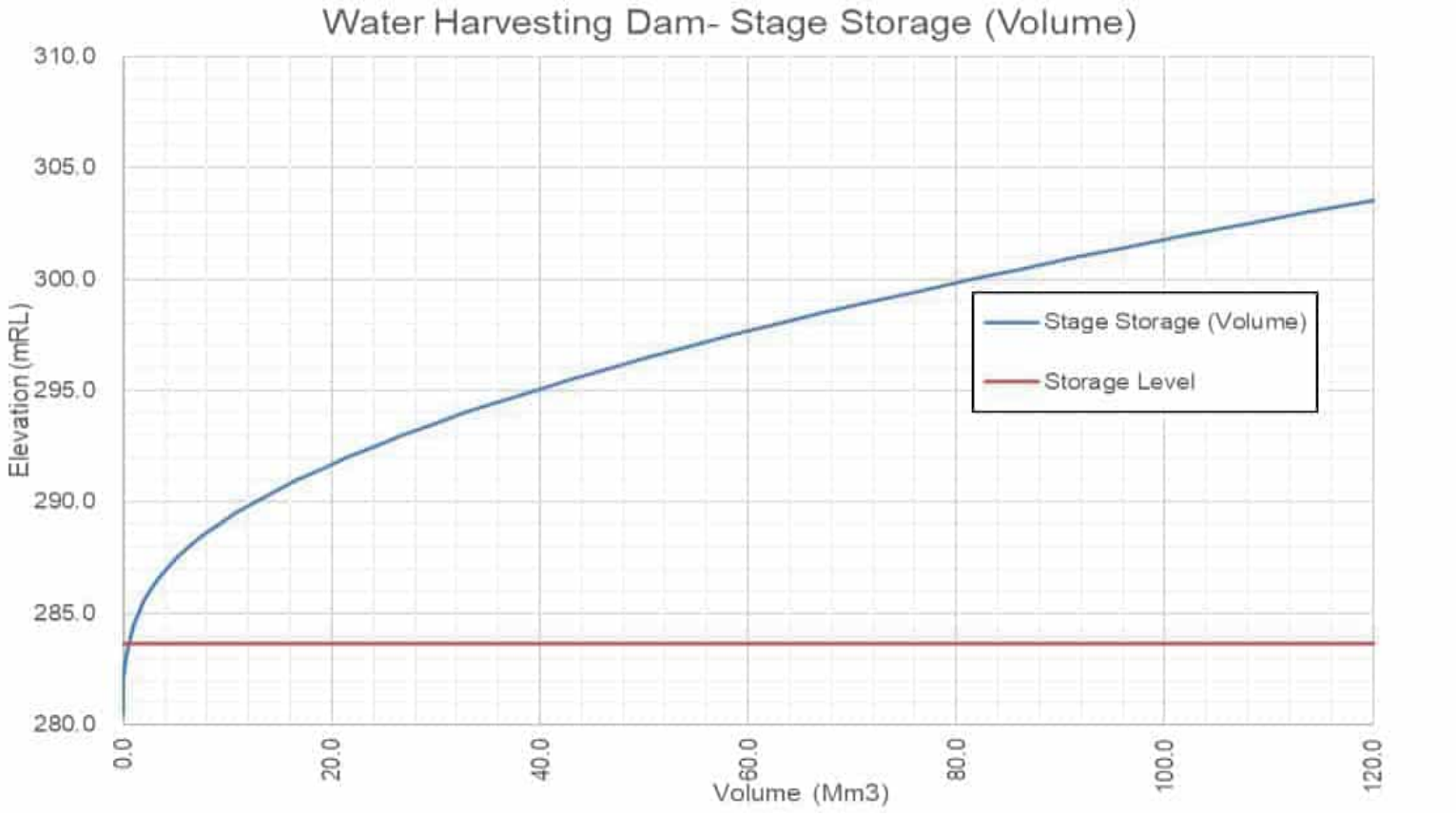

Tailing Storage Facility - Stage Storage (Area)
Elevation (mRL)
355
350
345
340
335
330
325
320
315
310
305
300
0
50
100
150
200
250
300
350
400
Area (ha)
Horizontal
Sloping

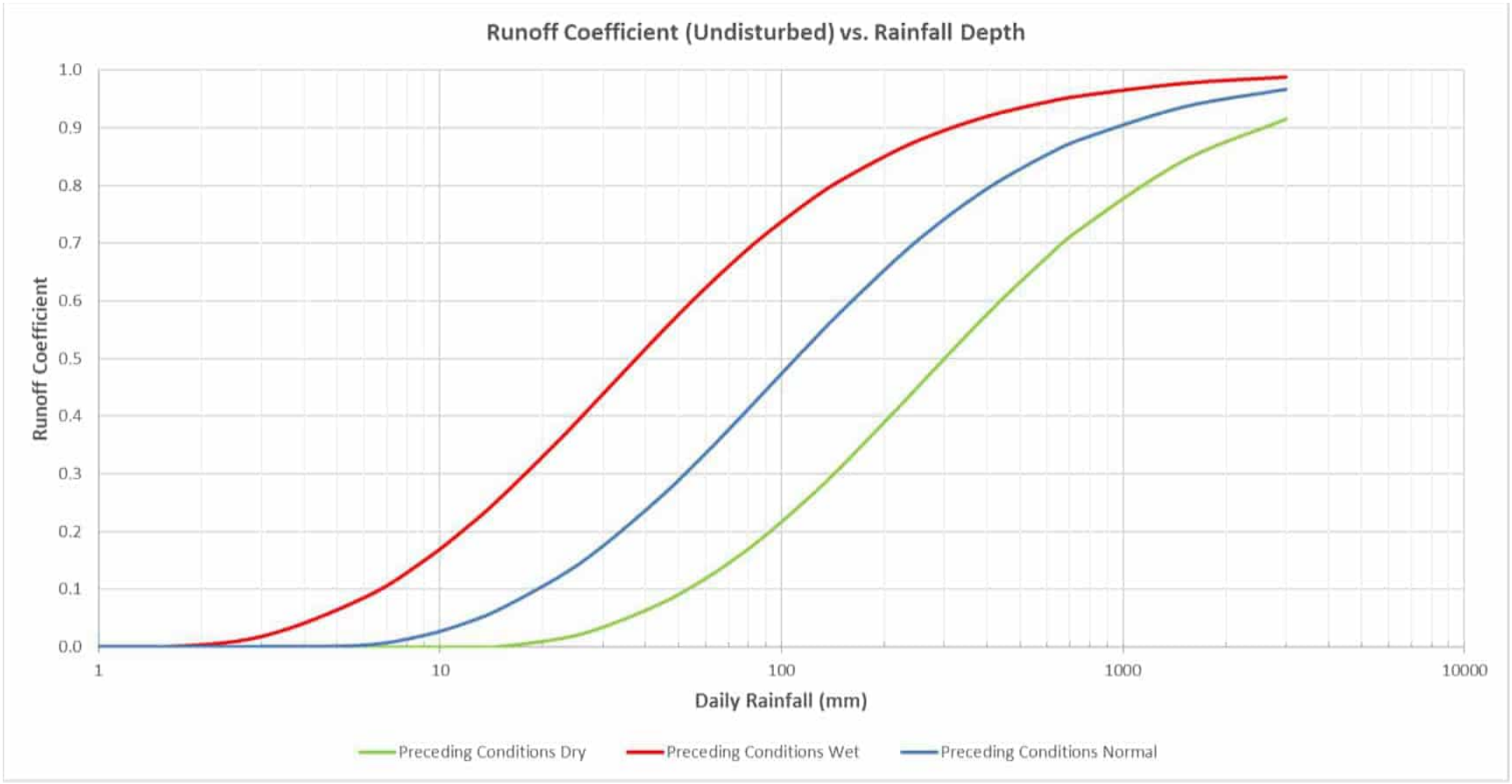

Tailing Storage Facility - Stage Storage (Volume)
Elevation (mRL)
355
350
345
340
335
330
325
320
315
310
305
300
0
10
20
30
40
50
60
70
80
Volume (Mm3)
Horizontal
Sloping

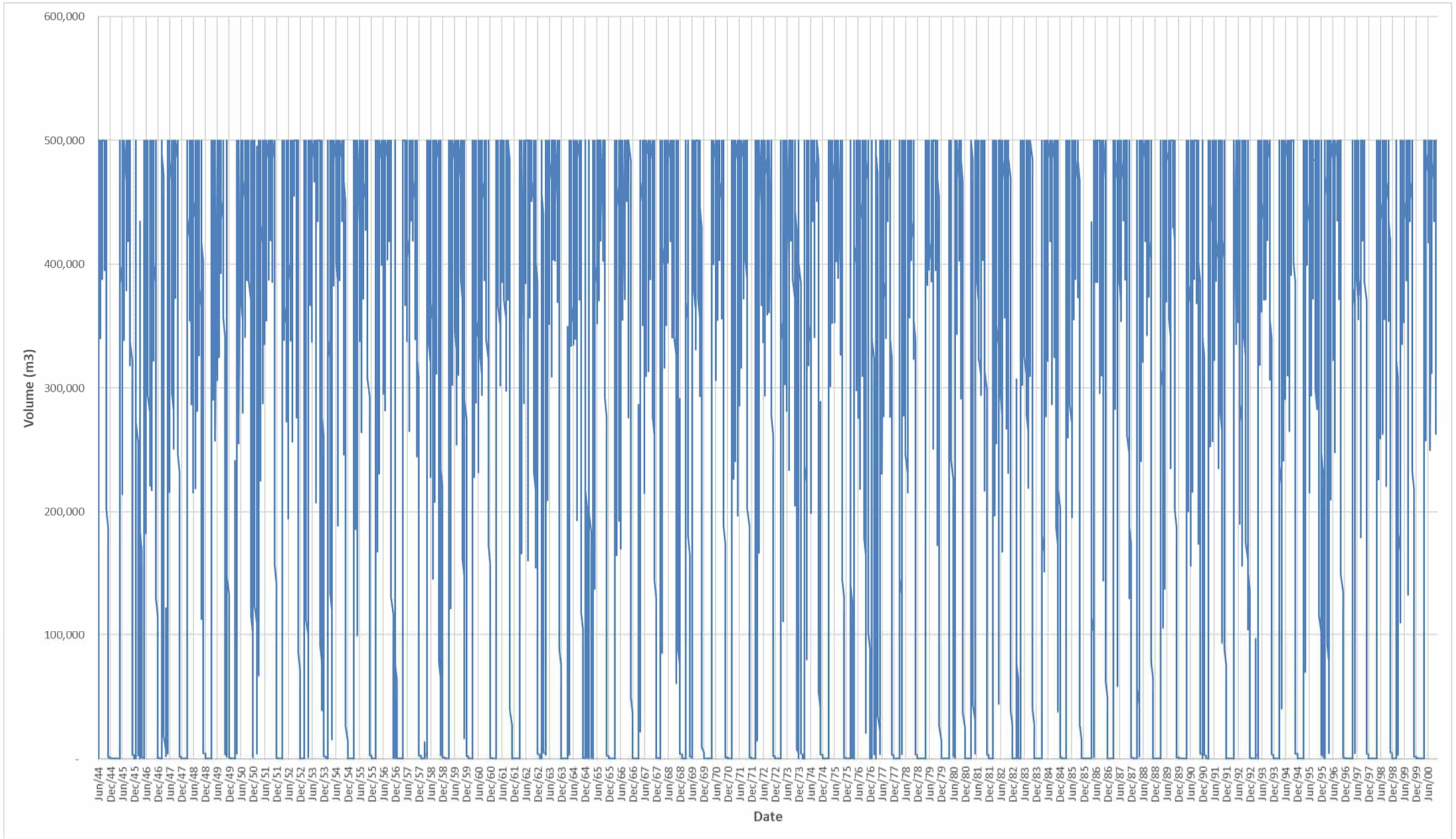

Water Storage Dam- Stage Storage (Area)
345.0
340.0
335.0
330.0
325.0
320.0
315.0
310.0
Elevation (mRL)
0.0
50.0
100.0
150.0
200.0
250.0
300.0
350.0
400.0
Area (ha)
Stage Storage (Area)
Storage Level
Crest Level

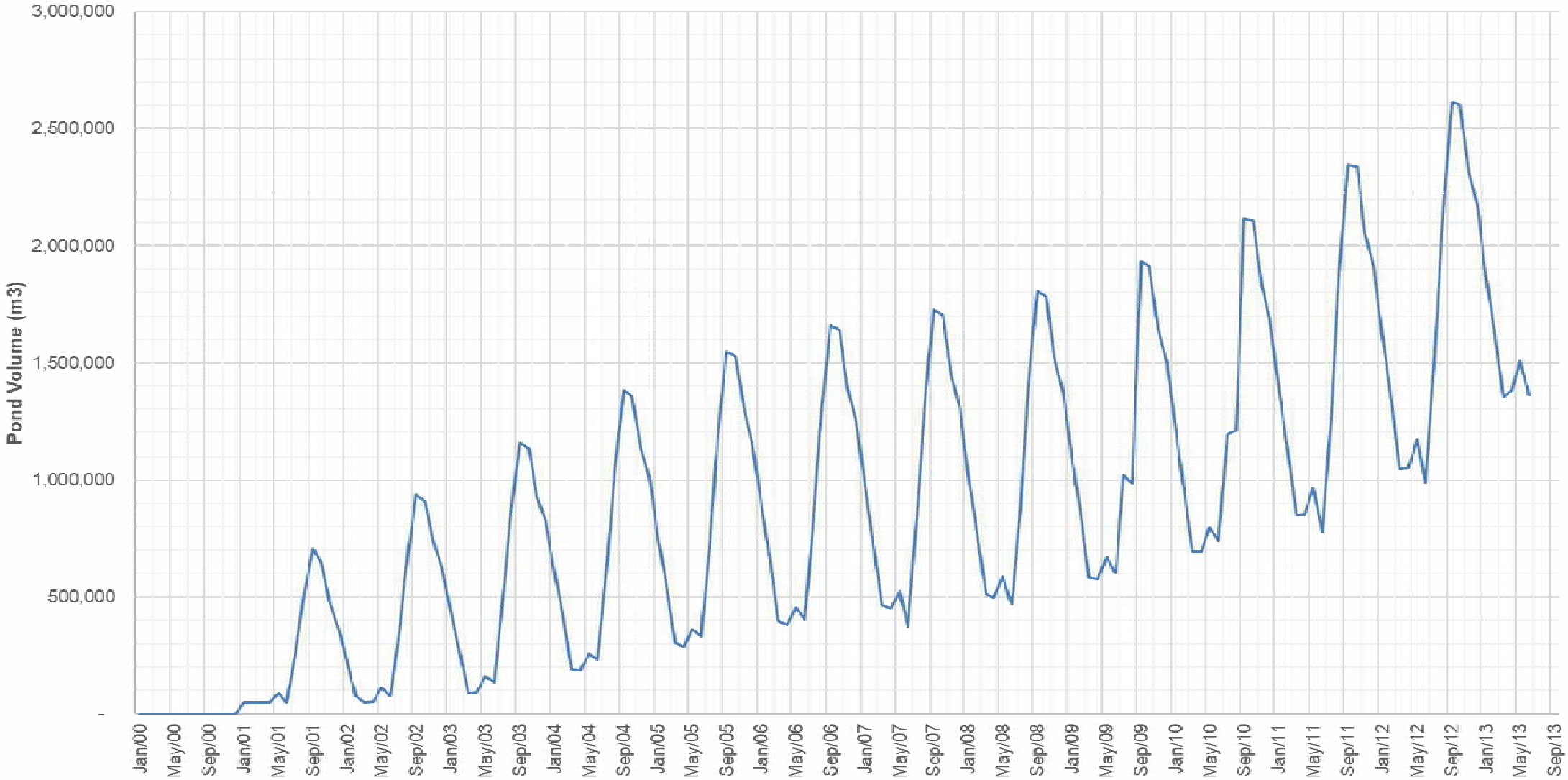

Water Storage Dam- Stage Storage (Volume)
355.0
350.0
345.0
340.0
335.0
330.0
325.0
320.0
315.0
310.0
Elevation (mRL)
0.0
5.0
10.0
15.0
20.0
25.0
30.0
Volume (Mm3)
Stage Storage (Volume)
Storage Level
Crest Level

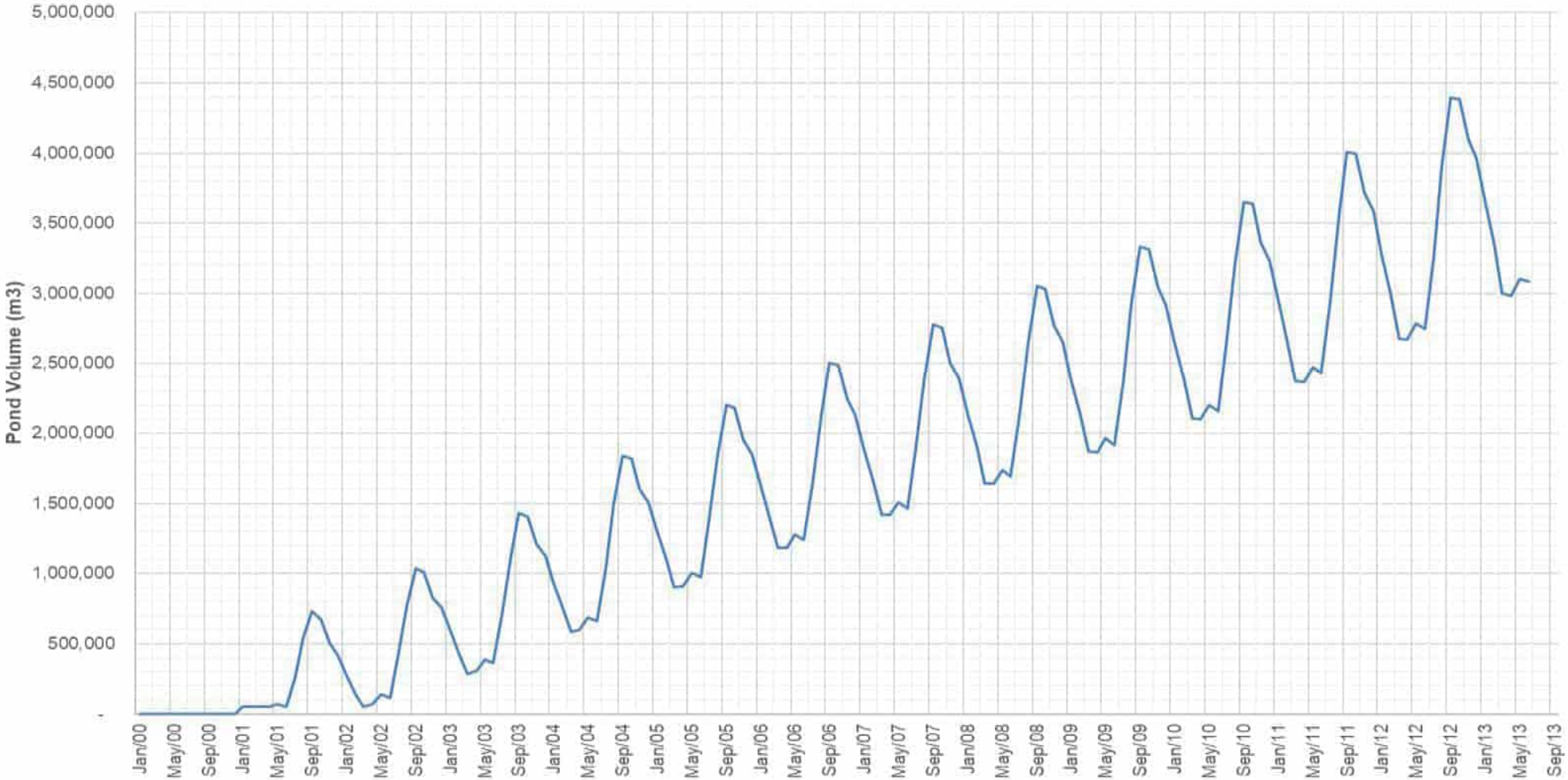

Water Harvesting Dam- Stage Storage (Area)
Stage Storage (Area)
Storage Level
Elevation (mRL)
310.0
305.0
300.0
295.0
290.0
285.0
280.0
0
200
400
600
800
1,000
1,200
Area (ha)

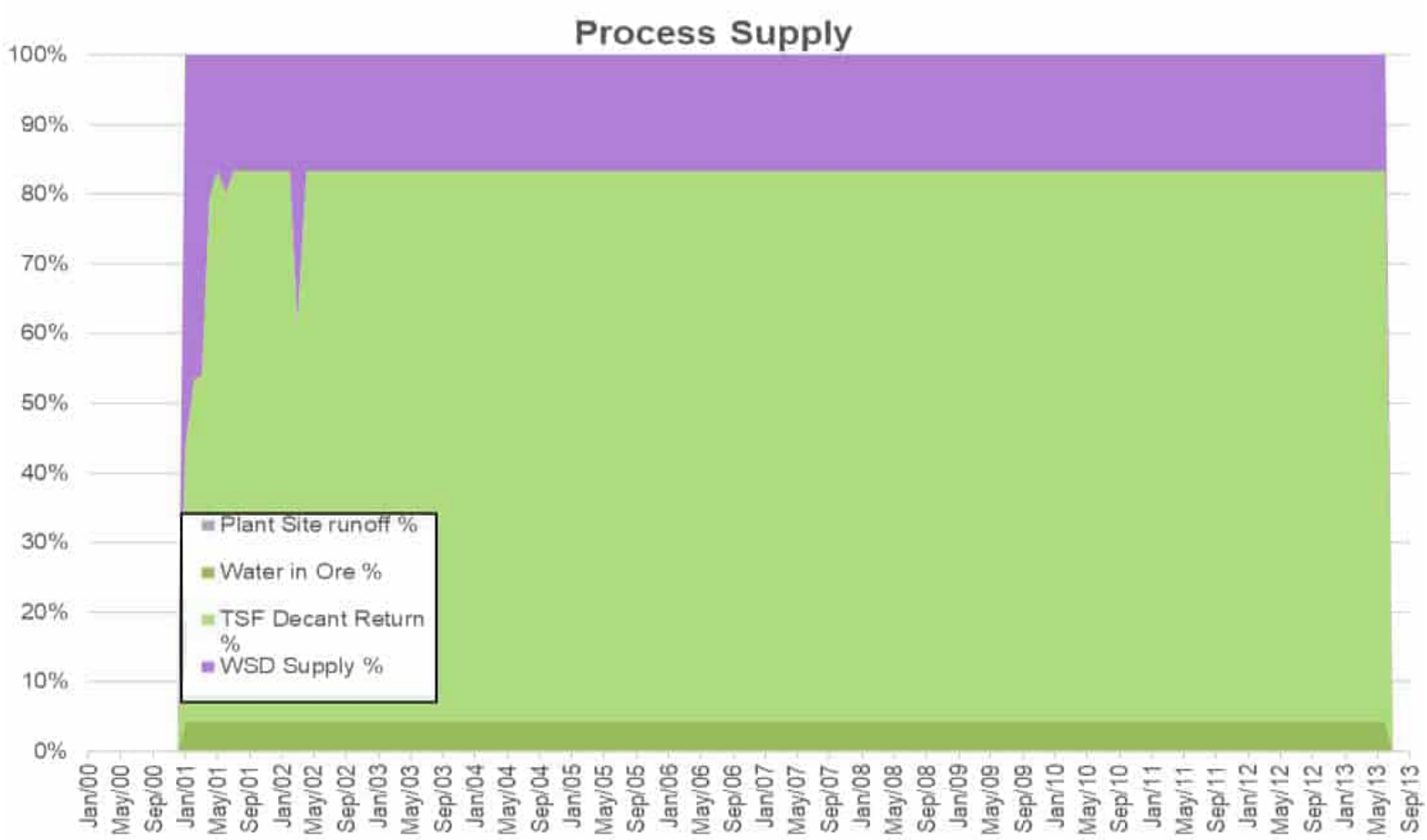

Water Harvesting Dam- Stage Storage (Volume)
Stage Storage (Volume)
Storage Level
Elevation (mRL)
310.0
305.0
300.0
295.0
290.0
285.0
280.0
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Volume (Mm3)

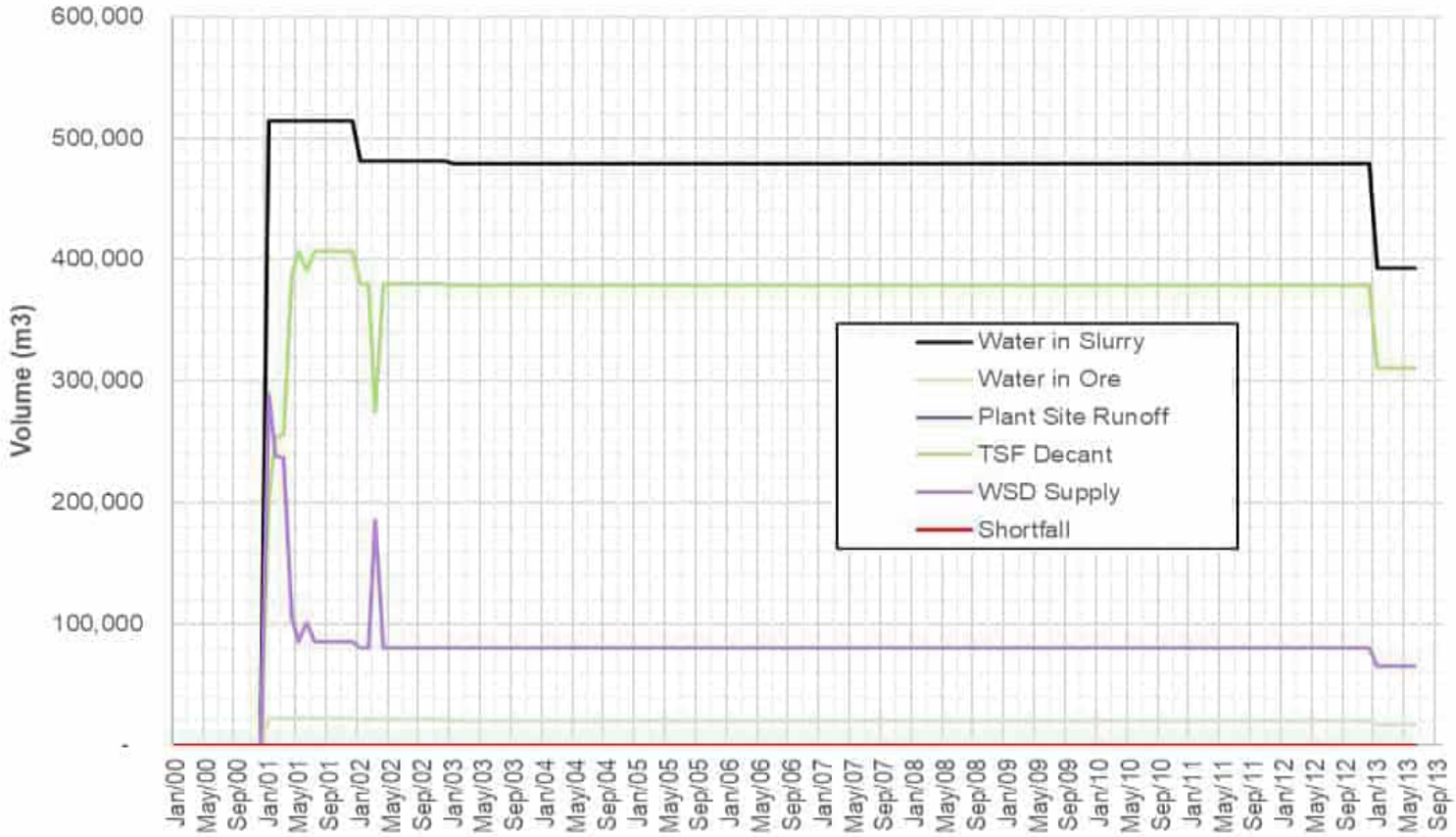

Runoff Coefficient (Undisturbed) vs. Rainfall Depth
Runoff Coefficient
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1
10
100
1000
10000
Daily Rainfall (mm)
Preceding Conditions Dry
Preceding Conditions Wet
Preceding Conditions Normal


600,000
500,000
400,000
300,000
200,000
100,000
-
Volume (m3)
Jun/44
Dec/44
Jun/45
Dec/45
Jun/46
Dec/46
Jun/47
Dec/47
Jun/48
Dec/48
Jun/49
Dec/49
Jun/50
Dec/50
Jun/51
Dec/51
Jun/52
Dec/52
Jun/53
Dec/53
Jun/54
Dec/54
Jun/55
Dec/55
Jun/56
Dec/56
Jun/57
Dec/57
Jun/58
Dec/58
Jun/59
Dec/59
Jun/60
Dec/60
Jun/61
Dec/61
Jun/62
Dec/62
Jun/63
Dec/63
Jun/64
Dec/64
Jun/65
Dec/65
Jun/66
Dec/66
Jun/67
Dec/67
Jun/68
Dec/68
Jun/69
Dec/69
Jun/70
Dec/70
Jun/71
Dec/71
Jun/72
Dec/72
Jun/73
Dec/73
Jun/74
Dec/74
Jun/75
Dec/75
Jun/76
Dec/76
Jun/77
Dec/77
Jun/78
Dec/78
Jun/79
Dec/79
Jun/80
Dec/80
Jun/81
Dec/81
Jun/82
Dec/82
Jun/83
Dec/83
Jun/84
Dec/84
Jun/85
Dec/85
Jun/86
Dec/86
Jun/87
Dec/87
Jun/88
Dec/88
Jun/89
Dec/89
Jun/90
Dec/90
Jun/91
Dec/91
Jun/92
Dec/92
Jun/93
Dec/93
Jun/94
Dec/94
Jun/95
Dec/95
Jun/96
Dec/96
Jun/97
Dec/97
Jun/98
Dec/98
Jun/99
Dec/99
Jun/00
Date


Pond Volume (m3)
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
-
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13

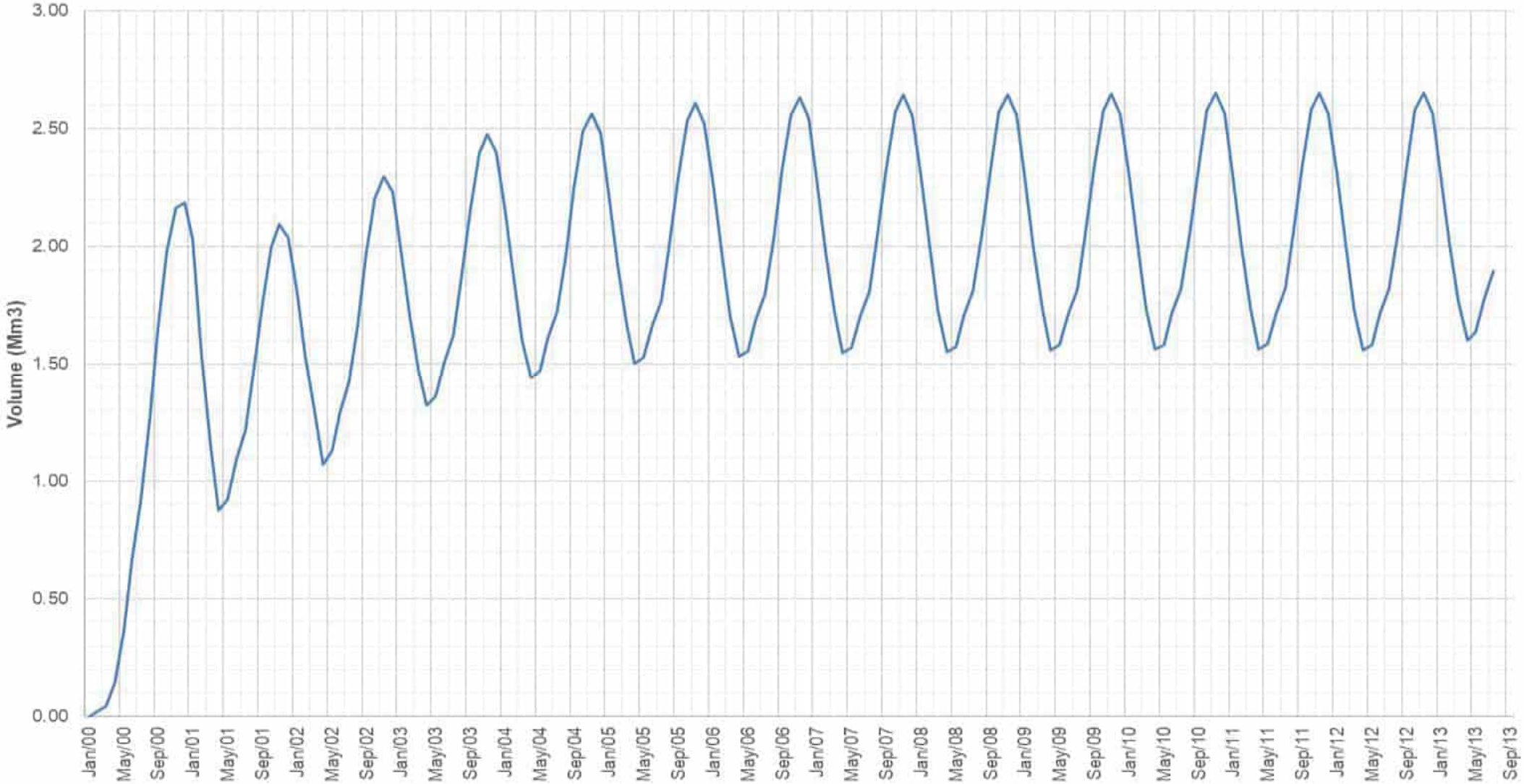

Pond Volume (m3)
5,000,000
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
-
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13

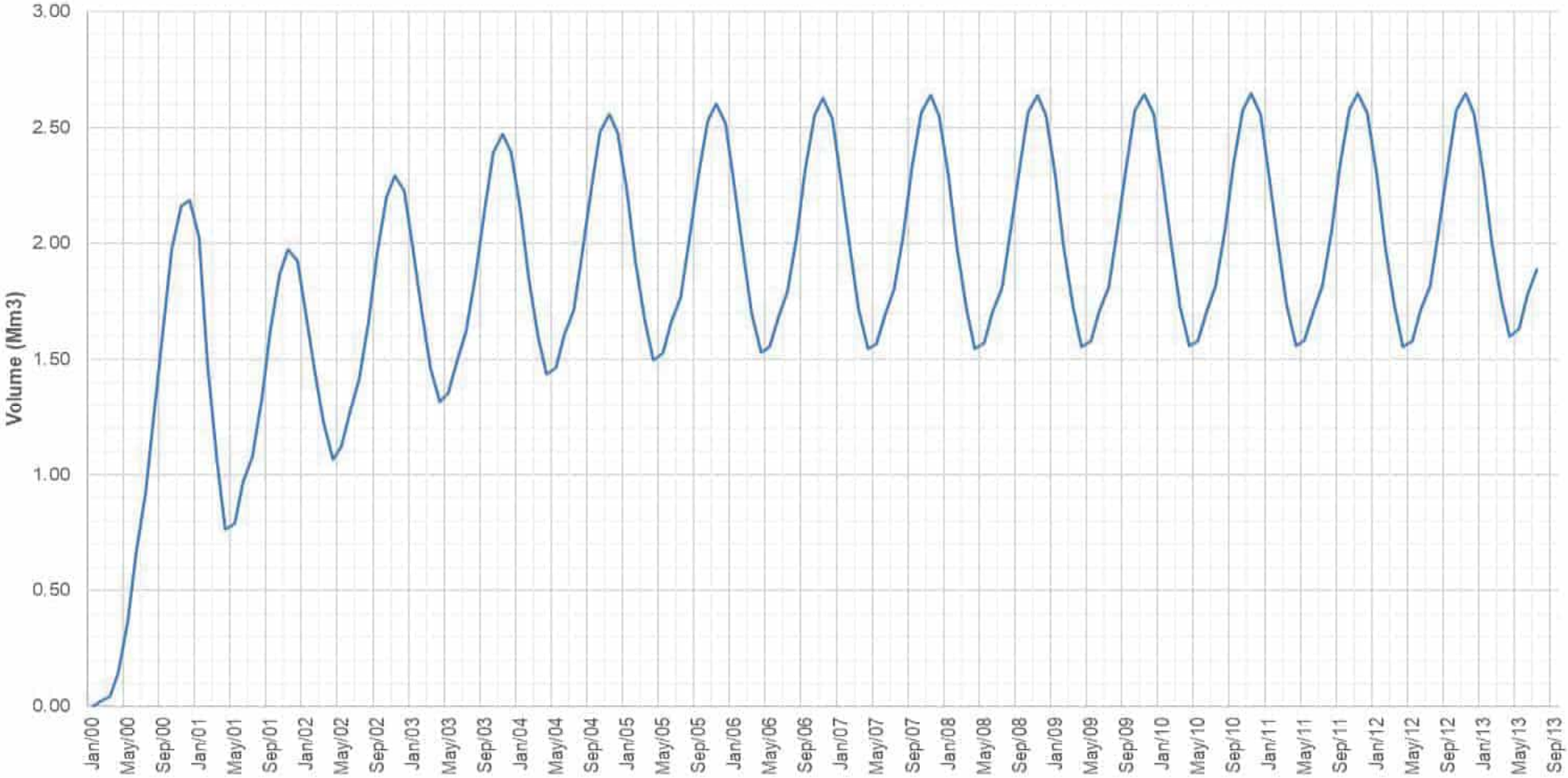

Process Supply
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Plant Site runoff %
Water in Ore %
TSF Decant Return %
WSD Supply %
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13

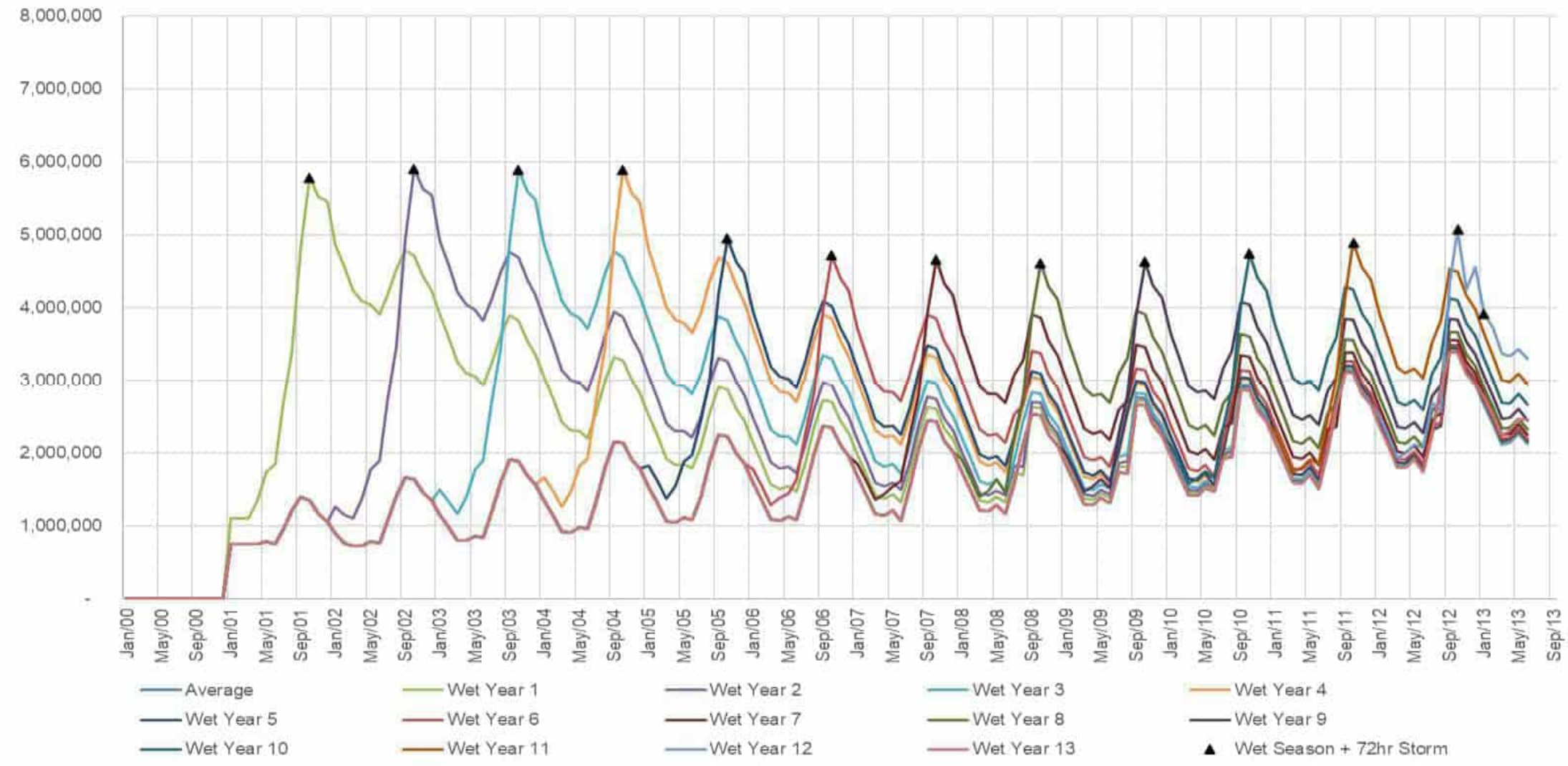

600,000
500,000
400,000
300,000
200,000
100,000
-
Volume (m3)
Water in Slurry
Water in Ore
Plant Site Runoff
TSF Decant
WSD Supply
Shortfall
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13

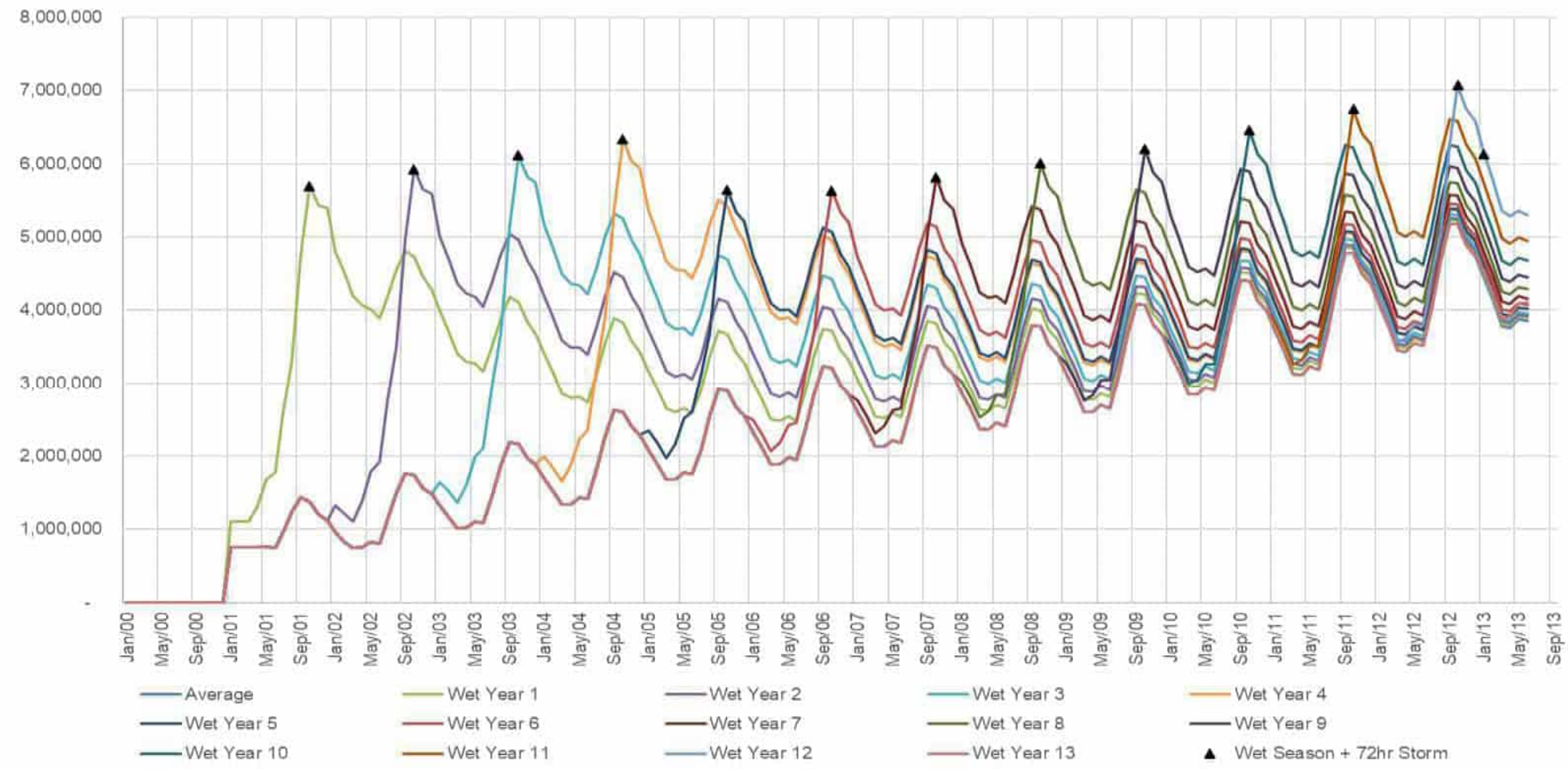

Process Supply
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Plant Site runoff %
Water in Ore %
TSF Decant Return %
WSD Supply %
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13

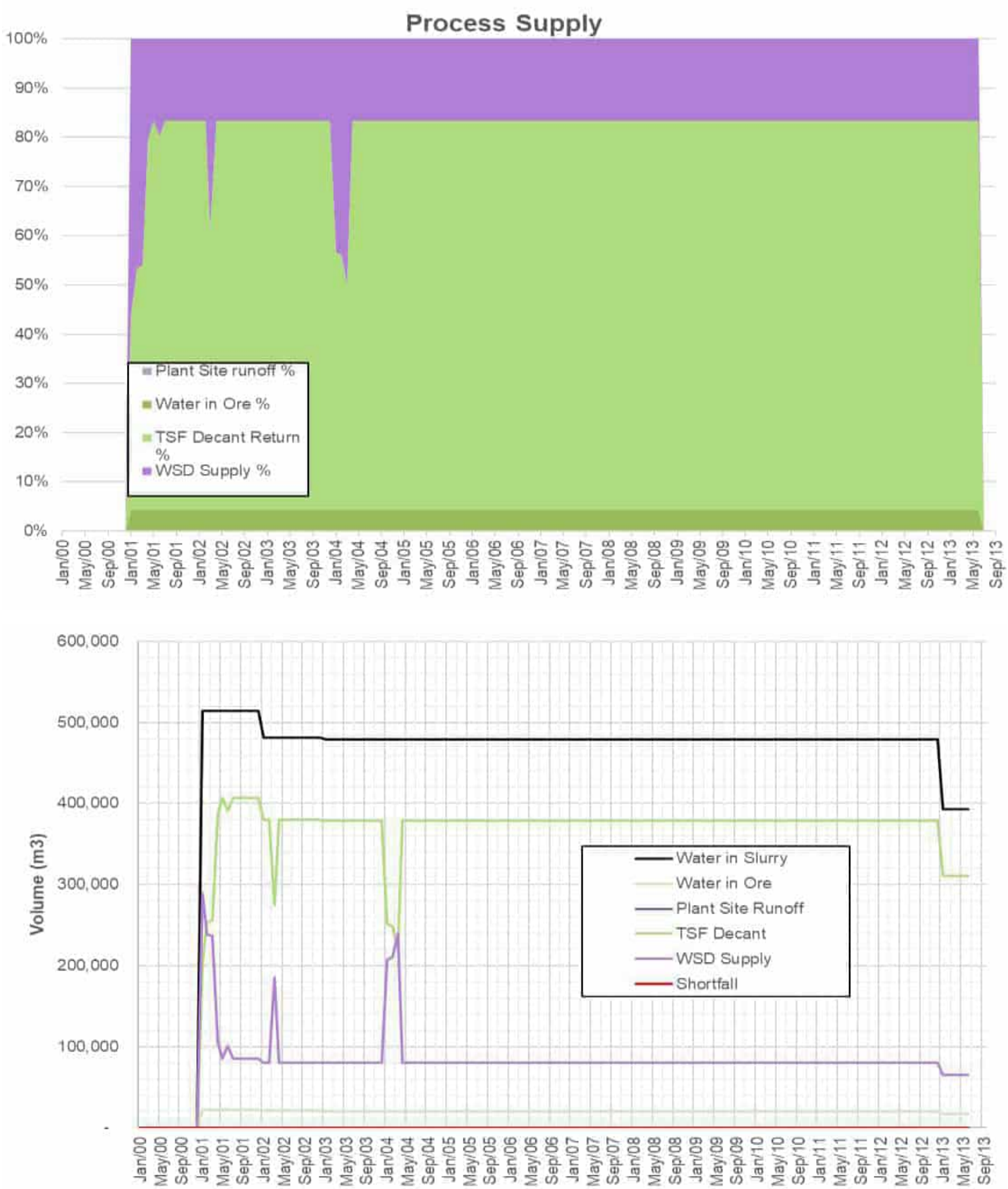

Volume (m3)
600,000
500,000
400,000
300,000
200,000
100,000
-
Water in Slurry
Water in Ore
Plant Site Runoff
TSF Decant
WSD Supply
Shortfall
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13


Volume (Mm3)
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13

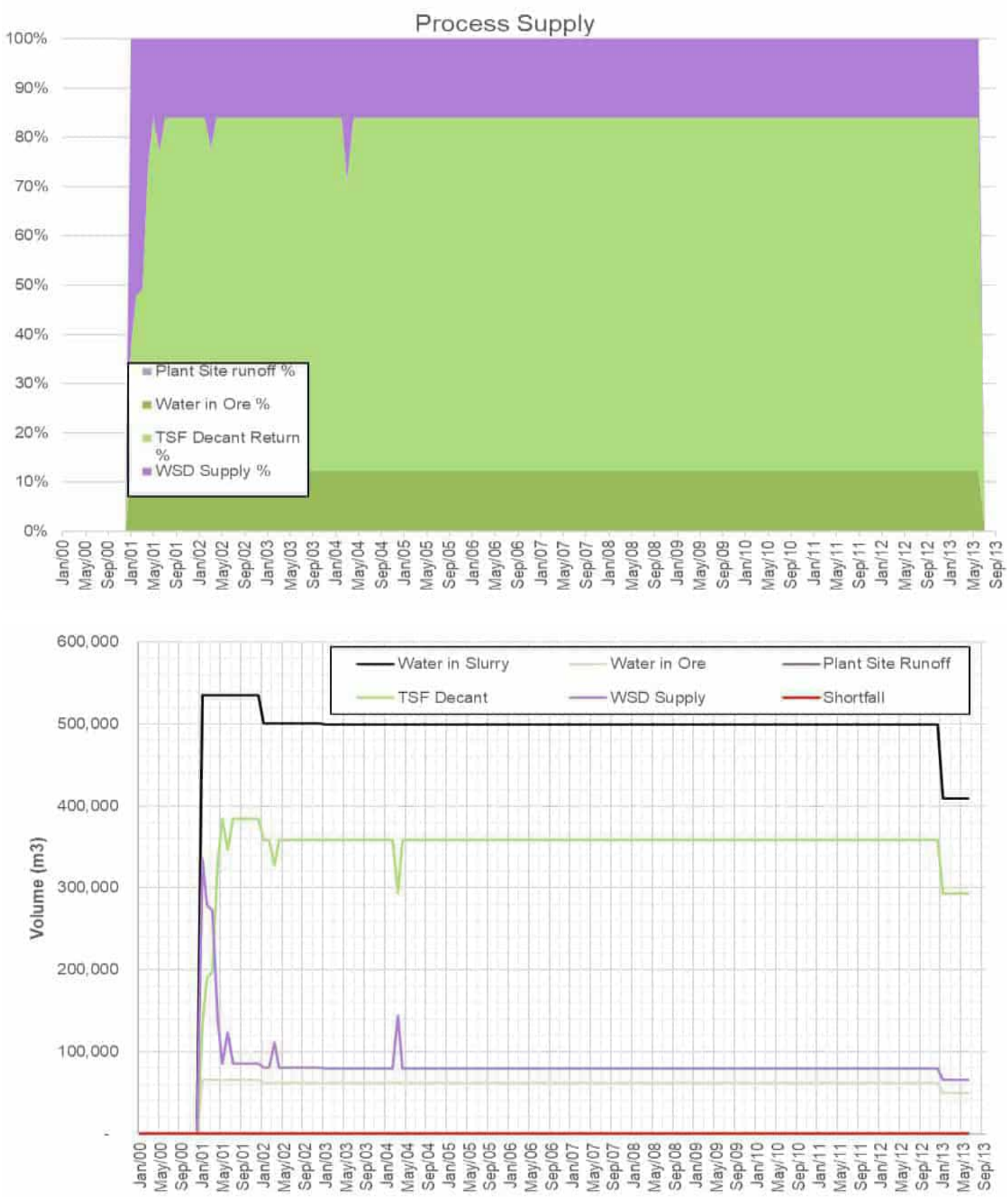

Volume (Mm3)
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13


8,000,000
7,000,000
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
-
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13
Average
Wet Year 1
Wet Year 2
Wet Year 3
Wet Year 4
Wet Year 5
Wet Year 6
Wet Year 7
Wet Year 8
Wet Year 9
Wet Year 10
Wet Year 11
Wet Year 12
Wet Year 13
Wet Season + 72hr Storm

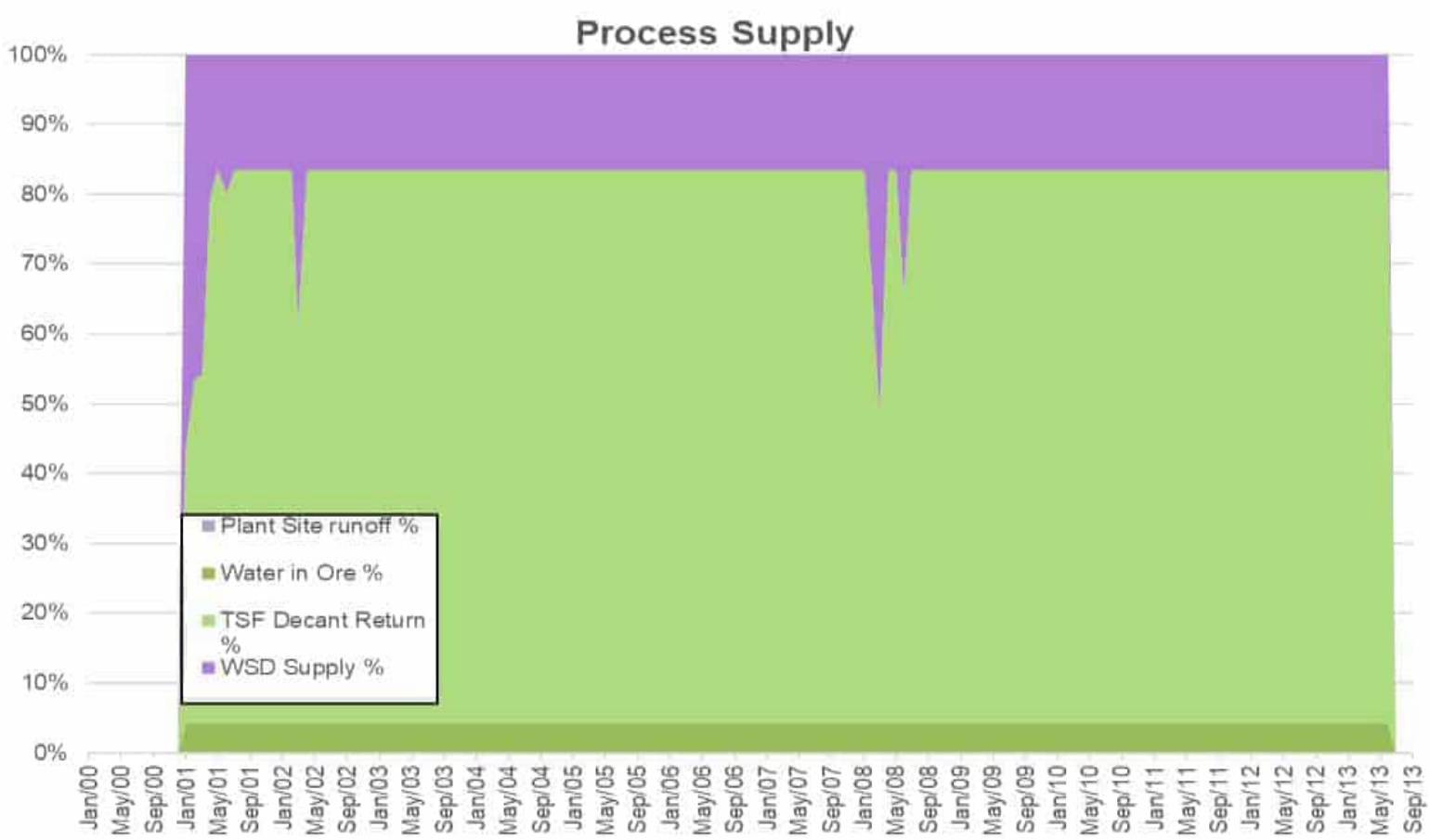

8,000,000
7,000,000
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
-
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13
Average
Wet Year 1
Wet Year 2
Wet Year 3
Wet Year 4
Wet Year 5
Wet Year 6
Wet Year 7
Wet Year 8
Wet Year 9
Wet Year 10
Wet Year 11
Wet Year 12
Wet Year 13
Wet Season + 72hr Storm

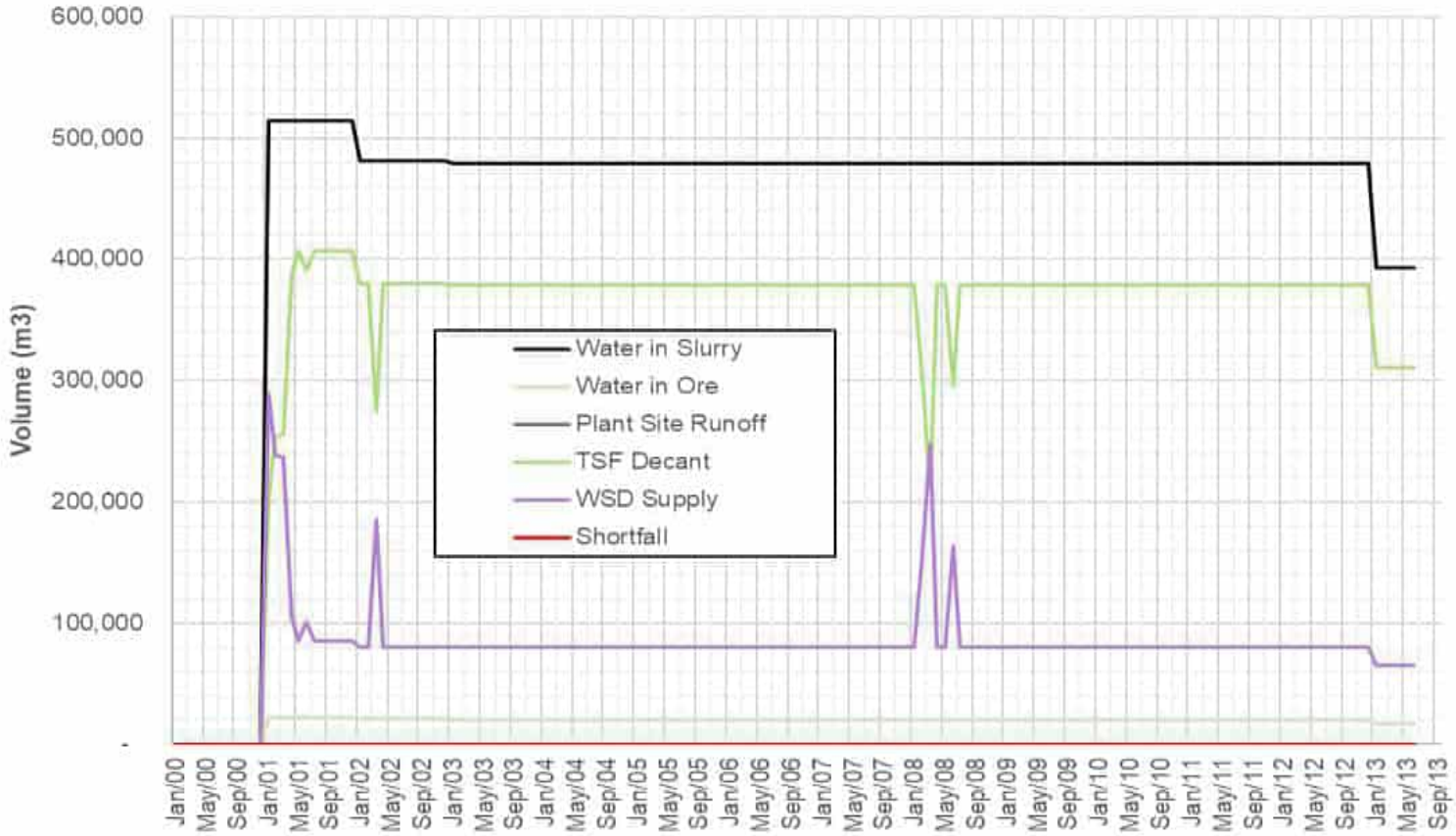

Process Supply
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Plant Site runoff %
Water in Ore %
TSF Decant Return %
WSD Supply %
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13

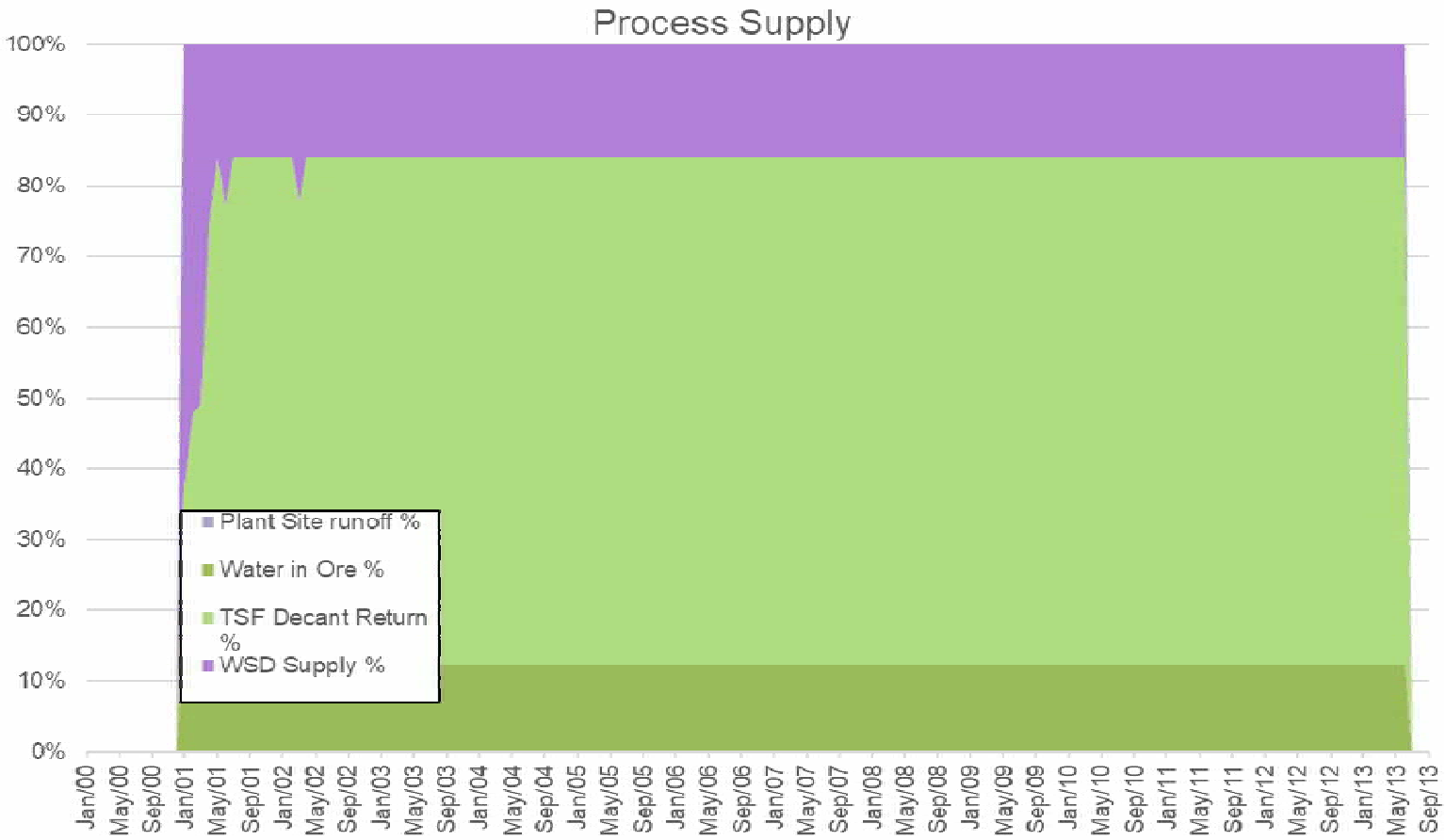
Volume (m3)
600,000
500,000
400,000
300,000
200,000
100,000
-
Water in Slurry
Water in Ore
Plant Site Runoff
TSF Decant
WSD Supply
Shortfall
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13


Process Supply
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Plant Site runoff %
Water in Ore %
TSF Decant Return %
WSD Supply %
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13

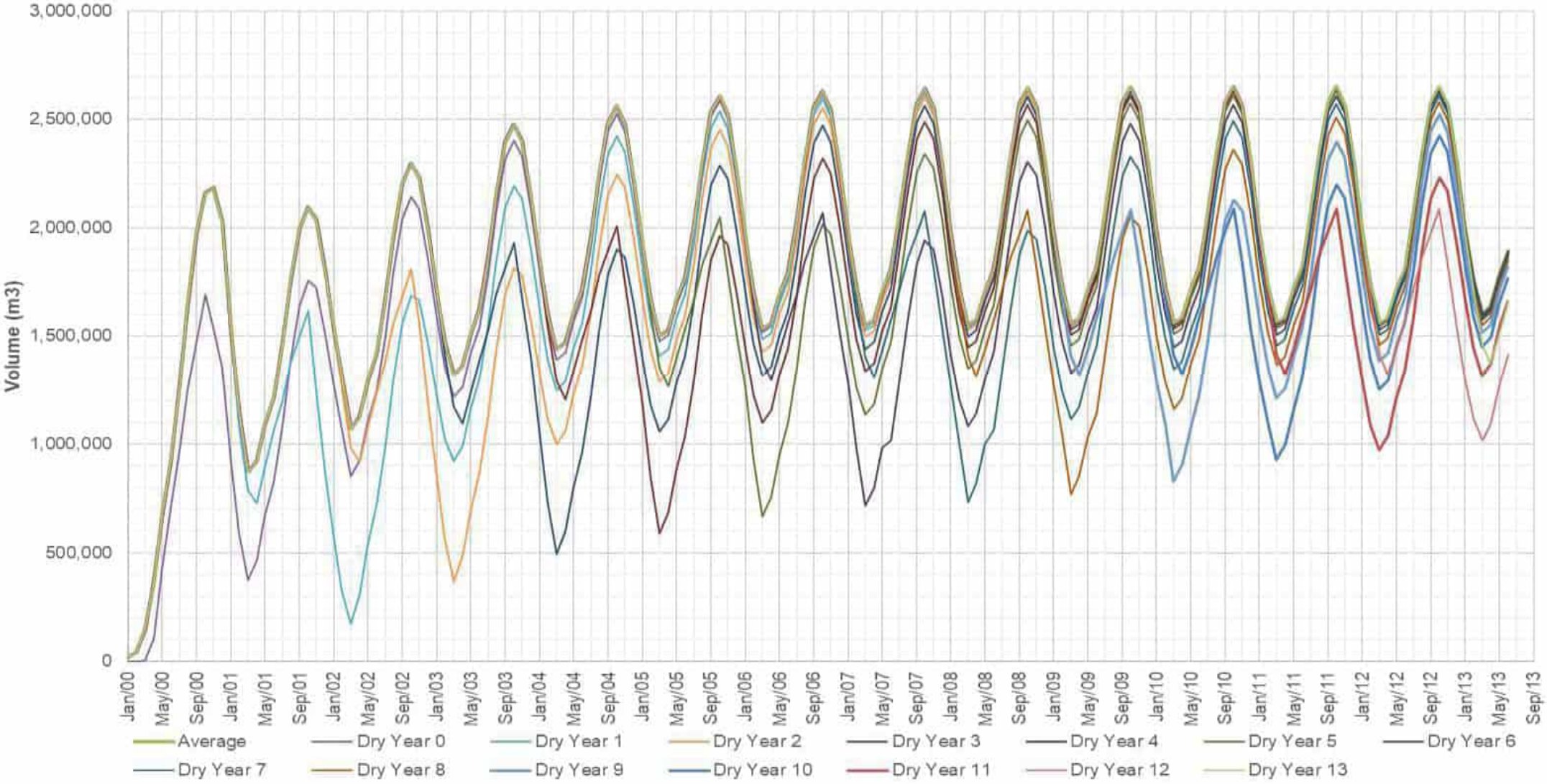
600,000
500,000
400,000
300,000
200,000
100,000
-
Volume (m3)
Water in Slurry
Water in Ore
Plant Site Runoff
TSF Decant
WSD Supply
Shortfall
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13

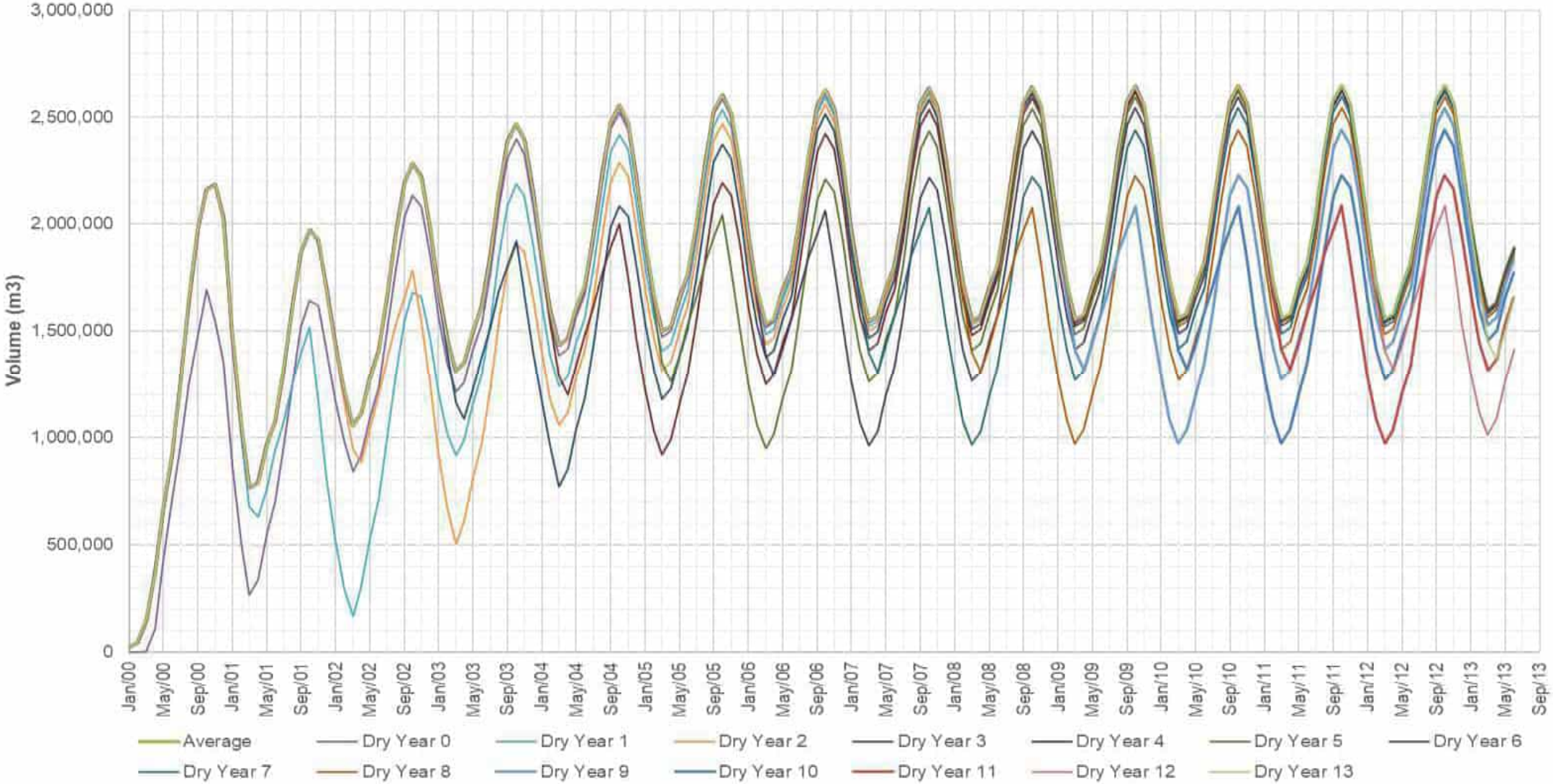

Process Supply
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Plant Site runoff %
Water in Ore %
TSF Decant Return %
WSD Supply %
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13


Volume (m3)
600,000
500,000
400,000
300,000
200,000
100,000
-
Water in Slurry
Water in Ore
Plant Site Runoff
TSF Decant
WSD Supply
Shortfall
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13


Process Supply
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Plant Site runoff %
Water in Ore %
TSF Decant Return %
WSD Supply %
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13


600,000
500,000
400,000
300,000
200,000
100,000
-
Volume (m3)
Water in Slurry
Water in Ore
Plant Site Runoff
TSF Decant
WSD Supply
Shortfall
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13


3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
Volume (m3)
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13
Average
Dry Year 0
Dry Year 1
Dry Year 2
Dry Year 3
Dry Year 4
Dry Year 5
Dry Year 6
Dry Year 7
Dry Year 8
Dry Year 9
Dry Year 10
Dry Year 11
Dry Year 12
Dry Year 13


3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
Volume (m3)
Jan/00
May/00
Sep/00
Jan/01
May/01
Sep/01
Jan/02
May/02
Sep/02
Jan/03
May/03
Sep/03
Jan/04
May/04
Sep/04
Jan/05
May/05
Sep/05
Jan/06
May/06
Sep/06
Jan/07
May/07
Sep/07
Jan/08
May/08
Sep/08
Jan/09
May/09
Sep/09
Jan/10
May/10
Sep/10
Jan/11
May/11
Sep/11
Jan/12
May/12
Sep/12
Jan/13
May/13
Sep/13
Average
Dry Year 0
Dry Year 1
Dry Year 2
Dry Year 3
Dry Year 4
Dry Year 5
Dry Year 6
Dry Year 7
Dry Year 8
Dry Year 9
Dry Year 10
Dry Year 11
Dry Year 12
Dry Year 13

APPENDIX G

Memorandum Ref. PE22-00405

Doropo Gold Project – Tailings Storage Facility Site Option Study

Knight Piésold CONSULTING

Knight Piésold CONSULTING

MEMORANDUM

To:	Centamin Group	**Date:**	27 April 2022
Attn:	Bruce Lilford	**Our Ref:**	PE22-00405
		KP File Ref.:	PE301-00821/04-A djtm M22002
cc:		**From:**	Dave Morgan

RE: DOROPO GOLD MINE – TAILINGS STORAGE FACILITY SITE OPTIONS STUDY

1. INTRODUCTION

1.1 GENERAL

The Doropo Gold Project is located in northeast of Côte d'Ivoire, approximately 480 km north of Abidjan. The project will comprise a Tailings Storage Facility (TSF), Water Storage Dam (WSD), Airstrip, Plant Site, a number of open pits and waste dumps. Knight Piésold Pty Ltd (KP) was engaged by Centamin plc (Centamin) to undertake an options study for the Tailings Storage Facility (TSF). An initial high-level options study was completed following an initial site visit and is presented in Memorandum PE22-0159. A total of five options were identified and these form the basis of the TSF siting study summarised within this memorandum.

1.2 DESIGN OBJECTIVES

The design objectives for the TSF are as follows:

- Permanent and secure containment of all solid waste materials.
- Maximisation of tailings densities using sub-aerial deposition.
- Removal and reuse of free water.
- Reduction of seepage.
- Containment of design storm events within the TSF.
- Ease of operation.
- Rapid and effective rehabilitation.

1.3 DESIGN PARAMETERS

Design parameters used for the TSF siting study are provided in Table 1.1. In general, the design parameters were provided by Centamin or have been assumed based on KP experience with similar projects within the region. The assumed parameters will need to be confirmed during subsequent design phases.

Table 1.1: Tailings Storage Facility design criteria and specifications

Parameter	Detail
TSF DESIGN	
Throughput	4.0 Mtpa
Storage Capacity (nominal) - Stage 1 (18 months) - Total	 6 Mt 56 Mt
Embankment Freeboard	Greater of: (i) 0.5 m above maximum tailings elevation, or (ii) 1.0 m above maximum design stormwater elevation
Stormwater Capacity	100 yr 72 hr storm event superimposed over the 10-year wet season (100% runoff, no evaporation) occurring in any year of operation.
Spillway	Critical duration PMP storm event occurring when supernatant pond is at spillway inlet level.
Earthquake Loading - Operating - Final	 Operating Basis Earthquake (OBE) Safety Evaluation Earthquake (SEE)
TSF OPERATION	
Slurry Characteristics (assumed)	Percent solids to be confirmed. Tailings beach slope = 100H:1V Tailings density = 1.40 t/m^3
Fluid Management	Basin underdrainage gravity system into collection sump. Return to supernatant pond via submersible pump LCRS gravity drainage into collection sump. Return to supernatant pond via submersible pump Decant system for removal of supernatant solution. Return to the plant via submersible pump
General	Spigot deposition of tailings. The supernatant pond is to be maintained at the decant location (location varies between site options).

[1] A dam break assessment will be completed in the next design phase once a preferred option has been identified, it has been assumed that the ANCOLD Dam Failure Consequence Category will be 'High C' and the Dam Spill Consequence Category will be 'Significant'.

It is noted that some design criteria may vary between site options based on the ANCOLD (2019) consequence category. As this is dependent on the Population at Risk (PAR) downstream of the TSF, it may vary for the different site options. For the purposes of this memorandum a Dam Failure Consequence Category of 'HIGH C' and a Dam Spill Consequence Category of 'Significant' has been assumed, and the design parameters listed in Table 1.1 reflect this category. A dam break assessment will be completed in the next design phase once a preferred option has been identified.

1.4 DESIGN SUMMARY

Depending on the site option, the TSF will be constructed as a side hill or cross valley storage facility. In all cases, the TSF will comprise a single cell and will remain in continuous operation throughout life of mine.

The facility will be constructed with zoned earth fill embankments, raised in annual stages, to defer construction cost and allow the flexibility to adjust the design to suit ongoing mine planning and operational performance. The target TSF footprint area of the order 160 – 200 Ha, to allow sufficient drying and optimisation of tailings density during operation. A smaller area will not provide sufficient opportunity for drying of the tailings beach, which may result in lower densities and therefore higher embankment raises.

The TSF embankments for all options will be constructed using downstream raise construction methods. A downstream seepage collection system will be installed within and downstream of the TSF embankment, to allow monitoring and collection of seepage from the TSF in the collection sump located downstream of the final TSF downstream toe.

Tailings will be discharged into the TSF by sub-aerial deposition methods, using a combination of spigots at regularly spaced intervals around the TSF embankments to locate the supernatant pond in the decant area.

The TSF basin area will be cleared, grubbed and topsoil stripped, and a 300 mm depth of compacted soil liner will be constructed over the entire TSF basin area (as either reworked in-situ material or imported Zone A material) and overlain with HDPE geomembrane liner material. The HDPE geomembrane liner will be installed over the entire TSF basin area and embankment upstream faces.

The TSF design will incorporate an underdrainage system to reduce pressure head acting on the HDPE geomembrane liner, reduce seepage, increase tailings densities, and improve the geotechnical stability of the embankments. The underdrainage system comprises a network of finger drains and collector drains. The underdrainage system will drain by gravity to a collection sump located at the lowest point in the basin. A leakage collection and recovery system (LCRS) will be installed beneath the basin HDPE and compacted soil liners. Solution recovered from the underdrainage system and LCRS will be released to the top of the tailings mass via submersible pump, reporting to the supernatant pond.

Supernatant water will be removed from the TSF via submersible pumps (design by others) located within a decant tower, constructed at start-up and raised during operation. A start-up decant tower may be constructed in the lower lying areas of the TSF to allow water return during the initial months of operation, and not raised after the initial construction (requirement to be confirmed in subsequent design phases). Solution recovered from the decant system will be pumped back to the plant for re-use in the process circuit.

The operational emergency spillway will be constructed as part of the embankment raises, into an embankment abutment where suitable. In all cases, the spillway channel will be designed to discharge downstream of the TSF.

The following assumptions have been made for the TSF siting study:

- Construction materials for the TSF will be sourced from either local borrow or mine waste.
- It is assumed that the ground conditions at each site are similar. This is a key assumption in this siting study and is subject to confirmation.

- It is assumed that a compacted soil liner and geomembrane liner system will be implemented. Therefore, the TSF area will need to be flatter than 1V:3H (18°) to permit installation. This is the case with all site options.
- It may be preferable to integrate the TSF with the waste dumps as this offers additional buttressing and stability to the TSF embankment. This option was not considered for this study as the locations of waste dumps are not currently confirmed.

2. ASSESSMENT OF OPTIONS

2.1 GENERAL

Five potential locations for the TSF were identified during an initial site visit, Option 1 was eliminated from the option study as it was located within the mineralisation zone of the Hinda Pit. The general arrangement for options 2, 3, 4 and 6 are shown on Figure 1 (Stage 1) and Figure 2 (final). The options are summarised as follows:

- Options 2 and 3 – comprise side valley impoundments located immediately downstream of the Chegue and Nokpa Pits. Option 3 will become fully enclosed during operation whereas Option 2 will remain open.
- Options 4 and 6 comprise cross valley impoundments within existing valleys upstream of the Chegue/Nokpa and Souwa Pits respectively. For both options a WSD is located immediately upstream of the facility. Option 6 will become fully enclosed during operation whereas Option 4 will remain open.

Preliminary sizing information for each of the options, based on a total tonnage of 56 Mt and an assumed tailings density of 1.4 t/m^3, is provided in Table 2.1. The information presented in the table is based on high level modelling and intended for an order of magnitude comparison only. The Stage 1 sizing for each option is based on a storage capacity of 18 months (6.0 Mt).

Table 2.1: Preliminary sizing data for TSF site options

Option	Approx. Embankment length (m)	Volume of Earthworks 1 lowest, 6 highest		Approx. Maximum Height at Crest (m)		Approx. Tailings Area (ha)		Distance from Process Plant (km)	Indicative Basin Slope (_H:1V)
		Volume (Mm^3)	Rank	Stage 1	Final	Stage 1	Final		
2	5,300	13.5	3	21.4	41.9	84.0	283.0	4.1	36.0
3	5,800	21.6	4	19.9	45.0	73.0	213.0	2.3	35.0
4	6,000	6.5	1	17.4	36.3	94.1	322.8	3.5	35.0
6	9,000	9.2	2	18.4	38.9	96.2	285.3	2.9	35.0

The information summarised in Table 2.1 was used to assess each option against criteria defined in the ranking matrix.

2.2 COMPARISON OF OPTIONS

The following parameters were used as the basis of comparison between the site options:

- Embankment profile and stability.
- Ease of initial construction.
- Construction materials.
- Surface water management.
- Tailings density.
- Hazard rating.
- Distance from Plant Site and elevation.
- Water demand.
- Risk of embankment overtopping.
- Risk of seepage.
- Ease of expansion.
- Visual, noise and dust impacts.
- Ease of operation.
- Environmental considerations.

General commentary on each of the options regarding the comparison points listed above is provided in the below sections.

2.2.1 Embankment Profile and Stability

Given that the geotechnical conditions for each site option are not known (assumed to be similar for this siting study), the main risk factor used to differentiate the options from a stability perspective was embankment height. Typically, taller embankments present higher stability risk in comparison to smaller embankments. On this basis Option 4 (36 m in height) was considered preferable due to its lower height in relation to options 2, 3 and 6, with Option 3 being the least favourable (45 m height).

2.2.2 Ease of Initial Construction

All options are considered to offer straightforward construction as the terrain is gently sloping and access is likely to be straightforward. Options 4 and 6 are located within significant drainage channels; however, these are not expected to provide significant difficulties.

Additionally, all options offer sufficiently shallow topography to facilitate construction of a compacted soil liner and installation of HDPE geomembrane. Therefore, the options are considered equal in terms of ease of construction, and have been compared in terms of expected order of magnitude costs only.

The major construction costs for the TSF are placement of embankment fill material and basin works. An order of magnitude cost estimate is summarised in Table 2.2 below. The following comments with respect to the cost estimate are noted:

- The values stated below are an order of magnitude cost estimate and are provided only to differentiate the options with respect to the overall construction costs. These are estimated to be accurate to within ± 35%.
- Rates utilised in the assessment have been based on a similar project within the region.
- It was assumed that the mining fleet will be utilised to construct the majority of the downstream structural zone of the embankment.

- The costs associated with pipework and deposition have not been included in the cost assessment below.
- Stage 1 estimate was based on an 18-month starter facility.

Table 2.2: Comparison of construction costs estimate

Option	Capital Cost Estimate			Cost per Tonne		
	Stage 1 ($M)	Stage 2+ ($M)	Total ($M)	Stage 1 ($/t)	Stage 2+ ($/t)	Total ($/t)
2	19.1	101.4	120.4	3.18	2.41	2.15
3	20.6	117.0	137.6	3.43	2.75	2.46
4	**13.9**	82.2	**96.0**	**2.30**	**1.92**	**1.71**
6	14.6	**81.5**	96.1	2.43	**1.92**	**1.71**

2.2.3 Construction Materials

The topography surrounding all the options is gentle and offers the opportunity for establishment of local borrow areas to generate construction material. All options are considered equal in this regard.

Options 2 and 3 are closer to the mine workings, so are more accessible to the mine operations to place material sourced directly from the open pits. As such these are likely to provide lower costs for embankment filling.

2.2.4 Surface Water Catchment

In regards to surface water management, the following is noted for the TSF site options:

- Options 2 and 3 have minimal external catchment and upstream diversions can be easily constructed to divert any runoff. These are shown on the general arrangement figures.
- Options 4 and 6 require surface water diversions to facilitate overflow of the upstream WSD. These are shown on the general arrangement figures.
- Options 2, 3 and 4 are located within the same drainage course as the proposed plant site location, therefore would be preferable from a water quality management perspective as runoff can be managed simultaneously.
- In each instance, diversions are generally easy to achieve due to gently sloping ground surrounding all options.

On this basis, Options 2 and 3 are considered preferable with regard to surface water management.

2.2.5 Tailings Density

For the nominated design throughput, 4.0 Mtpa, the target tailings area range is of the order 160 ha. Based on previous project experience, this area should allow sufficient area to facilitate cyclic deposition and reasonable drying of deposited tailings prior to deposition of the next layer of tailings to improve tailings densities.

Options 4 and 6, being cross valley facilities, achieve a suitable tailings area in the early years of operation. All options occupy a larger footprint than required and can be reduced in size once a preferred option has been identified. While effective consolidation should occur with the larger areas, the areas are considered to be larger than required.

In general, all options would be expected to achieve good tailings densities.

2.2.6 Hazard Rating

A dam break assessment and determination of consequence category for the TSF in accordance with ANCOLD guidelines will be undertaken as part of subsequent design once a preferred option is identified.

The hazard rating for the facilities is considered to be similar, in that failure will have a major impact to the business and the environment, though the population at risk will be moderate. Some key considerations are outlined below:

- In the event of failure all options will report to the Black Volta (approximately 50 km away), which forms the Burkina Faso/Cote D'Ivoire/Ghana International Border. This would result in a major international incident and be severe to crippling for Centamin. Options 2 and 3 are located closer to the Black Volta than options 4 and 6.
- The Han Pit is located within the water course downstream of the site and may provide additional attenuation of tailings and supernatant in the event of failure. The storage parameters and diversion requirements for the Han Pit are unknown at this stage, however this will likely have a similar impact for all options.
- The Nokpa and Chegue Pit will be at risk in the event of failure of options 2, 3 and 4. These pits will attenuate the tailings and supernatant in the event of failure reducing the downstream impact. It is noted that if mine personnel are within the pit at the time of failure the Population at Risk (PAR) will be higher. Based on the above this is not considered to significantly differentiate any of the options.
- The process plant is located at a higher elevation than all TSF options and therefore will not be at risk in the event of failure.
- Option 3 is directly adjacent to an existing village, which will result in an increased Population at Risk (PAR). It is assumed that communities within close proximity to mining infrastructure will be resettled, but this will need to be confirmed by Centamin.
- A preliminary review of satellite imagery indicates that there are a number of settlements directly downstream of all options which will be at risk in the event of failure.
- All options are upstream of proposed mining pits and may pose a risk to both operations and mine workers in the event of failure.
- The location of mining infrastructure and the number of personnel at each location will need to be confirmed by Centamin to facilitate a representative Population at Risk (PAR) estimate to be made during subsequent design.

Based on the above, it is expected that all site options will have a consequence category of High A, High B or High C based on the ANCOLD guidelines. As these are largely similar in regards to design criteria, all site options have been considered as similar in this regard.

2.2.7 Distance from Plant Site and Elevation

All site options are located a similar distance from the plant site and are at a similar elevation. Option 6 is the furthest (3.2 km) from the process plant and Option 3 is the closest (2.0 km). All options are located at a lower elevation than the process plant with Option 6 having the smallest difference (11 m lower) and options 2 and 3 having the largest difference (21 m lower).

2.2.8 Water Demand

The water demand is assumed to be similar for all options. Options 4 and 6 present greater flexibility in terms of catchment management if a negative water balance is expected.

2.2.9 Risk of Embankment Overtopping

All TSF site options will be designed to comply with ANCOLD guidelines regarding stormwater storage capacity and incorporate an emergency spillway to allow controlled discharge during events greater than the design criteria. As such, all site options are considered to be equal in this regard.

2.2.10 Risk of Seepage

At this stage the geotechnical properties of the foundation materials underlying the TSFs are unknown (and assumed to be equal). Therefore, for the purpose of this assessment, the facilities are considered similar, subject to ground investigation.

2.2.11 Ease of Expansion

Expansion beyond the design tonnage (total 56 Mt) is possible for all options, however Option 3 may be limited due to the proximity to key infrastructure. The remaining options are considered viable for expansion beyond the nominated total tonnage.

2.2.12 Visual, Noise and Dust Impacts

Visual, noise and dust impacts are considered similar for all of the options. It is noted that Option 3 is closer to the Plant Site, so may be impacted by additional dust generated from the tailings beach for these options.

As the location of the accommodation village is not known, it has been assumed that all options will have a similar visual, noise and dust impacts.

2.2.13 Ease of Operation

Once constructed, the options are considered to be generally similar to operate. It is noted that options located in closer proximity to plant infrastructure are considered preferable to those further away primarily due to security, monitoring, pumping and maintenance requirements, therefore Option 3 would be the best in regards to the ease of operation and Option 6 would be the most difficult.

2.2.14 Environmental and Social Considerations

Based on preliminary review of satellite imagery, a number of dwellings and local access tracks have been identified across the mining lease. It was assumed that the community centres located in close proximity to mining infrastructure will be resettled. Options 2 and 6 require additional resettlement of a number of buildings and access roads. The areas for the remaining options are sparsely populated and will require minor resettlement of local communities. On this basis options 3 and 4 are considered equally preferable over options 2 and 6.

In regards to the possible flora, fauna, social and similar environmental constraints, no information has been made available to distinguish between the options.

There is no known 'no-go' area (other than the existing infrastructure locations) on site, and the current pit strike direction (mineralised corridor) is not known. These factors may make an option untenable.

2.3 SUMMARY

The commentary on the TSF site options provided in the above sections is summarised as follows:

- Option 4 has the lowest expected embankment volumes, however, has a larger basin area than the other options. Option 4 is expected to require the lowest capital cost.
- It is expected that all site options will have a consequence category of High A, High B or High C based on the ANCOLD guidelines. As these are largely similar with regard to design criteria, all site options have been considered as similar in this regard.
- All options are within 3 km of the process plant, with the exception of Option 2 which is 4.1 km away. Option 3 is the closest being only 2.3 km away.
- Option 4 is considered preferable in terms of embankment stability, due to lower embankment height.
- The topography surrounding all the options is gentle and suitable for establishment of borrow areas. Options 2 and 3 are notably closer to the open pits, making them more suitable for utilisation of mine waste for construction.
- All options are considered to offer sufficiently shallow topography to enable construction of a compacted soil liner and installation of HDPE geomembrane.
- For the basis of this comparison, it was assumed that the geotechnical conditions are similar for each location.
- Option 3 is in close proximity to key infrastructure and any raise above the design tonnage (total 56 Mt) may be limited. The remaining options are considered viable for expansion.
- In general, all options would be expected to achieve close to optimal tailings densities.
- The water demand for all options is likely to be similar. Options 4 and 6 present greater flexibility in terms of catchment management.

3. TSF OPTION EVALUATION

The TSF options were evaluated for a range of criteria. A ranking matrix was developed by KP to provide a comparative assessment for a list of common criteria. The list of criteria used is not intended to be an exhaustive list but provides a first pass analysis of the main drivers for the operations discussed.

The comparison incorporated five key criteria (assessed subjectively):

- Expenditure – initial and on-going capital, operating, water management and rehabilitation costs.
- Environmental – various impacts associated with the development and operation of the options.
- Social – the impacts on the local community.
- Operational – the risks and ease of constructing and operating.

- Closure – the ease of rehabilitation and the long-term stability of the tailings storage option.

For the ranking matrix these five criteria were given weightings to signify the main drivers of developing each option. The weightings used by KP for the ranking matrix are as follows:

- Expenditure – 29%.
- Environmental – 16%.
- Social – 12%.
- Operational – 32%.
- Closure – 11%.

Expenditure and operations are considered to be the main drivers of the trade-off study and as such were ranked with the highest weighting. The parameter weighting for these sections strongly influence the overall outcome and therefore should be carefully reviewed by Centamin and adjusted if appropriate.

A total score of 12 points was allocated to each criterion, and distributed between the four options to allow for large and small disparities between the options (e.g. split scores were used to indicate no difference, minor differences or major differences between options).

Individual parameters were provided with a weighting factor to reflect their relative importance with a score of 60 for high importance factors, down to a weighting factor of less than 10 for items of low significance. The cumulative highest score is considered to be the best overall option. The decision matrix is provided in Table 3.1 (appended). The scores for each option in the five categories are provided in Table 3.2 (with a higher scoring denoting the preferred option).

Table 3.2: Category rating TSF options

Category		Option 2	Option 3	Option 4	Option 6	Preferred Option
A	Expenditure	525	575	745	735	Option 4
B	Environmental	378	363	318	323	Option 2
C	Social	248	268	268	248	Option 3 / Option 4
D	Operational	677	657	712	722	Option 6
E	Closure	260	235	245	220	Option 2
	Total	**2,088**	**2,098**	**2,288**	**2,248**	
	Difference	**91%**	**92%**	**100%**	**98%**	

The decision matrix indicates that Option 4 is the best overall option. This is primarily due to the lower capital cost, lower social impact and stability post closure. However, the margin between the four options is relatively small indicating that all four options are considered to be viable.

It should be noted that the ranking is dependent on the proportional weighting of the five categories and the weighting of the individual parameters. Centamin should review the weighting applied to each parameter, and advise if any amendments should be made to the ranking matrix based on their perspective.

4. CONCLUSIONS AND RECOMMENDATIONS

The siting study has assessed four potential layouts for the Doropo TSF. All of these layout options are considered viable. The assessment has comprised consideration of known constraints, but there are a number of potential constraints for which there is insufficient information to assess. These include environmental and geotechnical constraints.

A ranking matrix was used to evaluate the options. This evaluation indicates that Option 4 is the best overall option, followed by Option 6. This is primarily due to the lower capital cost, lower social impact and stability post closure.

We trust that this document provides sufficient information for your requirements. Please contact us should you require any further information. We look forward to your feedback regarding the preferred option to be maintained for further work in the Pre-Feasibility Study.

Yours faithfully
KNIGHT PIÉSOLD PTY LTD

ANDREW MOLLAN
Project Engineer

DAVID MORGAN
Managing Director

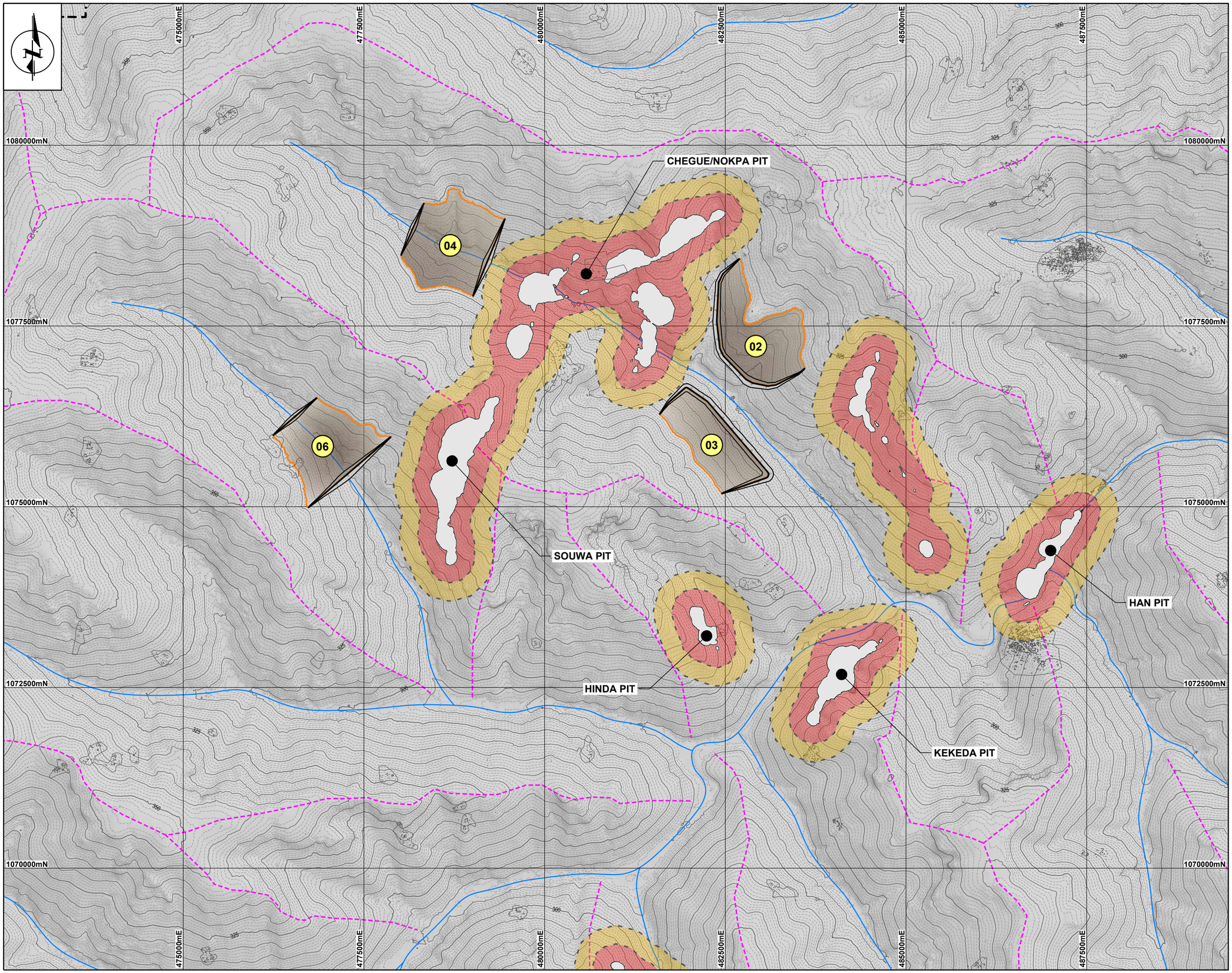
TABLE

Table 3.1: Decision Matrix

Sector Weighting Factors:			**Unit Weighting Factors:**		**Scores:**	
A	Expenditure	29%	Very Important	60	Best Option Available	4
B	Environmental	16%	Significant	30	Worst Option	1
C	Social	12%	Low Importance	1	Other Options rated in comparion (1 to 4)	
D	Operational	32%				
E	Closure	11%				

Key Criteria for Comparison		Unit Weighting Factor	Option 2		Option 3		Option 4		Option 6	
			Score	Total	Score	Total	Score	Total	Score	Total
A	Expenditure									
1	Initial Capital Cost - Facility	60	2.5	150	2.0	120	4.0	240	3.5	210
2	Ongoing Capital Cost	60	2.5	150	2.0	120	4.0	240	3.5	210
3	Operating Cost	60	2.0	120	3.5	210	3.0	180	3.5	210
4	Rehabilitation Cost	20	3.0	60	4.0	80	2.0	40	3.0	60
5	Water Management	15	3.0	45	3.0	45	3.0	45	3.0	45
	Total	29%		525		575		745		735
B	Environmental									
1	Visual	5	3.0	15	3.0	15	3.0	15	3.0	15
2	Noise	5	3.0	15	3.0	15	3.0	15	3.0	15
3	Dust	10	3.5	35	2.0	20	3.0	30	3.5	35
4	Flora and Fauna	10	3.0	30	3.0	30	3.0	30	3.0	30
5	Surface Water	15	4.0	60	4.0	60	2.0	30	2.0	30
6	Borrow Areas	25	3.5	88	3.5	88	2.5	63	2.5	63
7	Hazard Rating	20	3.0	60	3.0	60	3.0	60	3.0	60
8	Ease of Approval	25	3.0	75	3.0	75	3.0	75	3.0	75
	Total	16%		378		363		318		323
C	Social									
1	Community (Health and Safety)	20	3.0	60	3.0	60	3.0	60	3.0	60
2	Heritage	6	3.0	18	3.0	18	3.0	18	3.0	18
3	Land Purchase	15	3.0	45	3.0	45	3.0	45	3.0	45
4	Community Relocation	20	2.5	50	3.5	70	3.5	70	2.5	50
5	Employment	25	3.0	75	3.0	75	3.0	75	3.0	75
	Total	12%		248		268		268		248
D	Operational									
1	Operational Risk	50	3.0	150	3.0	150	3.0	150	3.0	150
2	Ease of Construction	40	3.0	120	3.0	120	3.0	120	3.0	120
3	Ease of Operation	40	2.0	80	3.0	120	2.5	100	3.5	140
4	Ease of Expansion	30	3.5	105	2.5	75	3.0	90	3.0	90
5	Risk of Embankment Erosion	5	3.0	15	3.0	15	3.0	15	3.0	15
6	Risk of Embankment Failure	30	3.0	90	2.0	60	4.0	120	3.0	90
7	Risk of Embankment Overtopping	2	3.0	6	3.0	6	3.0	6	3.0	6
8	Risk of Internal Erosion	2	3.0	6	3.0	6	3.0	6	3.0	6
9	Seepage and Groundwater	35	3.0	105	3.0	105	3.0	105	3.0	105
	Total	32%		677		657		712		722
E	Closure									
1	Ease of Closure	40	3.5	140	3.5	140	2.5	100	2.5	100
2	Long Term Monitoring	15	3.0	45	3.0	45	3.0	45	3.0	45
4	Stability at Closure / Post Closure	25	3.0	75	2.0	50	4.0	100	3.0	75
	Total	11%		260		235		245		220
TOTAL		730		**2088**		**2098**		**2288**		**2248**
RANK				**4**		**3**		**1**		**2**
PERCENTILE				**91%**		**92%**		**100%**		**98%**

FIGURE



LEGEND:

- CATCHMENT BOUNDARY
- WATER COURSE
- TENEMENT BOUNDARY
- 250m PIT BUFFER ZONE
- 500m PIT BUFFER ZONE

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 1m CONTOUR INTERVALS SHOWN.
3. SITE INFRASTRUCTURE LAYOUT SHOWN RECEIVED DECEMBER, 2021.

TAILINGS STORAGE FACILITY OPTIONS KEY:

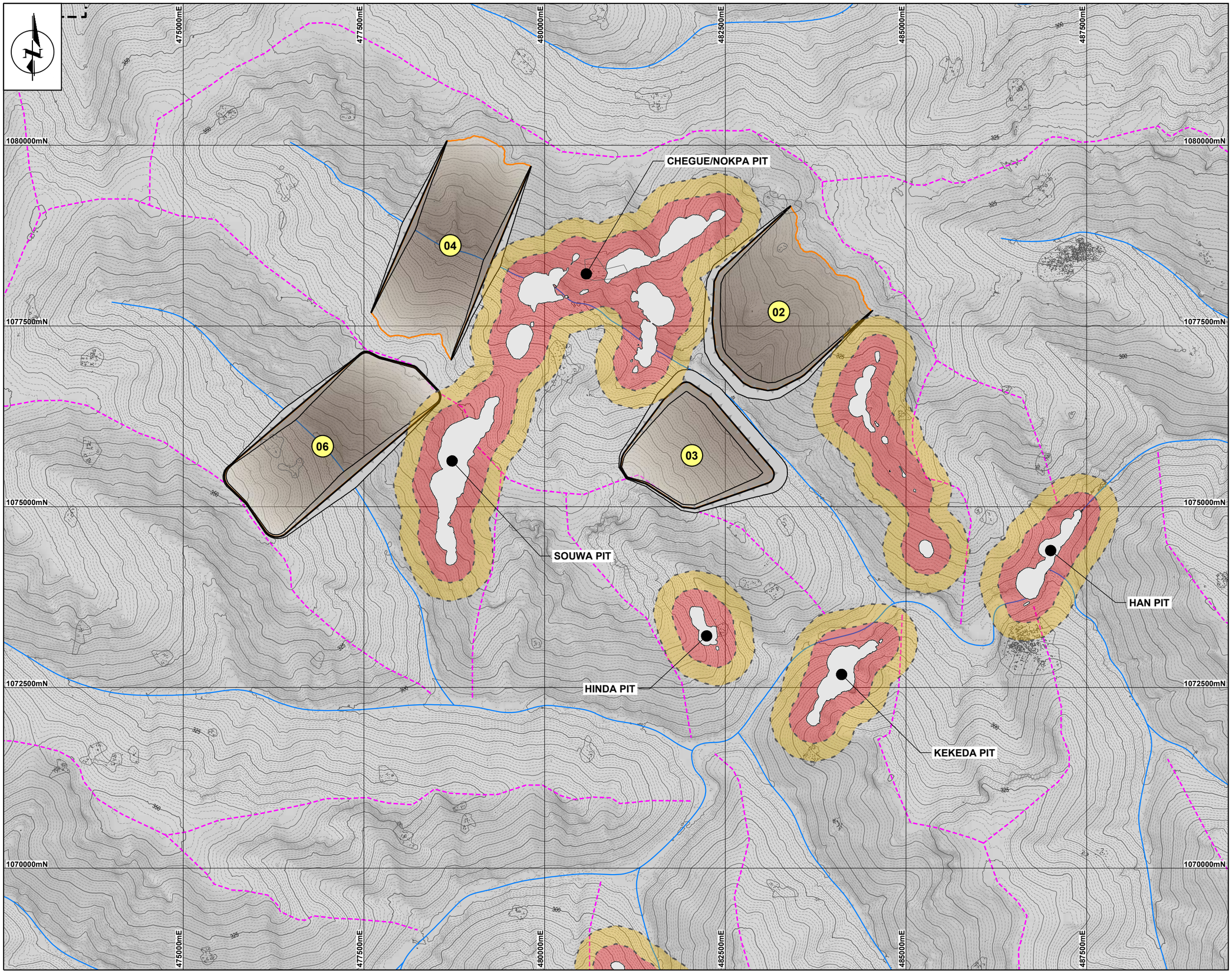
- 02 OPTION 2 LAYOUT
- 03 OPTION 3 LAYOUT
- 04 OPTION 4 LAYOUT
- 06 OPTION 6 LAYOUT

1000 600 200 0 500 1000 1500 2000
SCALE (METRES) 1:50,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD MINE
TAILINGS STORAGE FACILITY SITE OPTIONS STUDY
SITE GENERAL ARRANGEMENT PLAN - STAGE 1

PE301-00821 M22002
Figure 1



LEGEND:

- CATCHMENT BOUNDARY
- WATER COURSE
- TENEMENT BOUNDARY
- 250m PIT BUFFER ZONE
- 500m PIT BUFFER ZONE

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 1m CONTOUR INTERVALS SHOWN.
3. SITE INFRASTRUCTURE LAYOUT SHOWN RECEIVED DECEMBER, 2021.

TAILINGS STORAGE FACILITY OPTIONS KEY:

- 02 OPTION 2 LAYOUT
- 03 OPTION 3 LAYOUT
- 04 OPTION 4 LAYOUT
- 06 OPTION 6 LAYOUT

1000 600 200 0 500 1000 1500 2000
SCALE (METRES) 1:50,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD MINE
TAILINGS STORAGE FACILITY SITE OPTIONS STUDY
SITE GENERAL ARRANGEMENT PLAN - FINAL STAGE

PE301-00821 M22002
Figure 2

APPENDIX H

TSF and WSD Seepage Assessment

Knight Piésold CONSULTING

APPENDIX I – TSF AND WSD SEEPAGE ASSESSMENT

H.1.1 GENERAL

The seepage analysis program SEEP/W (Ref. H.1) was used to assess the order of magnitude seepage loss from the TSF, as well as the potential phreatic surface in the tailings and embankment. Seepage analyses were undertaken to evaluate the following:

- The total seepage loss from the TSF to provide an indication of the potential environmental impact from operation of the TSF.
- The effect of the underdrainage system on the overall phreatic surface in the facility.
- Predict flows through the embankment and into the underdrainage for different scenarios of drainage efficiency/blockage.
- Predict phreatic surface in the tailings mass and embankment, to be verified and monitored during operation.
- Predict phreatic surface in the water storage dam embankment, to be verified and monitored during operation.

H.1.2 MODEL ASSUMPTIONS

The embankment cross-sections at Stage 1 and Stage Final adopted are shown in Figure H.1. The seepage assessment models for the TSF and WSD embankment during Stage 1 and Stage Final are shown in figures H.2 to H.4. The subsurface conditions were adopted based on the findings from site investigations undertaken in 2023.

The following were modelled:

Embankment Materials

- Tailings (100H:1V beach slope).
- Zone A material – low permeability fill.
- Zone C1 material – structural fill.
- Zone C2 material – rock fill (from mine waste).
- Underdrainage system, including toe drain and basin drains.

Foundation Materials

Eastern Embankment

- Sandy clay (0.3 to 3.0 m deep).
- Sand, with clay (3.0 to 4.0 m deep).
- XW to HW Granodiorite (4.0 to 6.0 m deep).

- SW to FR Granodiorite (6.0 m and deeper).

Western Embankment

- Clayey sand (0.3 to 3.5 m deep).
- Sand with clay (3.5 to 6.0 m deep).
- MW Granodiorite (6.0 m and deeper).

WSD Embankment

- Clayey sand (0.3 to 4.5 m deep).
- Sand with clay (4.5 to 4.9 m deep).
- MW Granodiorite (4.9 m and deeper).

Southern Embankment

- Sandy Gravel (0.1 to 1.5 m deep).
- Clay with sand (1.5 to 18.35 m deep).
- Clayey Sand (18.35 to 22.0 m deep).
- HW - MW Grano Diorite (22.0 and deeper).

H.1.3 MATERIAL PARAMETERS

The material types and the saturated hydraulic conductivity parameters used in the modelling are based on the site permeability test and typical values for similar materials published in literature. These are summarised in Table H.1.

Table H.1: Summary of Material Permeabilities

Material Type	Saturated Permeability (m/s)
Tailings	2×10^{-7}
Zone A	5×10^{-8}
Zone C	5×10^{-7}
Zone C1	1×10^{-5}
HDPE Liner*	2×10^{-9}
Clayey sand	5×10^{-7}
Sand with clay	5×10^{-7}
Sandy gravel	5×10^{-7}
Clay with sand	1×10^{-7}
Clayey Sand	5×10^{-7}
HW - MW Grano Diorite	5×10^{-8}
SW to FR Grano Diorite	1×10^{-8}

* The permeability of HDPE liner includes the seepage due to the possible damages during installation
# Tailings permeability is based on the laboratory tests (Ref. H.2).

H.1.4 BOUNDARY CONDITIONS

The following boundary conditions were adopted in the analyses:

- A pond constant head boundary was estimated as follows:
  - Stage 1 - peak average operating condition – RL321.6m
  - Stage 1 - storm event condition – RL325.8m
  - Stage Final - peak average operating condition – RL340.9 m
  - Stage Final - storm event condition – RL342.3m
- A constant head boundary has been set at as follows at the downstream boundary to simulate the existing groundwater.
  - Eastern Embankment – RL 304m
  - Western Embankment – RL 314 m
  - Southern Embankment – RL 333 m to RL 294 m
- Fully functional underdrainage system.
- A constant head boundary of RL327.0 m has been set for WSD embankment to simulate the maximum operational water level at the water storage dam.
- Seepage boundary was set on the downstream embankment surface with the nodes being reviewed to allow for possible seepage through the embankment face or the waste rock material.

H.1.5 SCENARIOS MODELLED

The scenarios modelled are summarised in Table H.2 and H.4

Table H.2: Summary of scenarios modelled. – Eastern and Western Embankment

Stage	Underdrainage working?	Analysis	Climatic event
1	Y	Steady-state	Average conditions
1	Y	Transient	72-hour design storm
1	N	Steady-state	Average conditions
1	N	Transient	72-hour design storm
Final	Y	Steady-state	Average conditions
Final	Y	Transient	72-hour design storm
Final	N	Steady-state	Average conditions
Final	N	Transient	72-hour design storm

Table H.3: Summary of scenarios modelled. – Northern Embankment

Stage	Underdrainage working?	Analysis	Climatic event
Final	Y	Steady-state	Average conditions
Final	Y	Transient	72-hour design storm
Final	N	Steady-state	Average conditions
Final	N	Transient	72-hour design storm

Table H.4: Summary of scenarios modelled. – WSD Embankment

Stage	Analysis	Water Level
1	Steady-state	Maximum operational water level

H.1.6 MODELLING RESULTS

The results of the seepage analysis at eastern and western embankment are summarised in tables H.5 and H.6, and also illustrated in figures H.6 to H.13.

Table H.5: Indicative Seepage Loss of TSF during Average Pond Condition

Stage	Basin Drains Operational (Y/N)	Estimated Seepage Loss to Ground		Figure
		2D model ($m^3/s/m$)	Whole facility (kL/ha/day)	
1	Y	7.09E-09	0.01	H.5
	N	1.31E-07	0.12	H.6
Final	Y	2.38E-07	0.20	H.7
	N	5.52E-07	0.46	H.8

Table H.6: Estimated Indicative Seepage Loss of TSF during 72-hour Storm Event

Stage	Basin Drains Operational (Y/N)	Estimated Seepage Loss to Ground		Figure
		2D model ($m^3/s/m$)	Whole facility (kL/ha/day)	
1	Y	3.44E-06	3.19	H.9
	N	1.09E-05	10.17	H.10
Final	Y	4.30E-07	0.36	H.11
	N	2.23E-06	1.85	H.12

The modelling above indicates that the operation of the drainage system (including basin underdrain and toe drain) becomes more critical with height. At average pond condition

with drains at full capacity, the seepage loss from the facility at Stage Final is 0.01 kL/Ha/day. With non-functional drains, the seepage loss is 0.12 kL/Ha/day, which is significantly larger than the loss when the basin drains are fully functional. At 72-hour storm event seepage loss at Stage Final is smaller compared to the Stage 1 losses because at the Stage Final, tailings is deposited from south embankment additionally to the Stage 1, and the resultant longer seepage path.

Overall, the operation of all drains is critical for the reduction of seepage loss and phreatic surface control. However, it is noted that the inclusion of the underdrainage system improves seepage interception through the embankment, reduces the phreatic surface, improves the stability of the structural zone of the embankment and improves tailings consolidation.

Seepage Analysis at South embankment and WSD embankment is performed to identify the appropriate phreatic surface to be used in stability analysis and shown in Figure H.14 to H.17.

Operation of the drainage system, the resulting phreatic levels and impact on stability are discussed in Appendix I.

H.1.7 CONCLUSIONS

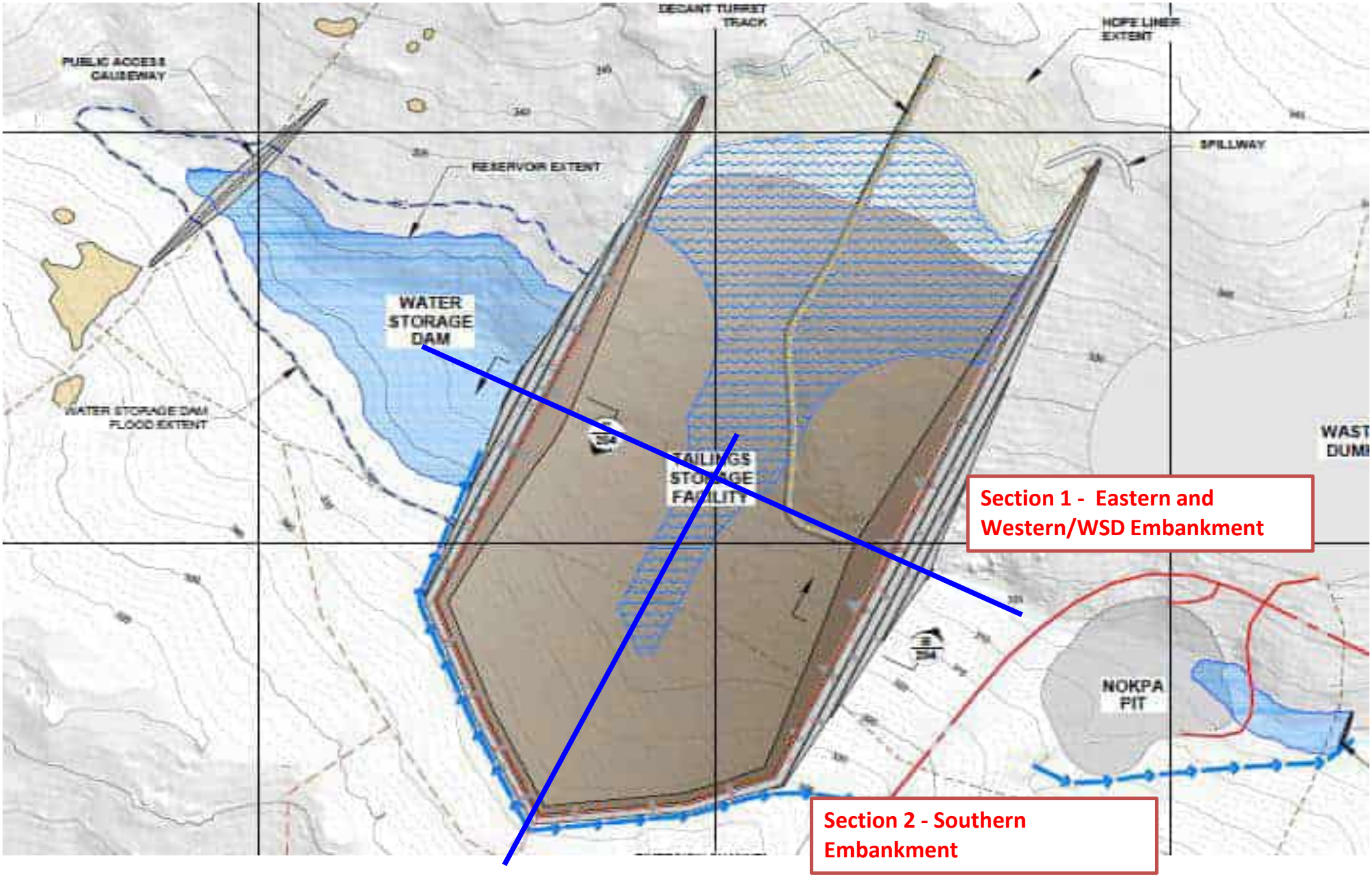
Based on the assessment, the following conclusions are made for the proposed TSF design configuration:

- Phreatic surface in the embankment would be expected to be relatively low mainly due to the high permeable rockfill used in Zone C2 from Stage 2 to Stage Final.
- The seepage loss is considered small for both Stage 1 and final stage TSF with both average and 100-year ARI, 72 hour duration storm ponds.

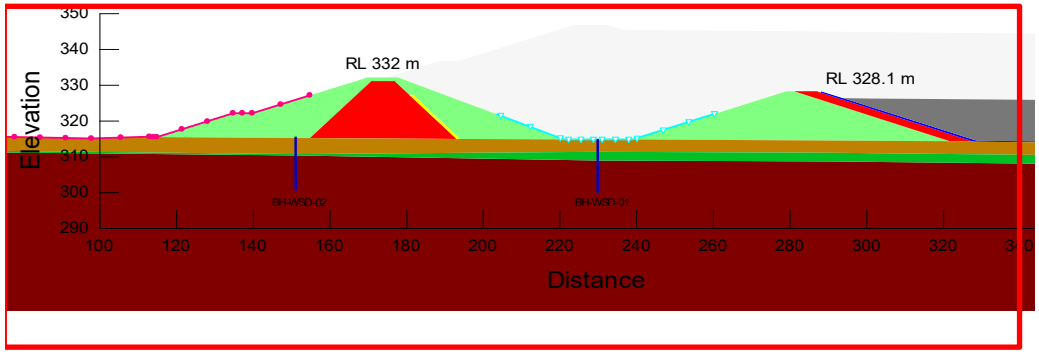
H.1.8 REFERENCES

1. GEO-SLOPE International Ltd, “SEEP/W”, 2016.
2. Knight Piésold Pty Ltd Memorandum Ref. PE23-01297 “Doropo Gold Project – Tailings Physical Testing”, December 2023.

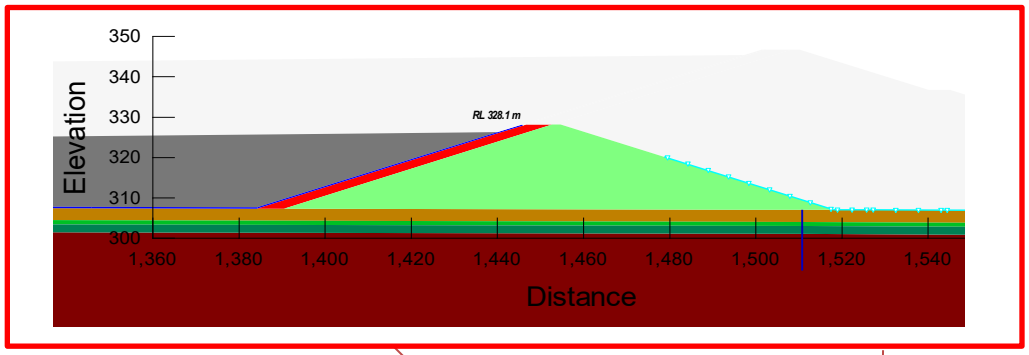
APPENDIX H – FIGURES

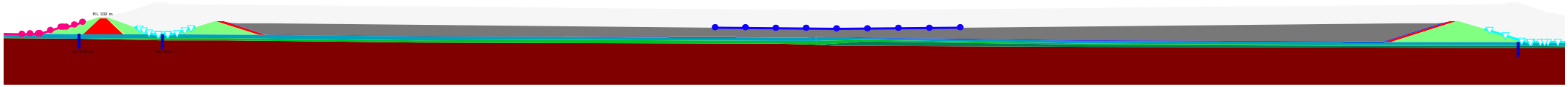

DECANT TURRET TRACK
HDPE LINER EXTENT
PUBLIC ACCESS CAUSEWAY
RESERVOIR EXTENT
SPILLWAY
WATER STORAGE DAM
WATER STORAGE DAM FLOOD EXTENT
TAILINGS STORAGE FACILITY
NOKPA PIT
Section 1 - Eastern and Western/WSD Embankment
Section 2 - Southern Embankment

Western Embankment

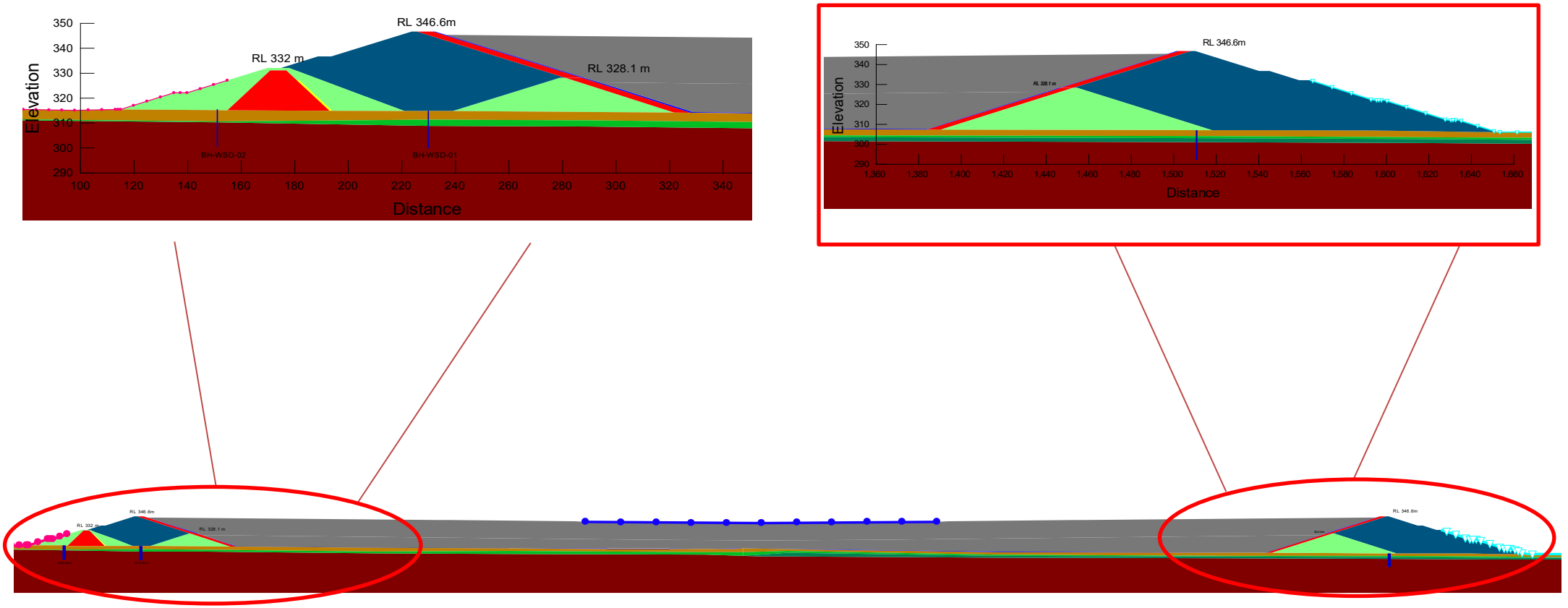


Eastern Embankment

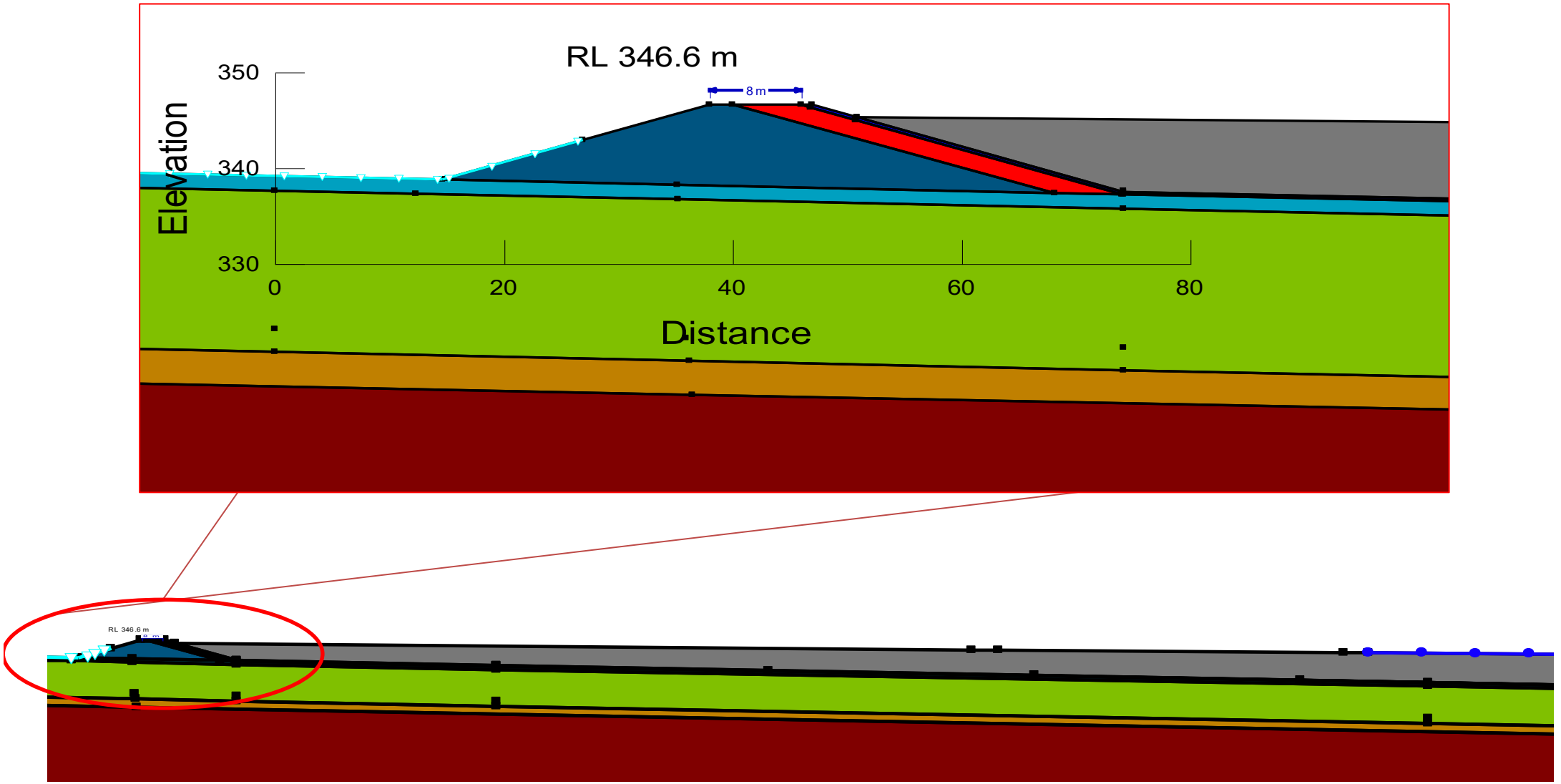


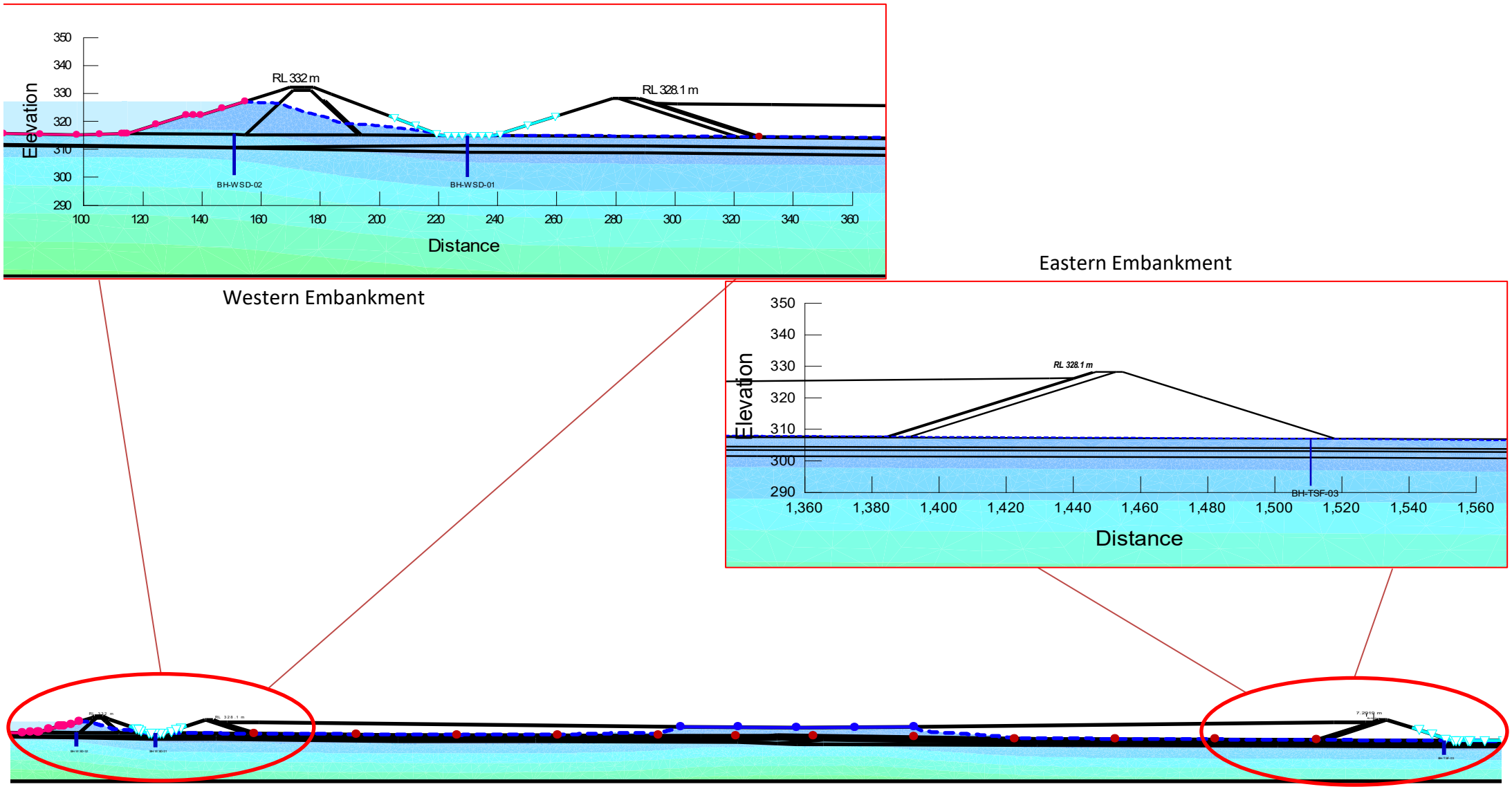


Western Embankment



Southern Embankment

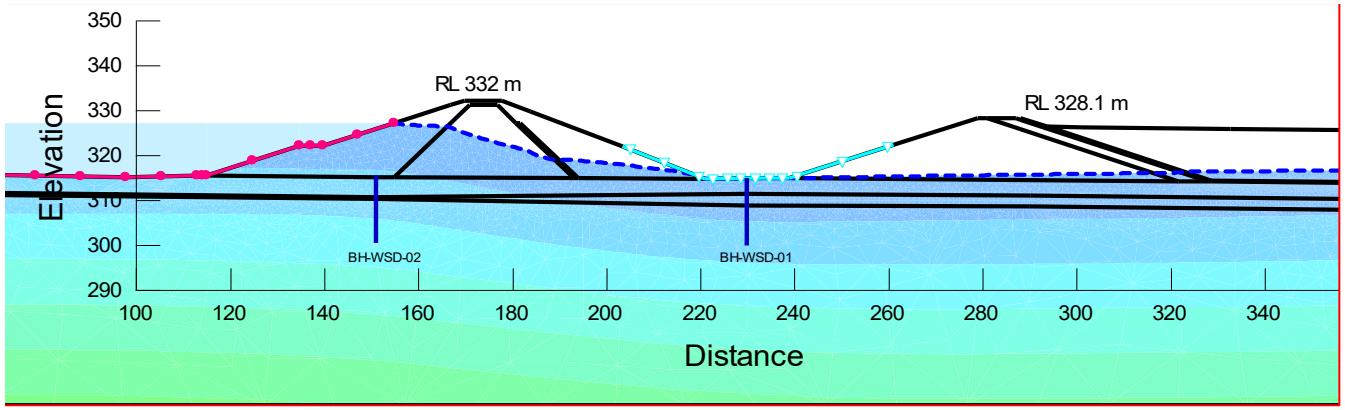




Knight Piésold CONSULTING

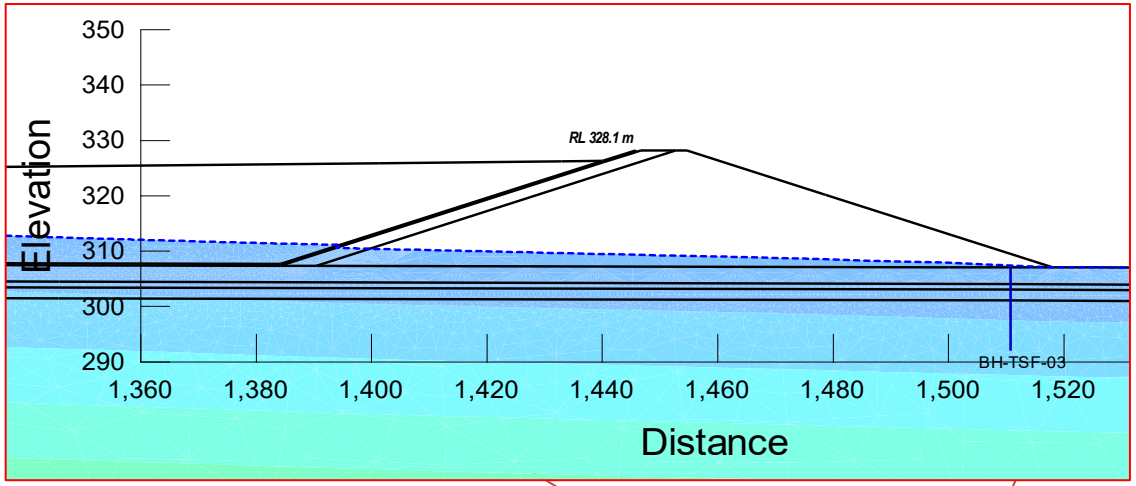
DOROPO GOLD PROJECT
TSF AND WSD SEEPAGE ASSESSMENT
SECTION 1 - STAGE 1 SEEPAGE RESULT - AVERAGE POND OPERATIONAL UNDERDRAINAGE

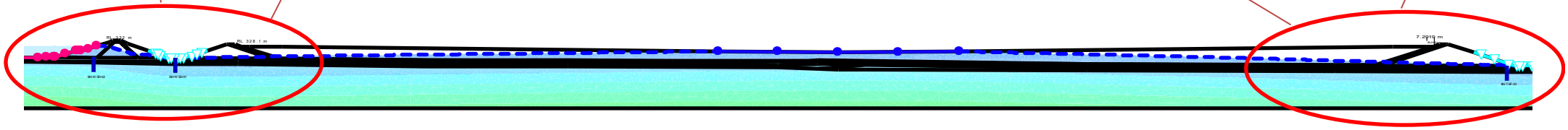
PE301-00821/18
Figure H.5

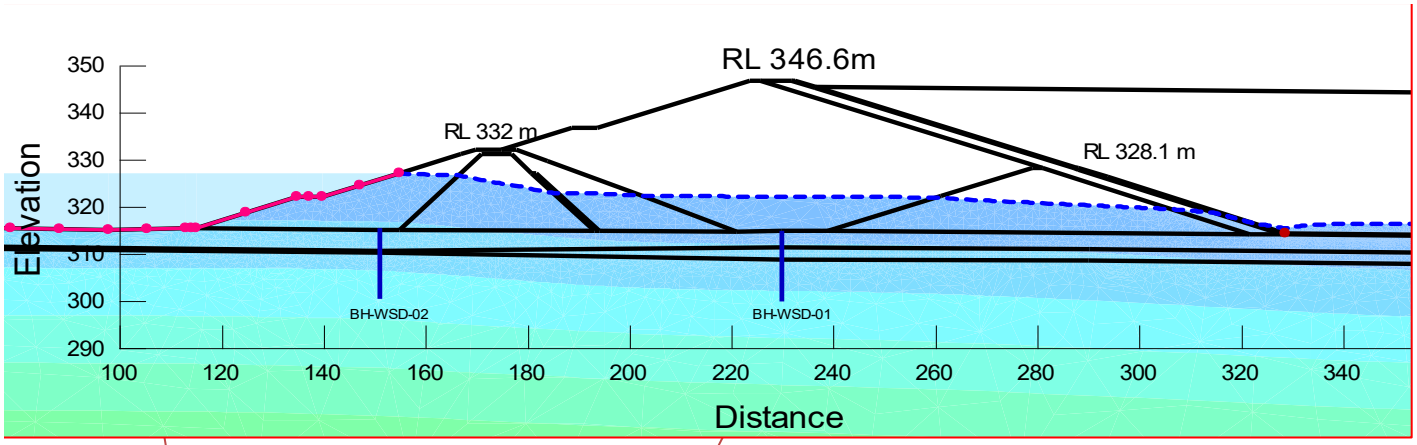


Western Embankment

Eastern Embankment

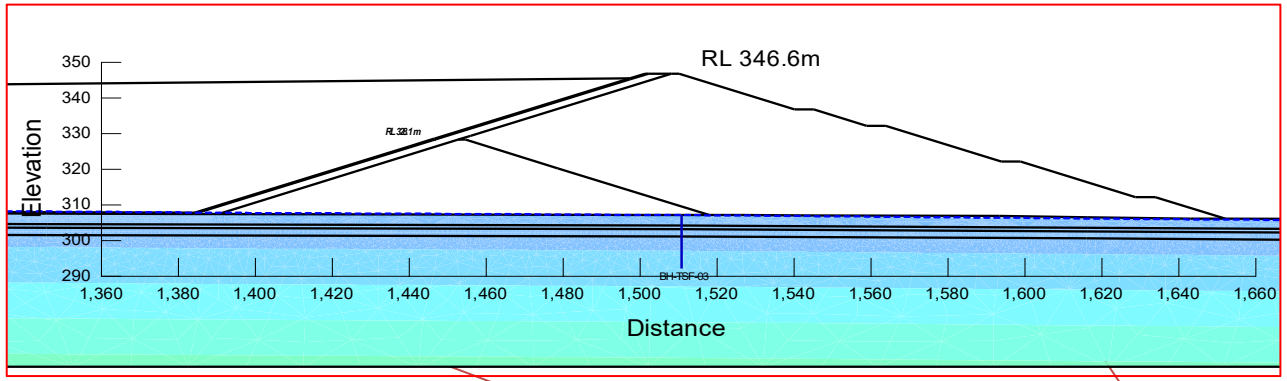


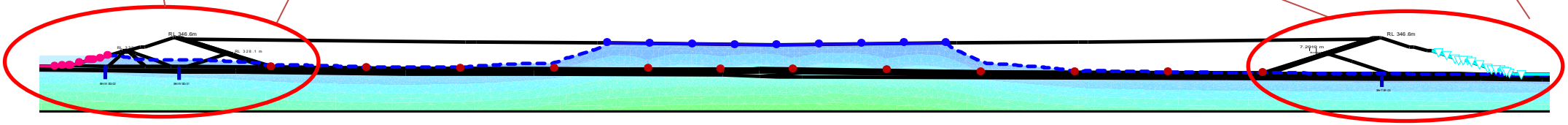


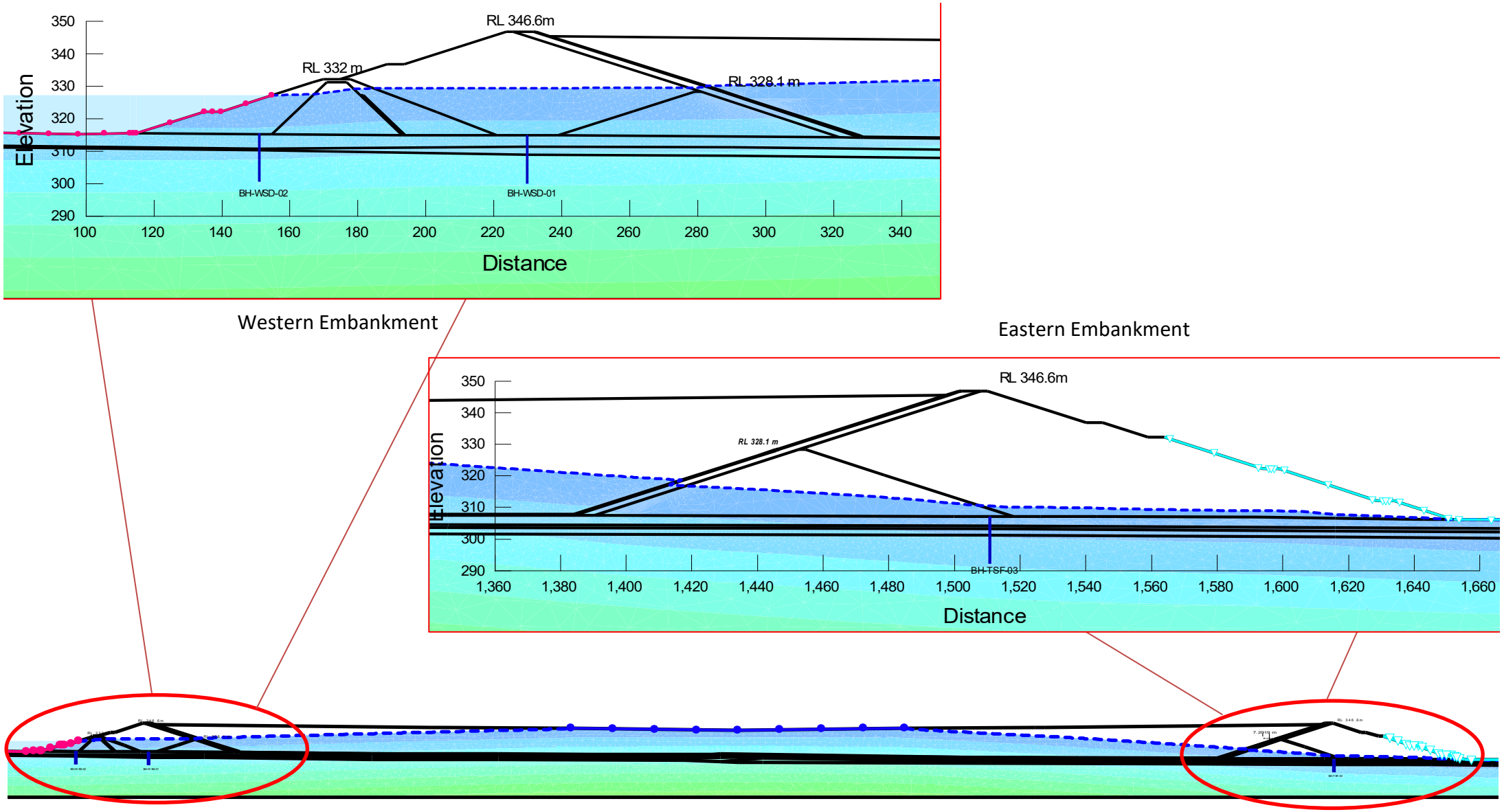


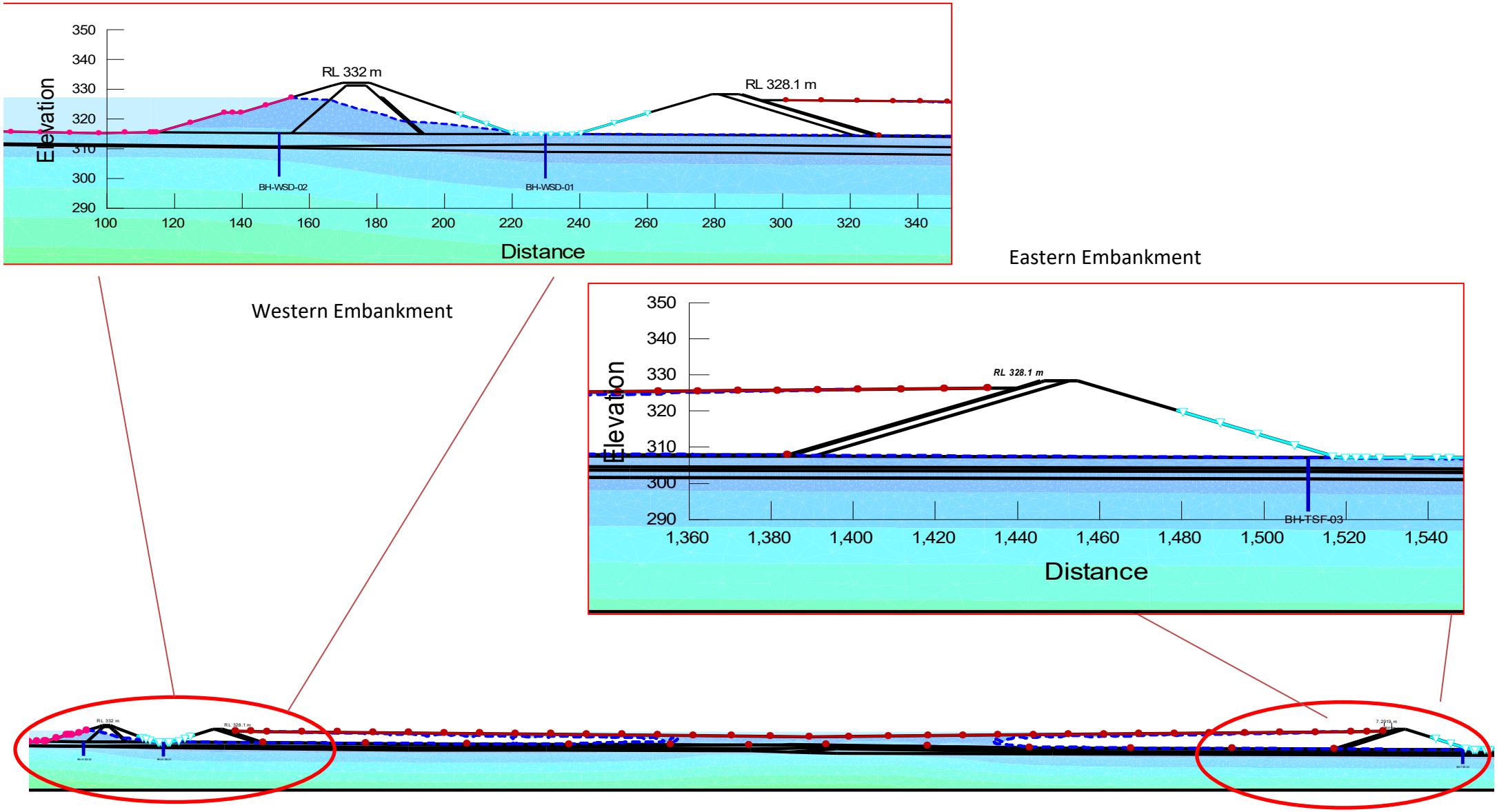
Western Embankment

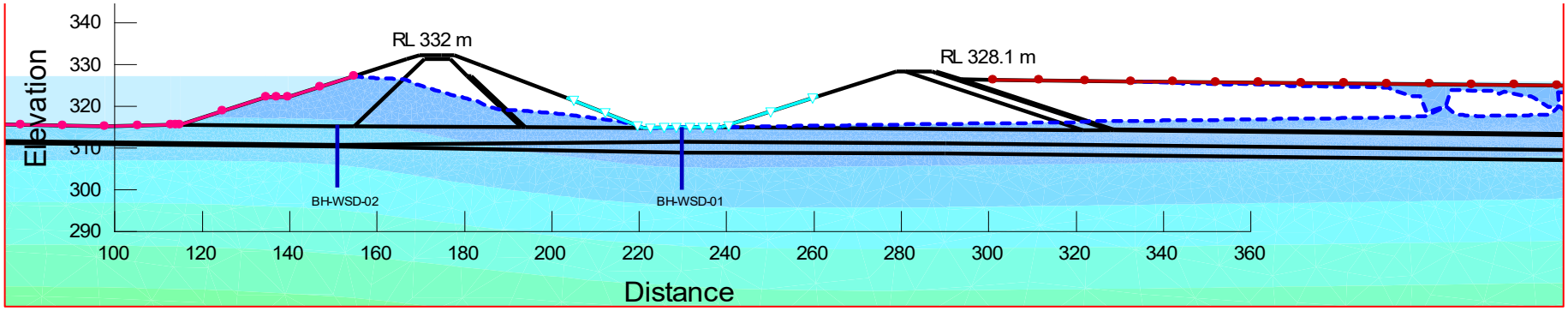
Eastern Embankment



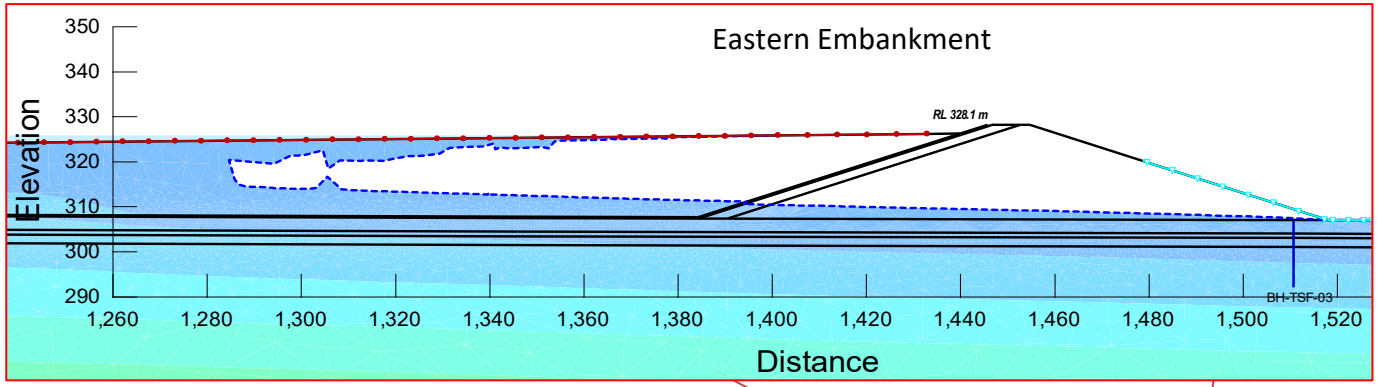


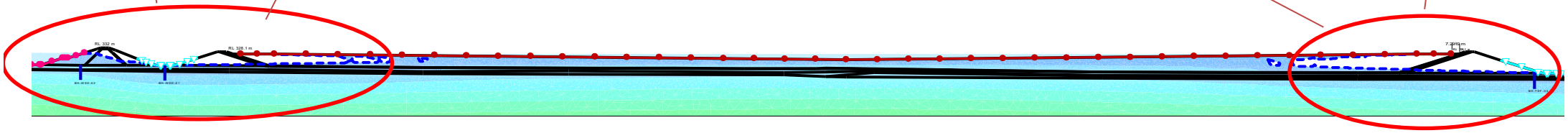

Western Embankment
Eastern Embankment
RL 346.6m
RL 332 m
RL 328.1 m
BH-WSD-02
BH-WSD-01
BH-TSF-03
Elevation
Distance
350
340
330
320
310
300
290
100
120
140
160
180
200
220
240
260
280
300
320
340
1,360
1,380
1,400
1,420
1,440
1,460
1,480
1,500
1,520
1,540
1,560
1,580
1,600
1,620
1,640
1,660

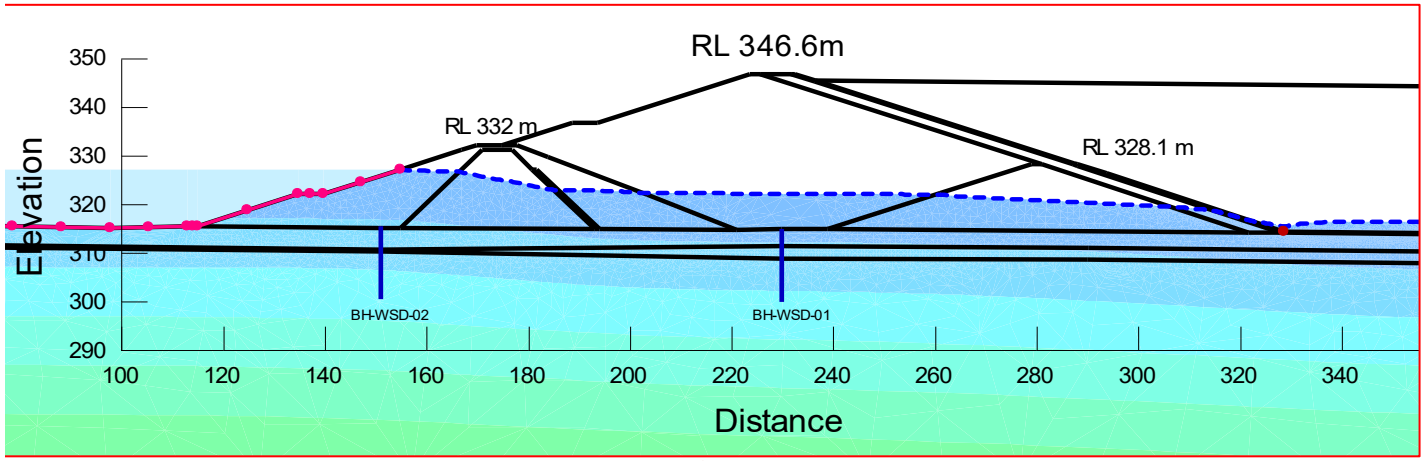

Western Embankment
Eastern Embankment
Elevation
Distance
RL 332 m
RL 328.1 m
BH-WSD-02
BH-WSD-01
BH-TSF-03
350
340
330
320
310
300
290
100
120
140
160
180
200
220
240
260
280
300
320
340
1,360
1,380
1,400
1,420
1,440
1,460
1,480
1,500
1,520
1,540



Western Embankment

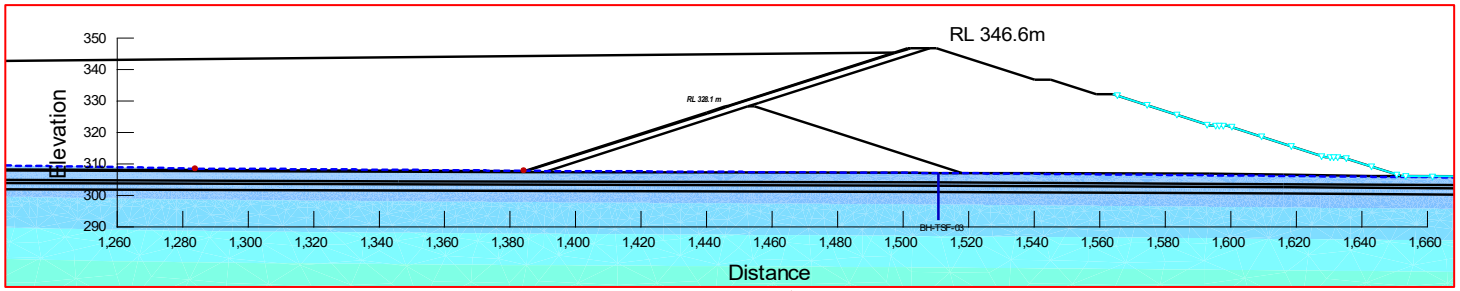


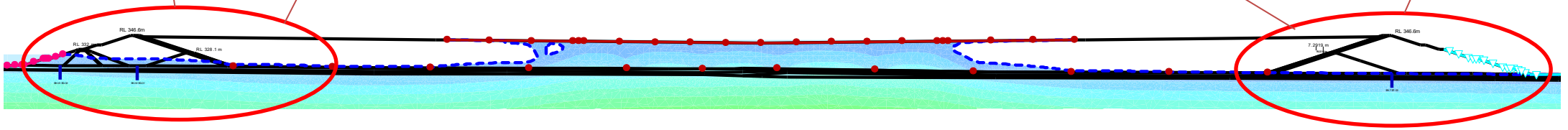


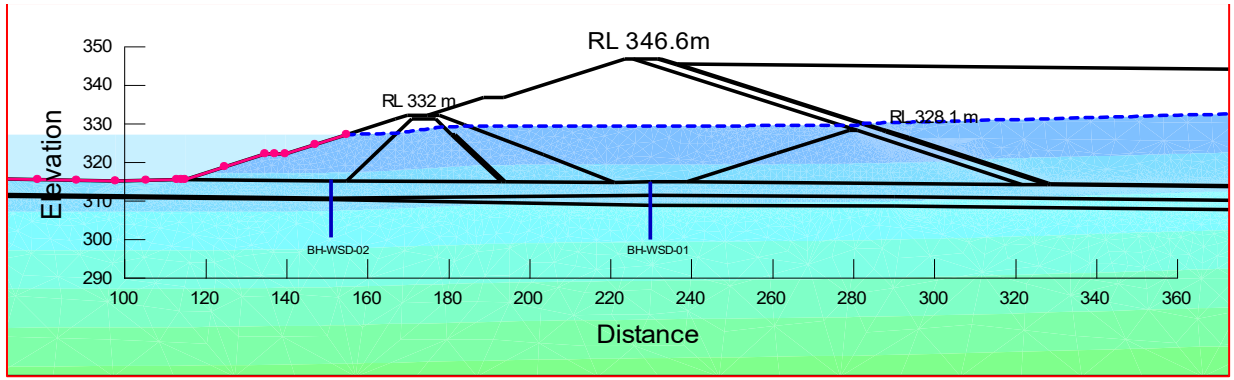


Western Embankment

Eastern Embankment

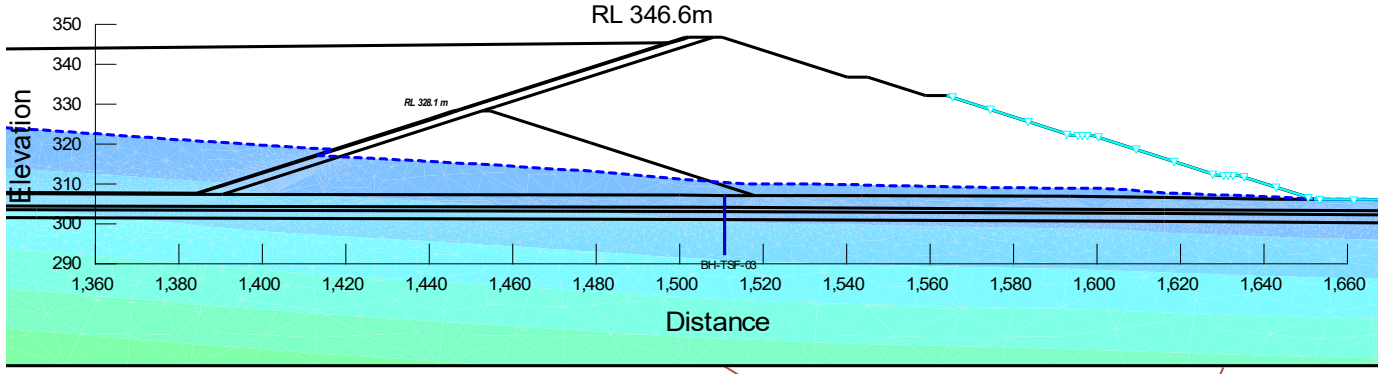


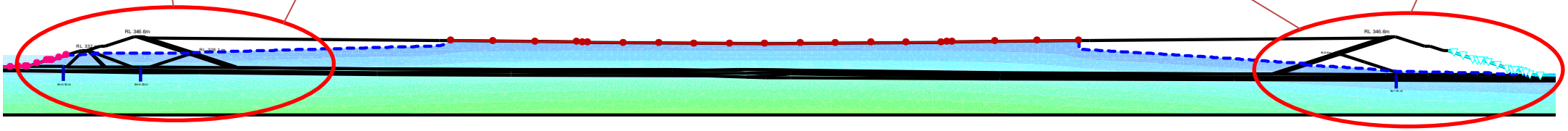


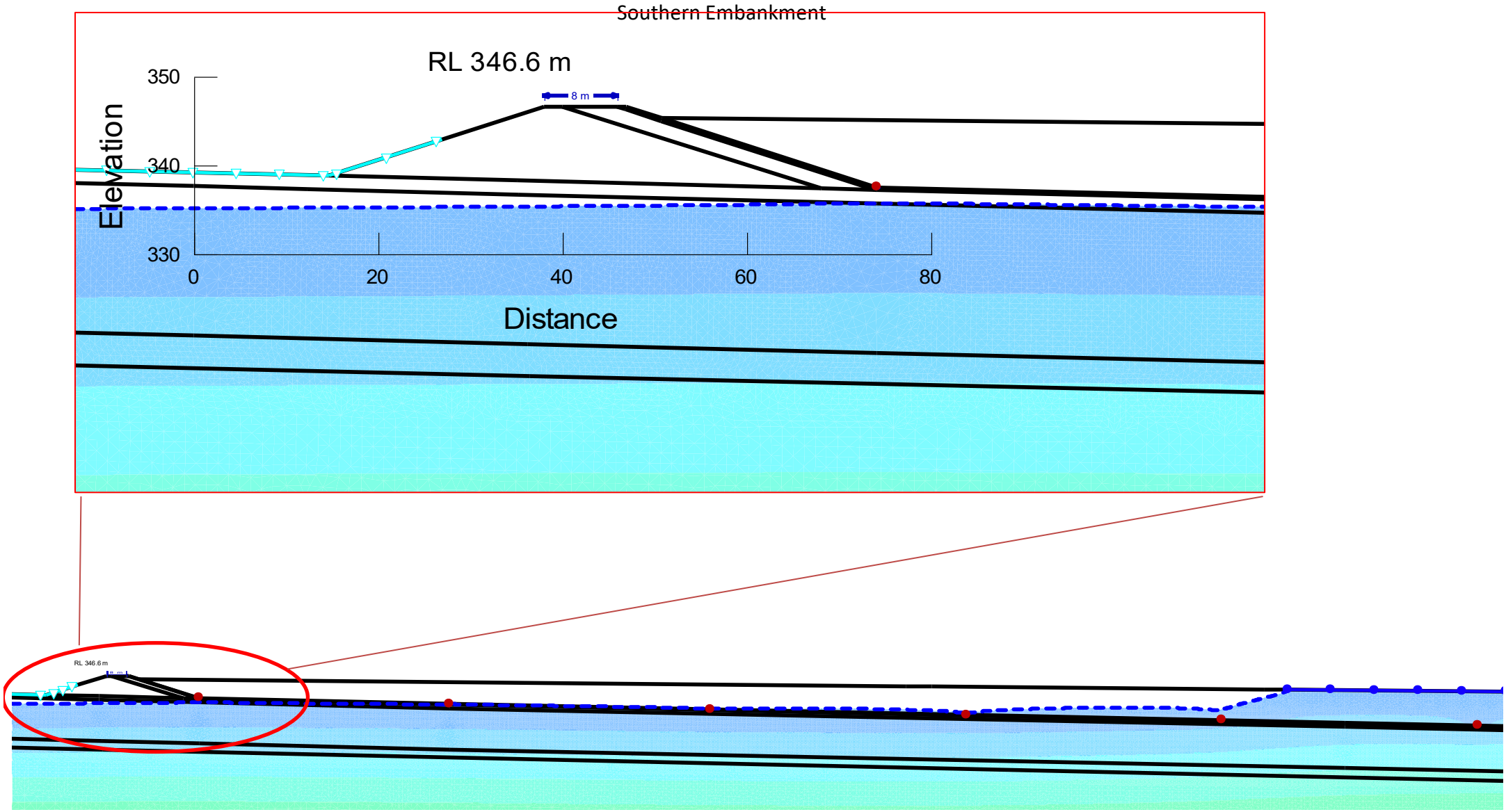


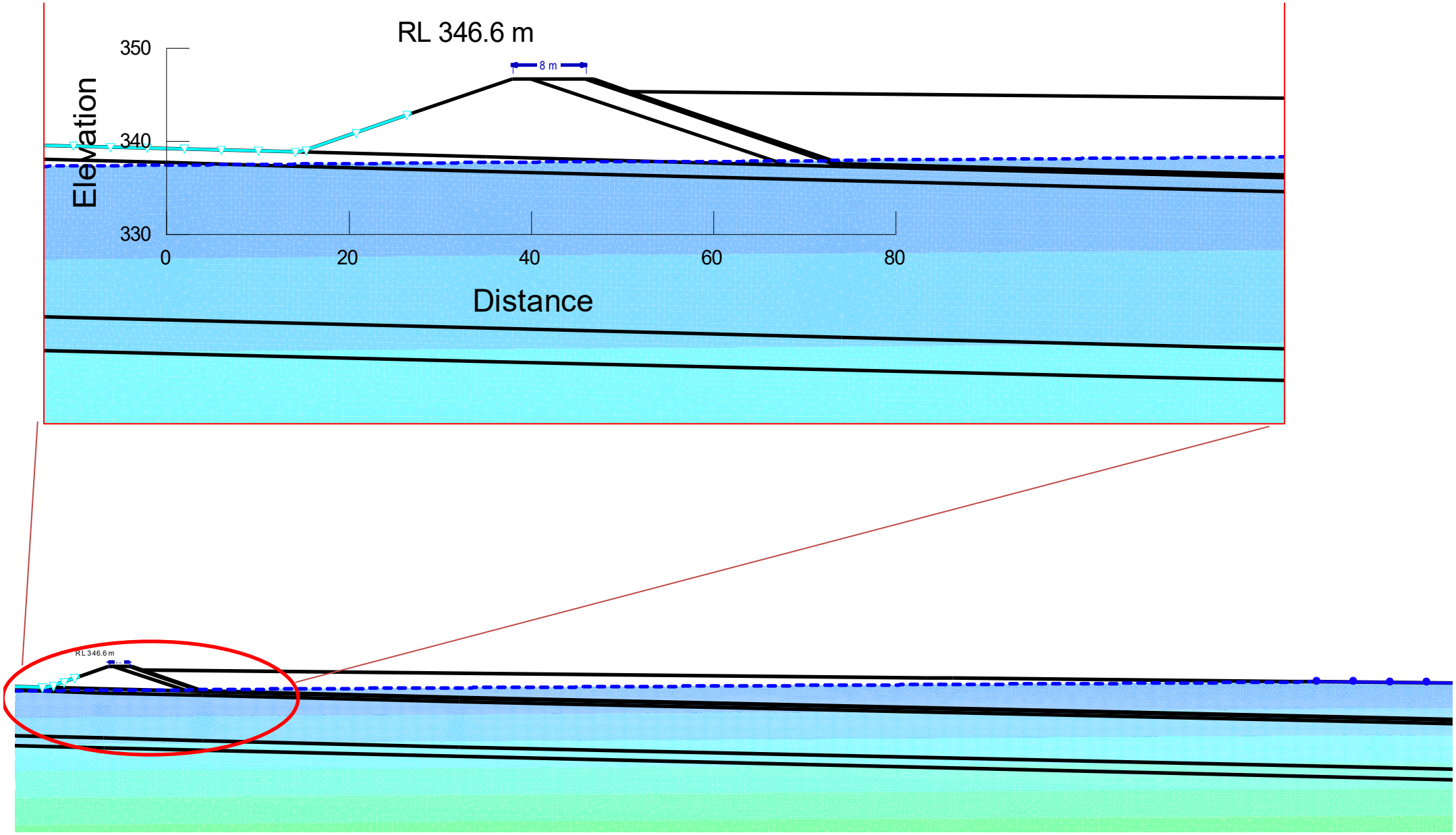
Western Embankment

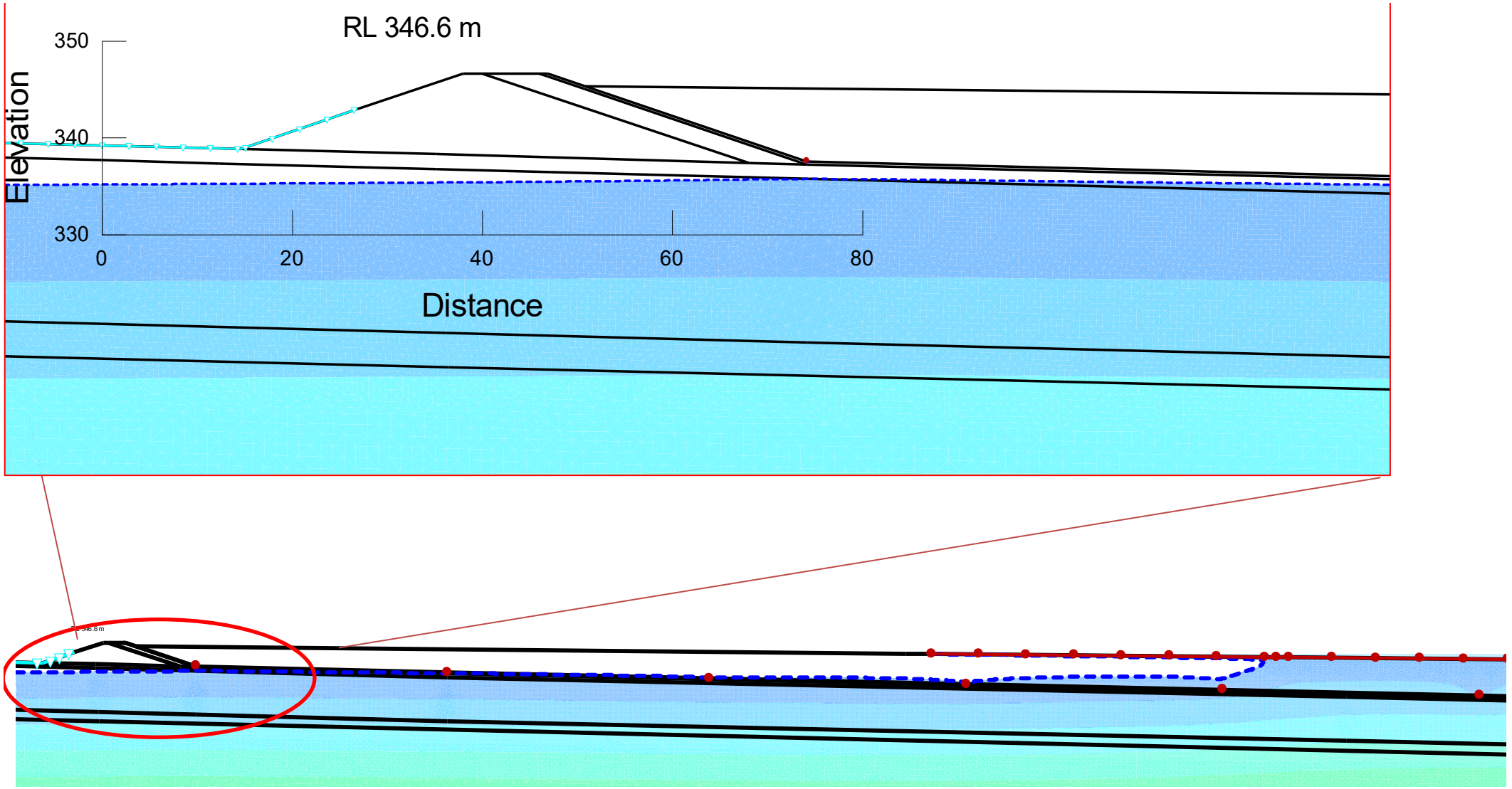
Eastern Embankment



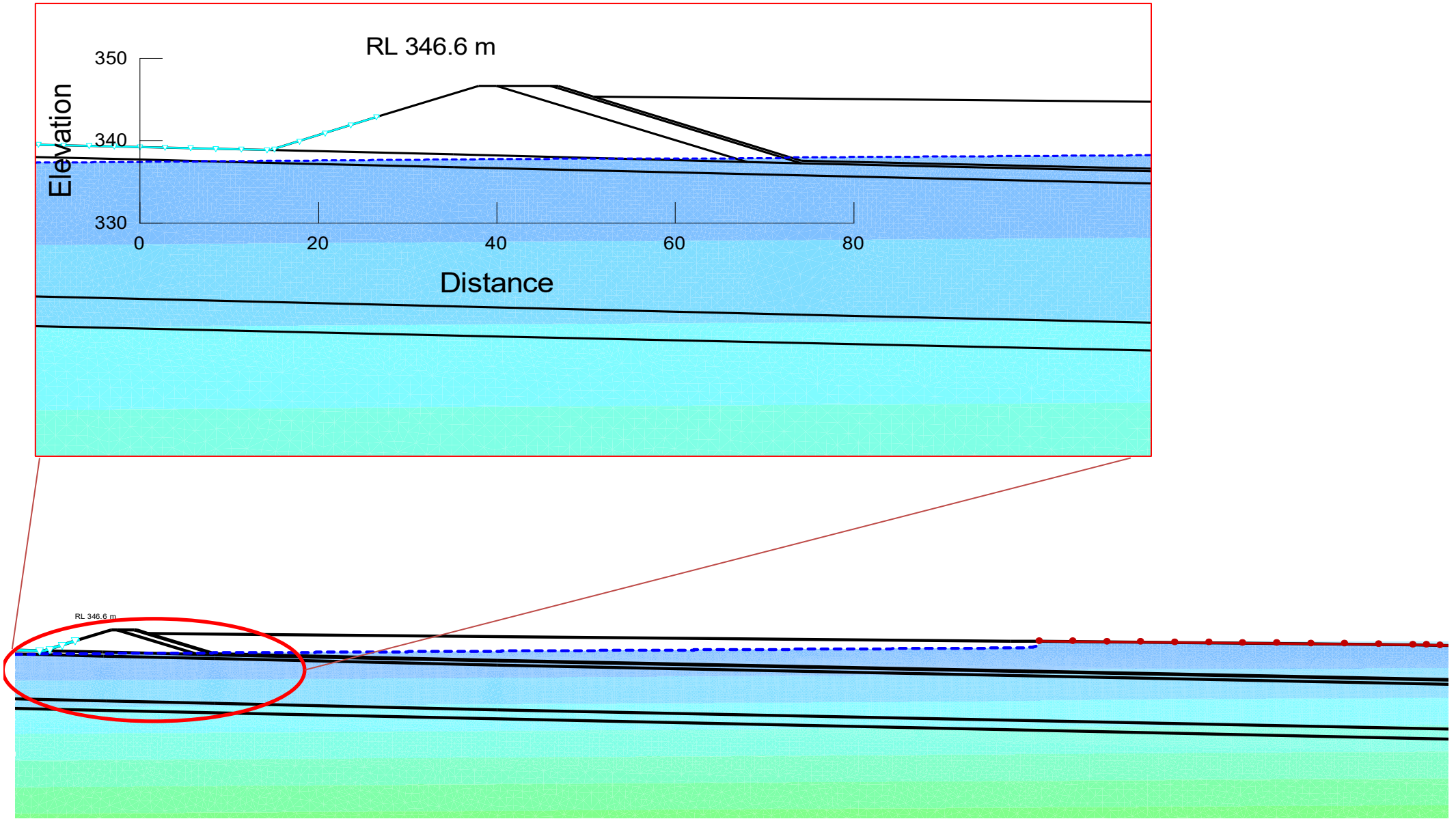


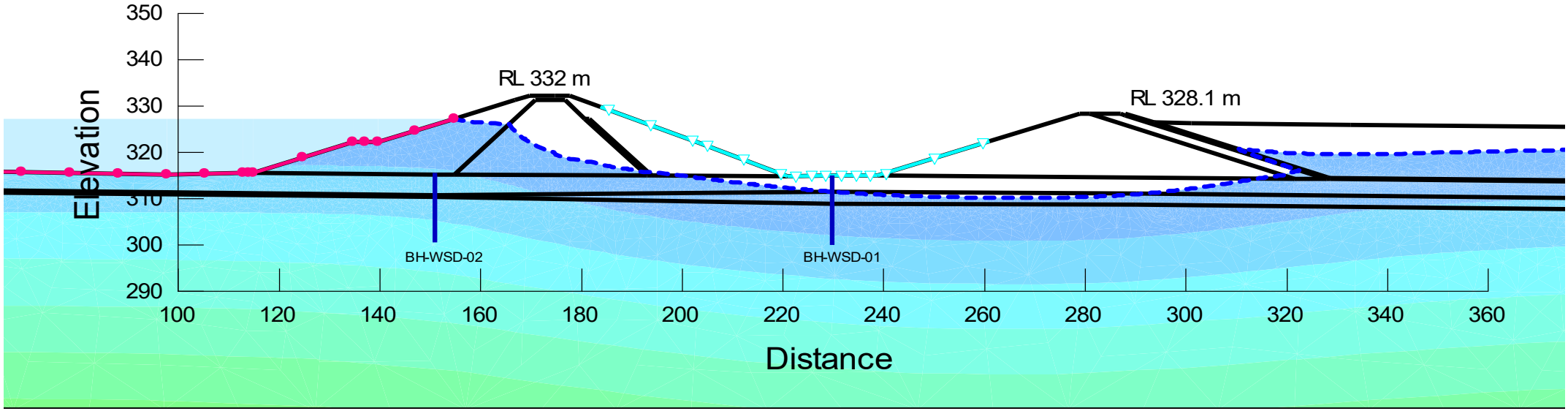

Southern Embankment
RL 346.6 m
8 m
350
340
330
Elevation
0
20
40
60
80
Distance
RL 346.6 m


RL 346.6 m
8 m
350
340
330
Elevation
0
20
40
60
80
Distance
RL 346.6 m


RL 346.6 m
350
340
330
Elevation
0
20
40
60
80
Distance

Southern Embankment




350
340
330
320
310
300
290
Elevation
RL 332 m
RL 328.1 m
BH-WSD-02
BH-WSD-01
100
120
140
160
180
200
220
240
260
280
300
320
340
360
Distance

APPENDIX I

TSF and WSD Stability Assessment

Knight Piésold CONSULTING

APPENDIX I – TSF AND WSD STABILITY ASSESSMENT

A stability assessment of the proposed TSF embankment was carried out using limit equilibrium methods.

I.1.1 STABILITY ASSESSMENT

I.1.1.1 Methodology

SLOPE/W (Ref. I1), developed by GEO-SLOPE International Ltd. in Canada, is a limit equilibrium program that was used for the analysis. The analysis was carried out using the Morgenstern-Price method.

The program calculates the magnitude of the destabilising forces in the embankment slope and compares this to the total available strength of the soil structure. The ratio of these two parameters is given as the factor of safety. When the destabilising forces are equal to the strength of the structure, this ratio (the factor of safety) is equal to one and the embankment is said to be “just stable”. As the factor of safety increases, the probability of an embankment failure is reduced.

I.1.1.2 Assumptions

The following assumptions were made for the stability modelling:

- TSF and WSD embankment is constructed as a zoned earth-fill embankment.
- Zone A material is low permeability embankment fill and assumed to be compacted to 98% SMDD.
- Zone C1 material is structural fill sourced from borrow areas and assumed to be compacted to 95% SMDD.
- Zone C2 is mine waste comprising predominantly rockfill with granular materials with high permeability and assumed to be compacted to 95% SMDD by traffic compaction.
- No strain softening materials present within the TSF embankment.
- Material index and strength properties will be confirmed during the construction phases.
- The rate of raise of embankment is reasonably slow to allow consolidation of the residual clay soil in the foundation.
- Instrumentation including piezometers will be installed to monitor phreatic surface and pore water pressures in the embankment and foundation during and after construction of embankments.
- A tailings beach slope of 100H:1V.

I.1.1.3 Modelling details

The stability of Stage 1 and Stage Final of the Eastern, Western and Southern embankments and WSD were analysed according to ANCOLD 2019 guidelines (Ref. I2) The layout of the sections analysed are shown in Figure I.1. Section profiles are shown in figures I.2 to I.4.

Table I.1 presents the recommended factors of safety under different loading conditions as per ANCOLD (2019) guidelines.

A critical failure surface is defined as a failure surface that gives the lowest factor of safety and represents a failure surface that would likely cause significant damage if sliding were to occur. Shallow failure surfaces that give low factors of safety, but do not represent a critical breaching of the embankment have not been included.

Table I.1: Recommended ANCOLD (2019) minimum factors of safety for design

Loading Condition	Minimum FOS
Long-term drained stability	1.5
Short-term undrained (potential loss of containment)	1.5
Short-term undrained (no potential loss of containment)	1.3
Post-seismic	1.0-1.2

I.1.1.4 Geotechnical site investigations

KP has undertaken geotechnical site investigations within the project footprint in 2023. The site investigation comprised drilling 10 No. boreholes, and excavation of 60 No. test pits across the footprints of the proposed TSF and WSD footprints. Since the investigation, the TSF orientation has been revised. The northern embankment has been removed and replaced with a southern embankment. The TSF's throughput and capacity have also increased. Tailings will now be deposited from the east, west, and south embankments, with the supernatant pond positioned against the northern hillside. No boreholes were drilled within the proposed southern embankment footprint during the 2023 site investigation.

The foundation lithology and geotechnical parameters for the analysed sections are based on the site investigation findings and laboratory test results.

The boreholes used to determine the sub-surface conditions at the critical sections are summarised below:

- Eastern TSF embankment: BH-TSF-02 and BH-TSF-03
- Western TSF and WSD embankments: BH-WSD-01 and BH-WSD-02

- Southern TSF embankment: BH-PS-11
- Causeway: TP-WSD-07, BH-WSD-01 and BH-WSD-02

As no boreholes were drilled within the proposed south embankment, the nearest borehole BH-PS-11 from the proposed plant site has been used for the analysis. The soil profile at BH-PS-11 differs from those observed in the other TSF and WSD boreholes, likely due to a different geological setting on the opposite side of the ridge. No boreholes were drilled within the proposed causeway footprint. The analysis is based on boreholes drilled within the WSD footprint. Additional site investigation is recommended within the footprint of the southern TSF embankment and WSD causeway prior to start of construction.

Table I.2 presents a summary of the boreholes at the embankments.

Table I.2: Summary of boreholes

Item	BH-TSF-02	BH-TSF-03	BH-WSD-01	BH-WSD-02	BH-PS-11	TP-WSD-07
Embankment	Eastern		Western		Southern	Causeway
Elevation (RL m)	308.4	306.9	315.43	314.99	349.97	Not recorded
Groundwater depth(m)	4	2.2	1.2	0.8	18.4	1.5
Topsoil	0 – 0.35 m; clayey gravel; removed	0 – 0.4 m; clay with sand; removed	0.0 – 0.3 m: sand; removed	0.0 – 0.3 m: sand; removed	0-0.1 m: sand, removed	0-0.3m: sand, removed
Colluvium/ Alluvium	0.35 – 1.8 m: dense clayey gravel, N: 35	0.4 – 3.0 m: very stiff sandy clay, N: 22; 3.0 – 4.0 m: firm clay with sand, N: 9;	0.3 – 3.5 m: medium dense clayey sand, N: 23; 3.5 – 6.0 m: very dense sand with clay, N: 70, 55;	0.3 – 4.5 m: medium dense sandy clay, N: 27, 24; 4.5 – 4.9 m: very dense sand with clay, N: R	0.1 to 1.5 m: dense sandy gravel	0.3 to 1.7 m: Medium dense sand; 1.7 to end of TP: very stiff clay
Residual	*1.8 – 2.4 m: hard sandy clay;*	-	-	-	1.5 to 4.5 m: hard clay with sand, N: 54, 56; 4.5 to 16.0 m: very stiff clay with sand, N: 26, 32, 23, 25, 22, 21, 24, 30; 16 – 18.4 m: stiff clay with sand, N: 17 18.4 – 22.0 m: very dense clayey sand, N: R	-
Extremely weathered	2.4 – 4.7 m: very dense silty sand, N: R, R	-	-	-	-	-
Granodiorite	4.7 – 6.0 m: LS, MW; 6.0 – 7.5 m: VHS, SW; 7.5 – 8.1 m: MS, MW; 8.1 – EOH: VHS, FR.	4.0 – 6.0 m: VLS, HW; 6.0 – 7.5 m: LS, MW; 7.5 – 8.5 m: VLS, HW; 8.5 – 15 m: VHS, FR	6.0 to 9.0 m: HS, MW; 9.0 to 15 m: VHS, FR	4.9 to 10.5 m: MS, MW; 10.5 to 14 m: HS, MW-SW; 14 to 15 m: VHS, FR	18.35 to 27.0m: HS-VHS, MW-SW,	-

Undisturbed Shelby tube samples were collected from soft to stiff fine-grained soils where SPT N-values were less than 20. Since the majority of soils encountered had comparatively higher strength (SPT N > 20), only a limited number of undisturbed samples were collected during the 2023 investigation. Advanced laboratory tests, including consolidated undrained triaxial and direct shear tests, were performed on selected samples. The test results for the TSF and WSD locations are summarised in Table I.3.

Table I.3: Summary of direct shear test results - BH-TSF-03

BH ID	Test	Depth (m)	Vertical pressure σ_v' (kPa)	C' (kPa); θ' (º)	S_u/σ_v'
BH-TSF-03[1]	DSS	3.74	800	-	0.24
BH-WSD-01	CIU multistage	3.22	150 300 600	50, 30.5	> 1

Note: 1 – material is classified as fine to medium silty sand.

I.1.1.5 Material properties

The drained or undrained shear strength parameters for materials depends on a number of factors including the hydraulic conductivity of the material and the rate of loading during construction and operational phase.

A drained condition is expected when excess pore water pressures have fully dissipated, typically due to slow loading or sufficient time after construction. Under this condition, the soil response is governed by effective stresses, and no additional pore pressure is generated. Drained behaviour is also expected in over-consolidated, dilative soils, where negative pore pressures (suction) may develop during shearing.

An undrained condition occurs when loading is applied faster than pore water can dissipate, especially in low-permeability materials. In this case, excess pore water pressure builds up, resulting in reduction of soil short-term strength.

The shear strength parameters of the embankment and foundation materials are based on the findings from the 2023 site investigation, lab test results and typical values for similar materials published in literature.

The shear strength parameters of tailings are based on typical values for similar materials published in literature.

For the post-seismic condition, excess pore water pressure may develop in materials with low permeability, resulting in strength reduction. ANCOLD (2019) guidelines

indicates that 10% to 15% loss of strength could be applied under such circumstances. Due to limited laboratory test data, the clay strength was conservatively reduced to 80% of its static undrained strength. The friction angles of sands and gravels were also reduced to 80% of their peak strength. The parameters adopted are summarised in tables I.4 to I.8.

Table I.4: Adopted strength parameters for embankment materials

Material	$\gamma_{moisture}$ (kN/m^3)	Drained		Undrained	Post-Seismic		
					Above water		Below water
		c' (kPa)	φ' (°)	s_{ur} (kPa)	c_r' (kPa)	φ_{cv}' (°)	s_{ur} (kPa)
Zone A (low permeability fill)	18	10	27	0.30σ'$_v$, min 50 kPa	0	22	0.24σ'$_v$, min 0 kPa
Zone C	20	5	32	0.35σ'$_v$, min 50 kPa	0	27	0.28σ'$_v$, min 0 kPa
Zone C1 (Rock fill)	22	Based on Lep's curve		-	0	32	-
Tailings	16	5	28	0.15σ'$_v$, min 0 kPa	0	22.4	0.05σ'$_v$, min 0 kPa

Table I.5: Foundation material below Eastern Embankment - Adopted strength parameters based on BH-TSF-03

Material horizon	Depth (m)	$\gamma_{moisture}$ (kN/m^3)	Drained		Undrained	Post-Seismic		
			c' (kPa)	φ' (°)	s_u (kPa)	$c_{r'}$ (kPa)	$\varphi_{cv'}$ (°)	s_{ur} (kPa)
Top Soil	0 – 0.4	Removed						
Sandy CLAY, very stiff	0.4 – 3.0	19	15	30	0.35σ'$_v$, min 60 kPa for σ'$_v$ < 300 kPa; 0.3σ'$_v$, min 60 kPa for σ'$_v$ ≥ 300 kPa.	0	25	0.28σ'$_v$, min 0 kPa for σ'$_v$ < 300 kPa, 0.24σ'$_v$, with min 0 kPa for σ'$_v$ ≥ 300 kPa.
SAND, with clay, firm	3.0 – 4.0	17	3	29	0.3σ'$_v$, min 45 kPa for σ'$_v$ < 400 kPa, 0.24σ'$_v$, min 45 kPa for σ'$_v$ > 400 kPa,			0.24σ'$_v$, min 0 kPa for σ'$_v$ < 400 kPa, 0.19σ'$_v$, min 0 kPa for σ'$_v$ ≥ 400 kPa,
Granodiorite rock, XW-HW, VLS	4.0 – 6.0	22	15	34	same as drained parameters	0	30	-
Granodiorite rock	6.0 to EOH	23	300	35	same as drained parameters	same as drained parameters		-

Table I.6: Foundation materials below Western Embankment and WSD - Adopted strength parameters based on BH-WSD-01 and BH-WSD-02

Material horizon	Depth (m)	$\gamma_{moisture}$ (kN/m^3)	Drained		Undrained	Post-Seismic		
			c' (kPa)	φ' (°)	s_u (kPa)	$c_{r'}$ (kPa)	φ_{cv}' (°)	s_{ur} (kPa)
Top Soil	0 – 0.3	Removed						
Clayey SAND (Alluvium)[1]	0.3 – 4.5	20	30	30	same as drained parameters	0	25	-
SAND with clay	3.5 – 4.9	20	30	33	same as drained parameters	0	28	-
MW Grano Diorite	4.9 to EOH	23	200	35	same as drained parameters	same as drained parameters		-

1 – test result classified as clayey sand

Table I.7: Foundation materials below Southern Embankment - Adopted strength parameters based on BH-PS-11

Material horizon	Depth (m)	$\gamma_{moisture}$ (kN/m^3)	Drained		Undrained	Post-Seismic		
			c' (kPa)	φ' (°)	s_u (kPa)	cr' (kPa)	φcv' (°)	s_{ur} (kPa)
Top Soil	0 – 0.2	Removed						
Sandy Gravel	0.1 – 1.5	18	0	30	same as drained parameters	0	25	
CLAY with sand, Laterite	1.5 – 4.5	20	15	30	0.45σ'$_v$, min 60 kPa	0	27	0.36σ'$_v$, min 0 kPa
CLAY with sand, saprolite	4.5 – 16	18	15	30	0.3σ'$_v$, min 60 kPa	0	24	0.24σ'$_v$, min 0 kPa
Clayey Sand, saprolite	16 – 18.4	18	2	30	0.25σ'$_v$, min 50 kPa	0	24	0.20σ'$_v$, min 0 kPa
Clayey Sand, saprolite	18.4 – 22	22	15	34	same as drained parameters	0	28	-
HW -MW Grano Diorite	22 to EOH	23	300	35	same as drained parameters	same as drained parameters		-

Table I.8: Foundation materials below Causeway - Adopted strength parameters based on TP-WSD-07, BH-WSD-01 and BH-WSD-02

Material horizon	Depth (m)	$\gamma_{moisture}$ (kN/m^3)	Drained		Undrained	Post-Seismic		
			c' (kPa)	φ' (°)	s_u (kPa)	cr' (kPa)	φcv' (°)	s_{ur} (kPa)
Top Soil	0 – 0.3	Removed						
Alluvium Sand	0.3 – 1.7	18	1	28	same as drained parameters	0	22.4	-
Residual soil	1.7 – 4.7	20	30	30	same as drained parameters	0	25	-
SAND with clay	4.7 – 6.0	20	30	33	same as drained parameters	0	28	-
MW Grano Diorite	6 to EOH	23	200	35	same as drained parameters	same as drained parameters	-	-

I.1.1.6 Phreatic Surface

The phreatic surface is adopted based on seepage analysis. The adopted phreatic surfaces are as follows:

- Phreatic surfaces for the TSF are based on nonfunctional under drainage with supernatant pond based on average operating condition.
- The phreatic surface for the WSD during Stage 1 was determined from a transient seepage analysis over a 30-month operational period. This duration assumes the WSD will be full for one year prior to TSF commissioning and then operates for an additional 18 months concurrent with TSF Stage 1 operation.
- The phreatic surface for WSD during Stage final was determined based on steady state seepage assessment.
- The phreatic surface for WSD for rapid drawdown assessment was based on operational minimum water level assessed during water balance study (Ref. XX). An operational minimal level of RL 320 m was adopted for Stage 1 and RL 324 m was adopted for Stage Final for the assessment.

The seepage analysis results are reported in Appendix H.

I.1.1.7 Model Geometry

The subsurface conditions and layer thickness in the foundation materials are based on the 2023 site investigation.

The Stage 1 and Stage Final embankment sections were based on the following design geometry:

- Stage 1
  - Embankment crest level: RL328.1m.
  - Downstream embankment slope: 3H:1V.
  - Upstream embankment slope: 3H:1V.
- Stage final
  - Embankment crest level: RL346.6m.
  - Overall downstream embankment slope: 3.5H:1V, comprising 5 m benches at 10 m height intervals.
  - Upstream embankment slope: 3H:1V.

Water storage dam (WSD) section was based on the following design geometry:

- Embankment crest level: RL332.0m, with operational water level at RL 327.0 m.
- Downstream embankment slope: 2.5H:1V.
- Overall Upstream embankment slope: 3.5H:1V, comprising 5 m benches at 10 m height intervals embankment slope: 3H:1V.
- Zone A width (central clay core): 6 m.

Causeway embankment section based on following design geometry:

- Causeway crest level: RL336.0m
- Causeway side slope: 3H:1V
- Causeway width: .13.7m

I.1.1.8 Stability assessment results

The stability analysis results are summarized in Table I.6 to I.9 and shown on figures I.5 to I.27.

Table I.9: Summary of stability analysis results – Eastern Embankment

Stages	Loading Conditions	Factor of Safety	Figure
Stage 1	Drained	1.95	I.5
	Undrained (potential loss of containment)	1.50	I.6
	Undrained (no potential loss of containment)	1.45	I.7
	Post-Seismic	1.06	I.8
Stage Final	Drained	2.42	I.9
	Undrained (potential loss of containment)	1.83	I.10
	Undrained (no potential loss of containment)	1.67	I.11
	Post-Seismic	1.27	I.12

Table I.10: Summary of stability analysis results – Western Embankment

Stages	Loading Conditions	Factor of Safety	Figure
Stage 1	Drained	2.28	I.13
	Undrained (potential loss of containment)	2.48	I.14
	Undrained (no potential loss of containment)	1.97	I.15
	Post-Seismic	1.66	I.16
Stage Final	Drained	2.06	I.17
	Undrained (potential loss of containment)	1.63	I.18
	Undrained (no potential loss of containment)	1.53	I.19
	Post-Seismic	1.15	I.20
	Rapid draw down at WSD - Undrained (potential loss of containment)	1.57	I.21

Table I.11: Summary of stability analysis results – Southern Embankment

Stages	Loading Conditions	Factor of Safety	Figure
Stage Final	Drained	2.49	I.22
	Undrained (potential loss of containment)	2.24	I.23
	Undrained (no potential loss of containment)	2.42	I.24
	Post-Seismic	1.32	I.25

Table I.12: Summary of stability analysis results – WSD Embankment

Scenario	Loading Conditions	Factor of Safety	Figure
Stage 1 – Max operational water level	Drained	1.88	I.26
	Undrained	1.67	I.27
	Post-Seismic	1.20	I.28
Stage 1 – Rapid Draw Down	Drained (U/S slope)	2.21	I.29
	Undrained (U/S slope)	1.74	I.30
	Post-Seismic (U/S slope)	1.01	I.31

Table I.13: Summary of stability analysis results – Causeway Embankment

Scenario	Loading Conditions	Factor of Safety	Figure
Rapid Draw Down	Drained	1.86	I.32
	Undrained	1.79	I.33
	Post-Seismic	1.26	I.34

I.1.2 CONCLUSIONS AND RECOMMENDATIONS

Based on the available information, the stability assessment indicates that the proposed embankment has adequate factors of safety under the loading conditions analysed in accordance with ANCOLD (2019).

The following recommendations are made:

- The top soil, soft clay and unsuitable materials to be removed prior to embankment construction.
- Geotechnical site investigation comprising borehole drilling test pit excavation and other insitu tests shall be undertaken within the proposed south TSF embankment and WSD causeway prior to start of construction.
- A geotechnical engineer shall supervise the construction of the TSF and WSD embankments. Site tests including classification and field density tests shall be

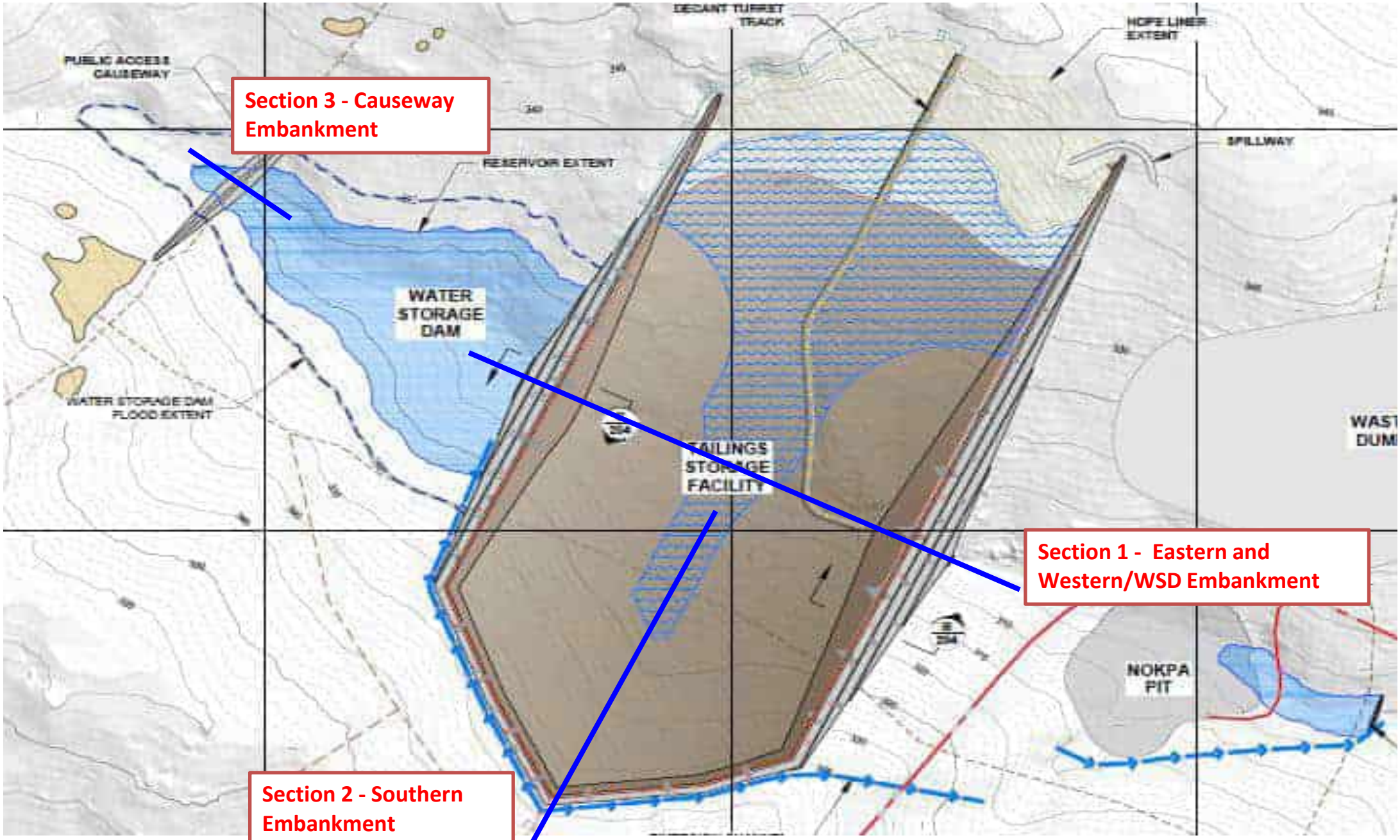
carried out to confirm the suitable materials placed in respective zones and compacted to the specified densities.

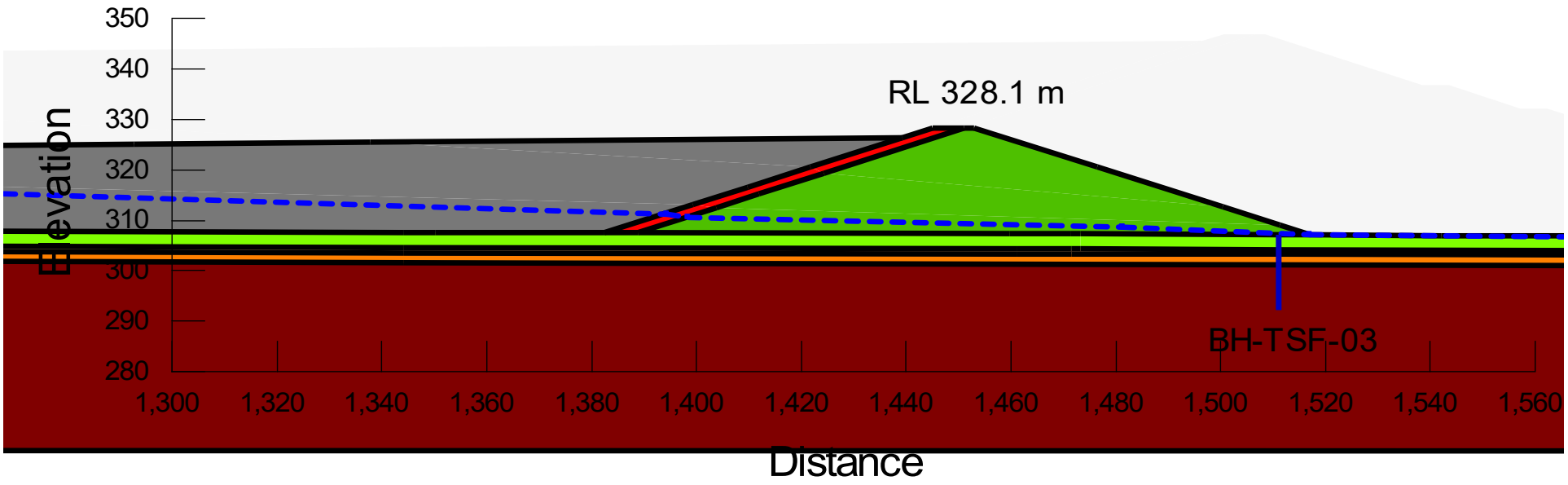
- To implement a comprehensive instrumentation monitoring program to monitor the phreatic levels/pore water pressures within the embankment and foundation soil layers during construction and operation as the phreatic surface/pore pressures will have significant impact on the embankment stability.
- To control the rate of embankment raise to allow full consolidation of the foundation clay layers during construction.
- To maintain an effective drainage system to ensure that the phreatic surface be below the design levels in the embankment.

I.1.3 REFERENCES

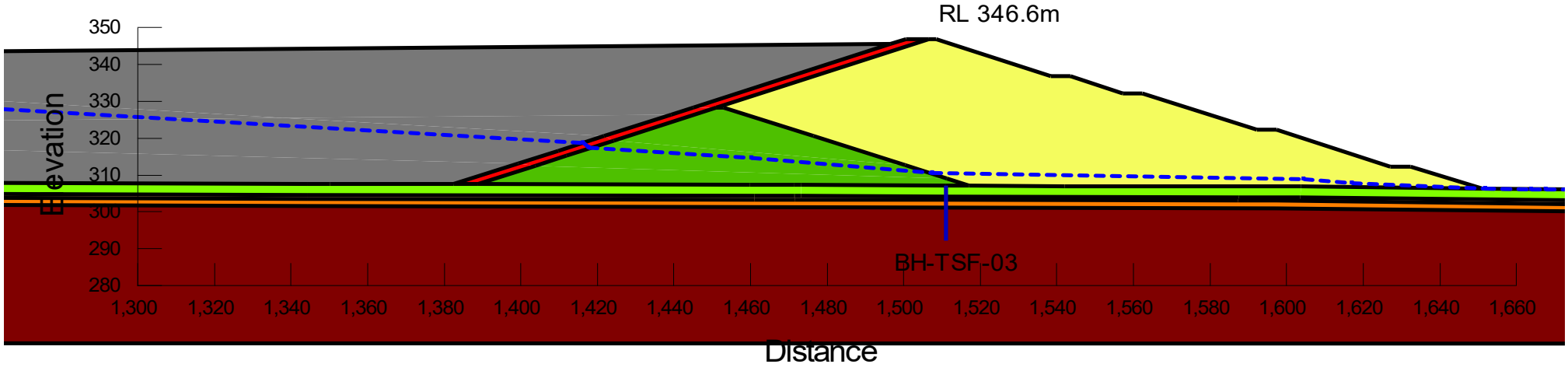
1. GEO-SLOPE International Ltd., *"SLOPE/W"*, 2018.
2. Australian National Committee on Large Dams (ANCOLD), *"Guidelines on Tailings Dams",* July 2019.
3. Knight Piésold Pty Ltd Memorandum Ref. PE23-01297 "Doropo Gold Project – Tailings Physical Testing", December 2023.
4. Knight Piésold Pty Ltd Memorandum Ref. PE25-01492 "Doropo Gold Project – Water Balance Modelling Update", November 2025.
5. Hynes-Griffin, M. and Franklin, A. G., (1984), "Rationalizing The Seismic Coefficient Method", US Army Corps of Engineers, Washington, DC.

APPENDIX I – FIGURES

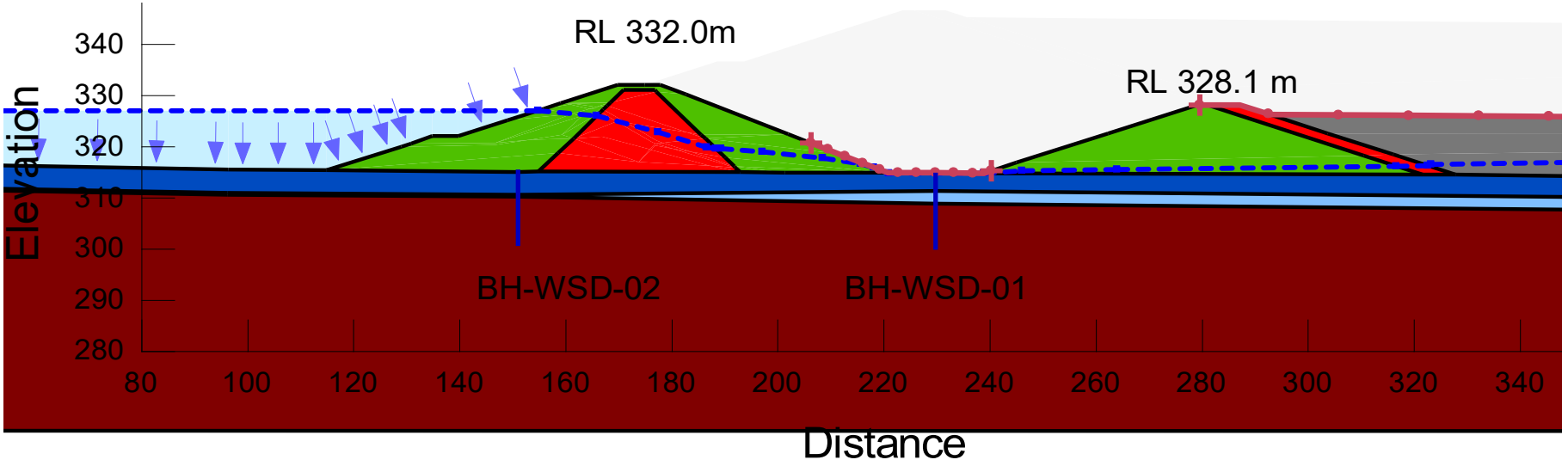

Section 3 - Causeway Embankment
Section 1 - Eastern and Western/WSD Embankment
Section 2 - Southern Embankment
PUBLIC ACCESS CAUSEWAY
DECANT TURRET TRACK
HDPE LINER EXTENT
RESERVOIR EXTENT
SPILLWAY
WATER STORAGE DAM
WATER STORAGE DAM FLOOD EXTENT
TAILINGS STORAGE FACILITY
NOKPA PIT



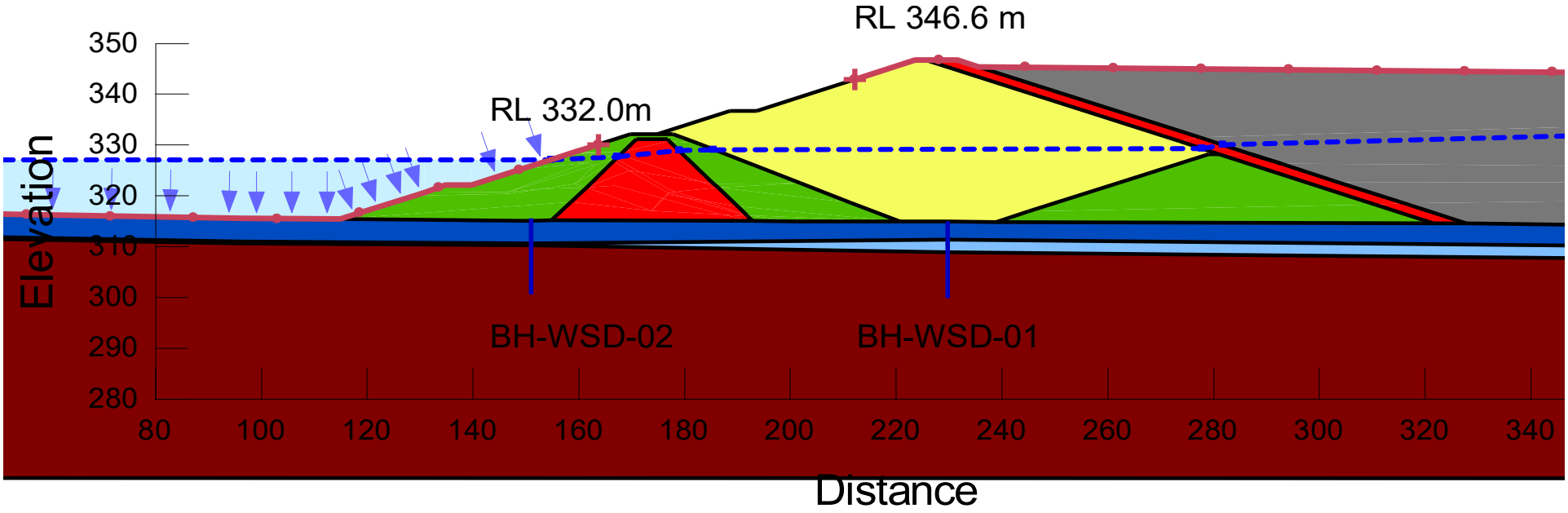
STAGE 1



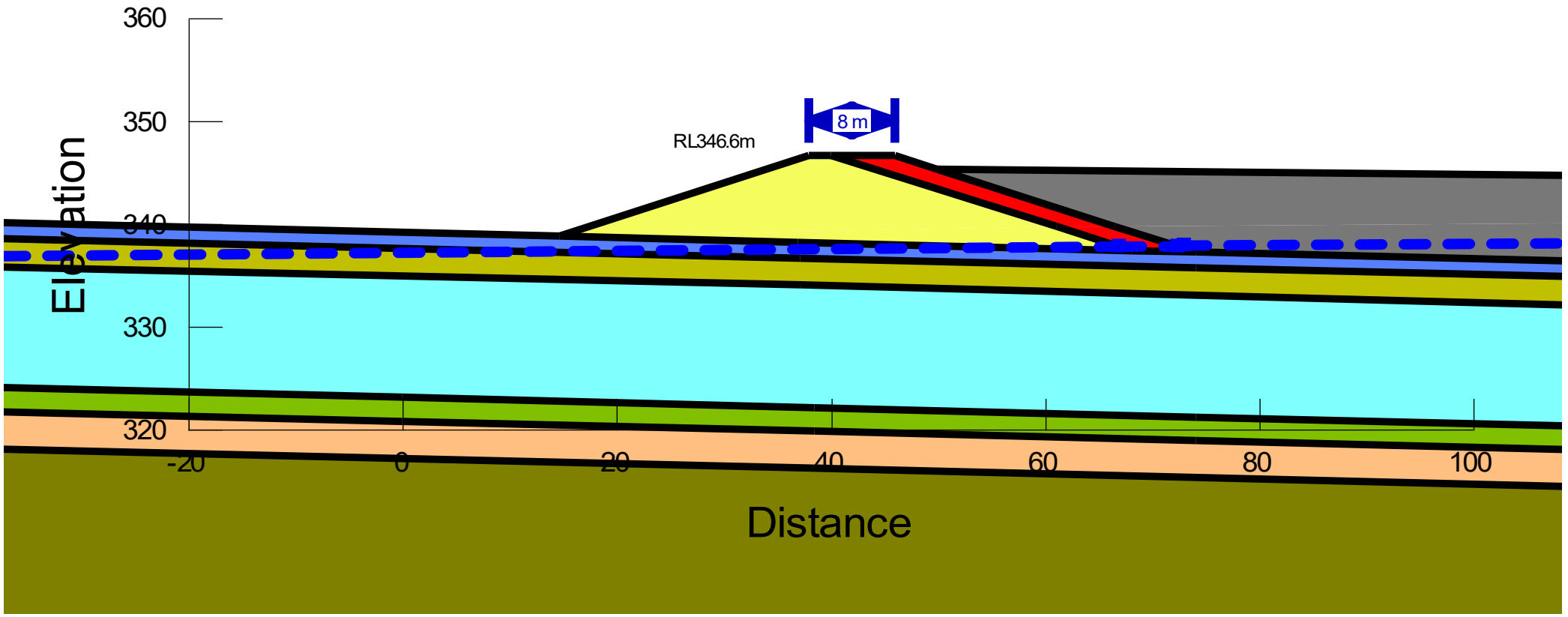
STAGE FINAL

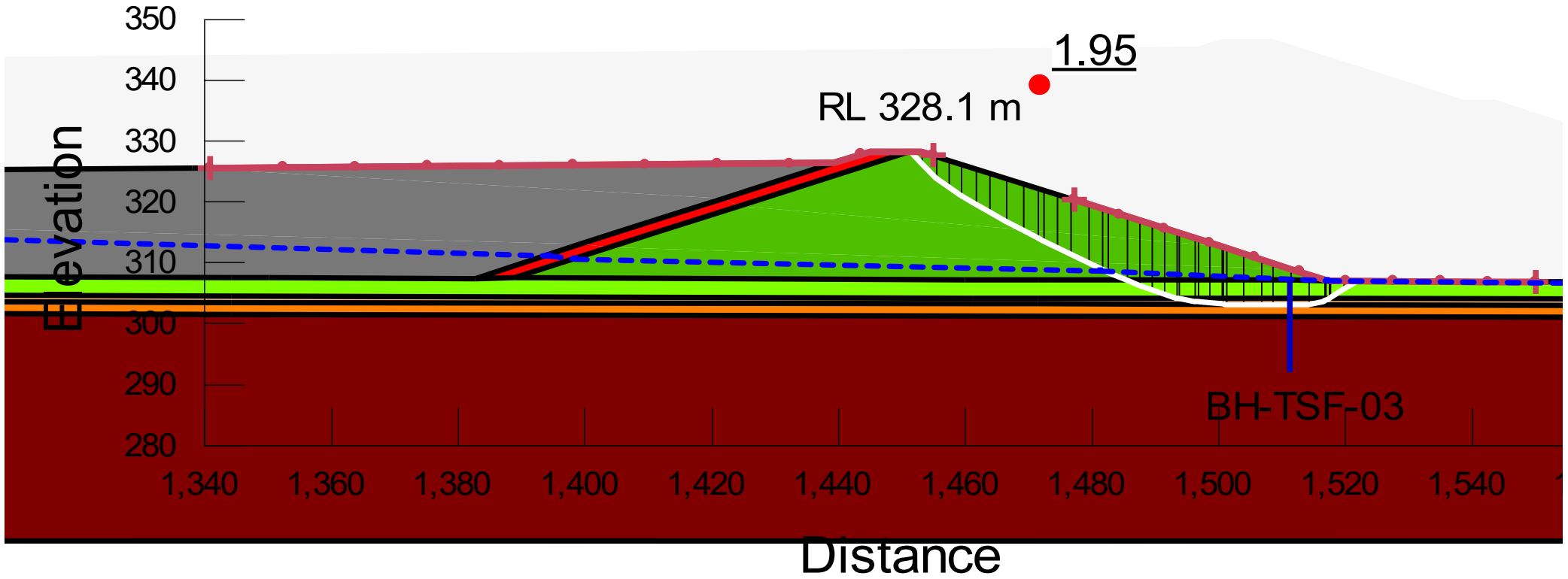


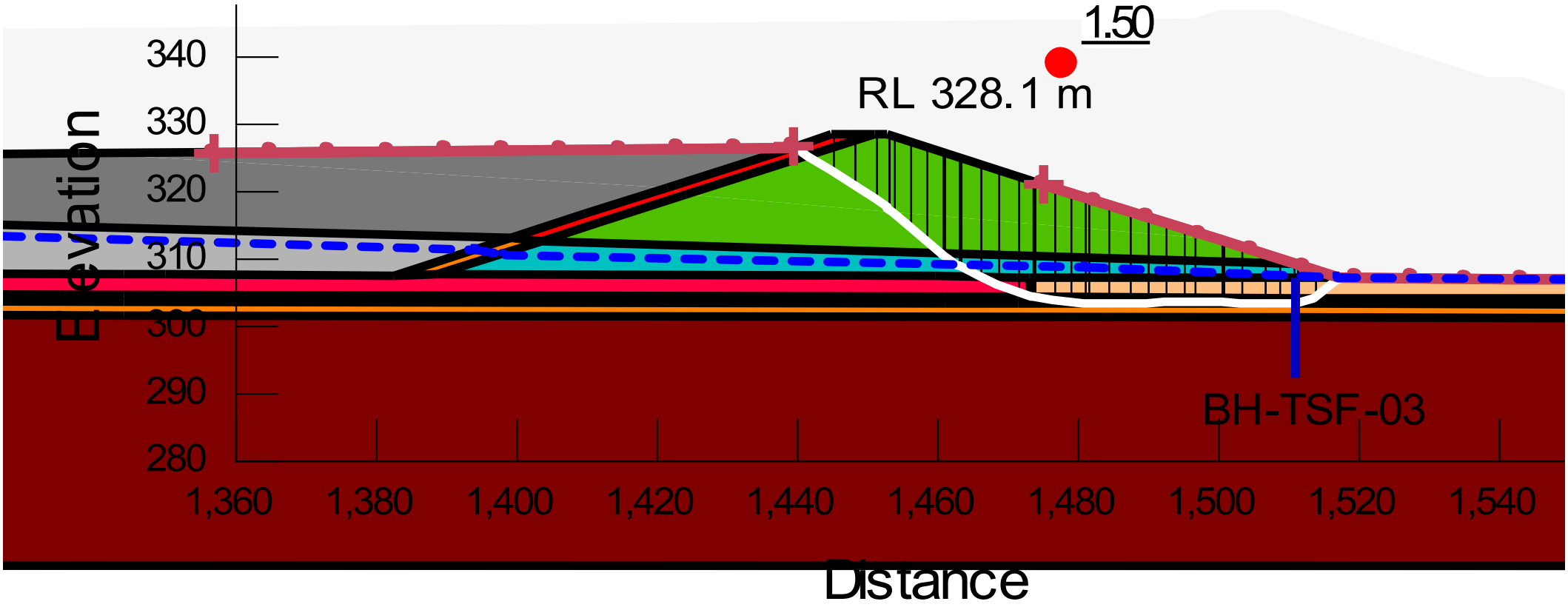
STAGE 1

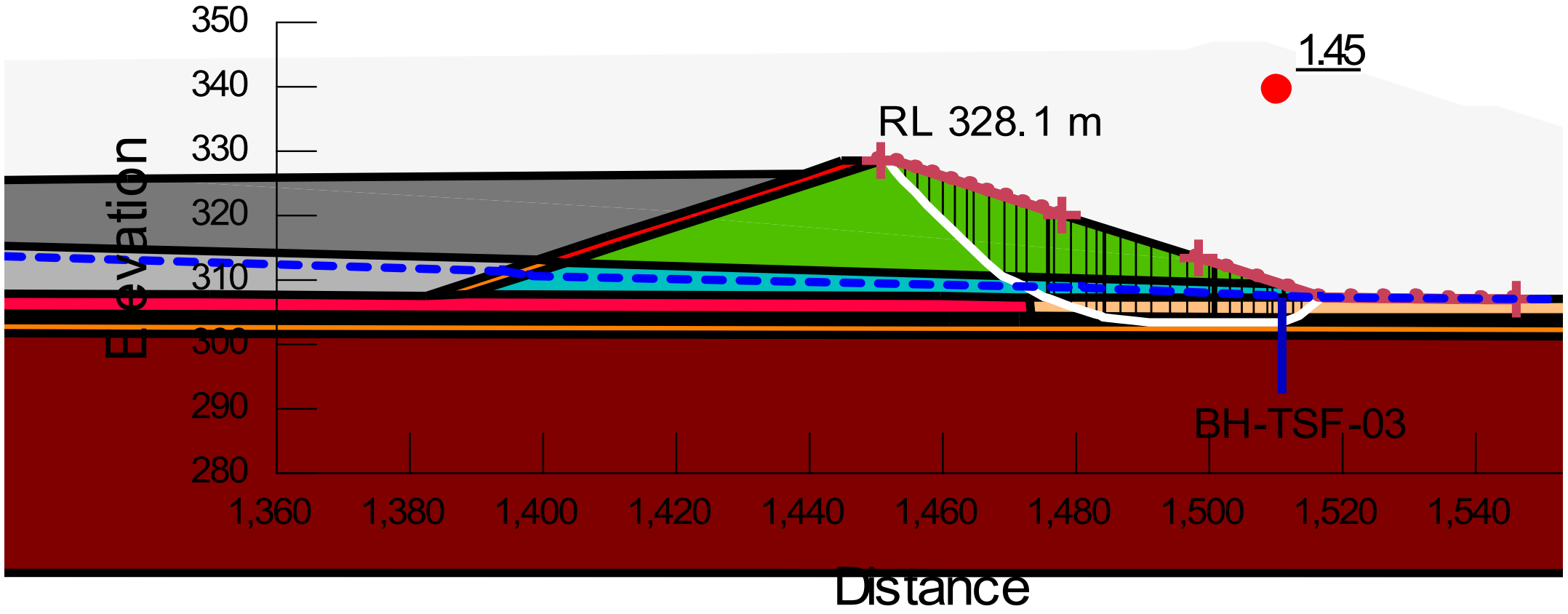


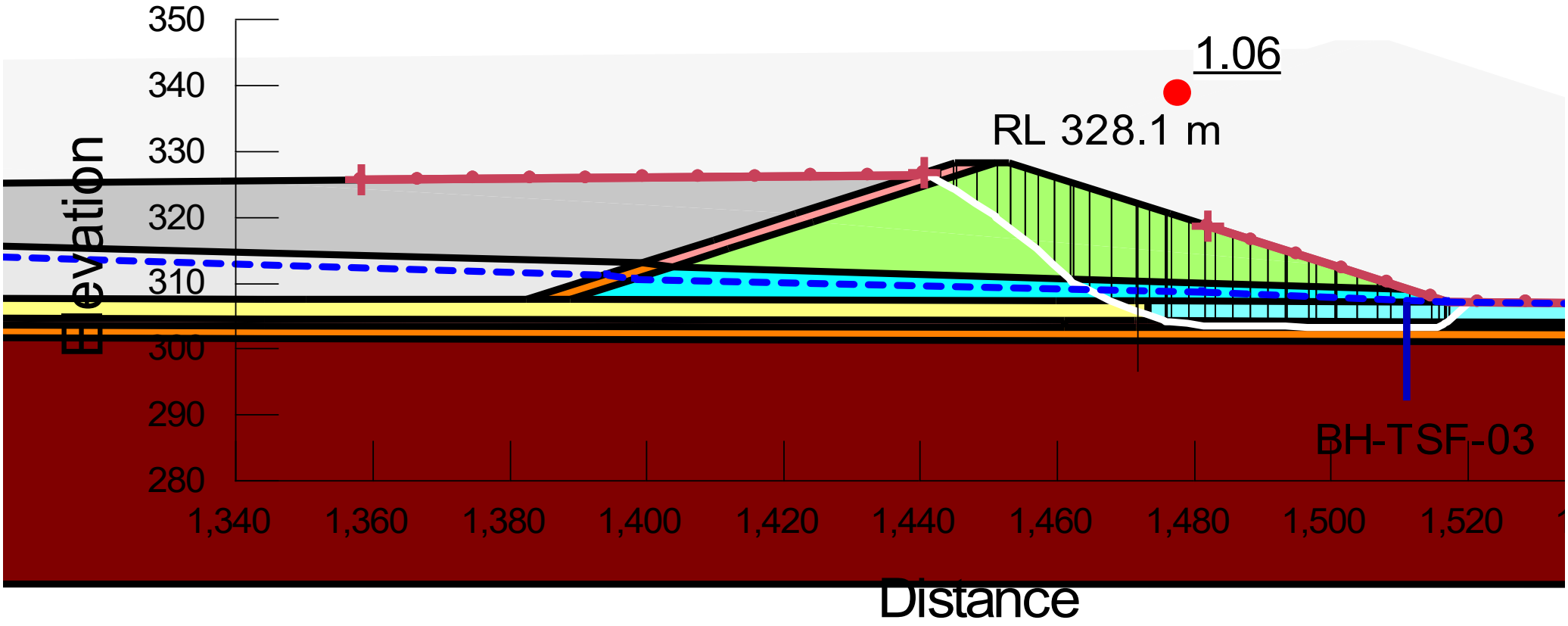
STAGE FINAL

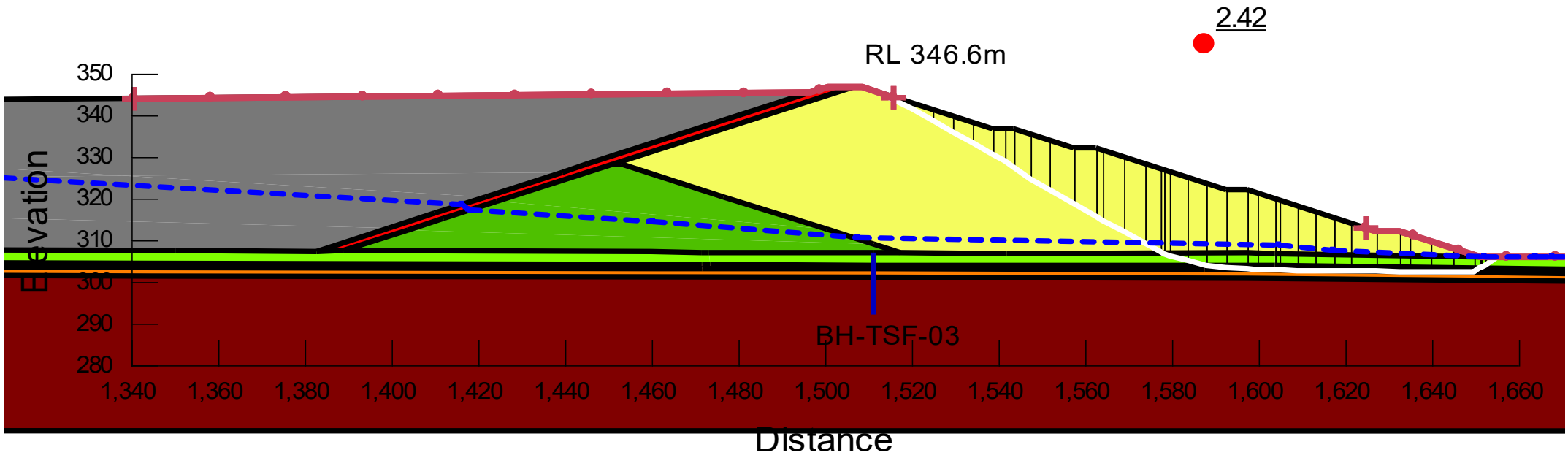

360
350
340
330
320
Elevation
RL346.6m
8 m
-20
0
20
40
60
80
100
Distance

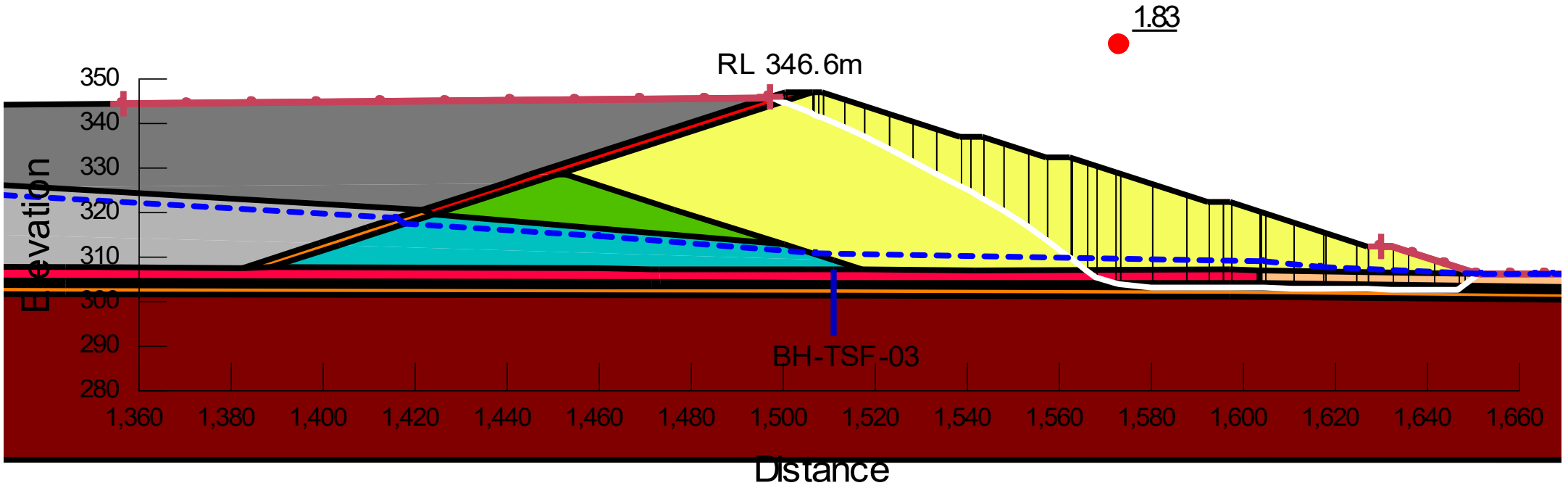

350
340
330
320
310
300
290
280
Elevation
1.95
RL 328.1 m
BH-TSF-03
1,340
1,360
1,380
1,400
1,420
1,440
1,460
1,480
1,500
1,520
1,540
Distance

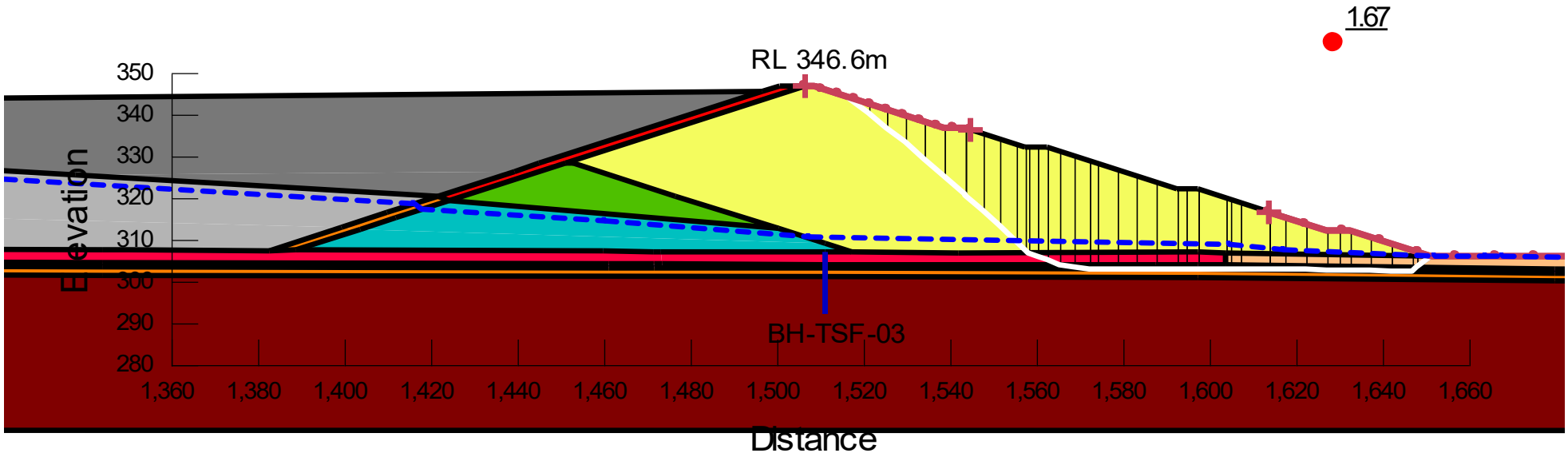

1.50
RL 328.1 m
340
330
320
310
300
290
280
Elevation
BH-TSF-03
1,360
1,380
1,400
1,420
1,440
1,460
1,480
1,500
1,520
1,540
Distance

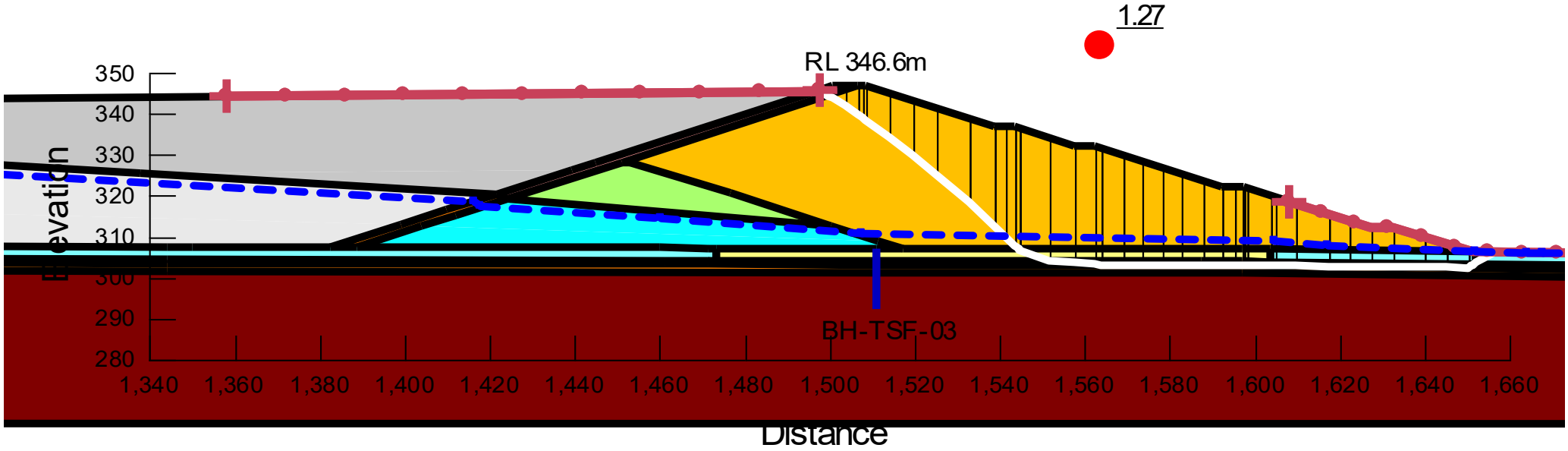

350
340
330
320
310
300
290
280
Elevation
1.45
RL 328.1 m
BH-TSF-03
1,360
1,380
1,400
1,420
1,440
1,460
1,480
1,500
1,520
1,540
Distance

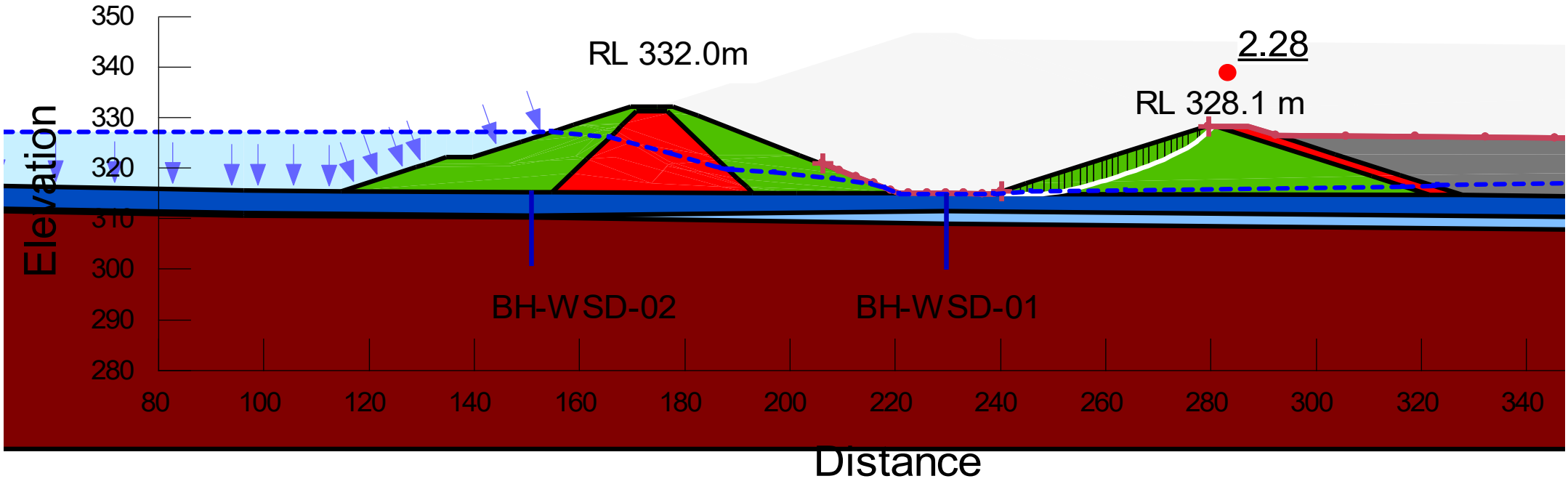

1.06
RL 328.1 m
BH-TSF-03
Elevation
350
340
330
320
310
300
290
280
1,340
1,360
1,380
1,400
1,420
1,440
1,460
1,480
1,500
1,520
Distance

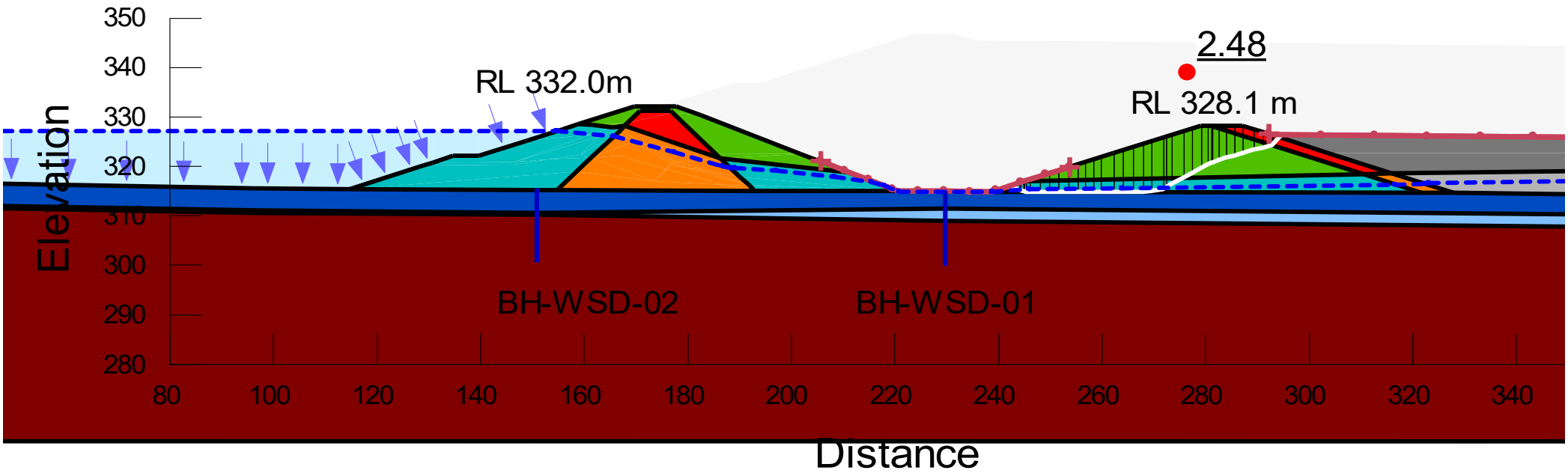

2.42
RL 346.6m
350
340
330
320
310
300
290
280
Elevation
BH-TSF-03
1,340
1,360
1,380
1,400
1,420
1,440
1,460
1,480
1,500
1,520
1,540
1,560
1,580
1,600
1,620
1,640
1,660
Distance

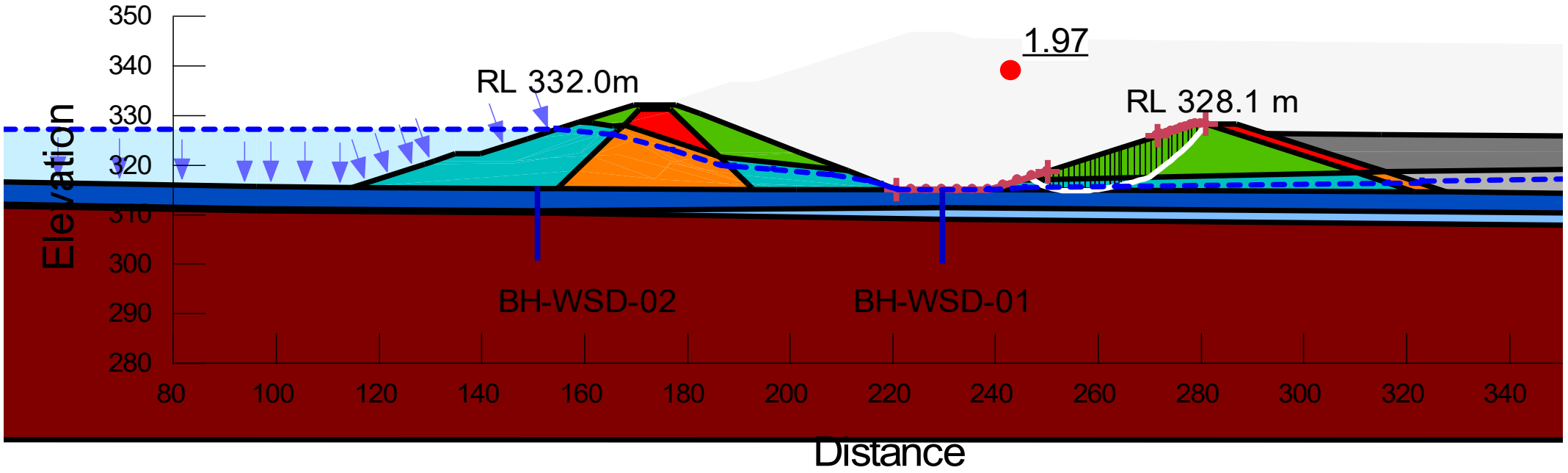

1.83
RL 346.6m
350
340
330
320
310
300
290
280
Elevation
BH-TSF-03
1,360
1,380
1,400
1,420
1,440
1,460
1,480
1,500
1,520
1,540
1,560
1,580
1,600
1,620
1,640
1,660
Distance

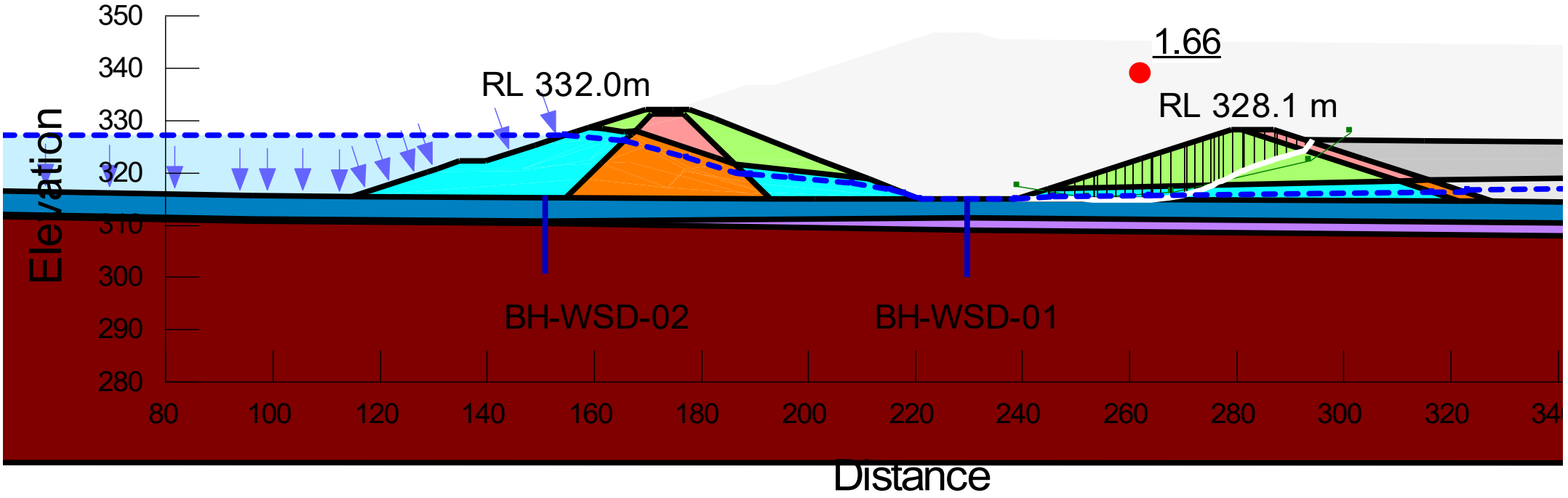

1.67
RL 346.6m
350
340
330
320
310
300
290
280
Elevation
BH-TSF-03
1,360
1,380
1,400
1,420
1,440
1,460
1,480
1,500
1,520
1,540
1,560
1,580
1,600
1,620
1,640
1,660
Distance

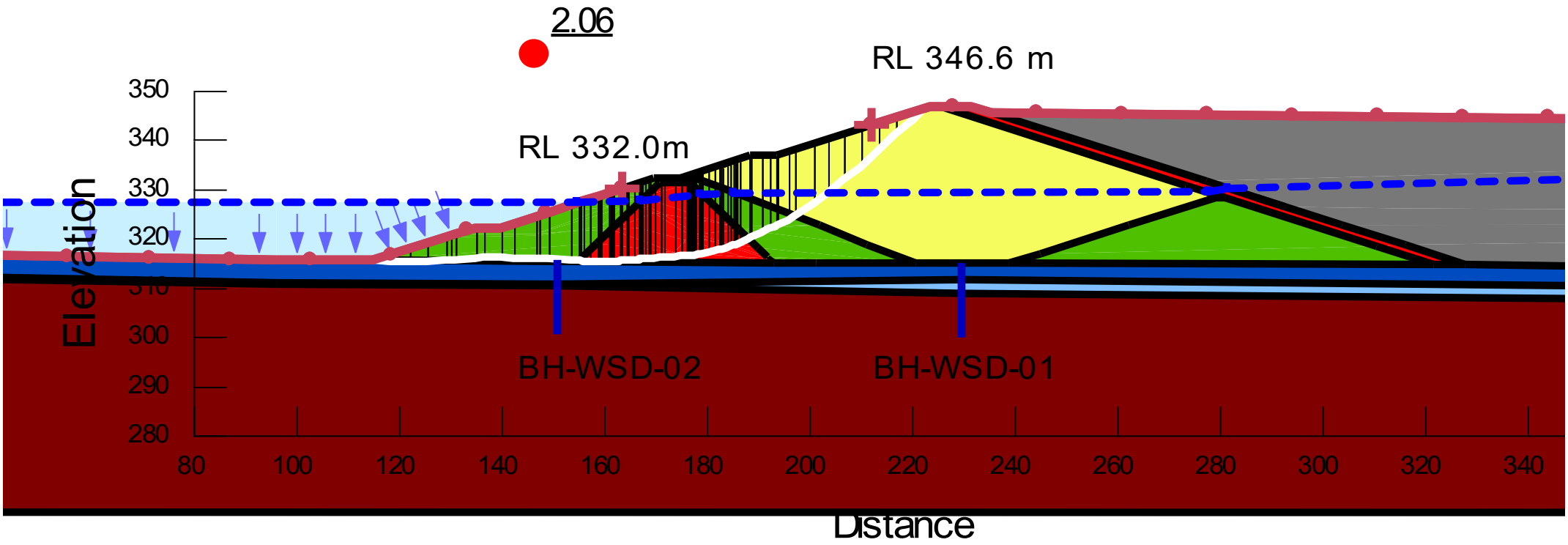

1.27
RL 346.6m
350
340
330
320
310
300
290
280
Elevation
BH-TSF-03
1,340
1,360
1,380
1,400
1,420
1,440
1,460
1,480
1,500
1,520
1,540
1,560
1,580
1,600
1,620
1,640
1,660
Distance

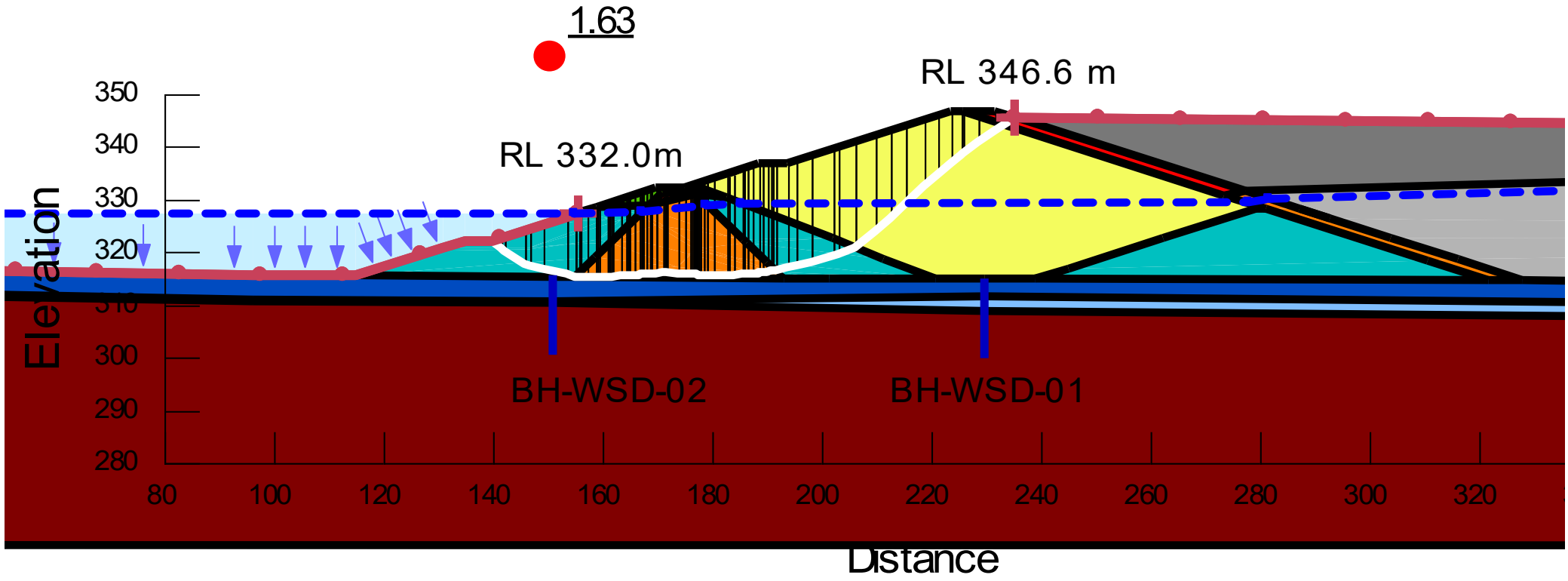

350
340
330
320
310
300
290
280
Elevation
RL 332.0m
2.28
RL 328.1 m
BH-WSD-02
BH-WSD-01
80
100
120
140
160
180
200
220
240
260
280
300
320
340
Distance

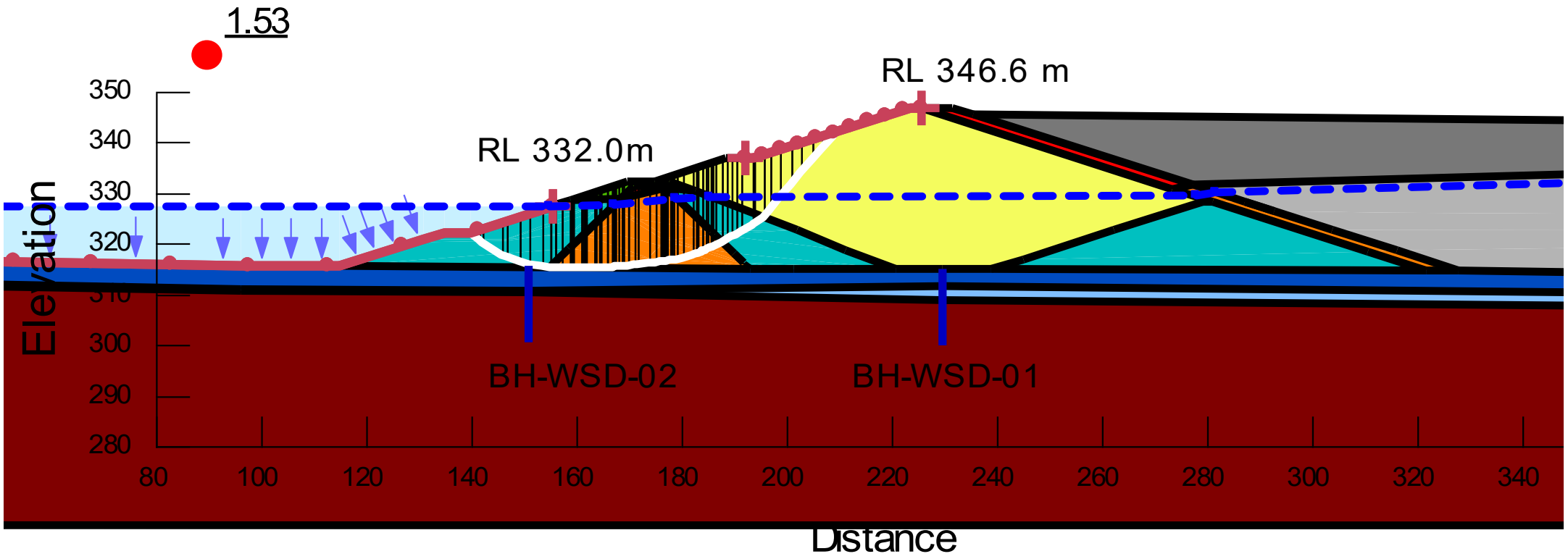

350
340
330
320
310
300
290
280
Elevation
RL 332.0m
2.48
RL 328.1 m
BH-WSD-02
BH-WSD-01
80
100
120
140
160
180
200
220
240
260
280
300
320
340
Distance

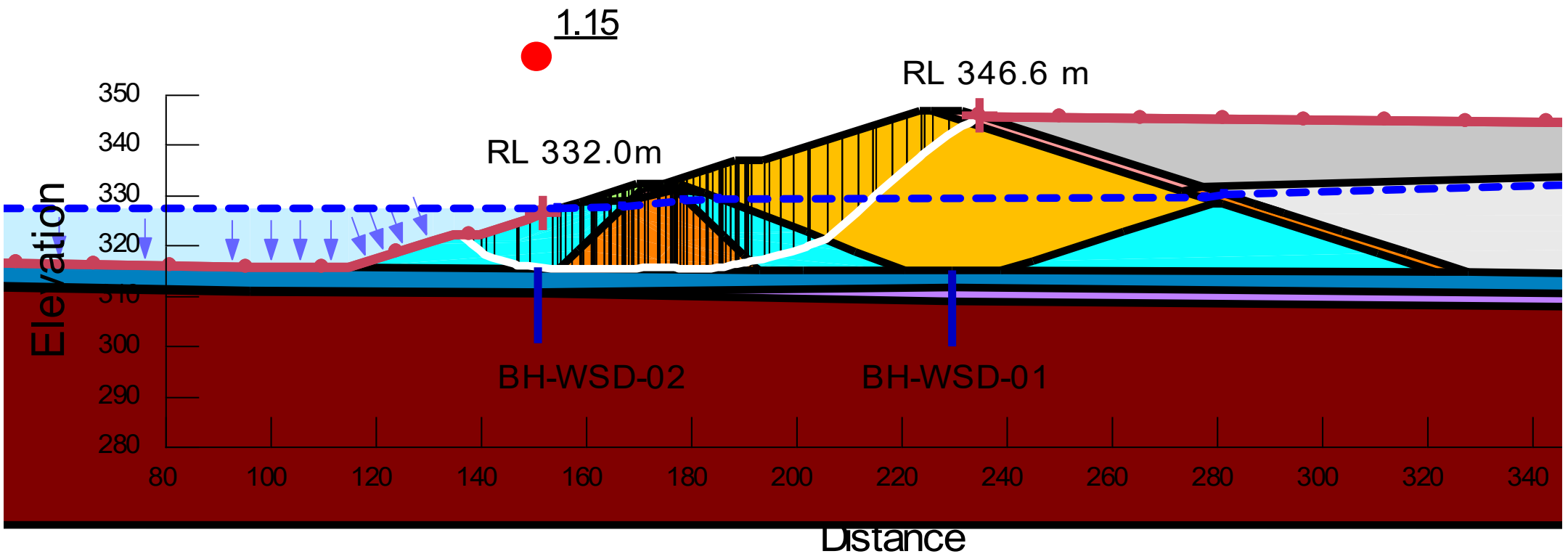

350
340
330
320
310
300
290
280
Elevation
RL 332.0m
1.97
RL 328.1 m
BH-WSD-02
BH-WSD-01
80
100
120
140
160
180
200
220
240
260
280
300
320
340
Distance

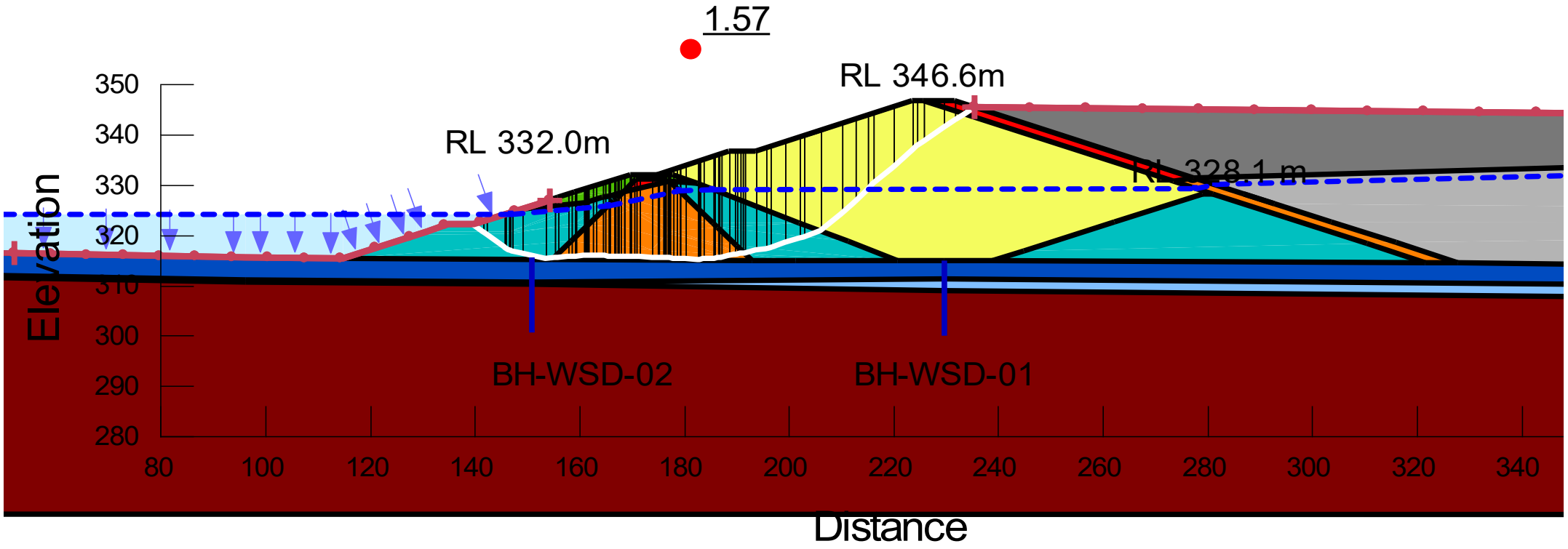

350
340
330
320
310
300
290
280
Elevation
RL 332.0m
1.66
RL 328.1 m
BH-WSD-02
BH-WSD-01
80
100
120
140
160
180
200
220
240
260
280
300
320
Distance

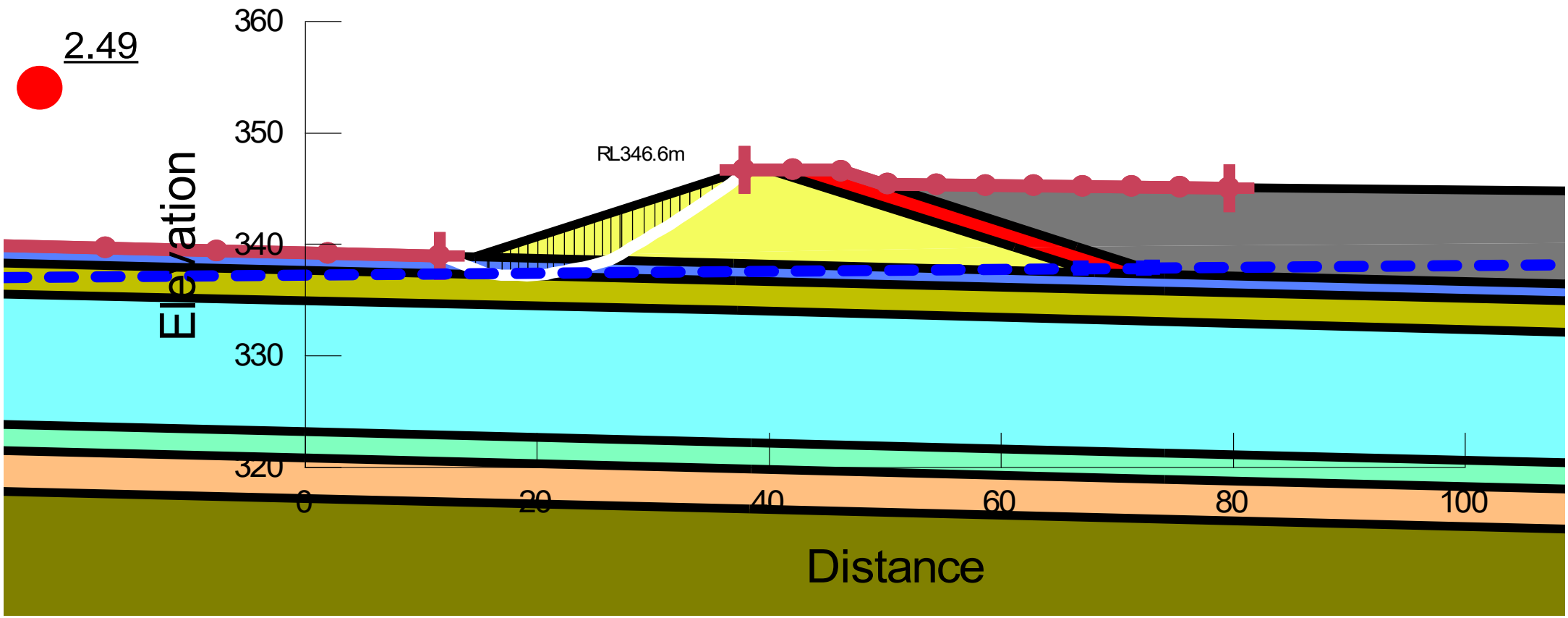

2.06
RL 346.6 m
RL 332.0m
350
340
330
320
310
300
290
280
Elevation
BH-WSD-02
BH-WSD-01
80
100
120
140
160
180
200
220
240
260
280
300
320
340
Distance

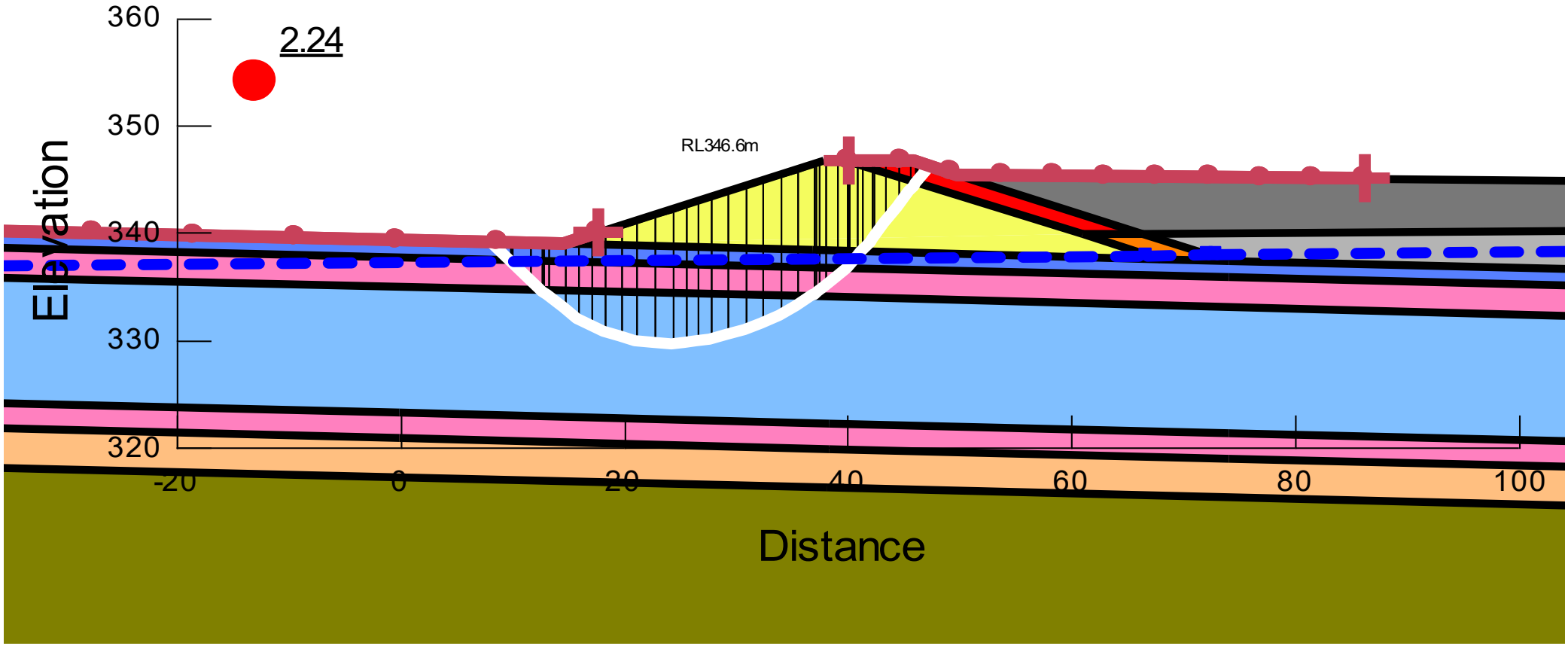

1.63
RL 346.6 m
RL 332.0m
350
340
330
320
310
300
290
280
Elevation
BH-WSD-02
BH-WSD-01
80
100
120
140
160
180
200
220
240
260
280
300
320
Distance

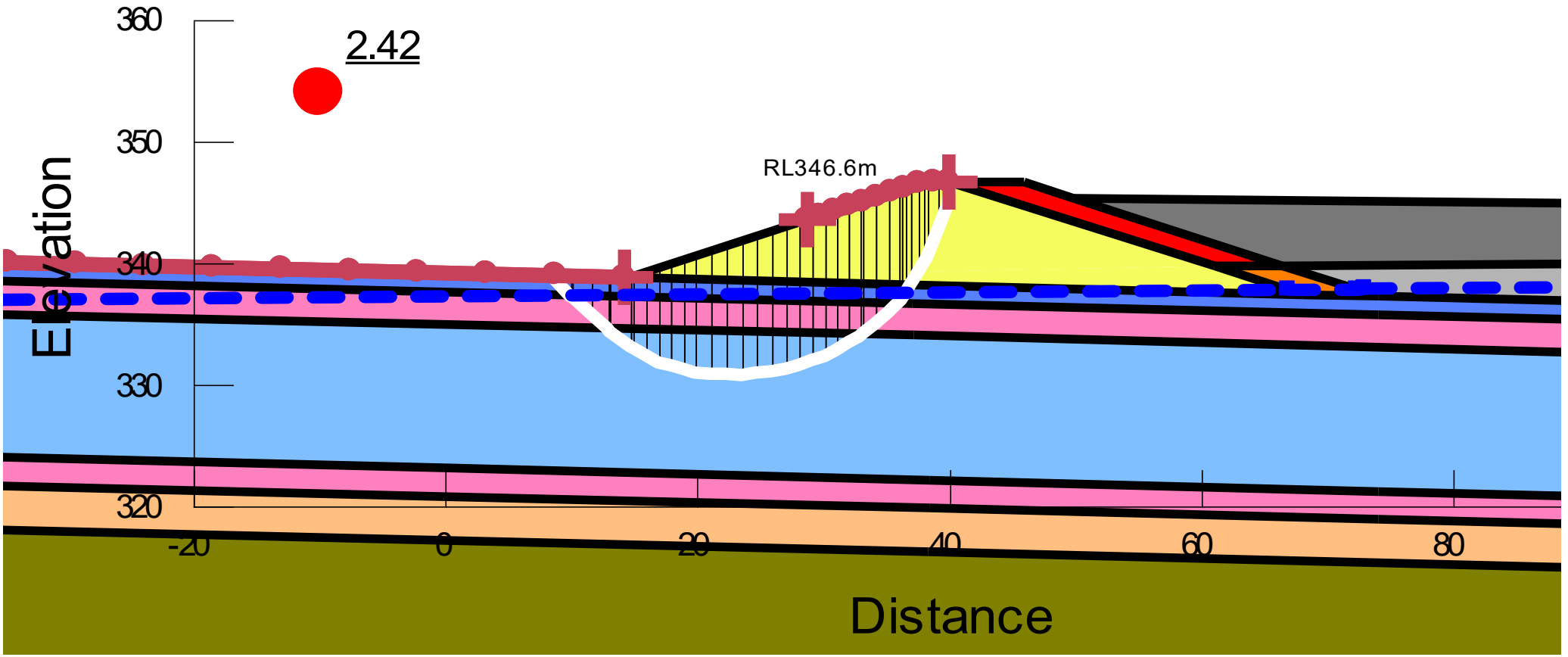

1.53
RL 346.6 m
RL 332.0m
350
340
330
320
300
290
280
Elevation
BH-WSD-02
BH-WSD-01
80
100
120
140
160
180
200
220
240
260
280
300
320
340
Distance

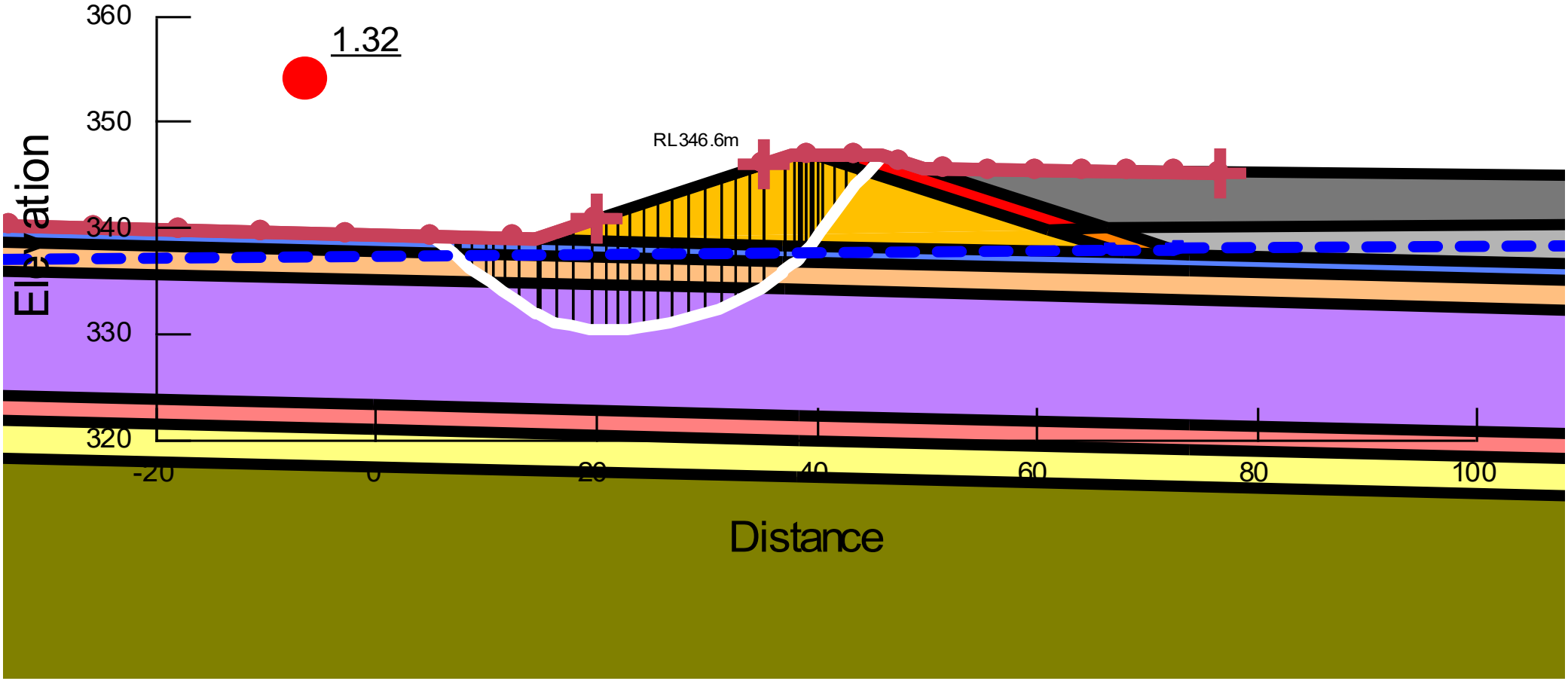

1.15
RL 346.6 m
RL 332.0m
350
340
330
320
310
300
290
280
Elevation
BH-WSD-02
BH-WSD-01
80
100
120
140
160
180
200
220
240
260
280
300
320
340
Distance

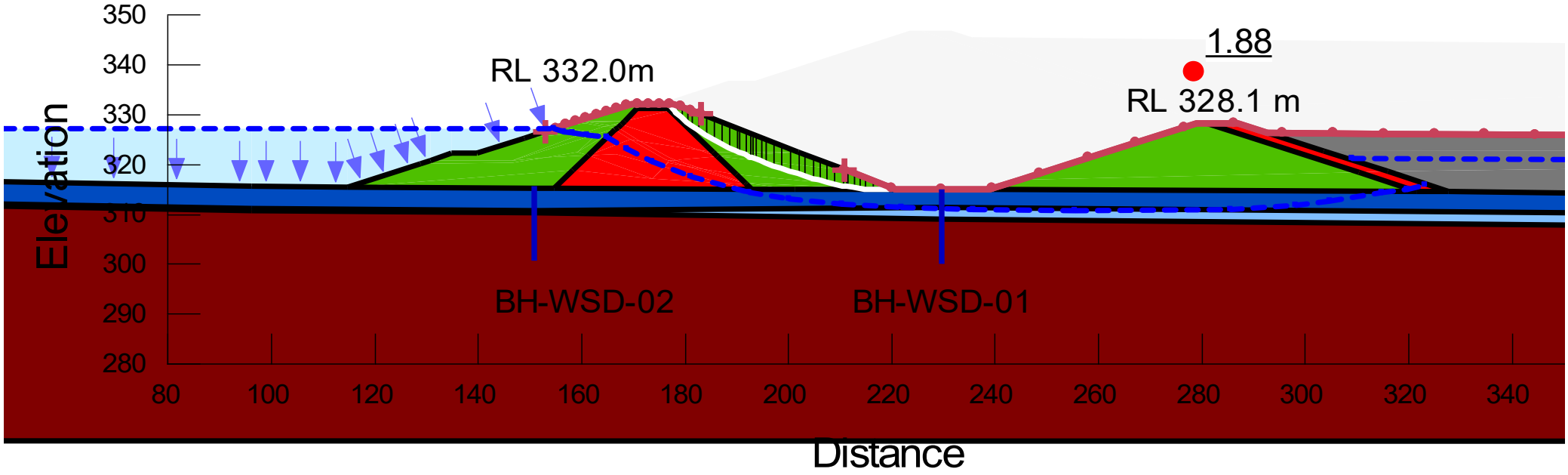

1.57
RL 346.6m
RL 332.0m
RL 328.1m
350
340
330
320
310
300
290
280
Elevation
BH-WSD-02
BH-WSD-01
80
100
120
140
160
180
200
220
240
260
280
300
320
340
Distance

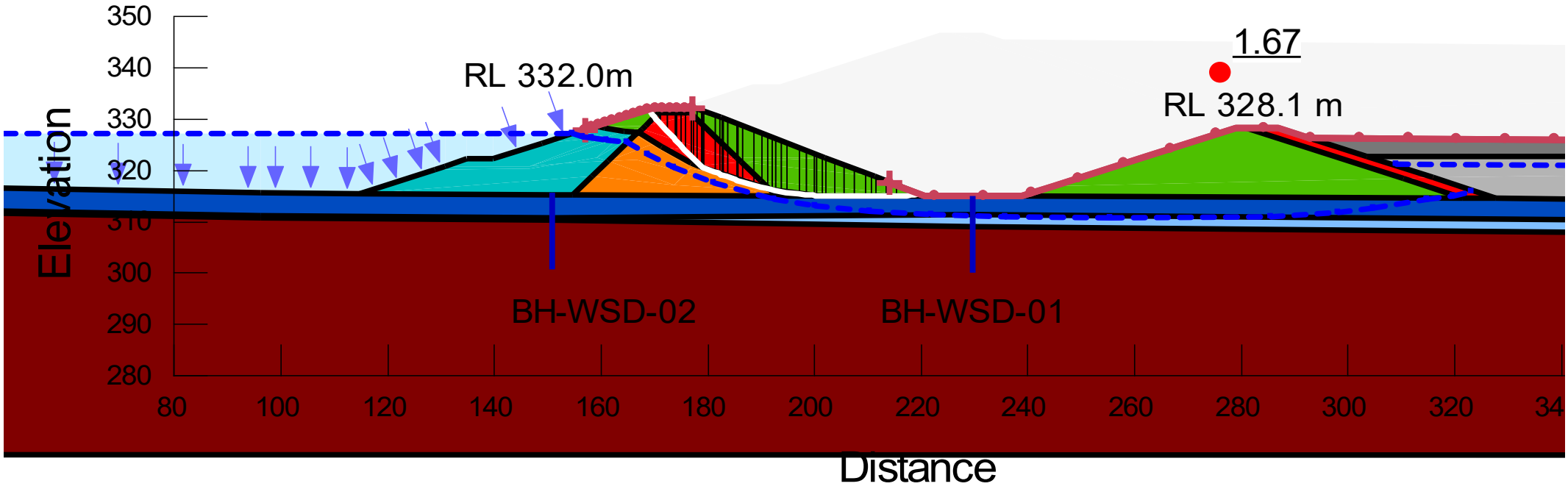

2.49
360
350
340
330
320
Elevation
RL346.6m
0
20
40
60
80
100
Distance

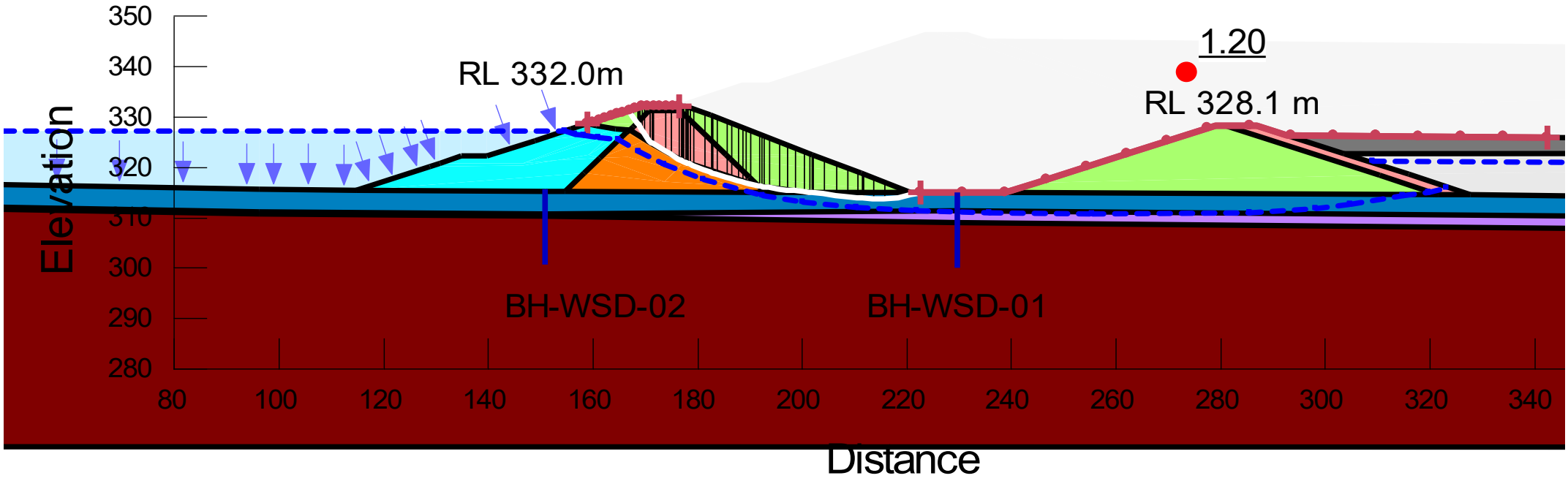

2.24
RL346.6m
Elevation
360
350
340
330
320
-20
0
20
40
60
80
100
Distance

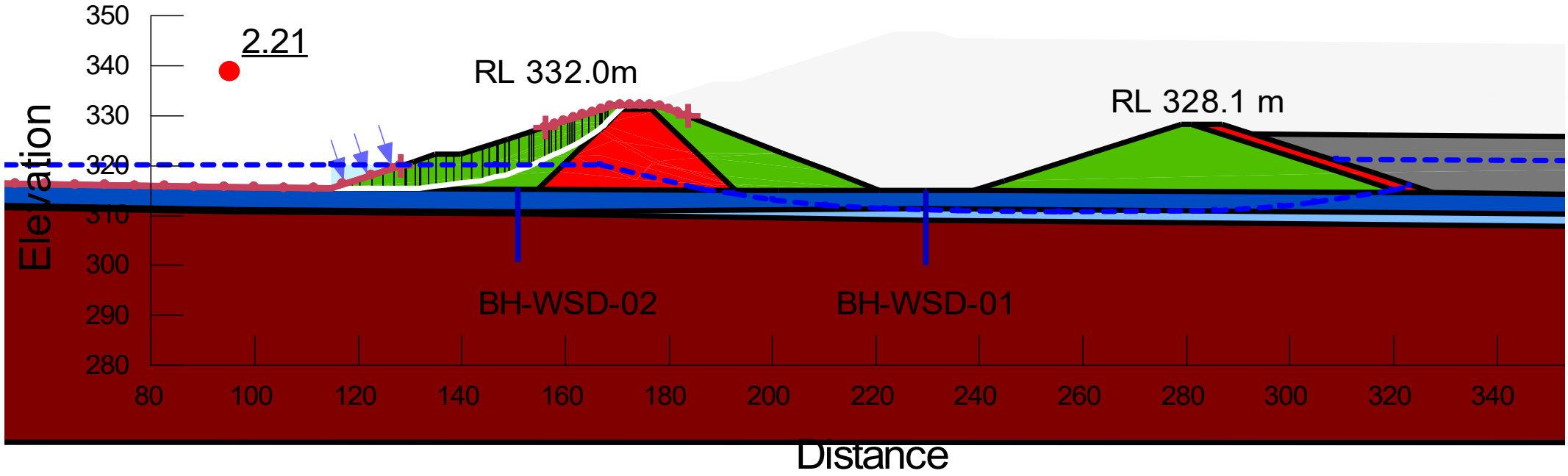

2.42
RL346.6m
Elevation
360
350
340
330
320
-20
0
20
40
60
80
Distance

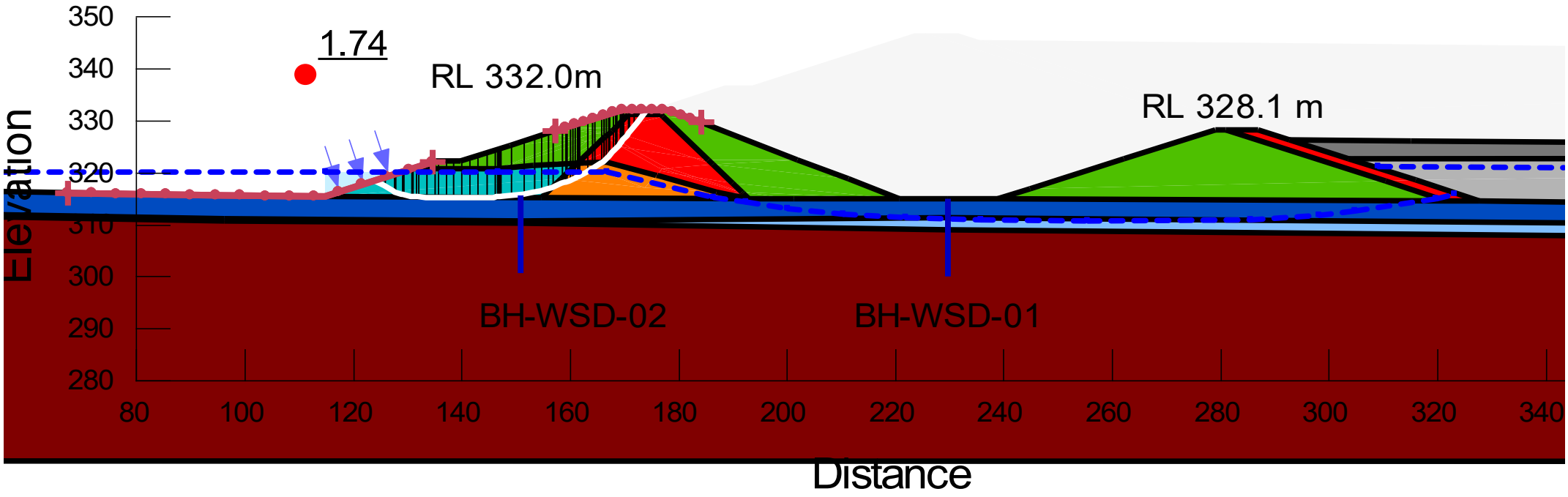

360
350
340
330
320
Elevation
1.32
RL346.6m
-20
0
20
40
60
80
100
Distance

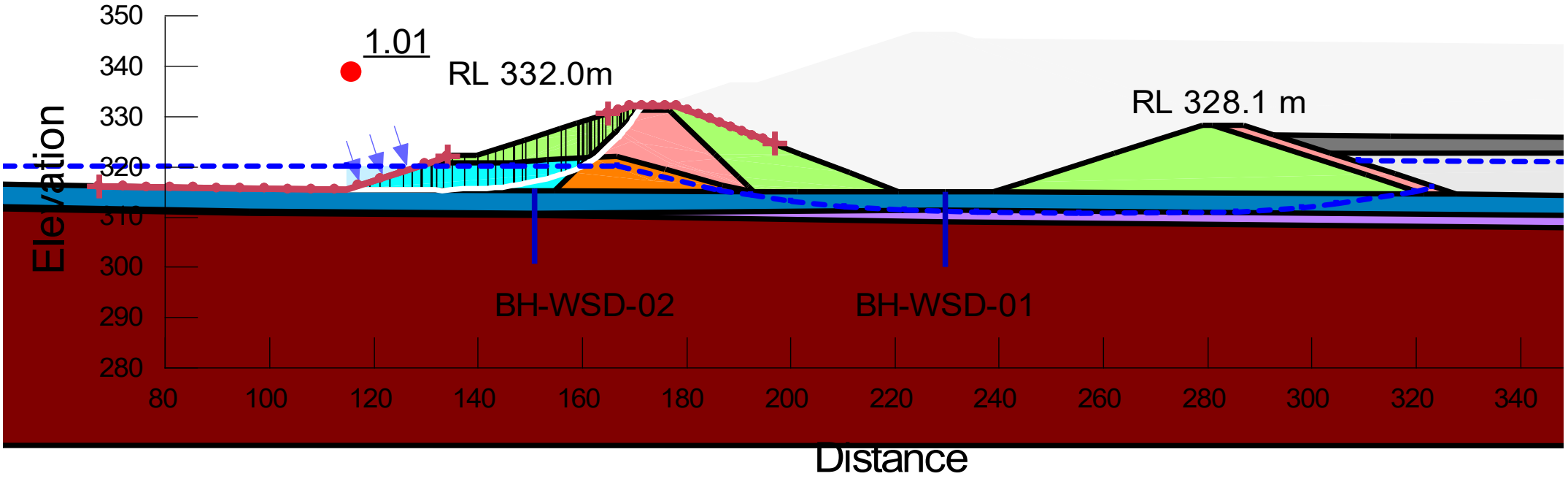

350
340
330
320
310
300
290
280
Elevation
RL 332.0m
1.88
RL 328.1 m
BH-WSD-02
BH-WSD-01
80
100
120
140
160
180
200
220
240
260
280
300
320
340
Distance

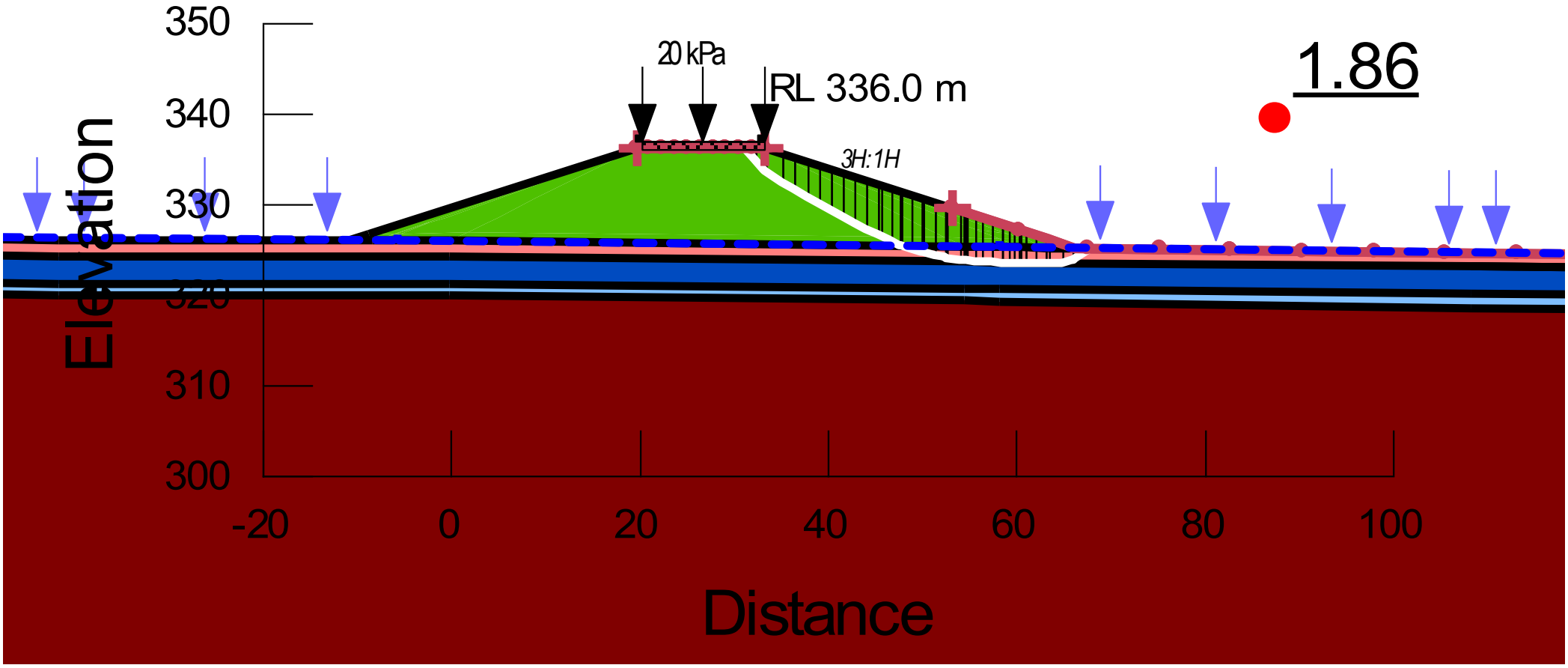

350
340
330
320
310
300
290
280
Elevation
RL 332.0m
1.67
RL 328.1 m
BH-WSD-02
BH-WSD-01
80
100
120
140
160
180
200
220
240
260
280
300
320
34
Distance

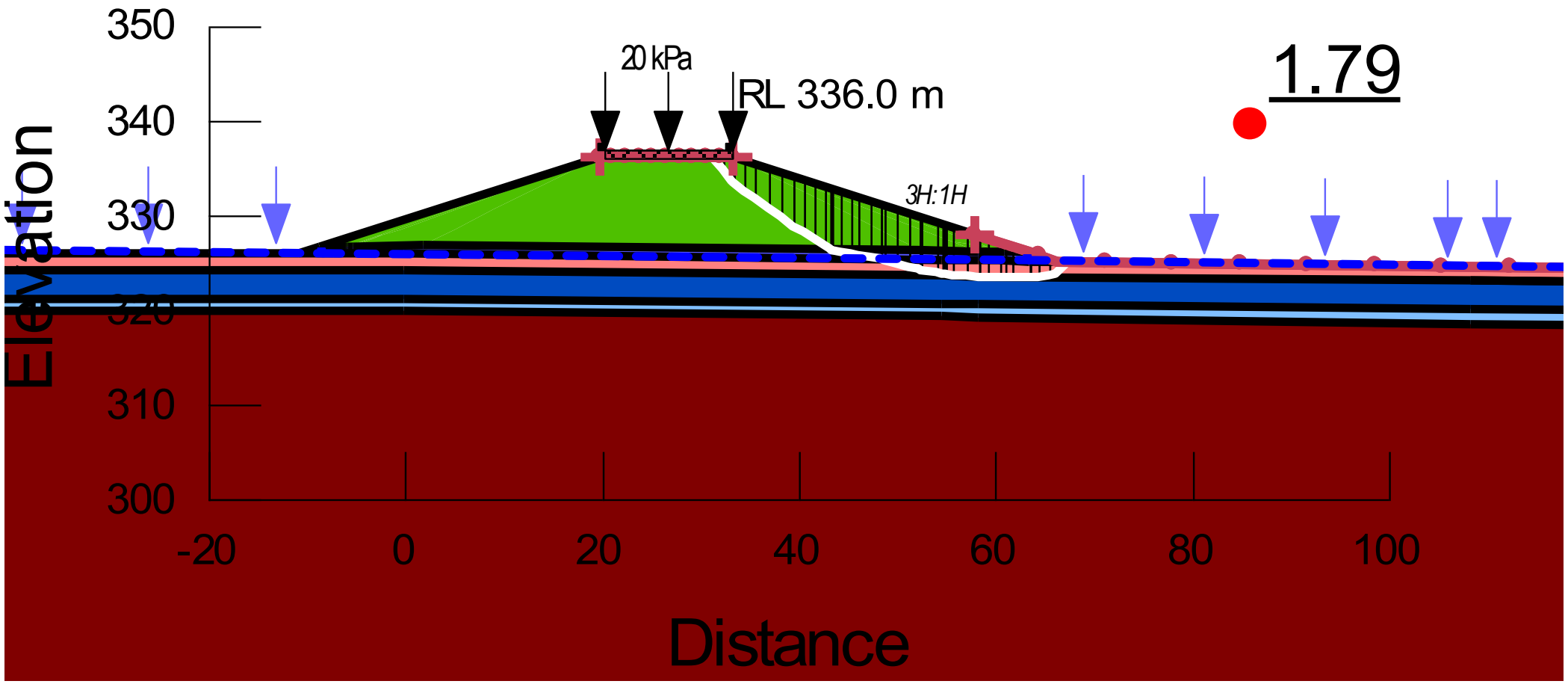

350
340
330
320
310
300
290
280
Elevation
RL 332.0m
1.20
RL 328.1 m
BH-WSD-02
BH-WSD-01
80
100
120
140
160
180
200
220
240
260
280
300
320
340
Distance

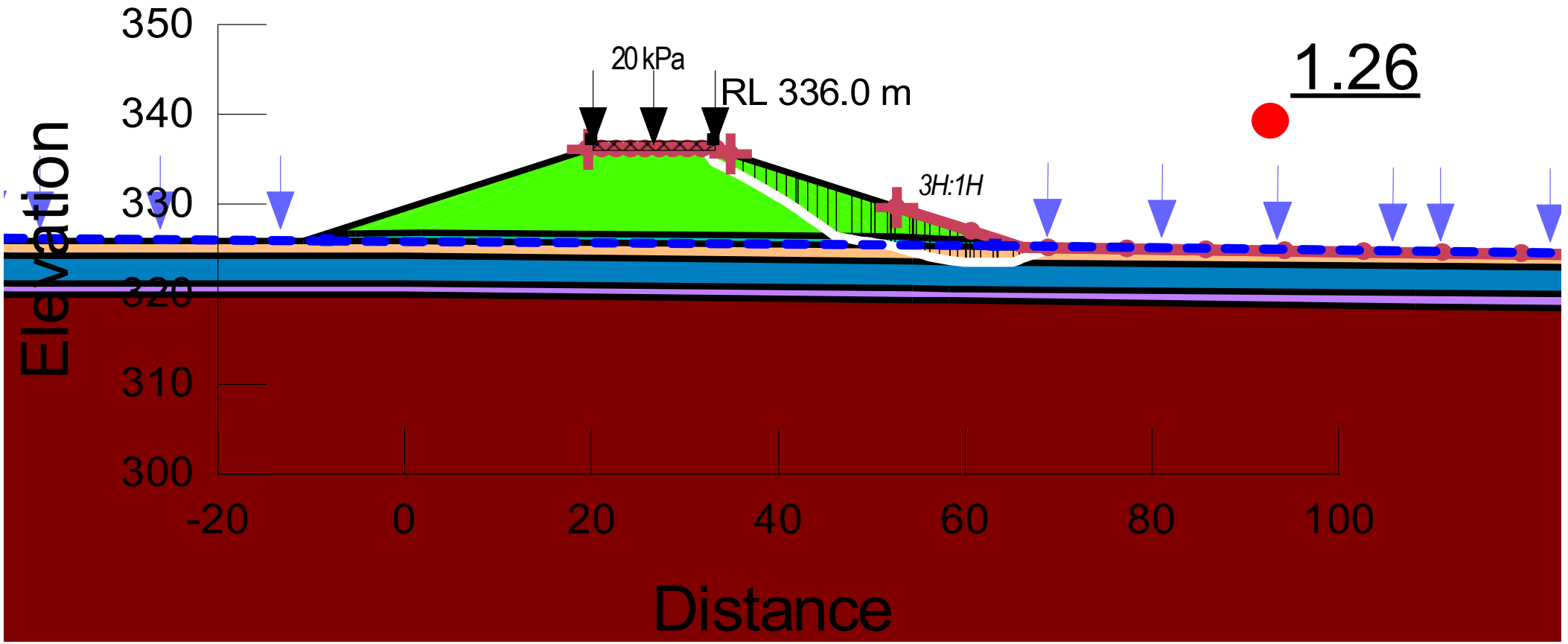

2.21
RL 332.0m
RL 328.1 m
BH-WSD-02
BH-WSD-01
Elevation
Distance
350
340
330
320
300
290
280
80
100
120
140
160
180
200
220
240
260
280
300
320
340


1.74
RL 332.0m
RL 328.1 m
BH-WSD-02
BH-WSD-01
Elevation
Distance
350
340
330
320
310
300
290
280
80
100
120
140
160
180
200
220
240
260
280
300
320
340


1.01
RL 332.0m
RL 328.1 m
BH-WSD-02
BH-WSD-01
Elevation
Distance
350
340
330
320
310
300
290
280
80
100
120
140
160
180
200
220
240
260
280
300
320
340


350
340
330
320
310
300
Elevation
20 kPa
RL 336.0 m
3H:1H
1.86
-20
0
20
40
60
80
100
Distance


350
340
330
320
310
300
Elevation
20 kPa
RL 336.0 m
1.79
3H:1H
-20
0
20
40
60
80
100
Distance


350
340
330
320
310
300
Elevation
20 kPa
RL 336.0 m
1.26
3H:1H
-20
0
20
40
60
80
100
Distance

APPENDIX J

Memorandum Ref. PE25-01388

Doropo Gold Project – Definitive Feasibility Study

Tailings Storage Facility Dam Breach Assessment

Knight Piésold CONSULTING

Knight Piésold CONSULTING

MEMORANDUM

To:	Resolute Mining	**Date:**	06 November 2025
Attn:	Rob Cicchini	**Our Ref:**	PE25-01388
		KP File Ref.:	PE301-00821/07-A djtm M25003
cc:	Luciano Giancristofaro	**From:**	Dave Morgan

RE: DOROPO GOLD PROJECT – DEFINITIVE FEASIBILITY STUDY TAILINGS STORAGE FACILITY DAM BREACH ASSESSMENT

Knight Piésold (KP) performed a dam breach assessment (DBA) for the Tailings Storage Facility (TSF) at the Doropo Project (Doropo).

Based on the assessment, the TSF has been rated as follows:

- ANCOLD Dam Failure Consequence Category of “High A”.
- ANCOLD Environmental Spill Consequence Category of “Low”.
- GISTM Dam Failure Consequence Category of “Very High”.

This document supersedes KP memorandum PE24-00766 issued 17 June 2024.

1. INTRODUCTION

Knight Piésold Pty Ltd (KP) is currently engaged by Resolute Mining (Resolute) for the Definitive Feasibility Study (DFS) design of the Tailings Storage Facility (TSF) at the Doropo Gold Project (Doropo). The site is located approximately 480 km north of Abidjan in northeast Cote D’Ivoire.

As part of the study, KP has undertaken a Dam Breach Assessment (DBA) for the Tailings Storage Facility (TSF). The DBA was completed in accordance with ANCOLD guidelines (Refs. 1 and 2) and the Global Industry Standard on Tailings Management (GISTM) (Ref. 3).

The Doropo TSF will have a total capacity of 61 Mt which corresponds to a final embankment crest elevation of RL347 m. The final TSF configuration was adopted for the DBA. The layout and local infrastructure surrounding the TSF are shown on Figure 1.1.

1.1 TOPOGRAPHIC DATA

Topography of the mine site area is based on the Digital Terrain Model (DTM) dated 2019 and design surfaces for the pits and waste dump as provided by Orelogy on 13 of October 2025. Following the mine schedule provided by Resolute, the final year pit configuration has been incorporated into the topography.

All modelling was completed using the coordinate reference system UTM WGS84, Zone 30 North.

1.2 PURPOSE OF THE ASSESSMENT

KP notes that the purpose of this assessment was to estimate tailings breach inundation extents in order to:

- Estimate the Population at Risk (PAR) to an order of magnitude;
- Estimate the Potential Loss of Life (PLL) to an order of magnitude; and
- Classify the TSF as per ANCOLD and GISTM.

2. NEWTONIAN FLUID MODELLING

2.1 INTRODUCTION

For the Newtonian breach assessment, the software Riverflow2D by Hydronia was used. Riverflow2D is a two-dimensional combined hydraulic and hydrologic flexible-mesh finite-volume model. A triangular mesh is generated from imported topography information.

A number of ‘flux lines’ were located downstream of each model to produce time of arrival and time to peak hydrographs. The model was run in transient mode and continued until most of the outflow volume had left the outflow boundaries, or flows were confined to creek channels downstream. A Manning’s roughness of 0.045 was assumed for the floodplain.

KP notes that baseflows in rivers and creeks were not accounted for in this study due to the limitations of the digital elevation model (DEM) used. In typical DEMs, water body features are typically simplified, with large water bodies such as oceans and lakes represented as a single, uniform elevation, while rivers are constrained to a monotonic flow elevation. Consequently, the elevations along water bodies generally reflect the ground surface rather than the actual water surface. As such, incorporating baseflows could lead to a larger-than-expected flood extent.

The outputs from the modelling software include depth, velocity, and product of depth and velocity over time. From the depth and velocity, a Hazard can be determined based on the Australian Institute of Disaster Resilience (AIDR) Guideline 7-3 (Ref. 4) as presented on Figure 2.1. Typically, a hazard vulnerability classification of H3 and greater would be considered hazardous for the purposes of estimating PAR and planning.

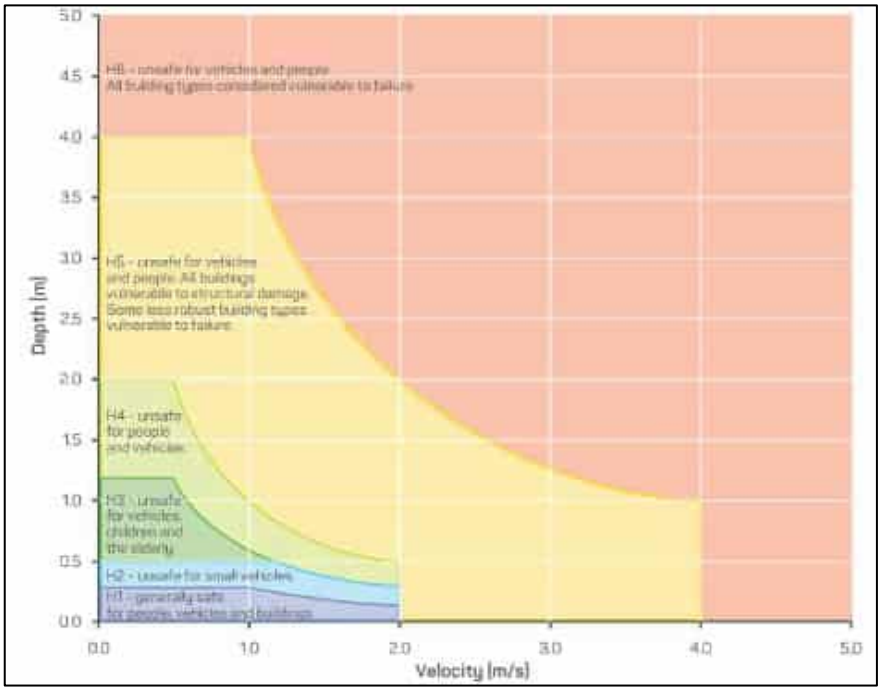


Figure 2.1: AIDR flood hazard vulnerability curves

A subsequent Fatality Rate was calculated by methods developed by the United States Bureau of Reclamation (Ref. 5) using empirical estimates. Warning Time and Flood Severity must be estimated from the dam failure mapping. For determining the PLL it was assumed that there was little to no warning of the breach. The upper "Suggested Limit" line was used as shown on Figure 2.2 for the maximum depth times velocity reading throughout the model.

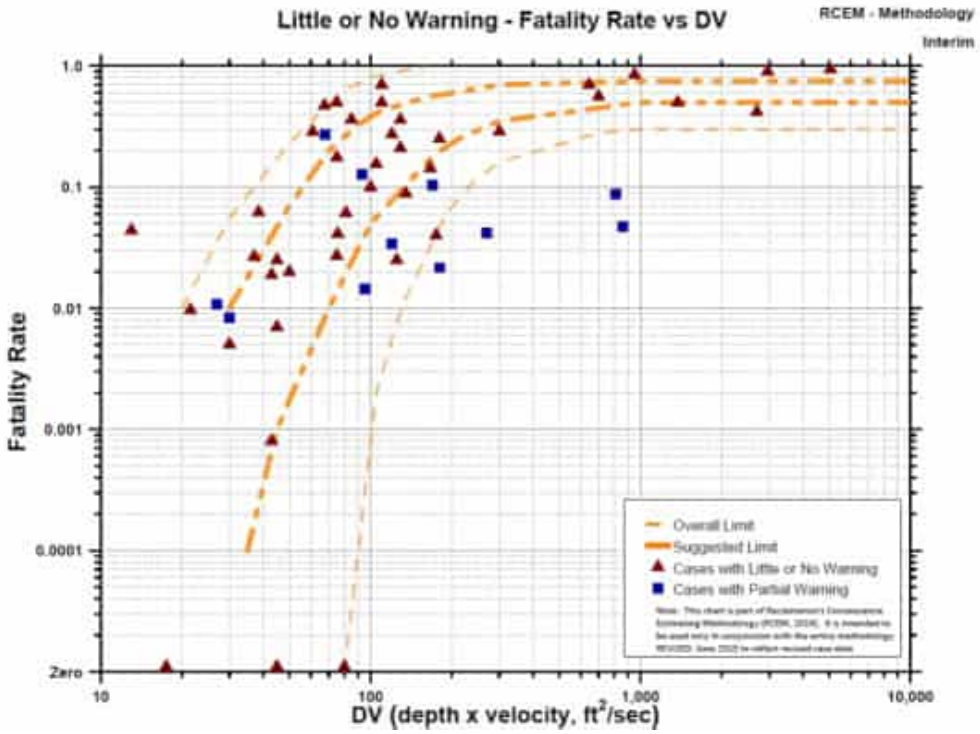


Figure 2.2: Fatality rate versus depth time velocity

2.2 ASSESSED SCENARIOS

A Sunny Day Failure along each embankment of the TSF was considered. Figure 2.3 shows the assumed breach locations.

As shown on Figure 2.4, the Water Storage Dam (WSD) is assumed to be at maximum capacity (6.1 Mm^3 at RL331.0 m) plus the volume of the 100-year, 72-hour runoff and serves as the initial condition for the model run. Given the catchment area of 110 Ha and a 100-year 72-hour storm depth of 220 mm, the volume of runoff contributing to the WSD (assuming runoff coefficient of 1.0) is 2.4 Mm^3, corresponding to a water level of RL332.8 m within the WSD. The stage storage of the WSD is presented on Figure 2.5. Additionally, as the WSD is separated by a public causeway, a 2.5 m by 2.5 m box culvert has been assumed to connect the two WSD cells.

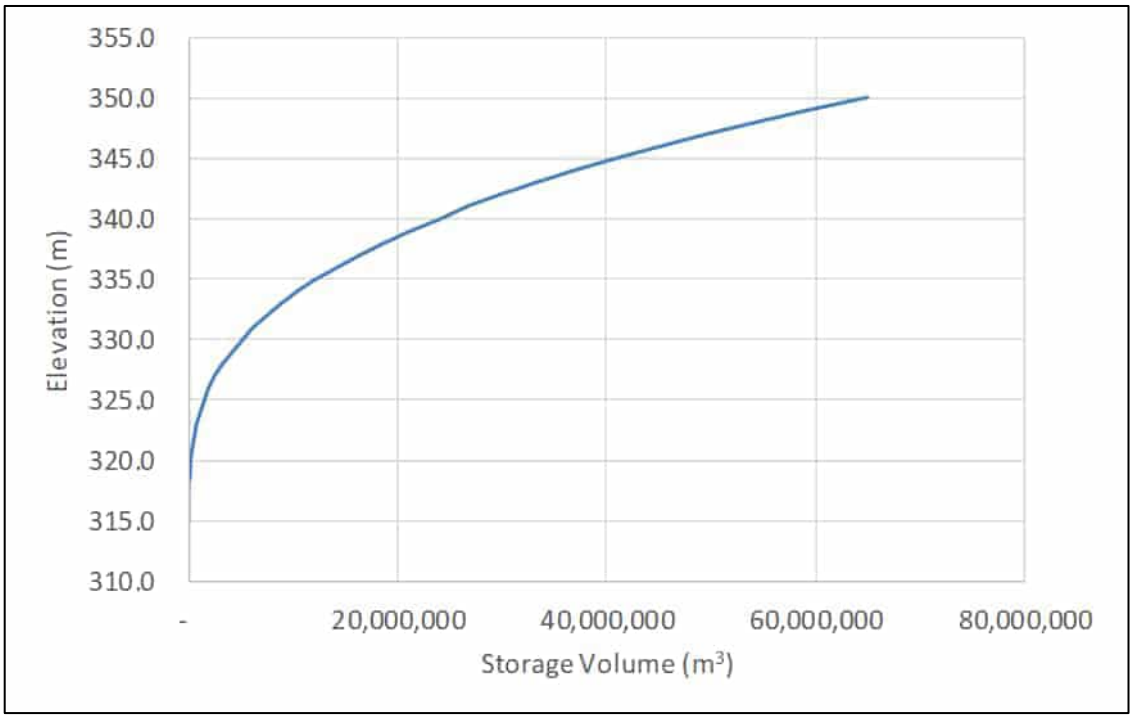


Figure 2.5: WSD stage storage curve

2.3 BREACH VOLUME ESTIMATION

For the Newtonian breach assessment, a Post Rainfall pond was assumed for the pond volume. The Post Rainfall Pond accounts for the 100-year, 72-hour storm (assuming runoff coefficient of 1.0). Table 2.1 below shows the assumed pond volumes.

Table 2.1: Pond Volume Assumptions

Average Operating Pond	3.10 Mm^3
100-year ARI[1] 72-hr storm runoff	0.69 Mm^3
Total	3.79 Mm^3

1. Average Recurrence Interval (ARI).

KP completed tailings mobilisation calculations to estimate the volume of tailings that would be mobilised with the pond during a failure. This mobilisation increases the total volume released. A schematic of the described tailings mobilisation mechanism is presented on Figure 2.6.



Figure 2.6: Newtonian tailings mobilisation schematic

Using methods proposed by Fontaine and Martin (Ref. 6), the pond volume, density of tailings and degree of saturation are combined to release a breach mixture at a given percent solids. Variability exists in output based on assumed release percent solids. As there were no rheological testing results available at the time of this assessment, a nominal 40% solids w/w was used for the release material as it gives a conservative mobilised volume. It is noted that this 40% solids w/w is for a water breach and is not related to the non-Newtonian assessment or rheology parameters discussed later, as it is considered to behave like water.

The tailings mobilisation estimates for the TSF were calculated using the nominal water release starting pond volume of 3.79 Mm^3 (as noted in Table 2.1 above). The average dry density assumed for this exercise is 1.50 t/m^3. The results are presented in Table 2.2.

Table 2.2: Water Newtonian tailings mobilisation estimates

Facility Characteristics	
Scenario	Post Rain
Mass of Tailings Solids (Mt)	61
Average Dry Density (t/m^3)	1.50
Void Ratio, e	0.77
Volume of Interstitial Water (Mm^3)	17.73
Moisture Content (%w)	29.00
Tailings Bulk Density (t/m^3)	1.94
Volume of Free Water (Mm^3)	3.79
Dam Breach Volume and Solids Content	
Solids Content of Breach (%)	40%
Mobilised Tailings Solids Volume (Mm^3)	1.18
Mobilised Interstitial Water (Mm^3)	0.91
Mobilised Tailings Volume (Mm^3)	2.09
Total Volume in Breach (Mm^3)	**5.88**

For the breach hydrograph, KP assumed a triangular hydrograph, which peaked at half an hour with the full volume released in one hour. The hydrograph is summarised in Table 2.3.

Table 2.3: Adopted Newtonian breach hydrograph

Time (hours)	Newtonian Breach Discharge (m^3/s)
	Post Rain
0.0	0
0.5	3267
1.0	0

2.4 MODELLING RESULTS

Results consisting of the maximum velocity, maximum depth, and AIDR Hazard are presented in Appendix A.

The East breach modelling results indicate that the Nokpa Pit, located immediately downstream of the TSF, has sufficient capacity to accommodate the full breach volume of approximately 5.88 Mm^3. While this suggests that the released tailings and water would be largely contained within the pit area, it is important to note that personnel working within the pit would be directly exposed to the inundation, and fatalities are expected in the event of such a breach.

The South breach results indicate that, in the event of a Newtonian breach, the released tailings could flow either northward or southward depending on the precise breach location along the southern embankment. Although the plant site is not affected, the flow is expected to inundate the proposed footpath connecting the Lassouri and Hierewedouo settlements as well as Nokpa Pit as shown on Figure 2.7.

Velocity profiles along the eastern embankment toe reach approximately 5 m/s, which may induce toe erosion and potentially trigger a secondary breach along the eastern embankment. This interaction has not been explicitly modelled, as its consequences would be comparable to those of a non-Newtonian breach along the eastern embankment discussed in Section 3.3, and is therefore considered to be adequately covered in the current assessment. The water level in the eastern cell of the WSD is anticipated to temporarily rise to RL335.0 m before stabilising at RL334.6 m which remains below the top of the causeway (RL336.2 m); hence, overtopping is not expected.

Similar to the South Newtonian breach, the West Newtonian breach is expected to cause a temporary rise in water levels within the eastern cell of the WSD to approximately RL336.7 m, before stabilising at RL336.2 m. This transient increase in water level is anticipated to result in overtopping of the public causeway by a flow depth of approximately 0.5 m which can be considered hazardous for both people and vehicles crossing the causeway as shown on Figure 2.8. However, it is noted that the inundation extents do not impact the surrounding Lassouri and Penoduo setlements.

3. NON-NEWTONIAN FLUID MODELLING

3.1 INTRODUCTION

For the inundation mapping of the DBA, a slurry non-Newtonian breach methodology was adopted. For the slurry non–Newtonian breach, the software Riverflow2D by Hydronia was used with the 'Mud and Debris Flow' Module, which allows rheological formulation. Riverflow2D is a two-dimensional combined hydraulic and hydrologic flexible-mesh finite-volume model. A triangular mesh is generated from imported topography information and hydraulic components (culverts, roads etc.) can be added. The developer has tested/calibrated the module with real data from actual tailings dam breaches. More recently, Hydronia produced a webinar titled *"Two-dimensional runout evaluation of the Brumadinho Tailings dam failure in Brazil"* which replicated the event downstream inundation areas with acceptable accuracy. This also focused on the modelled arrival time with a known river gauge approximately 8 km downstream which registered the event.

The rheology parameters used in the calibration and this assessment are the Full Bingham flow using yield stress and Bingham viscosity. As the results are highly dependent on these parameters, if further information becomes available (tailings strength testing) it should be considered in future revisions.

A yield strength of 1,700 Pa with viscosity of 5 Pa*s, and bulk density of 1,940 kg/m^3 were adopted for the blended tailings. It was assumed that the entire tailings mass (modelled at Stage Final) is fully saturated and homogeneous with interstitial water, not including any supernatant pond (as this is a limitation of the modelling software).

Baseflow, the naturally occurring stream flow not directly related to a storm event, was not considered for the slurry non-Newtonian fluid modelling. Baseflow is expected to be small in comparison to the modelled breach outflows. As such, baseflow is not expected to greatly impact the Population at Risk (PAR).

For the non–Newtonian fluid modelling, breach formation time and release were not determined. Instead, the tailings were modelled as a static mass located within the TSF void formed by the original ground and perimeter embankment. The embankment that fails was conservatively assumed to mobilise completely with the tailings at the time of failure. The initial conditions of the model were assumed to be the sloped tailings within the facility, based on the deposition modelling, and the embankment material for the failed embankment. The breach slot is assumed to have 1H:1V side slopes, with a conservatively estimated breach bottom width of approximately 40 m, corresponding to the maximum embankment height.

Each model was run in transient mode and continued until most of the released tailings had stopped moving (velocities approaching zero).

Each model formed a cone like failure surface back into the facility propagating away from the breach gap. The surface formed is limited by the original topography hence preventing volumes greater than the stored volume from being generated.

It is noted that due to the tailings strength and the downstream topography, the tailings did not reach the downstream boundary in the models. The maximum inundation depth and velocity from the model were then exported and superimposed over the site infrastructure.

3.2 ASSESSED SCENARIOS

The non-Newtonian breach scenario is considered as a Sunny Day Failure.

A breach at each of the TSF embankments at each of the locations shown on Figure 2.2 were considered for this assessment. The initial condition of the tailings surface is presented on Figure 3.1.

This assessment also does not consider the cascade failure of the WSD on the basis that the maximum water elevation of RL332.8 m assumed in the WSD is lower than the tailings elevation at stage final. Figure 3.1 shows the long section of the initial tailings elevation within the TSF and water surface elevation in the WSD.

3.3 MODELLING RESULTS

Results consisting of the maximum velocity, maximum depth, and final surface elevation are presented in Appendix B. It is noted that due to the tailings strength and the downstream topography, the tailings did not reach the downstream boundary for any of the models. The fatality rates for these breaches were calculated using the same methodology as the Newtonian breaches, except that the depth x velocity result was factored by the bulk density of the material. This adjustment was made as the relationship shown on Figure 2.2 is for water only. When compared to water, for the same flow depth and velocity, the released tailings would have greater momentum and therefore would pose a greater risk to human life.

Figures 3.2 to 3.4 show the long sections of the final tailings elevations across the TSF for each breach scenario assessed. KP analysed the results of each scenario in order to determine what percentage of the tailings stored within the TSF was released, as shown in Table 3.1.

Table 3.1: Percent release

Embankment	Yield Strength (Pa)	Released Volume (m^3)	Percent Release (%)
East	1,700	30,444,133	67%
South		4,306	0.01%
West		5,704,898	13%
Rico et al.	-	14,939,437 [1]	36.7% [1]
Larrauri et al.	-	11.4 [1] (6.8 - 19.4) [2]	28% [1] (16.7 - 47.7%) [2]

1. Predicted 50th percentile of historical dam failures.
2. Range shown is the 25th percentile and 75th percentile estimate.

The Non-Newtonian East breach scenario resulted in a greater percent release. This can also be observed on Figure 3.5 where East breach scenario has a higher peak discharge. The hydrographs were extracted from flux lines located across the breach gap as shown on Figure 2.2.

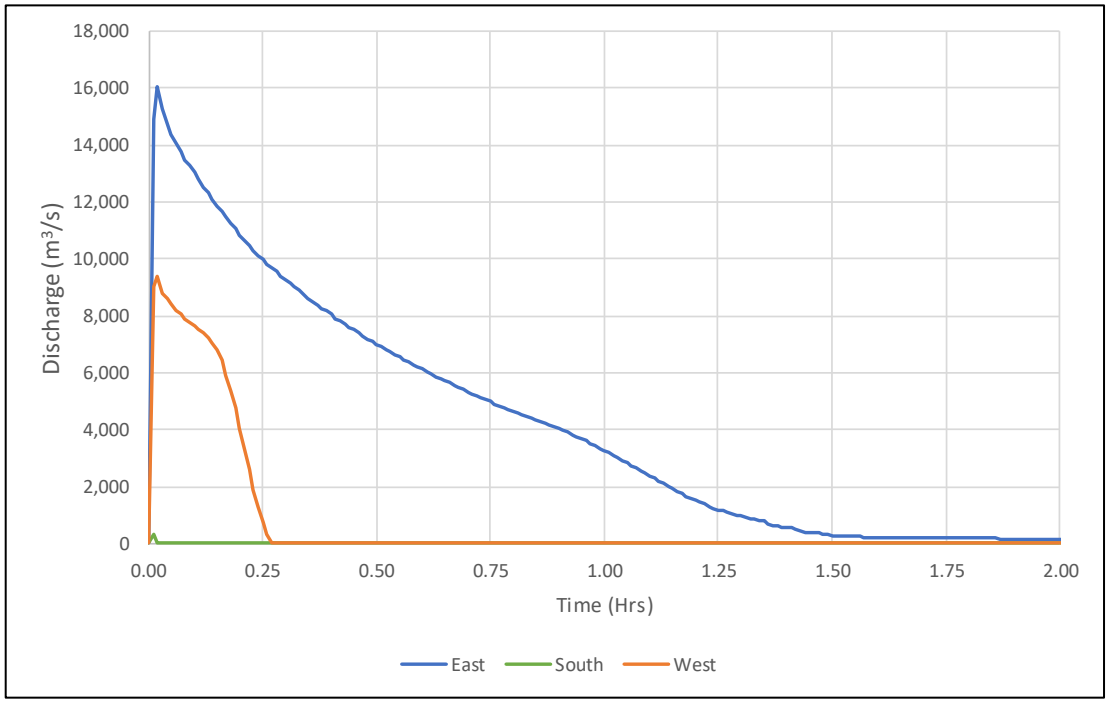


Figure 3.5: Non-Newtonian breach hydrographs

KP compared the percent release determined from non-Newtonian models to release estimates calculated using the empirical formulae developed by Rico et al and Larrauri et al (Refs. 7 and 8). The modelled release percentage for the East breach scenario is higher than the empirically estimated value, whereas the South and West breach scenarios show lower release percentages compared to the empirical estimates, as shown in Table 3.1. For some scenarios the topography and facility basin shape impede the release of tailings, whilst other scenarios have a greater release due to the topography and facility basin shape.

In comparison to Newtonian East breach scenario, the Non-Newtonian East breach releases a substantially larger volume of tailings, resulting in the complete infilling of the Nokpa Pit. Once the pit's capacity is exceeded, the excess tailings are expected to propagate further downstream and enter the Chegue South Pit, which has sufficient capacity to contain the remaining breach volume, thereby limiting further downstream impacts. However, personnel working within the pits would be directly exposed to the inundation, and fatalities are expected in the event of such a breach.

Following discussions on the potential for a non-Newtonian failure occurring after a Newtonian failure, KP has assessed a scenario in which a non-Newtonian failure occurs when the Nokpa Pit has been filled by the maximum Newtonian breach volume of 5.88 Mm^3. The released tailings flows into the Nokpa Pit and the water is displaced and then flows downstream into Cheque South Pit. The stage–storage relationship of Chegue South Pit, overlaid with the final surface elevation from the Non-Newtonian East breach, is presented on Figure 3.6.

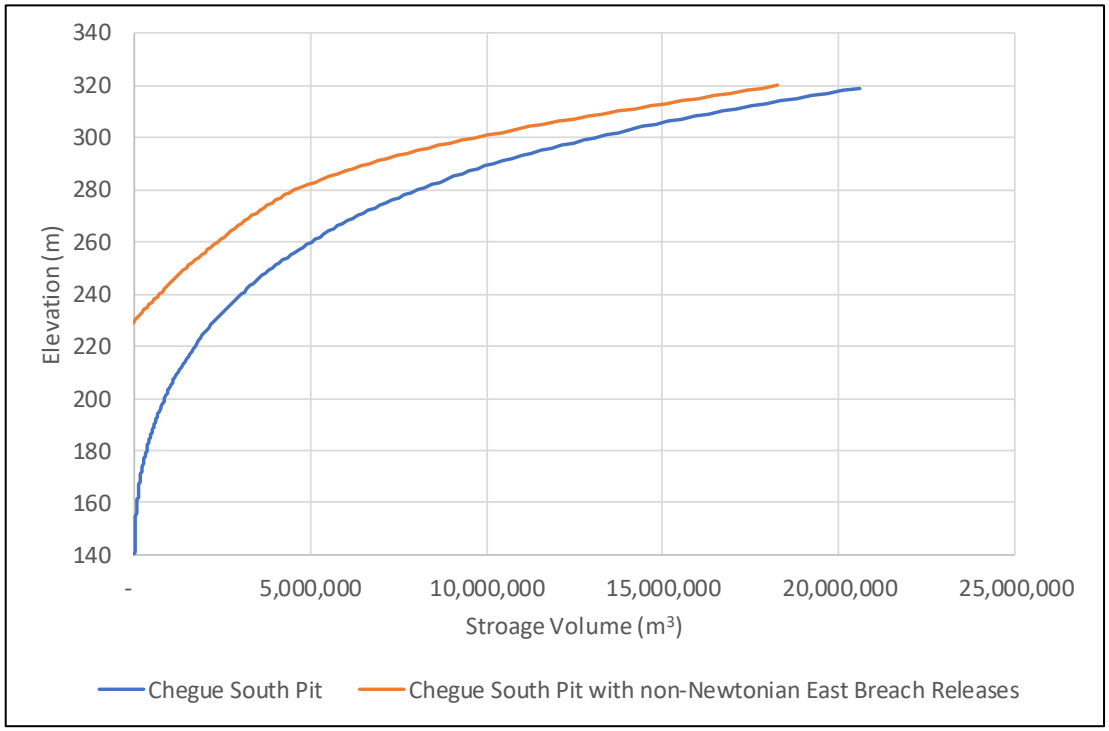


Figure 3.6: Chegue South Pit

As illustrated on Figure 3.7, despite the reduction in available storage volume following the non-Newtonian breach, Chegue South Pit retains sufficient capacity to accommodate the displaced Newtonian releases, thereby preventing any further downstream propagation of the breach. Water level within the Chegue South Pit is expected to rise to RL286.5 m.

The South Non-Newtonian breach as shown on Figure 3.3 indicates that only a limited amount of tailings is released immediately downstream of the Southern embankment. The long section shows a lower tailings elevation towards the North end of the TSF, allowing tailings to cave inwards, preventing tailings from flowing out of the breach gap. Additionally, the inundation extents of the South non-Newtonian breach does not encroach on the proposed footpath connection of the Lassouri and Hierewedouo settlements.

The West Non-Newtonian breach results indicate that the released tailings are largely contained within the WSD. The release volume of 5.7 Mm^3, as summarised in Table 3.1, is comparable to the assumed Newtonian breach volume of 5.88 Mm^3 and is expected to produce a similar rise in water level within the WSD, up to RL336.7 m.

However, due to the rapid release of the West Non-Newtonian breach, represented by the hydrograph on Figure 3.5, a flood wave is expected to propagate across the WSD, likely resulting in overtopping of the public causeway. This phenomenon has not been specifically modelled; however, its consequence is expected to be comparable to those of a West Newtonian breach discussed in Section 2.4, with the exception of potentially higher velocities and flow depths over the causeway. As such the fatality rate for users of the public causeway is conservatively assumed to be 0.75, the upper bound of the suggested limit as shown on Figure 2.2.

4. POPULATION AT RISK AND POTENTIAL LOSS OF LIFE ASSESSMENT

As part of categorising the facility as per the ANCOLD guidelines (Refs. 1 and 2) and the Global Industry Standard on Tailings Management (GISTM) (Ref. 3), an assessment of the indicative Population at Risk (PAR) was undertaken. A person has been considered at risk if they are at risk of injury or death if no action is taken. There are several factors impacting the PAR calculation as follows:

- Dust arising following the breach is likely to pose a short term and/or long-term health risk to populations in the immediate vicinity of the inundation extents.
- The supernatant water and tailings solids contain environmentally significant contaminants.
- A number of roads including the proposed footpath connecting the Hierewedouo and Lassouri villages are located downstream of the TSF and will be accessed daily by locals and staff.
- Once per shift inspections by the Processing Department are expected at the TSF which require access along the embankment crest.
- Security personnel are expected to pass downstream of the TSF during routine inspections of the site fence line.
- The process site, mine services areas and mining operations will potentially be impacted by failure.
- Hierewedouo, Lassouri and Penoduo villages surrounding the TSF, are potentially within the tailings inundation area and may be impacted in the event of failure.
- TSF construction personnel are (conservatively) assumed to be based downstream of the TSF, however are only present during TSF construction phases. An allowance has also been made for the presence of a small number of haul trucks and equipment during placement of structural fill by the mining fleet.

A breakdown of people estimated within the inundation area as a whole was based on experience of similar projects within the region, and should be reviewed by Resolute to confirm suitability of the assumptions. It is not anticipated that all people will be downstream of the TSF at the same time; hence a percentage estimate of each role was approximated. A total PAR was then calculated and is considered an indication of the potential PAR.

The modelling results presented in sections 2 and 3 indicate that while the plant site remains unaffected, the Nokpa and Chegue South pits are impacted under the simulated breach scenarios. None of the scenarios result in inundation of the surrounding villages of Hierewedouo, Lassouri, or Penoduo.

However, both the public causeway connecting the Lassouri settlements and the proposed footpath linking the Lassouri and Hierewedouo villages are expected to be impacted. To account for transient PAR and PLL, 1% of the population of the villages are assumed to be on the public causeway and proposed footpath at any given time.

Table 4.1 below summarises the site personnel and PAR considered for the assessment.

Table 4.1: Population estimates for PAR assessment

Population	Number
TSF Operation Personnel [1]	5
TSF Construction Personnel [2]	30
Mine Personnel – Nokpa Pit [3]	25
Mine Personnel - Chegue South Pit [3]	25
Hierewedouo [3]	796
Lassouri [3]	242
Penoduo [3]	200

1. The number of personnel has been estimated based on experience of similar projects within the region.
2. TSF construction personnel only within impact zones during TSF construction raises (6 months per year, day shift only).
3. Population estimate referenced from previous dam breach assessment, KP memorandum PE24-00766.

4.4 NEWTONIAN BREACH PAR

The indicative population at risk for the Newtonian breach scenarios are summarised in tables 4.2 to 4.4.

Table 4.2: TSF East Newtonian breach PAR and PLL

Population	Number	Affected (%)	PAR	Fatality Rate	PLL
TSF Operation Personnel [1]	5	20	1.0	0.75	0.8
TSF Construction Personnel [2]	30	25	7.5	0.75	5.6
Mine Personnel – Nokpa Pit [3]	25	100	25.0	0.52	12.9
Mine Personnel - Chegue South Pit [3]	25	0	0.0	0.00	0.0
Hierewedouo [3]	796	0	0.0	0.00	0.0
Lassouri [3]	242	0	0.0	0.00	0.0
Penoduo [3]	200	0	0.0	0.00	0.0
Total			**33.5**		**19.3**

1. The number of personnel has been estimated based on experience of similar projects within the region.
2. TSF construction personnel only within impact zones during TSF construction raises (6 months per year, day shift only).
3. Population estimate referenced from previous dam breach assessment, KP memorandum PE24-00766.

Table 4.3: TSF South Newtonian breach PAR and PLL

Population	Number	Affected (%)	PAR	Fatality Rate	PLL
TSF Operation Personnel [1]	5	20	1.0	0.75	0.8
TSF Construction Personnel [2]	30	25	7.5	0.75	5.6
Mine Personnel – Nokpa Pit [3]	25	100	25.0	0.24	6.0
Mine Personnel - Chegue South Pit [3]	25	0	0.0	0.00	0.0
Hierewedouo [3]	796	1	8.0	0.30	2.4
Lassouri [3]	242	1	2.4	0.30	0.7
Penoduo [3]	200	1	2.0	0.30	0.6
Total			**45.9**		**16.1**

1. The number of personnel has been estimated based on experience of similar projects within the region.
2. TSF construction personnel only within impact zones during TSF construction raises (6 months per year, day shift only).
3. Population estimate referenced from previous dam breach assessment, KP memorandum PE24-00766.

Table 4.4: TSF West Newtonian breach PAR and PLL

Population	Number	Affected (%)	PAR	Fatality Rate	PLL
TSF Operation Personnel [1]	5	20	1.0	0.75	0.8
TSF Construction Personnel [2]	30	25	7.5	0.75	5.6
Mine Personnel – Nokpa Pit [3]	25	0	0.0	0.41	0.0
Mine Personnel - Chegue South Pit [3]	25	0	0.0	0.00	0.0
Hierewedouo [3]	796	0	0.0	0.00	0.0
Lassouri [3]	242	1	2.4	0.00	0.0
Penoduo [3]	200	1	2.0	0.00	0.0
Total			**12.9**		**6.4**

1. The number of personnel has been estimated based on experience of similar projects within the region.
2. TSF construction personnel only within impact zones during TSF construction raises (6 months per year, day shift only).
3. Population estimate referenced from previous dam breach assessment, KP memorandum PE24-00766.

4.5 NON-NEWTONIAN BREACH PAR

The indicative PAR for the Non-Newtonian breaches will be considered as it is part of the design plan. The indicative PAR for the Non-Newtonian TSF embankment failure is summarised in tables 4.5 to 4.7.

Table 4.5: TSF East non-Newtonian breach PAR and PLL

Population	Number	Affected (%)	PAR	Fatality Rate	PLL
TSF Operation Personnel [1]	5	20	1.0	0.75	0.8
TSF Construction Personnel [2]	30	25	7.5	0.75	5.6
Mine Personnel – Nokpa Pit [3]	25	100	25.0	0.57	14.2
Mine Personnel - Chegue South Pit [3]	25	100	25.0	0.26	6.6
Hierewedouo [3]	796	0	0.0	0.00	0.0
Lassouri [3]	242	0	0.0	0.00	0.0
Penoduo [3]	200	0	0.0	0.00	0.0
Total			**58.5**		**27.2**

1. The number of personnel has been estimated based on experience of similar projects within the region.
2. TSF construction personnel only within impact zones during TSF construction raises (6 months per year, day shift only).
3. Population estimate referenced from previous dam breach assessment, KP memorandum PE24-00766.

Table 4.6: TSF South non-Newtonian breach PAR and PLL

Population	Number	Affected (%)	PAR	Fatality Rate	PLL
TSF Operation Personnel [1]	5	20	1.0	0.75	0.8
TSF Construction Personnel [2]	30	25	7.5	0.75	5.6
Mine Personnel – Nokpa Pit [3]	25	0	25.0	0.00	0.0
Mine Personnel - Chegue South Pit [3]	25	0	0.0	0.00	0.0
Hierewedouo [3]	796	0	0.0	0.00	0.0
Lassouri [3]	242	0	0.0	0.00	0.0
Penoduo [3]	200	0	0.0	0.00	0.0
Total			**8.5**		**6.4**

1. The number of personnel has been estimated based on experience of similar projects within the region.
2. TSF construction personnel only within impact zones during TSF construction raises (6 months per year, day shift only).
3. Population estimate referenced from previous dam breach assessment, KP memorandum PE24-00766.

Table 4.7: TSF West non-Newtonian breach PAR and PLL

Population	Number	Affected (%)	PAR	Fatality Rate	PLL
TSF Operation Personnel [1]	5	20	1.0	0.75	0.8
TSF Construction Personnel [2]	30	25	7.5	0.75	5.6
Mine Personnel – Nokpa Pit [3]	25	0	0.0	0.41	0.0
Mine Personnel - Chegue South Pit [3]	25	0	0.0	0.00	0.0
Hierewedouo [3]	796	0	0.0	0.00	0.0
Lassouri [3]	242	1	2.4	0.75	1.8
Penoduo [3]	200	1	2.0	0.75	1.5
Total			**12.9**		**9.7**

1. The number of personnel has been estimated based on experience of similar projects within the region.
2. TSF construction personnel only within impact zones during TSF construction raises (6 months per year, day shift only).
3. Population estimate referenced from previous dam breach assessment, KP memorandum PE24-00766.

4.6 POPULATION AT RISK AND POTENTIAL LOSS OF LIFE SUMMARY

The indicative PAR and PLL for the assessed breach scenarios are summarised below in Table 4.8.

Table 4.8: Indicative Population at Risk (PAR) and Potential Loss of Life summary

Scenario	Embankment	PAR	PLL
Newtonian	East	33.5	19.3
	South	45.9	16.1
	West	12.9	6.4
Non-Newtonian	East	**58.5**	**27.2**
	South	8.5	6.4
	West	12.9	9.7

Based on the above estimate, a PAR of '≥10 to <100' and PLL of '≥5 to <50' for Dam Failure are recommended.

The PAR due to an environmental spill would be limited. The supernatant discharge is expected to flow directly into Nokpa pit. It is assumed that mine personnel within the Nokpa pit will be evacuated during extreme weather conditions, and on this basis a PAR of '<1' was adopted for the Environmental Spill Consequence Category as per ANCOLD 2019 (Ref.1).

5. ANCOLD CONSEQUENCE CATEGORY

5.1 DAM FAILURE CONSEQUENCE CATEGORY

An assessment has been conducted to determine the severity level of impacts based on ANCOLD 2019 (Ref. 1). An assessment to determine the severity level of impacts from a large-scale failure of the facility (Dam Failure Severity Level) and a spillway flow or other water release (Environmental Spill Severity Level) was conducted.

The likelihood of failure is not considered in the ANCOLD Consequence Category Assessment. The Dam Failure Severity Level for the western embankment failure scenario is presented in Table 5.1.

Table 5.1: ANCOLD Guideline on Severity Level – Dam Failure

Damage Type	Dam Failure Severity Level
Infrastructure (dam, houses, commerce, farms, community)	**Major**
Damage to the TSF itself is expected to be repairable relatively quickly but at a cost for earthworks. Site and public roads, and pipework may be inundated but repairs are expected to be relatively minor. Significant community housing and infrastructure downstream may be inundated requiring repairs and/or relocation at significant cost. Reparations will need to be paid to locals downstream whose lives are lost, or homes are damaged by the failure. The overall cost is assumed to be Major ($100M – $1B)	
Business Importance	**Major**
Extreme discontent due to (potential) loss of life. There would likely be severe reaction from the community and major loss of business credibility hence “severe to crippling” impact was selected.	
Storage within the TSF will be unavailable in the short term until an engineered embankment can be constructed. Contingency storage may be available within a decommissioned pit if sufficient permitting approval can be obtained. Significant challenges are anticipated in order to maintain operation in the short-term, however, for the purpose of this study it has been assumed that these can be overcome. Significant loss of revenue is anticipated in the short term, until sufficient planning can be completed and approvals obtained to recommence operation.	
Public Health	**Medium**
Contamination of the drinking water has the potential to impact local settlements (assumed 100 – 1,000 people affected for more than one month).	
Dust arising following the breach will pose a short term and/or long-term health risk to populations in the immediate vicinity of the inundation extents (100 – 1,000).	
Social Dislocation	**Medium**
Populations located within the immediate inundation area may require resettlement in the short to medium term until sufficient remediation can be completed. It is anticipated that this will impact less than 100 – 1,000 people, therefore the overall impact is considered medium.	
Impact Area	**Medium**
The embankment solids breach inundation is expected to be greater than 1 km^2 but smaller than 5 km^2 (estimated).	
Impact Duration	**Medium**
Impact not expected to exceed 5 years in duration.	
Impact on Natural Environment	**Medium**
Significant effects on cleared rural land and, local flora and fauna. No endangered or at-risk local flora and fauna identified within inundation extents. Remediation will be achievable.	

On the basis of significant damage to infrastructure, business and natural environment the Severity Level would be 'Major', primarily due to the anticipated infrastructure and business impacts if tailings were to impact the plant site. Based on this, as well as the PAR and PLL determined in Section 5, the consequence category for the TSF is provided in tables 5.2 and 5.3.

Table 5.2: TSF ANCOLD consequence category based on PAR

Population at Risk	Severity of Damage and Loss			
	Minor	Medium	Major	Catastrophic
<1	Very Low	Low	Significant	High C
>1 to 10	Significant [2]	Significant [2]	High C	High B
>10 to 100	High C	High C	High B	High A
>100 to 1,000	See note [1]	High B	High A	Extreme
>1,000	See note [1]	See note [1]	Extreme	Extreme

1. With a PAR in excess of 100, it is unlikely damage will be minor. Similarly, with a PAR in excess of 1,000 it is unlikely damage will be classified as medium.
2. Change to "High C" where there is the potential of one or more lives being lost.

Table 5.3: TSF ANCOLD consequence category based on PLL

Potential Loss of Life	Severity of Damage and Loss			
	Minor	Medium	Major	Catastrophic
<0.1	Very Low	Low	Significant	High C
≥0.1 to <1	Significant	Significant	High C	High B
≥1 to <5	See note [1]	High C	High B	High A
≥5 to <50		High A [2]	High A	Extreme
≥50		Note 1	Extreme	Extreme

1. With an incremental PLL equal to or greater than one (1), it is unlikely damage will be minor. Similarly, with an incremental PLL in excess of 50 it is unlikely damage will be classified as medium.
2. Where PLL is in the range of ≥5 to <10, the Category level can be reduced to High B.

The worst-case severity level of damage and loss as determined from tables 5.2 and 5.3 was adopted as the ANCOLD consequence category.

As such the consequence category of the TSF has been determined as "High A".

5.2 ENVIRONMENTAL SPILL CONSEQUENCE CATEGORY

An assessment of the Environmental Spill consequence has been conducted for the case of spillway flow during flood events, extreme wet weather or operator error.

The Dam Environmental Spill Consequence Categories are presented in Table 5.4.

Table 5.4: TSF ANCOLD Guideline on Severity Level – Environmental Spill

Damage Type	Dam Failure Severity Level
Infrastructure (dam, houses, commerce, farms, community)	**Minor**
There would be no damage to the TSF or surrounding infrastructure. The spill will report directly downstream via an engineered channel, where some minor treatment may be required to remove hazardous residue. Cost associated would be minor.	
Business Importance	**Minor**
There would likely be some reaction from the community and some loss of business credibility hence “some restrictions” was selected.	
Public Health	**Medium**
Contamination of the water supply and groundwater supply has the potential to impact local settlements (nominally 100 – 1,000 people affected for more than one month).	
Social Dislocation	**Minor**
No dislocation anticipated.	
Impact Area	**Medium**
The discharged water may flow through the natural drainage course to reach Nokpa Pit. The expected impact area may exceed 1 km^2 but be less than 5 km^2 (estimated).	
Impact Duration	**Minor**
Spillway discharge is not expected to occur under normal operation, therefore in the event that discharge was to occur the impact would be minor due to diluted nature of the supernatant water. The impact is not expected to exceed 1 year in duration.	
Impact on Natural Environment	**Medium**
Significant effects to local flora and fauna. No endangered or at-risk local flora and fauna identified within inundation extents. Remediation will be achievable.	

The severity level would be considered ‘Medium’ due to the impacts to public health and the natural environment. Based on this, and the PAR determined in Section 5, the consequence category is provided in Table 5.5.

Table 5.5: ANCOLD Consequence Category – Environmental Spill

Stage	PAR	Severity of Damage or Loss	ANCOLD Consequence Category
Final	<1	Medium	Low

It is noted that an environmental spill is unlikely to occur, if the facility is operated in accordance with the design.

5.3 ANCOLD DESIGN PARAMETERS

Based on the above assessment the design parameters recommended by ANCOLD are summarised in Table 5.6.

Table 5.6: ANCOLD (2019) Design Parameters

Dam Failure Consequence Category	High A
Dam Spill Consequence Category	Low
Design Storage Allowance Parameters	
Design Storage allowance	20% AEP [1] notional wet season runoff [2] (1 in 5)
Extreme Storm Storage	Determine by risk assessment
Contingency Freeboard (Wave Run-up)	Nil
Contingency Freeboard (Additional Freeboard)	Nil
Emergency Spillway Design Parameters	
Design Flood	PMF
Wave Freeboard Allowance	Nil
Design Earthquake Loadings	
Operating Basis Earthquake (OBE) [3]	0.1% AEP (1 in 1,000)
Safety Evaluation Earthquake (SEE) [4]	0.01% AEP (1 in 10,000) [5]
Factors of Safety	
Long-term drained	1.5 (Effective strength)
Short-term undrained (potential loss of containment)	1.5 (Consolidated Undrained Strength)
Short-term undrained (no potential loss of containment)	1.3 (Consolidated Undrained Strength)
Post-seismic	1.0-1.2 (Post seismic Shear Strength)

1. Annual Exceedance Probability (AEP).
2. Assuming no evaporation and 100% runoff coefficient.
3. To be determined by the Owner and other Stakeholders in consultation with the Dam Design Consultant and/or Engineer of Record.
4. The design of the dam should be such that there will be a low likelihood of the dam failing given the SEE.
5. 85th fractile. This is required so that the design is more likely to have a significantly low likelihood of failure given the SEE than if the median loading was used.

The emergency spillway shall be designed in a manner which can accommodate flows generated from the PMF. The TSF shall be designed to attenuate the operational pond plus the 'Design Storm Allowance' plus the 'Extreme Storm Storage' and Contingency Freeboard.

6. GISTM CONSEQUENCE CLASSIFICATION

6.1 GISTM CONSEQUENCE CLASSIFICATION

An assessment was conducted to determine the Dam Failure Consequence Classification based on the Global Industry Standard on Tailings Management (GISTM) (Ref. 3) for the Doropo TSF.

The GISTM Consequence Class assessment considers credible failure modes only. For the purpose of this assessment the inundation extents, all assessed scenarios are considered credible failures. The Consequence Classification for each category is presented in Table 6.1. The dam failure consequence category would be considered 'Very High' due to the potential loss of life as outlined in Section 4.3.

Table 6.1: GISTM consequence classification matrix

Dam Failure Consequence Classification	Incremental Losses				
	Potential Population at Risk	Potential Loss of Life	Environment	Health, Social and Cultural	Infrastructure and Economics
Low	None	None expected	Minimal short-term loss or deterioration of habitat or rare and endangered species.	Minimal effects and disruption of business and livelihoods. No measurable effect on human health. No disruption of heritage, recreation, community or cultural assets.	Low economic losses: area contains limited infrastructure or services. <US$1M.
Significant	1 – 10	Unspecified	No significant loss or deterioration of habitat. Potential contamination of livestock/fauna water supply with no health effects. Process water low potential toxicity. Tailings not potentially acid generating and have low neutral leaching potential. Restoration possible within 1 to 5 years.	Significant disruption of business, service or social dislocation. Low likelihood of loss of regional heritage, recreation, community, or cultural assets. Low likelihood of health effects.	Losses to recreational facilities, seasonal workplaces and infrequently used transportation routes. <US$10M.
High	10 – 100	Possible (1 – 10)	Significant loss or deterioration of critical habitat or rare and endangered species. Potential contamination of livestock/ fauna water supply with no health effects. Process water moderately toxic. Low potential for acid rock drainage or metal leaching effects of released tailings. Potential area of impact 10 km^2 - 20 km^2. Restoration possible but difficult and could take> 5 years.	500-1,000 people affected by disruption of business, services or social dislocation. Disruption of regional heritage, recreation, community or cultural assets. Potential for short term human health effects.	High economic losses affecting infrastructure, public transportation, and commercial facilities, or employment. Moderate relocation/ compensation to communities. <US$100M.
Very High	100 – 1,000	Likely (10 – 100)	Major loss or deterioration of critical habitat or rare and endangered species. Process water highly toxic. High potential for acid rock drainage or metal leaching effects from released tailings. Potential area of impact> 20 km^2. Restoration or compensation possible but very difficult and requires a long time (5 years to 20 years).	1,000 people affected by disruption of business, services or social dislocation for more than one year. Significant loss of national heritage, community or cultural assets. Potential for significant long-term human health effects.	Very high economic losses affecting important infrastructure or services (e.g., highway, industrial facility, storage facilities, for dangerous substances), or employment. High relocation/ compensation to communities. <US$1B.
Extreme	>1,000	Many (>100)	Catastrophic loss of critical habitat or rare and endangered species. Process water highly toxic. Very high potential for acid rock drainage or metal leaching effects from released tailings. Potential area of impact> 20 km^2. Restoration or compensation in kind impossible or requires a very long time (> 20 years).	5,000 people affected by disruption of business, services or social dislocation for years. Significant National heritage or community facilities or cultural assets destroyed. Potential for severe and/or long- term human health effects.	Extreme economic losses affecting critical infrastructure or services, (e.g., hospital, major industrial complex, major storage facilities for dangerous substances) or employment. Very high relocation/compensation to communities and very high social readjustment costs. >US$1B.

6.2 GISTM DESIGN PARAMETERS

Based on the above assessment the design parameters recommended by the GISTM (Ref. 3) are summarised in Table 6.2.

Table 6.2: GISTM design parameters

Consequence Classification	Very High
Flood Design Criteria	
Operations and closure (active care) Passive-closure (passive care)	1/ 5,000 (0.02% AEP [1]) 1/10,000 (0.01% AEP [1])
Design Earthquake Loadings	
Operations and closure (active care) Passive-closure (passive care)	1/ 5,000 (0.02% AEP [1]) 1/10,000 (0.01% AEP [1])

[1] Annual Exceedance Probability (AEP).

The emergency spillway is designed to accommodate flows generated from the Probable Maximum Flood (PMF) at all times (including closure) as required by ANCOLD (2019). Consequently, the TSF will also comply with the GISTM requirements.

ANCOLD (2019) stipulates that the TSF is designed for a Safety Evaluation Earthquake (SEE) of 0.01% Annual Exceedance Probability (AEP). Consequently, any resulting damage can be remediated and will not cause an uncontrolled release of water or tailings from the dams when exposed to the GISTM stipulated design earthquake loadings.

ANCOLD (2019) stipulates that the TSF is designed for a Safety Evaluation Earthquake (SEE) of 0.01% AEP and an Operating Basis Earthquake (OBE) of 0.1% AEP. GISTM prescribes that the design earthquake loadings for the Doropo TSF are 0.01% AEP for operations and short-term closure and 0.01% AEP for the long-term closure scenario. As such, it is recommended that the GISTM stipulated design earthquake loadings for the TSF operating period be incorporated into the stability analyses for the TSF (to be completed as part of the Definitive Feasibility Study (DFS)).

7. CONCLUSIONS

The key conclusions from the Dam Breach Assessment for the Doropo TSF are summarised as follows:

In the unlikely event of a catastrophic embankment failure:

- Nokpa and Chegue South Pits are at risk of inundation.
- Parts of the public causeway and footpath as well as site access roads are at risk of being cut off in the event of failure.
- A Southern Newtonian breach could trigger a secondary failure along the East embankment due to erosion of the embankment toe.

- PAR of '≥10 to <100', and PLL of '≥5 to <50' is expected for the assessed failure cases.
- The ANCOLD Dam Failure Severity Level is 'Major'.
- The ANCOLD Dam Failure Consequence Category is 'High A'.
- The ANCOLD Environmental Spill Severity Level is 'Medium'.
- The ANCOLD Environmental Spill Consequence Category is 'Low'.
- The GISTM Consequence Classification is 'Very High'.

Following the assessment, it is noted that uncertainty remains regarding the downstream population and the resulting inundation extents. A more detailed understanding of the number of people living and working in the area, as well as their behaviour, would allow for further refinement. It is recommended that Resolute:

- Undertake detailed population surveys of the possible impact zone so that estimates of PAR and PLL can be refined.
- Undertake additional tailings testing to provide guidance for the adoption of non-Newtonian fluid parameters for future dam breach modelling.
- Consider mitigation methods such as buttressing the East embankment.
- Undertake a PFMA to rule out or lessen the impact of a failure.

We trust that this is sufficient for your current requirements. If you require any further information or have any queries, please contact us.

Yours faithfully
KNIGHT PIÉSOLD PTY LTD

ANDREW BROWN
Senior Project Engineer

DAVID MORGAN
Managing Director

8. REFERENCES

1. ANCOLD, "*Guidelines on Tailings Dams, Planning, Design, Construction, Operation and Closure*", July 2019.

2. ANCOLD, "*Guidelines on the Consequence Categories for Dams*", October 2012.

3. Global Tailings Review, "*Global Industry Standard on Tailings Management*", August 2020.

4. Australian Institute for Disaster Resilience, "*Australian Disaster Resilience Handbook Collection: Flood Hazard (Guideline 7-3)*", 2017.

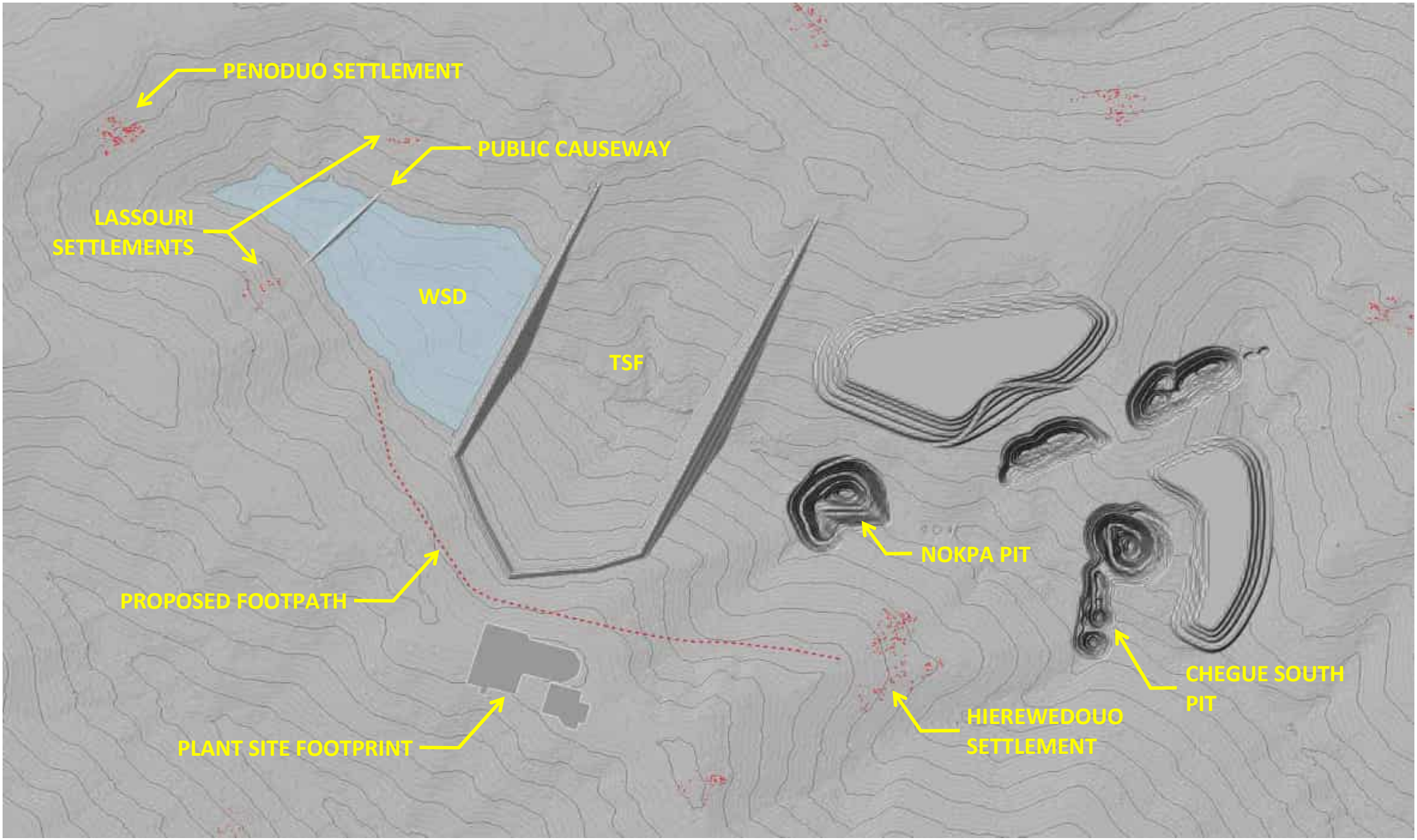
5. United States Bureau of Reclamation, "*RCEM - Reclamation Consequence Estimating Methodology*", July 2015.

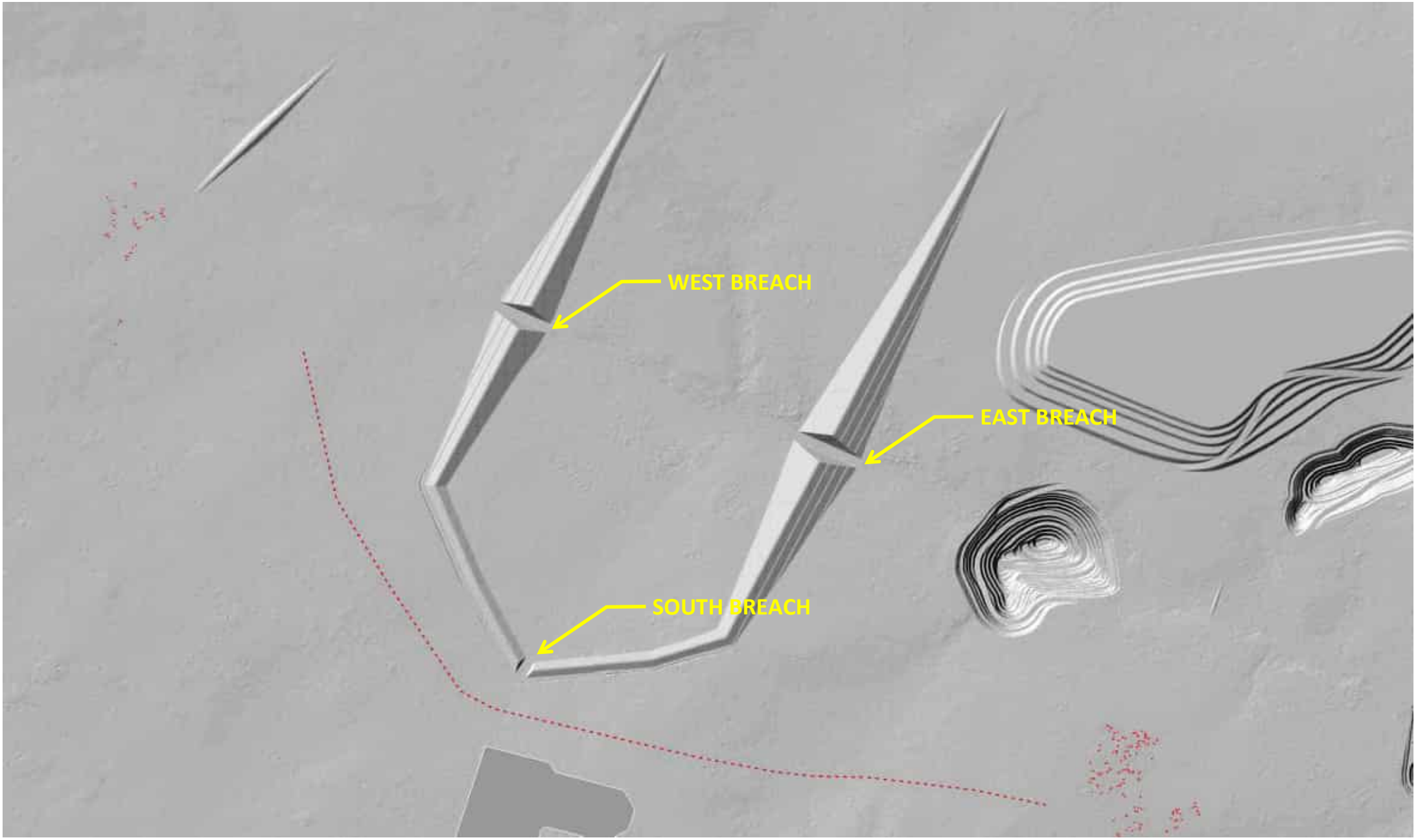
6. Fontaine, D., and Martin, V., "*Tailings mobilization estimates for dam breach studies*", 2015

7. Rico M., Benito G., and Díez-Herrero A., "*Floods from tailings dam failures (Science Direct: Journal of Hazardous Materials)*", 2007.

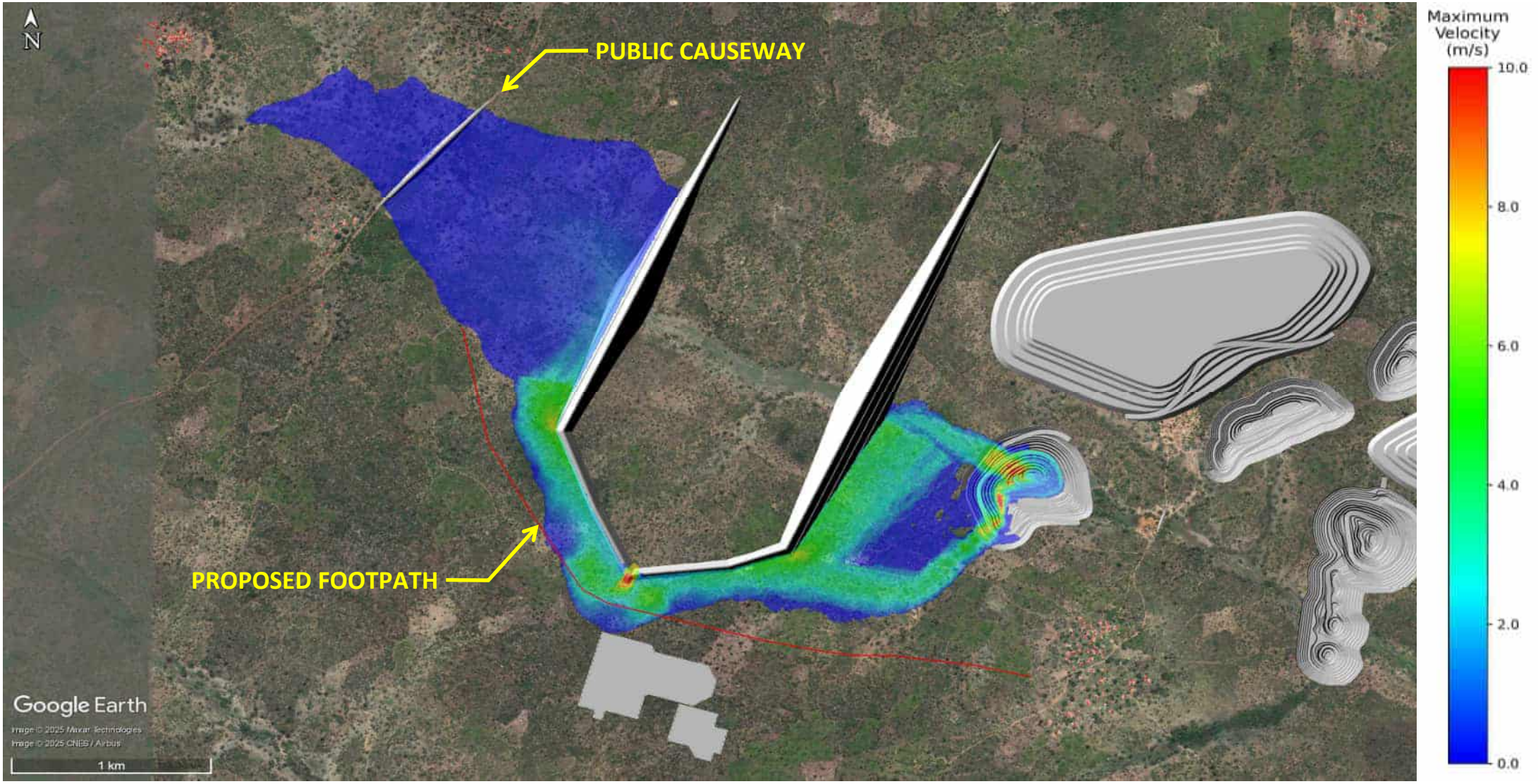
8. Larrauri. P. and Lall. U., "*Tailings Dams Failures: Updated Statistical Model for Discharge Volume and Runout*", February 2018.

FIGURES


PENODUO SETTLEMENT
PUBLIC CAUSEWAY
LASSOURI SETTLEMENTS
WSD
TSF
NOKPA PIT
PROPOSED FOOTPATH
CHEGUE SOUTH PIT
HIEREWEDOUO SETTLEMENT
PLANT SITE FOOTPRINT


WEST BREACH
EAST BREACH
SOUTH BREACH

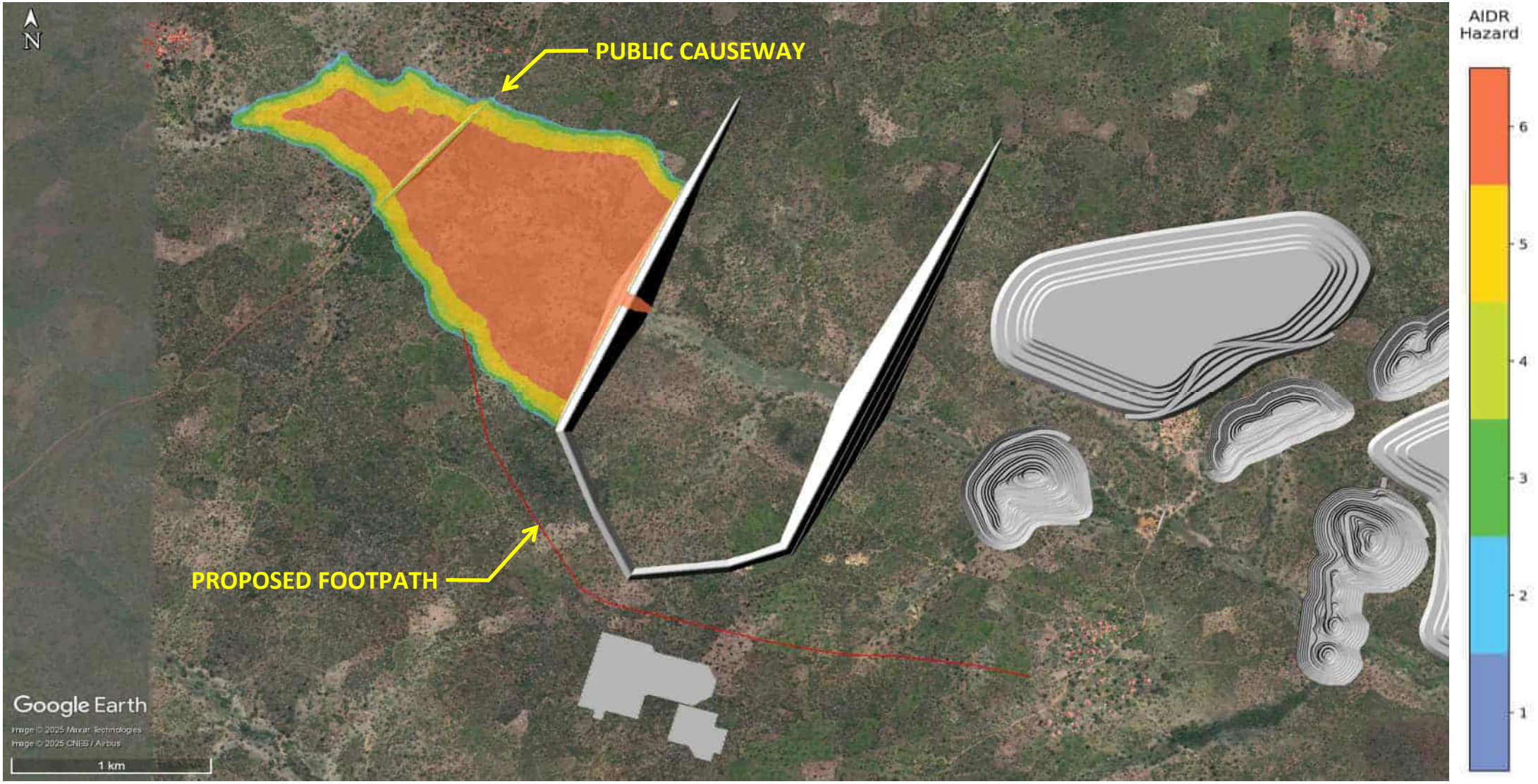

WATER STORAGE DAM RL
332.8 M



Knight Piésold CONSULTING

DOROPO GOLD PROJECT
TSF DAM BREACH ASSESSMENT
NEWTONIAN BREACH - SOUTH - MAXIMUM VELOCITY

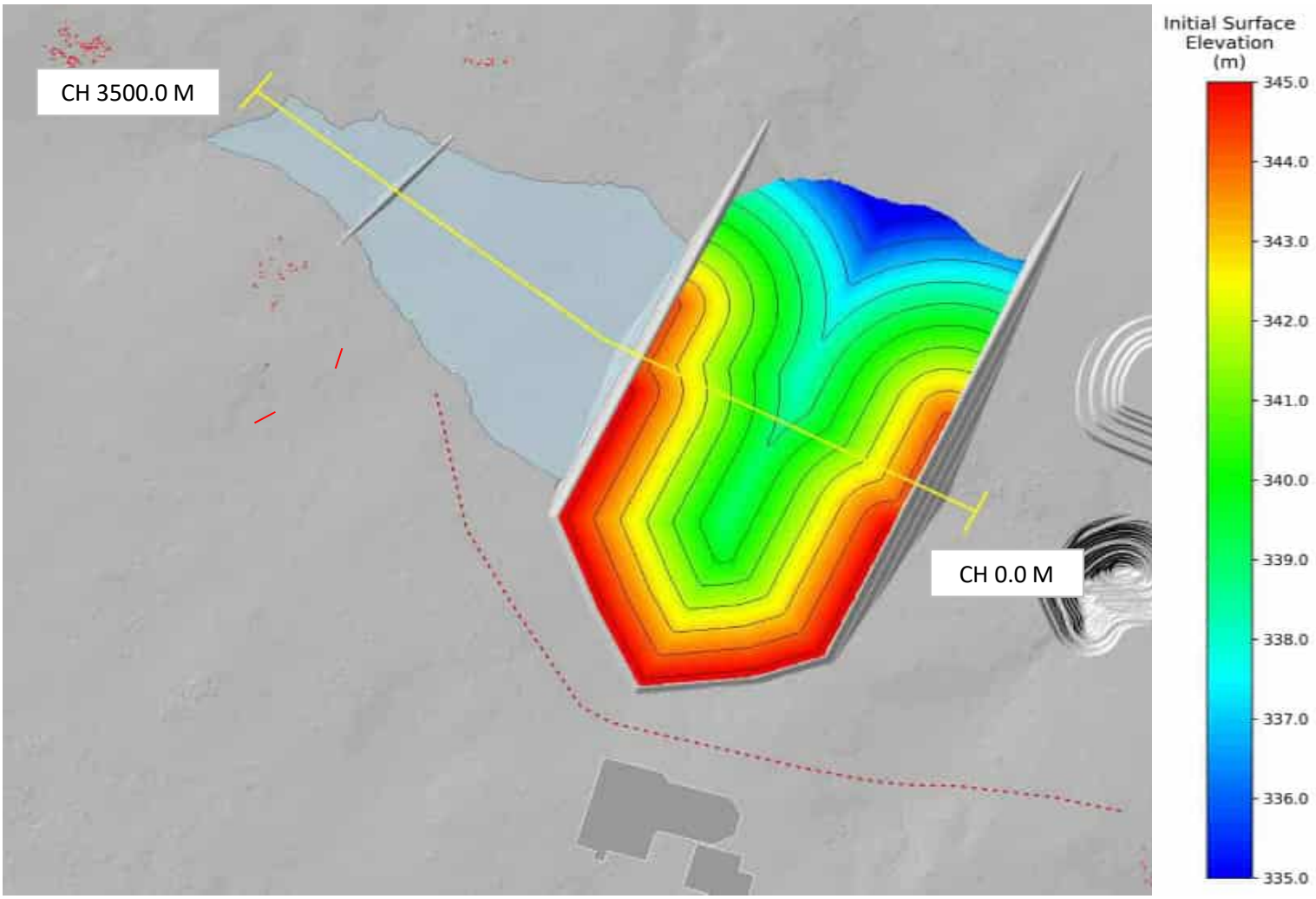
PE301-00821 M25003
Figure 2.7

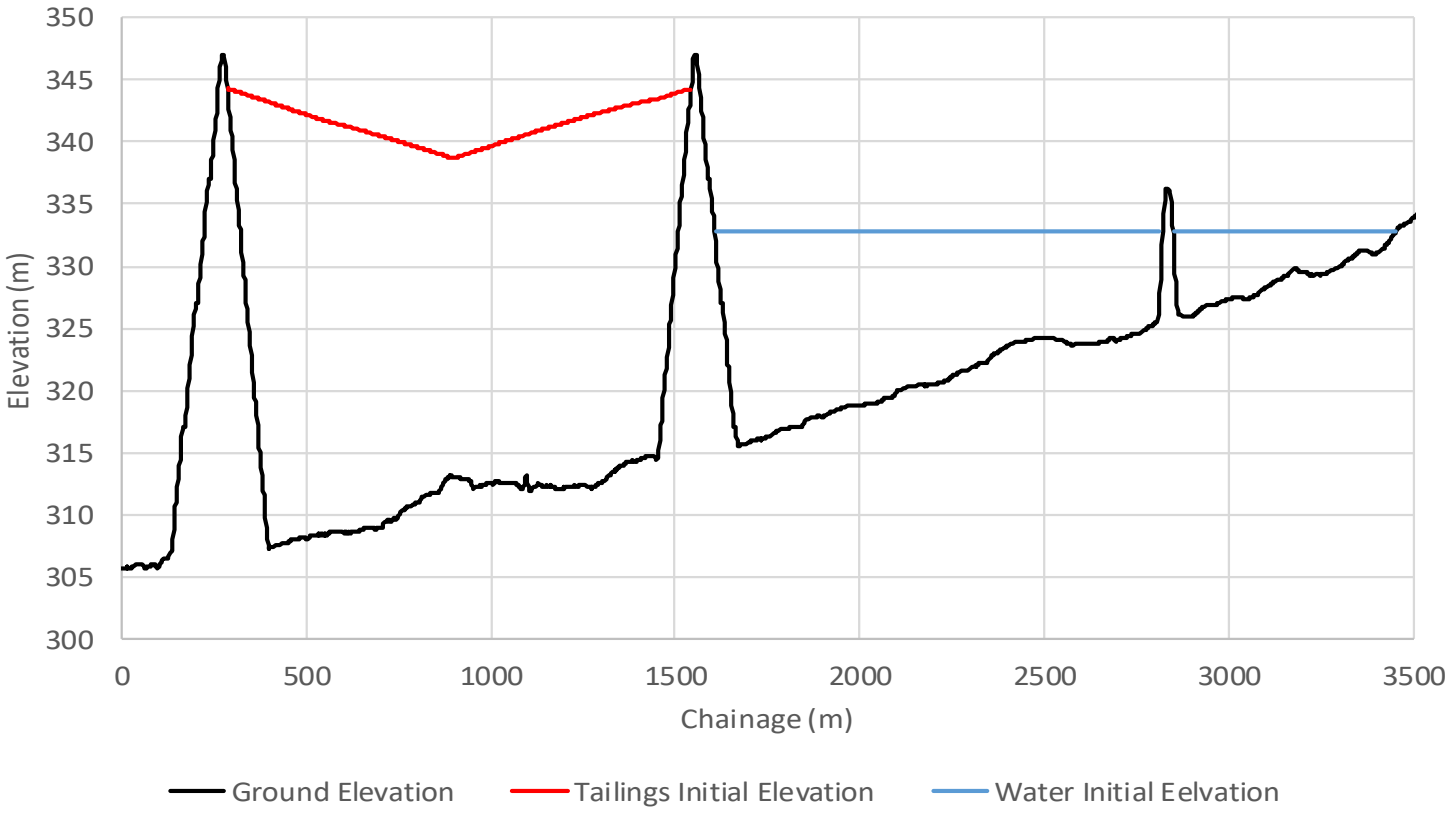


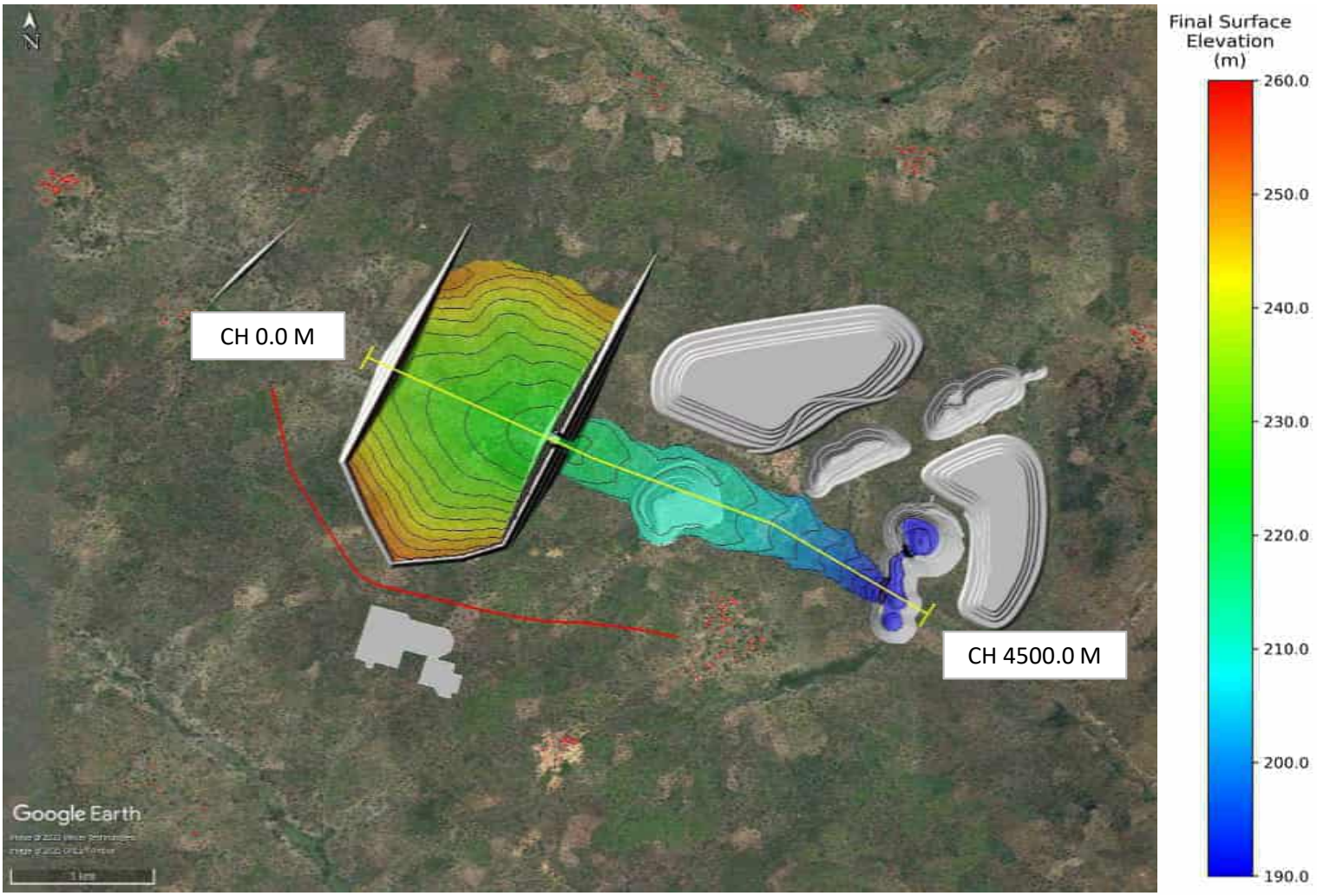
Knight Piésold CONSULTING

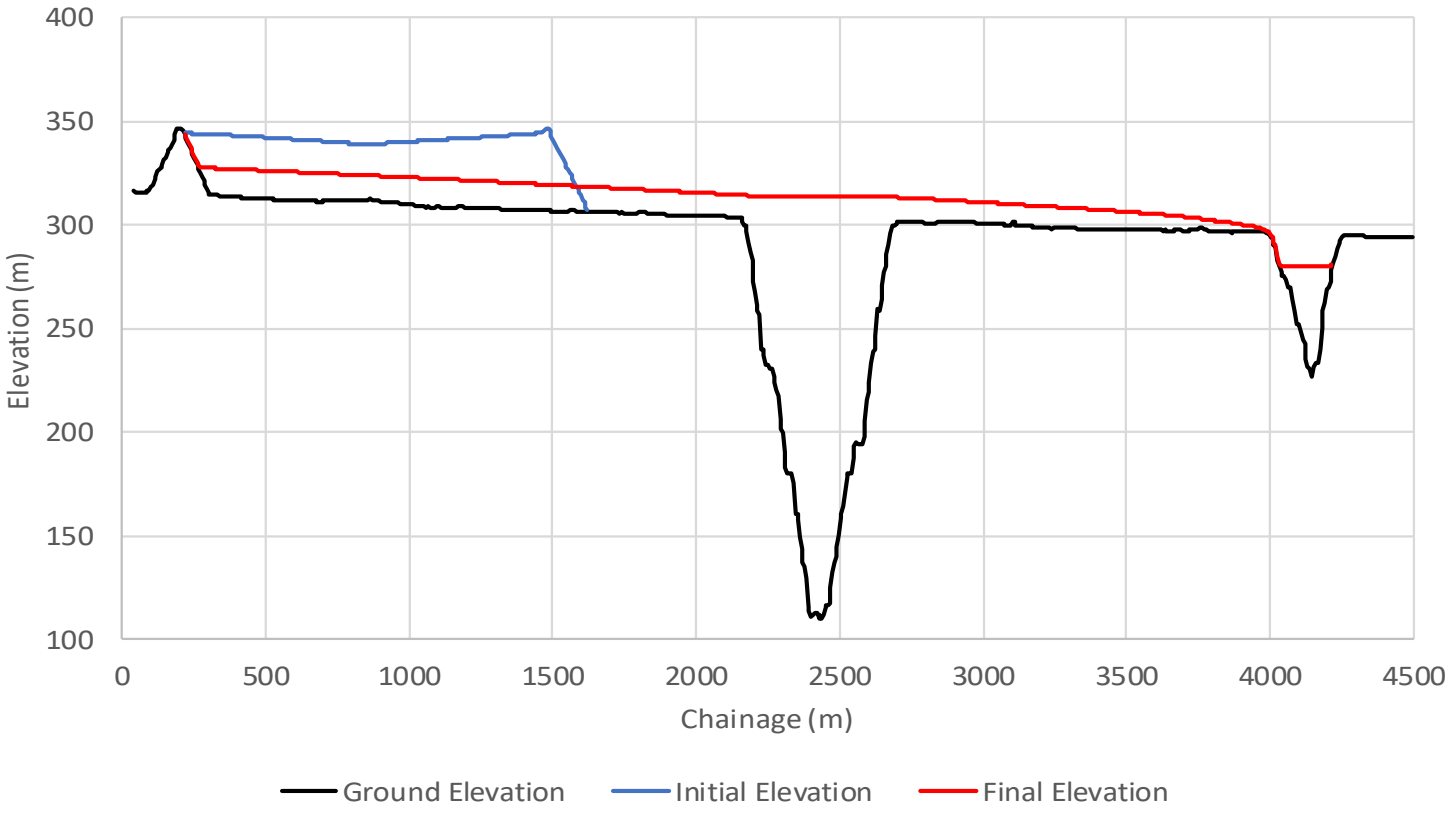
DOROPO GOLD PROJECT
TSF DAM BREACH ASSESSMENT
NEWTONIAN BREACH - WEST- AIDR HAZARD

PE301-00821 M25003
Figure 2.8


CH 3500.0 M
CH 0.0 M
Initial Surface Elevation (m)
345.0
344.0
343.0
342.0
341.0
340.0
339.0
338.0
337.0
336.0
335.0

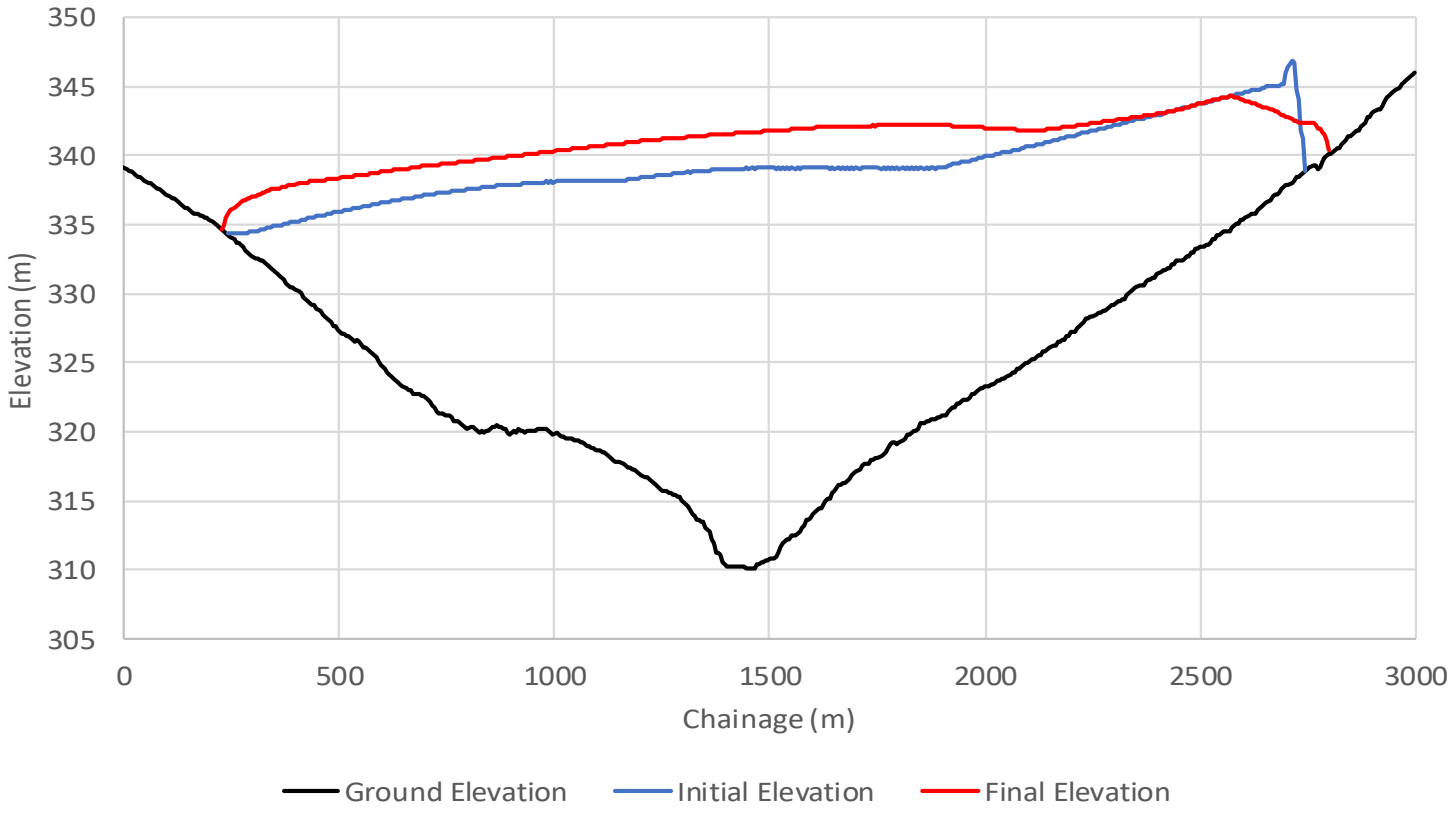

Elevation (m)
350
345
340
335
330
325
320
315
310
305
300
0
500
1000
1500
2000
2500
3000
3500
Chainage (m)
Ground Elevation
Tailings Initial Elevation
Water Initial Eelvation



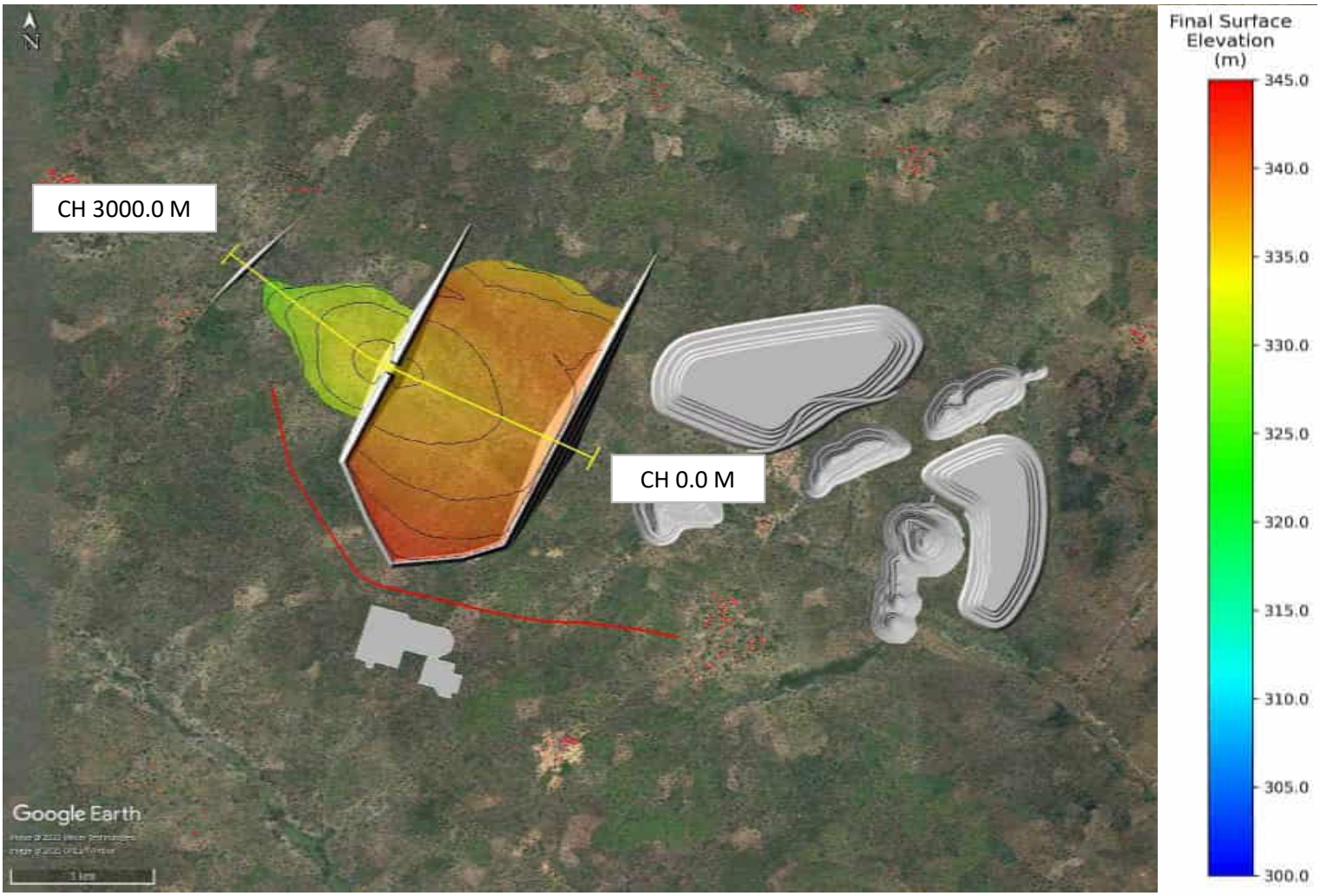


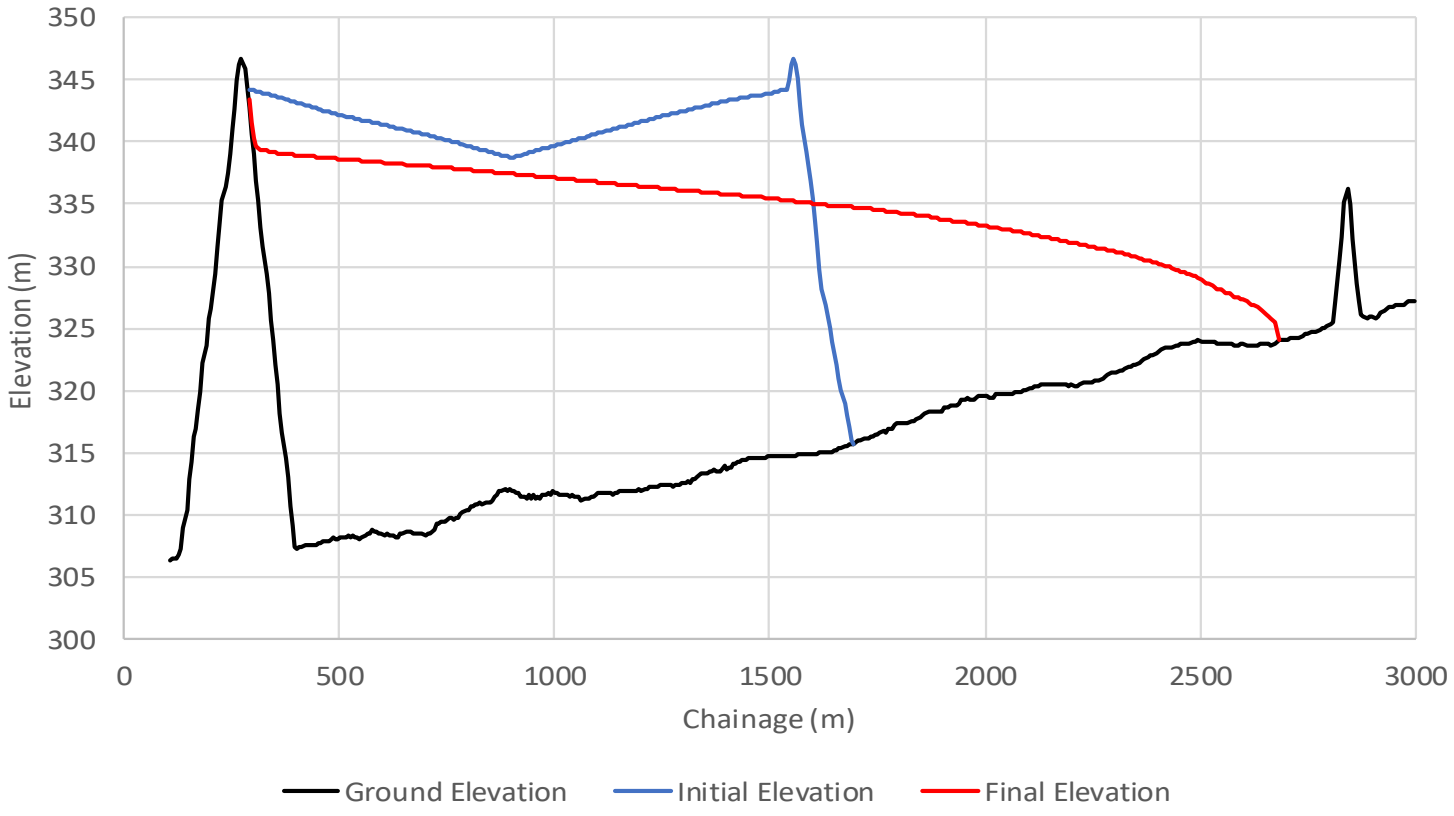
NON-NEWTONIAN - EAST - FINAL SURFACE ELEVATION (1 M CONTOURS)



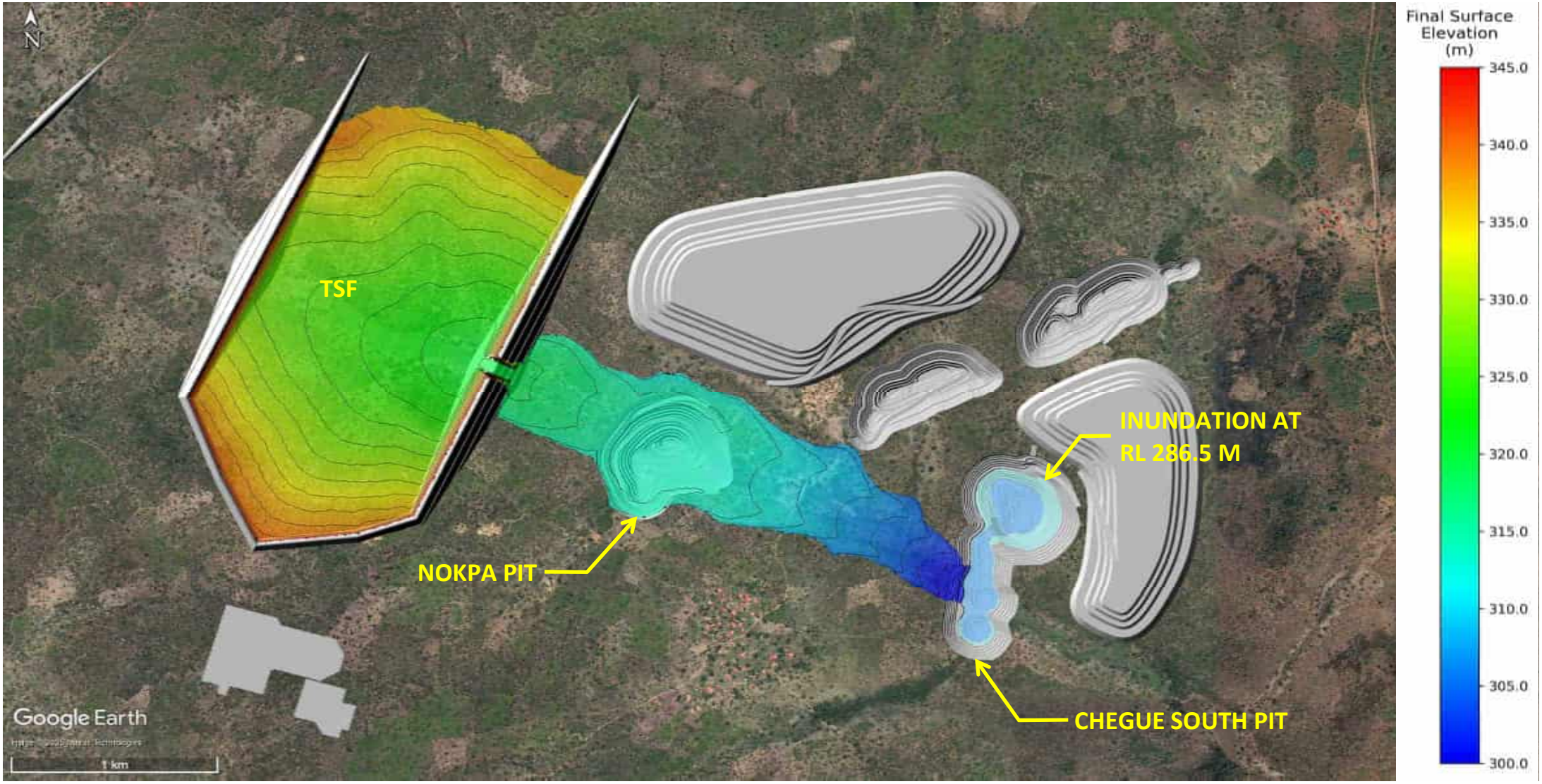


NON-NEWTONIAN - SOUTH - FINAL SURFACE ELEVATION (1 M CONTOURS)

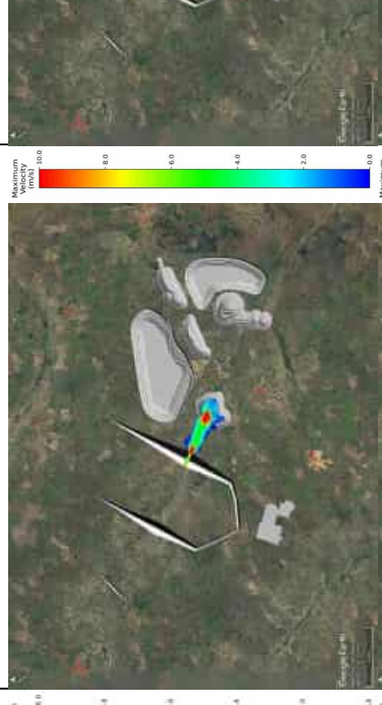
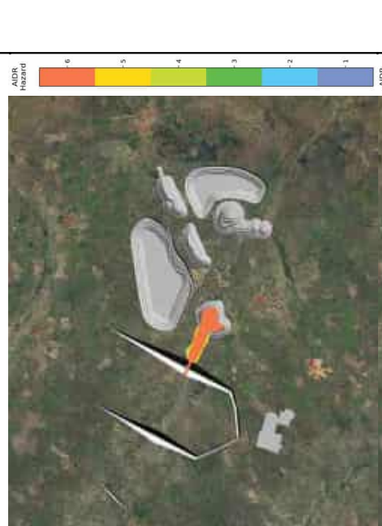
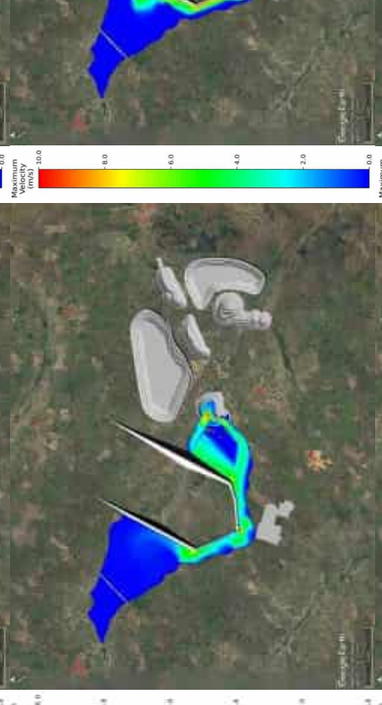
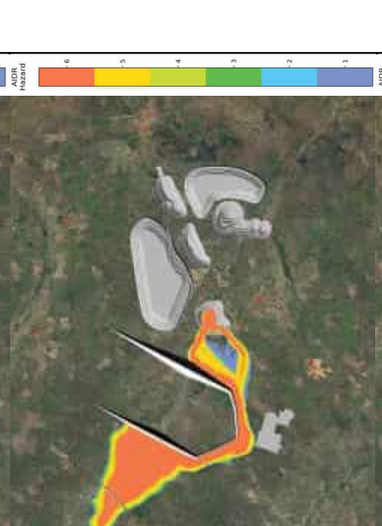




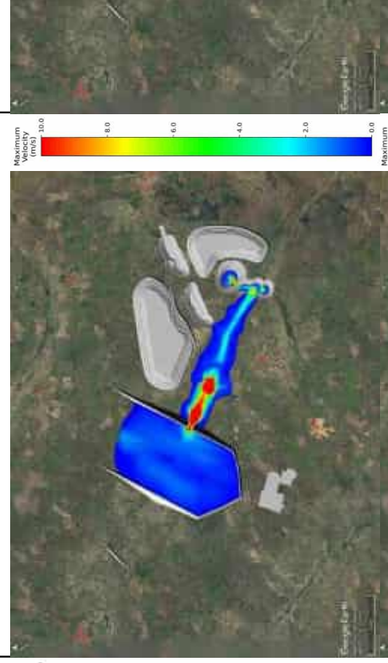
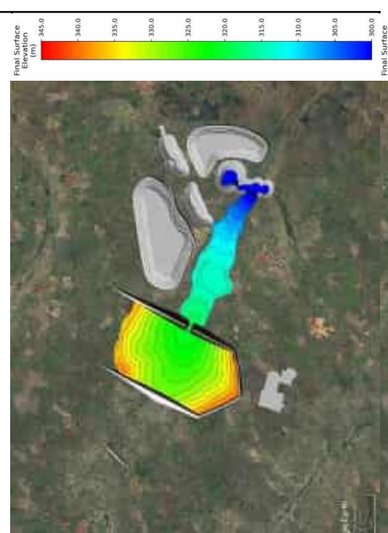
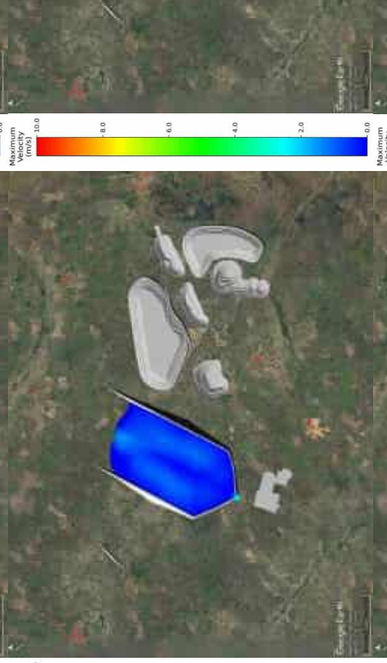
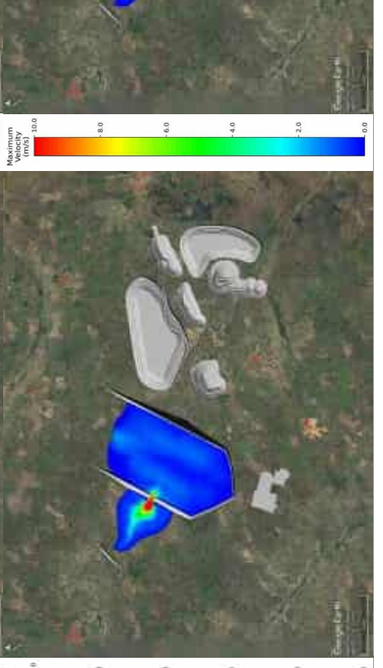
NON-NEWTONIAN - WEST - FINAL SURFACE ELEVATION (1 M CONTOURS)


N
TSF
NOKPA PIT
INUNDATION AT
RL 286.5 M
CHEGUE SOUTH PIT
Google Earth
1 km
Final Surface
Elevation
(m)
345.0
340.0
335.0
330.0
325.0
320.0
315.0
310.0
305.0
300.0

APPENDIX A
Newtonian Breach Results

SCENARIO	EMBANKMENT	DEPTH	VELOCITY	FATALITY RATE	AIDR HAZARD
DOROPO TSF NEWTONIAN BREACH	WEST				
	SOUTH				
	EAST				

APPENDIX B
Non-Newtonian Breach Results

SCENARIO	EMBANKMENT	DEPTH	VELOCITY	FATALITY RATE	FINAL SURFACE ELEVATION
DOROPO TSF NON-NEWTONIAN BREACH	EAST				
	SOUTH				
	WEST				

APPENDIX K

Memorandum Ref. PE25-01638

Doropo Gold Project – Sediment Control and

Surface Water Management Rev 1

Knight Piésold CONSULTING

zi

MEMORANDUM

To:	Resolute Mining	**Date:**	19 December 2025
Attn:	Rob Cicchini	**Our Ref:**	PE25-01638
		KP File Ref.:	PE301-00821/07-A djtm M25014
cc:	Luciano Giancristofaro	**From:**	Dave Morgan

RE: DOROPO GOLD PROJECT – SEDIMENT CONTROL AND SURFACE WATER MANAGEMENT REV 1

Please find herein the sediment control and surface water management plan developed for the Doropo Gold Project (Doropo) as part of the Definitive Feasibility Study (DFS). The basis of design, resulting performance estimates and the associated earthworks Bill of Quantities are summarised within this memorandum.

It is noted this memorandum supersedes PE24-00581.

1. BASIS OF DESIGN

1.1 SEDIMENT MANAGEMENT

The Doropo Gold Project sediment management plan presented herein is based on concepts and designs that are currently implemented at similar mining projects in West Africa, with the systems reportedly performing to a satisfactory standard to date.

It is noted that:

- For the sizing of the sediment control structures, it was assumed that the diversion channels have not been constructed, and the total catchments will report to the sediment ponds. As such, the sediment pond performance will improve once the diversion channels are fully constructed; and
- To effectively manage sediment at the Doropo Gold Project, implementing source control measures and utilising best management practices (BMPs) will be important for optimising system performance.

The key design parameters adopted for this study are summarised as follows:

- Design discharge for sediment control structures – 2-year Annual Recurrence Interval (ARI);
- Design discharge for pit diversions – 2-year ARI;
- Design discharge for culvert crossings – 10-year ARI; and
- Design discharge for spillway structures – 100-year ARI.

Critical duration analyses were conducted for all design discharges, and the storm duration that resulted in the highest peak flow was selected. It is noted that the design event for the pit diversions is quite low. The reasoning for this is discussed in further detail in Section 1.2.2.

1.2 SURFACE WATER MANAGEMENT

1.2.1 Delineated Catchments

The catchment delineation for the site is shown on Figure 1.1. It is noted that the catchments assume the plant site, pits and waste dumps have not been developed while the WSD and TSF has been constructed to the Stage 1 levels.

1.2.2 Major Surface Water Management Systems

Surface water management (SWM) for the project will require seven significant pieces of infrastructure:

- The TSF diversion/WSD spillway;
- The Han pit diversion;
- The Kilosegui pit diversion;
- Four (4 No.) major haul roads and site access road crossings.

All diversion channels have been designed to convey the critical duration of 2-year ARI storm event off the mine site area into the natural drainage. It is noted that the operational lifespan of the majority of the pits is relatively short, typically less than 5 years, with the exception of Souwa and Kilosegui pits. During previous DFS Design, due to the short lifespans of the pits, the diversion channels were designed for a 2-year ARI, accepting that events greater than this will result in surface water flowing into the pits. This concept was adopted for the current DFS update. This approach was deemed acceptable as long as management plans are in place to ensure that personnel are evacuated from the pits during or ideally prior to significant storms. This will require continuous monitoring of the forecasted rainfall in order to reduce the risk of flooding to personnel working in the open pits. It may also be necessary to install water level monitoring systems linked to evacuation alarms in certain locations.

KP notes that the adoption of a larger design event would reduce the risk to personnel as well as reduce the risk of mining being interrupted due to the pits needing to be dewatered and diversions needing to be repaired after events exceeding the design flow. This would particularly be the case for Han Pit, which would have a significant volume of inflow into it if the diversion is overtopped.

For the current surface water management strategy, the culvert crossing is designed to convey the 10-year ARI flow, without the inclusion of floodways. In the event of a flood exceeding the 10-year ARI, the culverts would be unable to convey the flows, leading to overtopping which could potentially cause significant damage to the roads. Damage to the roads could result in access to certain areas of the project being lost until repairs can be undertaken.

1.2.3 Minor Surface Water Management Systems

The design of the drains within the Plant Site Area and Waste Rock Dumps (WRD) is not included in this document. It is assumed that suitable drainage will be designed to direct sediment laden water to the proposed sediment ponds. It is also assumed that any chemically contaminated water will be contained in designated ponds within the plant site area. It is expected that smaller-scale diversions and bunds will be beneficial and would be undertaken as part of ongoing source control/BMPs prior to areas being disturbed.

1.3 ADOPTED DESIGN STORMS

For storm event calculations daily rainfall data were analysed and storm intensity data generated based on techniques outlined in the Design Climatology (Ref. 1). The design storm depths adopted for the modelling of the sediment dams and associated infrastructure are presented in Table 1.1.

Table 1.1: Design storm depths

Storm Duration (hours)	Storm Depth (mm) for a given ARI (years)		
	2-year ARI	10-year ARI	100-year ARI
0.083	9	13	20
0.167	17	24	35
0.25	23	33	48
0.5	35	52	76
1	50	73	107
2	64	93	136
3	71	103	151
6	80	117	172
9	85	124	182
12	88	129	189
18	92	134	197
24	95	138	202

2. HYDROLOGIC MODELLING

Hydrologic models of the proposed sediment control structures and the significant SWM infrastructure were developed utilising the hydrologic modelling software “HydroCAD”. The catchments and flow paths were delineated using the topographic survey as provided.

All of the hydrologic modelling utilised the Soil Conservation Service TR-20 methodology, the Soil Conservation Service Curve Number method to estimate infiltration losses, the Lag Method to estimate time of concentration and assumed a triangular hyetograph distribution for the storms.

For reach and pond routing the Dyn-Stor-Ind (Dynamic Storage Indication) methodology was utilised.

The hydrologic model layouts are shown on Figures 2.1 to 2.9.

2.1 SEDIMENT CONTROL STRUCTURE MODELS

Preliminary design for sediment control structures required for the initial 0 – 2 years of the project was completed along with the development of a conceptual design that outlines the framework for sediment control throughout the entirety of the project's duration.

For all of the sediment dams, excluding SCS05 and SCS06, simplified models were generated consisting of three elements: the external catchment, the catchment of the ponded area to the spillway invert RL and the ponded volumes. For SCS04, SCS05 and SCS06, as the catchments were larger, more detailed models were developed.

The current design does not include any SCSs for the northern sections of the Souwa pit and all Chegue pits. It is recommended to undertake the clearing and removal of topsoil for these areas during the dry season. As an interim measure, silt fences have been proposed to manage sediment runoff until the pits are fully developed. These will be constructed on the downstream edges of the cleared extents. Once developed, the pits themselves will serve as sediment control structures, with sediment laden runoff reporting to the base of the pit. This water can then be pumped to a nearby SCS or to a structure specifically for managing the sediment from pit dewatering water.

The hydrologic model layouts are shown on Figure 2.9. A curve number of 70 was adopted for the external catchments and a curve number of 98 was adopted for the pond area catchment.

The crest elevation and spillway widths of the sediment control structures have been designed to accommodate a 100-year ARI event, accounting for runoff considerations. Additionally, a 300 mm freeboard has been incorporated into the design to provide an extra margin of safety.

It is expected that SCS02, SCS04, SCS04a, SCS05, SCS06, SCS07 and SCS10 will provide adequate sediment management and will function well given the catchment area reporting to it (which will be reduced significantly from what it currently manages with the development of pits and proposed diversion channels).

2.2 CULVERT CROSSING DESIGN

A separate hydrologic model was developed for the mine site incorporating all of the catchments impacted by the major haul road crossings (from the process plant to the Kilosegui pit), the site access road crossings, the existing highway crossings, and the pit diversions. The developed hydrologic model is shown on figures 2.5 to 2.8.

It is noted that there may be an issue with having the haul road and site access road crossings overtopped during storm events in excess of the 10-year ARI. However, for more robust flood mitigation, designing for a 100-year ARI, inclusive of a designated floodway, is advisable which would ensure erosion is reduced. This consideration will be addressed in detail during the detailed design phase, wherein KP will engage with the client to understand their preferences regarding access preservation during flood events.

Based on the results of the hydrologic model, 19 culvert crossings were designed. Corrugated Metal Pipe (CMP) culverts and 1,200 mm x 1,200 mm concrete box culverts were proposed for road crossings.

A few alternative design options were considered with 2,000 mm x 2,000 mm concrete box culverts and 3,000 mm x 3,000 mm concrete box culverts for major crossings.

Square edge headwalls have been considered for corrugated metal pipe (CMP) culverts, along with 30 – 75° wingwalls and a square crown for concrete box culverts for the design. This design choice reduces entrance loss, effectively reducing energy loss at culvert inlets.

Proposed culverts along the haul roads and site access roads are summarised in Table 2.1. Culverts C-011 to C-019 are for haul access road connecting A1 highway to Kilosegui and are expected to be constructed during year 2 – 3.

Table 2.1: Proposed culvert crossings

Culvert ID	Catchment Area (m^2)	Number of Barrels	Type of Culvert	Box Culvert Dimensions (mm)		CMP Culvert Diameter (mm)
				H	W	
Year 0 – 1						
C-001	1,582,484	4	CMP			900
C-002 Option 1	18,438,241	12	BOX	1,200	1,200	
C-002 Option 2	18,438,241	4	BOX	2,000	2,000	
C-003 Option 1	28,082,174	12	BOX	1,200	1,200	
C-003 Option 2	28,082,174	4	BOX	2,000	2,000	
C-004	276,597	1	CMP			600
C-005	179,894	1	CMP			600
C-006 Option 1	86,982,860	5	BOX	3,000	3,000	
C-006 Option 2	86,982,860	11	BOX	2,000	2,000	
C-006 Option 3	86,982,860	35	BOX	1,200	1,200	
C-007	407,931	2	CMP			600
C-008	365,857	3	CMP			600
C-009	1,699,885	2	CMP			1,200
C-010	178,165	2	CMP			600
Year 2 – 3						
C-011	640,180	4	CMP			900
C-012 Option 1	27,185,461	15	BOX	1,200		
C-012 Option 2	27,185,461	4	BOX	2,000		
C-013	132,506	1	CMP			600
C-014	919,365	3	CMP			900
C-015 Option 1	2,341,089	2	BOX	1,200		
C-015 Option 2	2,341,089	1	BOX	2,000		
C-016 Option 1	22,793,243	15	BOX	1,200		
C-016 Option 2	22,793,243	5	BOX	2,000		
C-017 Option 1	7,190,814	5	BOX	1,200		
C-017 Option 2	7,190,814	2	BOX	2,000		
C-018	1,014,433	2	CMP			1,200
C-019	1,631,975	2	CMP			900

As they are located upstream of the proposed structures, the existing highway culverts and Han Bridge were included in the model using available information. Detailed survey of the culverts and highway were not provided to KP. As such, the inlet levels, outlet levels and road crest levels had to be estimated by KP from the provided information. KP was provided with images of the culverts and Han Bridge which included measurements of their dimensions.

Table 2.2 provides a summary of the existing culvert crossings and the results pertaining to the Han bridge from the Hydro CAD model.

Table 2.2: Existing culvert crossings

Existing Structure ID	Catchment Area (m^2)	Number of Barrels	Type of Culvert	Box Culvert Dimensions (mm)		10-Year ARI Peak Flow (m^3/s)
				H	W	
EXC-001[1]	37,102,901	1	BOX	1,000	1,000	89.6
EXC-002[1]		3	BOX	2,800	4,000	
EXC-003	9,531,340	2	BOX	2,000	4,000	24.8
EXC-004	30,862,583	3	BOX	4,000	4,000	58.1
EXC-005	546,539	1	BOX	1,500	1,500	2.6
EXC-006	67,169,157	4	BOX	4,100	5,000	131.1
EXC-007	3,382,987	2	BOX	2,000	3,000	12.4
Han Bridge	491,817,547	3	BOX	2,500	3,000	732.1

1 EXC-001 and EXC-002 are located adjacent to one another and drain the same area. As such they were modelled as a single structure.

The Highway Culverts were able to convey the 100-year ARI event whilst maintaining a minimum of 300 mm of freeboard to the estimated road crest level.

Based on the available data, the model indicates that the Han bridge is prone to overtopping during events exceeding an Annual Recurrence Interval (ARI) of 2 years. It is recommended that discussions be initiated with the local community to corroborate this finding. Gathering anecdotal evidence through interviews or discussions with nearby residents can provide valuable insights into instances of overtopping that may have occurred in the past, helping to validate and refine the modelling predictions. This collaborative approach will ensure that our Hydro CAD model is validated.

2.3 DIVERSION CHANNELS

All Diversion channels were modelled using HydroCAD and designed to convey the 2-year ARI critical duration event. The diversion channels are all shown on Figure 1.2.

2.3.1 Clean Water Diversion Nokpa pit (DC02)

DC02 will divert clean water around the south of the Nokpa pit, reducing runoff into the Nokpa pit and proposed sediment control structure SCS 04.

2.3.2 Clean Water Diversion Kilosegui Pits (DC03, DC04, DC05 and DC06)

DC03-DC06 will capture the clean water runoff from north and south of the Kilosegui pits reducing runoff into Kilosegui pits and Proposed SCS 05 and SCS 06.

2.3.3 Clean Water Diversion Enioda pit (DC07)

DC02 will divert clean water around the east of the Enioda pit, reducing runoff into the Enioda pit and proposed sediment control structure SCS 10.

2.3.4 Clean Water Diversion Kekeda pit (DC08 and DC08a)

DC08 and DC08a will divert clean water around the southeast of the Kekeda pit, reducing runoff into the Kekeda pit and proposed sediment control structures SCS 07 and 08.

2.3.5 Clean Water Diversion Chegue pits (DC09 and DC09a)

DC02 will divert clean water around the south of the Chegue pits, reducing runoff into the Chegue pits.

2.3.6 Clean Water Diversion Han pits (DC10 and DC11)

DC10 and DC11 will divert clean water runoff from the southwest and southeast portions of the effective catchment area. Due to the large catchment area and the proposed pit along the existing channel, the design of DC10 is challenging. It is envisaged that DC10 will be integrated into the pit excavation surface, necessitating close collaboration with pit designers during the detailed design phase. Moreover, the presence of the existing Han Bridge crossing and the nearby community impose significant constraints on the development of the diversion channel. The close proximity of the village presents particular challenges, as the settlement boundary adopted for the design is based on the 2023 update. Therefore, a thorough and detailed approach to the design of the diversion channel during the detailed design stage will be required.

3. SEDIMENT DAM DESIGN

Based on the results of the hydrologic modelling of the sediment dams, the minimum particle size that would be contained within the SCS structure during a 2-year ARI storm event was estimated as per “Urban Erosion and Sediment Control” (Ref. 2) for SCS required up to 2 years.

The required dam height and the smallest particle size expected to be contained during the design storm event are summarised in Table 3.1.

Table 3.1: Sediment Dams – Expected performance

Sediment Dam	Dam Height (m)	Smallest particles dropped out
SCS01	2.1	Fine Sand to Coarse Silt
SCS02	2.9	Fine Sand to Coarse Silt
SCS03	2.1	Fine Sand to Coarse Silt
SCS04	1.7	Fine Sand to Coarse Silt

Considering the location and available materials at the site, it may be preferable to place a rock filter dam instead of a sediment control dam at SCS-04. This will require coarser material and geotextile to act as the filter and will allow for water to flow through the dam.

The designed sediment control structures are shown on Figure 3.1. Typical sections for the SCSs are shown on figures 3.7 to 3.8. The diversion structures and road crossings are shown on Figure 1.2 with typical sections shown on figures 3.4 to 3.6.

4. SWM QUANTITIES

The quantities provided in Table T1 are to an overall accuracy of ±15 %.

Quantities for major items were determined based on the following assumptions:

- Topsoil depth of 200 mm.
- Zone A material will be sourced from borrow areas.
- Zone E erosion protection materials will be sourced from mine waste.
- All wearing course materials will be sourced from borrow areas or mine waste.

We trust that this is sufficient for your current requirements. If you have any queries please contact us.

Yours faithfully
KNIGHT PIÉSOLD PTY LTD

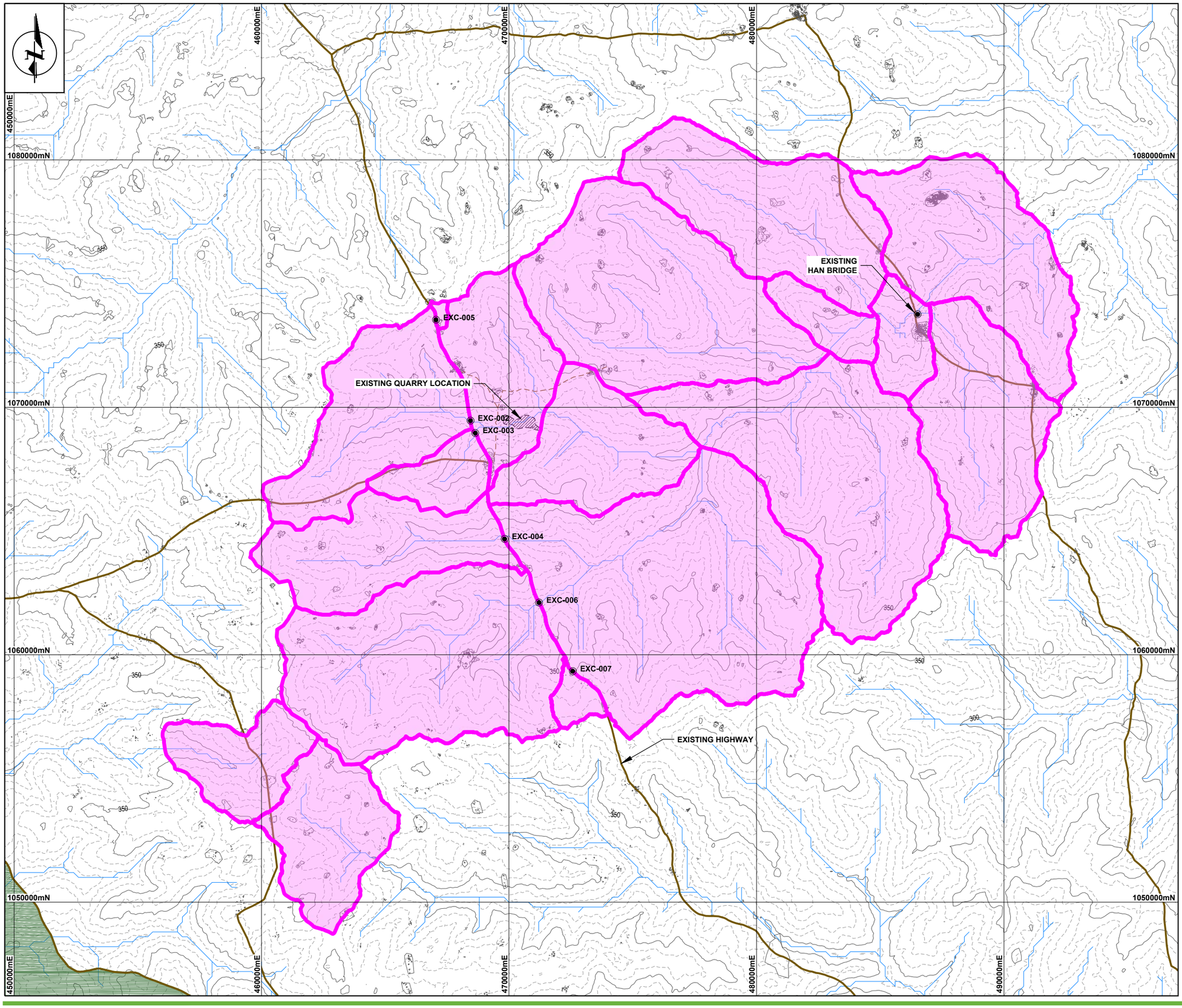
ANDREW BROWN
Senior Project Engineer

DAVID MORGAN
Managing Director

REFERENCES

1. Knight Piésold Pty Ltd, "*Doropo Gold Project – Design Climatology Rev 2*", Memorandum Ref. PE25-01533.
2. Hunt J. S, (1992), "*Urban Erosion and Sediment Control*", ISBN 0730598764.

FIGURES



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MAJOR)
- EXISTING UNSEALED ROAD (MINOR)
- EXISTING CULVERT LOCATIONS
- CATCMENT AREAS

NOTES:

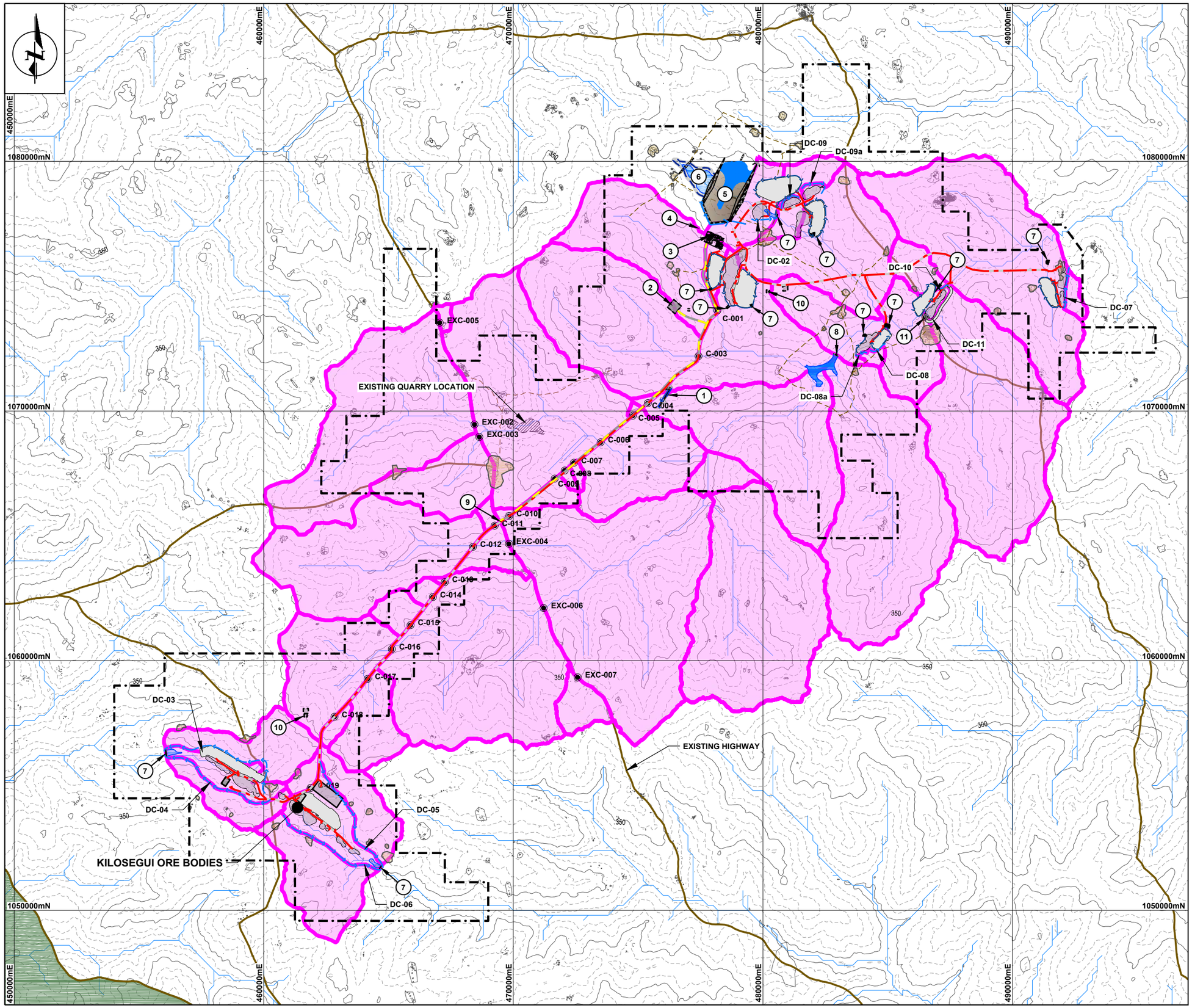
1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 10m CONTOUR INTERVALS SHOWN.

2000 1000 0 2500 5000 7500
SCALE (METRES) 1:150,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD PROJECT
SEDIMENT CONTROL AND SURFACE WATER MANAGEMENT
CATCHMENT AREAS LAYOUT

PE301-00821 M25014
Figure 1.1



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MAJOR)
- EXISTING UNSEALED ROAD (MINOR)
- TENEMENT BOUNDARY
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- CATCMENT AREAS
- PROPOSED CULVERT LOCATION
- PROPOSED DIVERSION CHANNEL

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 10m CONTOUR INTERVALS SHOWN.
3. PIT SHELL EXTENTS PROVIDED BY RESOLUTE MINING, OCTOBER 2025.
4. INDICATIVE LOCATIONS SHOWN FOR:
   - WASTE DUMP
   - PROCESS PLANT
   - ROM PAD
   - SITE ACCOMMODATION
5. FINAL STAGE TAILINGS STORAGE FACILITY SHOWN.

ITEM KEY:

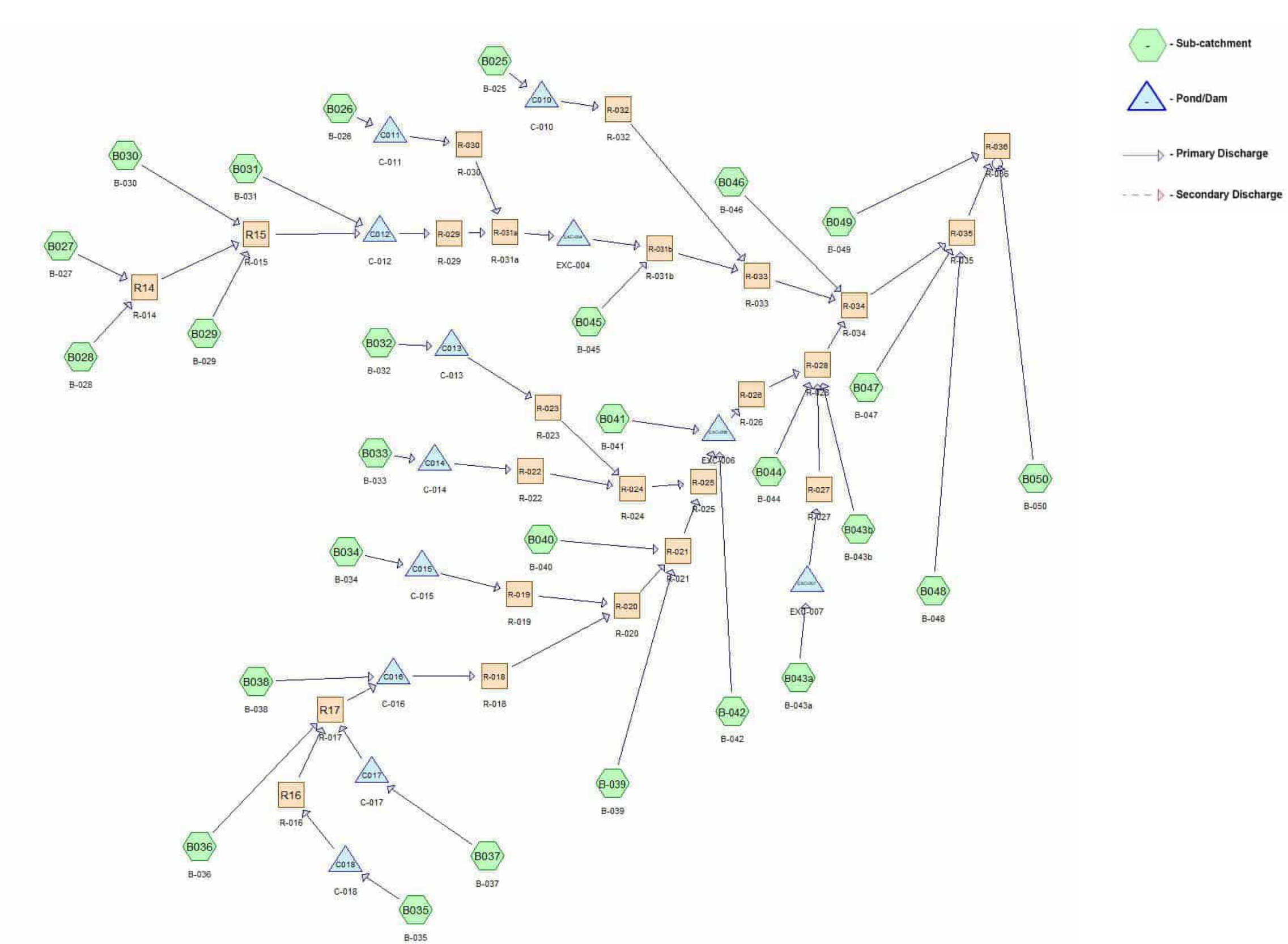
1. PROPOSED SITE AIRSTRIP
2. PROPOSED SITE ACCOMMODATION
3. PROPOSED SITE PLANT
4. PROPOSED ADMIN AREA
5. PROPOSED TAILINGS STORAGE FACILITY
6. PROPOSED WATER STORAGE DAM
7. PROPOSED SEDIMENT CONTROL STRUCTURES
8. PROPOSED WATER HARVEST DAM
9. PROPOSED OVERPASS
10. PROPOSED EXPLOSIVE MAGAZINE LOCATION
11. HAN BRIDGE

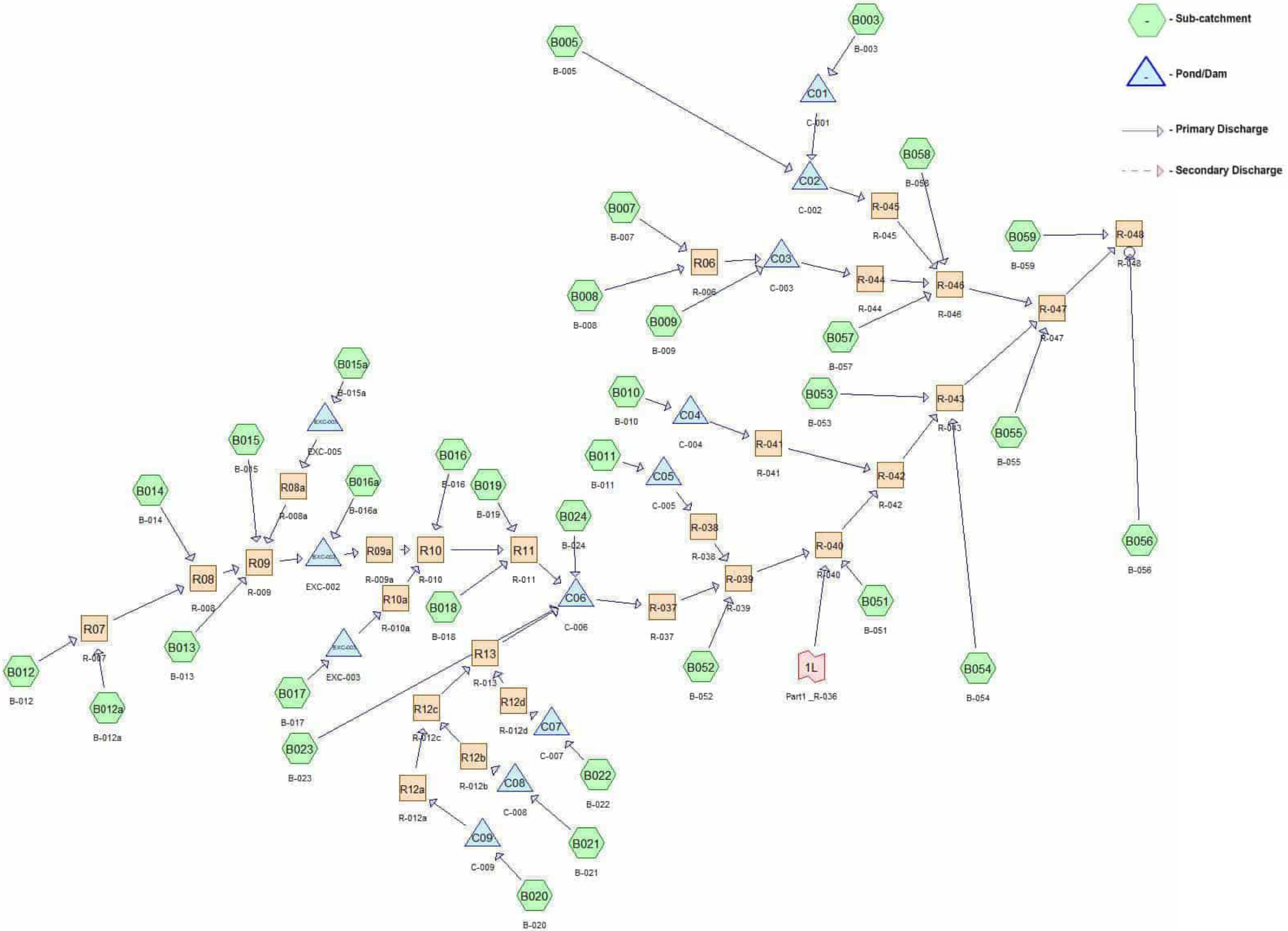
2000 1000 0 2500 5000 7500
SCALE (METRES) 1:150,000 (A3)

Knight Piésold CONSULTING

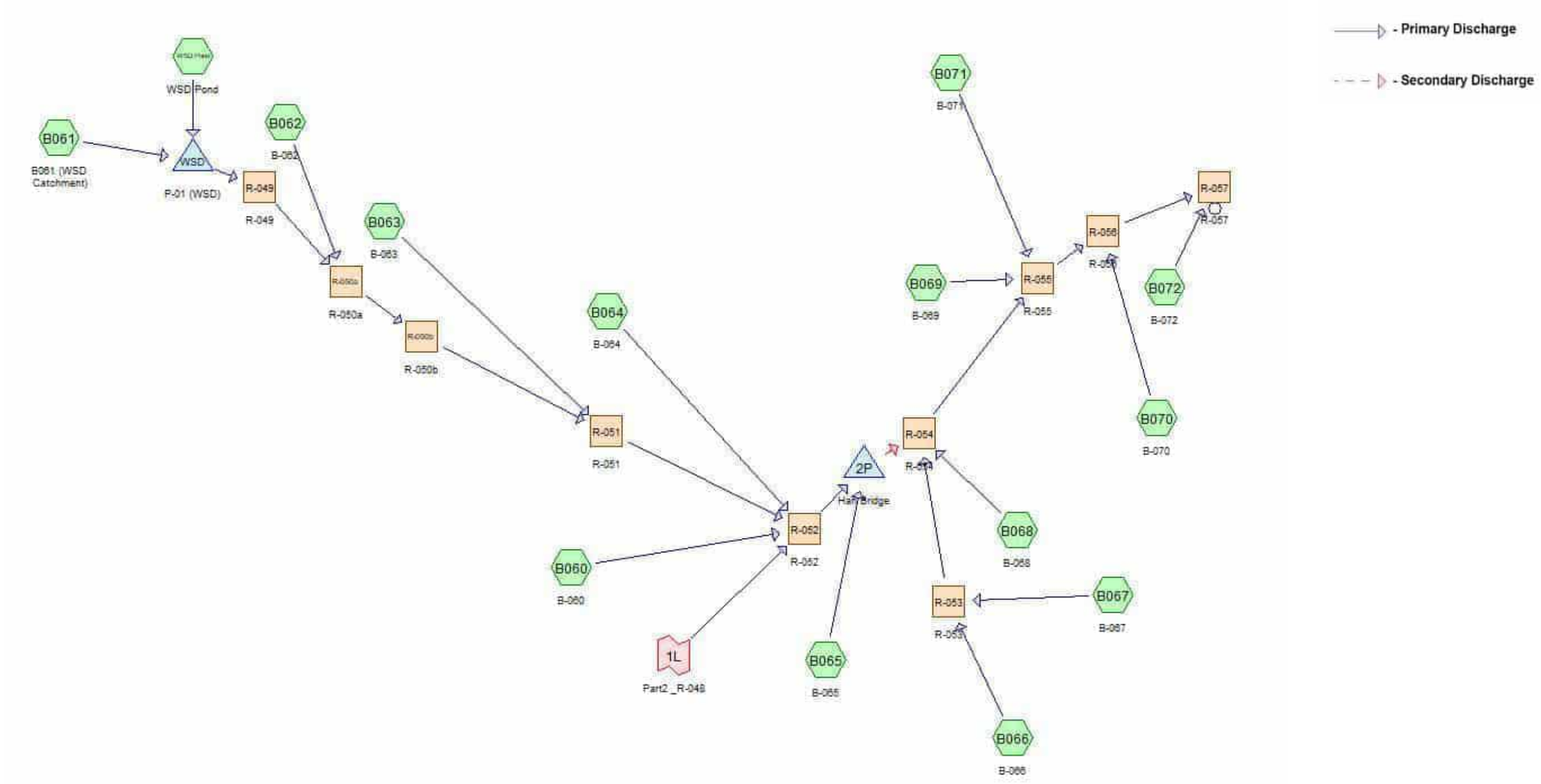
DOROPO GOLD PROJECT
SEDIMENT CONTROL AND SURFACE WATER MANAGEMENT
CATCHMENT AREAS IMPACTED BY PIT DIVERSIONS LAYOUT

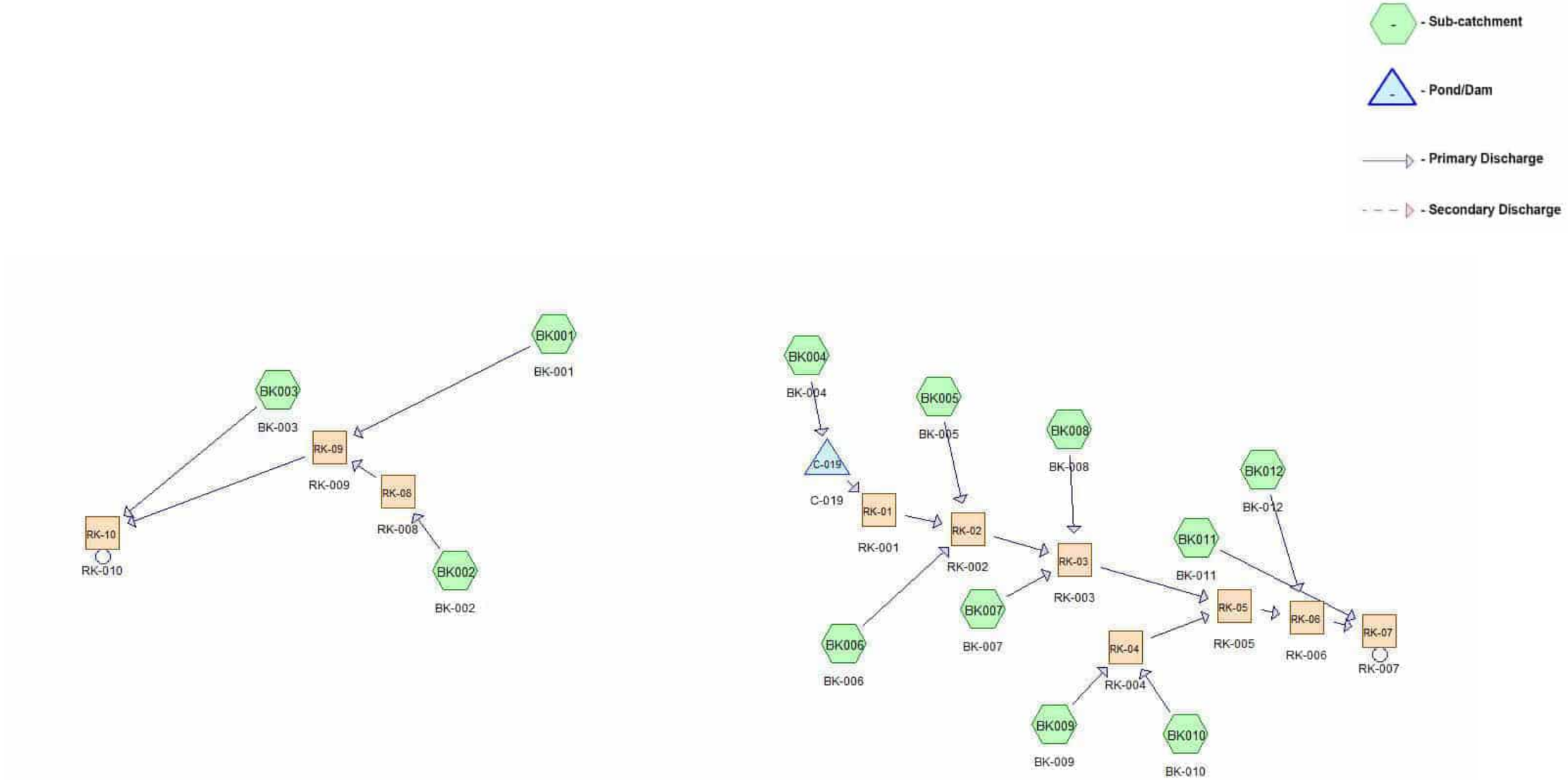
PE301-00821 M25014
Figure 1.2

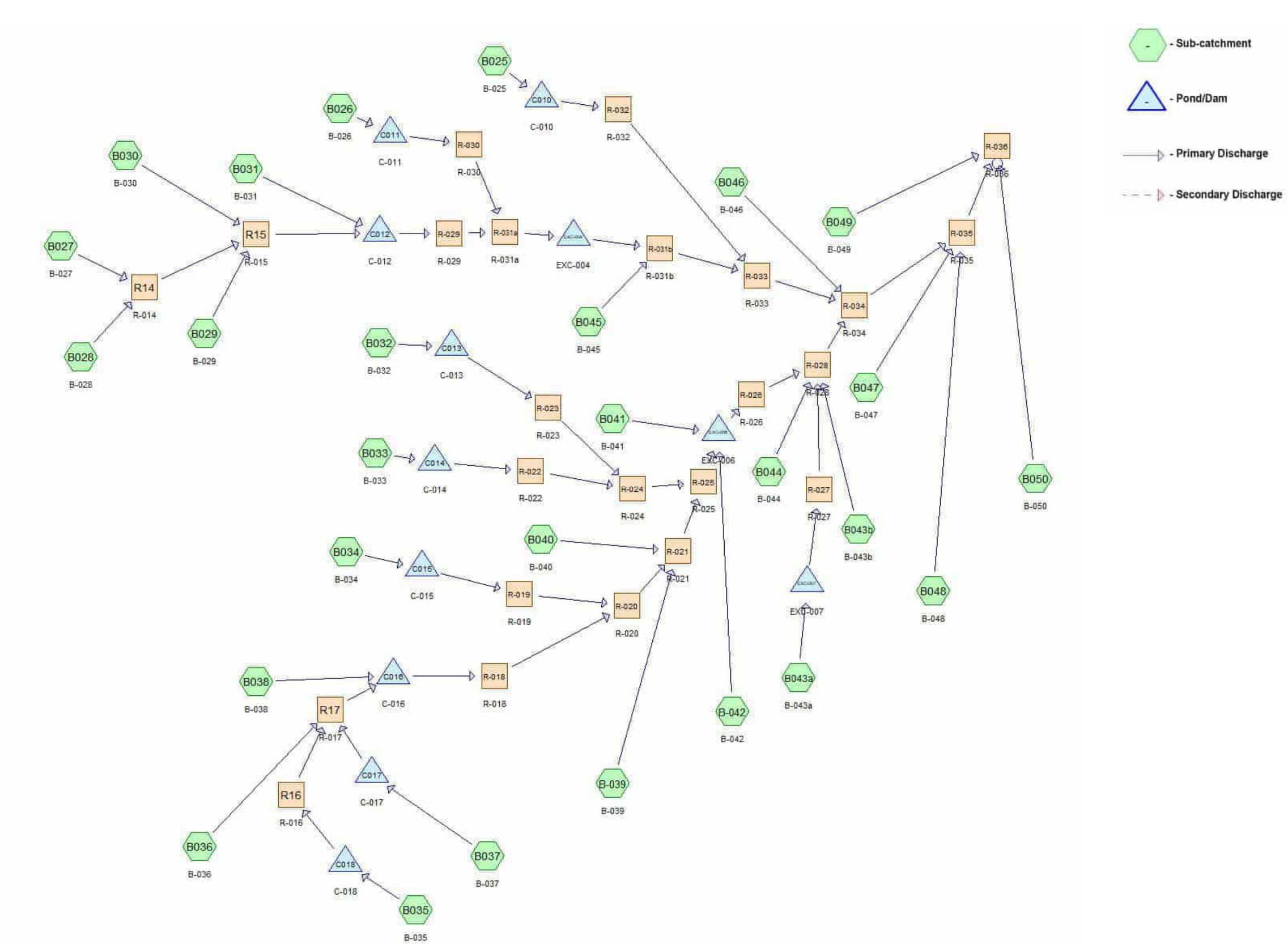

- Sub-catchment
- Pond/Dam
- Primary Discharge
- Secondary Discharge
B025
B-025
C010
C-010
R-032
R-032
B026
B-026
C011
C-011
R-030
R-030
B030
B-030
B031
B-031
R15
R-015
C012
C-012
R-029
R-029
R-031a
R-031a
EXC-004
R-031b
R-031b
B046
B-046
R-033
R-033
B049
B-049
R-036
R-036
R-035
R-035
B027
B-027
R14
R-014
B028
B-028
B029
B-029
B045
B-045
R-034
R-034
B032
B-032
C013
C-013
R-023
R-023
R-028
R-028
B047
B-047
B041
B-041
EXC-006
R-026
R-026
B033
B-033
C014
C-014
R-022
R-022
R-024
R-024
R-025
R-025
B044
B-044
R-027
R-027
B043b
B-043b
B050
B-050
B040
B-040
R-021
R-021
B034
B-034
C015
C-015
R-019
R-019
R-020
R-020
EXC-007
B048
B-048
B038
B-038
C016
C-016
R-018
R-018
B043a
B-043a
R17
R-017
B-042
B-042
B-039
B-039
C017
C-017
R16
R-016
B036
B-036
C018
C-018
B037
B-037
B035
B-035

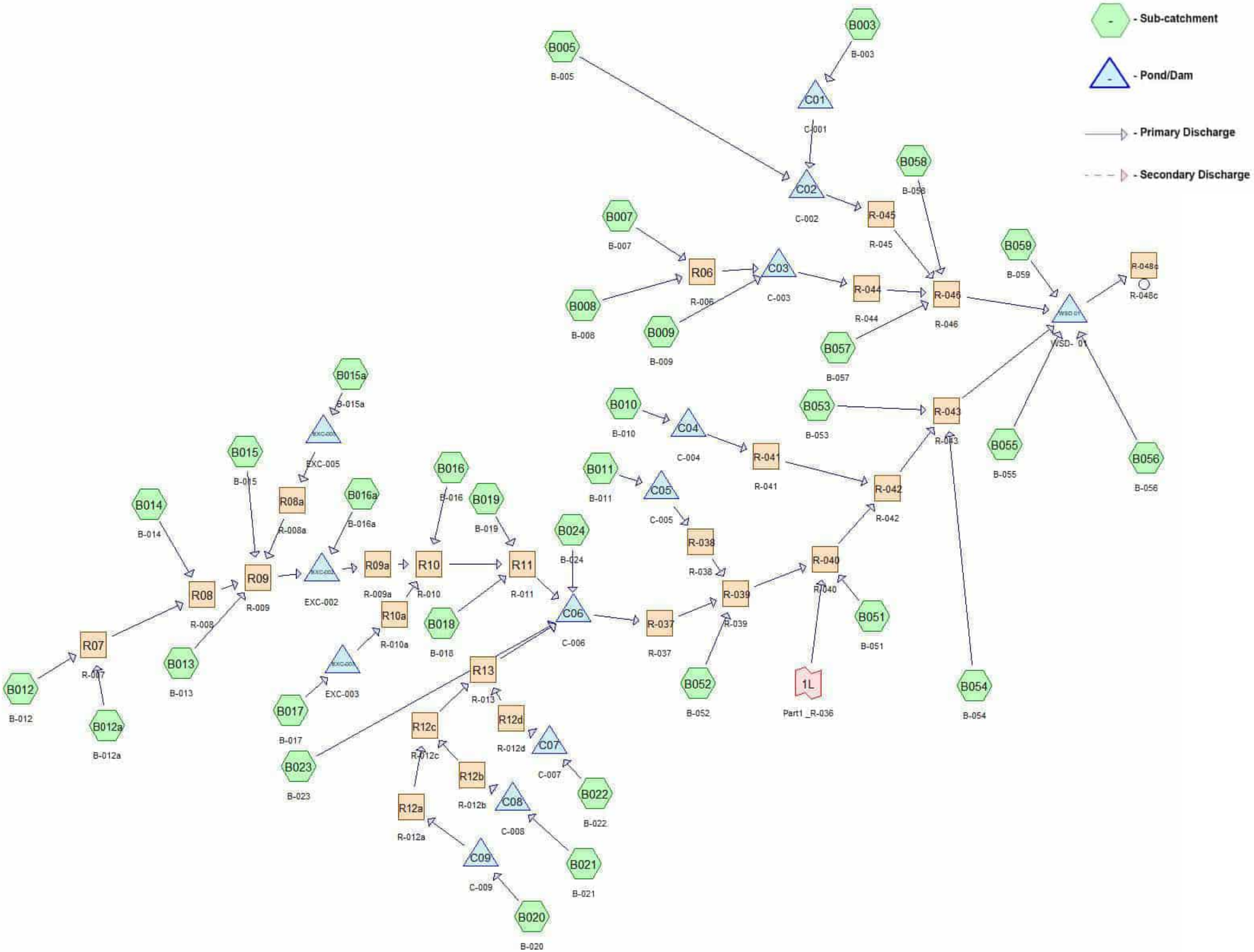


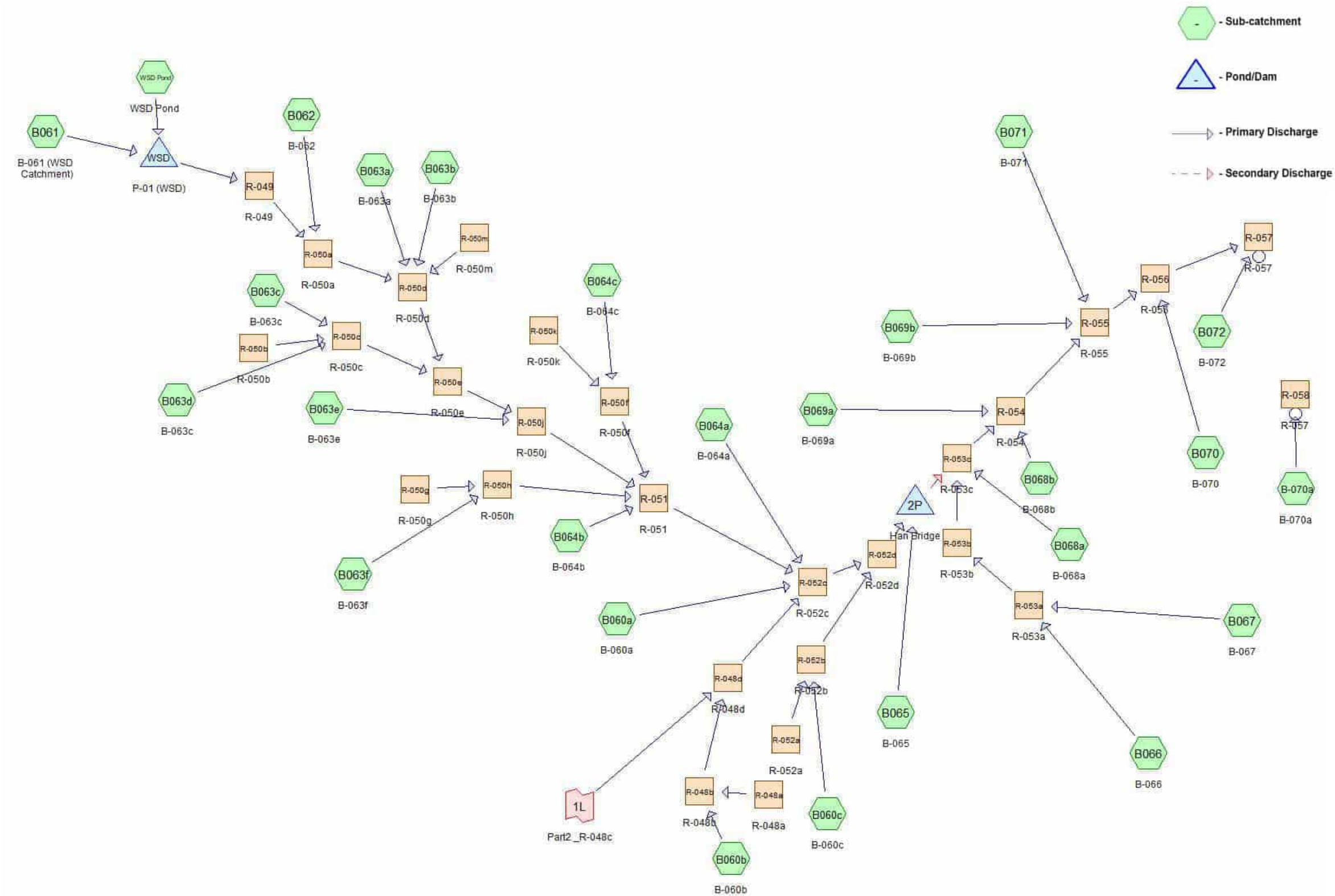
- Sub-catchment
- Pond/Dam
- Primary Discharge
- Secondary Discharge
B003
B-003
B005
B-005
C01
C-001
C02
C-002
B058
B-058
R-045
R-045
B007
B-007
R06
R-006
C03
C-003
R-044
R-044
R-046
R-046
B059
B-059
R-048
R-048
B008
B-008
B009
B-009
B057
B-057
R-047
R-047
B015a
B-015a
EXC-005
B010
B-010
C04
C-004
B053
B-053
R-043
R-043
B055
B-055
B015
B-015
R08a
R-008a
B016a
B-016a
B016
B-016
B019
B-019
B011
B-011
C05
C-005
R-041
R-041
R-042
R-042
B014
B-014
R09
R-009
EXC-002
R09a
R-009a
R10
R-010
R11
R-011
B024
B-024
R-038
R-038
R-040
R-040
B056
B-056
R08
R-008
R10a
R-010a
B018
B-018
C06
C-006
R-037
R-037
R-039
R-039
B051
B-051
R07
R-007
B013
B-013
EXC-003
R13
R-013
B052
B-052
1L
Part1 _R-036
B054
B-054
B012
B-012
B012a
B-012a
B017
B-017
R12c
R-012c
R12d
R-012d
C07
C-007
B023
B-023
R12b
R-012b
C08
C-008
B022
B-022
R12a
R-012a
C09
C-009
B021
B-021
B020
B-020

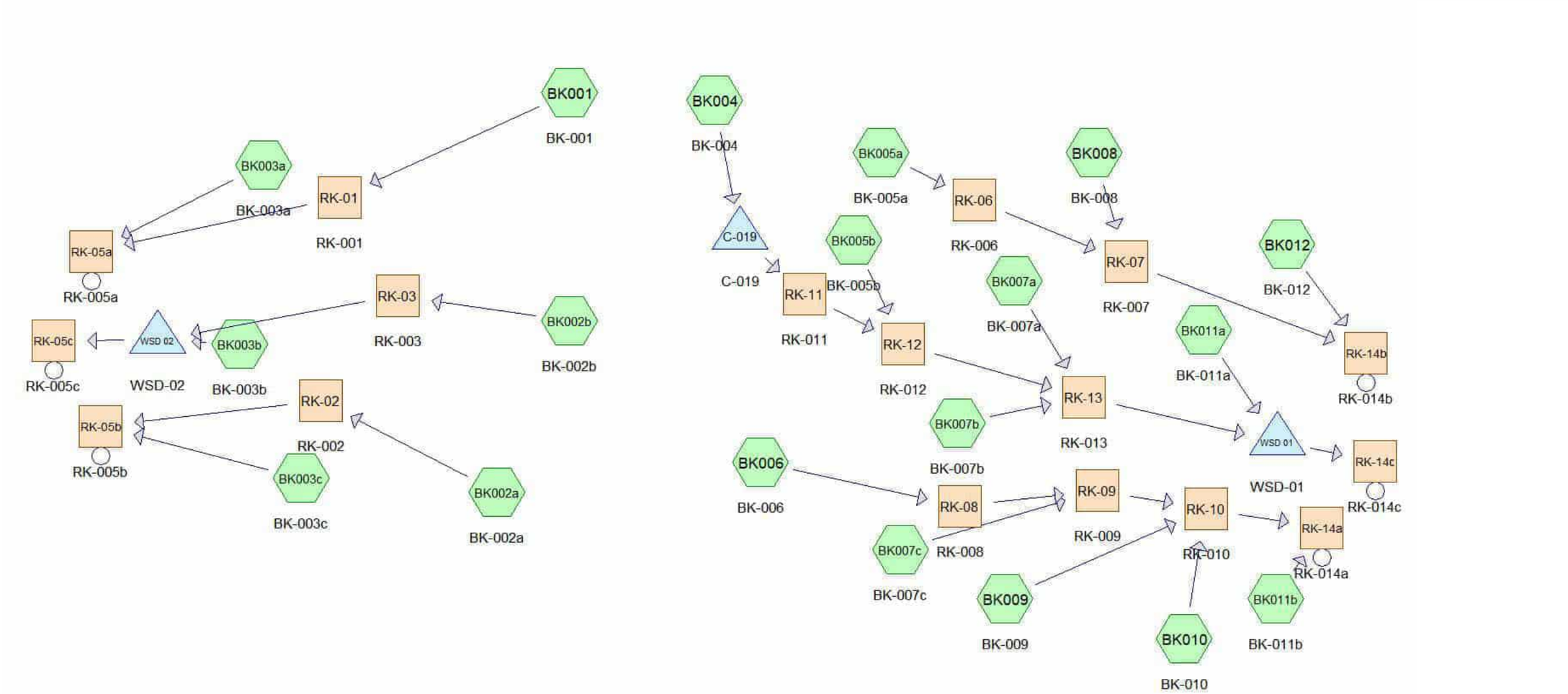

- Sub-catchment
- Pond/Dam
- Primary Discharge
- Secondary Discharge
WSD Pond
B061
B061 (WSD Catchment)
WSD
P-01 (WSD)
B062
B-062
R-049
R-049
B063
B-063
R-050a
R-050b
B064
B-064
R-051
R-051
B071
B-071
R-056
R-057
R-057
B069
B-069
R-055
B072
B-072
B070
B-070
R-054
2P
Half Bridge
B068
B-068
R-052
R-052
B060
B-060
R-053
B067
B-067
1L
Part2 _R-048
B065
B-065
B066
B-066

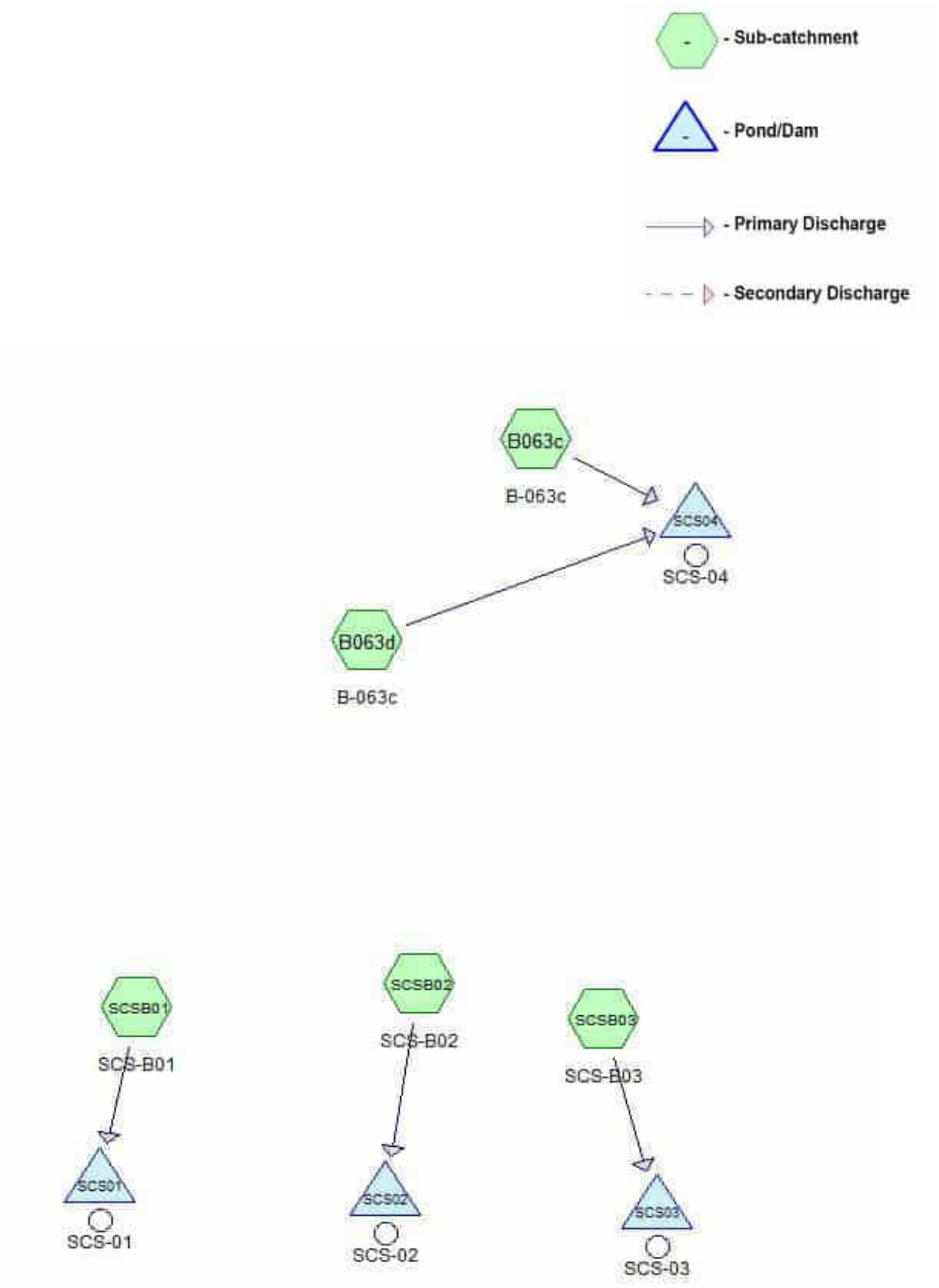

- Sub-catchment
- Pond/Dam
- Primary Discharge
- Secondary Discharge
BK001
BK-001
BK003
BK-003
RK-09
RK-009
RK-08
RK-008
RK-10
RK-010
BK002
BK-002
BK004
BK-004
BK005
BK-005
BK008
BK-008
C-019
C-019
RK-01
RK-001
RK-02
RK-002
RK-03
RK-003
BK012
BK-012
BK011
BK-011
BK007
BK-007
RK-05
RK-005
RK-06
RK-006
RK-07
RK-007
BK006
BK-006
RK-04
RK-004
BK009
BK-009
BK010
BK-010

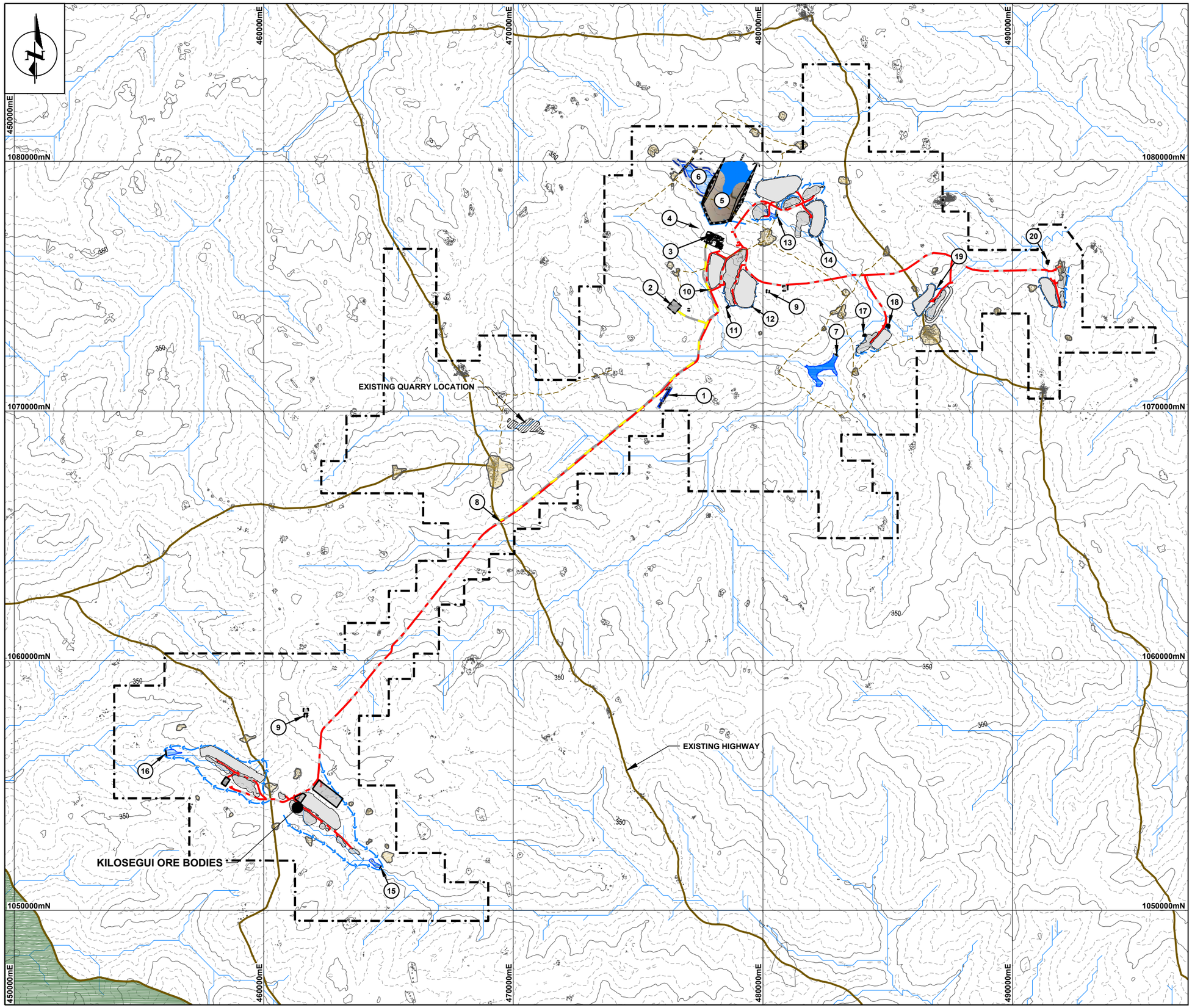

- Sub-catchment
- Pond/Dam
- Primary Discharge
- Secondary Discharge
B025
B-025
C010
C-010
R-032
R-032
B026
B-026
C011
C-011
R-030
R-030
B030
B-030
B031
B-031
R15
R-015
C012
C-012
R-029
R-029
R-031a
R-031a
EXC-004
R-031b
R-031b
B046
B-046
R-033
R-033
B049
B-049
R-036
R-036
R-035
R-035
B027
B-027
R14
R-014
B028
B-028
B029
B-029
B045
B-045
R-034
R-034
B032
B-032
C013
C-013
R-023
R-023
R-028
R-028
B047
B-047
B041
B-041
EXC-006
R-026
R-026
B033
B-033
C014
C-014
R-022
R-022
R-024
R-024
R-025
R-025
B044
B-044
R-027
R-027
B043b
B-043b
B050
B-050
B040
B-040
R-021
R-021
B034
B-034
C015
C-015
R-019
R-019
R-020
R-020
EXC-007
B048
B-048
B038
B-038
C016
C-016
R-018
R-018
B043a
B-043a
R17
R-017
B-042
B-042
B-039
B-039
C017
C-017
R16
R-016
B036
B-036
C018
C-018
B037
B-037
B035
B-035


- Sub-catchment
- Pond/Dam
- Primary Discharge
- Secondary Discharge
B003
B-003
B005
B-005
C01
C-001
C02
C-002
B058
B-058
R-045
R-045
B007
B-007
R06
R-006
C03
C-003
R-044
R-044
R-046
R-046
B059
B-059
R-048c
R-048c
B008
B-008
B009
B-009
B057
B-057
WSD- 01
B010
B-010
C04
C-004
R-041
R-041
B053
B-053
R-043
R-043
B055
B-055
B056
B-056
B011
B-011
C05
C-005
R-042
R-042
B015a
B-015a
EXC-005
B015
B-015
R08a
R-008a
B016a
B-016a
B016
B-016
B019
B-019
B014
B-014
R08
R-008
R09
R-009
EXC-002
R09a
R-009a
R10
R-010
R11
R-011
B024
B-024
R-038
R-038
R-040
R-040
R-039
R-039
B051
B-051
C06
C-006
R-037
R-037
B052
B-052
1L
Part1 _R-036
B054
B-054
R10a
R-010a
B018
B-018
R07
R-007
B013
B-013
B012
B-012
B012a
B-012a
EXC-003
B017
B-017
R13
R-013
R12c
R-012c
R12d
R-012d
C07
C-007
B023
B-023
R12b
R-012b
C08
C-008
B022
B-022
R12a
R-012a
C09
C-009
B021
B-021
B020
B-020


- Sub-catchment
- Pond/Dam
- Primary Discharge
- Secondary Discharge
WSD Pond
WSD Pond
B061
B-061 (WSD Catchment)
WSD
P-01 (WSD)
B062
B-062
R-049
R-049
B063a
B-063a
B063b
B-063b
R-050m
R-050m
R-050a
R-050a
R-050d
R-050d
B063c
B-063c
R-050b
R-050b
R-050c
R-050c
B063d
B-063c
B063e
B-063e
R-050e
R-050e
R-050k
R-050k
B064c
B-064c
R-050f
R-050f
R-050j
R-050j
B064a
B-064a
R-050g
R-050g
R-050h
R-050h
R-051
R-051
B064b
B-064b
B063f
B-063f
B060a
B-060a
R-052c
R-052c
R-052d
R-052d
2P
Han Bridge
R-053c
R-053c
R-053b
R-053b
B068b
B-068b
B068a
B-068a
R-053a
R-053a
B067
B-067
R-052b
R-052b
R-048d
R-048d
R-052a
R-052a
B065
B-065
B066
B-066
1L
Part2 _R-048c
R-048b
R-048b
R-048a
R-048a
B060c
B-060c
B060b
B-060b
B071
B-071
B069b
B-069b
R-055
R-055
R-056
R-056
R-057
R-057
B072
B-072
B069a
B-069a
R-054
R-054
B070
B-070
R-058
R-057
B-070a
B-070a


- Sub-catchment
- Pond/Dam
- Primary Discharge
- Secondary Discharge
BK001
BK-001
BK003a
BK-003a
RK-01
RK-001
RK-05a
RK-005a
RK-03
RK-003
BK002b
BK-002b
RK-05c
RK-005c
WSD 02
WSD-02
BK003b
BK-003b
RK-02
RK-002
RK-05b
RK-005b
BK003c
BK-003c
BK002a
BK-002a
BK004
BK-004
BK005a
BK-005a
RK-06
RK-006
BK008
BK-008
C-019
C-019
BK005b
BK-005b
RK-11
RK-011
RK-12
RK-012
BK007a
BK-007a
RK-07
RK-007
BK012
BK-012
BK011a
BK-011a
RK-14b
RK-014b
BK007b
BK-007b
RK-13
RK-013
WSD 01
WSD-01
RK-14c
RK-014c
BK006
BK-006
RK-08
RK-008
RK-09
RK-009
RK-10
RK-010
RK-14a
RK-014a
BK007c
BK-007c
BK009
BK-009
BK010
BK-010
BK011b
BK-011b


- Sub-catchment
- Pond/Dam
- Primary Discharge
- Secondary Discharge
B063c
B-063c
SCS04
SCS-04
B063d
B-063c
SCSB01
SCS-B01
SCS01
SCS-01
SCSB02
SCS-B02
SCS02
SCS-02
SCSB03
SCS-B03
SCS03
SCS-03



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MAJOR)
- EXISTING UNSEALED ROAD (MINOR)
- TENEMENT BOUNDARY
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 10m CONTOUR INTERVALS SHOWN.
3. PIT SHELL EXTENTS PROVIDED BY RESOLUTE MINING, OCTOBER 2025.
4. INDICATIVE LOCATIONS SHOWN FOR:
   - WASTE DUMP
   - PROCESS PLANT
   - ROM PAD
   - SITE ACCOMMODATION
5. FINAL STAGE TAILINGS STORAGE FACILITY SHOWN.

ITEM KEY:

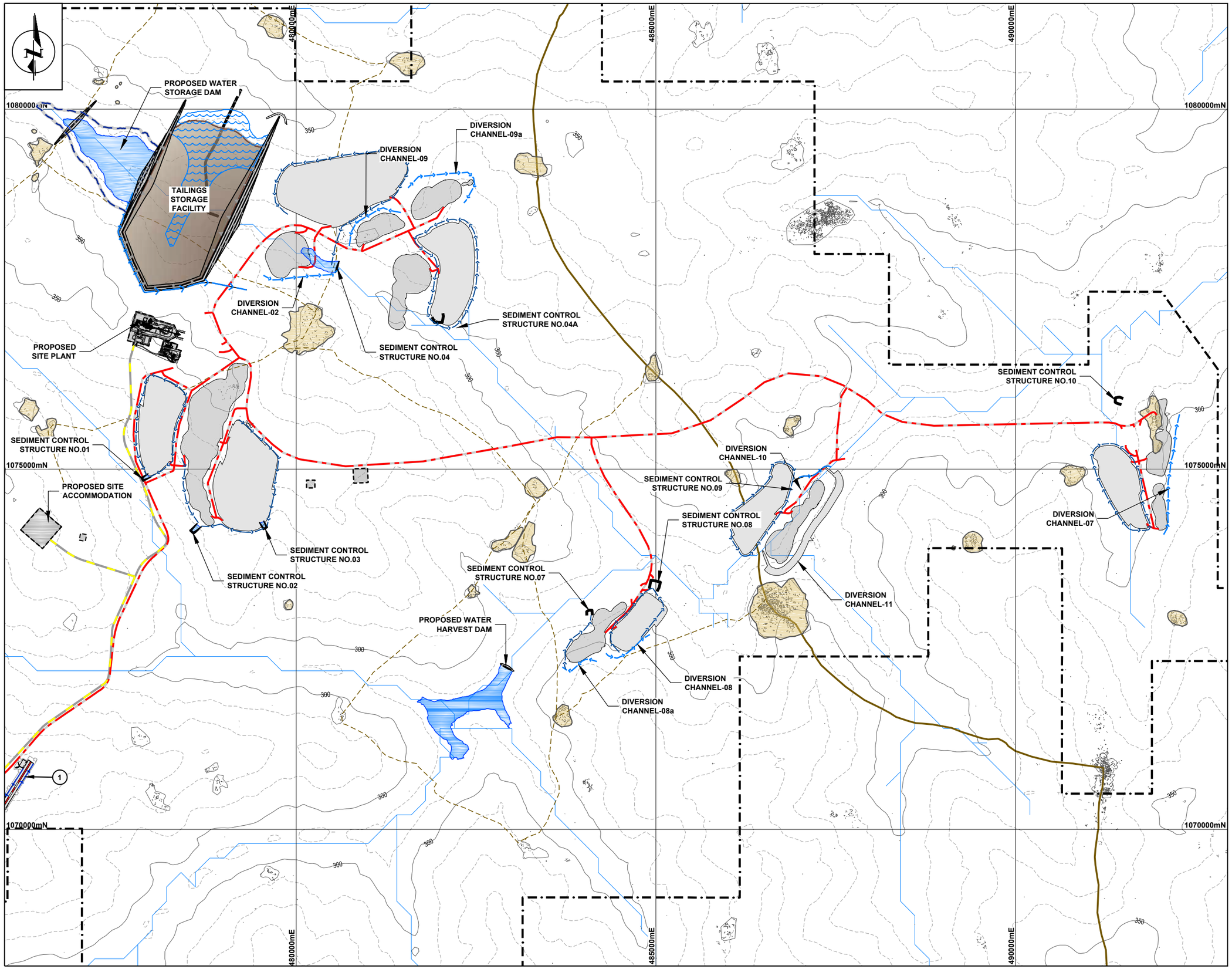
1. PROPOSED SITE AIRSTRIP
2. PROPOSED SITE ACCOMMODATION
3. PROPOSED SITE PLANT
4. PROPOSED ADMIN AREA
5. PROPOSED TAILINGS STORAGE FACILITY
6. PROPOSED WATER STORAGE DAM
7. PROPOSED WATER HARVEST DAM
8. PROPOSED OVERPASS
9. PROPOSED EXPLOSIVE MAGAZINE LOCATION
10. SEDIMENT CONTROL STRUCTURE No.1
11. SEDIMENT CONTROL STRUCTURE No.2
12. SEDIMENT CONTROL STRUCTURE No.3
13. SEDIMENT CONTROL STRUCTURE No.4
14. SEDIMENT CONTROL STRUCTURE No.4A
15. SEDIMENT CONTROL STRUCTURE No.5
16. SEDIMENT CONTROL STRUCTURE No.6
17. SEDIMENT CONTROL STRUCTURE No.7
18. SEDIMENT CONTROL STRUCTURE No.8
19. SEDIMENT CONTROL STRUCTURE No.9
20. SEDIMENT CONTROL STRUCTURE No.10

2000 1000 0 2500 5000 7500
SCALE (METRES) 1:150,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD PROJECT
SEDIMENT CONTROL AND SURFACE WATER MANAGEMENT
SEDIMENT CONTROL STRUCTURES LAYOUT

PE301-00821 M25014
Figure 3.1



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MAJOR)
- EXISTING UNSEALED ROAD (MINOR)
- TENEMENT BOUNDARY
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL

NOTES:

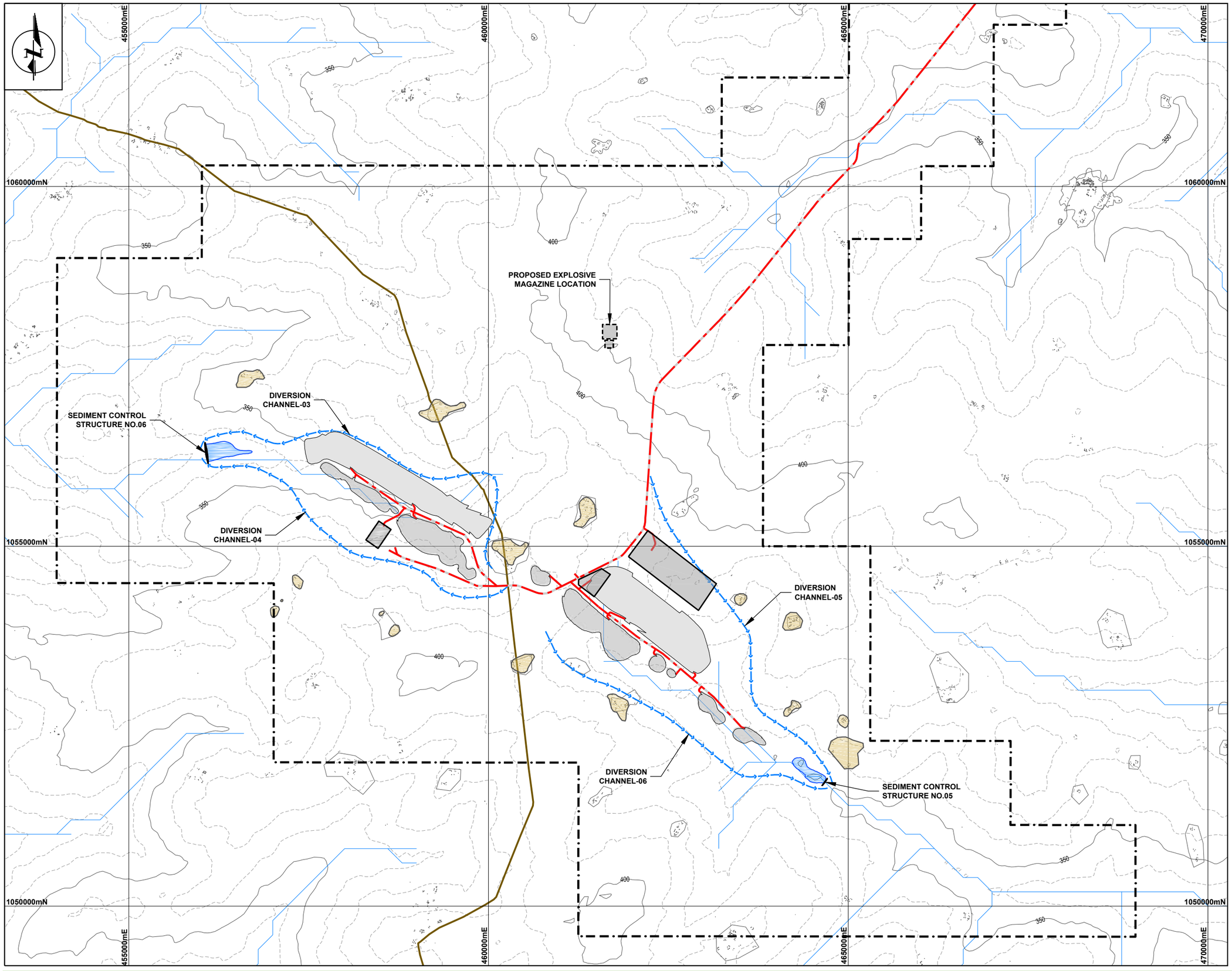
1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 10m CONTOUR INTERVALS SHOWN.
3. PIT SHELL EXTENTS PROVIDED BY RESOLUTE MINING, OCTOBER 2025.
4. INDICATIVE LOCATIONS SHOWN FOR:
   - WASTE DUMP
   - PROCESS PLANT
   - ROM PAD
   - SITE ACCOMMODATION
5. FINAL STAGE TAILINGS STORAGE FACILITY SHOWN.

1000 600 200 0 500 1000 1500 2000
SCALE (METRES) 1:50,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD PROJECT
SEDIMENT CONTROL AND SURFACE WATER MANAGEMENT
DIVERSION CHANNEL LAYOUT - SHEET 1

PE301-00821 M25014
Figure 3.2



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MAJOR)
- EXISTING UNSEALED ROAD (MINOR)
- TENEMENT BOUNDARY
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL

NOTES:

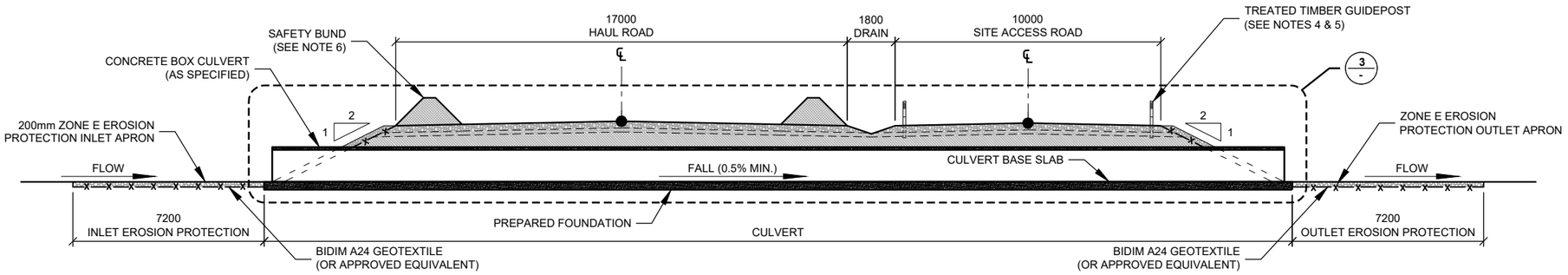
1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 10m CONTOUR INTERVALS SHOWN.
3. PIT SHELL EXTENTS PROVIDED BY RESOLUTE MINING, OCTOBER 2025.
4. INDICATIVE LOCATIONS SHOWN FOR:
   - WASTE DUMP

1000 600 200 0 500 1000 1500 2000
SCALE (METRES) 1:50,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD PROJECT
SEDIMENT CONTROL AND SURFACE WATER MANAGEMENT
DIVERSION CHANNEL LAYOUT - SHEET 2

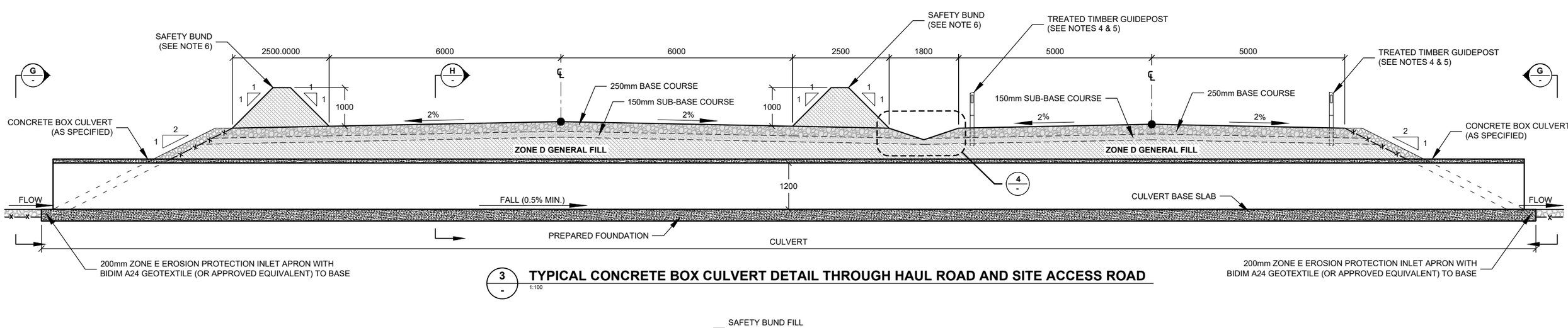
PE301-00821 M25014
Figure 3.3



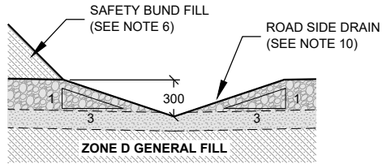
F - TYPICAL CONCRETE BOX CULVERT SECTION THROUGH HAUL ROAD AND SITE ACCESS ROAD
1:200

NOTES:

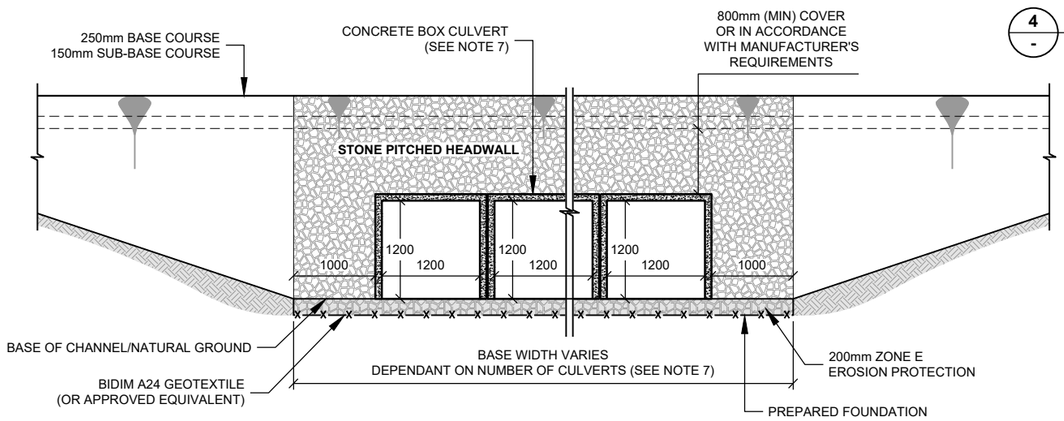
1. EXACT CHAINAGE OF CULVERT LOCATIONS, INLET AND OUTLET ELEVATIONS AND CULVERT ALIGNMENTS TO BE DETERMINED ON SITE.
2. CULVERT FOUNDATION PREPARATION AS DIRECTED BY THE ENGINEER.
3. EXTENT OF INLET AND OUTLET EROSION PROTECTION TO BE FIELD FITTED.
4. 100mm x 50mm TREATED STRUCTURAL GRADE TIMBER GUIDE POSTS TO BE INSTALLED ALONG THE ROAD ALIGNMENT AT 5m SPACING, WHERE FILL EXCEEDS 2m IN HEIGHT.
5. TREATED STRUCTURAL GRADE TIMBER POST TO BE EMBEDDED 800mm INTO FILL.
6. SAFETY BUNDS TO HAVE DRAINAGE BREAKS INSTALLED AT 20m CENTRES.
7. FOR THE REQUIRED NUMBER OF CONCRETE BOX CULVERTS, REFER TO TABLE 2.1 IN MEMO M25014.
8. ADDITIONAL MINOR CULVERTS MUST BE FITTED ON SITE WHERE REQUIRED.
9. MINIMUM COVER REQUIREMENTS FOR CULVERTS TO BE BASED ON MANUFACTURE'S RECOMMENDATIONS.
10. ROAD SIDE DRAIN, DISCHARGE INTO CATCHPITS POSITIONED AT THE COMMENCEMENT AND TERMINATION POINTS OF THE CULVERT CROSSING.



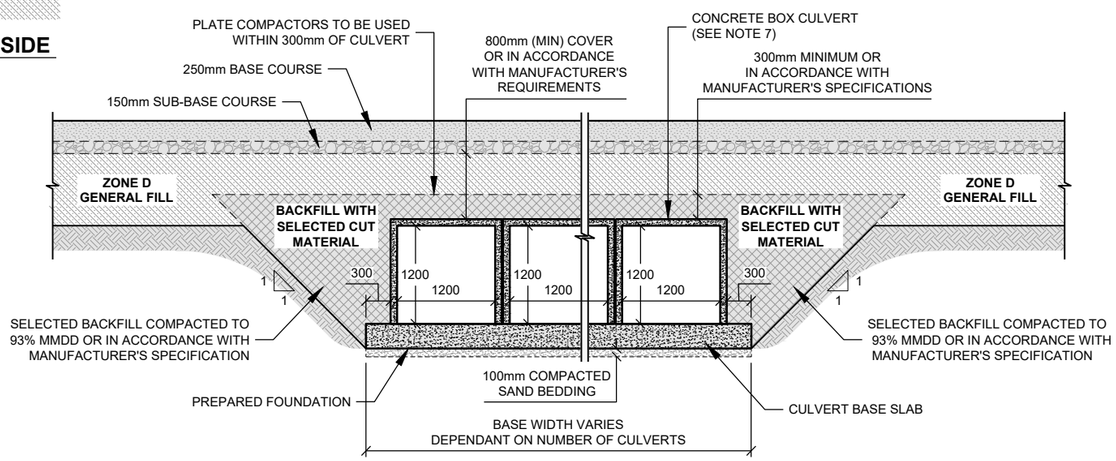
3 - TYPICAL CONCRETE BOX CULVERT DETAIL THROUGH HAUL ROAD AND SITE ACCESS ROAD
1:100



4 - TYPICAL ROAD SIDE DRAIN DETAIL
1:50



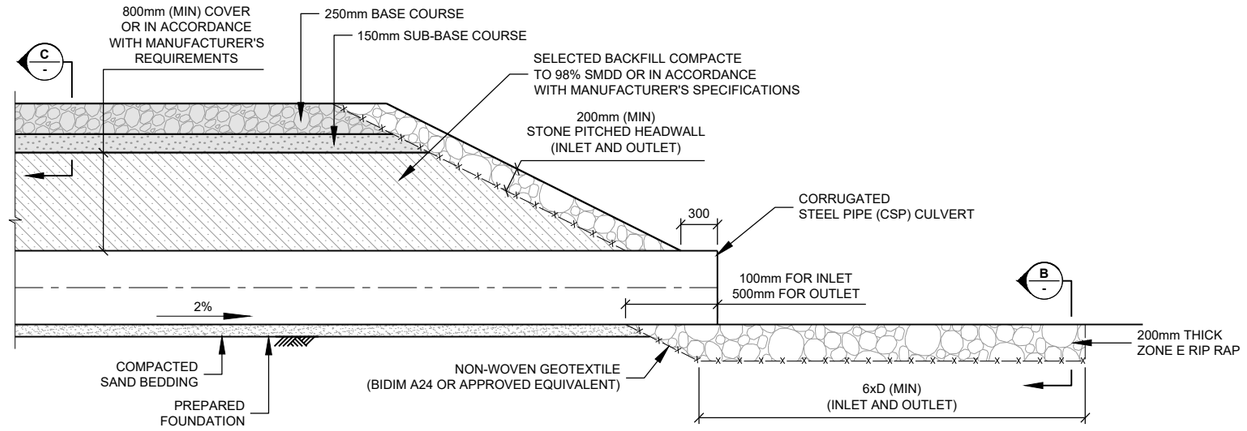
G - TYPICAL CONCRETE BOX CULVERT INLET/OUTLET HEADWALL SECTION
1:75



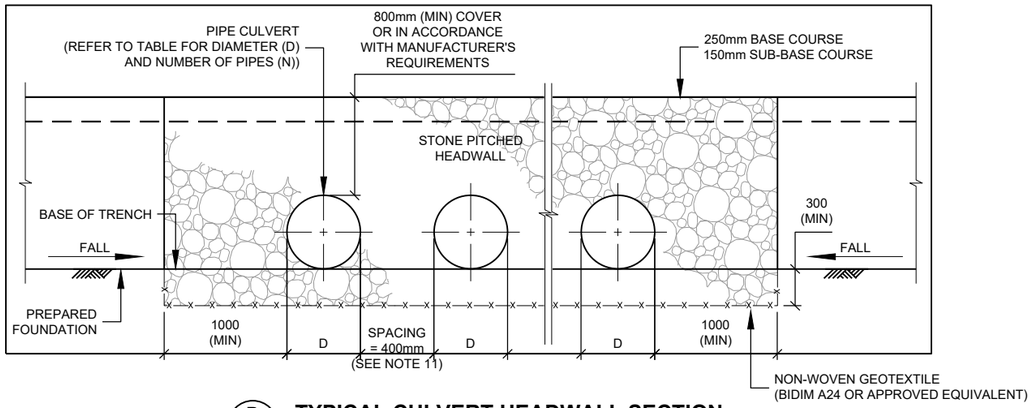
H - TYPICAL CONCRETE BOX CULVERT EXCAVATION AND BACKFILL SECTION
1:75

NOTES:

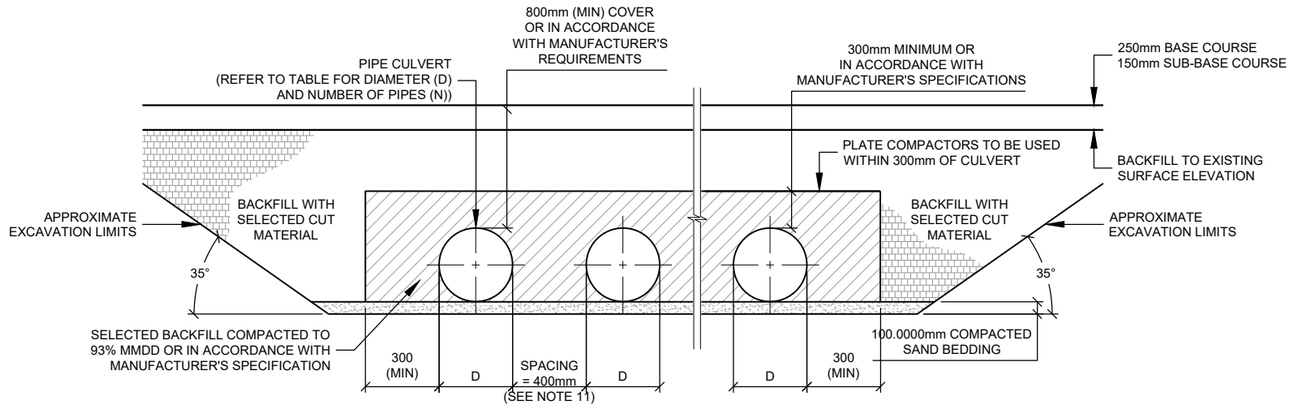
1. EXACT CHAINAGE OF CULVERT LOCATIONS, INLET AND OUTLET ELEVATIONS AND CULVERT ALIGNMENTS TO BE DETERMINED ON SITE.
2. CULVERT FOUNDATION PREPARATION AS DIRECTED BY THE ENGINEER.
3. EXTENT OF INLET AND OUTLET EROSION PROTECTION TO BE FIELD FITTED.
4. 100mm x 50mm TREATED STRUCTURAL GRADE TIMBER GUIDE POSTS TO BE INSTALLED ALONG THE ROAD ALIGNMENT AT 5m SPACING, WHERE FILL EXCEEDS 2m IN HEIGHT.
5. TREATED STRUCTURAL GRADE TIMBER POST TO BE EMBEDDED 800mm INTO FILL.
6. SAFETY BUNDS TO HAVE DRAINAGE BREAKS INSTALLED AT 20m CENTRES.
7. FOR THE REQUIRED NUMBER OF CORRUGATED METAL PIPE CULVERTS, REFER TO TABLE 2.1 IN MEMO M25014.
8. ADDITIONAL MINOR CULVERTS MUST BE FITTED ON SITE WHERE REQUIRED.
9. MINIMUM COVER REQUIREMENTS FOR CULVERTS TO BE BASED ON MANUFACTURE'S RECOMMENDATIONS.
10. ROAD SIDE DRAIN, DISCHARGE INTO CATCHPITS POSITIONED AT THE COMMENCEMENT AND TERMINATION POINTS OF THE CULVERT CROSSING.
11. MINIMUM SPACING BETWEEN CULVERTS SHOULD BE MODIFIED BASED ON MANUFACTURE'S RECOMMENDATION AND AVAILABLE MACHINERY IF REQUIRED.



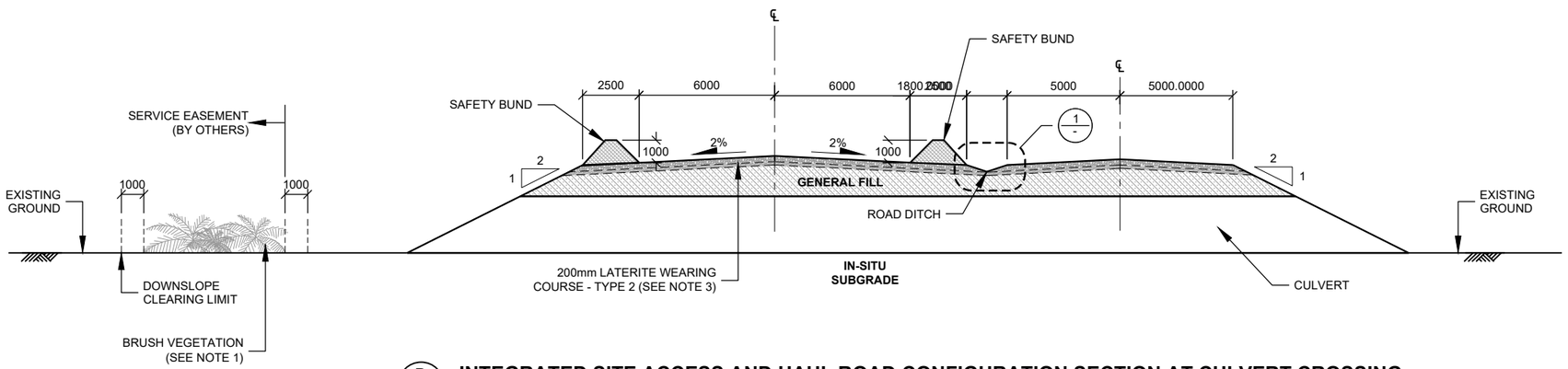
A - TYPICAL CULVERT INLET/OUTLET SECTION
(SEE TABLE 1)
N.T.S.



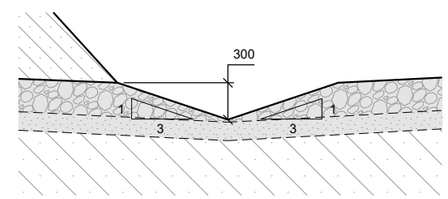
B - TYPICAL CULVERT HEADWALL SECTION
(SEE TABLE 1)
N.T.S.



C - TYPICAL CULVERT TRENCH EXCAVATION & BACKFILL SECTION
(SEE TABLE 1)
N.T.S.



D - INTEGRATED SITE ACCESS AND HAUL ROAD CONFIGURATION SECTION AT CULVERT CROSSING
1:250



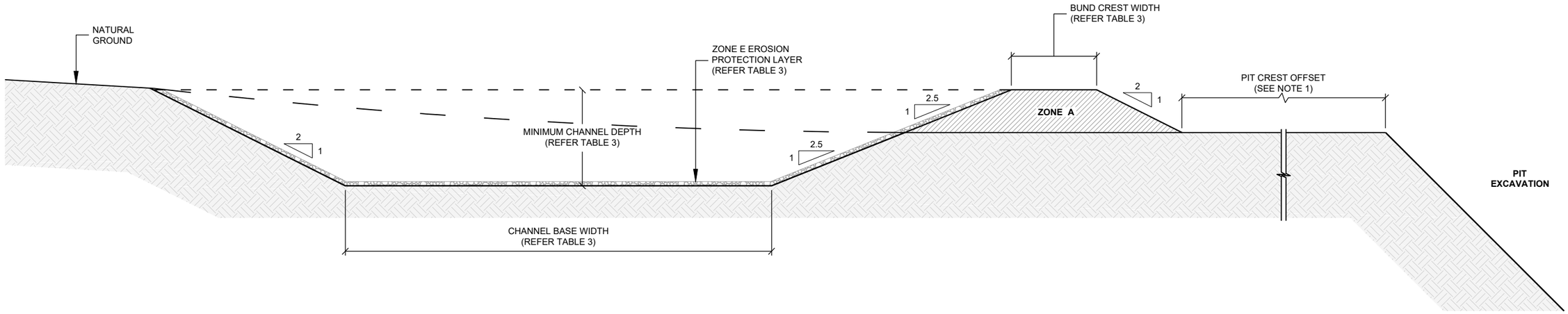
1 - DETAIL
1:50

NOTES:

1. DIVERSION CHANNEL BUND TO PIT CREST MINIMUM OFFSET DISTANCE SHALL BE FINALIZED WITH CONSIDERATION TO SOIL STABILITY DURING PIT DESIGN.

TABLE 3:
DIVERSION CHANNEL DETAILS

DIVERSION CHANNEL I.D.	CHANNEL BASE WIDTH (m)	MINIMUM CHANNEL DEPTH (m)	BUND CREST WIDTH (m)	EROSION PROTECTION LAYER THICKNESS (m)
DC-02	1.0	1.3	1.0	0.1
DC-03	2.0	1.5	1.0	0.3
DC-04	2.0	1.1	1.0	0.2
DC-05	2.0	1.4	2.0	0.3
DC-06	3.0	1.8	2.0	0.3
DC-07	1.0	1.4	1.0	0.3
DC-08	1.0	1.0	1.0	0.1
DC-08A	1.0	1.0	1.0	0.1
DC-09	1.0	1.0	1.0	0.2
DC-09A	1.0	1.2	1.0	0.2
DC-10	1.5	1.5	3.0	0.2
DC-11	70.0	2.6	10.0	0.2

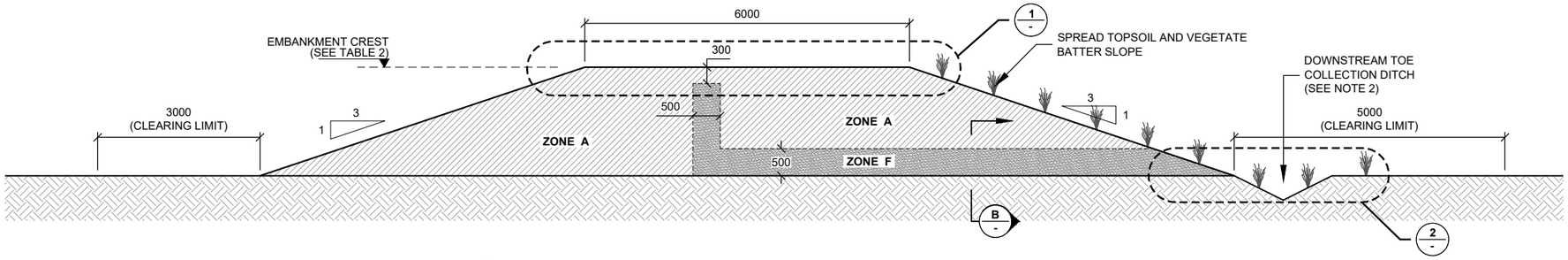


J
-

TYPICAL PIT DIVERSION CHANNEL AND BUND SECTION
1:100

NOTES:

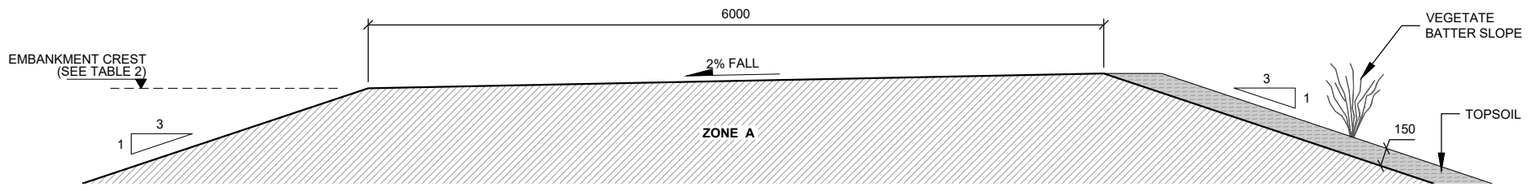
1. SAFETY BUND TO BE CONSTRUCTED OF ZONE D (GENERAL FILL MATERIAL). BREAKS IN UPSTREAM SAFETY BUND AT 20m CENTRES TO ALLOW DRAINAGE OF RAINFALL RUNOFF.
2. DOWNSTREAM TOE COLLECTION DITCH TO DISCHARGE INTO EXISTING WATER COURSE DOWNSTREAM OF EMBANKMENT.
3. TRANSVERSE FINGER DRAINS AT 30m SPACING ALONG LENGTH OF EMBANKMENT.



A - TYPICAL SEDIMENT CONTROL STRUCTURE EMBANKMENT SECTION
1:100

TABLE 1:
SUMMARY OF ZONE TYPES

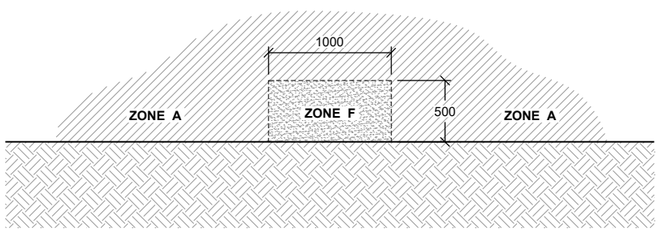
ZONE TYPE	DESCRIPTION	COMPACTION SPECIFICATION
ZONE A	LOW PERMEABILITY - SILT/CLAY	98% SMDD -2%<OMC<+3%
ZONE D	APPROVED GENERAL FILL	92% SMMD
ZONE E	EROSION PROTECTION - RIP RAP	UNIFORM DENSITY FREE FROM LARGE CAVITIES
ZONE F	DRAINAGE MEDIUM - SAND/FINE GRAVEL	UNIFORM DENSITY FREE FROM LARGE CAVITIES



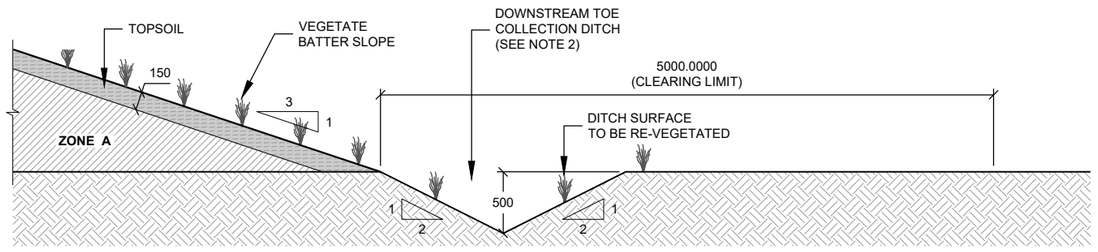
1 - TYPICAL EMBANKMENT CREST DETAIL
1:50

TABLE 2:
SEDIMENT CONTROL STRUCTURE DETAILS

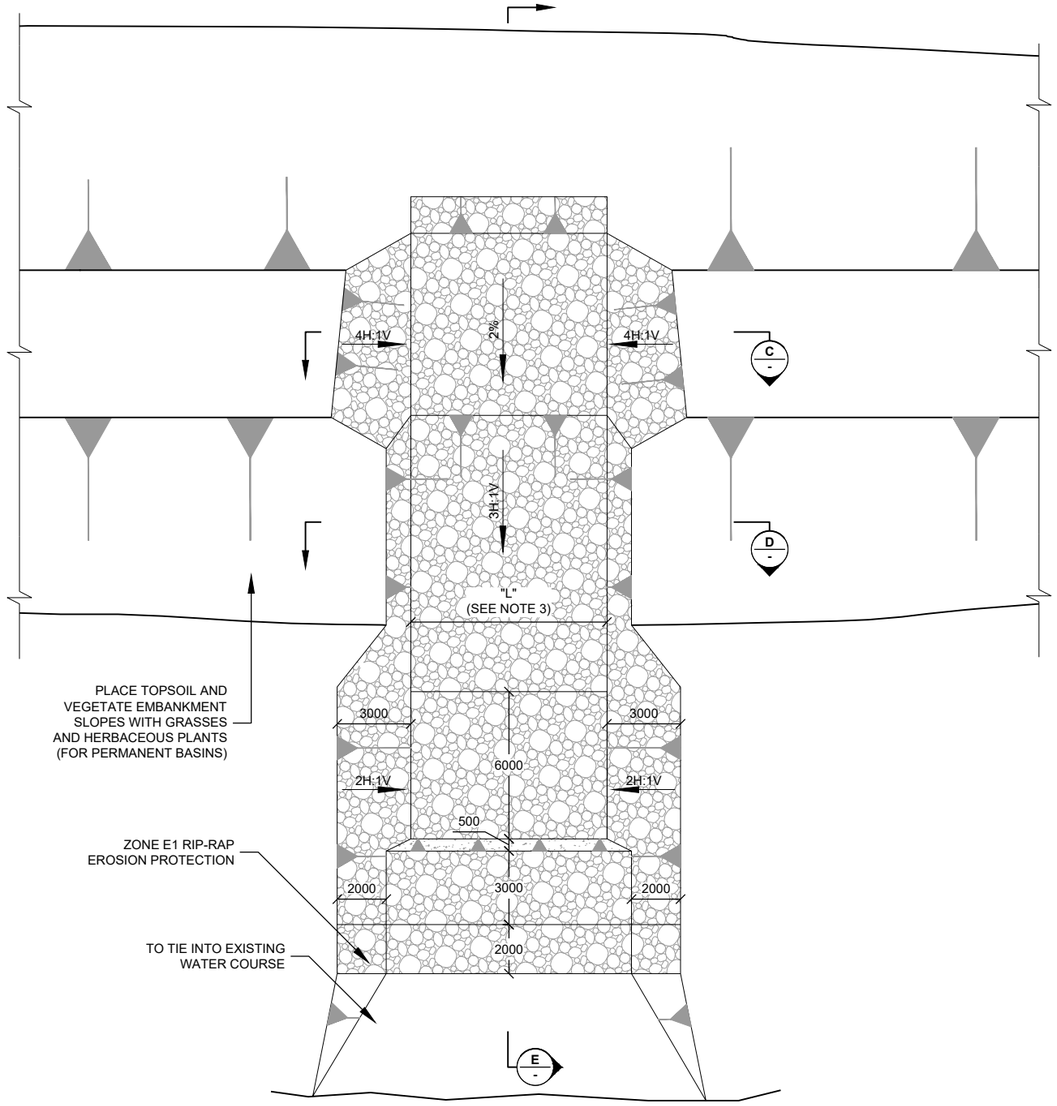
SEDIMENT CONTROL STRUCTURE I.D.	EMBANKMENT CREST LEVEL (mR.L.)	SPILLWAY INVERT LEVEL (mR.L.)	SPILLWAY WIDTH (m)	ZONE E EROSION PROTECTION LAYER THICKNESS (m)
SCS 01	314.1	313.3	25	0.2
SCS 02	318.7	317.5	10	0.3
SCS 03	322.8	322.0	10	0.2
SCS 04	301.5	300.2	30	0.2



B - TYPICAL TRANSVERSE FINGER DRAIN SECTION
1:100



2 - TYPICAL DOWNSTREAM TOE COLLECTION DITCH DETAIL
1:50

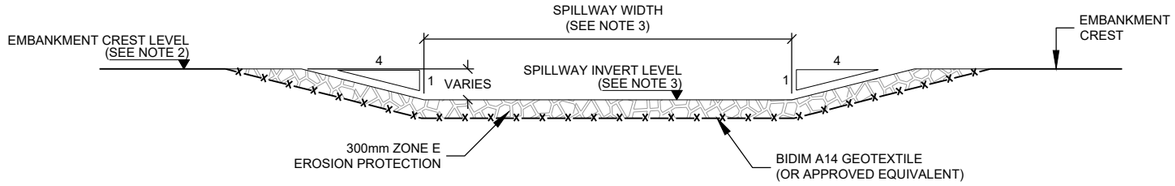


TYPICAL SEDIMENTATION BASIN SPILLWAY PLAN

1:250

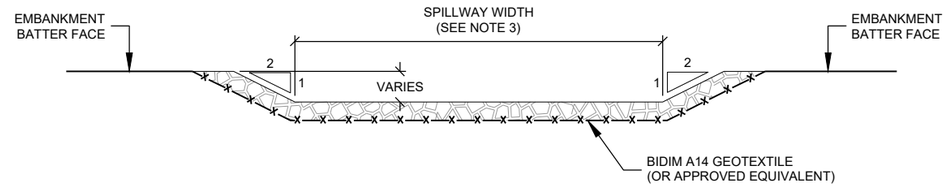
NOTES:

1. FOR ZONE SPECIFICATIONS REFER TABLE 1 ON FIGURE 3.7.
2. FOR EMBANKMENT CREST LEVEL REFER TABLE 2 ON FIGURE 3.7.
3. FOR SPILLWAY WIDTH AND INVERT LEVEL REFER TABLE 2 ON FIGURE 3.7.
4. FOR EROSION PROTECTION LAYER THICKNESS REFER TABLE 2 ON FIGURE 3.7



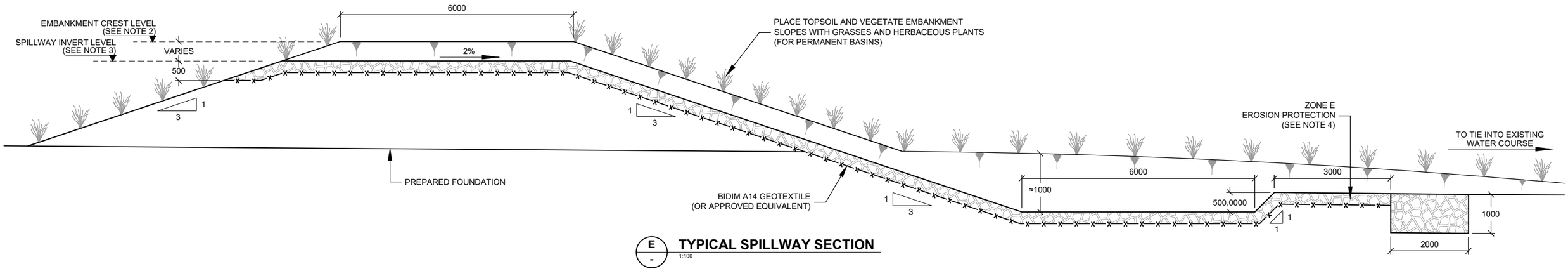
C - TYPICAL SPILLWAY SECTION AT CREST

1:100



D - TYPICAL SPILLWAY SECTION ON BATTER

1:100



E - TYPICAL SPILLWAY SECTION

1:100

TABLES

Table T1: Bill of Quantities for Stormwater Management

Item	Description	Unit	Quantity Stage 1	Quantity Stage 2+
5.1	**PRELIMINARIES AND GENERAL COSTS**			
5.1.1	**Preliminary and General**			
5.1.1.1	Preliminary and general costs (including mobilization and demobilization)	Item	12%	12%
	Sub Total			
5.2	**DIVERSION CHANNEL CONSTRUCTION**			
5.2.1	**Diversion Channel DC02**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2	8,400	
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3	1,700	
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2	2,200	
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3	500	
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2	2,000	
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3	1,700	
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3	4,500	
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3	310	
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3	450	
5.2.1	**Diversion Channel DC03**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		98,800
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		19,800
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		24,800
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		12,700
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		47,300
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		48,100
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		14,200
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		3,120
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		11,460
5.2.1	**Diversion Channel DC04**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		56,400
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		11,300
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		14,200
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		6,800
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		29,600
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		16,400
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		5,200
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		1,080
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		6,130
5.2.1	**Diversion Channel DC05**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		67,000
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		13,400
	Stockpiles & Borrow Areas			0
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		16,800
	Material Supply			0
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		10,600
	Earthwork and Erosion Protection			0
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		33,700
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		24,100
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		7,300
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		1,570
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		9,630
5.2.1	**Diversion Channel DC06**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		61,000
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		12,200
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		15,300
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		16,500
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		12,700
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		12,700
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		15,200
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		1,400
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		14,990

Table T1: Bill of Quantities for Stormwater Management (cont.)

Item	Description	Unit	Quantity Stage 1	Quantity Stage 2+
5.2.1	**Diversion Channel DC07**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		17,000
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		3,400
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		4,300
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		4,500
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		4,800
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		4,900
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		12,000
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		850
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		4,080
5.2.1	**Diversion Channel DC08**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		5,600
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		1,200
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		1,500
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		400
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		1,700
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		1,400
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		2,800
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		210
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		300
5.2.1	**Diversion Channel DC08a**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		4,200
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		900
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		1,100
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		300
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		1,300
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		1,000
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		2,100
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		160
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		260
5.2.1	**Diversion Channel DC09**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		8,300
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		1,700
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		2,100
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		1,200
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		1,400
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		1,200
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		5,400
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		330
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		1,040
5.2.1	**Diversion Channel DC09a**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		14,800
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		3,000
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		3,800
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		2,200
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		3,400
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		3,600
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		11,700
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		770
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		1,970

Table T1: Bill of Quantities for Stormwater Management (cont.)

Item	Description	Unit	Quantity Stage 1	Quantity Stage 2+
5.2.1	**Diversion Channel DC10**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		6,300
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		1,300
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		1,600
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		800
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		2,100
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		2,400
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		1,600
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		200
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		650
5.2.1	**Diversion Channel DC11**			
	Site Preparation			
5.2.1.1	Clear and grub diversion channel footprints and haul vegetation to designated stockpiles	m2		193,500
5.2.1.2	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3		38,700
	Stockpiles & Borrow Areas			
5.2.1.3	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2		48,400
	Material Supply			
5.2.1.4	Supply suitable Zone E erosion protection material to stockpile	m3		50,100
	Earthwork and Erosion Protection			
5.2.1.5	Scarify, condition and compact in-situ material within bund footprint (200 mm depth)	m2		23,400
5.2.1.6	Excavate and shape diversion channels, haul, spread, condition and compact adjacent bunds	m3		36,400
5.2.1.7	Excavate channels, load and haul to designated stockpile	m3		637,000
5.2.1.8	Extra over for breaking hard rock material (nominal allowance)	m3		33,670
5.2.1.9	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in diversion channel	m3		45,480
	Sub Total			
5.3	**SEDIMENT CONTROL STRUCTURES**			
5.3.1	**Sediment Control Structures (SDS01)**			
	Site Preparation			
5.3.1.1	Clear and grub SCS footprint and haul vegetation to designated stockpiles	m2	13,000	
5.3.1.2	Strip topsoil (200 mm) from SCS footprints, haul to designated stockpile	m3	3,000	
5.3.1.3	Excavate unsuitable material from the embankment footprints, haul to designated stockpile (nominal allowance)	m3	800	
	Stockpiles & Borrow Areas			
5.2.5.4	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2	7,500	
5.2.5.5	Clear and grub designated borrow areas, push material to perimeter (4m deep)	m2	2,000	
5.2.5.6	Strip topsoil from borrow areas, haul to designated stockpiles	m3	400	
	Material Supply			
5.3.1.7	Supply suitable Zone E erosion protection material to stockpile (includes win, haul and place in stockpile)	m3	1,920	
	Earthwork and Erosion Protection			
5.3.1.8	Scarify, condition and compact in-situ material within embankment footprint (200 mm depth)	m2	5,000	
5.3.1.9	Win from borrow, load, haul, place, spread, condition and compact Zone A material in embankment	m3	7,000	
5.3.1.10	Win from stockpiles, load, haul, place, spread, condition and compact Zone F1 material in embankment finger drains	m3	500	
5.3.1.11	Supply and install Bidim non-woven geotextile under erosion protection material along Embankment Upstream Face	m2	800	
5.3.1.12	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to Embankment Upstream face	m3	300	
5.3.1.13	Excavate and shape SCS spillways, haul and place suitable material in designated stockpile	m3	400	
5.3.1.14	Extra over for breaking hard rock material (nominal allowance)	m3	20	
5.3.1.15	Scarify, condition and compact in-situ subgrade (200 mm depth) in spillway base prior to geotextile placement	m2	400	
5.3.1.16	Supply and install Bidim non-woven geotextile under erosion protection material	m2	400	
5.3.1.17	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to spillway	m3	200	
	Downstream Toe Collection Ditch Construction			
5.3.1.18	Excavate downstream toe collection ditch, haul to designated stockpile	m3	200	
	Drainage and Re-vegetation			
5.3.1.19	Win from stockpile, load, haul, place and spread topsoil (200 mm depth) to embankment downsream slopes and ditch collection drain	m3	1,800	
	Sediment Collection Drains			
5.3.1.20	Clear and grub sediment collection drains footprints and haul vegetation to designated stockpiles	m2	20,400	
5.3.1.21	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3	4,100	
5.3.1.22	Excavate drains, load and haul material to designated stockpile	m3	14,700	
5.3.1.23	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in drain	m3	2,240	

Table T1: Bill of Quantities for Stormwater Management (cont.)

Item	Description	Unit	Quantity Stage 1	Quantity Stage 2+
5.3.2	**Sediment Control Structures (SDS02)**			
	Site Preparation			
5.3.2.1	Clear and grub SCS footprint and haul vegetation to designated stockpiles	m2	15,000	
5.3.2.2	Strip topsoil (200 mm) from SCS footprints, haul to designated stockpile	m3	3,000	
5.3.2.3	Excavate unsuitable material from the embankment footprints, haul to designated stockpile (nominal allowance)	m3	1,000	
	Stockpiles & Borrow Areas			
5.3.2.4	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2	5,900	
5.3.2.5	Clear and grub designated borrow areas, push material to perimeter (4m deep)	m2	3,000	
5.3.2.6	Strip topsoil from borrow areas, haul to designated stockpiles	m3	600	
	Material Supply			
5.3.2.7	Supply suitable Zone E erosion protection material to stockpile (includes win, haul and place in stockpile)	m3	970	
	Earthwork and Erosion Protection			
5.3.2.8	Scarify, condition and compact in-situ material within embankment footprint (200 mm depth)	m2	6,000	
5.3.2.9	Win from borrow, load, haul, place, spread, condition and compact Zone A material in embankment	m3	9,000	
5.3.2.10	Win from stockpile, load, haul, place, spread, condition and compact Zone F1 material in embankment finger drains	m3	500	
5.3.2.11	Supply and install Bidim non-woven geotextile under erosion protection material along Embankment Upstream Face	m2	1,800	
5.3.2.12	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to Embankment Upstream face	m3	600	
5.3.2.13	Excavate and shape SCS spillways, haul and place suitable material in designated stockpile	m3	400	
5.3.2.14	Extra over for breaking hard rock material (nominal allowance)	m3	20	
5.3.2.15	Scarify, condition and compact in-situ subgrade (200 mm depth) in spillway base prior to geotextile placement	m2	400	
5.3.2.16	Supply and install Bidim non-woven geotextile under erosion protection material	m2	400	
5.3.2.17	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to spillway	m3	200	
	Downstream Toe Collection Ditch Construction			
5.3.2.18	Excavate downstream toe collection ditch, haul to designated stockpile	m3	200	
	Drainage and Re-vegetation			
5.3.2.19	Win from stockpile, load, haul, place and spread topsoil (200 mm depth) to embankment downsream slopes and ditch collection drain	m3	3,300	
	Sediment Collection Drains			
5.3.2.20	Clear and grub sediment collection drains footprints and haul vegetation to designated stockpiles	m2	6,200	
5.3.2.21	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3	1,300	
5.3.2.22	Excavate drains, load and haul material to designated stockpile	m3	3,800	
5.3.2.23	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in drain	m3	680	
5.3.3	**Sediment Control Structures (SDS03)**			
	Site Preparation			
5.3.3.1	Clear and grub SCS footprint and haul vegetation to designated stockpiles	m2	9,000	
5.3.3.2	Strip topsoil (200 mm) from SCS footprints, haul to designated stockpile	m3	2,000	
5.3.3.3	Excavate unsuitable material from the embankment footprints, haul to designated stockpile (nominal allowance)	m3	600	
	Stockpiles & Borrow Areas			
5.3.3.4	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2	5,300	
5.3.3.5	Clear and grub designated borrow areas, push material to perimeter (4m deep)	m2	2,000	
5.3.3.6	Strip topsoil from borrow areas, haul to designated stockpiles	m3	400	
	Material Supply			
5.3.3.7	Supply suitable Zone E erosion protection material to stockpile (includes win, haul and place in stockpile)	m3	1,470	
	Earthwork and Erosion Protection			
5.3.3.8	Scarify, condition and compact in-situ material within embankment footprint (200 mm depth)	m2	4,000	
5.3.3.9	Win from borrow, load, haul, place, spread, condition and compact Zone A material in embankment	m3	5,000	
5.3.3.10	Win from stockpile, load, haul, place, spread, condition and compact Zone F1 material in embankment finger drains	m3	300	
5.3.3.11	Supply and install Bidim non-woven geotextile under erosion protection material along Embankment Upstream Face	m2	1,000	
5.3.3.12	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to Embankment Upstream face	m3	300	
5.3.3.13	Excavate and shape SCS spillways, haul and place suitable material in designated stockpile	m3	400	
5.3.3.14	Extra over for breaking hard rock material (nominal allowance)	m3	20	
5.3.3.15	Scarify, condition and compact in-situ subgrade (200 mm depth) in spillway base prior to geotextile placement	m2	400	
5.3.3.16	Supply and install Bidim non-woven geotextile under erosion protection material	m2	400	
5.3.3.17	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to spillway	m3	200	
	Downstream Toe Collection Ditch Construction			
5.3.3.18	Excavate downstream toe collection ditch, haul to designated stockpile	m3	200	
	Drainage and Re-vegetation			
5.3.3.19	Win from stockpile, load, haul, place and spread topsoil (200 mm depth) to embankment downsream slopes and ditch collection drain	m2	2,200	
	Sediment Collection Drains			
5.3.3.20	Clear and grub sediment collection drains footprints and haul vegetation to designated stockpiles	m2	10,300	
5.3.3.21	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3	2,100	
5.3.3.22	Excavate drains, load and haul material to designated stockpile	m3	6,200	
5.3.3.23	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in drain	m3	1,130	

Table T1: Bill of Quantities for Stormwater Management (cont.)

Item	Description	Unit	Quantity Stage 1	Quantity Stage 2+
5.3.4	**Sediment Control Structures (SDS04)**			
	Site Preparation			
5.3.4.1	Clear and grub SCS footprint and haul vegetation to designated stockpiles	m2	31,000	
5.3.4.2	Strip topsoil (200 mm) from SCS footprints, haul to designated stockpile	m3	7,000	
5.3.4.3	Excavate unsuitable material from the embankment footprints, haul to designated stockpile (nominal allowance)	m3	200	
	Stockpiles & Borrow Areas			
5.3.4.4	Clear and grub designated stockpiles, push material to perimeter (2m high)	m2	8,300	
5.3.4.5	Clear and grub designated borrow areas, push material to perimeter (4m deep)	m2	400	
5.3.4.6	Strip topsoil from borrow areas, haul to designated stockpiles	m3	100	
	Material Supply			
5.3.4.7	Supply suitable Zone E erosion protection material to stockpile (includes win, haul and place in stockpile)	m3	400	
	Earthwork and Erosion Protection			
5.3.4.8	Scarify, condition and compact in-situ material within embankment footprint (200 mm depth)	m2	1,600	
5.3.4.9	Win from borrow, load, haul, place, spread, condition and compact Zone A material in embankment	m3	1,300	
5.3.4.10	Win from stockpile, load, haul, place, spread, condition and compact Zone F1 material in embankment finger drains	m3	100	
5.3.4.11	Supply and install Bidim non-woven geotextile under erosion protection material along Embankment Upstream Face	m2	500	
5.3.4.12	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to Embankment Upstream face	m3	200	
5.3.4.13	Excavate and shape SCS spillways, haul and place suitable material in designated stockpile	m3	800	
5.3.4.14	Extra over for breaking hard rock material (nominal allowance)	m3	100	
5.3.4.15	Scarify, condition and compact in-situ subgrade (200 mm depth) in spillway base prior to geotextile placement	m2	800	
5.3.4.16	Supply and install Bidim non-woven geotextile under erosion protection material	m2	800	
5.3.4.17	Win from supplied stockpile, load, haul, place and spread 200mm Zone E erosion protection material to spillway	m3	300	
	Downstream Toe Collection Ditch Construction			
5.3.4.18	Excavate downstream toe collection ditch, haul to designated stockpile	m3	70	
	Drainage and Re-vegetation			
5.3.4.19	Win from stockpile, load, haul, place and spread topsoil (200 mm depth) to embankment downsream slopes and ditch collection drain	m3	700	
	Sediment Collection Drains			
5.3.4.20	Clear and grub sediment collection drains footprints and haul vegetation to designated stockpiles	m2	33,700	
5.3.4.21	Strip topsoil (200 mm) from site diversion channel footprints, haul to designated stockpile	m3	6,800	
5.3.4.22	Excavate drains, load and haul material to designated stockpile	m3	30,300	
5.3.4.23	Selectively win from supplied stockpile, load, haul and place Zone E erosion protection material in drain	m3	3,690	
5.3.6	**Silt Fences**			
5.3.6.1	Supply necessary materials and construct silt fences	m	2,000	
	Sub Total			
	SUMMARY			
5.1	**PRELIMINARIES AND GENERAL COSTS**			
5.2	**DIVERSION CHANNEL CONSTRUCTION**			
5.3	**SEDIMENT CONTROL STRUCTURES**			
	TOTAL			

APPENDIX L

Memorandum Ref. PE25-01637

Doropo Gold Project – Site Access Road and Haul Road Design

Definitive Feasibility Study Rev 1

Knight Piésold CONSULTING

MEMORANDUM

To:	Resolute Mining	**Date:**	19 December 2025
Attn:	Rob Cicchini	**Our Ref:**	PE25-01637
		KP File Ref.:	PE301-00821/07-A kpe M25016
cc:	Luciano Giancristofaro	**From:**	Dave Morgan

RE: DOROPO GOLD PROJECT – SITE ACCESS ROAD AND HAUL ROAD DESIGN DEFINITIVE FEASIBILITY STUDY UPDATE REV 1

Knight Piésold Pty Ltd (KP) has completed the feasibility design of the Site Access Road (SAR) and Haul Access Road (HAR) for the Doropo Gold Project (Doropo) as part of the definitive feasibility study (DFS). The project is located in north-eastern Côte d'Ivoire in the Bounkani region, 480 km north of the capital city Abidjan and 50 km north of the city of Bouna. The findings are summarised in this memorandum.

This memorandum supersedes the document PE24-00377.

1. INTRODUCTION

The proposed HAR will connect the Doropo Project area, including the processing plant and related structures with the Souwa, Chegue and Nokpa pits in the north, and the Kilosegui ore bodies to the south west. The total length of the HAR is ~27 km.

The HAR intersects an existing sealed A1 national highway ~16 km south of the processing plant. A haul road overpass structure is proposed where the HAR intersects the A1 national highway.

The proposed SAR will connect the Doropo Project area with the sealed A1 national highway. The total length of the SAR is ~16 km, and runs parallel to the HAR.

The proposed road alignments are shown in Figure 1. The alignments for the SAR and HAR were developed based on discussions with Resolute Mining Limited (Resolute) and Orelogy Consulting Pty Ltd (Orelogy). KP's design scope for haul access roads was limited to the segment spanning chainage 2+700 to the Kilosegui ore bodies. All other haul roads within the project area are outside KP's scope of work and are being designed by others.

2. DESIGN PARAMETERS

The road vertical alignment was designed to balance cut to fill as much as practicable over the entire road length. Local balancing of cut and fill volumes will be completed during the detailed design phase. The vertical alignment design included allowance for fill build-up around stream crossings (where applicable) to ensure correct operation of crossings, and for excavation in areas of steeper terrain, to meet design parameters and safety requirements. Vertical curves and grades along the road alignments were designed according to the design parameters. While the current assumption is that locally won cut material is suitable for subgrade and subbase layers, the specific requirements will be assessed and incorporated during the detailed design stage.

The design parameters for the SAR and HAR are provided in tables 1 and 2 respectively. Typical cross sections of SAR and HAR are presented in figures 2 and 3.

Table 1: Site access road design parameters

Parameter	Value
Road Cross Section	Lane road width – 3.5 m Shoulder width – 1.5 m Carriageway width – 10 m Crossfall – 2 %
Design Speed	50 – 60 km/h
Safety Berm	0.5 m high
Minimum Horizontal Curve Radius	150 m
Minimum Vertical Curve Radius	1,500 m
Minimum Vertical Curve length	40 m
Maximum Vertical Grade	8%
Topsoil Depth (assumed)	200 mm
Pavement	150 mm laterite gravel wearing course
Road Drainage Ditch	V-ditch configuration with 1V:2H sides

The adopted design speed for the SAR is 60 km/h, with a road width of 7.0 m (comprising 2 lanes of 3.5 m width). The design speed was reduced to 40 km/h from chainage 3+021 to 3+166 due to constraints posed by the alignment changes and presence of culvert C-001. No superelevation was considered for the horizontal curves during the current stage of design. This will be considered during the detailed design stage where required.

Safety berms of 0.5 m high are proposed where fill batters exceed 2 m in height. Breaks in the safety berms across the site access road are proposed at 50 m intervals to facilitate surface drainage off the road.

These drainage breaks will be no greater than 1 m wide and angled away from the direction of travel.

A 150 mm laterite gravel wearing course will be placed over the subgrade/general fill.

It is expected that routine maintenance and re-surfacing (as required) of the SAR will be undertaken during the operation.

It is assumed that overtaking areas and/or stopping bays will be installed during construction, and as such these have not been considered during the current design stage.

Table 2: Haul road design parameters

Parameter	Value
Road Cross Section	Double lane width – 12 m Safety bund width – 2.5 m (2 No. bunds) Total road width – 17 m Crossfall – 2 %
Design Speed	40 km/h
Safety Berm	1 m high
Minimum Horizontal Curve Radius	50 m
Minimum Vertical Curve Radius	1,500 m
Minimum Vertical Curve length	20 m
Maximum Vertical Grade	8%
Topsoil Depth (assumed)	200 mm
Pavement	200 mm laterite gravel wearing course*
Road Drainage Ditch	V-ditch configuration with 1V:2H

* To be upgraded when competent rock is available from the site quarry or mining operations.

The PFS was based on the HAR being a dual-lane road with a lane width of 12 m, with three safety berms measuring 2 m in height (4 m base width), resulting in a total formation width of 36 m. The nominated haul truck for the DFS study was Volvo FMX 460 8x4. Considering the reduced width of the vehicle, the HAR alignment was revised to a running width of 12 m (two-way passing), with two safety berms measuring 1 m in height (2.5 m base width), resulting in a total formation width of 17 m. The lane width will need to be increased if the haulage vehicle operating width is greater than 3.4 m (as the total running width should be equal to or greater than 3.5 – 4.0 times the vehicle operating width).

The adopted design speed for the HAR is 40 km/h with a running width of 12 m. The running width is the running surface clear of guideposts, drains and/or safety berms. No superelevation for the horizontal curves were considered at this stage of the design. The safety bund is proposed to be 1 m high, based on the diameter of the design vehicle tyre being less than 1.5 m. Breaks in the safety bunds are proposed at 50 m intervals to facilitate surface drainage off the road running surface. These drainage breaks will be no greater than 1 m wide and angled away from the direction of travel. A 200 mm laterite gravel-wearing course will be placed over the subgrade/general fill, with a view to being upgraded by the mining fleet when competent rock is available from the site quarry or mining operations. The road surface upgrade has not been included in the construction quantities.

A drainage ditch will run on either side of the site access road and haul road formations to convey runoff to level spreaders and culvert structures. The drainage ditch will be grader cut, with the excavated material pushed into the road formation to be used as general fill or sub-base. Drainage ditches comprising V-drains with 1V:2H slope were incorporated. The cut slopes of the V-drains should be adjusted depending on the ground conditions during the construction phase.

Culvert crossings were designed at significant stream-crossing locations to convey all runoff resulting from a 10-year annual recurrence interval (ARI). Culverts typically comprise either corrugated metal pipe structures or precast concrete box culverts, depending on the availability and costs.

The culvert inlets and outlets will comprise stone pitched headwalls. A minimum cover of 800 mm was adopted for the design, which is greater than the minimum cover requirements over culverts.

Where significant stream crossings are expected, the culvert crossings may be modified to floodway crossings during the next stage of design. The floodways would comprise a low flow culvert, to convey all runoff resulting from a 10-year ARI storm event and trafficable floodway structure to convey all runoff resulting from a larger storm event, over and above the flow through the culvert. The floodways may need to be lined with concrete or other alternatives to reduce erosion.

Preliminary catchment delineation was undertaken to assess various stream crossings based on the Shuttle Radar Topography Mission (SRTM) data and updated Digital Terrain Model (DTM) data made available. It is estimated that 19 No. culverts will be required along the HAR alignment and 10 No. culverts will be required along the SAR. The estimated preliminary culvert locations are summarised in Table 3. Typical culvert details are shown on Figure 5.

Table 3: Haul road and site access road preliminary culvert locations

Culvert ID	Haul Access Road Chainage	Site Access Road Chainage
C-001	-	3+040
C-002	2+940	3+160
C-003	4+880	5+140
C-004	7+680	7+920
C-005	8+510	8+750
C-006	10+160	10+400
C-007	10+500	11+740
C-008	11+960	12+200
C-009	12+500	12+740
C-010	14+880	15+120
C-011	15+550	-
C-012	16+780	-
C-013	18+590	-
C-014	19+340	-
C-015	20+750	-
C-016	22+040	-
C-017	23+580	-
C-018	25+520	-
C-019	28+740	-

1. Haul access road chainage starts from the Souwa pit to the north.
2. Site access road chainage starts from the proposed process plant.

The HAR connecting the northern pits and the plant site will be designed by others.

3. PUBLIC ROAD CROSSINGS

3.1 GENERAL

It was observed that the proposed haul road intersects several public unsealed access roads along its length. Based on the available site data, discussions with Resolute Mining and aerial images obtained via Google Earth, the following road crossings with the HAR were identified:

- SAR crossing for the proposed airstrip at chainage 6+650.
- Potential gravel public road crossings at 6+088, 8+000, 10+848, 11+111, 13+576, 17+754, 20+510, 22+600, 22+838, 25+191, and 25+877. These locations are to be confirmed by Resolute Mining.
- The proposed Doropo Project Development Area (PDA) affects the existing pedestrian paths connecting Herewedouo, Tonguidouo and Lassouri settlements. Deviation of the path outside of the PDA will increase the pedestrian pathway considerably. To reduce this, a 3 m wide fenced pedestrian pathway with manned security gates at haul road crossings has been proposed during the early DFS study. The proposed footpath layout is shown in Figure 6. Resolute will need to confirm if the proposed path remains the same or if any alternate diversions are proposed.
- The proposed haul road intersects the national highway A1 at chainage 15+287. A corrugated metal overpass was designed with details summarised in Section 3.2.

To ensure safety, efficiency and compliance with regulations, the following general recommendations are provided for the detailed design phase:

- As part of the detailed design phase, Resolute Mining should conduct a site visit to each crossing location to assess the traffic volumes and potential impacts of the haul road crossing on local settlements.
- Divert public roads away from the haul road where practicable.
- Provide controlled crossings (where required) at identified locations during the detailed design stage to regulate traffic flow and enhance safety.
- Implement measures such as traffic signals, stop signals, speed limit reductions, warning signs etc. to manage interactions between haul vehicles and public traffic.
- Implement appropriate signage, road markings, and lighting to alert drivers of potential hazards and ensure safe passage. Ensure clear visibility at crossing points for both haul road vehicles and public road users.
- Traffic management and effective communication with stakeholders.

3.2 PROPOSED OVERPASS FOR THE HAR – A1 INTERSECTION

It is proposed that the haul trucks will pass over the A1 highway crossing. The proposed overpass tunnel is a multi-plate™ arch tunnel built of Super-Cor® corrugated plates of 8.1 mm thickness. The tunnel span is 14.0 m wide and 7.0 m high. The proposed tunnel will be founded on 4 m wide strip reinforced concrete footings. The tunnel and footing dimensions are to be confirmed during the detailed design stage.

To increase the foundation bearing capacity and reduce settlements, ground improvement using soil replacement is proposed. This involves excavating the residual soil under the foundations to a depth and replacing with compacted structural fill.

The structural fill shall be crushed mine waste rock with fine contents less than 20% and maximum particle size of 75 mm. The structural fill needs to be compacted in layers less than 300 mm thick and achieve a 95 % modified maximum dry density.

A conceptual design of the overpass is presented in Appendix A, typical cross sections based on a similar project are presented in Figure 4.

4. CONSTRUCTION MATERIALS

The materials used for road construction shall generally comprise:

- A coarse-grained material, ideally gravel with low fines and low plasticity.
- A durable material which will not breakdown during compaction.
- A good volume stability with low shrink/swell characteristics.
- Limited oversize materials (>75 mm).

A preliminary specification for materials recommended for use in construction of unsealed roads is provided in Table 4.

Table 4: Preliminary specification for unsealed road construction materials

Parameter		Road material for unsealed roads
Particle size distribution (mm)	75	100 – 100
	37.5	80 – 100
	19	50 – 100
	9.5	36 – 100
	4.75	25 – 81
	2.36	18 – 66
	0.425	8 – 39
	0.075	3 – 23
Liquid limit (%)		≤35
Plasticity index (%)		4 – 17
Linear shrinkage (%)		≤5
4 days soaked CBR (%)		• 30% sub-base • Ideally 80% for basecourse but typically 40% is suitable, depending on traffic
Compaction		• 95% MMDD sub-base • 98% MMDD basecourse
Other		Material to be durable and not notably break down during compaction.

Site investigations for the proposed access roads were undertaken in February 2024. During the next phase of design, laboratory results for the in-situ soil will be evaluated against the specifications detailed in Table 4.

Should the in-situ material fail to meet these requirements, compliant material may need to be imported from external borrow sources.

We trust that this is sufficient for your current requirements. If you have any further queries, please contact us.

Yours faithfully
KNIGHT PIÉSOLD PTY LTD

KRISHNA ERUMODI
Project Engineer

DAVID MORGAN
Managing Director

FIGURES

460000mE
470000mE
480000mE
490000mE
1080000mN
1070000mN
1060000mN
1050000mN
EXISTING QUARRY LOCATION
EXISTING HIGHWAY
KILOSEGUI ORE BODIES
1
2
3
4
5
6
7

LEGEND:

- CATCHMENT BOUNDARY
- WATER COURSE
- EXISTING UNSEALED ROAD (MA□OR)
- EXISTING UNSEALED ROAD (MINOR)
- TENEMENT BOUNDARY
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 10m CONTOUR INTERVALS SHOWN.

ITEM KEY:

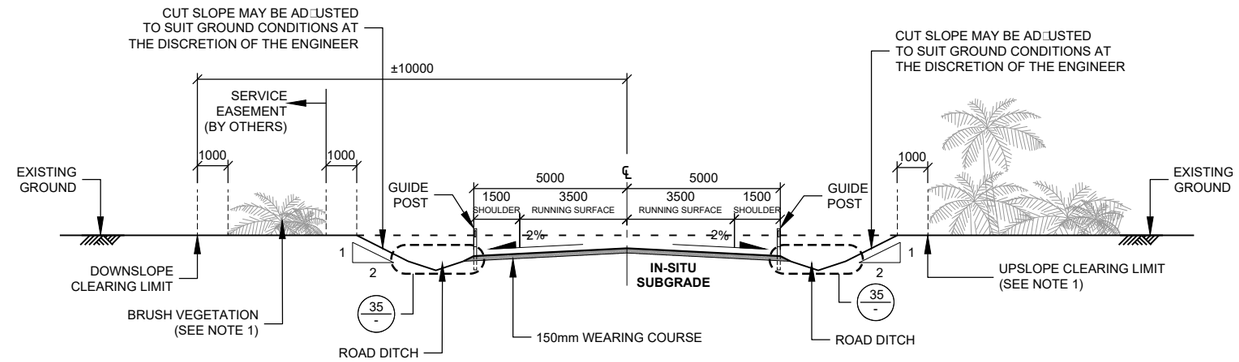
1. PROPOSED SITE AIRSTRIP
2. PROPOSED SITE ACCOMMODATION
3. PROPOSED SITE PLANT
4. WATER HARVEST DAM
5. TAILINGS STORAGE FACILITY
6. WATER STORAGE DAM
7. PROPOSED OVERPASS LOCATION

2000 1000 0 2500 5000 7500
SCALE (METRES)
1:150,000 (A3)

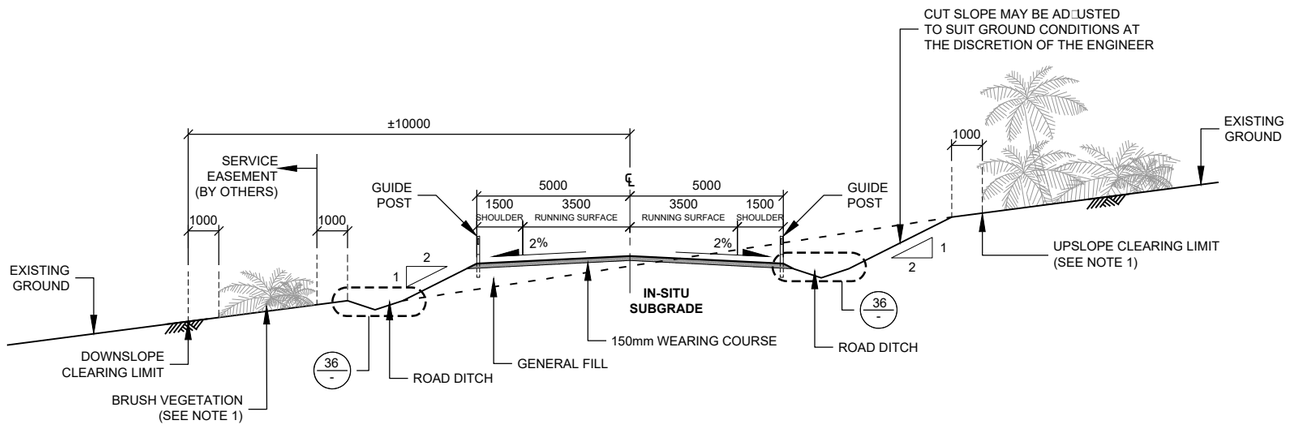
Knight Piésold CONSULTING

DOROPO GOLD MINE
PROPOSED SITE ACCESS ROAD & HAUL ROAD DEFINITIVE FEASIBILITY STUDY
SITE GENERAL ARRANGEMENT PLAN

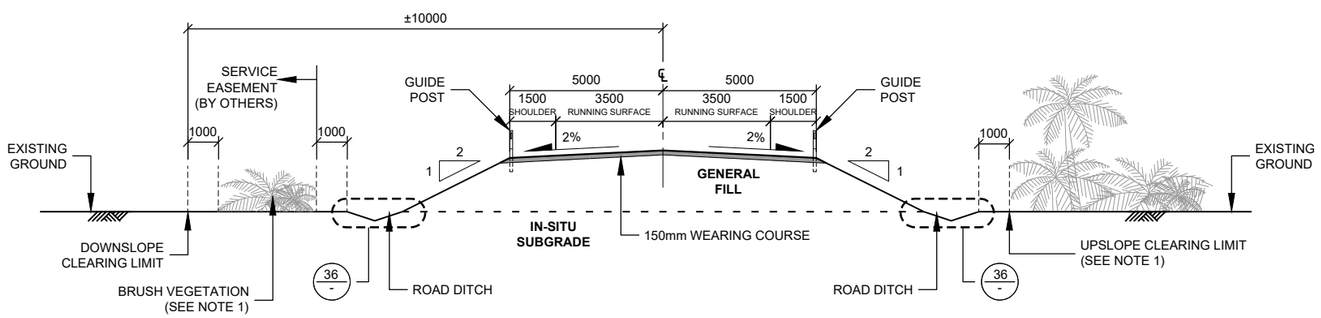
PE301-00821 M25016
Figure 1



AX - TYPICAL SITE ACCESS ROAD SECTION (IN CUT)
1:200



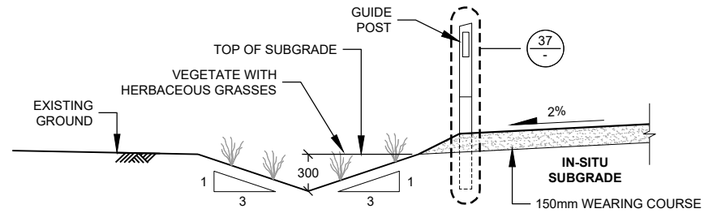
AY - TYPICAL SITE ACCESS ROAD SECTION (IN CUT TO FILL)
1:200



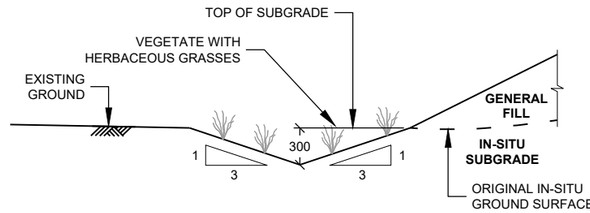
AZ - TYPICAL SITE ACCESS ROAD SECTION (IN FILL)
1:200

NOTES:

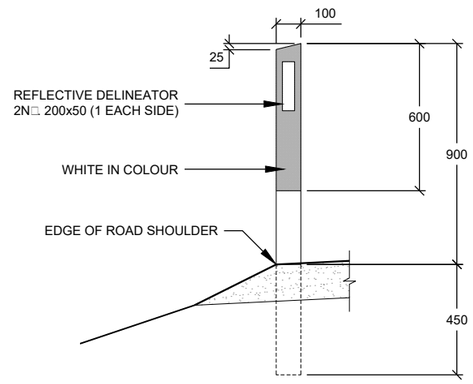
1. BRUSH VEGETATION CLEARED FROM THE ALIGNMENT TO BE STOCKPILED ALONG ALIGNMENT TO ACT AS A SEDIMENT BARRIER AS DIRECTED BY THE ENGINEER. IF EARTHWORKS IMPACT ON UPSLOPE SIDE OF ROAD IS NOT SIGNIFICANT, BRUSH VEGETATION SHALL BE PLACED ONLY TO DOWNSLOPE SIDE OF ROAD TO REDUCE UPSLOPE CLEARING LIMIT.
2. 500mm HIGH SAFETY BUNDS TO BE INSTALLED WHERE FILL BATTERS EXCEED 2m IN HEIGHT. BREAKS IN SAFETY BUNDS AT 50m INTERVALS AS DIRECTED BY THE ENGINEER.
3. WHERE IN-SITU MATERIAL MEETS WEARING COURSE SPECIFICATION SCARIFY, CONDITION AND COMPACT UPPER 200mm AS WEARING COURSE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION.
4. ALL DISTURBED AREAS TO BE REVEGETATED.
5. GENERAL FILL IS SHOWN. SUBGRADE AND SUB-BASE SHALL BE PROVIDED, IF REQUIRED, BASED ON IN-SITU MATERIAL AVAILABILITY TO ACHIEVE THE REQUIRED CBR VALUE, AS DIRECTED BY THE ENGINEER.



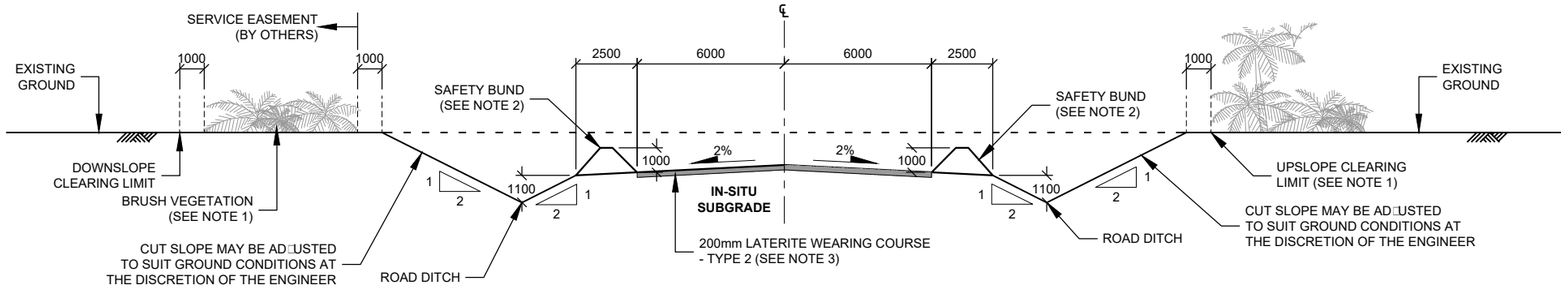
35 - TYPICAL ROAD DITCH DETAIL AT IN-SITU SUBGRADE
1:50



36 - TYPICAL ROAD DITCH DETAIL AT GENERAL FILL TOE
1:50



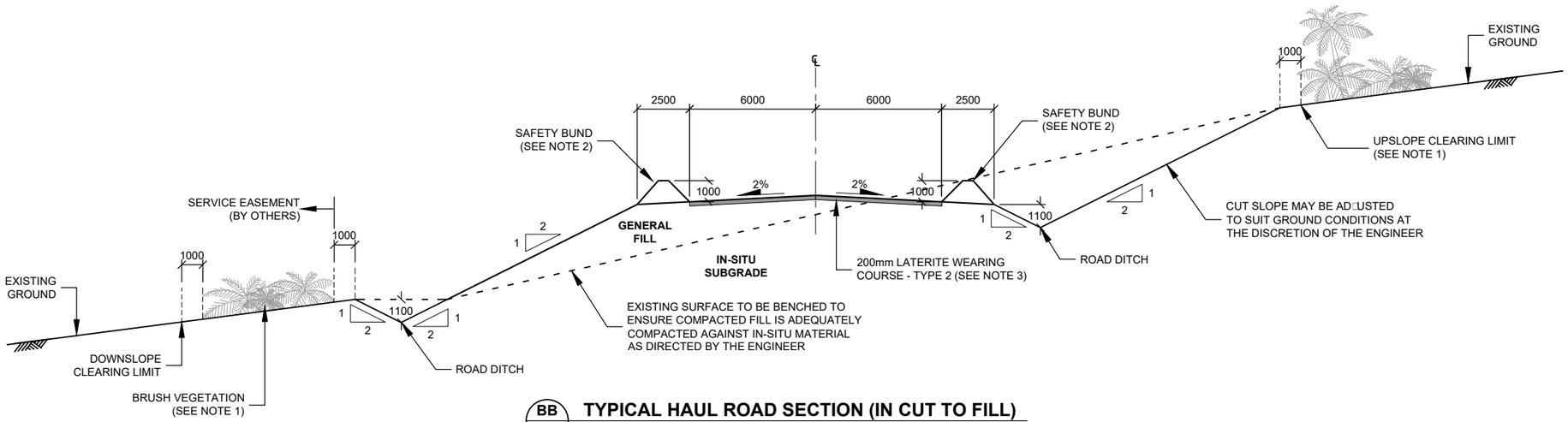
37 - TYPICAL GUIDE POST DETAIL
1:50



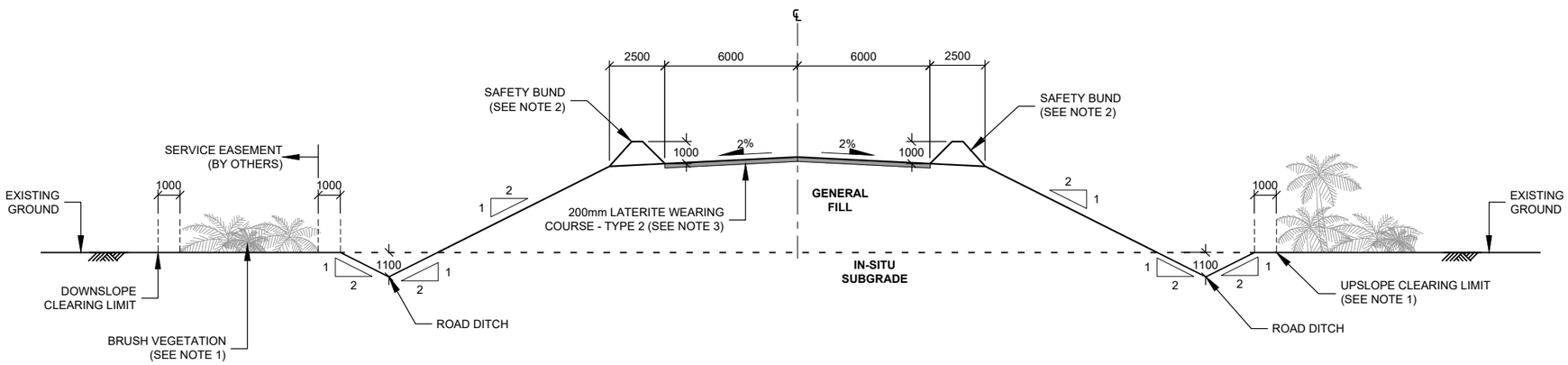
BA - **TYPICAL HAUL ROAD SECTION (IN CUT)**
1:200

NOTES:

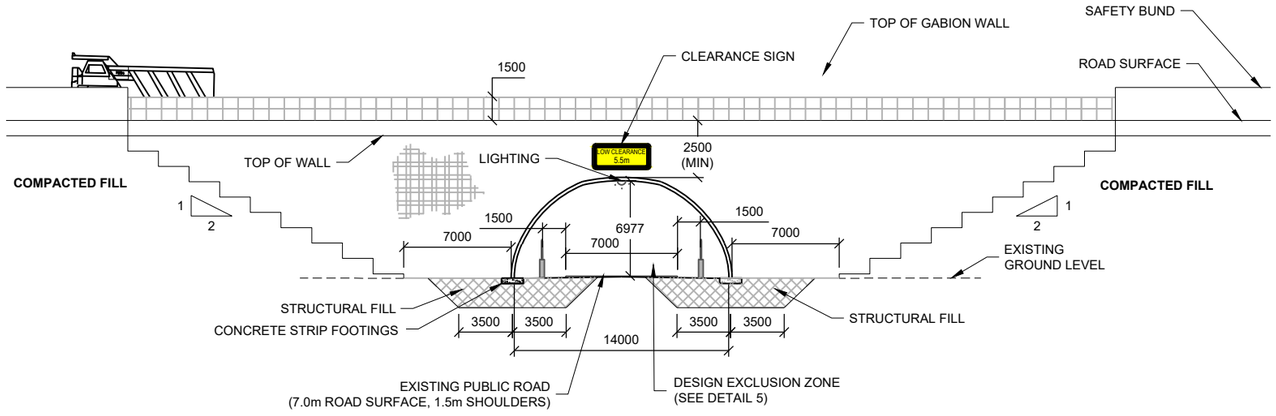
1. BRUSH VEGETATION CLEARED FROM THE ALIGNMENT TO BE STOCKPILED ALONG ALIGNMENT TO ACT AS A SEDIMENT BARRIER AS DIRECTED BY THE ENGINEER. IF EARTHWORKS IMPACT ON UPSLOPE SIDE OF ROAD IS NOT SIGNIFICANT, BRUSH VEGETATION SHALL BE PLACED ONLY TO DOWNSLOPE SIDE OF ROAD TO REDUCE UPSLOPE CLEARING LIMIT.
2. SAFETY BUNDS TO BE 1m HIGH. BREAKS IN SAFETY BUNDS AT 50m INTERVALS AS DIRECTED BY THE ENGINEER.
3. WHERE IN-SITU MATERIAL MEETS WEARING COURSE SPECIFICATION SCARIFY, CONDITION AND COMPACT UPPER 200mm AS WEARING COURSE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION.
4. ALL DISTURBED AREAS TO BE REVEGETATED.
5. GENERAL FILL IS SHOWN. SUBGRADE AND SUB-BASE SHALL BE PROVIDED, IF REQUIRED, BASED ON IN-SITU MATERIAL AVAILABILITY TO ACHIEVE THE REQUIRED CBR VALUE, AS DIRECTED BY THE ENGINEER.



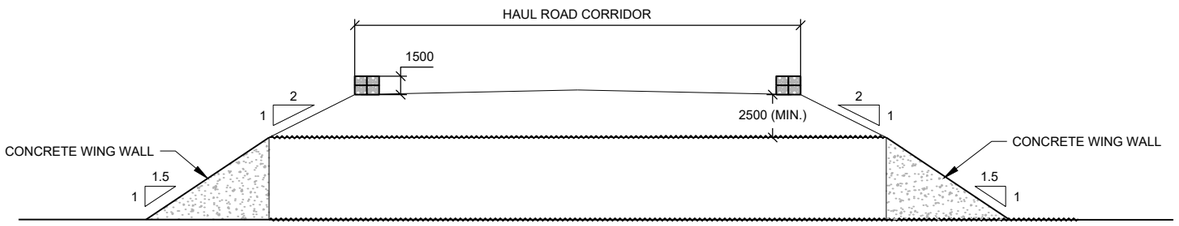
BB - **TYPICAL HAUL ROAD SECTION (IN CUT TO FILL)**
1:200



BC - **TYPICAL HAUL ROAD SECTION (IN FILL)**
1:200



G - TYPICAL OVERPASS CROSS SECTION THROUGH ENTRANCE
N.T.S.



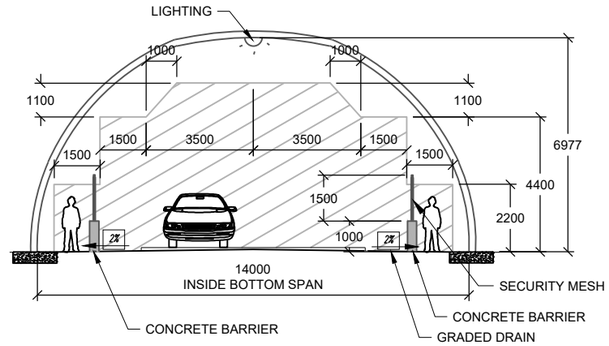
H - TYPICAL LONG SECTION THROUGH OVERPASS
N.T.S.

NOTES:

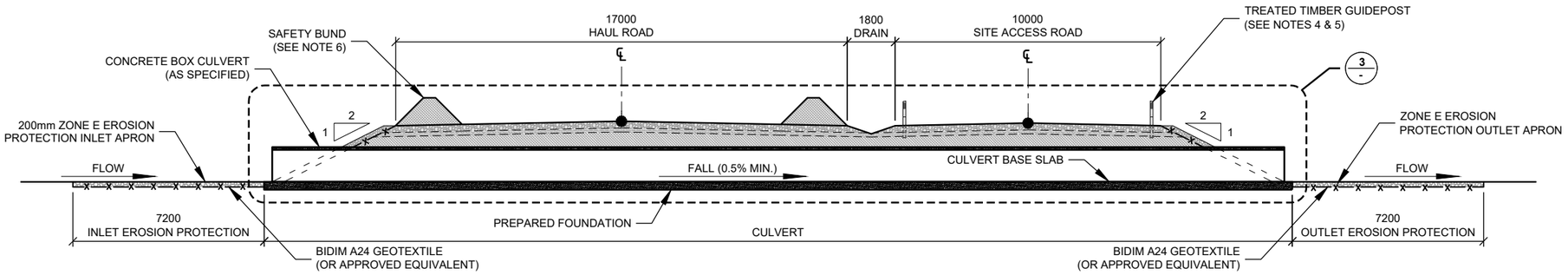
1. ARCH AND RETAINING WALL DESIGN BY OTHER.

P:\ACAD\CAD Drafting\KP Typical Drawings\Images\Overpass-003.jpg

4 - TYPICAL CONSTRUCTION DETAIL OF A CORRUGATED METAL OVERPASS
N.T.S.



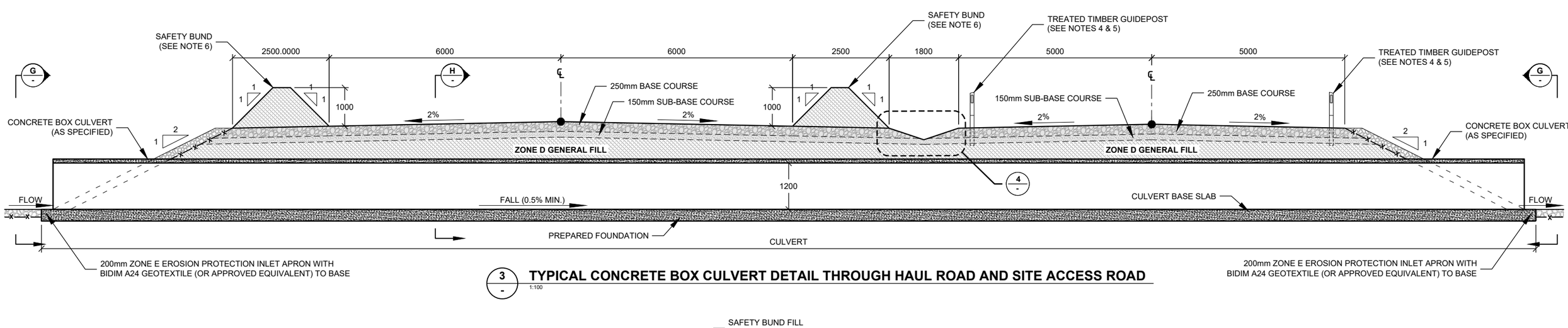
5 - TYPICAL OVERPASS STRUCTURE EXCLUSION ZONE
N.T.S.



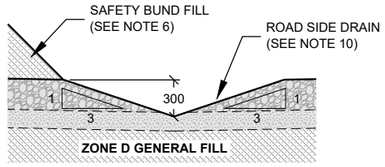
F - TYPICAL CONCRETE BOX CULVERT SECTION THROUGH HAUL ROAD AND SITE ACCESS ROAD
1:200

NOTES:

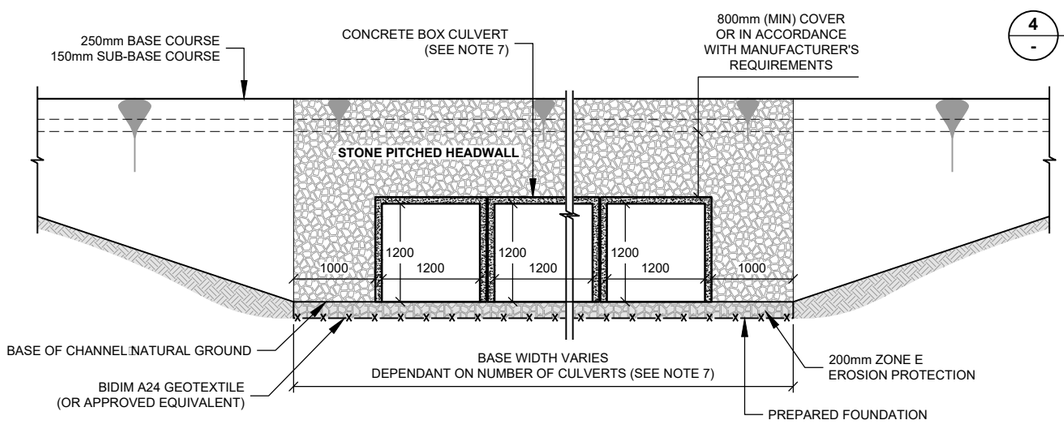
1. EXACT CHAINAGE OF CULVERT LOCATIONS, INLET AND OUTLET ELEVATIONS AND CULVERT ALIGNMENTS TO BE DETERMINED ON SITE.
2. CULVERT FOUNDATION PREPARATION AS DIRECTED BY THE ENGINEER.
3. EXTENT OF INLET AND OUTLET EROSION PROTECTION TO BE FIELD FITTED.
4. 100mm x 50mm TREATED STRUCTURAL GRADE TIMBER GUIDE POSTS TO BE INSTALLED ALONG THE ROAD ALIGNMENT AT 5m SPACING, WHERE FILL EXCEEDS 2m IN HEIGHT.
5. TREATED STRUCTURAL GRADE TIMBER POST TO BE EMBEDDED 800mm INTO FILL.
6. SAFETY BUNDS TO HAVE DRAINAGE BREAKS INSTALLED AT 20m CENTRES.
7. FOR THE REQUIRED NUMBER OF CONCRETE BOX CULVERTS, REFER TO TABLE 2.1 IN MEMO M25014.
8. ADDITIONAL MINOR CULVERTS MUST BE FITTED ON SITE WHERE REQUIRED.
9. MINIMUM COVER REQUIREMENTS FOR CULVERTS TO BE BASED ON MANUFACTURE'S RECOMMENDATIONS.
10. ROAD SIDE DRAIN, DISCHARGE INTO CATCHPITS POSITIONED AT THE COMMENCEMENT AND TERMINATION POINTS OF THE CULVERT CROSSING.



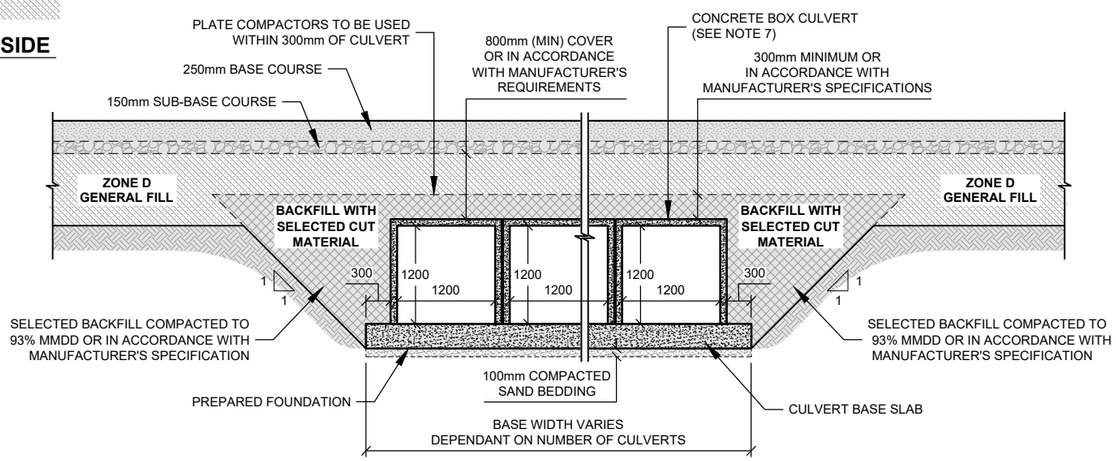
3 - TYPICAL CONCRETE BOX CULVERT DETAIL THROUGH HAUL ROAD AND SITE ACCESS ROAD
1:100



4 - TYPICAL ROAD SIDE DRAIN DETAIL
1:50



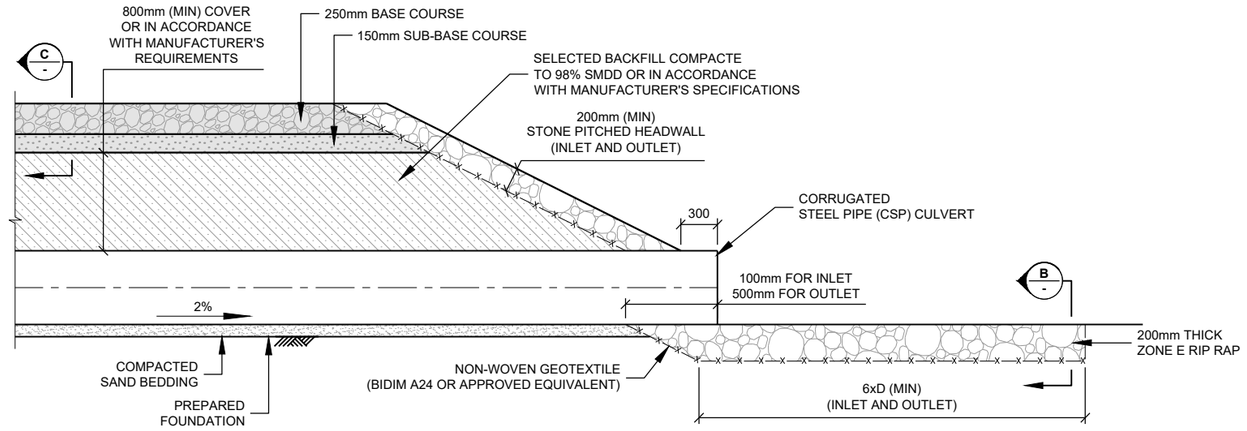
G - TYPICAL CONCRETE BOX CULVERT INLET/OUTLET HEADWALL SECTION
1:75



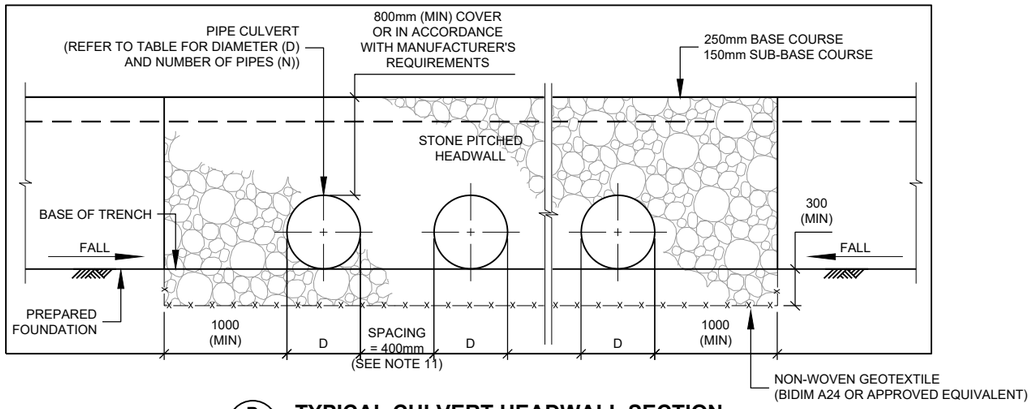
H - TYPICAL CONCRETE BOX CULVERT EXCAVATION AND BACKFILL SECTION
1:75

NOTES:

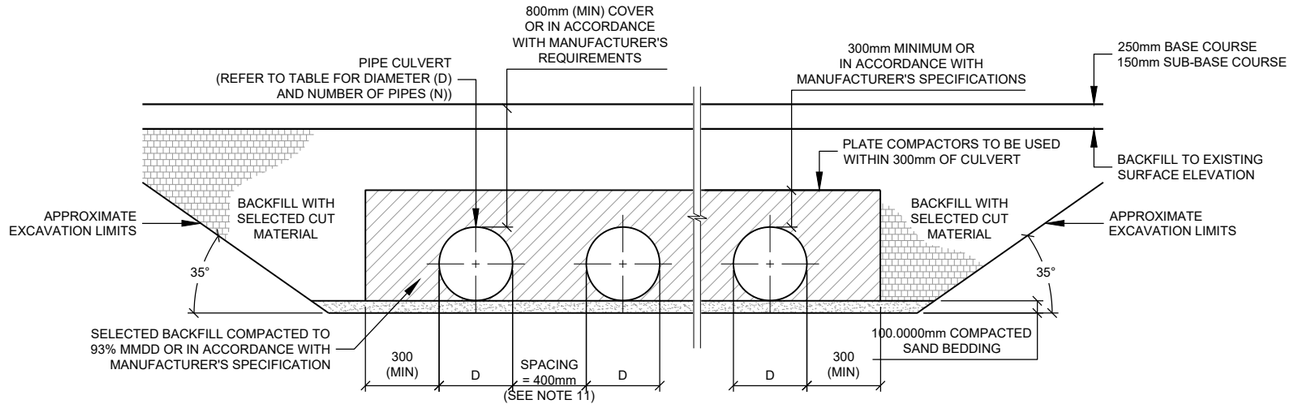
1. EXACT CHAINAGE OF CULVERT LOCATIONS, INLET AND OUTLET ELEVATIONS AND CULVERT ALIGNMENTS TO BE DETERMINED ON SITE.
2. CULVERT FOUNDATION PREPARATION AS DIRECTED BY THE ENGINEER.
3. EXTENT OF INLET AND OUTLET EROSION PROTECTION TO BE FIELD FITTED.
4. 100mm x 50mm TREATED STRUCTURAL GRADE TIMBER GUIDE POSTS TO BE INSTALLED ALONG THE ROAD ALIGNMENT AT 5m SPACING, WHERE FILL EXCEEDS 2m IN HEIGHT.
5. TREATED STRUCTURAL GRADE TIMBER POST TO BE EMBEDDED 800mm INTO FILL.
6. SAFETY BUNDS TO HAVE DRAINAGE BREAKS INSTALLED AT 20m CENTRES.
7. FOR THE REQUIRED NUMBER OF CORRUGATED METAL PIPE CULVERTS, REFER TO TABLE 2.1 IN MEMO M25014.
8. ADDITIONAL MINOR CULVERTS MUST BE FITTED ON SITE WHERE REQUIRED.
9. MINIMUM COVER REQUIREMENTS FOR CULVERTS TO BE BASED ON MANUFACTURE'S RECOMMENDATIONS.
10. ROAD SIDE DRAIN, DISCHARGE INTO CATCHPITS POSITIONED AT THE COMMENCEMENT AND TERMINATION POINTS OF THE CULVERT CROSSING.
11. MINIMUM SPACING BETWEEN CULVERTS SHOULD BE MODIFIED BASED ON MANUFACTURE'S RECOMMENDATION AND AVAILABLE MACHINERY IF REQUIRED.



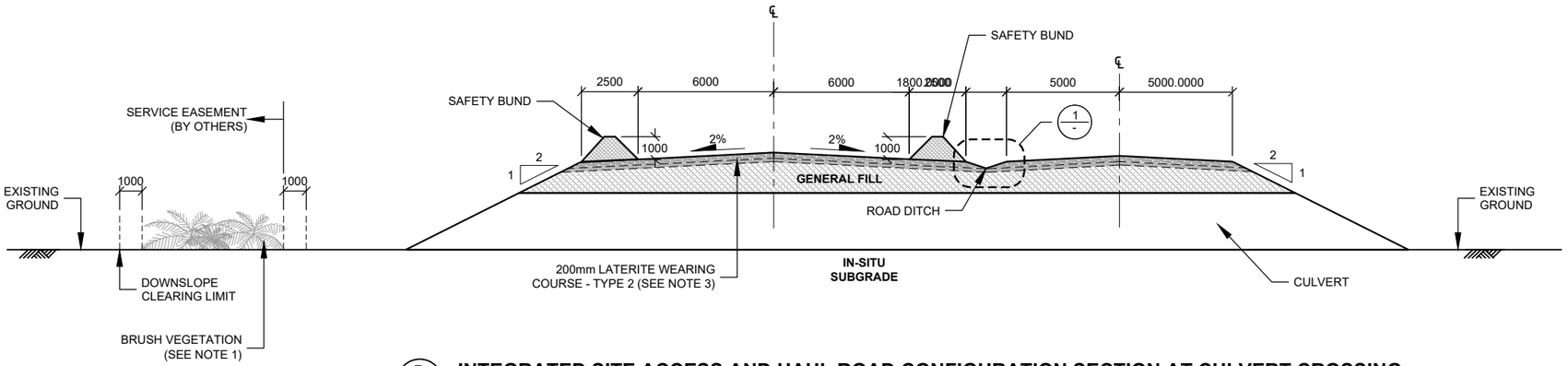
A - TYPICAL CULVERT INLET/OUTLET SECTION
(SEE TABLE 1)
N.T.S.



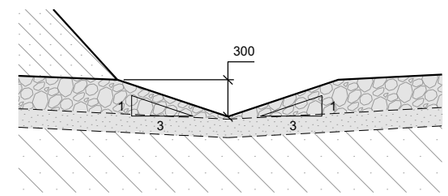
B - TYPICAL CULVERT HEADWALL SECTION
(SEE TABLE 1)
N.T.S.



C - TYPICAL CULVERT TRENCH EXCAVATION & BACKFILL SECTION
(SEE TABLE 1)
N.T.S.



D - INTEGRATED SITE ACCESS AND HAUL ROAD CONFIGURATION SECTION AT CULVERT CROSSING
1:250



1 - DETAIL
1:50

APPENDIX A
Conceptual Design
Haul Road Overpass Tunnel Rev 1
(KP Memorandum Ref. PE25-01621)

MEMORANDUM

To:	Resolute Mining	**Date:**	16 December 2025
Attn:	Rob Cicchini	**Our Ref:**	PE25-01621
		KP File Ref.:	PE301-00821/07-A djtm M25015
cc:	Luciano Giancristofaro	**From:**	Dave Morgan

RE: DOROPO GOLD PROJECT – CONCEPTUAL DESIGN – HAUL ROAD OVERPASS TUNNEL REV 1

1. INTRODUCTION

The Doropo project is a gold prospect in the north-eastern Côte d'Ivoire, 480 km north of the capital Abidjan. Resolute Mining Limited (Resolute) is developing this project.

At the location of the proposed overpass tunnel, the ground conditions are variable, the subsurface ground comprises a layer of loose to medium dense sand at shallow depth based on the geotechnical investigation. The foundation settlements and ground bearing capacity are the major concerns for the overpass tunnel. Knight Piésold (KP) carried out a conceptual design and assessed the behaviour of the proposed tunnel using numerical modelling based on assumptions and available information.

This memorandum presents the modelling results and provides recommendations. It is noted this memorandum supersedes PE24-00375. The document update is limited to accounting for the change in ownership of the project.

2. CONCEPTUAL TUNNEL DESIGN

The proposed overpass tunnel is a multi-plate™ arch tunnel built of Super-Cor® corrugated plates of 8.1 mm thickness. The tunnel span is 14.0 m wide and 7.0 m high. The proposed tunnel will be founded on strip reinforced concrete footings. The footing section dimensions are 4 m wide and 0.5 m deep, which need to be confirmed during the detailed design stage.

The tunnel will be constructed through a cut-and-fill method with structural fill compacted to required density to maintain a hoop stress condition. The minimum cover above the tunnel is 2.5 m. A typical section through the proposed tunnel is shown in Figure 2.1.

3. GROUND CONDITION

3.1 SUBSURFACE GEOTECHNICAL PROFILE

Four boreholes were drilled and four test pits were excavated at the proposed overpass location during the 2023 – 2024 geotechnical site investigation. The borehole and test pit locations are shown in Figure 3.1. The typical ground profile based on the investigation findings is summarised in Table 3.1.

It was assumed that the top 300 – 400 mm of soil will be removed prior to construction.

Table 3.1: Subsurface Profile

Layer	From	To	SPT
SAND, silty, trace clay, non-plastic, medium dense, topsoil (to be removed)	0.0 m	0.4 m	-
SAND, clayey, with gravel, low plasticity, yellow brown, dry, loose RESIDUAL	0.4 m	4.0 m	5
SAND, clayey, with gravel, low plasticity, yellow brown, dry, medium dense RESIDUAL	4.0 m	6.0 m	12 to 36
GRANODIORITE, medium to coarse grained, granular, massive, grey brown, very low strength HIGHLY WEATHERED	6.0 m	7.5 m	23, 38, 11/20 mm (5HB)
GRANODIORITE, medium to coarse grained, granular, massive, grey and yellow-brown, very low to low strength MODERATELY WEATHERED	7.5 m	25 m	-

3.2 GROUND WATER CONDITIONS

Ground water was observed to depths ranging from 4.7 to 6.0 m below ground level. The ground water level is expected to fluctuate with seasons.

4. LOADING CONDITIONS

For this conceptual design, the loading conditions were based on the haul truck Volvo FMX460 8X4 tipper nominated as part of the 2024 DFS study. The loaded weight of FMX460 is 86 tonnes with self-weight of 35 tonnes and payload of 51 tonnes. The specifications of FMX460 are included in Appendix A.

5. CONSTRUCTION METHOD AND SEQUENCE

To increase the foundation bearing capacity and reduce settlements, the top 4 m loose sand (residual soil) under the foundations need to be replaced with compacted structural fill. The structural fill shall be crushed mine waste rock with fine content less than 20% and particle size smaller than 75 mm. The structural fill needs to be compacted in layers less than 300 mm thick and achieve a 95% modified maximum dry density (MMDD). The following construction sequences are assumed in this assessment:

- Excavate residual soil to 4 m depth below the footings and replace with compacted structural fill.
- Construct the footing foundation.
- Erect the tunnel plates.
- Backfill around the tunnel evenly with strips to hold down the multiplate tunnel lining, and compact the fill as per tunnel supplier’s requirements and specifications.
- Place road surfacing materials and compact as per relevant specifications and standards.

6. NUMERICAL MODELLING

6.1 NUMERICAL MODELLING APPROACH

The numerical modelling of the overpass tunnel was performed using a commercial Finite Element (FE) package, PLAXIS 2D.

PLAXIS 2D is a two-dimensional FE program which has a number of advanced constitutive models for simulation of the non-linear, time-dependent and anisotropic behaviour of soil and rock. It has been widely used worldwide by practising engineers and academics, and as such, has wide acceptance for the numerical modelling and analysis of geotechnical engineering problems.

6.2 INPUT PARAMETERS

6.2.1 Geotechnical Parameters

For all soil layers, except for the top 1 m of compacted fill and the highly weathered rock, an advanced constitutive soil model, Hardening Soil (HS) model was adopted. HS model allows soil stiffness to increase with the confined stress and the yield surfaces are not fixed in the principal stress space. This is particularly important for soils undergoing loading and unloading processes such as excavation and backfilling, where the soil stiffness will change during these processes. For the top 1m of compacted fill, Mohr-Coulomb (MC) model was adopted to avoid unrealistic low stiffness due to low confining stress close to road surface. MC model was also used for the highly weathered Rock/Granodiorite as rock stiffness would not change during the excavation and backfilling processes. The geotechnical input parameters are presented in Table 6.1.

Table 6.1: Geotechnical Parameters

Parameters	Symbol	Compacted Fill (top 1m)	Compacted Fill	Structural Fill	Residual Soil/Sand	HW Rock/ Granodiorite
Model		MC	HS	HS	HS	MC
Unit Weight (kN/m3)	γ	18	18	20	18	20
Deformation Modulus (MPa)	E	30	-	-	-	70
Poisson Ratio	μ	0.3	-	-	-	0.3
Cohesion (kPa)	c	5	5	0	10	10
Friction Angle (°)	ϕ'	32	32	35	28	35
Scant Modulus (MPa)	E_{50}^{Ref}	-	20	40	15	-
Tangent modulus (MPa)	E_{oed}^{Ref}	-	20	40	15	-
Loading and unloading modulus (MPa)	E_{ur}^{Ref}	-	60	120	45	-
Poisson's Ratio for loading and unloading	μ_{ur}	-	0.2	0.2	0.2	-
Permeability (m/s)	k	-	-	-	10^{-6}	10^{-7}

6.2.2 Structural Parameters

The tunnel was modelled as beam elements that can simulate the tunnel bending, shearing and compressive behaviour. The tunnel lining properties are based on the specifications for the corrugation profiles from Super-Cor® (Appendix B). Structural parameters for the tunnel lining are presented in Table 6.2.

Table 6.2: Structural Parameters

Item	Thickness (mm)	Young's Modulus (GPa)	Yield strength (MPa)	Bending Stiffness (kN·m²/m)	Normal Stiffness (kN/m)
	t	E	f_y	EI	EA
Tunnel	8.1	200	250	5451.8	2.222×10^6

The footing was modelled as an elastic material with a Young's modulus of 30 GPa, to represent the concrete footing foundation. The footing is 4.0 m wide and 0.5 m deep.

6.2.3 Applied Loads

The loading conditions were based on FMX460 trucks. The loaded truck weight is 86,000 kg. Details of the truck load information are included in Appendix A.

The truck tyre loads were converted to equivalent line loads and pressures for the two-dimensional modelling by dividing the spacing in the out-of-plane direction.

For FMX460 trucks, when fully loaded the estimated front wheel and rear wheel pressure are 123 kPa/m and 208kPa/m, respectively over their covered area. For FMX460 trucks, there are four front wheels and four rear wheels. The most critical condition would be that the rear wheels on the central line of the tunnel.

6.3 NUMERICAL MODELLING RESULTS

The numerical modelling results are summarised in following Table 6.3 and graphically presented in figures 6.1 to 6.6.

Table 6.3: Summary of numerical modelling results

Parameters		Values
Overall maximum settlement of tunnel	mm	97
Maximum settlement of tunnel due to traffic loads after construction	mm	20
Maximum total settlement of footing due to traffic loads after construction	mm	6
Differential settlement of footing due to traffic loads after construction	mm	4
Maximum total settlement of footing during construction	mm	68
Differential settlement of footing during construction	mm	1
Overall maximum total settlement of footing	mm	74
Overall differential settlement of footing	mm	4
Maximum pressure below footing foundation	kPA	354
Maximum bending moment on tunnel	kNm	27
Maximum axial force on tunnel	kN	814
Maximum shear forces on tunnel	kN	238

The modelling results suggest that the overall foundation settlements would be less than the supplier's permissible limit of 150 mm. Additionally, approximately 75% of the settlements are expected to occur during construction and could settle relatively uniformly if the backfill is evenly placed along the entire tunnel. The total settlement and differential settlement after construction are within the supplier's acceptable range.

The ultimate compressive stress f_{uc} is calculated from the combination of maximum bending moment and axial force to be 148 MPa, which is less than the allowable yield strength 167 MPa (with a factor 1.5). The ultimate shear stress f_s is calculated as 21.5 MPa, which is much less than the allowable shear yield strength 83 MPa (=250 MPa/2/load factor 1.5).

A consolidation analysis was conducted for embankment construction, and the results indicate that the excess pore water pressure due to backfill would not be significant.

7. CONCLUSIONS AND RECOMMENDATIONS

Based on assumptions and available information, a preliminary design has been provided for the overpass tunnel, and numerical modelling has been completed to assess the preliminary design. The modelling indicates that the total and differential settlement due to vehicle loads after construction fall within the acceptable range, suggesting that the preliminary design is feasible.

It is recommended to:

- Carry out detailed design in the next stage.
- Update this assessment based on the detailed design.
- Identify suitable materials for construction.

We trust this is sufficient for your current requirements. Kindly contact us if you have any further queries.

Yours faithfully
KNIGHT PIÉSOLD PTY LTD

JIM LUO
Manager Geotechnical Services

DAVID MORGAN
Managing Director

REFERENCES

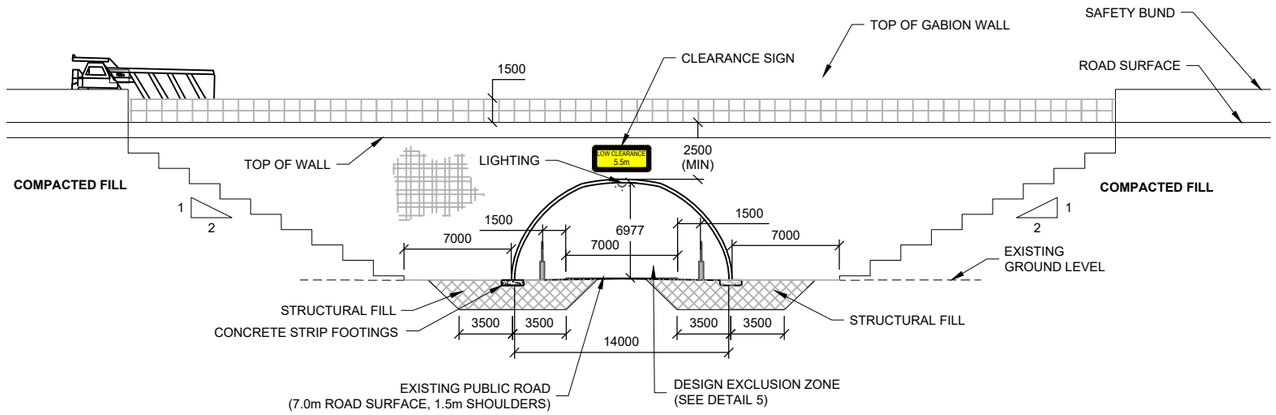
1. "*Doropo Feasibility Study Geotechnical Site Investigation*", 2024.
2. Knight Piésold Pty Ltd, "*Doropo Gold Project – Conceptual Site Access Road and Haul Design Rev 1*", Memorandum Ref: PE23-00013, 18 January 2023.

   Knight Piésold, "*Doropo Gold Project – Conceptual Design of Haul Road Overpass Tunnel*", Memorandum Ref: PE24-00375, 27 March 2024.

FIGURES

NOTES:

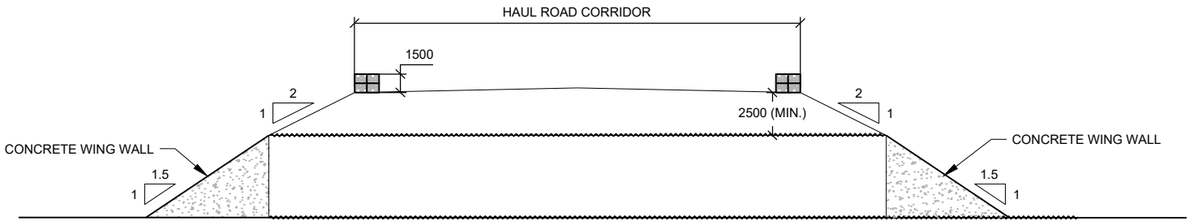
1. ARCH AND RETAINING WALL DESIGN BY OTHER.



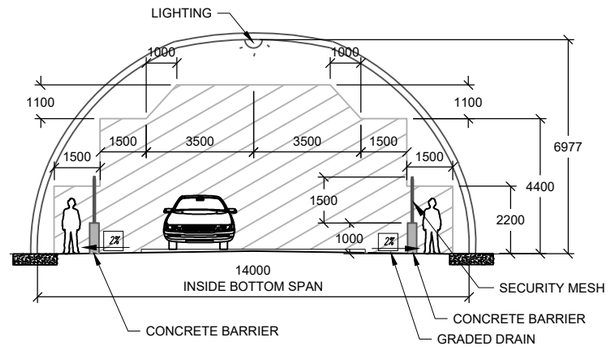
G - TYPICAL OVERPASS CROSS SECTION THROUGH ENTRANCE
N.T.S.



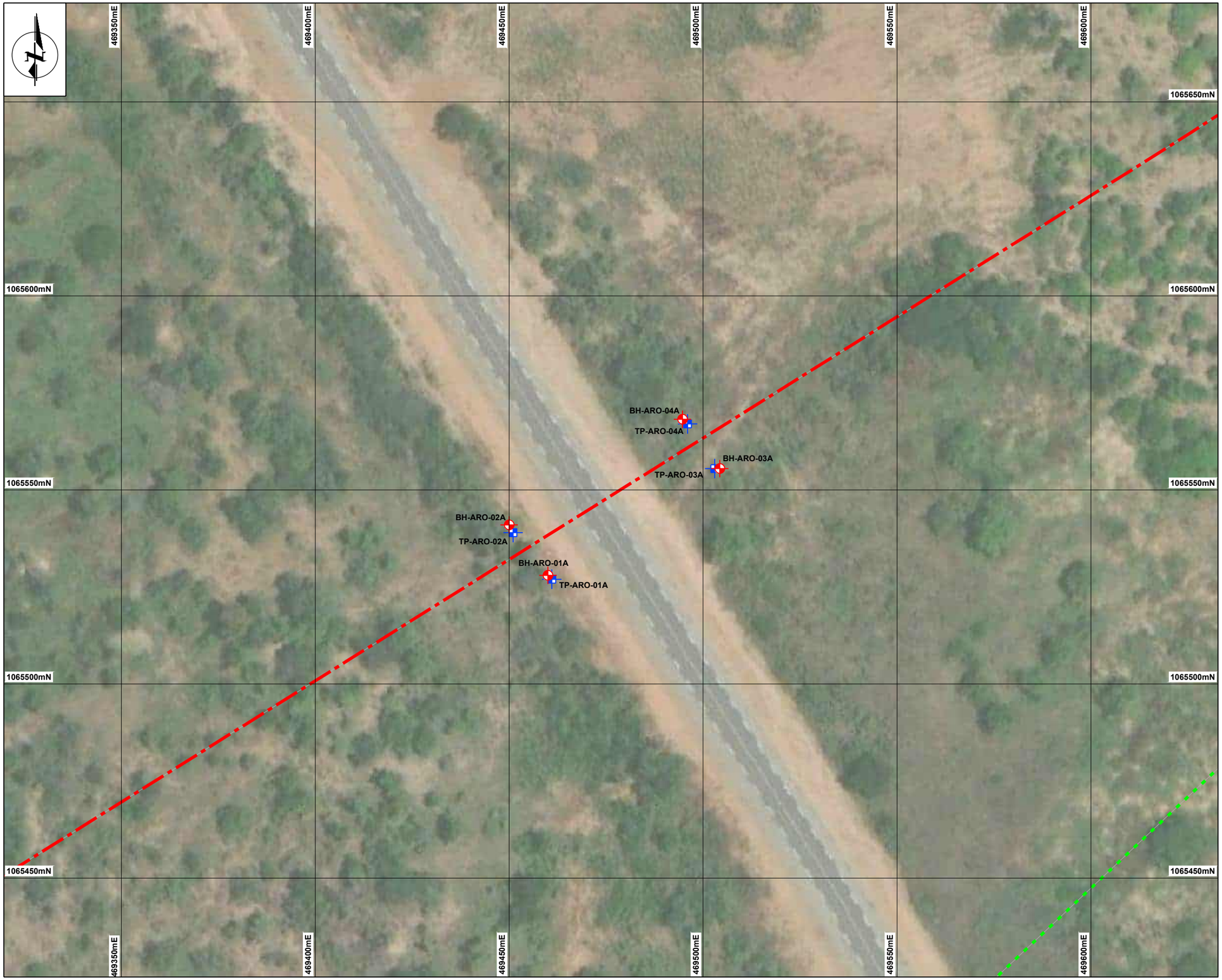
4 - TYPICAL CONSTRUCTION DETAIL OF A CORRUGATED METAL OVERPASS
N.T.S.



H - TYPICAL LONG SECTION THROUGH OVERPASS
N.T.S.



5 - TYPICAL OVERPASS STRUCTURE EXCLUSION ZONE
N.T.S.



LEGEND:

- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- BOREHOLES
- TEST PITS

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.

TEST PIT LOCATIONS

TP I.D.	EASTING (m)	NOTHING (m)
TP-ARO-01A	469461.0	1065527.0
TP-ARO-02A	469451.0	1065539.0
TP-ARO-03A	469503.0	1065555.5
TP-ARO-04A	469496.0	1065567.0

BOREHOLE LOCATIONS

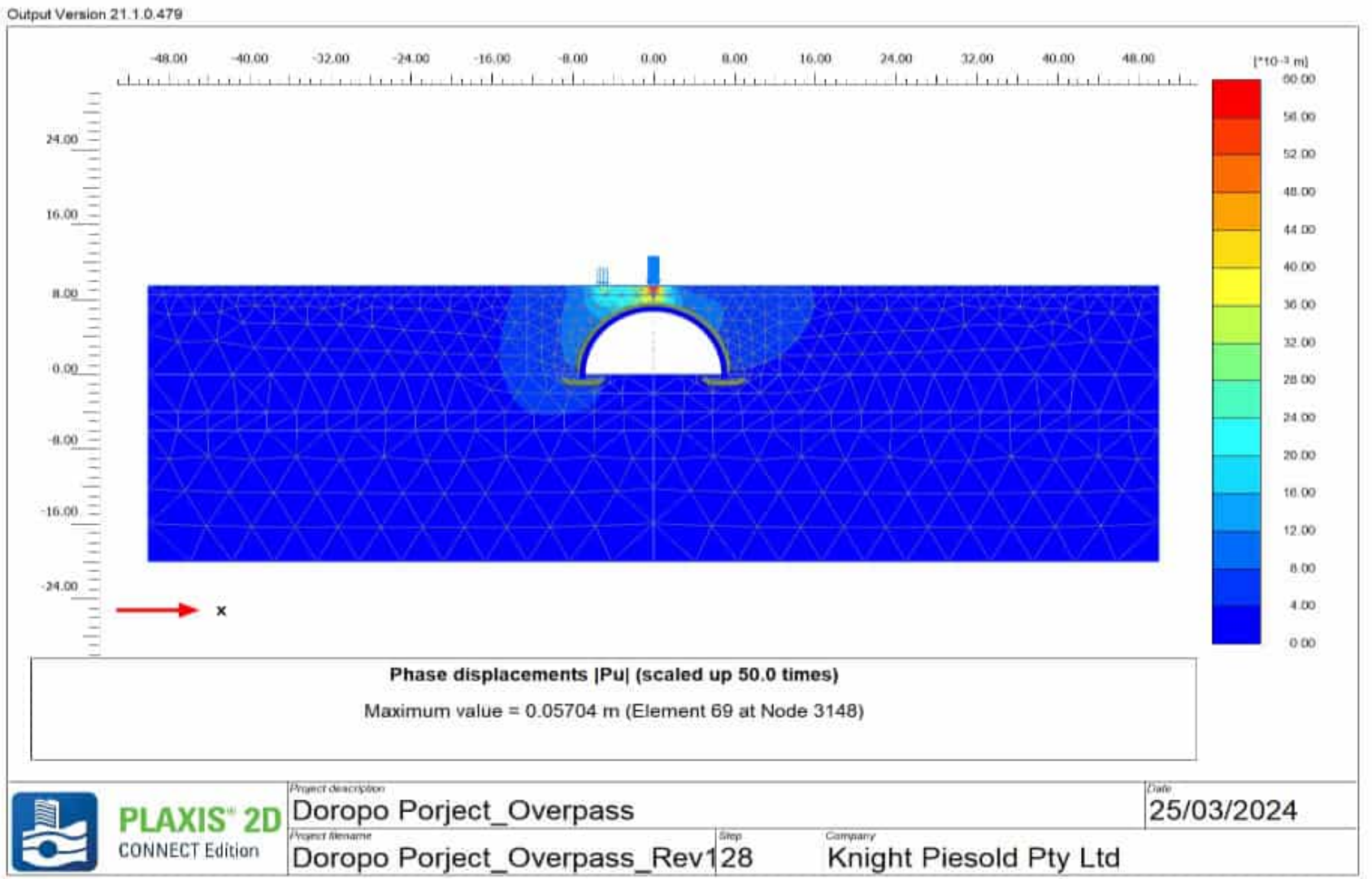
BH I.D.	EASTING (m)	NOTHING (m)
BH-ARO-01A	469460.0	1065528.0
BH-ARO-02A	469450.0	1065541.0
BH-ARO-03A	469504.3	1065555.5
BH-ARO-04A	469494.7	1065568.2

20 15 10 5 0 10 20 30 40
SCALE (METRES) 1:1,000 (A3)

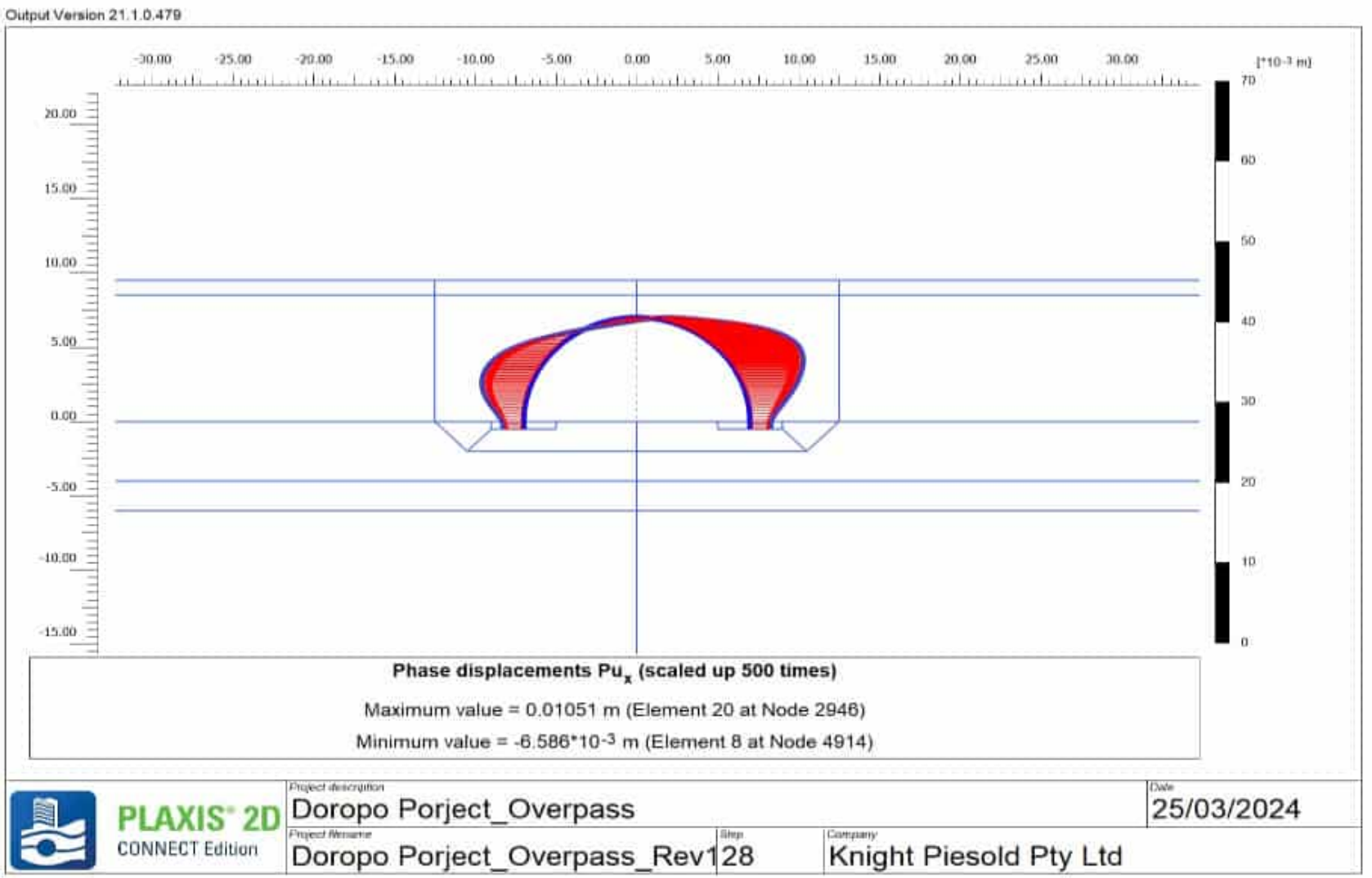
Knight Piésold CONSULTING

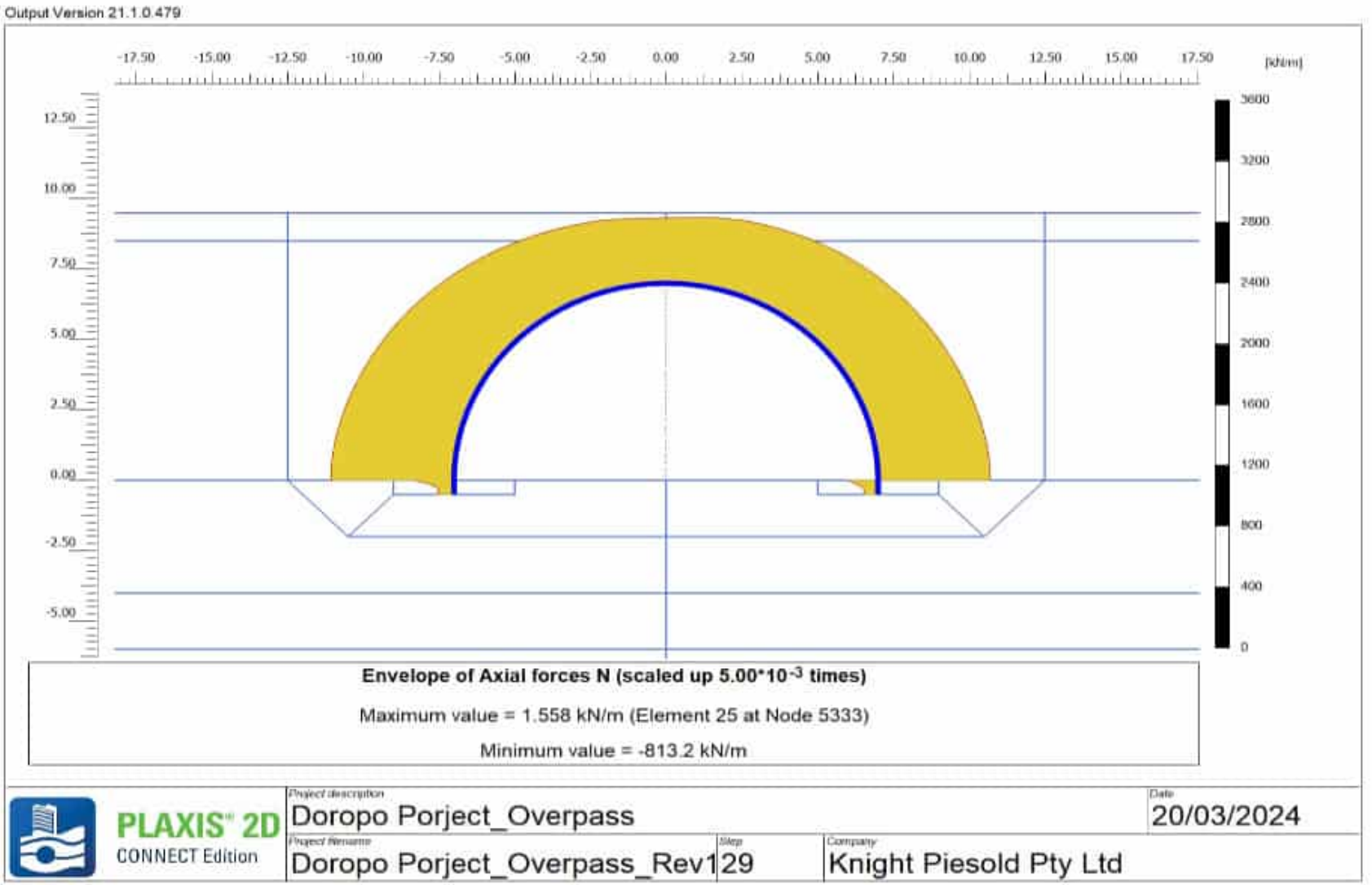
DOROPO GOLD MINE
PRELIMINARY DESIGN OF HAUL ROAD OVERPASS TUNNEL
OVERPASS LAYOUT

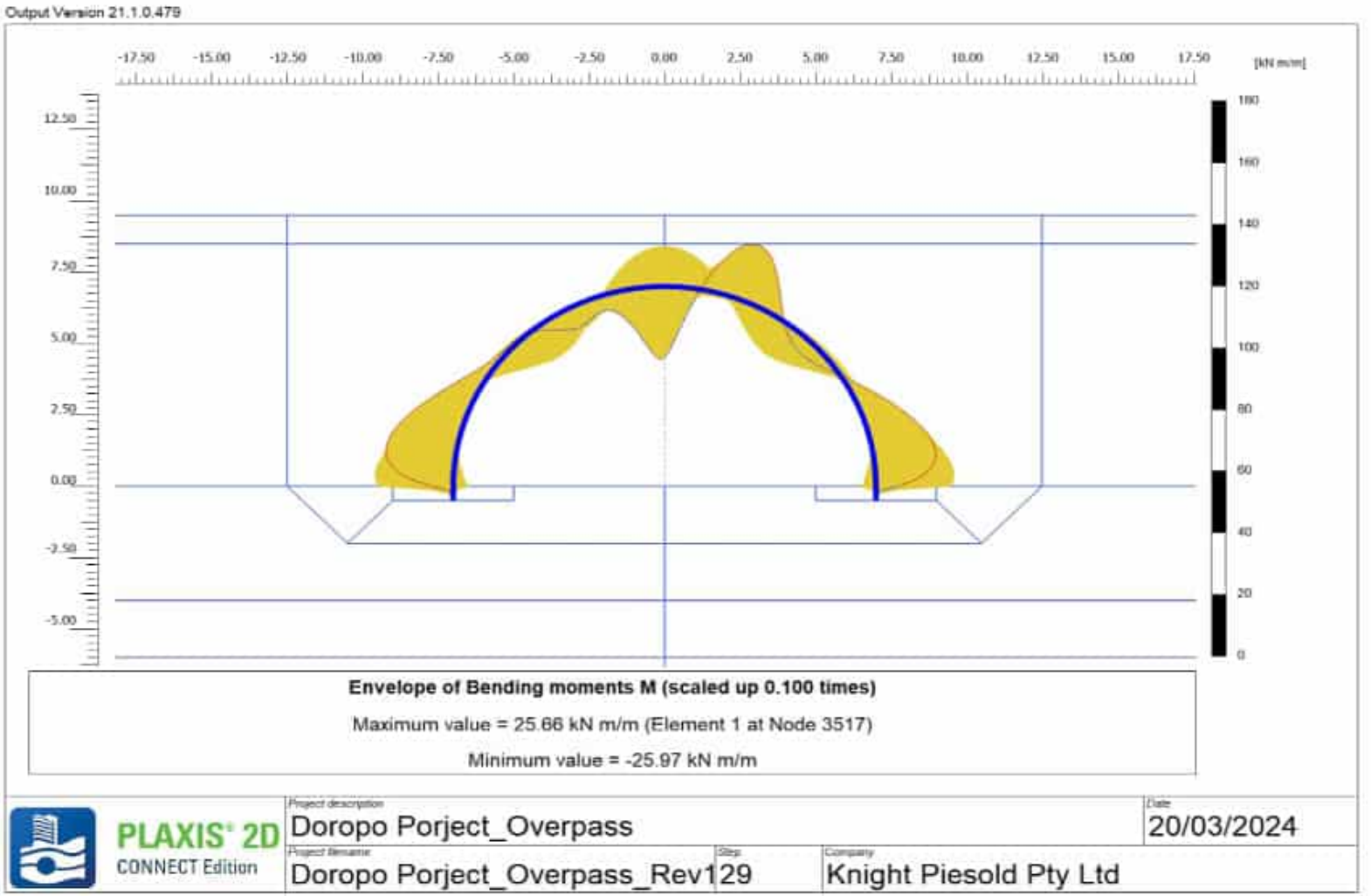
PE301-00821 M25015
Figure 3.1

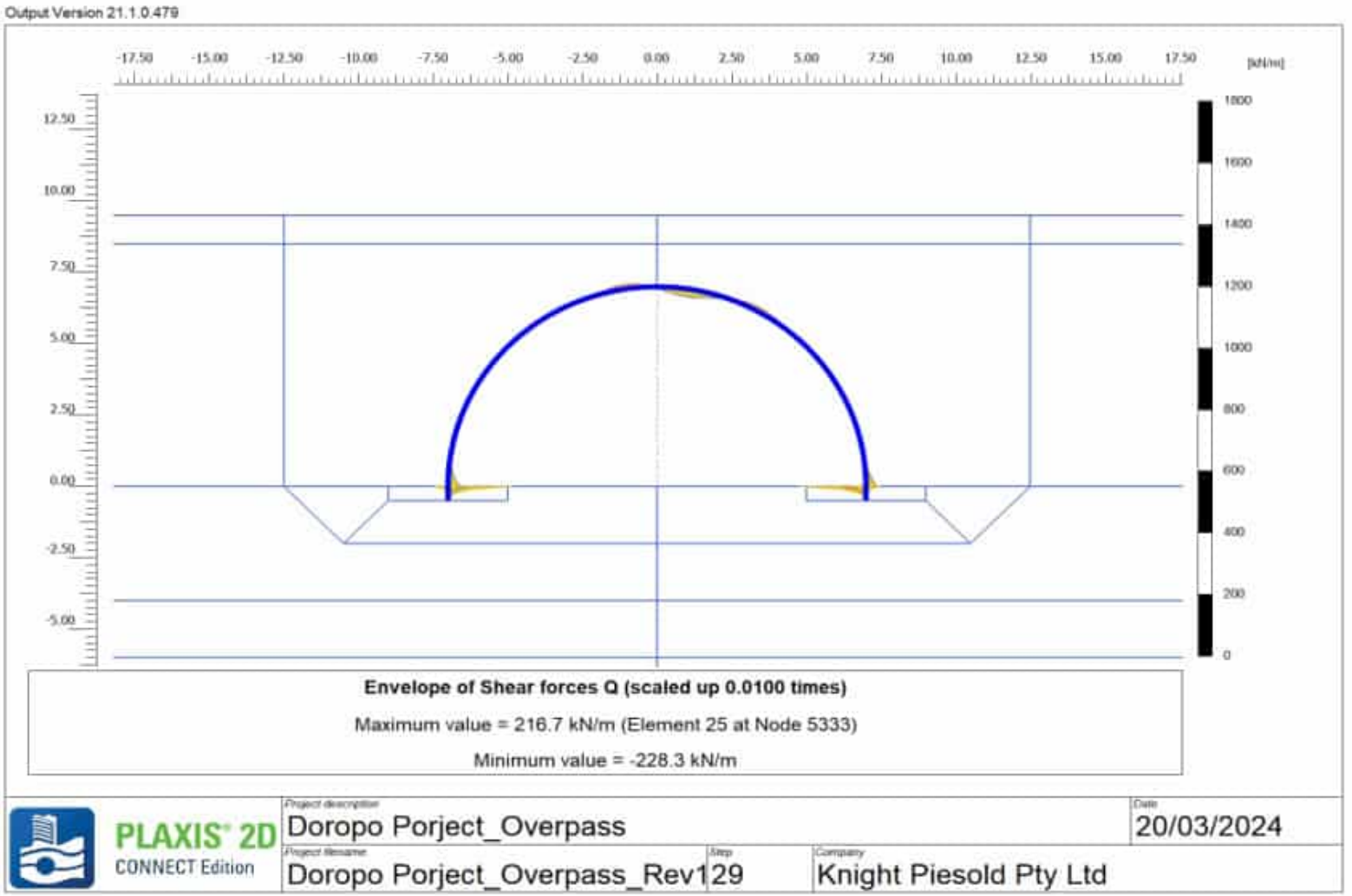

Output Version 21.1.0.479
-48.00
-40.00
-32.00
-24.00
-16.00
-8.00
0.00
8.00
16.00
24.00
32.00
40.00
48.00
[*10^-3 m]
60.00
56.00
52.00
48.00
44.00
40.00
36.00
32.00
28.00
24.00
20.00
16.00
12.00
8.00
4.00
0.00
24.00
16.00
8.00
0.00
-8.00
-16.00
-24.00
x
Phase displacements |Pu| (scaled up 50.0 times)
Maximum value = 0.05704 m (Element 69 at Node 3148)
PLAXIS 2D
CONNECT Edition
Project description
Doropo Porject_Overpass
Date
25/03/2024
Project filename
Doropo Porject_Overpass_Rev1
Step
28
Company
Knight Piesold Pty Ltd


Output Version 21.1.0.479
-30.00
-25.00
-20.00
-15.00
-10.00
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
30.00
[m]
20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Phase displacements Pu_y (scaled up 200 times)
Maximum value = 0.1159*10-3 m (Element 20 at Node 2946)
Minimum value = -0.02795 m (Element 1 at Node 3518)
PLAXIS 2D
CONNECT Edition
Project description
Doropo Porject_Overpass
Date
25/03/2024
Project filename
Doropo Porject_Overpass_Rev1
Step
28
Company
Knight Piesold Pty Ltd


Output Version 21.1.0.479
-30.00
-25.00
-20.00
-15.00
-10.00
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
30.00
[*10-3 m]
70
60
50
40
30
20
10
0
20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
Phase displacements Pu x (scaled up 500 times)
Maximum value = 0.01051 m (Element 20 at Node 2946)
Minimum value = -6.586*10-3 m (Element 8 at Node 4914)
PLAXIS 2D
CONNECT Edition
Project description
Doropo Porject_Overpass
Date
25/03/2024
Project filename
Doropo Porject_Overpass_Rev1
Step
28
Company
Knight Piesold Pty Ltd


Output Version 21.1.0.479
-17.50 -15.00 -12.50 -10.00 -7.50 -5.00 -2.50 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50
[kN/m]
12.50
10.00
7.50
5.00
2.50
0.00
-2.50
-5.00
3600
3200
2800
2400
2000
1600
1200
800
400
0
Envelope of Axial forces N (scaled up 5.00*10-3 times)
Maximum value = 1.558 kN/m (Element 25 at Node 5333)
Minimum value = -813.2 kN/m
PLAXIS 2D
CONNECT Edition
Project description
Doropo Porject_Overpass
Date
20/03/2024
Project filename
Doropo Porject_Overpass_Rev1
Step
29
Company
Knight Piesold Pty Ltd


Output Version 21.1.0.479
-17.50 -15.00 -12.50 -10.00 -7.50 -5.00 -2.50 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50
[kN m/m]
12.50 10.00 7.50 5.00 2.50 0.00 -2.50 -5.00
180 160 140 120 100 80 60 40 20 0
Envelope of Bending moments M (scaled up 0.100 times)
Maximum value = 25.66 kN m/m (Element 1 at Node 3517)
Minimum value = -25.97 kN m/m
PLAXIS 2D
CONNECT Edition
Project description
Doropo Porject_Overpass
Date
20/03/2024
Project filename
Doropo Porject_Overpass_Rev1
Step
29
Company
Knight Piesold Pty Ltd


Output Version 21.1.0.479
-17.50 -15.00 -12.50 -10.00 -7.50 -5.00 -2.50 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50
[kN/m]
12.50 10.00 7.50 5.00 2.50 0.00 -2.50 -5.00
1800 1600 1400 1200 1000 800 600 400 200 0
Envelope of Shear forces Q (scaled up 0.0100 times)
Maximum value = 216.7 kN/m (Element 25 at Node 5333)
Minimum value = -228.3 kN/m
PLAXIS 2D
CONNECT Edition
Project description
Doropo Porject_Overpass
Date
20/03/2024
Project filename
Doropo Porject_Overpass_Rev1
Step
29
Company
Knight Piesold Pty Ltd

APPENDIX A
FMX460 Truck Brochure

VOLVO

Volvo FMX 460 8X4 Tipper

Push the limits of productivity



Volvo Trucks. Driving Progress

VOLVO FMX 460 8X4

Safety always remains the prime value pillar

Volvo is synonymous with safety. The slimmer A-pillar, larger windscreen and lower door lines have improved direct visibility by 10%. Tinted windshield helps reduce glare and improved rear view mirrors gives you the best views. With improved visibility driver is more confident and chances of accidents are minimized. Power windows and central door locking secures the truck. Volvo cabs have been subjected to the toughest tests including the Swedish crash test. Electrically operated steel roof hatch provided as emergency exit. Electronic braking system give you all the more confidence while driving in rough terrain. Downhill cruise control maintains a set speed when the loaded truck is going down the slopes using auxiliary brakes VEB+ (Volvo Engine Brake). This also reduces brake wear and improve service life.

The truck is now provided with reverse camera with the view available on the digital instrument panel.

A body builder module ECU prevents the truck from exceeding 5 kmph speed when the dump body is in raised position, thus preventing accidents at the dump yard.



Rear view camera



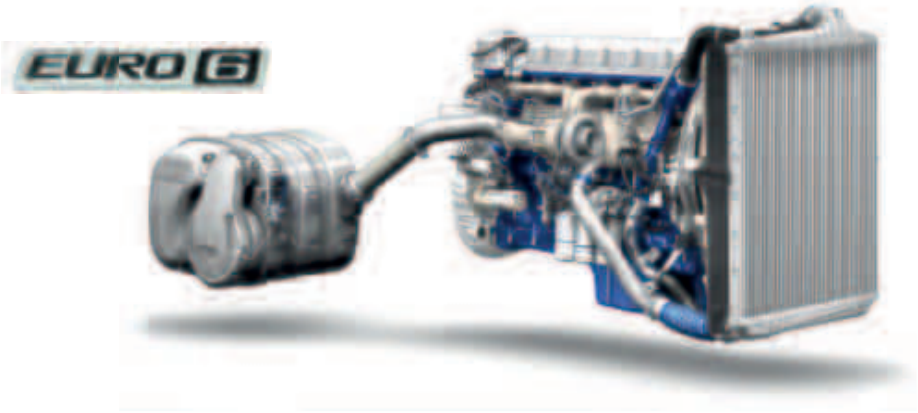
Most comfortable cab

Drivers are the most important part of the trucking industry and their comfort is directly proportional to the productivity. The new FMX460 cab has been designed keeping this in mind. With 800 liter more cabin space, climate control with enhanced thermal insulation, 2dB quieter cab, and excellent internal and external storage space, soft closure of doors and better vibration arresting... drivers are sure to guarantee few extra trips per shift.



More efficient

The cabin aerodynamics are improved to give better fuel economy. Volvo has been improving their Euro 6 technology since 2013. The latest engine management system, better gear shift programming over and above subtle design improvements in the engine like smoother cylinder liners, oil scraper ring, turbo impeller with inverse design, new low viscous VDS 5 oil with longer change intervals... help save some more liters of fuel in the long run.



Convenience redefined

The new Volvo FMX460 has the state of the art I-Shift 12 speed automated manual transmission which chooses the best gear in the interest of power and fuel economy. The ergonomically designed new gear control lever fits snugly in palm. Switch between drive modes like economy, standard, performance and off-road with the push of a button. With I-Shift driver has one less activity to focus on.

Add to this cruise control and downhill cruise control to maintain speed.

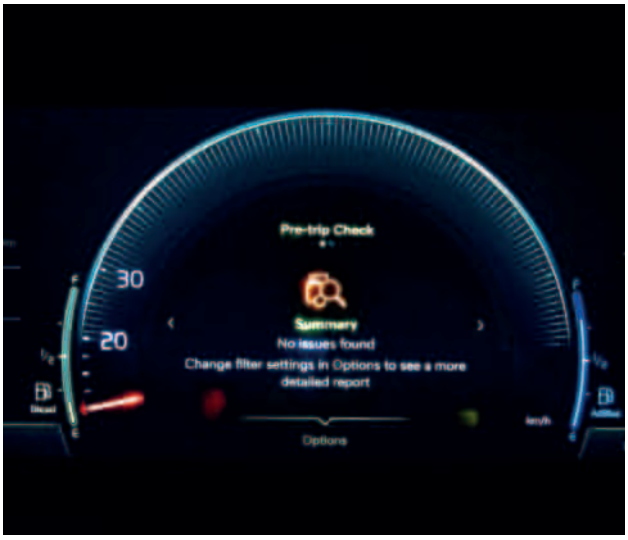
Pre-trip check diagnoses all the vital parameters of the truck and alerts if something needs your attention with pop up message on the driver information display. If not, just turn the ignition and keep rolling. You can avoid the physical inspection of the truck at the beginning of every shift, thus improving the utilization.



I-Shift Automated Manual Transmission



Driver information display



Pre-trip check diagnosis

Ultra-modern displays & controls

The Driver Information Display on the new cabin is a fully digital 12” unit which is dynamic to suit the preferences of the driver. Choose between the classic analogue or digital view using buttons on the steering wheel. All vital statistics of the truck, alerts, driver timers etc... become part of the display. What’s more – connect your phone to the truck and drive safe with hands-free comfort.

The new Traction Control unit makes it easier to handle demanding situations like loose soil, slush etc... The more you turn the knob, the more traction you get. You also get visual feedback of the traction status in the instrument display.



Traction Control knob & display



Technical specifications

ENGINE	
Six-cylinder, in-line direct injection diesel engine	
Overhead camshaft with four valves per cylinder	
Electronically regulated common rail fuel injection with unit injectors	
Heavy duty turbocharger and intercooler	
Engine management system with driving information and diagnosis	
Exhaust after treatment by Selective Catalytic Reduction (SCR) technology with additional AdBlue tank Exhaust Gas Recirculation (EGR)	
Displacement	12.8 litre
Bore x stroke	131 mm x 158 mm
Compression ratio	18.0 :1
Max. Power	460 hp @ 1400-1800 rpm
Max. Torque	2300 Nm @ 900-1400 rpm
Economy speed range	950-1400 rpm
Emissions*	BS-VI / Euro 6
Max. Engine brake power	503 hp (VEB+) @ 2300 rpm

* Emission requirements conform to ECE/EEC regulations and AIS 137 as notified by MoRTH vide GSR 889(E) dtd.16.09.2016 w.e.f 01 April, 2020.

CLUTCH	
Power assisted push-type single plate friction disc	
Plate Diameter	430 mm

GEARBOX	
I-Shift (Automated range / splitter gearbox)	
Heavy duty transmission oil cooler with additional radiator	
Enhanced software for mining and off-road conditions	
Economy,Standard,Performance,Off-road drive modes	
No. of gears	12 forward + 4 reverse

POWER TAKE-OFF
Clutch dependent gearbox mounted power take-off

FRONT AXLES	
Twin heavy duty steerable front axle with high ground clearance	
Capacity (twin axles)	18000 kg

REAR AXLES	
Drive tandem hub reduction axle with four planetary gears	
Differential locks – inter-wheels and inter-axles, Differential Lock Control (DLC)	
Traction Control System (TCS)	
Ratio	5.41:1
Capacity (Tandem axles)	33000 kg

SUSPENSION	
Front	
Parabolic suspension with S-shaped leaf geometry	
Double action shock absorbers and stabilisers	
No. of leaves	3
Rear	
Heavy duty bogie suspension with conventional multi-leaf spring	
Rubber journalled V-stays, reaction rods, stabilizer and two shock absorbers	
No. of leaves	11

WHEELS AND TYRES	
Tyre Size	12” x 24” Cross Ply
Wheel rim size	8.5” x 24”
Total no. of wheels fitted	12
1 no. spare wheel rim and tyre	

CHASSIS FRAME	
‘C’ channel section side members made of high strength steel	
Cross Section	300mm x 90mm x 8mm
Full length inner reinforcement	
Inner reinforcement thickness	5 mm

STEERING	
Hydraulic power steering with variable displacement pump	
Tilt and telescopic adjustable steering wheel	
Steering Wheel Diameter	500 mm

FUEL AND ADBLUE TANKS	
Fuel tank mounted on the left hand side between 1st and 2nd front axle	
Fuel tank capacity	290 litres
AdBlue tank capacity	57 litres

EXHAUST SYSTEM
Horizontal muffler, vertical exhaust outlet on right-hand side

BRAKES
Electronic Brake System (EBS)
Dual-line air brake system with ABS
Hill start aid
Z-cam drum brakes with automatic adjustments
Electronic parking brake activation
Spring type parking brake chambers on 2nd front axle, 1st rear axle and 2nd rear axle

PNEUMATICS	
Gear driven, double-cylinder reciprocating air compressor	
Max. compressor capacity	900 l/min
Electronically controlled air production modulator (APM)	
Total air tank capacity	123 litres

ELECTRICALS	
System voltage	24V
Volvo enhanced flooded batteries (2 nos.) with battery reconditioner	
Battery voltage	12V
Battery capacity	170Ah
Alternator capacity	110A

CAB	
New FMX day cabin fully suspended by four coil springs and shock absorbers	
Crash-tested steel welded structure	
Accommodation	1 driver + 1 co-driver
Cabin tilt angle	70°

Interiors
12” fully dynamic digital instrument cluster with Home & Focus views
Slimmer A-pillar, larger windscreen & lower door lines enhances direct visibility
Ergonomically designed new dashboard with easy-access stalks, switches & controls
Electrical manually controlled climate unit
Central door locking and power windows
Air suspended driver’s seat with adjustment of fore-aft, height, Backrest, lumbar support, shoulder, seat cushion extension, seat tilt
Cushioned foldable co-driver seat
Cruise control + Downhill cruise control
Red safety belt

Exteriors
Aerodynamically designed with smooth surfaces and rounded corners at the front
Heavy duty bumper with extremely robust design and high approach angle
Robust front towing device rated for 32 tonnes
Rear view camera with colour display in dashboard for enhanced visibility
Distinct V-shape daytime running light (DRL)
New heavy duty headlamp unit with higher illumination main beam
Electrically operated steel roof hatch as emergency exit

TELEMATICS
Volvo Connect on-board telematics collects and transmits all the vital statistics and performance parameters of the truck
Performance and health of the truck can be monitored from the convenience of your home

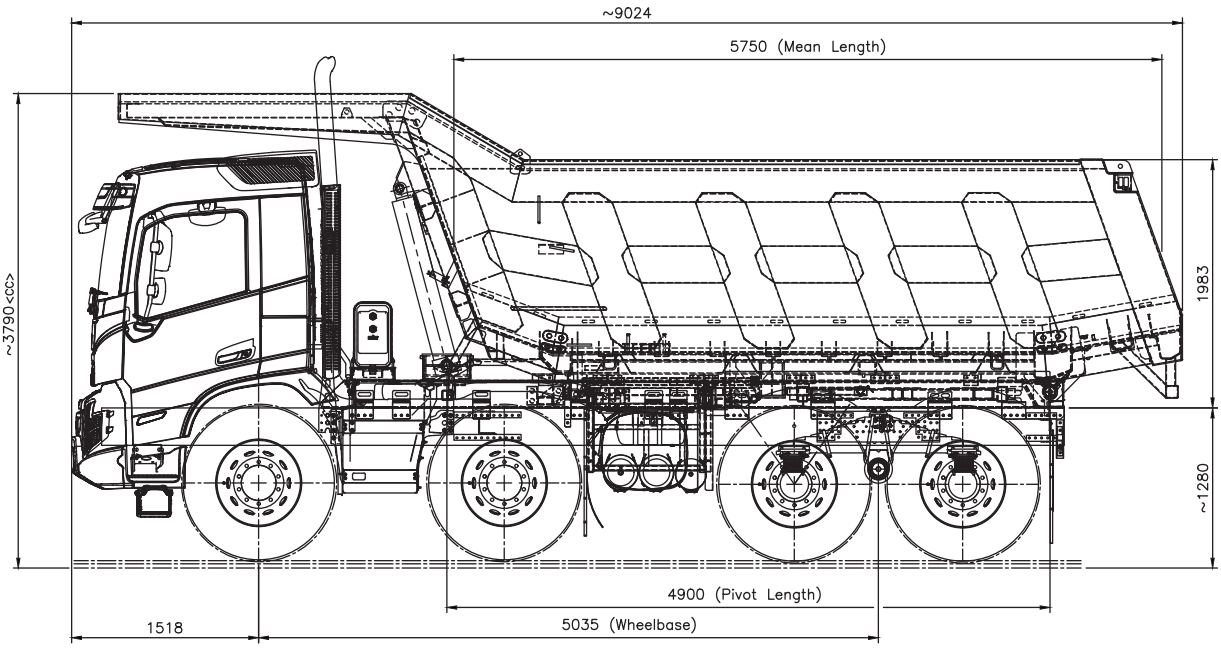
TOOLS AND ACCESSORIES
Standard tool kit, first-aid kit, two warning triangles, bulb and fuse kit
20 ton hydraulic jack

TIPPER BODY & HYDRAULICS	
Rock body / Exhaust heated body	
All steel welded construction low C G Rock body	
Struck volume	20.3 Cu.m
Floor, sideboard and headboard made of high tensile wear resistant steel	
5 nos. angular solid rock breakers on the floor (Rock body)	
Full length canopy	
Tipping angle with knock-off valve	45 deg
Heavy duty front mounted telescopic cylinder	
Direct mounted hydraulic pump on PTO	
Oil tank with breather filter, oil level indicator and return line filter	
Oil tank capacity	80 litres

VEHICLE DIMENSIONS mm	
Wheel base	5035
Overall length	9024
Overall width	2598
Overall height	3790
Turning circle diameter	22600
Minimum ground clearance	390

VEHICLE WEIGHTS	
Laden weight, kg (as per CMVR limits)	
Front axles (Twin)	14000
Rear axles (Bogie)	21000
Gross vehicle weight	35000

PERFORMANCE DATA	
Economy speed range on top gear	41-62 kmph
Max. speed (with electronic speed limiter)	45 kmph



Caution: Do not drill or weld on the frame. Note: Volvo has a policy of continual product improvement. The specifications / images shown here are indicative and are subject to change without prior notice. Performance parameters are subject to stability of the vehicle.

VOLVO

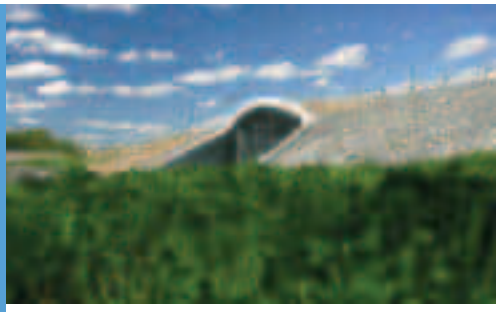
Dec. 2021 / Volvo FMX 460 8X4 Tipper

For more information contact:
Volvo Trucks
Yalachahally, Tavarekere Post, Hosakote Taluk, Bangalore 562 122, India.
Phone: +91 80 6788 7000 | vtimarketing@volvo.in | www.volvotrucks.in
Follow us on: /Volvo Trucks India

Volvo Trucks. Driving Progress

APPENDIX B
Super-Cor® Product Brochure

Super·Cor®









www.atlanticcivil.com.au

Atlantic
Civil Products



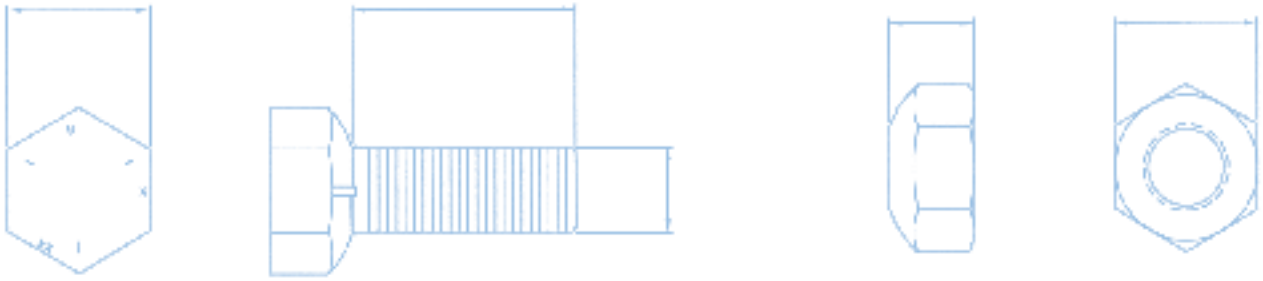








Atlantic
Civil Products



We Support You.

Atlantic Civil Products has built a solid reputation delivering professional support and innovative, high-quality, corrugated metal products around the world.

Atlantic Civil Products has a long history of creating innovative solutions in corrugated steel. Since 1939, Atlantic Civil Products has been engineering high-quality, durable corrugated steel products for major industries like transportation, hydro, mining and forestry. Today, Atlantic Civil Products is well poised to serve you through locations in Australia, North America, Europe and Asia. Our solutions come in a variety of sizes, ranging from culverts and sewers to tunnels, bridges, underpasses and stream enclosures.

Our reputation has been forged not only on the success of our competitively priced products, but also through the innovative engineering and reliable service we provide to our customers. Atlantic Civil Products' worldwide support includes project management, problem solving and field service. In keeping with Atlantic Civil Products' ongoing commitment to high standards, our Head Office Plant and our Engineering Department in Townsville, Queensland have been independently certified to ISO 9001.

Through our ongoing research and development programs, our engineers have found optimum solutions using our innovative Super•Cor® corrugated steel. We recommend that before you specify any of our Super•Cor products, take the opportunity to consult with an Atlantic Civil Products technical representative for advice and assistance on your project.

Super•Cor®

As Atlantic Civil Products' revolutionary alternative to conventional bridges, Super•Cor represents our commitment to continued development in the field of corrugated metal structures.

Combining the advantages of lightweight construction with the superior strength and durability of galvanized steel, Super•Cor is the most internationally accepted, and widely used corrugation profile on the market.

The sensible, economical choice for:

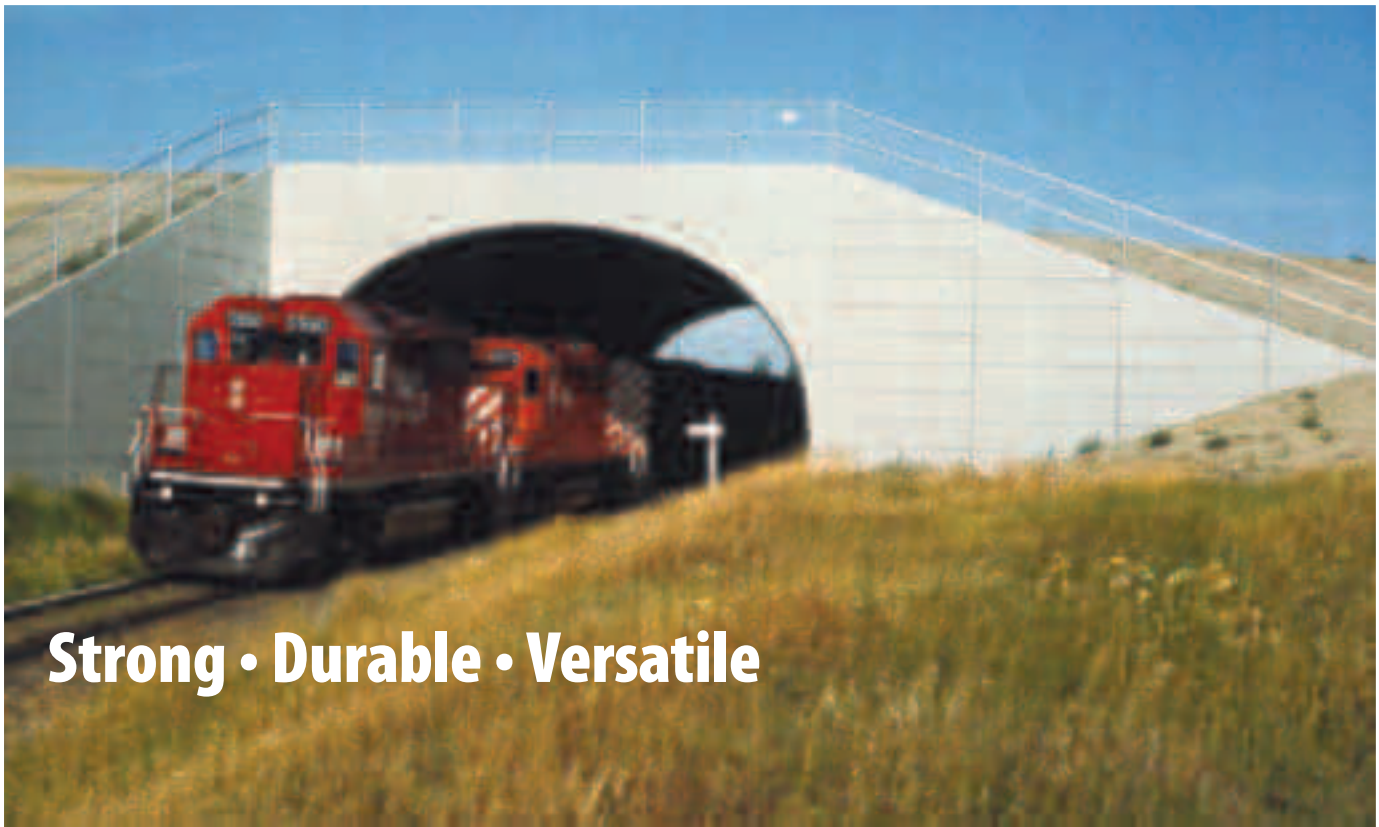
- Vehicle underpasses
- Bridges
- Railway underpasses
- Box culverts
- Underground storage
- Stream enclosures/crossings
- Storage magazines
- Fauna underpasses
- Mine portals

Superior Strength. Lightweight Construction.

Super•Cor's larger annular corrugations (381mm pitch and 140mm depth) provide nine times the stiffness of conventional structural plate. The lightweight, modular panels can be shipped easily and economically making it even more advantageous for remote locations.

Easy Installation

Simply put, Super•Cor saves time and money in installation. The panels require significantly fewer bolts than conventional structural plates and can be assembled adjacent to the job site, then moved into place using relatively light equipment. And, if the road needs to be widened later, Super•Cor allows for easy extension with additional panels.



Versatile

Super•Cor's corrugation profile permits construction of the largest, longest and widest spans in a variety of configurations. Spans can exceed 25m with Atlantic Civil Products' proprietary features. Special shapes are also available, including Super•Cor reinforced box culverts in spans exceeding 15m with cover as shallow as 450mm.

Durable

Super•Cor's heavy galvanized coating is metallurgically-bonded to the steel surface, providing extended service life. Super•Cor is supplied with a standard 1220g/m^2 coating. Properly designed and installed, Super•Cor structures will last over 100 years.

Environmentally-Responsible

Most Super•Cor structures used for stream crossings are bottomless. These structure types, combined with lower-impact installation methods, virtually eliminate deliberate streambed interference.

Maintenance-Free

Unlike conventional bridges, which frequently require substantial retrofits, properly-installed Super•Cor structures are relatively maintenance-free.

Aesthetically-Pleasing

Once installed, Super•Cor becomes a naturally-appealing structure. The geometry of the corrugations both softens and reduces the intrusiveness traditionally associated with man-made structures in natural environments.

IDEAL FOR REMOTE LOCATIONS

Mining companies take advantage of Atlantic Civil Products' technology to build some of the largest and most economical bridges in remote locations, such as this one in Western Australia.



Ideal for many

Applications



BIG ON MINING: The world's largest engineered corrugated arch helps preserve Whitehorse Creek, Alberta, Canada.

Mine Site Infrastructure

With achievable span widths of over 25m, many of the world's largest mine sites use Atlantic Civil Products' innovative Super•Cor for its light weight, superior strength, versatility, ease of installation and environmental friendliness. Super•Cor is perfect for use in many types of large-scale engineered structures, such as:

- Heavy haul road arches
- Rail underpasses
- Portals
- Stockpile tunnels
- Escape tunnels

EMERGENCY MEASURES: Super•Cor® saved time and money when a bridge washed out under Toronto, Ontario's busy Finch Avenue.

Affordable Bridge Replacement

Replacing aging bridges presents unique challenges to traffic management and infrastructure budgets alike. Progressive engineers and specifiers are turning to Super•Cor for its ease of installation and sheer economics. Super•Cor's variety of shapes and profiles, along with its environmental friendliness, make it perfect for:

- Short and Medium Span Bridges
- Box Culverts
- Vehicle and Railway Underpasses
- Stream Enclosures/Crossings
- Grade Separations

SAFER FOR EVERYONE: Deer stroll across a newly-installed animal crossing in Europe.

Animal-Friendly Crossings

On today's high-speed highways, motorists and wildlife can often find themselves on opposite sides of sudden and devastating encounters. The one thing they agree on, however, is that safety crossings made from Super•Cor provide low-cost, aesthetically pleasing and effective solutions for increased highway safety. Super•Cor is ideal for animal-friendly crossings like:

- Highway overpasses and underpasses
- Railway overpasses and underpasses

Super•Cor is the logical choice.

Super•Cor structures are designed and manufactured in accordance with AASHTO and CHBDC standards and specifications.

Durability

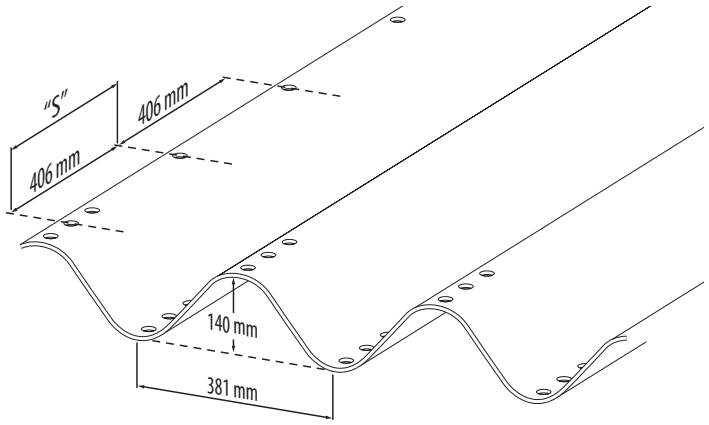
Properly designed structures will last 100-plus years.

Handling

Lightweight sections are economical to ship, and easily handled by light equipment.

Cost

Low installation and maintenance over the life cycle of the structure makes Super•Cor the economical choice.



SPECIFICATIONS

Wall Thickness			Tangent				
Specified (mm)	Uncoated (T) (mm)	Area (mm^2/mm)	Length (TL) (mm)	Angle(Δ) (degrees)	Moment of Inertia (mm^4/mm)	Section Modulas (mm^3/mm)	Radius of Gyration (mm)
3.5	3.42	4.784	110.8	49.75	11710.7	152.72	49.48
4.2	4.18	5.846	109.8	49.89	14332.5	186.05	49.52
4.8	4.67	6.536	109.2	49.99	16037.0	207.54	49.54
5.5	5.45	7.628	108.2	50.13	18740.1	241.38	49.57
6.3	6.23	8.716	107.2	50.28	21441.2	274.87	49.60
7.1	7.01	9.807	106.1	50.43	24124.5	308.24	49.64
8.1	8.00	11.06	104.9	50.62	27259.0	347.00	49.65

Corrugation Profile: 381 mm x 140 mm

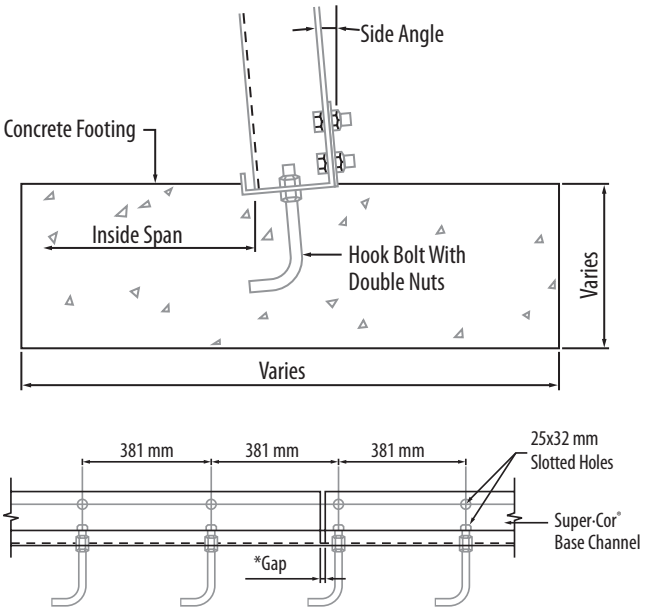


FOOTER OPTIONS

Super•Cor packages come with a variety of footer options to suit various sites:

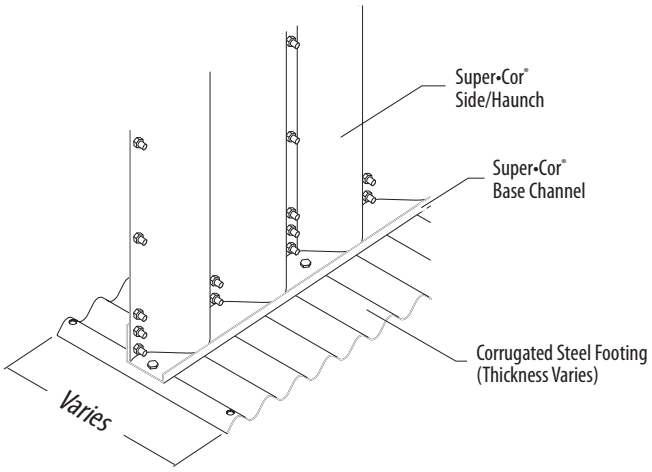
- Precast or cast-in-place concrete footings – the most common footer type, in which a receiving angle is embedded in concrete.
- Steel footer pads – used as a time-saving alternative to concrete in sites with non-erodible stream beds. If the site permits, footings should be buried a minimum of 600mm below stream bed. Note: When footer pads are buried, the published end area of Super•Cor will be reduced.
- Full steel invert – for applications in erodible stream beds requiring a corrugated steel floor or invert. To prevent undermining of the invert, we recommend the use of an optional toewall for the upstream and downstream ends.

Concrete Footing



*Note: Space base channel so that 381mm c/c spacing of slotted holes in long leg is maintained

Corrugated Steel Footing



HEADWALL OPTIONS

In addition to enhancing their appearance, well-designed end treatments are essential to the structural and hydraulic performance of Super•Cor.

Headwall options include:

- MSE wall systems with welded wire walls or concrete faces
- Concrete, cast-in-place or precast
- Welded wire gabion baskets
- Sheet Pile walls







Super•Cor® Box

Super•Cor Boxes offer the perfect solution for long-span, low-rise situations with shallow cover.

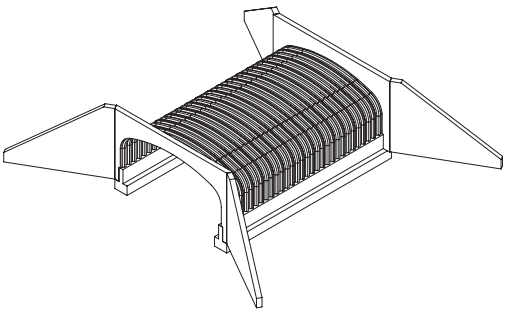
Super•Cor Boxes combine the strength and cost advantages of Atlantic Civil Products' Super•Cor corrugation profile with a special, patented reinforcement along the length of the structure. The extra strength of this reinforcement permits designs exceeding 15m.



LOOKING GOOD: As shown here and opposite, Super•Cor can be customized with many types of functional and attractive end treatments.

Your complete solution.

From preliminary specifications and drawings through to project completion, Atlantic Civil Products is your single source for a comprehensive engineered package including the structure, footings, headwalls, wingwalls, fascia finishes and guardrail systems.

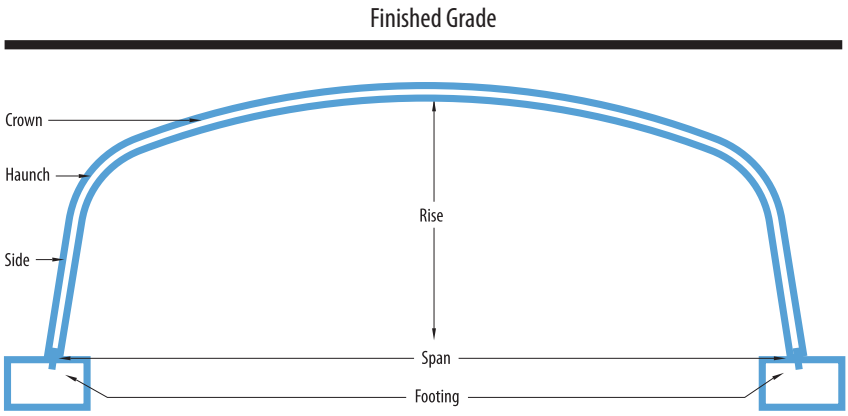




Structural Cross Section

Recommended Height of Cover

Limits: Minimum – 450 mm
Maximum – 1500 mm



Box Details

No.	Span (mm)	Rise (mm)	End Area (m^2)	No.	Span (mm)	Rise (mm)	End Area (m^2)
SC-1B	3170	1180	3.12	SC-33B	7405	1680	10.21
SC-2B	3550	1420	4.33	SC-34B	7800	1965	12.71
SC-3B	3840	1465	4.94	SC-35B	7945	2370	15.87
SC-4B	3965	2210	7.35	SC-36B	8575	1920	13.90
SC-5B	3865	1260	4.18	SC-37B	8605	2325	17.38
SC-6B	4105	1860	6.56	SC-38B	8635	2735	20.89
SC-7B	4210	1310	4.76	SC-39B	9145	1940	14.64
SC-8B	4735	1960	8.16	SC-40B	9225	2345	18.35
SC-9B	4550	1360	5.36	SC-41B	9310	2750	22.10
SC-10B	4890	1610	6.97	SC-42B	9810	2105	16.92
SC-11B	4860	2365	10.09	SC-43B	9865	2510	20.90
SC-12B	5155	2420	11.06	SC-44B	9920	2920	24.92
SC-13B	5215	1670	7.72	SC-45B	10460	2285	19.43
SC-14B	5360	2075	9.89	SC-46B	10485	2690	23.68
SC-15B	5320	1440	6.62	SC-47B	10515	3100	27.95
SC-16B	5445	2480	12.07	SC-48B	10895	2355	20.59
SC-17B	5655	1505	7.33	SC-49B	10940	2760	25.02
SC-18B	5955	2645	14.23	SC-50B	10990	3165	29.47
SC-19B	5895	1595	8.17	SC-51B	11645	2530	23.31
SC-20B	6165	1900	10.33	SC-52B	11700	2935	28.04
SC-21B	6235	2715	15.36	SC-53B	11750	3345	32.81
SC-22B	6320	1645	8.91	SC-54B	12270	2745	26.46
SC-23B	6480	1975	11.25	SC-55B	12290	3150	31.45
SC-24B	6495	2380	13.89	SC-56B	12315	3555	36.45
SC-25B	6645	1720	9.77	SC-57B	13028	2830	30.72
SC-26B	6970	1795	10.67	SC-58B	13050	3236	36.02
SC-27B	7000	2200	13.50	SC-59B	14092	3071	35.61
SC-28B	7025	2610	16.35	SC-60B	14111	3477	41.34
SC-29B	7290	1875	11.62	SC-61B	15020	3168	38.38
SC-30B	7300	2285	14.58	SC-62B	15038	3574	44.48
SC-31B	7310	2690	17.56	SC-63B	15579	3845	49.46
SC-32B	7315	3095	20.52	SC-64B	15748	3994	52.12

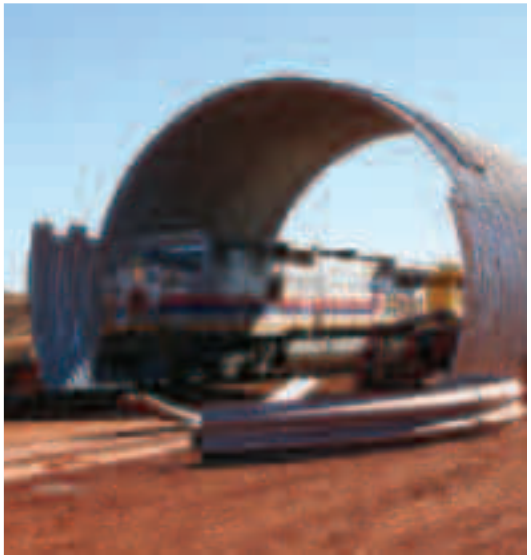
Larger sizes and other shapes available upon request. Measurements are to inside crest of corrugation.

Super•Cor® Arch

Super•Cor Arches surpass the range of conventional plate arches with spans exceeding 25m. They can be installed with minimal environmental impact.

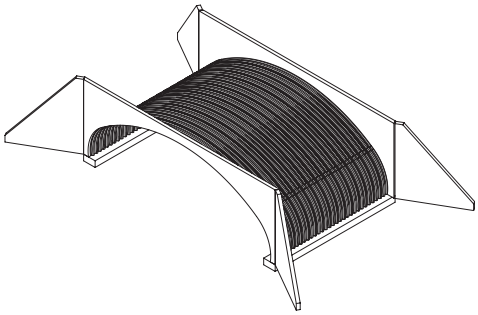
High-profile Super•Cor arches are ideal for highway grade separations or in applications requiring large end areas or wider spans.

SAVE TIME AND MONEY: Super•Cor structures erect quickly with less labour and transportation costs. In some cases, vital 24-hour traffic is not even interrupted.



Your complete solution.

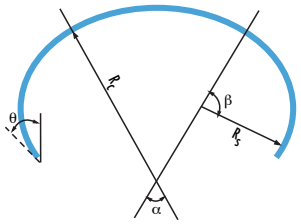
Atlantic Civil Products is your single source for a comprehensive engineered package including the structure, footings, headwalls, wingwalls, fascia finishes and guardrail systems.

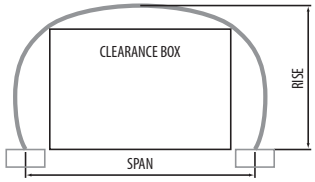




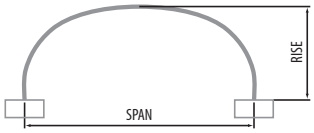
Arch Details

Typical Arch Profile

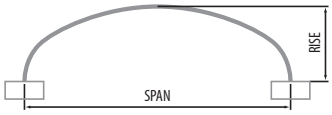




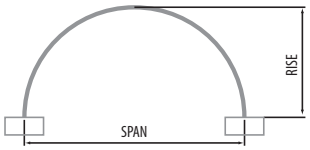
High Profile Arch



Medium Profile Arch



Low Profile Arch



Standard Arch

Arch No.	Max. Span (mm)	Bottom Span (mm)	Total Rise (mm)	End Area (m^2)	Total S
SCA1	6990	6990	3495	19.20	27
SCA2	7250	7250	3625	20.60	28
SCA3	7510	7510	3755	22.10	29
SCA4	7640	7640	3820	23.70	30
SCA5	8000	7994	3594	23.53	30
SCA6	8030	8030	4015	25.30	31
SCA7	8290	8290	4140	27.00	32
SCA8	8550	8550	4270	28.70	33
SCA9	8800	8800	4400	30.40	34
SCA10	9000	8983	3760	28.15	33
SCA11	9000	8724	5168	40.67	40
SCA12	9060	9060	4530	32.20	35
SCA13	9320	9320	4660	34.10	36
SCA14	9500	9456	3956	31.54	35
SCA15	9580	9580	4790	36.00	37
SCA16	9840	9840	4920	38.00	38
SCA17	10000	9967	3961	33.14	36
SCA18	10000	9740	4547	38.93	39
SCA19	10000	9690	5371	47.06	43
SCA20	10100	10100	5045	40.00	39
SCA21	10360	10360	5175	42.10	40
SCA22	10500	10476	3974	34.75	37
SCA23	10870	10870	5435	46.40	42
SCA24	11000	10947	4193	38.53	39
SCA25	11000	10697	4776	44.86	42
SCA26	11000	10642	5864	56.27	47
SCA27	11390	11390	5695	50.90	44
SCA28	11500	11462	4221	40.26	40
SCA29	11910	11910	5955	55.70	46
SCA30	12000	11974	4259	42.02	41
SCA31	12000	11781	5639	57.10	47
SCA32	12000	11612	6113	63.68	50
SCA33	12430	12430	6210	60.60	48
SCA34	12500	12447	4501	46.26	43
SCA35	12940	12940	6470	65.80	50
SCA36	13000	12964	4553	48.18	44
SCA37	13000	12745	5890	64.39	50
SCA38	13000	12662	6460	72.07	53
SCA39	13460	13460	6730	71.10	52

Arch No.	Max. Span (mm)	Bottom Span (mm)	Total Rise (mm)	End Area (m^2)	Total S
SCA40	13500	13479	4612	50.12	45
SCA41	13980	13980	6985	76.70	54
SCA42	14000	13958	4877	54.88	47
SCA43	14000	13872	6543	75.91	54
SCA44	14000	13641	7009	83.57	57
SCA45	14500	14433	5150	59.87	49
SCA46	15000	14960	5232	62.15	50
SCA47	15000	14780	7022	87.32	58
SCA48	15000	14663	7351	92.90	60
SCA49	15010	15010	7505	88.50	58
SCA50	15500	15441	5520	67.55	52
SCA51	15530	15530	7765	94.70	60
SCA52	16000	15942	4922	64.47	52
SCA53	16000	15870	6666	89.41	59
SCA54	16000	15543	7982	111.11	66
SCA55	16050	16050	8025	101.10	62
SCA56	16500	16406	5168	69.78	54
SCA57	16570	16570	8280	107.70	64
SCA58	17000	16930	5224	72.02	55
SCA59	17000	16909	6720	94.96	61
SCA60	17000	16478	8483	124.98	70
SCA61	17220	17220	8610	114.60	66
SCA62	17500	17451	5285	74.29	56
SCA63	17600	17600	8800	121.60	68
SCA64	18000	17921	5547	80.14	58
SCA65	18000	17886	6999	104.17	64
SCA66	18110	18110	9068	128.90	70
SCA67	18500	18447	5617	82.59	59
SCA68	19000	18912	5889	88.82	61
SCA69	19000	18926	7099	110.10	66
SCA70	19150	19150	9576	155.81	74
SCA71	19500	19448	5968	91.46	62
SCA74	20190	20190	10083	160.00	78
SCA76	20700	20700	10360	168.30	80
SCA78	21210	21210	10620	176.80	82
SCA82	22250	22250	11125	194.50	86
SCA86	22760	22760	11380	203.60	88
SCA90	24000	24000	12040	227.40	93
SCA94	25000	25000	12500	245.40	96

Note: All dimensions are to inside crest of steel. 114mm edge distance of steel is included in side arc length and angle. ***Structure numbers in bold denotes single radius arch.*** *Other sizes and plate configurations are available upon request.*

Super·Cor® Round

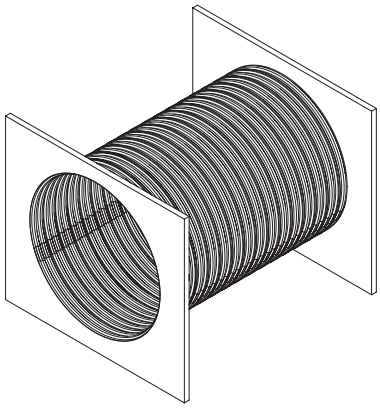
Super•Cor Round structures permit construction of dramatically larger diameters than was previously possible with conventional structural plate pipe configurations.



Super•Cor is the obvious choice for remote locations where concrete is more expensive or just not accessible as well as areas with poor foundations. This common and very versatile shape is frequently chosen for culverts, sewers and sub-drains, but it can also be used for storage bins, access ways, tunnels, bridges, and storm water retention/ detention systems.

THE STRONGEST: In mine sites around the world, Super•Cor is used under huge stock piles.

Round Details



*S = 406mm measured along the circumference.
**Other sizes available upon request.
Measurements are to inside crest of corrugation.

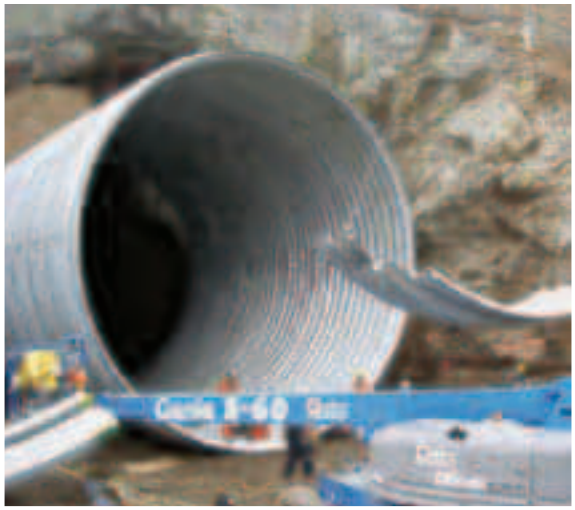
Pipe No.	Diameter (mm)	End Area (mm^2)	Total S*
SC66R	8400	55.4	66
SC68R	8650	58.7	68
SC70R	8910	62.3	70
SC72R	9170	66.0	72
SC74R	9430	69.8	74
SC76R	9690	73.7	76
SC78R	9950	77.7	78
SC80R	10200	81.7	80
SC82R	10460	85.9	82
SC84R	10720	90.2	84
SC86R	10980	94.6	86
SC88R	11240	99.2	88
SC90R	11500	103.8	90
SC94R	12020	113.4	94
SC98R	12530	123.3	98
SC102R	13050	133.7	102
SC106R	13570	144.6	106
SC110R	14080	155.7	110
SC114R	14600	167.4	114
SC118R	15120	179.5	118
SC122R	15640	192.1	122



We support all of our products with professional engineering, project consultation, innovative solutions and installation expertise. In short, we're always ready to provide assistance and recommendations for any project using Atlantic Civil Products.

Design and Installation

Atlantic Civil Products' reputation for excellence extends well beyond developing innovative, superior steel products.





Installation

Super•Cor® structures distribute superimposed loads to the surrounding 'engineered' backfill, so it is essential to use care during installation and backfilling to ensure proper performance. The following guidelines will help ensure a successful project.

Excavation

Trench excavation will vary, depending on the nature of the in situ material. It is necessary to provide an excavated area that ensures adequate distance from soils with questionable structural integrity. If the native soil is stable, excavate only that area required to provide minimum bedding and enough room for compaction equipment to manoeuvre. For stream crossing applications, local authorities will impose guidelines for construction activity.

Foundations

Super•Cor structures are flexible and can accommodate some differential settlement without distress. It is important, nevertheless, to minimize differential settlement by removing and replacing poor foundation material, or by using a pile foundation. Preparation should be confined to minimum, but practical, widths and should result in a uniform base for the structure. A bedding of loose material will provide a slight cushion and the bedding may be flat or shaped, depending on the structure configuration and construction methods being used. It is essential that all corrugations be filled.

Assembly

A Super•Cor structure arrives at the job site in bundles curved to the proper radius. Included are bolts and any other special hardware that may be required, instructions and a diagram listing all components. Assembly is easy, requiring relatively simple tools. Correct lapping, bolt-tightening and shape-monitoring are all important to achieve the correct design dimensions. Your Atlantic Civil Products representative can provide information and assistance to those unfamiliar with structural plate assembly.

Backfill

Super•Cor structures require a stable, engineered backfill to retain their shape and structural integrity. The quality of the backfill envelope depends on the choice of material, placement of backfill, and compaction of the envelope. Local engineering departments normally have specifications detailing suitable backfill material for flexible structures. However, there is no substitute for an examination by a geotechnical engineer. A well-graded, free-draining granular backfill is preferred.

Inspection

Inspection should be performed on a full-time basis by qualified personnel. Backfill is placed in a balanced manner in 150mm to 200mm lifts for the entire backfill envelope. Compaction testing is required to ensure that backfill material is compacted to the required density. It is a good idea to assess the compaction equipment and have its use approved by the geotechnical engineer or qualified inspector.

End Finishes

Special attention must be paid to beveled or skewed ends. Incomplete structural rings must be reinforced with steel or concrete (or tied back) to maintain structural integrity. Exercise caution when placing backfill around them to avoid distortion.

Standard End Finishes are:

- Squared
- Beveled
- Partially-beveled
- Skewed

PRODUCTS AND SERVICES

- Super·Cor®
- Bolt-A-Bin®
- Multiplate™
- Super Span™
- Dur·A·Span®
- Atlantic Wire Walls
- Atlantic Precast Walls
- Modular Bridges
- Bridge Decking
- Box Culverts
- Geotextiles
- Guardrail Systems
- Helcor Pipe™
  - – Galvanized
  - – Aluminized Steel Type II
  - – Polymer Laminated
- Buffa Tanks™
- Storm Water Detention
- Hi-Flo Pipe™
- Nestable Pipe
- Corrugated Polyethylene Pipe
- Steel Sheet Piling
- Hot Dip Galvanizing

We offer engineering expertise and support on all of the above products.

Atlantic Civil Products

OFFICE LOCATIONS

Head Office:
Townsville
13 Industrial Avenue
Bohle QLD 4818 Australia
Phone (07) 4789 6700
Fax (07) 4774 6958

Western Australia
Sales & Service
Phone (08) 9923 3422
Fax (08) 9923 3437

Southern Region
Sales & Service
Phone (02) 9522 9011
Fax (02) 9522 7136

THE AIL GROUP OF COMPANIES

AIL Atlantic Industries Limited · BIG R BRIDGE · Atlantic Civil Products · T&B Structural Systems

Products and services are available throughout Australia, please visit **www.atlanticcivil.com.au** for contact information.

FOR ASSISTANCE IN PRICING, ORDERING, AND INSTALLATIONS,
CALL TOLL FREE IN AUSTRALIA: 1 800·99·77·54
OR EMAIL SALES@ATLANTICCIVIL.COM.AU

www.atlanticcivil.com.au

THE INFORMATION, SUGGESTED APPLICATIONS AND TABLES IN THIS BROCHURE ARE ACCURATE AND CORRECT TO THE BEST OF OUR KNOWLEDGE, AND ARE INTENDED FOR GENERAL INFORMATION PURPOSES ONLY. THESE GENERAL GUIDELINES ARE NOT INTENDED TO BE RELIED UPON AS FINAL SPECIFICATIONS, AND WE DO NOT GUARANTEE SPECIFIC RESULTS FOR ANY PARTICULAR PURPOSE. WE STRONGLY RECOMMEND CONSULTATION WITH AN ATLANTIC CIVIL PRODUCTS TECHNICAL REPRESENTATIVE BEFORE MAKING ANY DESIGN AND PURCHASING DECISIONS.

03/2009

APPENDIX M

Memorandum Ref. PE25-01621

Doropo Gold Project Conceptual Design of Haul Road

Overpass Tunnel Rev 1

Knight Piésold CONSULTING

MEMORANDUM

To:	Resolute Mining	**Date:**	16 December 2025
Attn:	Rob Cicchini	**Our Ref:**	PE25-01621
		KP File Ref.:	PE301-00821/07-A djtm M25015
cc:	Luciano Giancristofaro	**From:**	Dave Morgan

RE: DOROPO GOLD PROJECT – CONCEPTUAL DESIGN – HAUL ROAD OVERPASS TUNNEL REV 1

1. INTRODUCTION

The Doropo project is a gold prospect in the north-eastern Côte d'Ivoire, 480 km north of the capital Abidjan. Resolute Mining Limited (Resolute) is developing this project.

At the location of the proposed overpass tunnel, the ground conditions are variable, the subsurface ground comprises a layer of loose to medium dense sand at shallow depth based on the geotechnical investigation. The foundation settlements and ground bearing capacity are the major concerns for the overpass tunnel. Knight Piésold (KP) carried out a conceptual design and assessed the behaviour of the proposed tunnel using numerical modelling based on assumptions and available information.

This memorandum presents the modelling results and provides recommendations. It is noted this memorandum supersedes PE24-00375. The document update is limited to accounting for the change in ownership of the project.

2. CONCEPTUAL TUNNEL DESIGN

The proposed overpass tunnel is a multi-plate™ arch tunnel built of Super-Cor® corrugated plates of 8.1 mm thickness. The tunnel span is 14.0 m wide and 7.0 m high. The proposed tunnel will be founded on strip reinforced concrete footings. The footing section dimensions are 4 m wide and 0.5 m deep, which need to be confirmed during the detailed design stage.

The tunnel will be constructed through a cut-and-fill method with structural fill compacted to required density to maintain a hoop stress condition. The minimum cover above the tunnel is 2.5 m. A typical section through the proposed tunnel is shown in Figure 2.1.

3. GROUND CONDITION

3.1 SUBSURFACE GEOTECHNICAL PROFILE

Four boreholes were drilled and four test pits were excavated at the proposed overpass location during the 2023 – 2024 geotechnical site investigation. The borehole and test pit locations are shown in Figure 3.1. The typical ground profile based on the investigation findings is summarised in Table 3.1.

It was assumed that the top 300 – 400 mm of soil will be removed prior to construction.

Table 3.1: Subsurface Profile

Layer	From	To	SPT
SAND, silty, trace clay, non-plastic, medium dense, topsoil (to be removed)	0.0 m	0.4 m	-
SAND, clayey, with gravel, low plasticity, yellow brown, dry, loose RESIDUAL	0.4 m	4.0 m	5
SAND, clayey, with gravel, low plasticity, yellow brown, dry, medium dense RESIDUAL	4.0 m	6.0 m	12 to 36
GRANODIORITE, medium to coarse grained, granular, massive, grey brown, very low strength HIGHLY WEATHERED	6.0 m	7.5 m	23, 38, 11/20 mm (5HB)
GRANODIORITE, medium to coarse grained, granular, massive, grey and yellow-brown, very low to low strength MODERATELY WEATHERED	7.5 m	25 m	-

3.2 GROUND WATER CONDITIONS

Ground water was observed to depths ranging from 4.7 to 6.0 m below ground level. The ground water level is expected to fluctuate with seasons.

4. LOADING CONDITIONS

For this conceptual design, the loading conditions were based on the haul truck Volvo FMX460 8X4 tipper nominated as part of the 2024 DFS study. The loaded weight of FMX460 is 86 tonnes with self-weight of 35 tonnes and payload of 51 tonnes. The specifications of FMX460 are included in Appendix A.

5. CONSTRUCTION METHOD AND SEQUENCE

To increase the foundation bearing capacity and reduce settlements, the top 4 m loose sand (residual soil) under the foundations need to be replaced with compacted structural fill. The structural fill shall be crushed mine waste rock with fine content less than 20% and particle size smaller than 75 mm. The structural fill needs to be compacted in layers less than 300 mm thick and achieve a 95% modified maximum dry density (MMDD). The following construction sequences are assumed in this assessment:

- Excavate residual soil to 4 m depth below the footings and replace with compacted structural fill.
- Construct the footing foundation.
- Erect the tunnel plates.
- Backfill around the tunnel evenly with strips to hold down the multiplate tunnel lining, and compact the fill as per tunnel supplier’s requirements and specifications.
- Place road surfacing materials and compact as per relevant specifications and standards.

6. NUMERICAL MODELLING

6.1 NUMERICAL MODELLING APPROACH

The numerical modelling of the overpass tunnel was performed using a commercial Finite Element (FE) package, PLAXIS 2D.

PLAXIS 2D is a two-dimensional FE program which has a number of advanced constitutive models for simulation of the non-linear, time-dependent and anisotropic behaviour of soil and rock. It has been widely used worldwide by practising engineers and academics, and as such, has wide acceptance for the numerical modelling and analysis of geotechnical engineering problems.

6.2 INPUT PARAMETERS

6.2.1 Geotechnical Parameters

For all soil layers, except for the top 1 m of compacted fill and the highly weathered rock, an advanced constitutive soil model, Hardening Soil (HS) model was adopted. HS model allows soil stiffness to increase with the confined stress and the yield surfaces are not fixed in the principal stress space. This is particularly important for soils undergoing loading and unloading processes such as excavation and backfilling, where the soil stiffness will change during these processes. For the top 1m of compacted fill, Mohr-Coulomb (MC) model was adopted to avoid unrealistic low stiffness due to low confining stress close to road surface. MC model was also used for the highly weathered Rock/Granodiorite as rock stiffness would not change during the excavation and backfilling processes. The geotechnical input parameters are presented in Table 6.1.

Table 6.1: Geotechnical Parameters

Parameters	Symbol	Compacted Fill (top 1m)	Compacted Fill	Structural Fill	Residual Soil/Sand	HW Rock/ Granodiorite
Model		MC	HS	HS	HS	MC
Unit Weight (kN/m3)	γ	18	18	20	18	20
Deformation Modulus (MPa)	E	30	-	-	-	70
Poisson Ratio	μ	0.3	-	-	-	0.3
Cohesion (kPa)	c	5	5	0	10	10
Friction Angle (°)	ϕ'	32	32	35	28	35
Scant Modulus (MPa)	E_{50}^{Ref}	-	20	40	15	-
Tangent modulus (MPa)	E_{oed}^{Ref}	-	20	40	15	-
Loading and unloading modulus (MPa)	E_{ur}^{Ref}	-	60	120	45	-
Poisson's Ratio for loading and unloading	μ_{ur}	-	0.2	0.2	0.2	-
Permeability (m/s)	k	-	-	-	10^{-6}	10^{-7}

6.2.2 Structural Parameters

The tunnel was modelled as beam elements that can simulate the tunnel bending, shearing and compressive behaviour. The tunnel lining properties are based on the specifications for the corrugation profiles from Super-Cor® (Appendix B). Structural parameters for the tunnel lining are presented in Table 6.2.

Table 6.2: Structural Parameters

Item	Thickness (mm)	Young's Modulus (GPa)	Yield strength (MPa)	Bending Stiffness (kN·m²/m)	Normal Stiffness (kN/m)
	t	E	f_y	EI	EA
Tunnel	8.1	200	250	5451.8	2.222×10^6

The footing was modelled as an elastic material with a Young's modulus of 30 GPa, to represent the concrete footing foundation. The footing is 4.0 m wide and 0.5 m deep.

6.2.3 Applied Loads

The loading conditions were based on FMX460 trucks. The loaded truck weight is 86,000 kg. Details of the truck load information are included in Appendix A.

The truck tyre loads were converted to equivalent line loads and pressures for the two-dimensional modelling by dividing the spacing in the out-of-plane direction.

For FMX460 trucks, when fully loaded the estimated front wheel and rear wheel pressure are 123 kPa/m and 208kPa/m, respectively over their covered area. For FMX460 trucks, there are four front wheels and four rear wheels. The most critical condition would be that the rear wheels on the central line of the tunnel.

6.3 NUMERICAL MODELLING RESULTS

The numerical modelling results are summarised in following Table 6.3 and graphically presented in figures 6.1 to 6.6.

Table 6.3: Summary of numerical modelling results

Parameters		Values
Overall maximum settlement of tunnel	mm	97
Maximum settlement of tunnel due to traffic loads after construction	mm	20
Maximum total settlement of footing due to traffic loads after construction	mm	6
Differential settlement of footing due to traffic loads after construction	mm	4
Maximum total settlement of footing during construction	mm	68
Differential settlement of footing during construction	mm	1
Overall maximum total settlement of footing	mm	74
Overall differential settlement of footing	mm	4
Maximum pressure below footing foundation	kPA	354
Maximum bending moment on tunnel	kNm	27
Maximum axial force on tunnel	kN	814
Maximum shear forces on tunnel	kN	238

The modelling results suggest that the overall foundation settlements would be less than the supplier's permissible limit of 150 mm. Additionally, approximately 75% of the settlements are expected to occur during construction and could settle relatively uniformly if the backfill is evenly placed along the entire tunnel. The total settlement and differential settlement after construction are within the supplier's acceptable range.

The ultimate compressive stress f_{uc} is calculated from the combination of maximum bending moment and axial force to be 148 MPa, which is less than the allowable yield strength 167 MPa (with a factor 1.5). The ultimate shear stress f_s is calculated as 21.5 MPa, which is much less than the allowable shear yield strength 83 MPa (=250 MPa/2/load factor 1.5).

A consolidation analysis was conducted for embankment construction, and the results indicate that the excess pore water pressure due to backfill would not be significant.

7. CONCLUSIONS AND RECOMMENDATIONS

Based on assumptions and available information, a preliminary design has been provided for the overpass tunnel, and numerical modelling has been completed to assess the preliminary design. The modelling indicates that the total and differential settlement due to vehicle loads after construction fall within the acceptable range, suggesting that the preliminary design is feasible.

It is recommended to:

- Carry out detailed design in the next stage.
- Update this assessment based on the detailed design.
- Identify suitable materials for construction.

We trust this is sufficient for your current requirements. Kindly contact us if you have any further queries.

Yours faithfully
KNIGHT PIÉSOLD PTY LTD

JIM LUO
Manager Geotechnical Services

DAVID MORGAN
Managing Director

REFERENCES

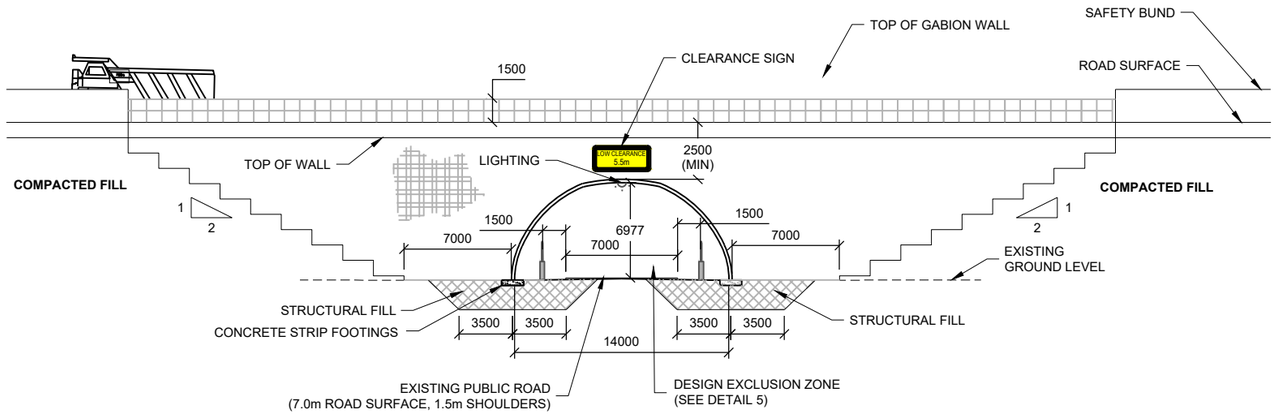
1. "*Doropo Feasibility Study Geotechnical Site Investigation*", 2024.
2. Knight Piésold Pty Ltd, "*Doropo Gold Project – Conceptual Site Access Road and Haul Design Rev 1*", Memorandum Ref: PE23-00013, 18 January 2023.

   Knight Piésold, "*Doropo Gold Project – Conceptual Design of Haul Road Overpass Tunnel*", Memorandum Ref: PE24-00375, 27 March 2024.

FIGURES

NOTES:

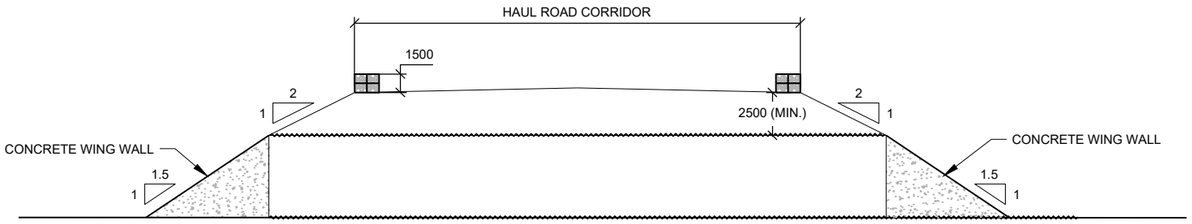
1. ARCH AND RETAINING WALL DESIGN BY OTHER.



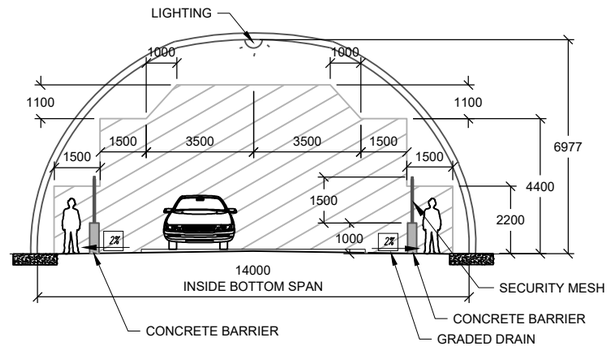
G - TYPICAL OVERPASS CROSS SECTION THROUGH ENTRANCE
N.T.S.



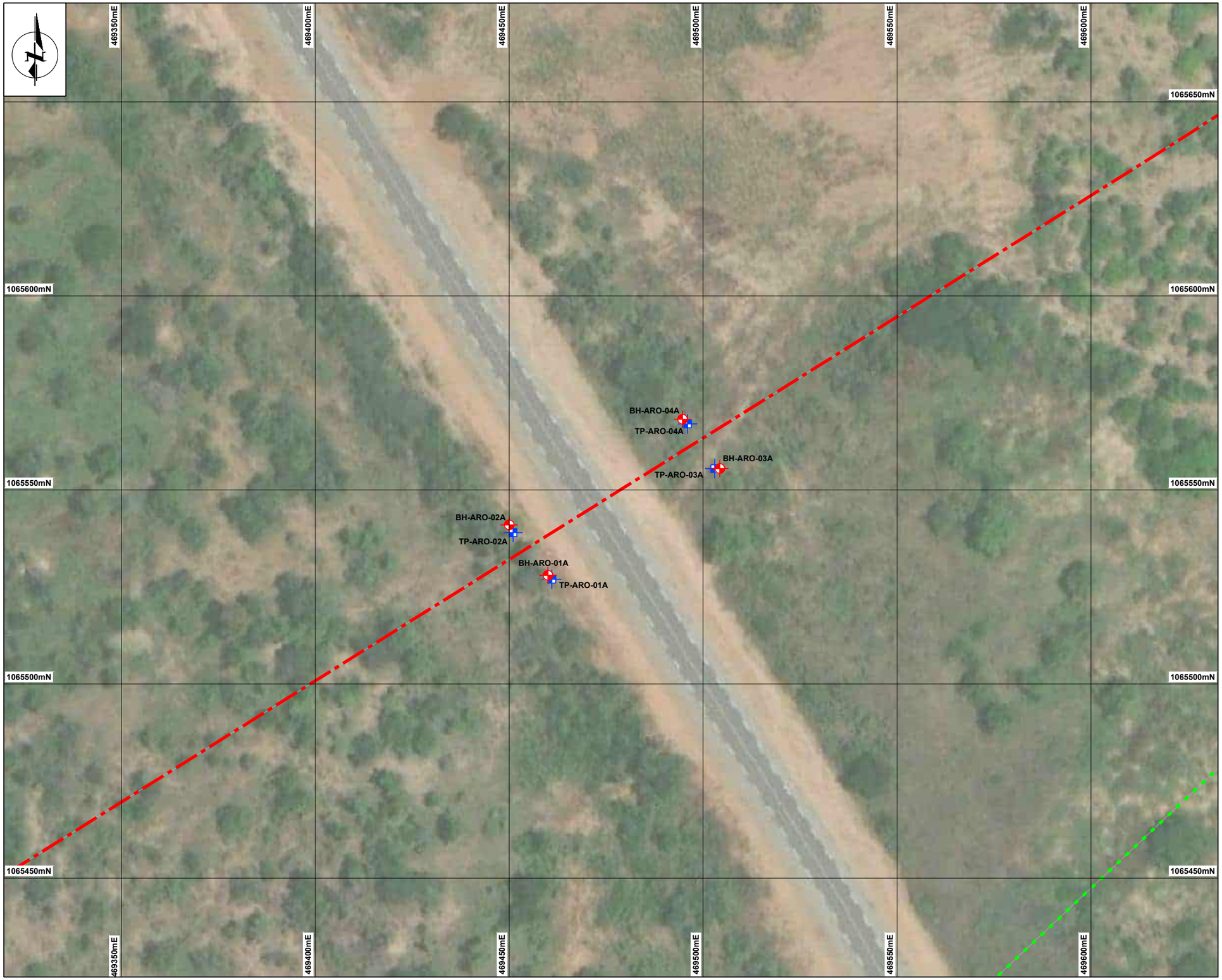
4 - TYPICAL CONSTRUCTION DETAIL OF A CORRUGATED METAL OVERPASS
N.T.S.



H - TYPICAL LONG SECTION THROUGH OVERPASS
N.T.S.



5 - TYPICAL OVERPASS STRUCTURE EXCLUSION ZONE
N.T.S.



LEGEND:

- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- BOREHOLES
- TEST PITS

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.

TEST PIT LOCATIONS

TP I.D.	EASTING (m)	NOTHING (m)
TP-ARO-01A	469461.0	1065527.0
TP-ARO-02A	469451.0	1065539.0
TP-ARO-03A	469503.0	1065555.5
TP-ARO-04A	469496.0	1065567.0

BOREHOLE LOCATIONS

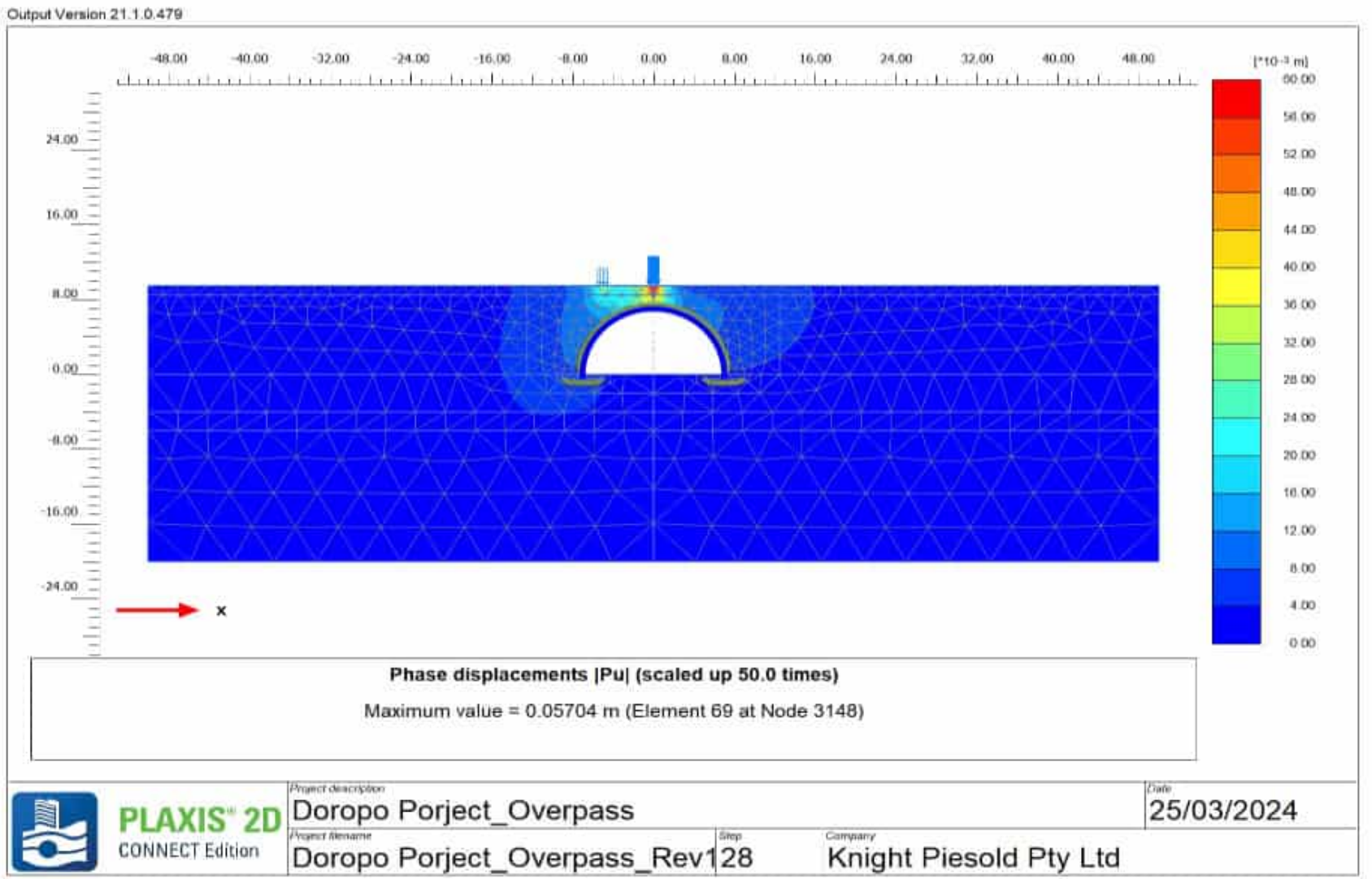
BH I.D.	EASTING (m)	NOTHING (m)
BH-ARO-01A	469460.0	1065528.0
BH-ARO-02A	469450.0	1065541.0
BH-ARO-03A	469504.3	1065555.5
BH-ARO-04A	469494.7	1065568.2

20 15 10 5 0 10 20 30 40
SCALE (METRES) 1:1,000 (A3)

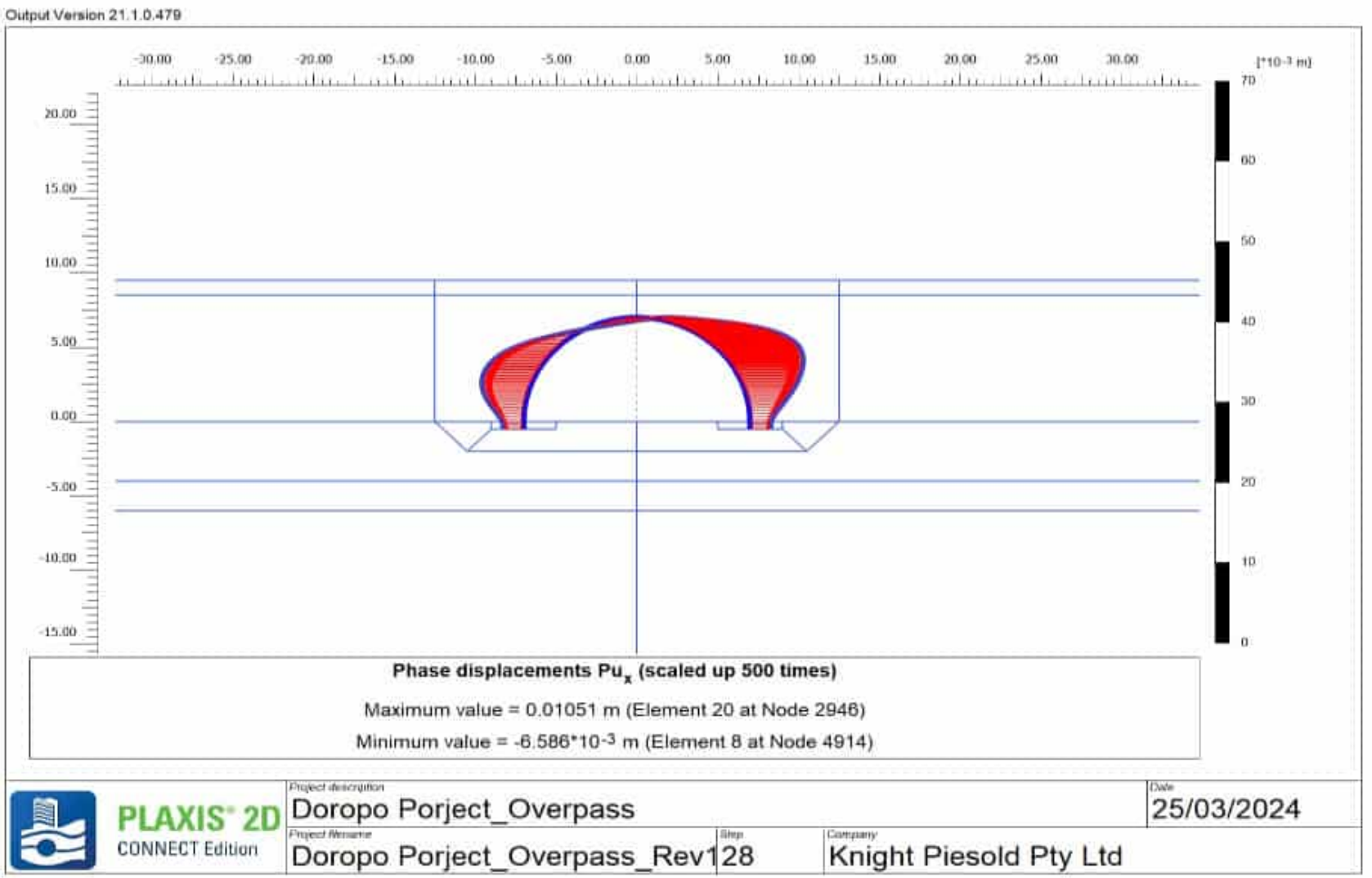
Knight Piésold CONSULTING

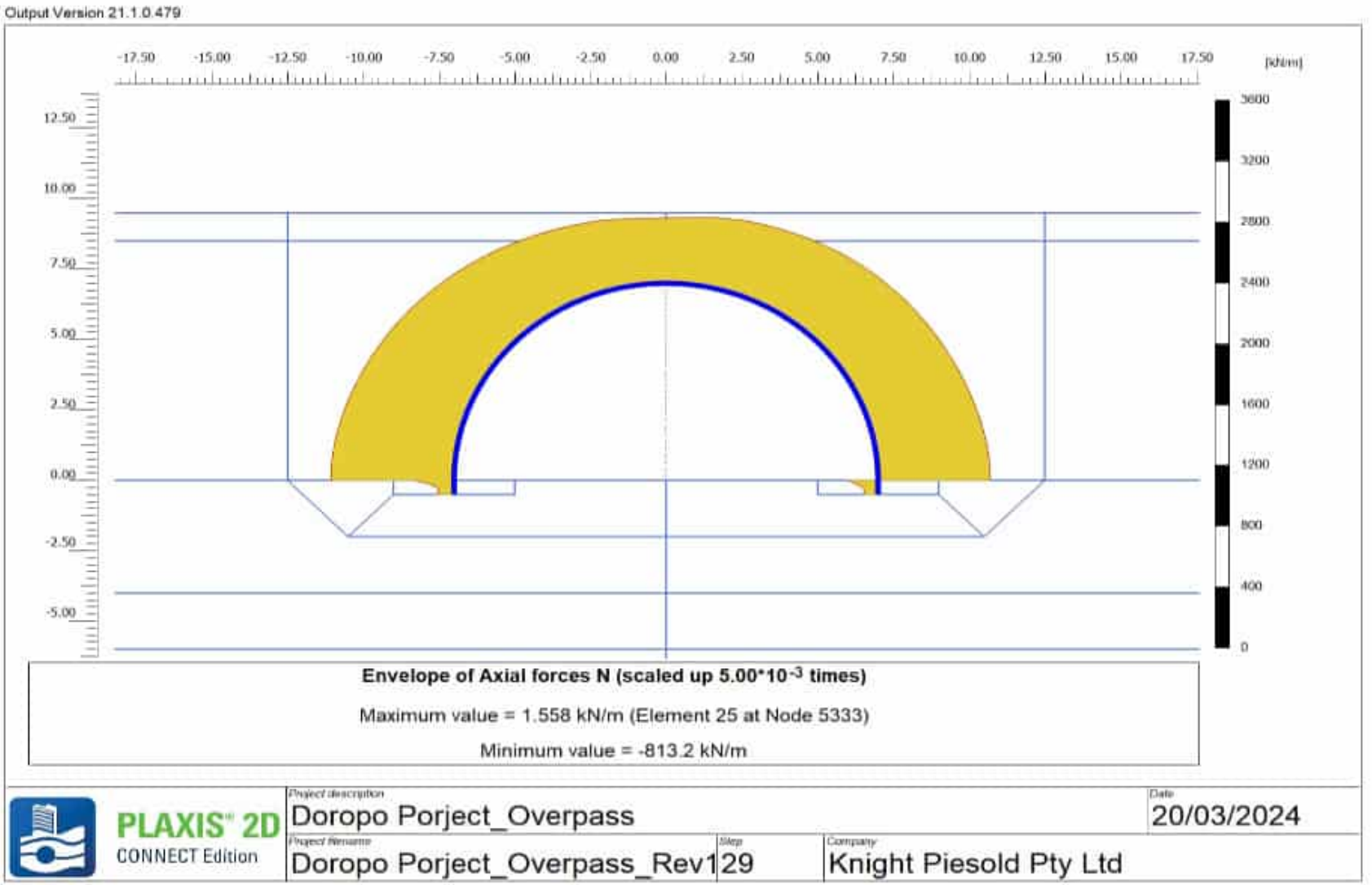
DOROPO GOLD MINE
PRELIMINARY DESIGN OF HAUL ROAD OVERPASS TUNNEL
OVERPASS LAYOUT

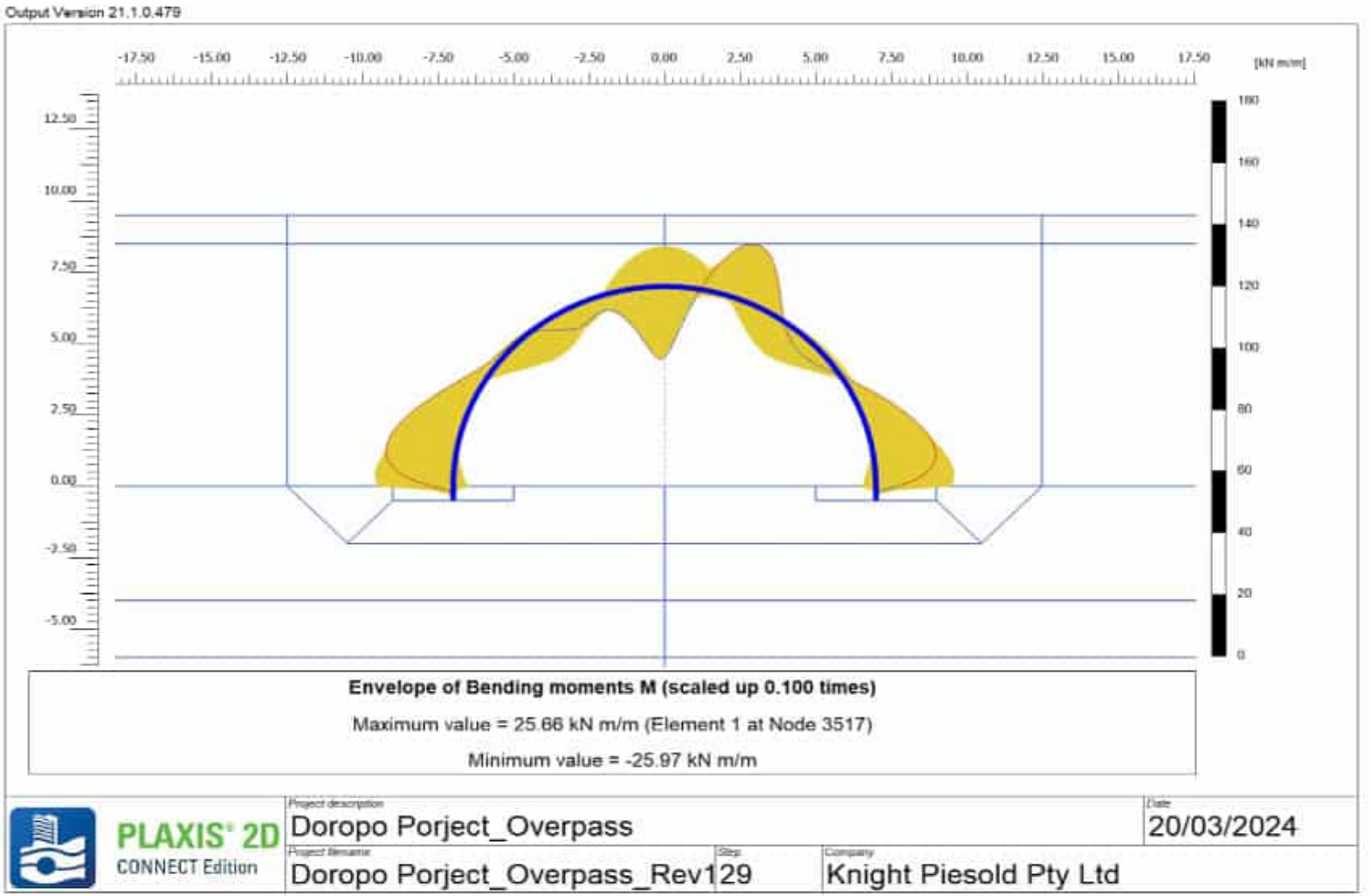
PE301-00821 M25015
Figure 3.1

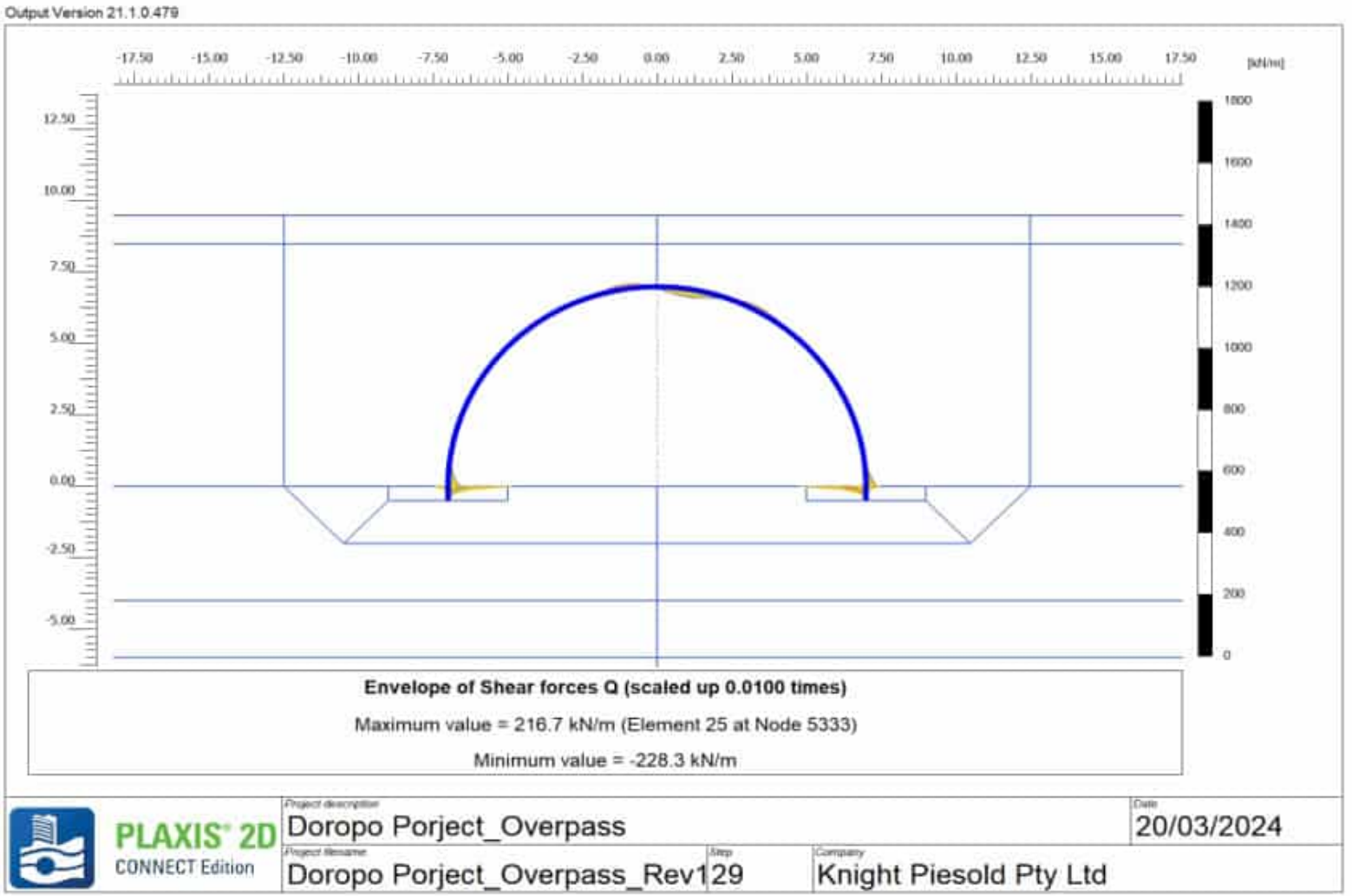

Output Version 21.1.0.479
-48.00
-40.00
-32.00
-24.00
-16.00
-8.00
0.00
8.00
16.00
24.00
32.00
40.00
48.00
[*10^-3 m]
60.00
56.00
52.00
48.00
44.00
40.00
36.00
32.00
28.00
24.00
20.00
16.00
12.00
8.00
4.00
0.00
24.00
16.00
8.00
0.00
-8.00
-16.00
-24.00
x
Phase displacements |Pu| (scaled up 50.0 times)
Maximum value = 0.05704 m (Element 69 at Node 3148)
PLAXIS 2D
CONNECT Edition
Project description
Doropo Porject_Overpass
Date
25/03/2024
Project filename
Doropo Porject_Overpass_Rev1
Step
28
Company
Knight Piesold Pty Ltd


Output Version 21.1.0.479
-30.00
-25.00
-20.00
-15.00
-10.00
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
30.00
[m]
20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Phase displacements Pu_y (scaled up 200 times)
Maximum value = 0.1159*10-3 m (Element 20 at Node 2946)
Minimum value = -0.02795 m (Element 1 at Node 3518)
PLAXIS 2D
CONNECT Edition
Project description
Doropo Porject_Overpass
Date
25/03/2024
Project filename
Doropo Porject_Overpass_Rev1
Step
28
Company
Knight Piesold Pty Ltd


Output Version 21.1.0.479
-30.00
-25.00
-20.00
-15.00
-10.00
-5.00
0.00
5.00
10.00
15.00
20.00
25.00
30.00
[*10-3 m]
70
60
50
40
30
20
10
0
20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
Phase displacements Pu x (scaled up 500 times)
Maximum value = 0.01051 m (Element 20 at Node 2946)
Minimum value = -6.586*10-3 m (Element 8 at Node 4914)
PLAXIS 2D
CONNECT Edition
Project description
Doropo Porject_Overpass
Date
25/03/2024
Project filename
Doropo Porject_Overpass_Rev1
Step
28
Company
Knight Piesold Pty Ltd


Output Version 21.1.0.479
-17.50 -15.00 -12.50 -10.00 -7.50 -5.00 -2.50 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50
[kN/m]
12.50
10.00
7.50
5.00
2.50
0.00
-2.50
-5.00
3600
3200
2800
2400
2000
1600
1200
800
400
0
Envelope of Axial forces N (scaled up 5.00*10-3 times)
Maximum value = 1.558 kN/m (Element 25 at Node 5333)
Minimum value = -813.2 kN/m
PLAXIS 2D
CONNECT Edition
Project description
Doropo Porject_Overpass
Date
20/03/2024
Project filename
Doropo Porject_Overpass_Rev1
Step
29
Company
Knight Piesold Pty Ltd


Output Version 21.1.0.479
-17.50 -15.00 -12.50 -10.00 -7.50 -5.00 -2.50 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50
[kN m/m]
12.50 10.00 7.50 5.00 2.50 0.00 -2.50 -5.00
180 160 140 120 100 80 60 40 20 0
Envelope of Bending moments M (scaled up 0.100 times)
Maximum value = 25.66 kN m/m (Element 1 at Node 3517)
Minimum value = -25.97 kN m/m
PLAXIS 2D
CONNECT Edition
Project description
Doropo Porject_Overpass
Date
20/03/2024
Project filename
Doropo Porject_Overpass_Rev1
Step
29
Company
Knight Piesold Pty Ltd


Output Version 21.1.0.479
-17.50 -15.00 -12.50 -10.00 -7.50 -5.00 -2.50 0.00 2.50 5.00 7.50 10.00 12.50 15.00 17.50
[kN/m]
12.50 10.00 7.50 5.00 2.50 0.00 -2.50 -5.00
1800 1600 1400 1200 1000 800 600 400 200 0
Envelope of Shear forces Q (scaled up 0.0100 times)
Maximum value = 216.7 kN/m (Element 25 at Node 5333)
Minimum value = -228.3 kN/m
PLAXIS 2D
CONNECT Edition
Project description
Doropo Porject_Overpass
Date
20/03/2024
Project filename
Doropo Porject_Overpass_Rev1
Step
29
Company
Knight Piesold Pty Ltd

APPENDIX A
FMX460 Truck Brochure

VOLVO

Volvo FMX 460 8X4 Tipper

Push the limits of productivity



Volvo Trucks. Driving Progress

VOLVO FMX 460 8X4

Safety always remains the prime value pillar

Volvo is synonymous with safety. The slimmer A-pillar, larger windscreen and lower door lines have improved direct visibility by 10%. Tinted windshield helps reduce glare and improved rear view mirrors gives you the best views. With improved visibility driver is more confident and chances of accidents are minimized. Power windows and central door locking secures the truck. Volvo cabs have been subjected to the toughest tests including the Swedish crash test. Electrically operated steel roof hatch provided as emergency exit. Electronic braking system give you all the more confidence while driving in rough terrain. Downhill cruise control maintains a set speed when the loaded truck is going down the slopes using auxiliary brakes VEB+ (Volvo Engine Brake). This also reduces brake wear and improve service life.

The truck is now provided with reverse camera with the view available on the digital instrument panel.

A body builder module ECU prevents the truck from exceeding 5 kmph speed when the dump body is in raised position, thus preventing accidents at the dump yard.



Rear view camera



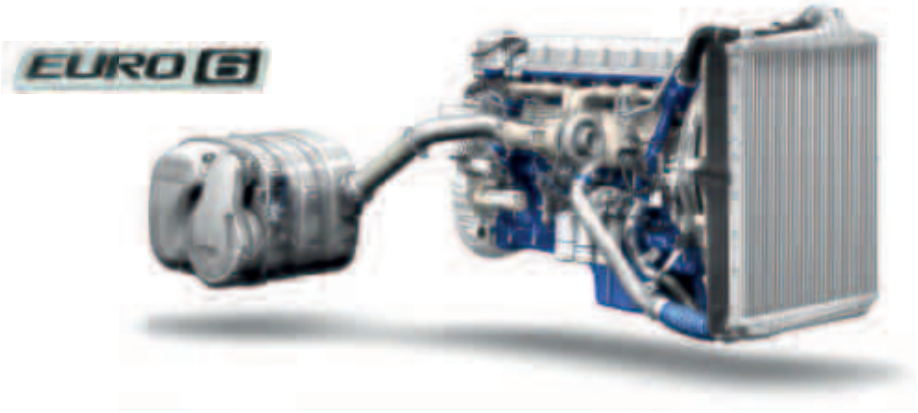
Most comfortable cab

Drivers are the most important part of the trucking industry and their comfort is directly proportional to the productivity. The new FMX460 cab has been designed keeping this in mind. With 800 liter more cabin space, climate control with enhanced thermal insulation, 2dB quieter cab, and excellent internal and external storage space, soft closure of doors and better vibration arresting... drivers are sure to guarantee few extra trips per shift.



More efficient

The cabin aerodynamics are improved to give better fuel economy. Volvo has been improving their Euro 6 technology since 2013. The latest engine management system, better gear shift programming over and above subtle design improvements in the engine like smoother cylinder liners, oil scraper ring, turbo impeller with inverse design, new low viscous VDS 5 oil with longer change intervals... help save some more liters of fuel in the long run.



Convenience redefined

The new Volvo FMX460 has the state of the art I-Shift 12 speed automated manual transmission which chooses the best gear in the interest of power and fuel economy. The ergonomically designed new gear control lever fits snugly in palm. Switch between drive modes like economy, standard, performance and off-road with the push of a button. With I-Shift driver has one less activity to focus on.

Add to this cruise control and downhill cruise control to maintain speed.

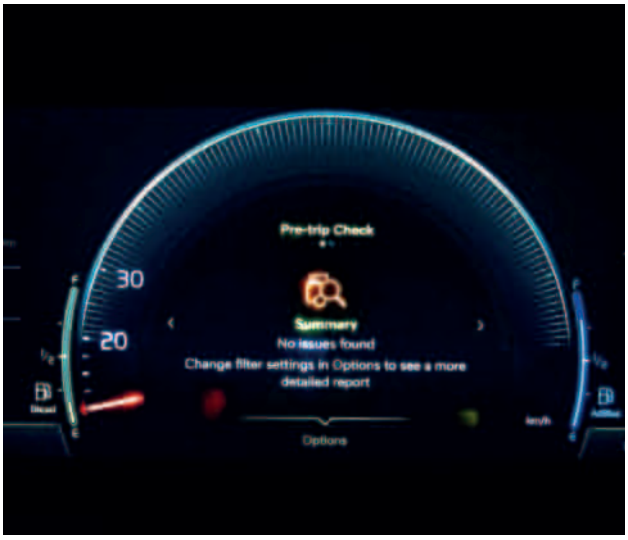
Pre-trip check diagnoses all the vital parameters of the truck and alerts if something needs your attention with pop up message on the driver information display. If not, just turn the ignition and keep rolling. You can avoid the physical inspection of the truck at the beginning of every shift, thus improving the utilization.



I-Shift Automated Manual Transmission



Driver information display



Pre-trip check diagnosis

Ultra-modern displays & controls

The Driver Information Display on the new cabin is a fully digital 12” unit which is dynamic to suit the preferences of the driver. Choose between the classic analogue or digital view using buttons on the steering wheel. All vital statistics of the truck, alerts, driver timers etc... become part of the display. What’s more – connect your phone to the truck and drive safe with hands-free comfort.

The new Traction Control unit makes it easier to handle demanding situations like loose soil, slush etc... The more you turn the knob, the more traction you get. You also get visual feedback of the traction status in the instrument display.



Traction Control knob & display



Technical specifications

ENGINE	
Six-cylinder, in-line direct injection diesel engine	
Overhead camshaft with four valves per cylinder	
Electronically regulated common rail fuel injection with unit injectors	
Heavy duty turbocharger and intercooler	
Engine management system with driving information and diagnosis	
Exhaust after treatment by Selective Catalytic Reduction (SCR) technology with additional AdBlue tank Exhaust Gas Recirculation (EGR)	
Displacement	12.8 litre
Bore x stroke	131 mm x 158 mm
Compression ratio	18.0 :1
Max. Power	460 hp @ 1400-1800 rpm
Max. Torque	2300 Nm @ 900-1400 rpm
Economy speed range	950-1400 rpm
Emissions*	BS-VI / Euro 6
Max. Engine brake power	503 hp (VEB+) @ 2300 rpm

* Emission requirements conform to ECE/EEC regulations and AIS 137 as notified by MoRTH vide GSR 889(E) dtd.16.09.2016 w.e.f 01 April, 2020.

CLUTCH	
Power assisted push-type single plate friction disc	
Plate Diameter	430 mm

GEARBOX	
I-Shift (Automated range / splitter gearbox)	
Heavy duty transmission oil cooler with additional radiator	
Enhanced software for mining and off-road conditions	
Economy,Standard,Performance,Off-road drive modes	
No. of gears	12 forward + 4 reverse

POWER TAKE-OFF
Clutch dependent gearbox mounted power take-off

FRONT AXLES	
Twin heavy duty steerable front axle with high ground clearance	
Capacity (twin axles)	18000 kg

REAR AXLES	
Drive tandem hub reduction axle with four planetary gears	
Differential locks – inter-wheels and inter-axles, Differential Lock Control (DLC)	
Traction Control System (TCS)	
Ratio	5.41:1
Capacity (Tandem axles)	33000 kg

SUSPENSION	
Front	
Parabolic suspension with S-shaped leaf geometry	
Double action shock absorbers and stabilisers	
No. of leaves	3
Rear	
Heavy duty bogie suspension with conventional multi-leaf spring	
Rubber journalled V-stays, reaction rods, stabilizer and two shock absorbers	
No. of leaves	11

WHEELS AND TYRES	
Tyre Size	12” x 24” Cross Ply
Wheel rim size	8.5” x 24”
Total no. of wheels fitted	12
1 no. spare wheel rim and tyre	

CHASSIS FRAME	
‘C’ channel section side members made of high strength steel	
Cross Section	300mm x 90mm x 8mm
Full length inner reinforcement	
Inner reinforcement thickness	5 mm

STEERING	
Hydraulic power steering with variable displacement pump	
Tilt and telescopic adjustable steering wheel	
Steering Wheel Diameter	500 mm

FUEL AND ADBLUE TANKS	
Fuel tank mounted on the left hand side between 1st and 2nd front axle	
Fuel tank capacity	290 litres
AdBlue tank capacity	57 litres

EXHAUST SYSTEM
Horizontal muffler, vertical exhaust outlet on right-hand side

BRAKES
Electronic Brake System (EBS)
Dual-line air brake system with ABS
Hill start aid
Z-cam drum brakes with automatic adjustments
Electronic parking brake activation
Spring type parking brake chambers on 2nd front axle, 1st rear axle and 2nd rear axle

PNEUMATICS	
Gear driven, double-cylinder reciprocating air compressor	
Max. compressor capacity	900 l/min
Electronically controlled air production modulator (APM)	
Total air tank capacity	123 litres

ELECTRICALS	
System voltage	24V
Volvo enhanced flooded batteries (2 nos.) with battery reconditioner	
Battery voltage	12V
Battery capacity	170Ah
Alternator capacity	110A

CAB	
New FMX day cabin fully suspended by four coil springs and shock absorbers	
Crash-tested steel welded structure	
Accommodation	1 driver + 1 co-driver
Cabin tilt angle	70°

Interiors
12” fully dynamic digital instrument cluster with Home & Focus views
Slimmer A-pillar, larger windscreen & lower door lines enhances direct visibility
Ergonomically designed new dashboard with easy-access stalks, switches & controls
Electrical manually controlled climate unit
Central door locking and power windows
Air suspended driver’s seat with adjustment of fore-aft, height, Backrest, lumbar support, shoulder, seat cushion extension, seat tilt
Cushioned foldable co-driver seat
Cruise control + Downhill cruise control
Red safety belt

Exteriors
Aerodynamically designed with smooth surfaces and rounded corners at the front
Heavy duty bumper with extremely robust design and high approach angle
Robust front towing device rated for 32 tonnes
Rear view camera with colour display in dashboard for enhanced visibility
Distinct V-shape daytime running light (DRL)
New heavy duty headlamp unit with higher illumination main beam
Electrically operated steel roof hatch as emergency exit

TELEMATICS
Volvo Connect on-board telematics collects and transmits all the vital statistics and performance parameters of the truck
Performance and health of the truck can be monitored from the convenience of your home

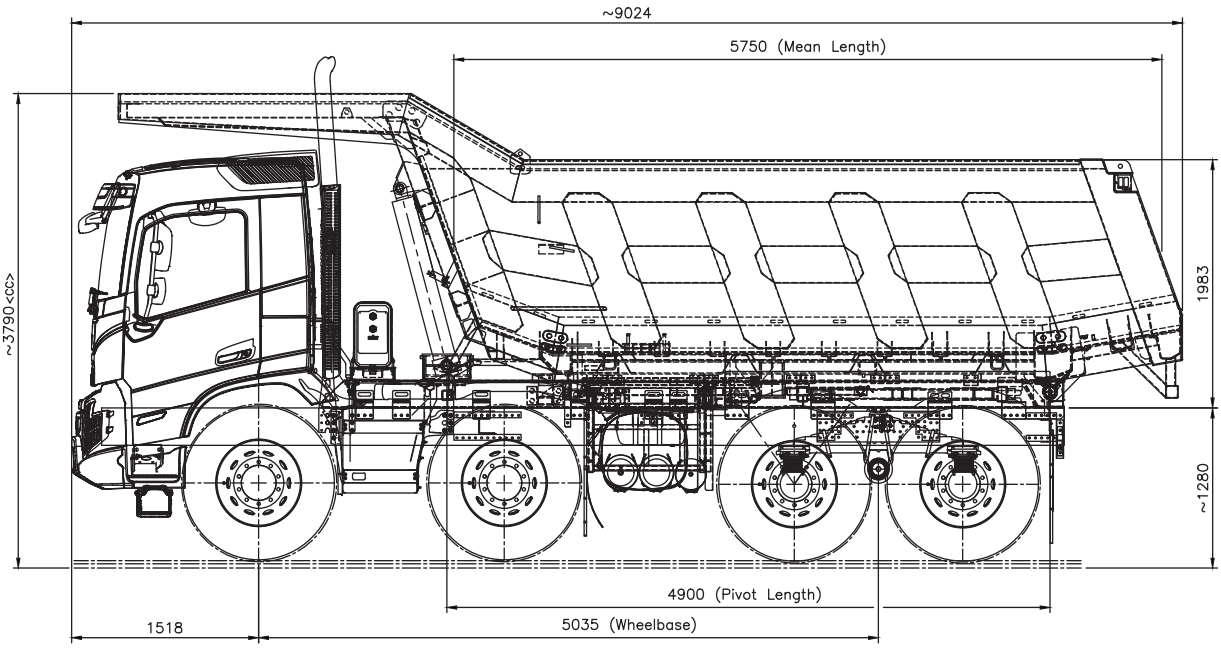
TOOLS AND ACCESSORIES
Standard tool kit, first-aid kit, two warning triangles, bulb and fuse kit
20 ton hydraulic jack

TIPPER BODY & HYDRAULICS	
Rock body / Exhaust heated body	
All steel welded construction low C G Rock body	
Struck volume	20.3 Cu.m
Floor, sideboard and headboard made of high tensile wear resistant steel	
5 nos. angular solid rock breakers on the floor (Rock body)	
Full length canopy	
Tipping angle with knock-off valve	45 deg
Heavy duty front mounted telescopic cylinder	
Direct mounted hydraulic pump on PTO	
Oil tank with breather filter, oil level indicator and return line filter	
Oil tank capacity	80 litres

VEHICLE DIMENSIONS mm	
Wheel base	5035
Overall length	9024
Overall width	2598
Overall height	3790
Turning circle diameter	22600
Minimum ground clearance	390

VEHICLE WEIGHTS	
Laden weight, kg (as per CMVR limits)	
Front axles (Twin)	14000
Rear axles (Bogie)	21000
Gross vehicle weight	35000

PERFORMANCE DATA	
Economy speed range on top gear	41-62 kmph
Max. speed (with electronic speed limiter)	45 kmph



Caution: Do not drill or weld on the frame. Note: Volvo has a policy of continual product improvement. The specifications / images shown here are indicative and are subject to change without prior notice. Performance parameters are subject to stability of the vehicle.

VOLVO

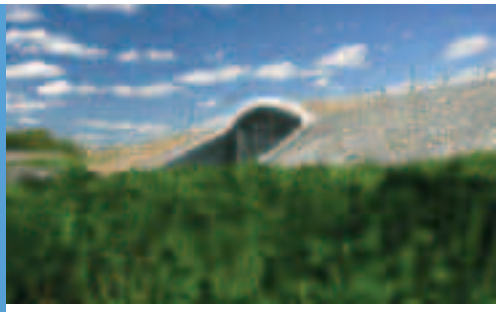
Dec. 2021 / Volvo FMX 460 8X4 Tipper

For more information contact:
Volvo Trucks
Yalachahally, Tavarekere Post, Hosakote Taluk, Bangalore 562 122, India.
Phone: +91 80 6788 7000 | vtimarketing@volvo.in | www.volvotrucks.in
Follow us on: /Volvo Trucks India

Volvo Trucks. Driving Progress

APPENDIX B
Super-Cor® Product Brochure

Super·Cor®









www.atlanticcivil.com.au

Atlantic
Civil Products



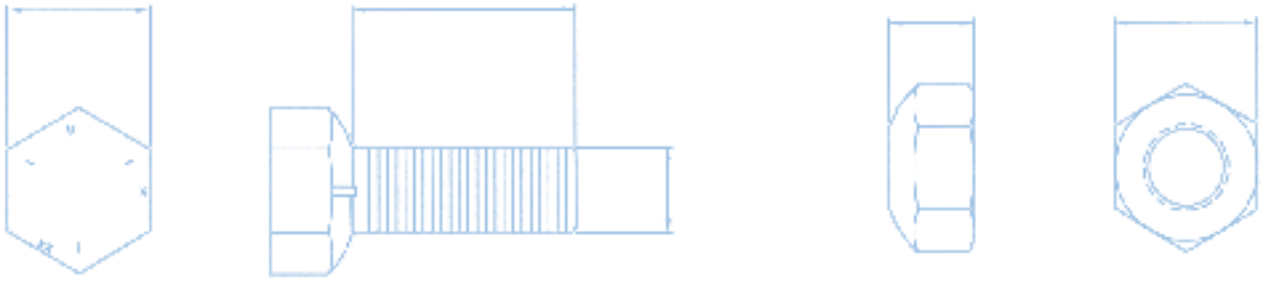








Atlantic
Civil Products



We Support You.

Atlantic Civil Products has built a solid reputation delivering professional support and innovative, high-quality, corrugated metal products around the world.

Atlantic Civil Products has a long history of creating innovative solutions in corrugated steel. Since 1939, Atlantic Civil Products has been engineering high-quality, durable corrugated steel products for major industries like transportation, hydro, mining and forestry. Today, Atlantic Civil Products is well poised to serve you through locations in Australia, North America, Europe and Asia. Our solutions come in a variety of sizes, ranging from culverts and sewers to tunnels, bridges, underpasses and stream enclosures.

Our reputation has been forged not only on the success of our competitively priced products, but also through the innovative engineering and reliable service we provide to our customers. Atlantic Civil Products' worldwide support includes project management, problem solving and field service. In keeping with Atlantic Civil Products' ongoing commitment to high standards, our Head Office Plant and our Engineering Department in Townsville, Queensland have been independently certified to ISO 9001.

Through our ongoing research and development programs, our engineers have found optimum solutions using our innovative Super•Cor® corrugated steel. We recommend that before you specify any of our Super•Cor products, take the opportunity to consult with an Atlantic Civil Products technical representative for advice and assistance on your project.

Super•Cor®

As Atlantic Civil Products' revolutionary alternative to conventional bridges, Super•Cor represents our commitment to continued development in the field of corrugated metal structures.

Combining the advantages of lightweight construction with the superior strength and durability of galvanized steel, Super•Cor is the most internationally accepted, and widely used corrugation profile on the market.

The sensible, economical choice for:

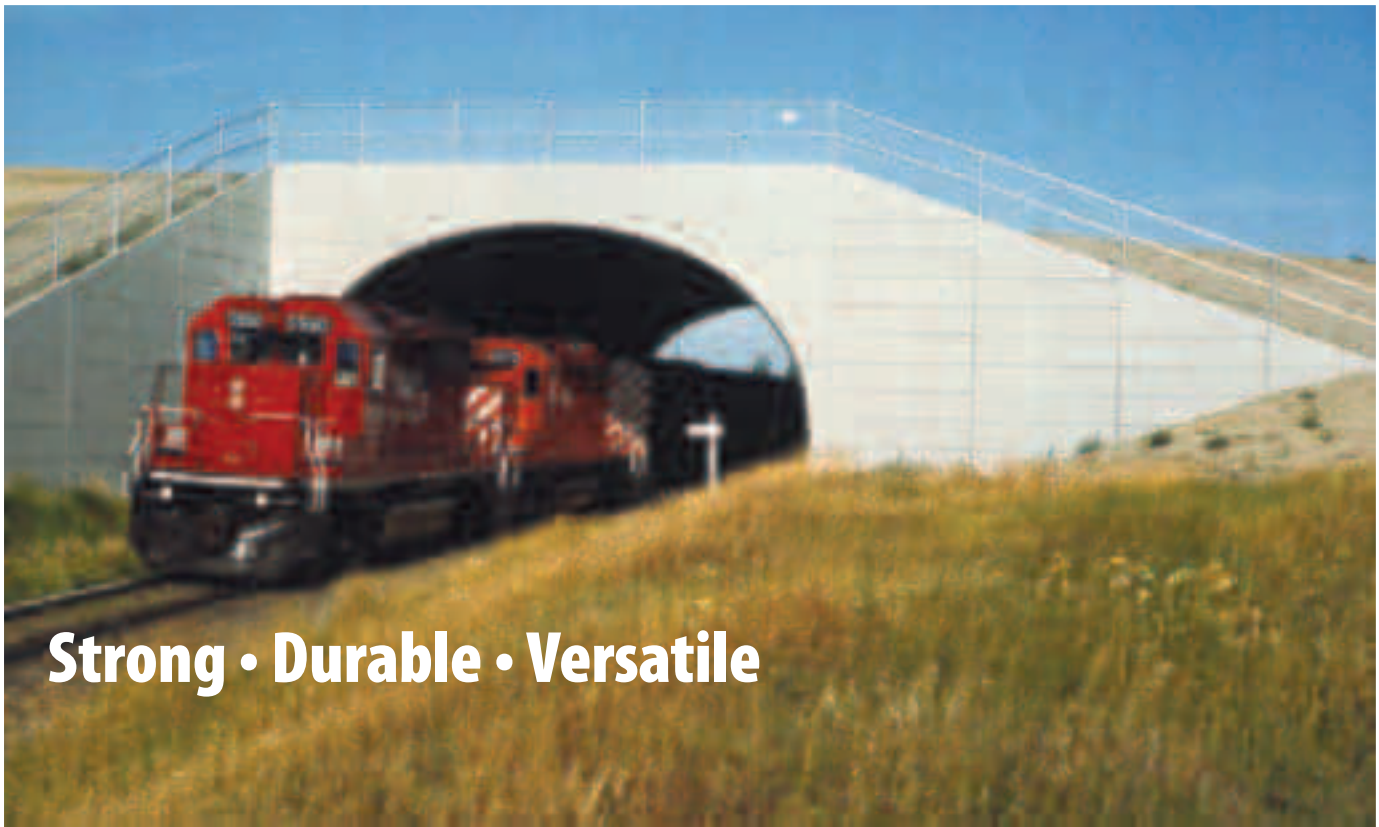
- Vehicle underpasses
- Bridges
- Railway underpasses
- Box culverts
- Underground storage
- Stream enclosures/crossings
- Storage magazines
- Fauna underpasses
- Mine portals

Superior Strength. Lightweight Construction.

Super•Cor's larger annular corrugations (381mm pitch and 140mm depth) provide nine times the stiffness of conventional structural plate. The lightweight, modular panels can be shipped easily and economically making it even more advantageous for remote locations.

Easy Installation

Simply put, Super•Cor saves time and money in installation. The panels require significantly fewer bolts than conventional structural plates and can be assembled adjacent to the job site, then moved into place using relatively light equipment. And, if the road needs to be widened later, Super•Cor allows for easy extension with additional panels.



Versatile

Super•Cor's corrugation profile permits construction of the largest, longest and widest spans in a variety of configurations. Spans can exceed 25m with Atlantic Civil Products' proprietary features. Special shapes are also available, including Super•Cor reinforced box culverts in spans exceeding 15m with cover as shallow as 450mm.

Durable

Super•Cor's heavy galvanized coating is metallurgically-bonded to the steel surface, providing extended service life. Super•Cor is supplied with a standard 1220g/m^2 coating. Properly designed and installed, Super•Cor structures will last over 100 years.

Environmentally-Responsible

Most Super•Cor structures used for stream crossings are bottomless. These structure types, combined with lower-impact installation methods, virtually eliminate deliberate streambed interference.

Maintenance-Free

Unlike conventional bridges, which frequently require substantial retrofits, properly-installed Super•Cor structures are relatively maintenance-free.

Aesthetically-Pleasing

Once installed, Super•Cor becomes a naturally-appealing structure. The geometry of the corrugations both softens and reduces the intrusiveness traditionally associated with man-made structures in natural environments.

IDEAL FOR REMOTE LOCATIONS

Mining companies take advantage of Atlantic Civil Products' technology to build some of the largest and most economical bridges in remote locations, such as this one in Western Australia.



Ideal for many

Applications



BIG ON MINING: The world's largest engineered corrugated arch helps preserve Whitehorse Creek, Alberta, Canada.

Mine Site Infrastructure

With achievable span widths of over 25m, many of the world's largest mine sites use Atlantic Civil Products' innovative Super•Cor for its light weight, superior strength, versatility, ease of installation and environmental friendliness. Super•Cor is perfect for use in many types of large-scale engineered structures, such as:

- Heavy haul road arches
- Rail underpasses
- Portals
- Stockpile tunnels
- Escape tunnels

EMERGENCY MEASURES: Super•Cor® saved time and money when a bridge washed out under Toronto, Ontario's busy Finch Avenue.

Affordable Bridge Replacement

Replacing aging bridges presents unique challenges to traffic management and infrastructure budgets alike. Progressive engineers and specifiers are turning to Super•Cor for its ease of installation and sheer economics. Super•Cor's variety of shapes and profiles, along with its environmental friendliness, make it perfect for:

- Short and Medium Span Bridges
- Box Culverts
- Vehicle and Railway Underpasses
- Stream Enclosures/Crossings
- Grade Separations

SAFER FOR EVERYONE: Deer stroll across a newly-installed animal crossing in Europe.

Animal-Friendly Crossings

On today's high-speed highways, motorists and wildlife can often find themselves on opposite sides of sudden and devastating encounters. The one thing they agree on, however, is that safety crossings made from Super•Cor provide low-cost, aesthetically pleasing and effective solutions for increased highway safety. Super•Cor is ideal for animal-friendly crossings like:

- Highway overpasses and underpasses
- Railway overpasses and underpasses

Super•Cor is the logical choice.

Super•Cor structures are designed and manufactured in accordance with AASHTO and CHBDC standards and specifications.

Durability

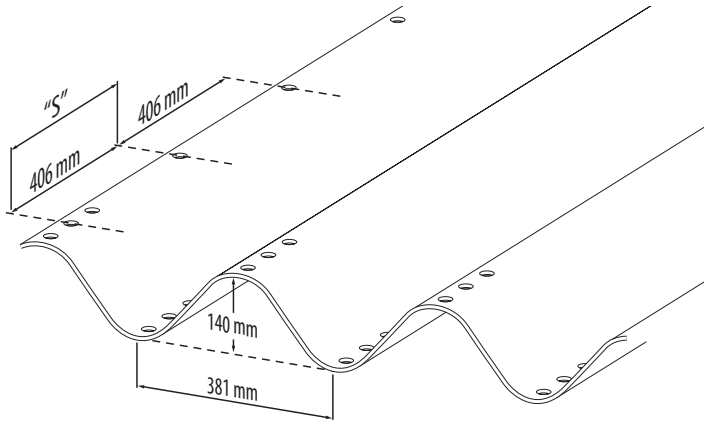
Properly designed structures will last 100-plus years.

Handling

Lightweight sections are economical to ship, and easily handled by light equipment.

Cost

Low installation and maintenance over the life cycle of the structure makes Super•Cor the economical choice.



SPECIFICATIONS

Wall Thickness			Tangent				
Specified (mm)	Uncoated (T) (mm)	Area (mm^2/mm)	Length (TL) (mm)	Angle(Δ) (degrees)	Moment of Inertia (mm^4/mm)	Section Modulas (mm^3/mm)	Radius of Gyration (mm)
3.5	3.42	4.784	110.8	49.75	11710.7	152.72	49.48
4.2	4.18	5.846	109.8	49.89	14332.5	186.05	49.52
4.8	4.67	6.536	109.2	49.99	16037.0	207.54	49.54
5.5	5.45	7.628	108.2	50.13	18740.1	241.38	49.57
6.3	6.23	8.716	107.2	50.28	21441.2	274.87	49.60
7.1	7.01	9.807	106.1	50.43	24124.5	308.24	49.64
8.1	8.00	11.06	104.9	50.62	27259.0	347.00	49.65

Corrugation Profile: 381 mm x 140 mm

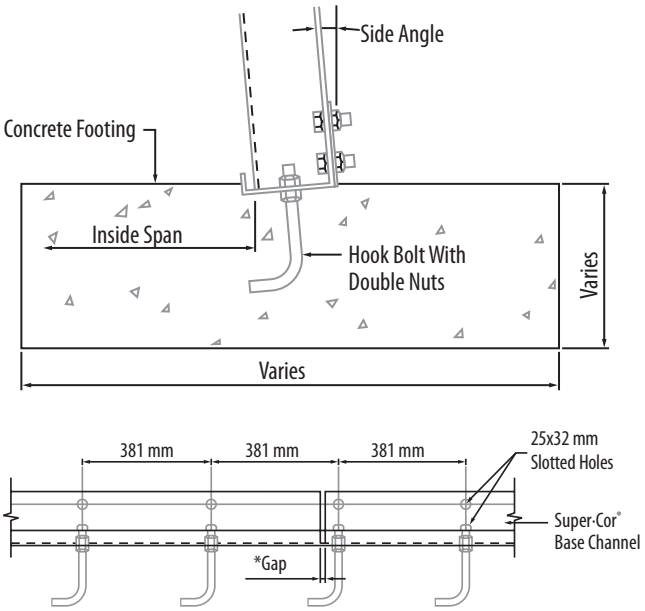


FOOTER OPTIONS

Super•Cor packages come with a variety of footer options to suit various sites:

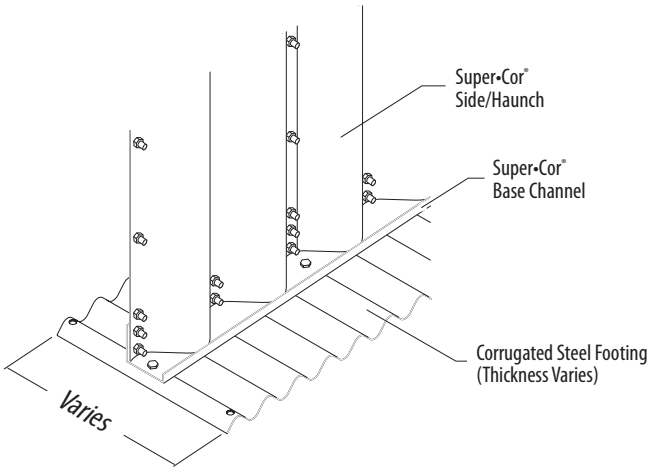
- Precast or cast-in-place concrete footings – the most common footer type, in which a receiving angle is embedded in concrete.
- Steel footer pads – used as a time-saving alternative to concrete in sites with non-erodible stream beds. If the site permits, footings should be buried a minimum of 600mm below stream bed. Note: When footer pads are buried, the published end area of Super•Cor will be reduced.
- Full steel invert – for applications in erodible stream beds requiring a corrugated steel floor or invert. To prevent undermining of the invert, we recommend the use of an optional toewall for the upstream and downstream ends.

Concrete Footing



*Note: Space base channel so that 381mm c/c spacing of slotted holes in long leg is maintained

Corrugated Steel Footing



HEADWALL OPTIONS

In addition to enhancing their appearance, well-designed end treatments are essential to the structural and hydraulic performance of Super•Cor.

Headwall options include:

- MSE wall systems with welded wire walls or concrete faces
- Concrete, cast-in-place or precast
- Welded wire gabion baskets
- Sheet Pile walls







Super•Cor® Box

Super•Cor Boxes offer the perfect solution for long-span, low-rise situations with shallow cover.

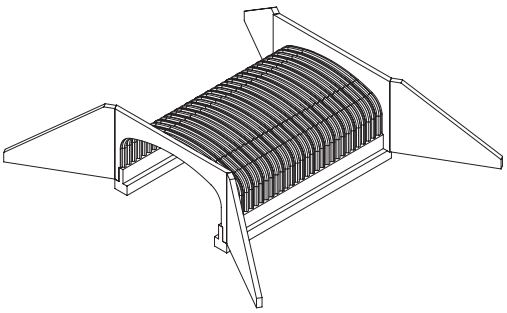
Super•Cor Boxes combine the strength and cost advantages of Atlantic Civil Products' Super•Cor corrugation profile with a special, patented reinforcement along the length of the structure. The extra strength of this reinforcement permits designs exceeding 15m.



LOOKING GOOD: As shown here and opposite, Super•Cor can be customized with many types of functional and attractive end treatments.

Your complete solution.

From preliminary specifications and drawings through to project completion, Atlantic Civil Products is your single source for a comprehensive engineered package including the structure, footings, headwalls, wingwalls, fascia finishes and guardrail systems.

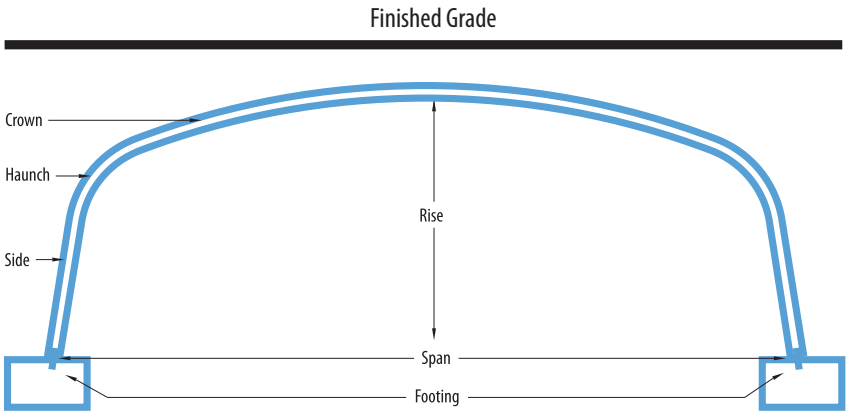




Structural Cross Section

Recommended Height of Cover

Limits: Minimum – 450 mm
Maximum – 1500 mm



Box Details

No.	Span (mm)	Rise (mm)	End Area (m^2)	No.	Span (mm)	Rise (mm)	End Area (m^2)
SC-1B	3170	1180	3.12	SC-33B	7405	1680	10.21
SC-2B	3550	1420	4.33	SC-34B	7800	1965	12.71
SC-3B	3840	1465	4.94	SC-35B	7945	2370	15.87
SC-4B	3965	2210	7.35	SC-36B	8575	1920	13.90
SC-5B	3865	1260	4.18	SC-37B	8605	2325	17.38
SC-6B	4105	1860	6.56	SC-38B	8635	2735	20.89
SC-7B	4210	1310	4.76	SC-39B	9145	1940	14.64
SC-8B	4735	1960	8.16	SC-40B	9225	2345	18.35
SC-9B	4550	1360	5.36	SC-41B	9310	2750	22.10
SC-10B	4890	1610	6.97	SC-42B	9810	2105	16.92
SC-11B	4860	2365	10.09	SC-43B	9865	2510	20.90
SC-12B	5155	2420	11.06	SC-44B	9920	2920	24.92
SC-13B	5215	1670	7.72	SC-45B	10460	2285	19.43
SC-14B	5360	2075	9.89	SC-46B	10485	2690	23.68
SC-15B	5320	1440	6.62	SC-47B	10515	3100	27.95
SC-16B	5445	2480	12.07	SC-48B	10895	2355	20.59
SC-17B	5655	1505	7.33	SC-49B	10940	2760	25.02
SC-18B	5955	2645	14.23	SC-50B	10990	3165	29.47
SC-19B	5895	1595	8.17	SC-51B	11645	2530	23.31
SC-20B	6165	1900	10.33	SC-52B	11700	2935	28.04
SC-21B	6235	2715	15.36	SC-53B	11750	3345	32.81
SC-22B	6320	1645	8.91	SC-54B	12270	2745	26.46
SC-23B	6480	1975	11.25	SC-55B	12290	3150	31.45
SC-24B	6495	2380	13.89	SC-56B	12315	3555	36.45
SC-25B	6645	1720	9.77	SC-57B	13028	2830	30.72
SC-26B	6970	1795	10.67	SC-58B	13050	3236	36.02
SC-27B	7000	2200	13.50	SC-59B	14092	3071	35.61
SC-28B	7025	2610	16.35	SC-60B	14111	3477	41.34
SC-29B	7290	1875	11.62	SC-61B	15020	3168	38.38
SC-30B	7300	2285	14.58	SC-62B	15038	3574	44.48
SC-31B	7310	2690	17.56	SC-63B	15579	3845	49.46
SC-32B	7315	3095	20.52	SC-64B	15748	3994	52.12

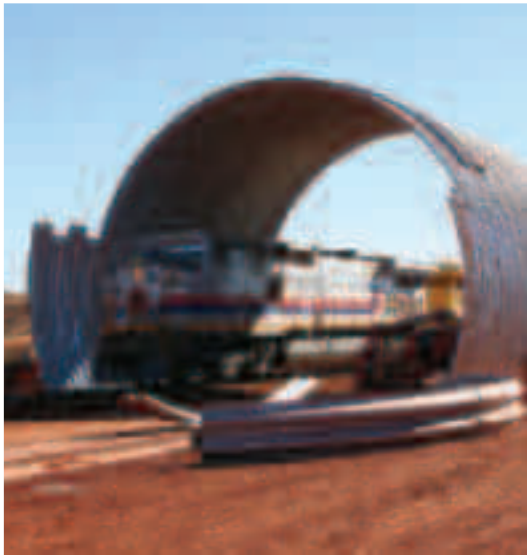
Larger sizes and other shapes available upon request. Measurements are to inside crest of corrugation.

Super•Cor® Arch

Super•Cor Arches surpass the range of conventional plate arches with spans exceeding 25m. They can be installed with minimal environmental impact.

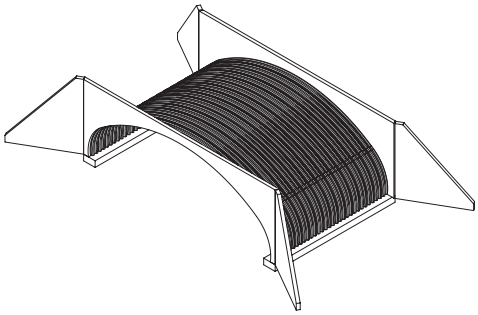
High-profile Super•Cor arches are ideal for highway grade separations or in applications requiring large end areas or wider spans.

SAVE TIME AND MONEY: Super•Cor structures erect quickly with less labour and transportation costs. In some cases, vital 24-hour traffic is not even interrupted.



Your complete solution.

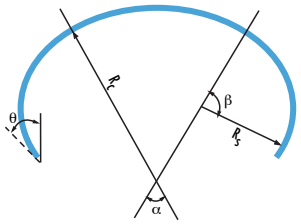
Atlantic Civil Products is your single source for a comprehensive engineered package including the structure, footings, headwalls, wingwalls, fascia finishes and guardrail systems.

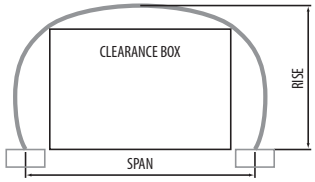




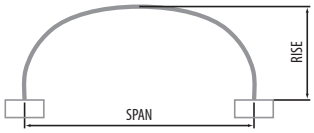
Arch Details

Typical Arch Profile

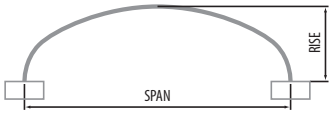




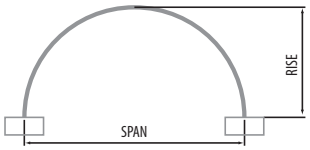
High Profile Arch



Medium Profile Arch



Low Profile Arch



Standard Arch

Arch No.	Max. Span (mm)	Bottom Span (mm)	Total Rise (mm)	End Area (m^2)	Total S
SCA1	6990	6990	3495	19.20	27
SCA2	7250	7250	3625	20.60	28
SCA3	7510	7510	3755	22.10	29
SCA4	7640	7640	3820	23.70	30
SCA5	8000	7994	3594	23.53	30
SCA6	8030	8030	4015	25.30	31
SCA7	8290	8290	4140	27.00	32
SCA8	8550	8550	4270	28.70	33
SCA9	8800	8800	4400	30.40	34
SCA10	9000	8983	3760	28.15	33
SCA11	9000	8724	5168	40.67	40
SCA12	9060	9060	4530	32.20	35
SCA13	9320	9320	4660	34.10	36
SCA14	9500	9456	3956	31.54	35
SCA15	9580	9580	4790	36.00	37
SCA16	9840	9840	4920	38.00	38
SCA17	10000	9967	3961	33.14	36
SCA18	10000	9740	4547	38.93	39
SCA19	10000	9690	5371	47.06	43
SCA20	10100	10100	5045	40.00	39
SCA21	10360	10360	5175	42.10	40
SCA22	10500	10476	3974	34.75	37
SCA23	10870	10870	5435	46.40	42
SCA24	11000	10947	4193	38.53	39
SCA25	11000	10697	4776	44.86	42
SCA26	11000	10642	5864	56.27	47
SCA27	11390	11390	5695	50.90	44
SCA28	11500	11462	4221	40.26	40
SCA29	11910	11910	5955	55.70	46
SCA30	12000	11974	4259	42.02	41
SCA31	12000	11781	5639	57.10	47
SCA32	12000	11612	6113	63.68	50
SCA33	12430	12430	6210	60.60	48
SCA34	12500	12447	4501	46.26	43
SCA35	12940	12940	6470	65.80	50
SCA36	13000	12964	4553	48.18	44
SCA37	13000	12745	5890	64.39	50
SCA38	13000	12662	6460	72.07	53
SCA39	13460	13460	6730	71.10	52

Arch No.	Max. Span (mm)	Bottom Span (mm)	Total Rise (mm)	End Area (m^2)	Total S
SCA40	13500	13479	4612	50.12	45
SCA41	13980	13980	6985	76.70	54
SCA42	14000	13958	4877	54.88	47
SCA43	14000	13872	6543	75.91	54
SCA44	14000	13641	7009	83.57	57
SCA45	14500	14433	5150	59.87	49
SCA46	15000	14960	5232	62.15	50
SCA47	15000	14780	7022	87.32	58
SCA48	15000	14663	7351	92.90	60
SCA49	15010	15010	7505	88.50	58
SCA50	15500	15441	5520	67.55	52
SCA51	15530	15530	7765	94.70	60
SCA52	16000	15942	4922	64.47	52
SCA53	16000	15870	6666	89.41	59
SCA54	16000	15543	7982	111.11	66
SCA55	16050	16050	8025	101.10	62
SCA56	16500	16406	5168	69.78	54
SCA57	16570	16570	8280	107.70	64
SCA58	17000	16930	5224	72.02	55
SCA59	17000	16909	6720	94.96	61
SCA60	17000	16478	8483	124.98	70
SCA61	17220	17220	8610	114.60	66
SCA62	17500	17451	5285	74.29	56
SCA63	17600	17600	8800	121.60	68
SCA64	18000	17921	5547	80.14	58
SCA65	18000	17886	6999	104.17	64
SCA66	18110	18110	9068	128.90	70
SCA67	18500	18447	5617	82.59	59
SCA68	19000	18912	5889	88.82	61
SCA69	19000	18926	7099	110.10	66
SCA70	19150	19150	9576	155.81	74
SCA71	19500	19448	5968	91.46	62
SCA74	20190	20190	10083	160.00	78
SCA76	20700	20700	10360	168.30	80
SCA78	21210	21210	10620	176.80	82
SCA82	22250	22250	11125	194.50	86
SCA86	22760	22760	11380	203.60	88
SCA90	24000	24000	12040	227.40	93
SCA94	25000	25000	12500	245.40	96

Note: All dimensions are to inside crest of steel. 114mm edge distance of steel is included in side arc length and angle. ***Structure numbers in bold denotes single radius arch.*** *Other sizes and plate configurations are available upon request.*

Super·Cor® Round

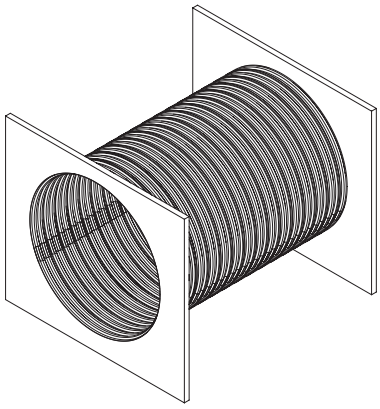
Super•Cor Round structures permit construction of dramatically larger diameters than was previously possible with conventional structural plate pipe configurations.



Super•Cor is the obvious choice for remote locations where concrete is more expensive or just not accessible as well as areas with poor foundations. This common and very versatile shape is frequently chosen for culverts, sewers and sub-drains, but it can also be used for storage bins, access ways, tunnels, bridges, and storm water retention/ detention systems.

THE STRONGEST: In mine sites around the world, Super•Cor is used under huge stock piles.

Round Details



*S = 406mm measured along the circumference.
**Other sizes available upon request.
Measurements are to inside crest of corrugation.

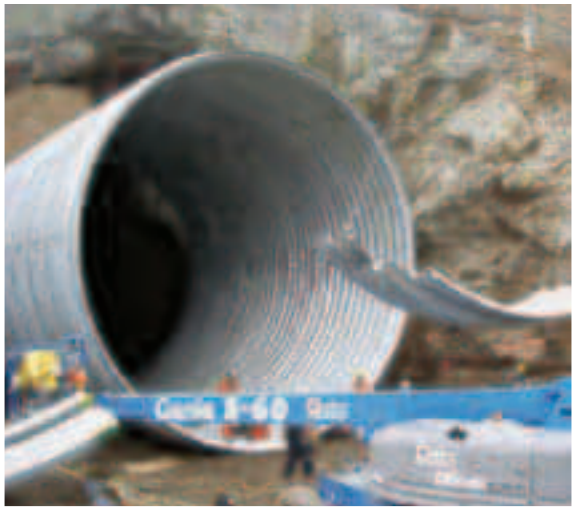
Pipe No.	Diameter (mm)	End Area (mm^2)	Total S*
SC66R	8400	55.4	66
SC68R	8650	58.7	68
SC70R	8910	62.3	70
SC72R	9170	66.0	72
SC74R	9430	69.8	74
SC76R	9690	73.7	76
SC78R	9950	77.7	78
SC80R	10200	81.7	80
SC82R	10460	85.9	82
SC84R	10720	90.2	84
SC86R	10980	94.6	86
SC88R	11240	99.2	88
SC90R	11500	103.8	90
SC94R	12020	113.4	94
SC98R	12530	123.3	98
SC102R	13050	133.7	102
SC106R	13570	144.6	106
SC110R	14080	155.7	110
SC114R	14600	167.4	114
SC118R	15120	179.5	118
SC122R	15640	192.1	122



We support all of our products with professional engineering, project consultation, innovative solutions and installation expertise. In short, we're always ready to provide assistance and recommendations for any project using Atlantic Civil Products.

Design and Installation

Atlantic Civil Products' reputation for excellence extends well beyond developing innovative, superior steel products.





Installation

Super•Cor® structures distribute superimposed loads to the surrounding 'engineered' backfill, so it is essential to use care during installation and backfilling to ensure proper performance. The following guidelines will help ensure a successful project.

Excavation

Trench excavation will vary, depending on the nature of the in situ material. It is necessary to provide an excavated area that ensures adequate distance from soils with questionable structural integrity. If the native soil is stable, excavate only that area required to provide minimum bedding and enough room for compaction equipment to manoeuvre. For stream crossing applications, local authorities will impose guidelines for construction activity.

Foundations

Super•Cor structures are flexible and can accommodate some differential settlement without distress. It is important, nevertheless, to minimize differential settlement by removing and replacing poor foundation material, or by using a pile foundation. Preparation should be confined to minimum, but practical, widths and should result in a uniform base for the structure. A bedding of loose material will provide a slight cushion and the bedding may be flat or shaped, depending on the structure configuration and construction methods being used. It is essential that all corrugations be filled.

Assembly

A Super•Cor structure arrives at the job site in bundles curved to the proper radius. Included are bolts and any other special hardware that may be required, instructions and a diagram listing all components. Assembly is easy, requiring relatively simple tools. Correct lapping, bolt-tightening and shape-monitoring are all important to achieve the correct design dimensions. Your Atlantic Civil Products representative can provide information and assistance to those unfamiliar with structural plate assembly.

Backfill

Super•Cor structures require a stable, engineered backfill to retain their shape and structural integrity. The quality of the backfill envelope depends on the choice of material, placement of backfill, and compaction of the envelope. Local engineering departments normally have specifications detailing suitable backfill material for flexible structures. However, there is no substitute for an examination by a geotechnical engineer. A well-graded, free-draining granular backfill is preferred.

Inspection

Inspection should be performed on a full-time basis by qualified personnel. Backfill is placed in a balanced manner in 150mm to 200mm lifts for the entire backfill envelope. Compaction testing is required to ensure that backfill material is compacted to the required density. It is a good idea to assess the compaction equipment and have its use approved by the geotechnical engineer or qualified inspector.

End Finishes

Special attention must be paid to beveled or skewed ends. Incomplete structural rings must be reinforced with steel or concrete (or tied back) to maintain structural integrity. Exercise caution when placing backfill around them to avoid distortion.

Standard End Finishes are:

- Squared
- Beveled
- Partially-beveled
- Skewed

PRODUCTS AND SERVICES

- Super·Cor®
- Bolt-A-Bin®
- Multiplate™
- Super Span™
- Dur·A·Span®
- Atlantic Wire Walls
- Atlantic Precast Walls
- Modular Bridges
- Bridge Decking
- Box Culverts
- Geotextiles
- Guardrail Systems
- Helcor Pipe™
  - – Galvanized
  - – Aluminized Steel Type II
  - – Polymer Laminated
- Buffa Tanks™
- Storm Water Detention
- Hi-Flo Pipe™
- Nestable Pipe
- Corrugated Polyethylene Pipe
- Steel Sheet Piling
- Hot Dip Galvanizing

We offer engineering expertise and support on all of the above products.

Atlantic Civil Products

OFFICE LOCATIONS

Head Office:
Townsville
13 Industrial Avenue
Bohle QLD 4818 Australia
Phone (07) 4789 6700
Fax (07) 4774 6958

Western Australia
Sales & Service
Phone (08) 9923 3422
Fax (08) 9923 3437

Southern Region
Sales & Service
Phone (02) 9522 9011
Fax (02) 9522 7136

THE AIL GROUP OF COMPANIES

AIL Atlantic Industries Limited · BIG R BRIDGE · Atlantic Civil Products · T&B Structural Systems

Products and services are available throughout Australia, please visit **www.atlanticcivil.com.au** for contact information.

FOR ASSISTANCE IN PRICING, ORDERING, AND INSTALLATIONS,
CALL TOLL FREE IN AUSTRALIA: 1 800·99·77·54
OR EMAIL SALES@ATLANTICCIVIL.COM.AU

www.atlanticcivil.com.au

THE INFORMATION, SUGGESTED APPLICATIONS AND TABLES IN THIS BROCHURE ARE ACCURATE AND CORRECT TO THE BEST OF OUR KNOWLEDGE, AND ARE INTENDED FOR GENERAL INFORMATION PURPOSES ONLY. THESE GENERAL GUIDELINES ARE NOT INTENDED TO BE RELIED UPON AS FINAL SPECIFICATIONS, AND WE DO NOT GUARANTEE SPECIFIC RESULTS FOR ANY PARTICULAR PURPOSE. WE STRONGLY RECOMMEND CONSULTATION WITH AN ATLANTIC CIVIL PRODUCTS TECHNICAL REPRESENTATIVE BEFORE MAKING ANY DESIGN AND PURCHASING DECISIONS.

03/2009

APPENDIX N

Memorandum Ref. PE25-01639

Doropo Gold Project – Airstrip Design

Definitive Feasibility Study Rev 1

Knight Piésold CONSULTING

MEMORANDUM

To:	Resolute Mining	**Date:**	19 December 2025
Attn:	Rob Cicchini	**Our Ref:**	PE25-01639
		KP File Ref.:	PE301-00821/07-A kpe M25019
cc:	Luciano Giancristofaro	**From:**	Dave Morgan

RE: DOROPO GOLD PROJECT – AIRSTRIP DESIGN DEFINITIVE FEASIBILITY STUDY REV 1

Please find herein the airstrip design summary for the Doropo Gold Project (Doropo), based on the respective Aerodrome Standards provided by the Australian Government Civil Aviation Safety Authority (CASA), International Civil Aviation Organization (ICAO) and RACI 6001 Aerodrome Design and Operation (ANAC).

This memorandum supersedes PE24-00372.

1. INTRODUCTION

Resolute Mining Limited (Resolute) has requested Knight Piésold Pty Ltd (KP) to develop a feasibility design for an airstrip at the Doropo Gold Project, as part of the Definitive Feasibility Study (DFS) update.

Preliminary wind direction data sourced from the Gaoua station (~67 km away from Doropo site) were analysed and the estimated prevailing wind direction is from southwest and south. Detailed information regarding the wind dataset (e.g. duration, measurement period, frequency of measurement) or review of raw data, if available, is required to facilitate an operability review of the airstrip. An Automatic Weather Station (AWS) should be installed on site as soon as practicable in order to provide additional site data to verify design assumptions.

2. AIRSTRIP DESIGN

2.1 DESIGN PARAMETERS

The design aircraft nominated by Resolute for the airstrip design is the Cessna Caravanne. The airstrip design adopted non-instrument airstrip criteria for the nominated design aircraft.

The minimum design parameters for the design aircraft are listed in Table 3.1.

The design standards used to identify the required design parameters was the International Civil Aviation Organization Aerodrome Design Manual (ICAO, Ref. 1) and RACI 6001 Aerodrome Design and Operation (ANAC, Ref. 3). Aircraft information was obtained from Textron Aviation (Ref. 2).

Table 3.1: Design parameters

Design Parameter	Value	Reference
Design Aircraft	Cessna Caravanne	Resolute Mining
Aircraft Type	1B	Ref. 1
Max. Passengers	14	Ref. 2
Aerodrome Reference Field Length (ARFL) *1	626 m	Ref. 2
Landing Distance	495 m	Ref. 2
Runway Length *2	>819 m	Ref. 1
Runway Width	≥18 m	Ref. 1
Runway Longitudinal Slope	≤2.0%	Ref. 1
Longitudinal Slope Change Between Segments	≤2.0%	Ref. 1
Longitudinal Slope Change	≤0.4% per 30 m	Ref. 1
Longitudinal Slope Radius of Curvature	≥7,500 m	Ref. 1
Runway Transverse Slope	≤2.0%	Ref. 1
Runway Shoulders	Not required	Ref. 1
Runway Strip Length	≥30 m	Ref. 1
Runway Strip Width: - Graded Area - Incl. Flyover Area	 60 m 90 m	Ref. 1
Runway Strip Longitudinal Slope	≤2.0% per 30 m	Ref. 1
Runway Strip Transverse Slope	≤3.0%	Ref. 1
Runway End Safety Area Length	Not required	Ref. 1
Stopway	Not required	Ref. 1
Clearway	Not required	Ref. 1
Wheel Distance to Runway Edge (taxiing)	≥1.5 m	Ref. 1
Taxiway Width	≥7.5 m	Ref. 1
Taxiway Longitudinal Slope	≤ 3.0%	Ref. 1
Taxiway Longitudinal Slope Change	≤1.0% per 25 m (min. radius of curvature 2,500m)	Ref. 1
Taxiway Transverse Slope	≤2.0%	Ref. 1
Taxiway Shoulders	Not required	Ref. 1
Taxiway Strip Width: - Graded Area - Cleared Area	 ≥20.5 m ≥40 m	Ref. 1
Taxiway Strip Transverse Slope	≤3.0%	Ref. 1
Turning Radius (turnaround)	≥4.59 m	-
Taxiway Turning Radius (≤ 20 km/h)	≥24.0 m	-
Runway Pavement Type	Unsealed	-

*1 Take off/landing distance at maximum take-off/landing weight, sea level, standard atmospheric conditions, zero runway slope and still air.

*2 Greater of runway take-off or landing distance once adjusted for Aerodrome elevation, temperature and slope.

2.2 DESIGN SUMMARY

2.2.1 General

The general arrangement of the airstrip is shown on Figure 1. The schematic layout for the airstrip is shown on Figure 2 and summarised in the following sections. Typical sections and details for the airstrip are shown on Figure 3. The proposed airstrip is ~7 km from the proposed process plant and ~4.6 km from the accommodation camp.

2.2.2 Runway Dimensions and Profile

The selected runway running surface is 850 m long and 20m wide to allow the design aircraft to turn around anywhere on the runway. The surrounding runway strip is 80 m wide inclusive of runway. The cross-fall on the runway is less than 2% from the crown. The airstrip vertical grade is less than 1% for the entire length. The vertical grade was nominated to reduce the overall earthworks volumes.

For the design alignment, the longitudinal profile of the natural topography exceeds the maximum longitudinal runway slope of 2.0%, and/or exceeds the maximum allowable rate of change in slope as specified in Table 2.1. As a result, cut and fill operations will be required to achieve a design compliant with the ICAO guidelines (Ref. 1). The estimated earthworks quantities are provided in Section 4.

2.2.3 RESA, Stopways and Clearways

The ICAO guidelines indicate runway end safety areas (RESA), stopways and clearways are not required at the ends of a non-instrument airstrip for a Type 1B design aircraft. The requirement for RESA or Clearway will be reviewed during the detailed design phase, subject to site investigation findings.

2.2.4 Taxiing, Apron and Turning Areas

No localised widening at the ends of the runway running surface were included in the design, as the design aircraft can turn around within the design runway width, while adhering to a minimum allowable distance between the landing gear and runway surface edge of 2.25 m.

At the narrowest point the taxiway is 10.5 m wide, and has a horizontal turning radius of 24 m for a speed limit of 20 kmph when following the centreline. The apron is 50 m by 100 m and will allow for parking of two Cessna Caravan aircraft. The taxiway has a crossfall of 2.0%. Both the taxiway and apron have a longitudinal slope of 0.75%.

2.2.5 Construction Materials

Geotechnical site investigation for the airstrip was completed between January and February 2024. A number of test pits were excavated along the airstrip alignment and samples were taken for laboratory testing. The laboratory testing is currently in progress.

The investigation indicated topsoil thickness varying from 100 mm to 400 mm with an average thickness of 200 mm. Gravel, sandy, dense to very dense were observed beneath the topsoil for a majority of the test pits. Based on the investigation, the in-situ material is generally expected to be suitable as bulk fill, subgrade and base course material for construction of the airstrip. This will be confirmed post completion of laboratory testing. The higher specification wearing course for the runway sheeting may need to be sourced from external borrow source. A few potential gravel borrow sources were identified, however the suitability will be confirmed post completion of laboratory testing.

Based on the design aircraft, it is recommended that a gravel pavement is adopted for the runway as the Cessna Caravanne is gravel compatible. In order of foundation to surface, the preliminary pavement layers were designed as follows:

- Subgrade: Scarified and moisture conditioned in-situ materials to 200 mm depth, compacted to achieve a California Bearing Ratio (CBR) of at least 15%. Subgrade material is expected to comprise in-situ material within the airstrip foundation, or material placed as part of the local cut/fill operations taking place as part of airstrip construction.
- Basecourse: 150 mm well-graded sandy gravel material compacted to achieve a CBR of at least 35%. Base course material is expected to comprise in-situ material in some areas along the airstrip, supplemented by material sourced from local borrow areas where necessary.
- Wearing Course: 150 mm fine-grained gravelly material compacted to achieve a CBR of at least 35%. Wearing course material is expected to comprise primarily material sourced from local borrow areas, external to the airstrip location.

Typically, a higher CBR value would be recommended for pavements, but is subject to material availability and the acceptance of additional maintenance requirements. Typically, in West Africa, laterite gravel can be used for this layer. ICAO (Ref. 1) recommends that the runway strip area (full 80 m width) be compacted to achieve a CBR of at least 15% to 150 mm thickness. This will be prepared to the same specification as subgrade material.

The total runway, taxiway and apron area is approximately 22,800 m^2.

2.2.6 Surfacing External to Trafficked Areas

External to the trafficked areas (i.e. the runway strip, clearways), the in-situ material will be graded to design lines, levelled and proof rolled.

2.2.7 Drainage

The airstrip has been located in a manner which reduces the external runoff reporting across the airstrip alignment. The preliminary drainage concept includes:

- Surface water on both sides of the airstrip will be diverted and discharged into natural drainage courses by v-drains running on the sides of the runway strip and clearways.
- Runoff from the airstrip will be collected in the v-drains on the sides of the airstrip and discharged via silt traps into a natural water course.

2.2.8 Obstacle Limitation Surfaces (OLS)

In order to comply with ICAO regulations and to have the airstrip certified an Obstacle Limitation Surface (OLS) must be determined for the aerodrome.

For non-instrument runways the following OLS must be established, as shown on Figure 4:

- Conical surface.
- Inner horizontal surface.
- Approach surface.
- Transitional surface.
- Take-off climb surface.

The OLS is based on the Aerodrome Reference Point (ARP), which is the centroid of the facility.

For this alignment, the ARP has an elevation of RL342 m. The inner horizontal surface is a conceptual flat plane which lies 45 m above the ARP at an elevation of RL387 m and extends to an outer boundary of radius 2,000 m from the centreline and end of the runway. The conical surface extends from the inner horizontal surface at a slope of 5% to a maximum elevation of 35 m above the inner horizontal surface (RL422 m).

The runway approach and take-off climb surfaces extend 1,600 m from the end of the stop way at a slope of 5%, with an initial width of 60 m and a final width of 380 m. The transitional surface extends from lines drawn along each edge of the runway out to the inner horizontal surface boundary and up to its elevation at a slope of 20%.

Based on review of topographical data and the site infrastructure design available to date, no interactions were identified with the OLS for the airstrip based on the aerial survey data made available.

3. BILL OF QUANTITIES

The runway design uses a longitudinal grade within the range allowable by ICAO. The Bill of Quantities for the Doropo airstrip construction is provided in Table 4.1. The quantity estimate was determined to an accuracy of ±15%, with additional notes as follows:

- Assumed topsoil depth of 200 mm.
- Pavement material will be locally available from borrow areas within the project site (subject to laboratory test results).

Table 4.1: Airstrip Bill of Quantities

Item	Description	Unit	Quantity
1.0	**PRELIMINARY AND GENERAL COSTS**		
	Preliminary and General		
1.0.1	Preliminary and general costs (including mobilization and demobilization)	Item	12%
	Sub Total		
1.1	**MATERIAL SUPPLY**		
	Material Supply		
1.1.1	Supply suitable Zone E erosion protection material to stockpile	m3	1,500
	Sub Total		
1.2	**SITE PREPARATION**		
	Aerodrome Site Preparation		
1.2.1	Clear and grub aerodrome footprint, haul to designated stockpile	m2	91,000.0
1.2.2	Strip topsoil (200 mm) from footprint, haul to designated stockpile	m3	18,100
1.2.3	Excavate unsuitable material in footprint, haul to designated stockpile (allowance)	m3	1,000
	Aerodrome Stockpiles & Borrow Areas		
1.2.4	Clear and grub designated stockpiles and push material to perimeter (nominal 4m height)	m2	7,000
1.2.5	Clear and grub designated stockpiles for stipped topsoil and push material to perimeter (nominal 2m height)	m2	10,000
1.2.6	Clear and grub designated borrow areas and push material to perimeter (4 m deep)	m2	1,100
1.2.7	Strip topsoil from borrow areas and haul to designated stockpiles (nominal 200 mm)	m3	220
1.2.8	Rehabilitate borrow areas, including landform shaping, topsoil spreading, deep ripping and re-vegetation	m2	1,100
	Sub Total		
1.3	**AIRFIELD CONSTRUCTION**		
	Aerodrome Earthworks		
1.3.1	Scarify, moisture condition and compact runway and apron footprint	m2	47,100
1.3.2	Excavate airstrip and apron from cut areas, including v-drain, load and haul to stockpile	m3	1,000
1.3.3	Excavate airstrip and apron from cut areas, including v-drain, load and haul, place, moisture condition and compact as general fill in airstrip subgrade	m3	28,000
1.3.4	Excavate and shape Aerodrome runway finger drains, load and haul to stockpile	m3	900
1.3.5	Win from borrow, load, haul, spread, moisture condition and compact as general fill in airstrip subgrade	m3	8,000
1.3.6	Win from borrow, load, haul, spread, moisture condition and compact airstrip pavement sub-base	m3	2,600
1.3.7	Win from borrow, load, haul, spread, moisture condition and compact airstrip pavement wearing course	m3	2,600
1.3.8	Win from borrow, load, haul and spread erosion protection layer (200 mm depth) on V-drain	m3	1,500
1.3.9	Win from borrow, load, haul,spread, moisture condition, and compact suitable sub-base course material in Aerodrome runway finger drains	m3	850
	Sub Total		
1.4	**MISCELLANEOUS**		
1.4.1	Supply and install reinforced concrete parking pad to Aerodrome Apron	Item	1
1.4.2	Supply and install blue taxiway and apron concrete edge markers flush with ground	Item	8
1.4.3	Supply and install unserviceability cone markers	Item	10
1.4.4	Supply and install white runway concrete markers flush with ground	Item	22
1.4.5	Supply and install marker anchor pins (4 per item)	Item	40
1.4.6	Supply and install unserviceability cross marker	Item	1
1.4.7	Supply and install primary wind direction indicator (3.65 m wind sock and painted concrete kerbing)	Item	1
1.4.8	Supply and install threshold and runway designation markings to Airstrip	Item	1
	Sub Total		
	SUMMARY		
1.0	PRELIMINARY AND GENERAL COSTS		
1.1	MATERIAL SUPPLY		
1.2	SITE PREPARATION		
1.3	AIRFIELD CONSTRUCTION		
1.4	MISCELLANEOUS		
	TOTAL		

The quantities are based on assuming the cut quantities achieve the relevant specifications summarised in Section 3 and shall be used as backfill material. The quantities will be reviewed during the detailed design phase, after receiving laboratory test results.

4. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are made:

- Based on the initial assessment, the nominated area is suitable for airstrip construction.
- The airstrip is designated with a gravel pavement, as the nominated design aircraft (Cessna Caravanne) is gravel compatible.
- For the proposed alignment, no interactions with the OLS were identified for a Class 1B aircraft.

- The weather station location and elevation should be confirmed, inclusive of 360° photography from the weather station, for consideration during the next design phase.

We trust that this is sufficient information for your current requirements. If you have any questions or require additional information, please contact us.

Yours faithfully
KNIGHT PIÉSOLD PTY LTD

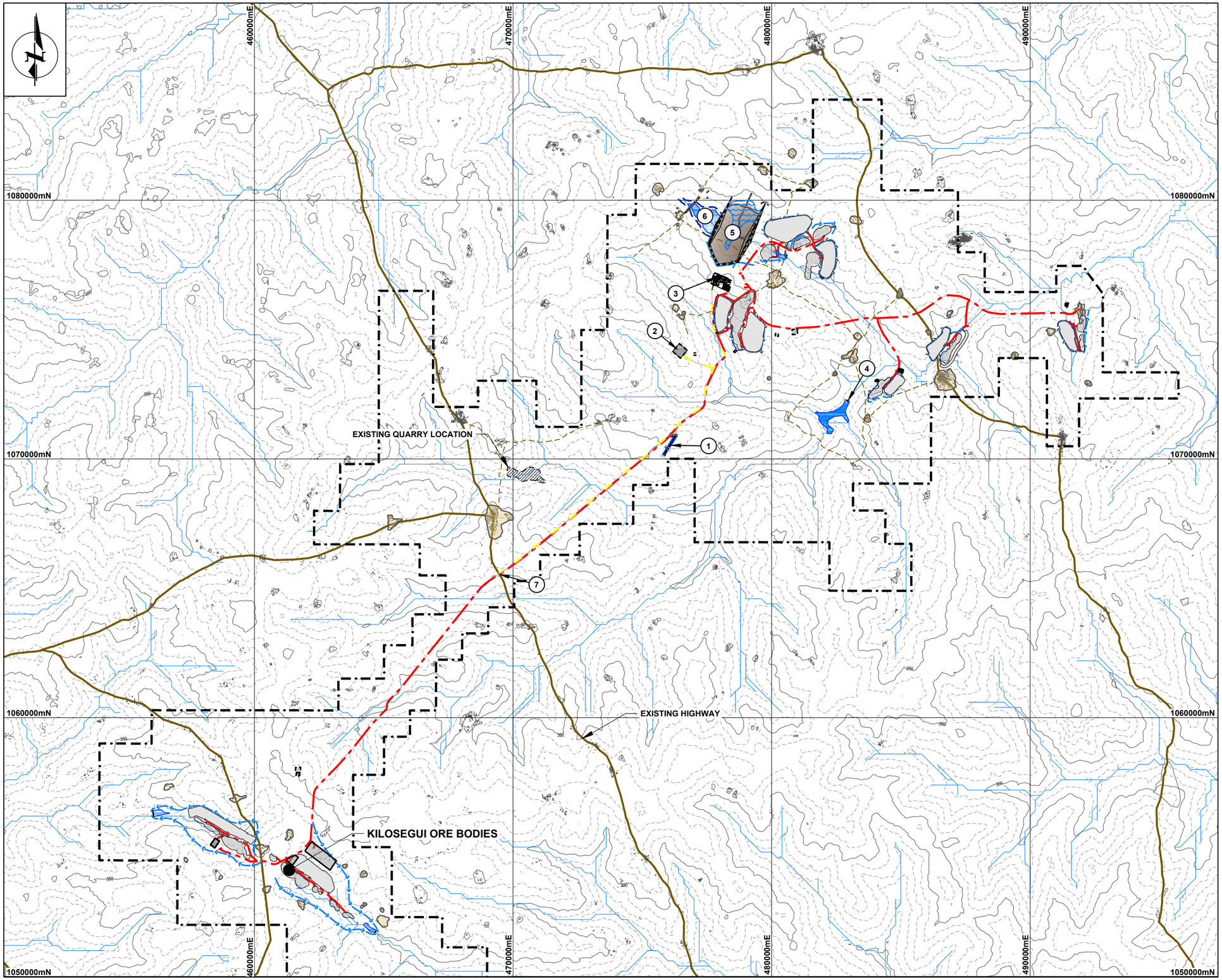
KRISHNA ERUMODI
Project Engineer

DAVID MORGAN
Managing Director

REFERENCES

1. International Civil Aviation Organization (ICAO), (2018), "*Annex 14 – Aerodrome – Volume 1*", (8th Edition).
2. Cessna by Textron Aviation, "*Cessna Caravan*", https://cessna.txtav.com/en/turboprop/caravan
3. The National Civil Aviation Authority of Côte d'Ivoire, "*Aeronautical Regulations of Côte d'Ivoire relating to the Design and Technical Operations of Aerodromes*", August 2020.

FIGURES



LEGEND:

- CATCHMENT BOUNDARY
- WATER COURSE
- EXISTING UNSEALED ROAD (MAJOR)
- EXISTING UNSEALED ROAD (MINOR)
- TENEMENT BOUNDARY
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD

NOTES:

1. ALL COORDINATES SHOWN IN UTM(WGS84) ZONE 30 NORTH.
2. 10m CONTOUR INTERVALS SHOWN.

ITEM KEY:

1. PROPOSED SITE AIRSTRIP
2. PROPOSED SITE ACCOMMODATION
3. PROPOSED SITE PLANT
4. WATER HARVEST DAM
5. TAILINGS STORAGE FACILITY
6. WATER STORAGE DAM
7. PROPOSED OVERPASS LOCATION

2000 1000 0 2500 5000 7500
SCALE (METRES) 1:150,000 (A3)

Knight Piésold CONSULTING

DOROPO GOLD MINE
AIRSTRIP DESIGN DEFINITIVE FEASIBILITY STUDY
SITE GENERAL ARRANGEMENT PLAN

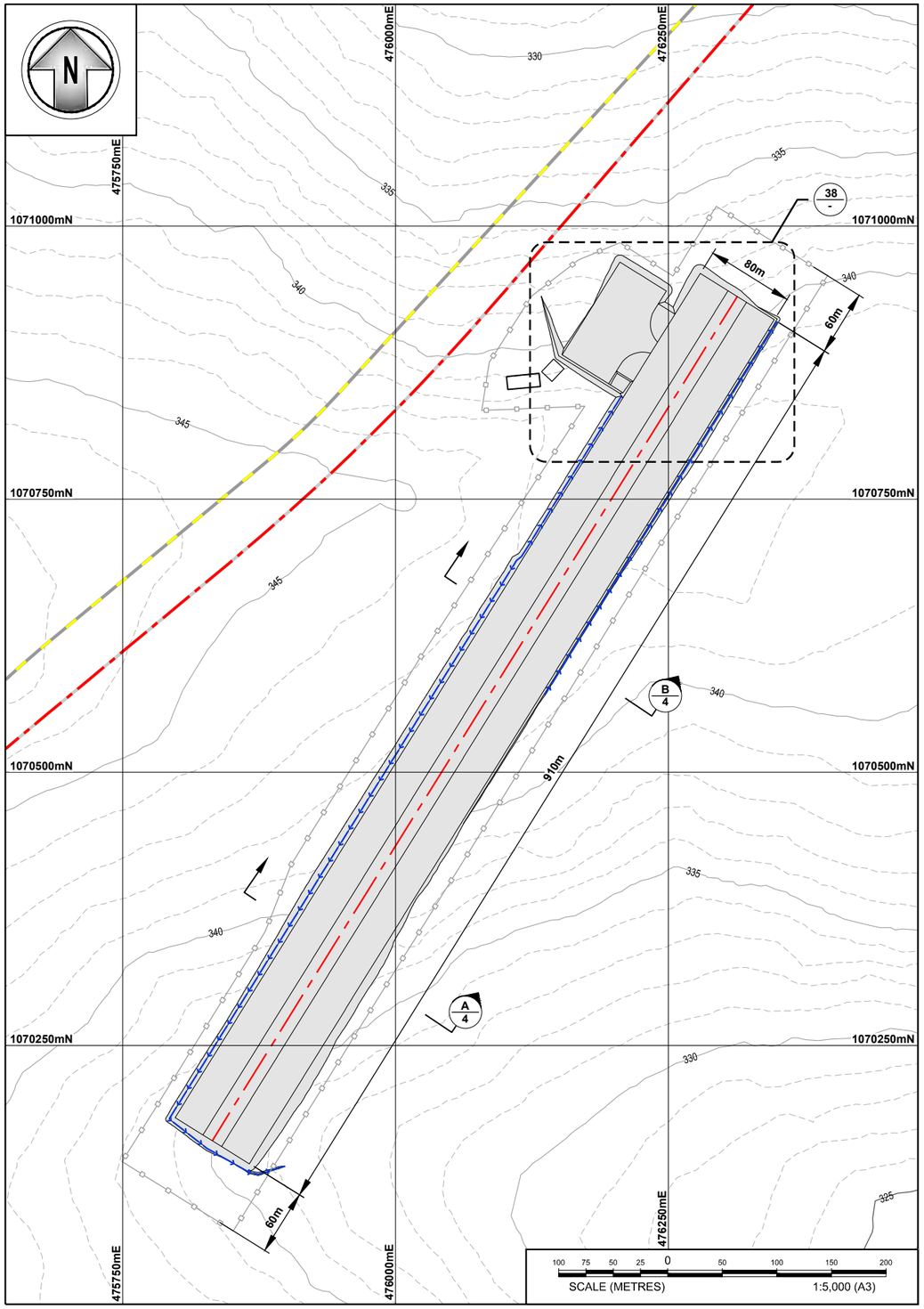
PE301-00821 M25019
Figure 1

LEGEND:

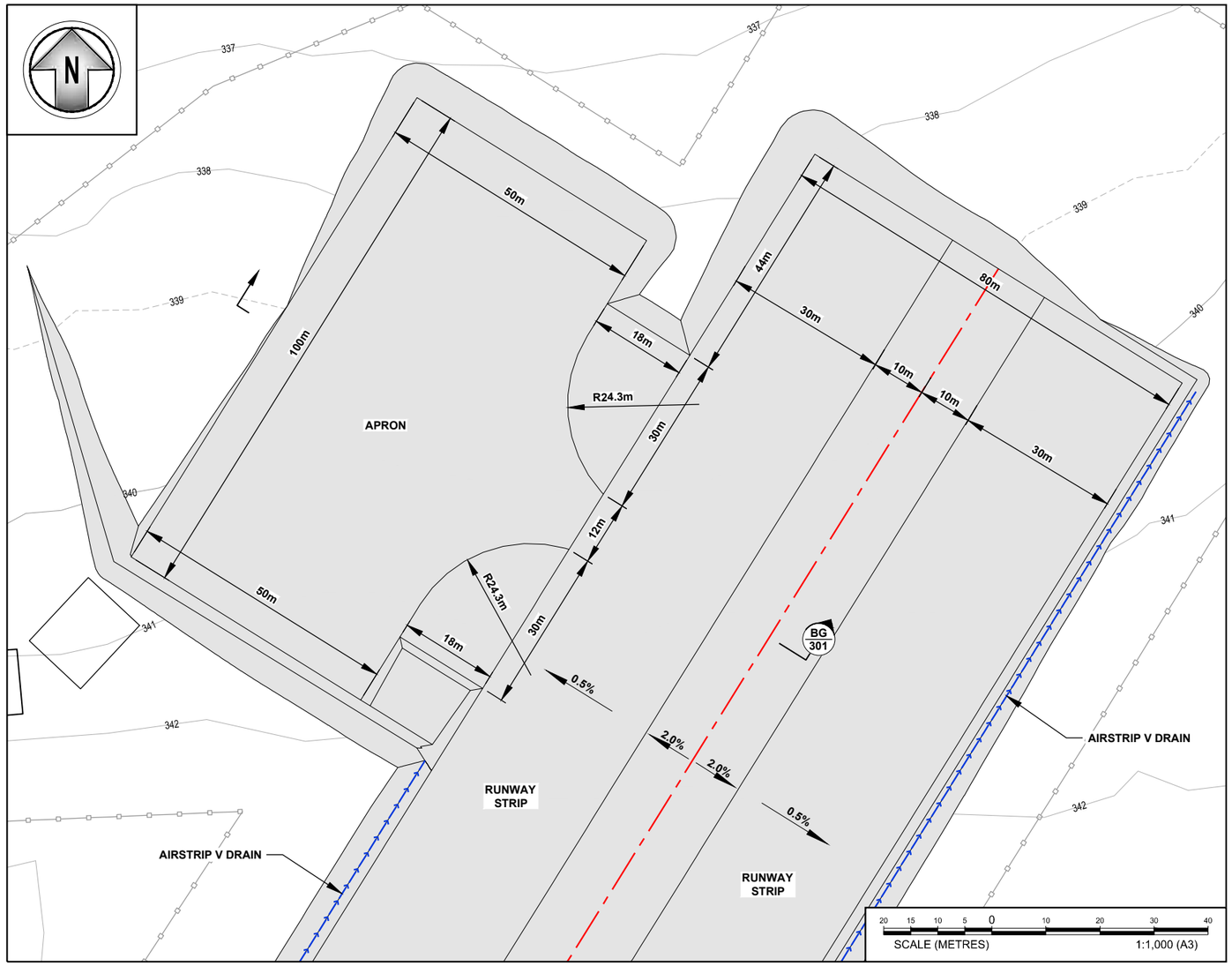
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- 0+000 — AIRSTRIP CENTRELINE AND CHAINAGE
- PROPOSED SECURITY FENCE
- DIVERSION DRAIN ALIGNMENT
- ARP — AERODROME REFERENCE POINT (R.L. 1384.5m)

NOTES:

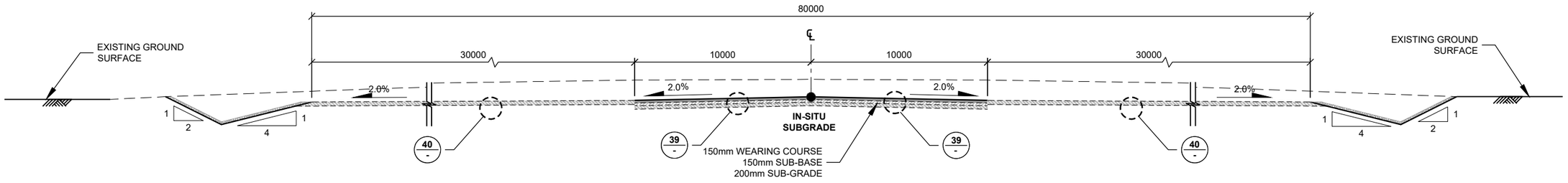
1. 1m CONTOUR INTERVALS SHOWN.



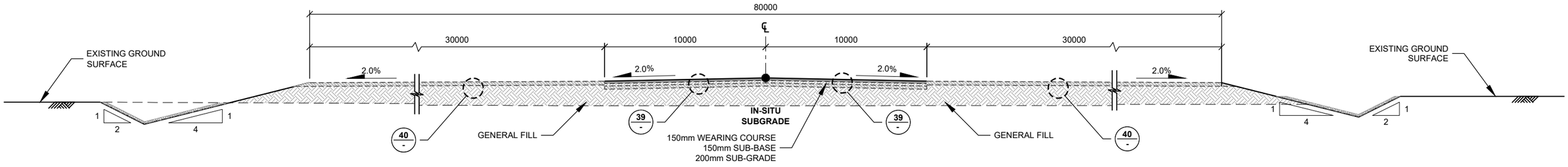
1 - **APRON AND TAXIWAY LAYOUT**
1:5,000



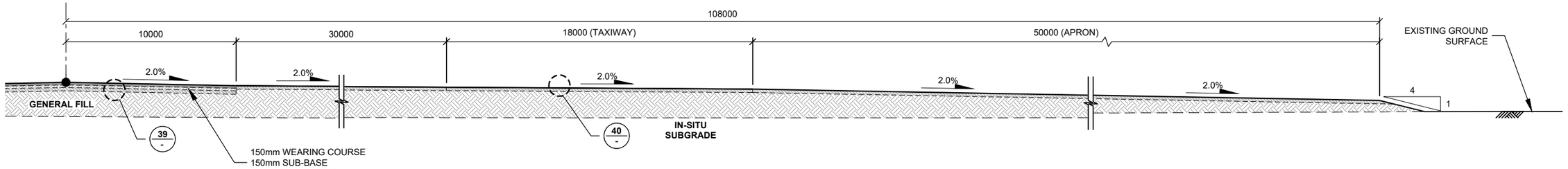
38 - **APRON DETAIL**
1:1,000



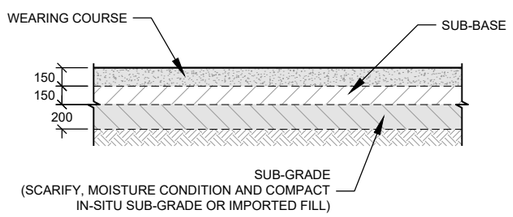
A - TYPICAL RUNWAY CROSS SECTION IN CUT
1:250



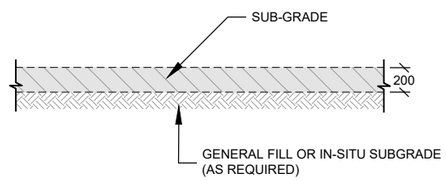
B - TYPICAL RUNWAY CROSS SECTION IN FILL
1:250



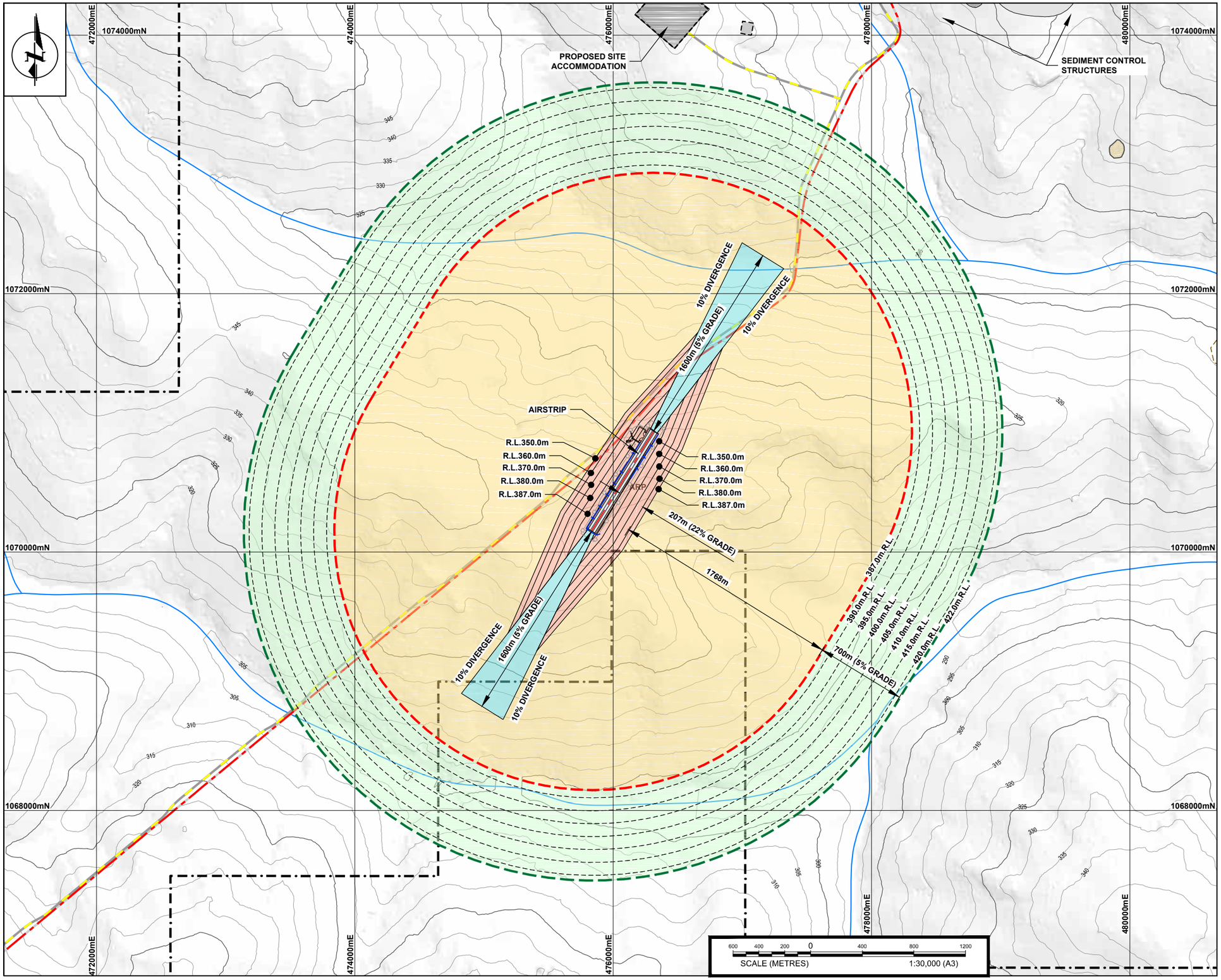
C - TYPICAL SECTION ALONG TAXIWAY CENTRELINE
1:250



39 - TYPICAL RUNWAY RUNNING SURFACE PAVEMENT DETAIL
1:50



40 - TYPICAL RUNWAY STRIP PAVEMENT DETAIL
1:50

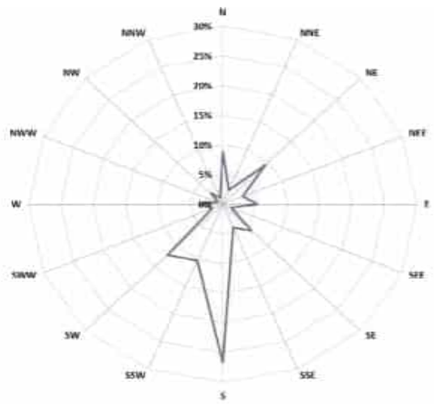


LEGEND:

- WATER COURSE
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- APPROACH / TAKE-OFF SURFACE
- TRANSITIONAL SURFACE
- INNER HORIZONTAL SURFACE (R.L 387.0m)
- CONICAL SURFACE (R.L 422.0m)
- AERODROME REFERENCE POINT (R.L 342.0m)
- OLS INTERACTION AREA

NOTES:

1. 5m CONTOUR INTERVALS SHOWN.



WIND ROSE

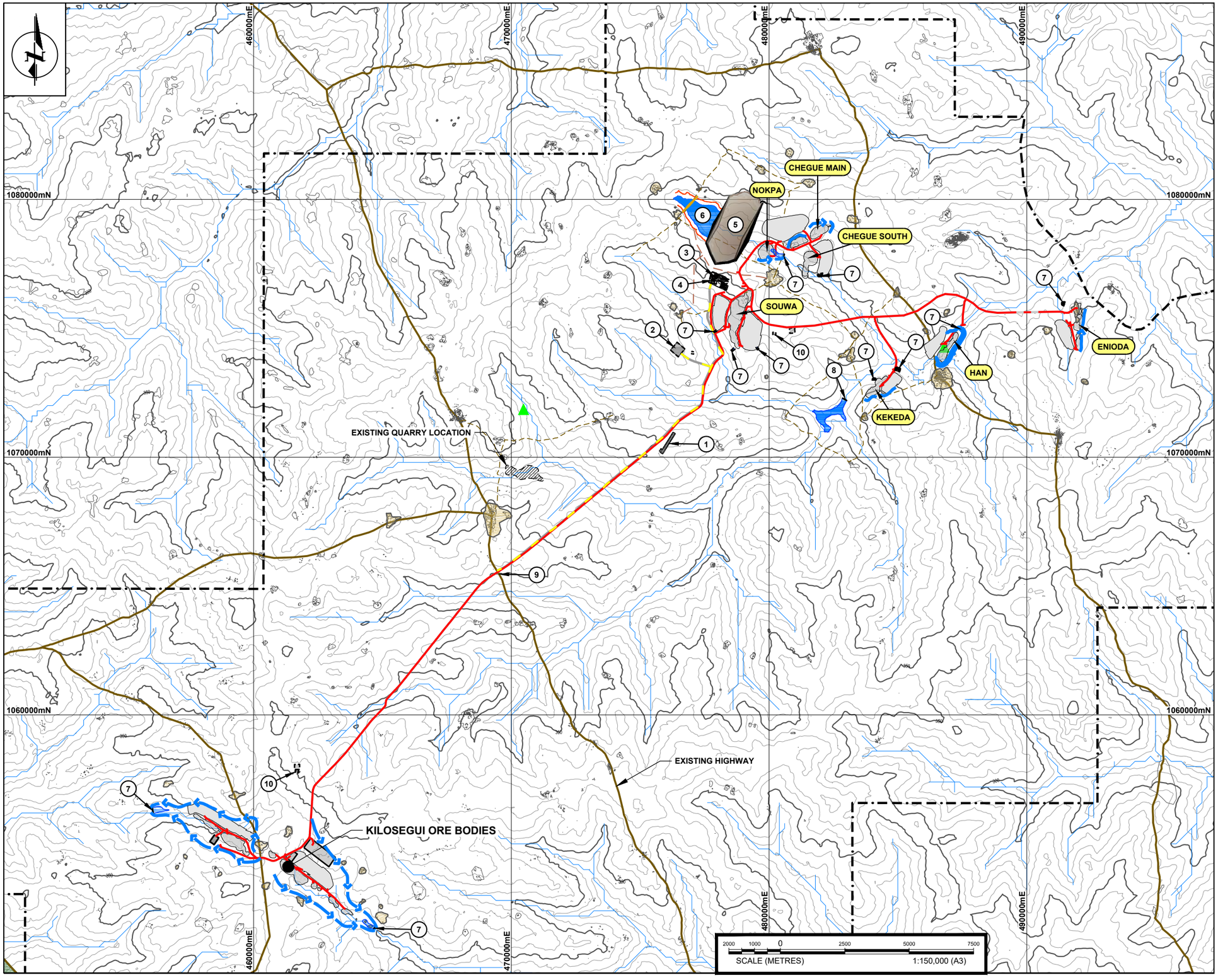
Knight Piésold CONSULTING

DOROPO GOLD MINE
AIRSTRIP DESIGN DEFINITIVE FEASIBILITY STUDY
AIRSTRIP OBSTACLE LIMITATION STUDY

PE301-00821 M25019
Figure 4

APPENDIX 9.1

SITE LAYOUT DRAWINGS



LEGEND:

- WATER COURSE
- EXISTING UNSEALED ROAD (MAJOR)
- EXISTING UNSEALED ROAD (MINOR)
- TENEMENT BOUNDARY
- OUTCROP LOCATION
- PROPOSED SITE ACCESS ROAD
- PROPOSED SITE HAUL ROAD
- PROPOSED DIVERSION CHANNEL
- ORE BODY NAME

NOTES:

1. 10m CONTOUR INTERVALS SHOWN.
2. PIT SHELL EXTENTS PROVIDED BY CENTAMIN, FEBRUARY 2023.
3. INDICATIVE LOCATIONS SHOWN FOR:
   - WASTE DUMP
   - PROCESS PLANT
   - ROM PAD
   - SITE ACCOMMODATION
5. FINAL STAGE TAILINGS STORAGE FACILITY SHOWN.

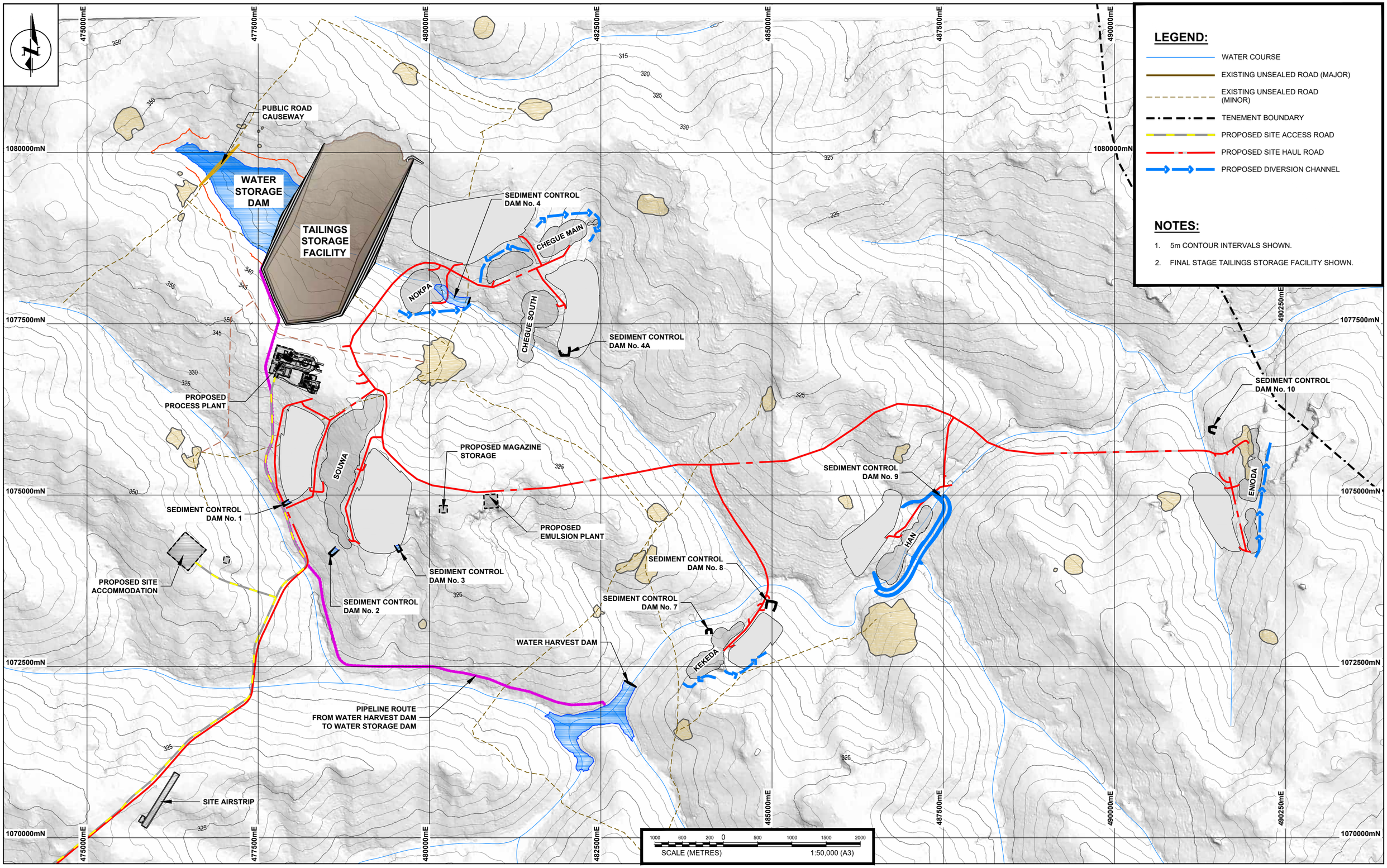
ITEM KEY:

1. PROPOSED SITE AIRSTRIP
2. PROPOSED SITE ACCOMMODATION
3. PROPOSED SITE PLANT
4. PROPOSED ADMIN AREA
5. PROPOSED TAILINGS STORAGE FACILITY
6. PROPOSED WATER STORAGE DAM
7. PROPOSED SEDIMENT CONTROL STRUCTURE
8. PROPOSED WATER HARVEST DAM
9. PROPOSED OVERPASS
10. PROPOSED EXPLOSIVE MAGAZINE LOCATION

Knight Piésold CONSULTING

DOROPO GOLD MINE
GENERAL INFRASTRUCTURE
GREATER GENERAL ARRANGEMENT

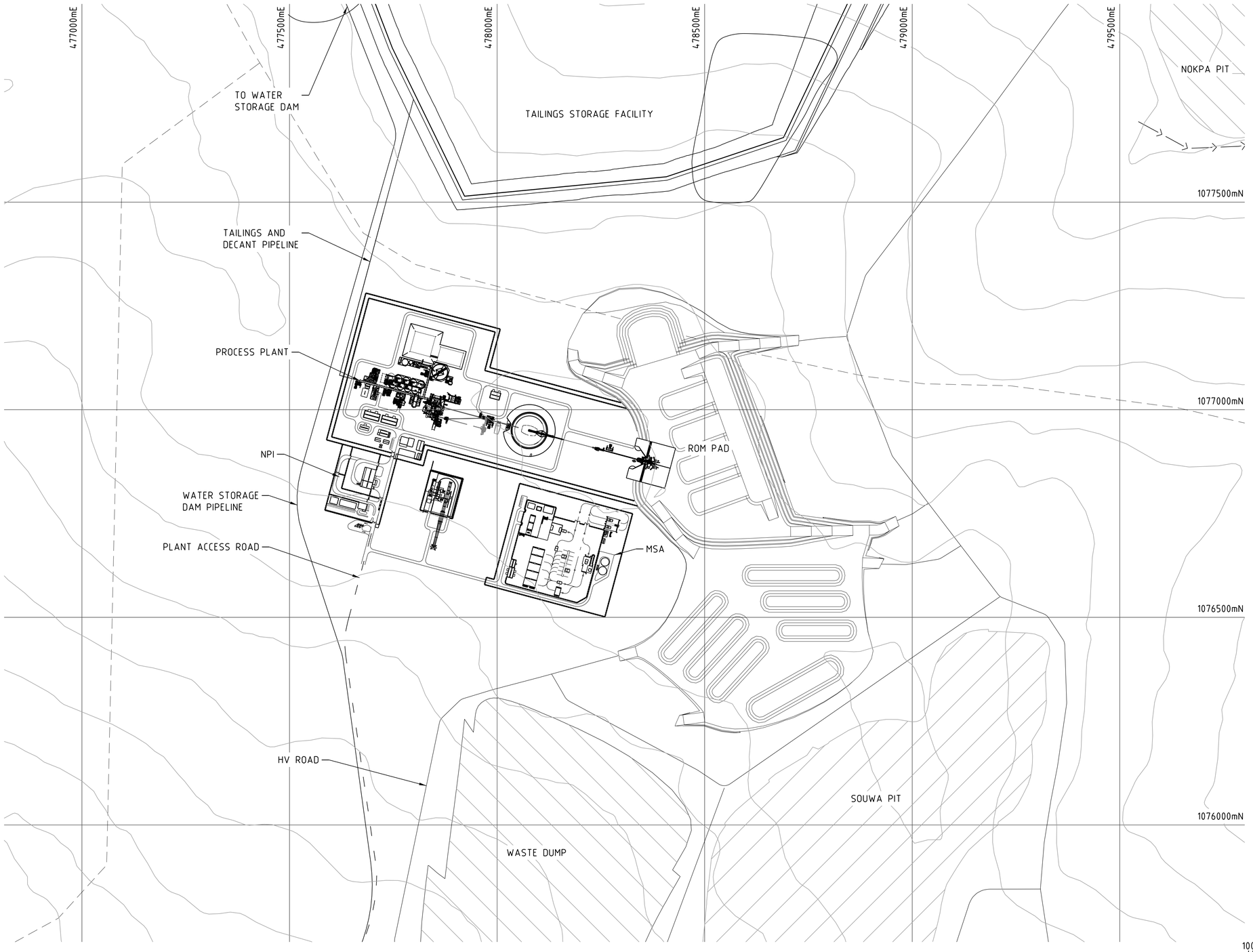
2025-10-13_Site Layout_including Kilesogui



Knight Piésold CONSULTING

DOROPO GOLD MINE
GENERAL INFRASTRUCTURE
SITE GENERAL ARRANGEMENT PLAN

2025-10-13_Site Layout



DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		A	25NOV25	ISSUED FOR STUDY	ZCG			AC		AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
			Ashley Cook 11/25/25 09:18		Alwyn Scholtz	

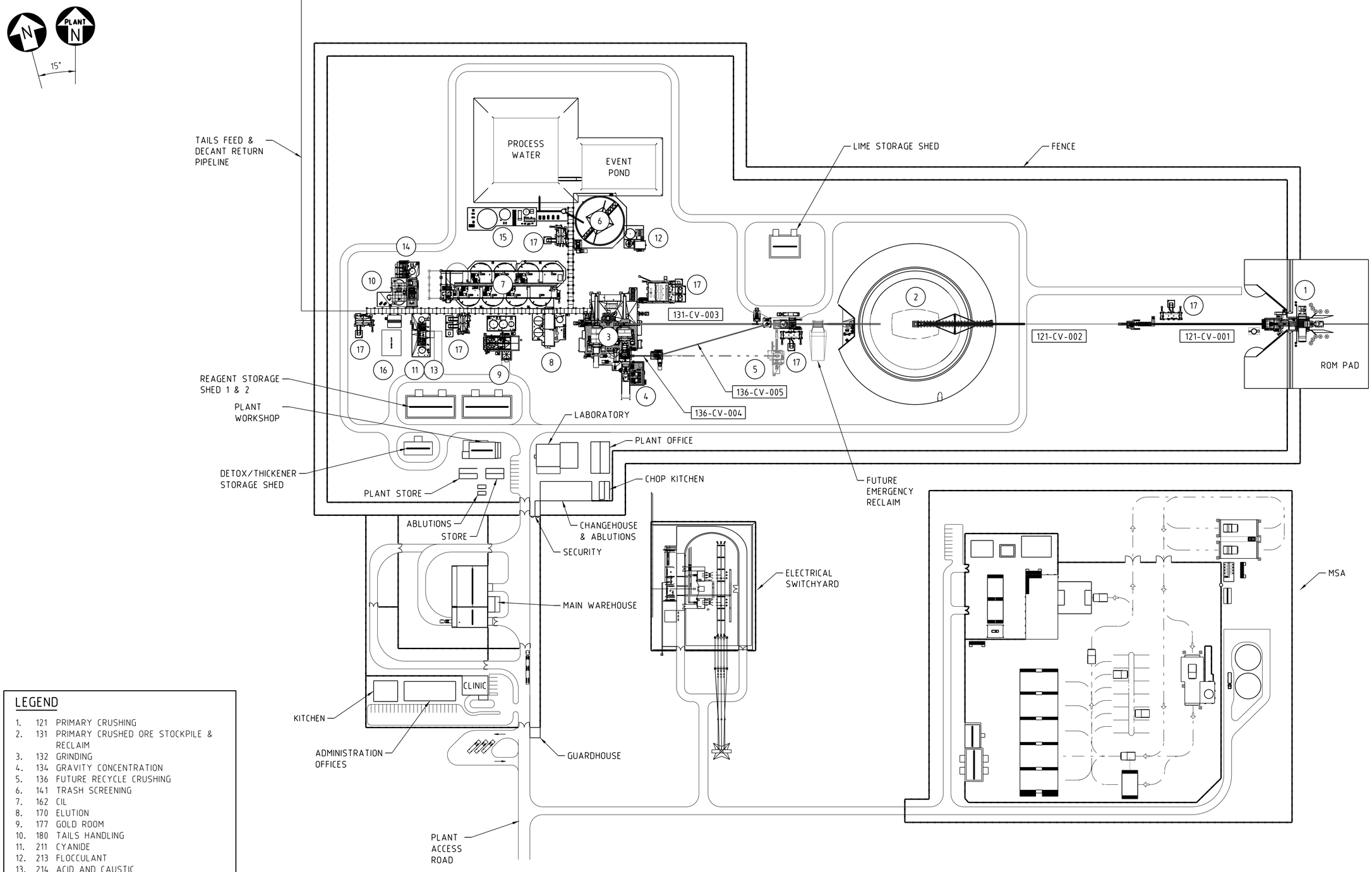
DRAWING TITLE: TREATMENT PLANT - GENERAL SITE LAYOUT PLAN

SCALE	JOB No.	DRG No.	REV.
1:5000	2326	110-GD-003	A

DRAWN: ZCG DATE: 27OCT25

pw:\\PERPWINT1.lycopodium.com.au:PERPWINTDS1\Documents\Drafting\02 Studies\2000 - 2999\2326.20 - Doropo Gold Project DFS\G\00 GD\2326-110-GD-003.dgn, 25/11/2025 9:08:38 AM, zane.goncalves, ISO A1

A1



LEGEND

1. 121 PRIMARY CRUSHING
2. 131 PRIMARY CRUSHED ORE STOCKPILE & RECLAIM
3. 132 GRINDING
4. 134 GRAVITY CONCENTRATION
5. 136 FUTURE RECYCLE CRUSHING
6. 141 TRASH SCREENING
7. 162 CIL
8. 170 ELUTION
9. 177 GOLD ROOM
10. 180 TAILS HANDLING
11. 211 CYANIDE
12. 213 FLOCCULANT
13. 214 ACID AND CAUSTIC
14. 216 DETOX REAGENTS
15. 220 WATER SERVICES
16. 240 AIR SERVICES
17. 376 ELECTRICAL SWITCHROOMS

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		A	25NOV25	ISSUED FOR STUDY	ZCG			AC		AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 055 880 209
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 5222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
					Alwyn Scholtz	

DRAWING TITLE: TREATMENT PLANT - GENERAL PLANT LAYOUT PLAN

SCALE	JOB No.	DRG No.	REV.
1:1500	2326	110-GD-004	A

DRAWN: ZCG DATE: 24OCT25

APPENDIX 9.2

BUILDINGS LIST

AMPELLA MINING COTE D'IVOIRE

DOROPO GOLD PROJECT DFS

BUILDINGS LIST

2326-ALST-001

Oct 2025

Prepared by:

Lycopodium

REV NO.	DATE	DESCRIPTION OF REVISION	BY	DESIGN APPROVED	PROJECT APPROVED	CLIENT APPROVED
A	02.12.25	Issue for Study			Alwyn Scholtz	

This document is the property of Lycopodium. It must not be copied or reproduced in any way
or transmitted on to any third party without written authority from Lycopodium.

Rev	Status	Plant Area	Facility	Equipment Identifier	Numerical Identifier	Building Name	Number	Generic Type 1	Generic Type 2	Size	Total Area (m2)	Materials of Construction	Notes / Comments	Supplier	Supply Location	Manufacturer	Model No.	Design Scope Responsibility	Lighting/Power/Comms	Potable Water	Sewerage	Raw (fire) Water
AREA 318 - AIRPORT																						
~~A~~	~~New~~	~~310 Infrastructure - General~~	~~318 Airport~~			~~ARRIVAL/DEPARTURE BUILDING~~	~~1 No.~~			~~12 x 6 m~~	~~72~~	~~Prefabricated modular flatpack building~~						~~RML~~				
~~A~~	~~New~~	~~310 Infrastructure - General~~	~~318 Airport~~			~~ABLUTIONS (MALE & FEMALE)~~	~~1 No.~~			~~12 x 3 m~~	~~36~~	~~Prefabricated modular flatpack building~~						~~RML~~				
AREA 360 - ADMIN & SECURITY																						
A	New	360 Security	364 Security Gatehouse and Change room			COMMAND POST	6 No.	A General	Building	12 x 6 m	432	Prefabricated modular flatpack building						RML				
A	New	360 Admin & Security buildings	361 Main Office			MINING / PROCESS / HSE ADMINISTRATION OFFICES - 30 PERSON OFFICE	3 No.			24 x 18 m	1,296	Prefabricated modular flatpack building						RML / Services to be provided within 1m of building by Lyco	P/C	√	√	√
A	New	360 Admin & Security buildings	361 Main Office			HR / FINANCE /IT / CSR / SCM ADMIN OFFICES AND MESS - 30 PERSON OFFICE	2 No.			24 x 18 m	864	Prefabricated modular flatpack building						RML / Services to be provided within 1m of building by Lyco	P/C	√	√	√
A	New	360 Admin & Security buildings	360 Plant Training / Meeting Room			TRAINING / MEETING ROOM	1 No.	A General	Building	24 x 18 m	432	Prefabricated modular flatpack building	- Repurposed 30 person office, with kitchenet single sink and outside wash troughs. Located with Main Admin Building outside plant high security gate.					RML / Services to be provided within 1m of building by Lyco	P			√
A	New	360 Admin & Security buildings	364 Security Gatehouse and Change room			SECURITY GATEHOUSE AND CHANGE ROOM	1 No.	A General	Building	22.6 x 11.5 m	260	Blockwork	Located at entrance to high security Process Plant area					RML / Services to be provided within 1m of building by Lyco	P/C	√	√	√
A	New	360 Admin & Security buildings	360 Security			SECURITY CONTROL CENTRE	1 No.			24 x 18 m	432	Prefabricated modular flatpack building										
A	New	360 Admin & Security buildings	362 Clinic and Emergency Response Building			CLINIC AND EMERGENCY RESPONSE BUILDING - MEDICAL CENTRE	1 No.	A General	Building	24 x 12 m	288	Prefabricated modular flatpack building						RML / Services to be provided within 1m of building by Lyco	P	√	√	√
A	New	360 Admin & Security buildings	362 Clinic and Emergency Response Building			CLINIC AND EMERGENCY RESPONSE BUILDING - OFFICE	1 No.			12 x 6 m	72	Prefabricated modular flatpack building						RML / Services to be provided within 1m of building by Lyco	P	√	√	√
A	New	360 Admin & Security buildings	362 Clinic and Emergency Response Building			CLINIC AND EMERGENCY RESPONSE BUILDING - ABLUTIONS BLOCK	1 No.			12 x 3 m	36	Prefabricated modular flatpack building							P			
A	New	360 Admin & Security buildings	364 Security Gatehouse and Change room			MAIN SECURITY GATEHOUSE	1 No.			23.6 x 15.5 m	366	Blockwork						RML / Services to be provided within 1m of building by Lyco	P/C			
A	New	360 Admin & Security buildings	367 Social Performance			SOCIAL PERFORMANCE OFFICES	1 No.			24 x 18 m	432	Prefabricated modular flatpack building	Located just outside main entrance gate. Includes toilets, small kitchen, reception area, offices and conference room					RML / Services to be provided within 1m of building by Lyco	P			
A	New	360 Plant Buildings	365 Workshop			WORKSHOP	1 No.	A General	Building	35. x 21 m, 15 x 20	~~1,035~~	Steel frame c/w sheeting.	Includes electrical workshop, Tool crib, Machine shop,					LYCO	√	√		√
AREA 370 - PLANT BUILDINGS																						
A	New	370 Plant Buildings	370 Ablutions			ABLUTIONS (MALE & FEMALE)	6 No.	A General	Building	12 x 3 m	288	Prefabricated modular flatpack building	Female and Male toilets					RML / Services to be provided within 1m of building by Lyco	P	√	√	
A	New	370 Plant Buildings	377 Laboratory			PLANT LABORATORY	1 No.	A General	Building	55 x 16.5 m (lab)	908	Sample Shed: Steel frame c/w steel cladding. Laboratory: Blockwork	Includes sample prep & assay shed and met lab, Lunch room with double sink, one toilet with WC and hand basin. One toilet block located outside, female and male wc's, showers and hand basins.					RML / Services to be provided within 1m of building by Lyco	P/C	√	√	√
A	New	370 Plant Buildings	371 Plant Office and Control Room			PLANT OFFICE AND CONTROL ROOM	1 No.	A General	Building	24 x 18 m	432	Prefabricated modular flatpack building	Control room and server room inside plant office. - Repurposed 30 person office building					RML / Services to be provided within 1m of building by Lyco	P/C	√	√	√
A	New	370 Plant Buildings	379 Kitchen Diner			DINER	1 No.	A General	Building	12 x 6 m	144	Prefabricated modular flatpack building	Repurposed guardhouse building. Messing facilities only - no kitchen.					RML / Services to be provided within 1m of building by Lyco	P	√	√	√
A	New	370 Plant Buildings	373 Plant Warehouse			MAIN WAREHOUSE AND OFFICE	1 No.	A General	Building	69 x 20 m	1,380	Steel frame c/w sheeting.						LYCO	√	√	√	√
A	New	370 Plant Buildings	375 Control / Titration			TITRATION	1 No			6 x 2.4 m	14	Converted Container	Containerized laboratory located on top of CIL tanks in process plant					LYCO				
A	New	370 Plant Buildings	378 Reagents Storage Shed A			REAGENTS STORAGE SHED A	1 No.	A General	Building	72 x 15 m	1,080	Steel frame c/w sheeting.						LYCO	√	√	√	√
	New	370 Plant Buildings	378 Reagents Storage Shed B			REAGENTS STORAGE SHED B	1 No	A General	Building	72 x 15 m	1,080	Steel frame c/w sheeting.						LYCO	√	√	√	√
A	New	370 Plant Buildings	372 Workshop			LIGHT VEHICLE WORKSHOP	1 No	A General	Building	17.4 x 12 m	209	Prefabricated modular flatpack building	Maintenance Building Type C					RML / Services to be provided within 1m of building by Lyco	P	√		√

APPENDIX 9.3

DOROPO POWER SUPPLY OPTIONS

ECG ENGINEERING

Engineering innovation & integrity in partnership

Power Supply

Definitive Feasibility Study

DOR-0005-G-FS-001

Revision: D Date: 8/11/2025

Prepared For

Resolute Mining

Doropo Gold Plant

Côte d'Ivoire

Luciano Giancristofaro

Contact Information

ECG Engineering Pty Ltd

ABN: 13 169 638 162

Address: 2-10 Adams Drive, Welshpool, WA 6106
Postal: PO Box 3071, Carlisle South, WA 6101

Tel: +61 8 6164 3400

Email: info@ecg-engineering.com.au
Web: www.ecg-engineering.com.au

Document Information

Client Information

Prepared For: Resolute Mining
Project Name: Doropo Gold Plant
Site Area: Côte d'Ivoire
Client Reference: Luciano Giancristofaro

ECG Information

Project Manager: Geoff Bailey
Project No: DOR-0005
Discipline: G
Doc Type: Definitive Feasibility Study
Doc Type Code: FS
Doc No: 001
Doc Title: Power Supply

Document Control

Rev	Date	Description of Revision	Prepared By	Reviewed By	Approved By
D	8/11/2025	Issued for Study	G. Bailey	D. Browne	G. Bailey
C	7/11/2025	Issued for client review	B. Kaveh	D. Browne	G. Bailey
A	5/11/2025	Issued for client review	B. Kaveh	D. Browne	G. Bailey
B	6/11/2025	Issued for client review	B. Kaveh	D. Browne	G. Bailey

Copyright / Disclaimer

The contents of this document have been prepared for the exclusive use of the named Client, and may not be used by any third party without the written consent of both the named Client and ECG Engineering Pty Ltd. The Client acknowledges that the contents of this document were prepared by the Consultant using the information that was made available to the Consultant and based on the Consultant's assessment of that information. The Client, in accepting the document, agrees to release the Consultant from any liability with respect to inaccuracies or omissions in the document to the extent such inaccuracies or omissions arise from information which was not provided to the Consultant. In addition, to the extent the document attempts to predict future matters, the Client acknowledges that the Consultant has used its reasonable Allieds with respect to those matters, but the Client agrees to release the Consultant from any liability with respect to future matters, shall not rely on the Consultant's predictions and shall form its own assessment of those future matters.

Table of Contents

1 Executive Summary 5

2 Introduction 7

2.1 General 7

2.2 Power Supply 9

2.3 Battery Limits 9

3 Power Supply Requirements 10

3.1 Power Supply 10

3.2 Plant Loading 10

4 Côte d'Ivoire Electricity Grid 11

4.1 Côte d'Ivoire Electricity Grid Connection 11

4.2 Grid Connection 13

5 Electricity Sector in Côte d'Ivoire 20

5.1 Introduction 20

5.1.1 Power Reliability and Quality Concerns 20

5.2 The Electricity Sector in Côte d'Ivoire 20

5.2.1 Key Stakeholders 20

5.2.2 Master Plans 20

5.3 Overview of the Electricity System 21

5.3.1 Generation 21

5.3.2 Growth in generating capacity from 1960 to 2030 21

5.3.3 Evolution of the electricity mix from 1960 to 2030 21

5.4 Expansion Projects 23

6 Power Quality 27

- Load Flow Assessment 27
- Reactive Power Compensation Requirement 27
- VSD Mill Start-Up Analysis 27
- Overall Findings 27

7 Grid Connection Cost Estimate 29

7.1 Technical Comments 29

7.2 Commercial Comments 29

7.2.1 Capital Cost Estimate 30

7.2.2 Basis of estimate 31

7.2.3 Qualifications 31

7.2.4 Operating Costs 31

8 Solar Power 33

8.1 Solar PV Energy Production 33

8.1.1 Modelling 33

8.1.2 Solar PV Array 33

8.1.3 Solar Irradiance 33

8.1.4 Temperature 34

8.1.5 Losses 35

8.2 Solar Optimisation 35

8.2.1 Grid-Solar Hybrid Operation 35

8.3 Solar Production 35

8.4 Solar PV Layout 36

8.5 Independent Power Producer 36

8.6 Capital Cost Estimate 37

8.7 Battery Energy Storage System 40

8.8 Integration Costs 42

9 Power station - HFO 44
9.1 Diesel Power Station 45
10 Cost Analysis 47
10.1 Overview 47
10.2 Cost Evaluation of Power Options 47
10.3 Sensitivity Analysis 49
10.3.1 Fuel Price 49
10.3.2 Back-up diesel power station run-hours 50
10.3.3 Trigger Points 51
10.4 Carbon Emissions 51
11 Schedule 53
12 Risks & Opportunities 54
12.1 Risks 54
12.2 Opportunities 54
13 Recommendation 56
14 Appendix A – Drawing Line Route 57
14.1 Annex A – Infrastructure Projects to 2030 58

1 Executive Summary

ECG Engineering Pty Ltd (ECG) have been engaged by Resolute Mining (Resolute) to provide a Definitive Feasibility Study to supply high voltage power to the proposed new Doropo Gold Plant in Côte d'Ivoire. Ampella is the in-country entity of Resolute.

The Doropo Gold Project is a greenfield gold project located north-eastern Côte d'Ivoire, in the Bounkani region, 480km north of the capital Abidjan and 50km north of the city of Bouna. The block of permits lies between the border with Burkina Faso and the Comoe National Park

The Plant is estimated to have a Maximum Demand (running) of approximately 26.6MW with an installed load of 33MW. The Plant capacity is 4.9Mtpa and has a mine life of 13 years.

The basis of this latest study is that the preferred power supply is from the Côte d'Ivoire electricity grid. ECG believe that the most appropriate grid connection is to upgrade the Bouna Substation by extending the existing 90kV bus, adding a 90kV transmission line feeder, constructing 65km of 90kV single circuit lattice tower transmission line, and constructing a substation at the Doropo site. The Doropo Plant Substation would be owned and operated by CIE, and the Doropo mine would take a 90kV tariff metered feeder, installing a 90/11kV transformer in their substation and taking an 11kV feeder to the Plant Main 11kV Main Switchboard.

Electricity power supplies in Africa have been an issue in the past with some mines having to install embedded diesel generation to maintain Plant availability. From experience, the reliability of power in Côte d'Ivoire is generally good especially at transmission voltages. The 90kV supply at Bouna should have high availability. The 90kV transmission line from Bondoukou to Bogofa and Bouna is lightly loaded. The supply at Bondoukou is from the 225kV network and is part of a ring-main system which is very reliable. The availability should be greater than 99% as has been evident from experience on this network. Power quality is reasonably predictable and is taken care of by installing a STATCOM. Reliability of power is a function of generation as well as transmission and the generation is sometimes not predictable. Disruptions including load shedding at 90kV and 225kV were encountered in early 2025 when two major machine failures occurred concurrently and customers with embedded generation were asked to run their machines in the afternoons when the load was high. There are component failures within any electricity network, and the effect of these can be somewhat mitigated with the augmentation of the network with additional sources of generation and the addition of renewable energy generation both of which are in the Master Plan and some are well developed. Interconnections with other countries also mitigate the effect of single failures. In the past the mining companies have faired well during load shedding situations particularly those without embedded self-generation as these are important and major sources of income to the Government of Côte d'Ivoire.

Key Findings

- Connection to the Côte d'Ivoire national grid operated by CI-ENERGIES is technically feasible and represents the lowest-cost option for Doropo.
- Load flow analysis confirmed that reactive power compensation (~25 MVAr) using a STATCOM is required at the Doropo 90 kV substation to maintain voltage stability during both steady-state operation and VSD mill start-up.
- The initial capital cost for the grid connection is US$33,603,399. The operating costs is US$26,597,931/yr or US$0.1305 / kWhr.

Recommendations

- Grid supply is the preferred power solution for Doropo — offering the lowest NPC and LCOE, and aligning with Côte d'Ivoire's national electrification strategy.
- ECG believe a full power station from the outset is not essential and the risks of not having one will have to be assessed by Resolute. If a full power station is not chosen to be installed together with the grid connection, ECG recommend consideration be given to installing the infrastructure, switchgear and transformers such that a high set of generators can be flown in and installed at short notice.

Description	Unit	Grid	Grid + Solar Lease	Grid + Diesel Backup
Total Capital Cost	$M	$33.6M	$37.1M	$63.7M
Operating Costs				
Fuel Cost	$ / y	$0.0M	$0.0M	$1.5M
Fixed Costs	$ / y	$0.0M	$4.0M	$0.5M
Variable Costs	$ / y	$0.0M	$0.0M	$0.3M
Grid Cost	$ / y	$27.8M	$21.7M	$27.2M
Total Operating Cost	$ / y	**$27.8M**	**$25.7M**	**$29.5M**
Unit Operating Cost	$ / MWh	**$130.5**	**$120.6**	**$138.5**
Levelised Cost of Energy (13 years)	$ / MWh	$148.2	$140.3	$172.3
NPC (13 years)	$M	$279M	$265M	$325M

.

2 Introduction

2.1 General

ECG Engineering Pty Ltd (ECG) have been engaged by Resolute Mining (Resolute) to provide a Definitive Feasibility Study to supply high voltage power to their proposed new Doropo Gold Plant in Côte d'Ivoire. Ampella is the in-country entity of Resolute.

The Doropo Gold Project is a greenfield gold project located in the Bounkani region of north-eastern Côte d'Ivoire, 480km north of the capital Abidjan and 50km north of the city of Bouna. The block of permits lies between the border with Burkina Faso and the Comoe National Park.

The Project site is centred on about UTM 475,000mE and 1,068,000mN, otherwise Latitude 9°39'42'' N and Longitude 3°13'40'' W.

The resource area, which fits in a 30km radius, is centred on about UTM 482,450mE and 1,074,951mN, otherwise Latitude 9°43'28'' N and Longitude 3°9'36'' W.

The following map shows the location of the Doropo reserve within Côte d'Ivoire.



Figure 1 - Location of the project area within Côte d'Ivoire

ECG are well placed to conduct this study due to their extensive experience in Africa. ECG have been working in Africa since 1982 when they were responsible for the early studies and implementation of the Bogosu Gold Plant in Ghana. Since then they have been involved in multiple countries completing Feasibility Studies often leading to project implementation. In Côte d'Ivoire ECG have been responsible for gold projects Bonikro, Agbaou, Ity, Yaoure, Segula, Abujar, Lafigure with Kone under construction, and Assafo, Doropo and Boundiali into Feasibility Study phase. ECG have also worked with CI-ENERGIES with training workshops on their grid modelling.

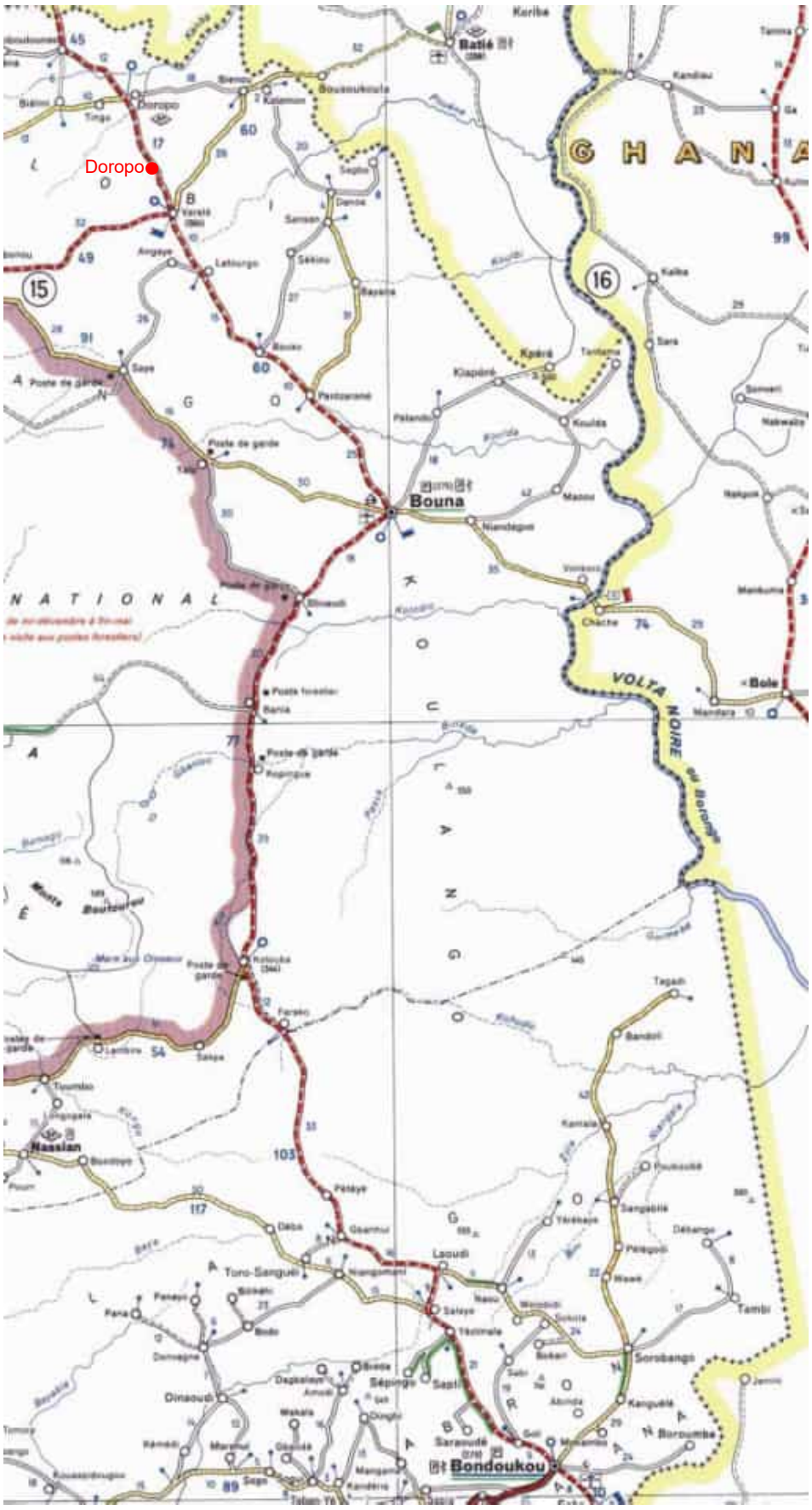


Figure 2 – Road map of the area showing the location of Doropo

2.2 Power Supply

The Plant is estimated to have a Maximum Demand (running) of approximately 26.6MW with an installed load of 33 MW. The Plant capacity is 4.9 million tonnes per annum of fresh ore ground to 75 µm and has a mine life of 10 years.

The power supply should be considered coming from the electricity grid if possible. A grid supply from Côte d'Ivoire should be by world standards economically priced and much more financially favourable than other options including self-generation as the tariff is based on a mix of hydro and thermal generation with a large portion of hydro.

The company La Société des Energies de Côte d'Ivoire (CI-ENERGIES) own the National Interconnected Transmission System in Côte d'Ivoire, and Compagnie Ivoiriennne d'Electricite (CIE) manages the electricity generation and transmission network for the Government.

2.3 Battery Limits

This scope of works for the power supply to the Doropo Gold Plant has the following battery limits:

- Grid Connection
  - The CIE supply system bus at the sending end substation Bouna Substation
  - The outgoing 11kV feeder in the on-site substation
  - Potable water connection at the perimeter of the on-site substation.
  - LV backup supply at the perimeter to the Control Building within the on-site substation
- Power Station
  - Bulk fuel system supply point at the perimeter of the power station. The bulk fuel system is excluded.
  - Potable water connection at the perimeter of the power station.

3 Power Supply Requirements

3.1 Power Supply

The Plant power demand is estimated at this point to have a Maximum Demand of 26.6MW. For the purposes of estimating the running costs, the breakdown of power is as follows.

3.2 Plant Loading

The loading figures for the Doropo Gold Plant are assumed as follows for the 4.9 Mtpa option:

Maximum Demand – defined as the maximum average load over any 30-minute period

• Crushing		650 kW
• Plant and Infrastructure		25.95 MW
	Total	**26.6 MW** (33 MW connected)

Energy Consumption – per year

• Crushing		4 GWhr/yr
• Plant and Infrastructure		209 GWhr/yr
	Total	**213 GWhr/yr**

Load Factor – The load factor is relatively constant except that the Crushing circuit will only operate approximately 20hrs per day and this represents only 3% of the Maximum Demand figure. The Plant will operate for 95% of the time.

Load Power Factor – Power factor correction equipment will be provided to ensure the following:

- Load Power Factor 0.95 lagging

Average Load – defined as the average load if averaged across any one year

- Average Load 23.9 MW

Largest Motor – SAG Mill/ Ball Mill Motor, variable speed drive SAG Mill, secondary resistance starter Ball Mill.

- SAG/Ball Mill Motor (VVVF drive) 2x 5 MW
- Ball Mill Motor 2x 5 MW

The Plant throughput is designed for 4.9 Mtpa.

The Plant mine life is currently estimated to be 10 years.

Power is required end May 2027.

4 Côte d'Ivoire Electricity Grid

4.1 Côte d'Ivoire Electricity Grid Connection

The following map shows the CIE electricity network in Côte d'Ivoire.

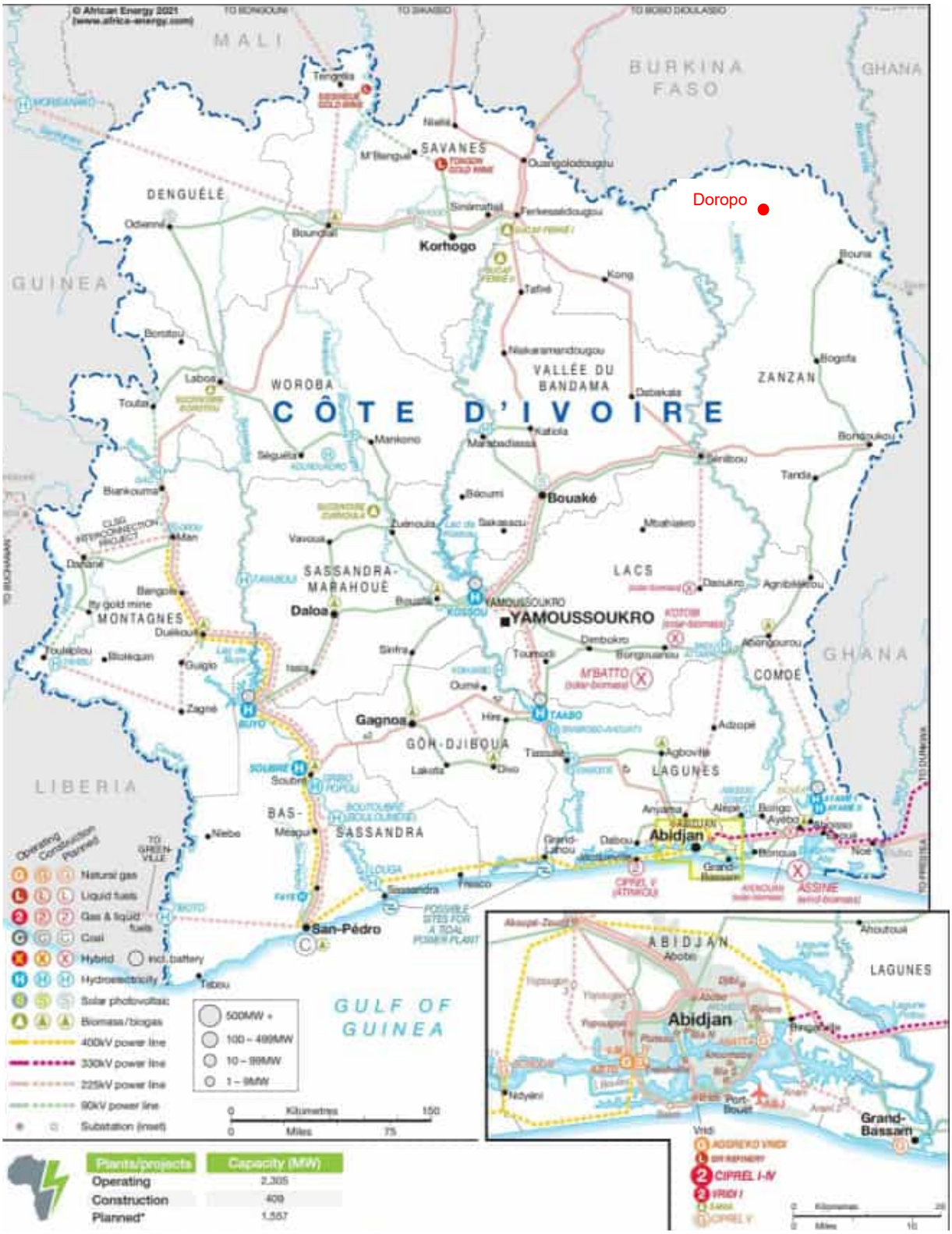


Figure 3 - Electricity Network in Cote d'Ivoire

As can be seen below, the closest substation within the grid network is the Bouna Substation.

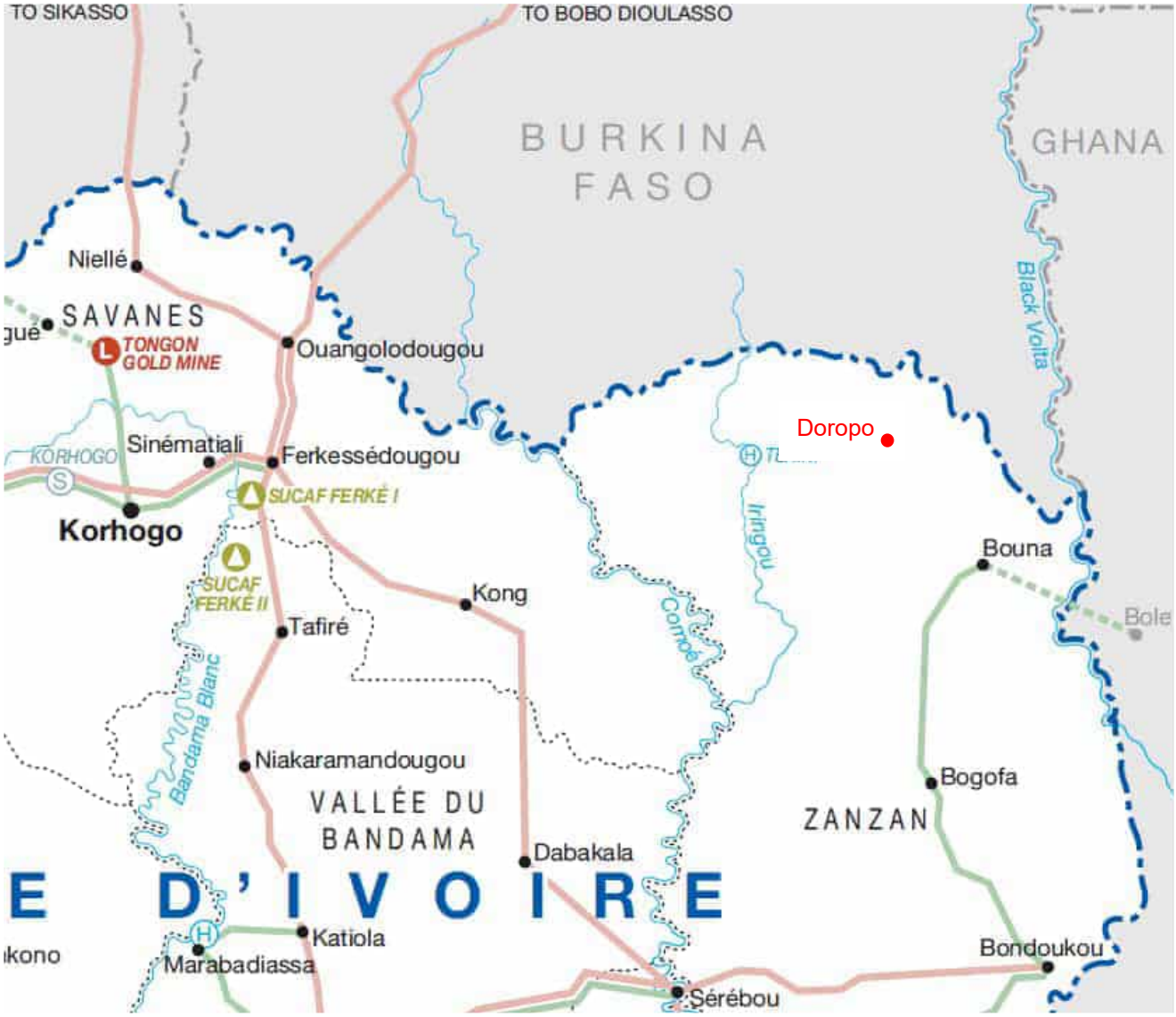


Figure 4 - Bouna Substation in relation to the Doropo Project Site

The Bouna Substation is fed via a 90kV transmission line from the 225/90kV Bondoukou Substation.

The Power System Master Plan contains a future connection between the Bouna Substation and the Bole Substation in Ghana which is part of a 161kV ring main system around the country where various sources of generation are connected and being a ring main offers a great deal of redundancy.

This planned interconnection from Bouna to Bole is expected to be completed end 2026.

4.2 Grid Connection

The following map shows Bouna Substation and the proposed Doropo Substation with a direct connection being approximately 55km.

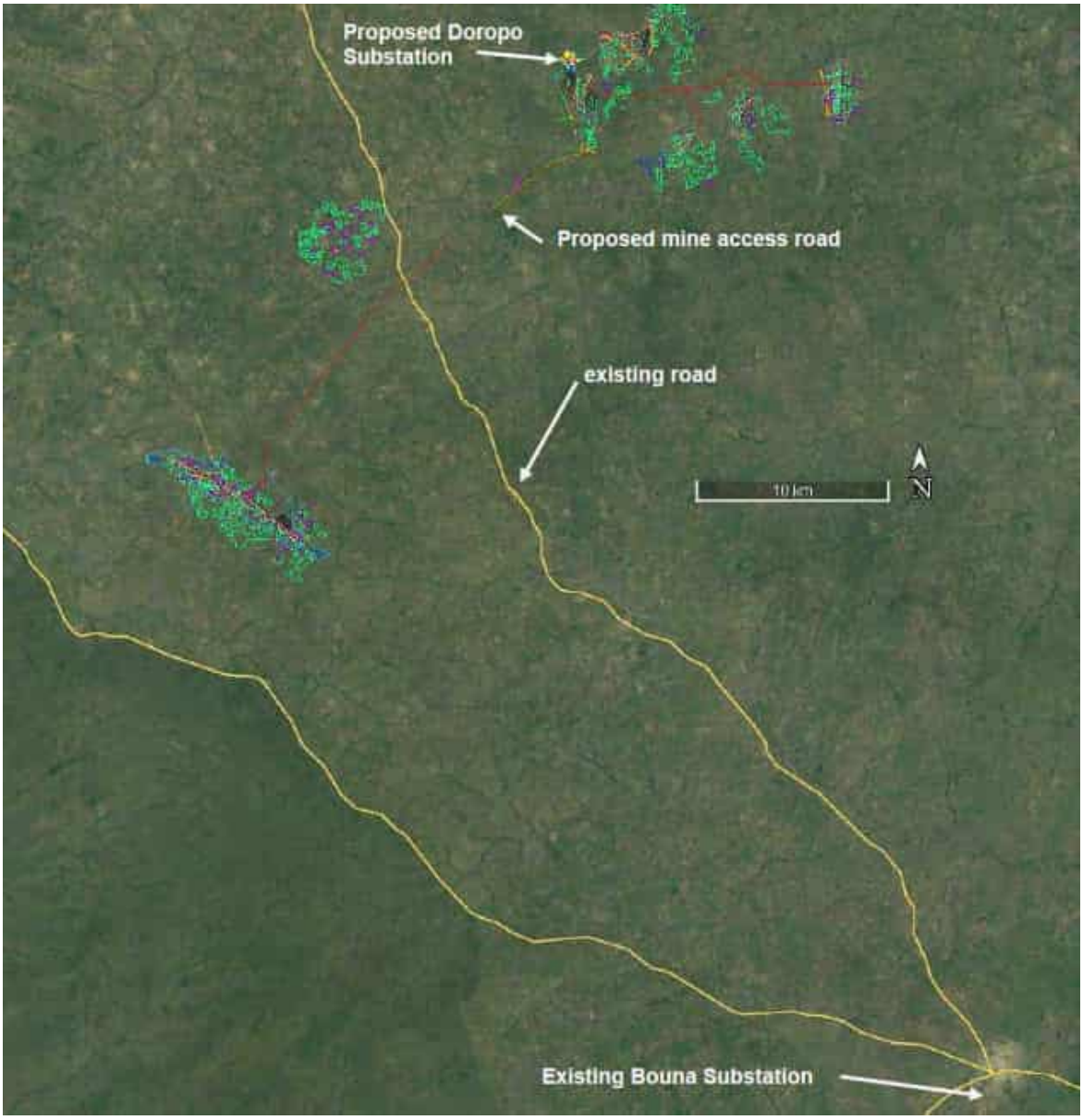


Figure 5 - Location of the Doropo mine site and Bouna Substation

The following sketch shows the proposed grid connection.

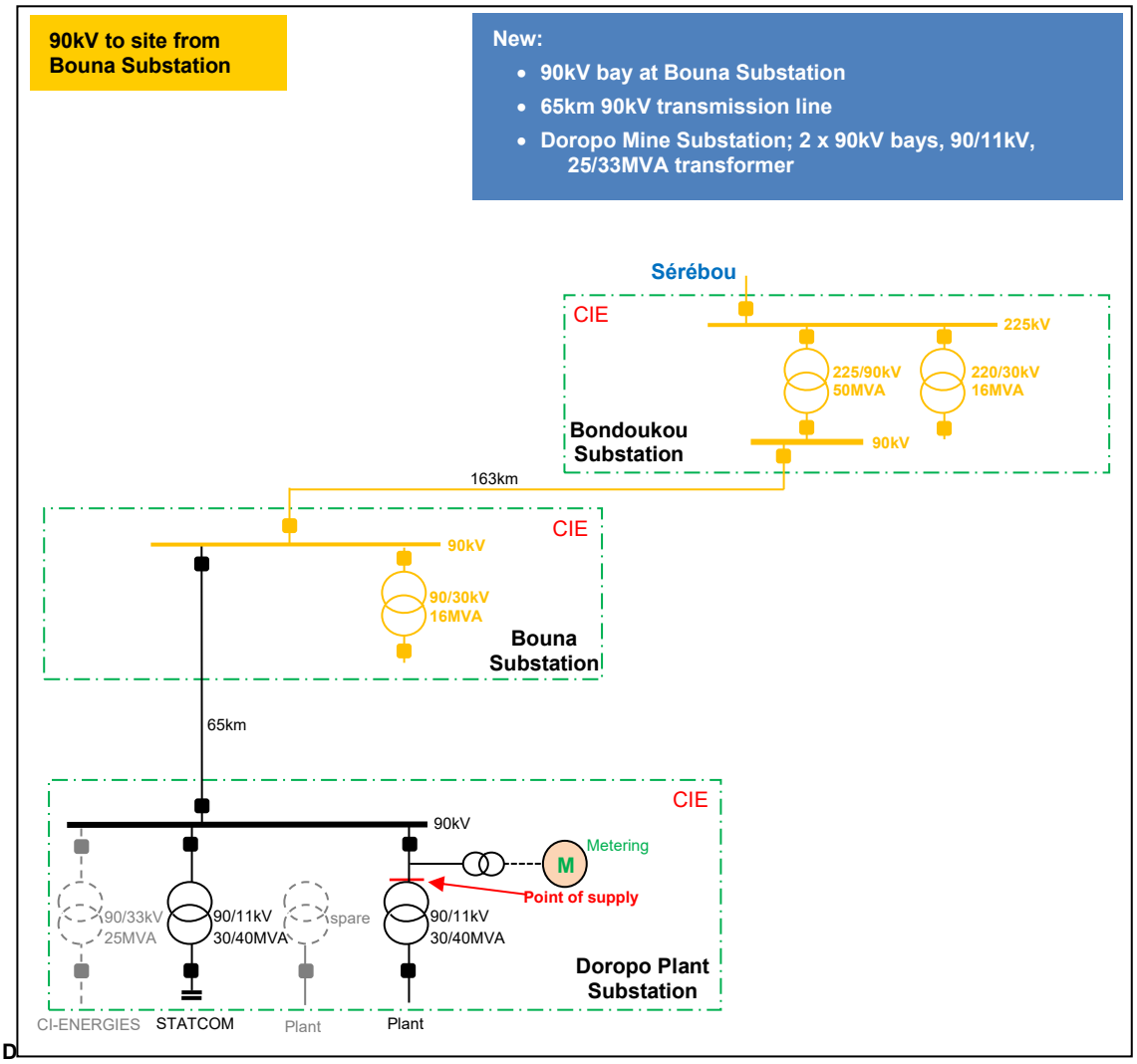


Figure 6 - Grid Connection Sketch

The work involves the extension of the Bouna Substation by extending the existing 90kV bus, adding a 90kV transmission line feeder, construction of 65km of 90kV single circuit lattice tower transmission line, and constructing a substation at Doropo site. The Doropo Plant Substation would be owned and operated by CIE and Doropo mine would take a 90kV tariff metered feeder, installing a 90/11kV transformer in their substation and taking an 11kV feeder to the Plant Main 11kV Switchboard.

The point of supply and point of change of ownership is the primary 90kV terminals of the 11kV transformer. This is the point of the tariff metering.

In addition, a dedicated transformer for the reactive power compensation STATCOM is provided.

Space only will be provided for a spare Plant transformer and a transformer for CI-ENERGIES.

The alignment of the transmission line as proposed for the initial survey investigation is as per the following maps:



Figure 7 – Bouna Substation; red line existing 90kV line; white line proposed

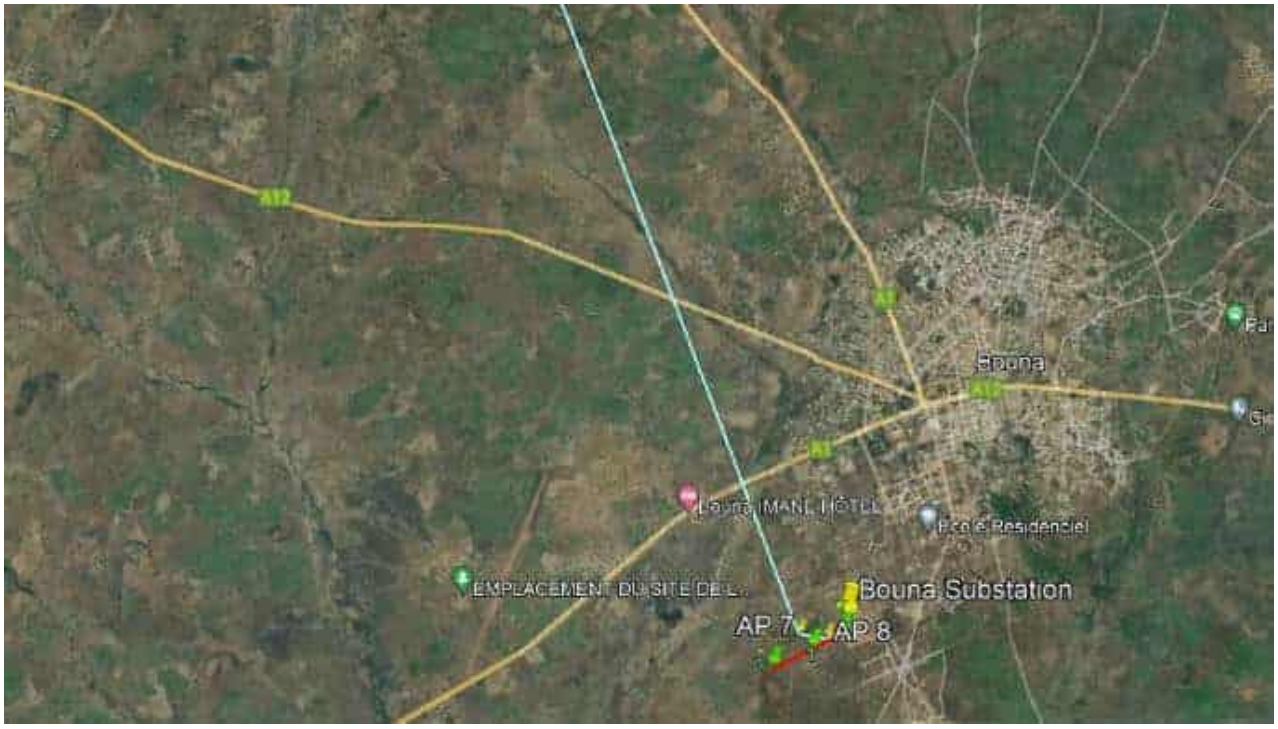


Figure 8 – Bouna Substation; proposed exit and clear airstrip

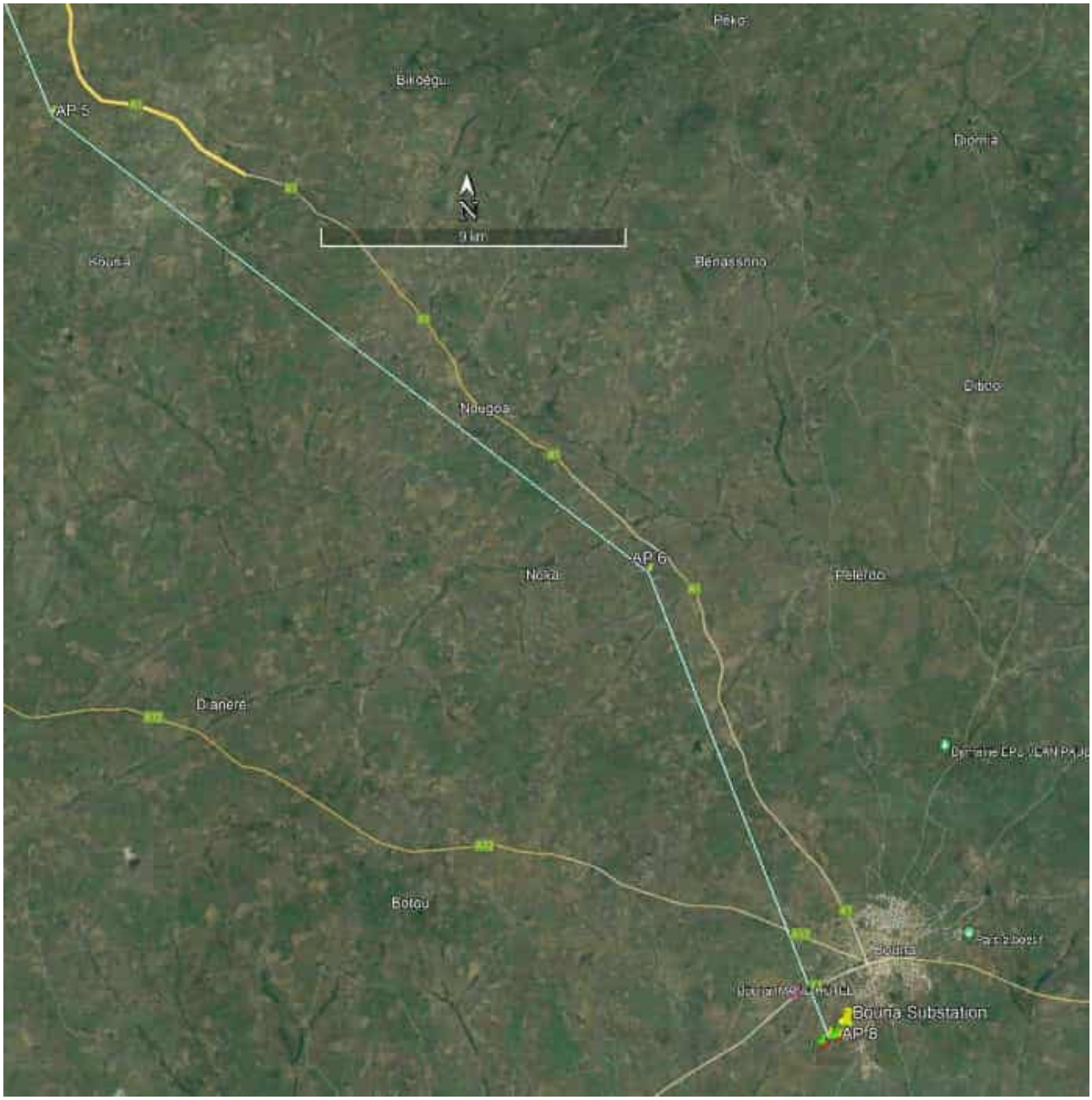


Figure 9 – Alignment to follow existing road and cross the proposed Haul Road at AP6

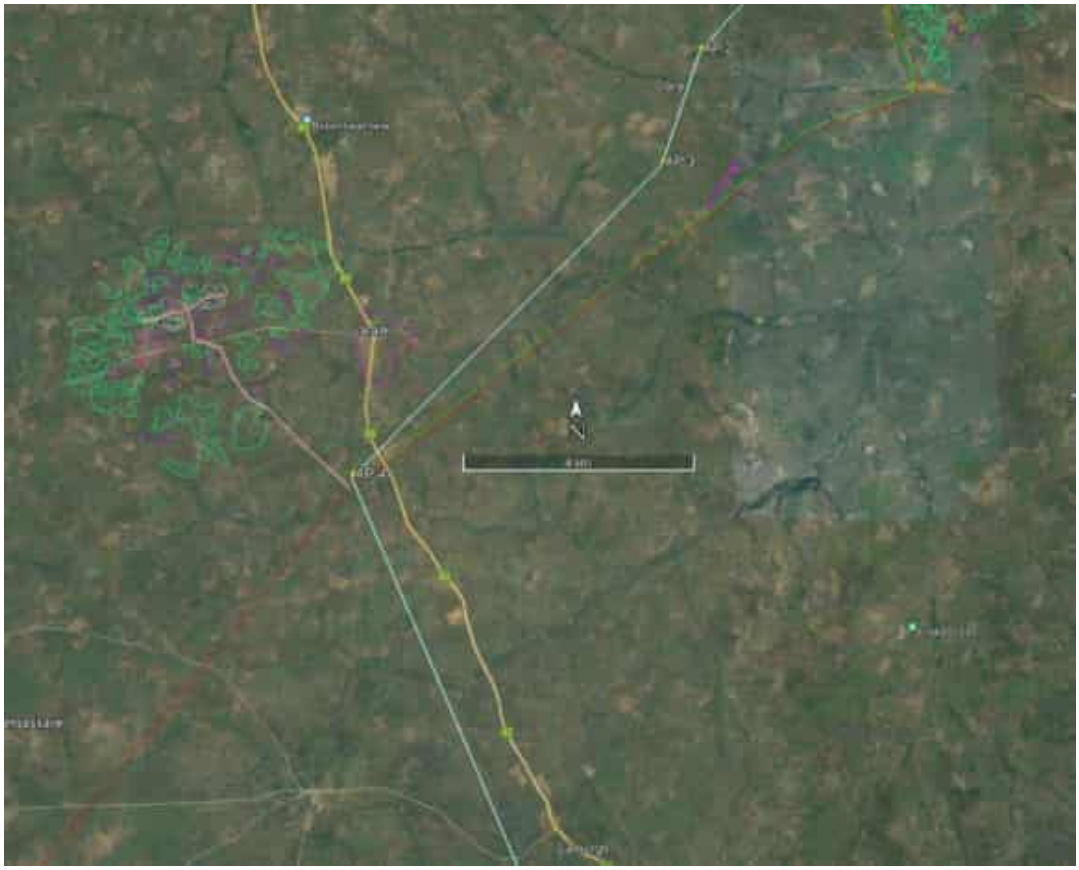


Figure 10 – Alignment towards the mine and clearing the proposed Doropo Airstrip



Figure 11 – Alignment entering the mine site area

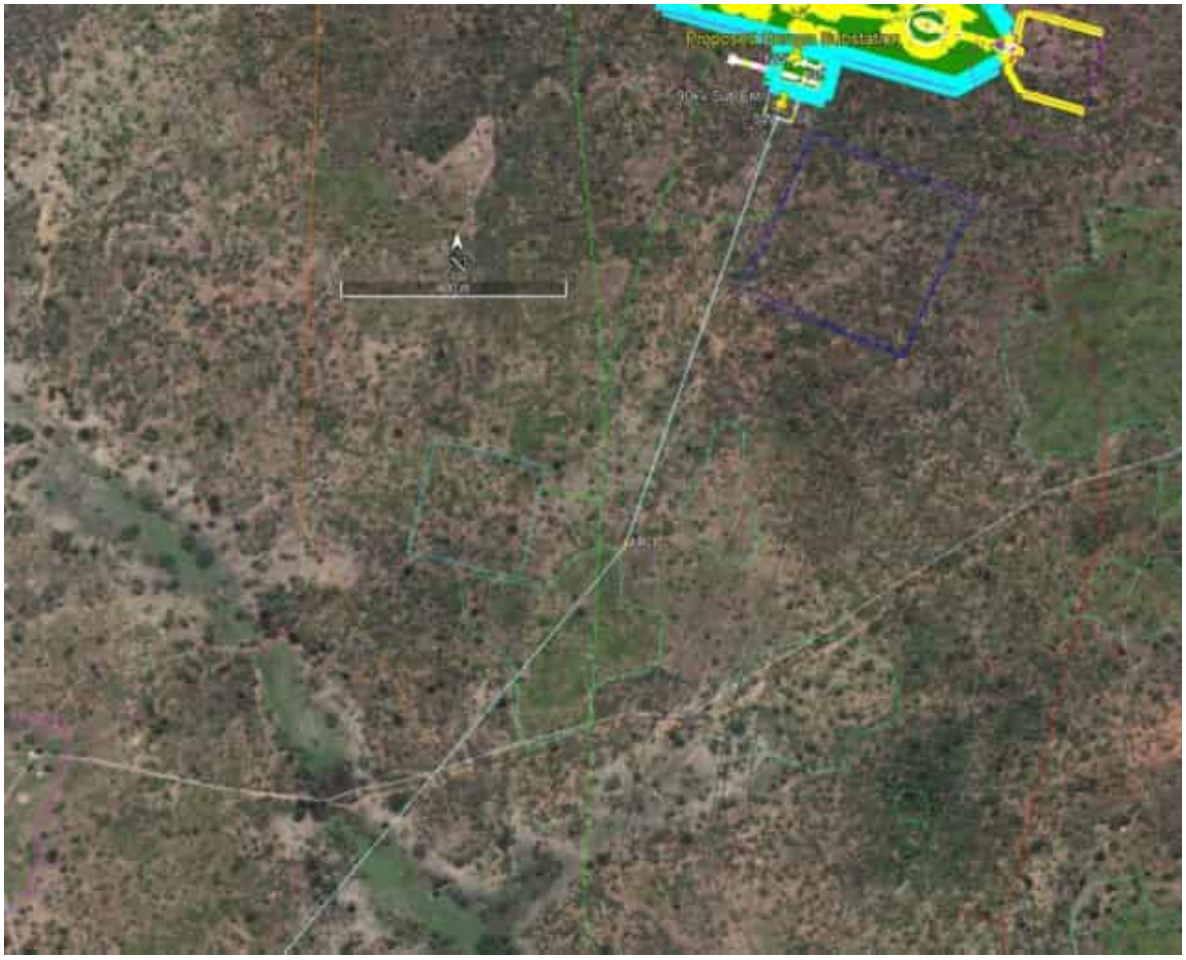


Figure 12 – Proposed Doropo Substation

Appendix B includes a drawing of the alignment.

There is also a village that will be relocated. Holidouo Village is to be relocated with the following inhabitants:

- 37 households
- Average size of each household 8
- Total population 294

5 Electricity Sector in Côte d'Ivoire

5.1 Introduction

5.1.1 Power Reliability and Quality Concerns

There are concerns with the power reliability and quality that they may receive once connected to the electricity grid given that many other mining companies have been forced to install embedded generation within their operations due to poor reliability of the power.

ECG has worked with CI-ENERGIES in their modelling of the power system and are waiting for a final Power System Study report which ECG understands will report on a secure connection and reliable power will exist with certain compensation requirements. In the meantime, ECG has been obtaining information on the status of the grid and met with senior CI-ENERGIES management in October 2025 to further understand the situation in country.

5.2 The Electricity Sector in Côte d'Ivoire

5.2.1 Key Stakeholders

CI-ENERGIES is a public company that has been responsible since 2011 for:

- System planning and investment;
- Demand forecasting;
- Management of development projects;
- Managing the electricity sector's assets and owning the sector's assets since 2017 (power plants, lines, substations)
- Managing cash flows and maintaining the financial balance of the electricity sector
- Producing electricity since November 2017

CIE is a private company that has held a state concession agreement since 1990 (renewed in 2005 and 2020) and is responsible for:

- Transmission, distribution, and export of electricity;
- Operating the power plants made available by the state;
- Technical and commercial management of the Ivorian electricity system

ANARE-CI is the Regulator and has been an independent authority since 2016 (succeeding ANARE) and is responsible for:

- Monitoring compliance with laws and regulations, as well as obligations or agreements in force in the electricity sector;
- Preservation of the interests of users of the public electricity service and the protection of their rights;
- Settlement of disputes in the electricity sector;
- Proposing to the State the tariffs applicable in the electricity sector

5.2.2 Master Plans

CI-ENERGIES are responsible for regular updates of the Power System Master Plans including:

- Master Plan for Production and Transport Facilities
- Distribution Master Plan
- Master Plan for Automation and Remote Control
- Rural Electrification Master Plan

These Master Plans aim to improve the service quality to customers on the grid, keep pace with the growth in demand, strengthen interconnections and strengthen generation and the energy mix and specifically:

- Reduce the probability of loss of load from 400hr/year in 2011 to 24hr/year in 2030
- Increase the proportion of renewable energy in the electricity mix from 37% in 2011 to 42% in 2030
- Increase the national coverage rate from 33% in 2011 to 79.6% in 2030.
- Increase national generating capacity from 1,391MW in 2011 to 4,663MW in 2030

5.3 Overview of the Electricity System

5.3.1 Generation

The following Table 1 shows the current installed power within the CIE network.

Table 1 – Generation capacity

Plant type	Installed power (MW)	Portion By MW
Hydroelectric	879	39%
Thermal	1 350	61%
Total	2 229	100%

Since 2011, the generation has increased by 838MW or approximately 60%.

5.3.2 Growth in generating capacity from 1960 to 2030

Côte d'Ivoire's power generation capacity has grown substantially since 1960 and is forecast to continue increasing through 2030.

- Installed capacity: Rose from 1,391 MW in 2011 to 2,229 MW in 2024 — a 60% increase.
- The growth is driven by ongoing expansion in thermal (gas), hydro, and renewable power, strengthening the CIE (Compagnie Ivoirienne d'Électricité) network.
- The country aims to maintain its role as a regional energy exporter while meeting rising domestic demand

Figure 13 shows the forecast growth in the generation capacity on the CIE network up to 2030

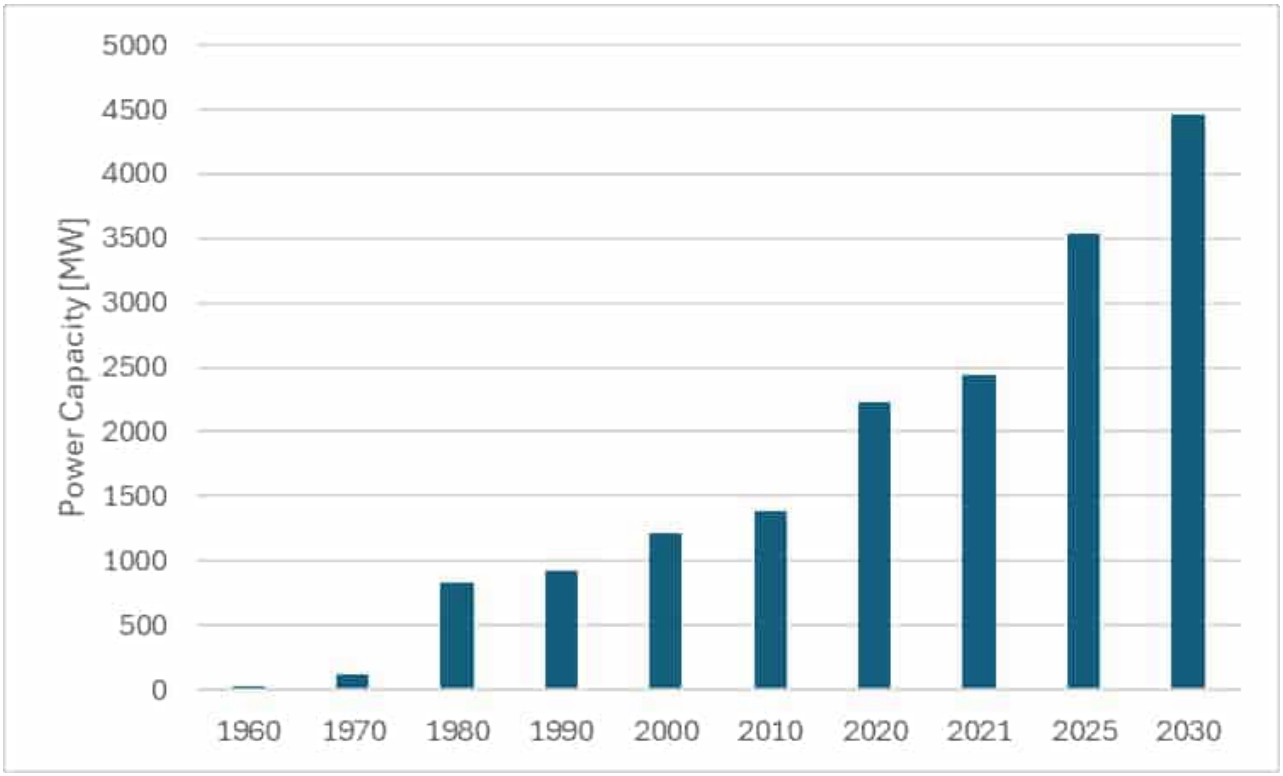


Figure 13 – Growth in generation capacity

5.3.3 Evolution of the electricity mix from 1960 to 2030

Côte d'Ivoire has diversified its energy sources from primarily hydro in the 1960s to a mix dominated by thermal (gas) and renewables by 2030. The power system shows rapid modernization, improved reliability, and near-universal electricity access by 2024. Table 2 summarises the key indicators over the last 15 years.

Table 2 - Improvement and growth in network

Indicator	2011	2024	Change	%
Installed capacity	1,391 MW	2,229 MW	+838 MW	+60%
Gross generation	6,028 GWh	11,204 GWh	+5,177 GWh	+86%
Peak load	925 MW	1,545 MW	+620 MW	+67%
Electrified localities	2,847	6,781	+3,934	+138%
Access rate	74%	98%	-	+24 %
Customers	1.1 M	2.9 M	1.8 M	+162%
Network efficiency	71%	82.5%		+11 %
Average outage time	47 h	16.4 h	−30.6 h	−65%

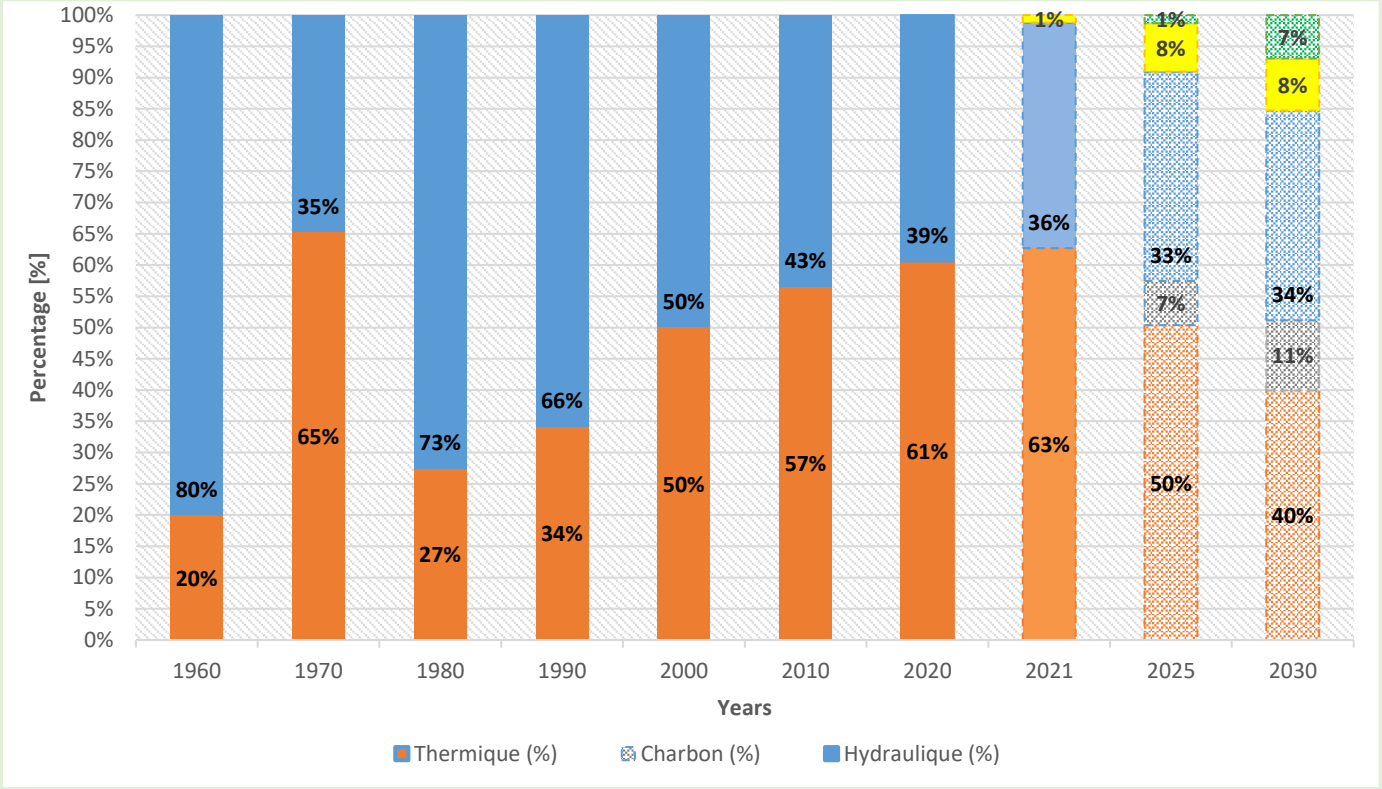


Figure 14 - Forecast electricity mix

Table 3 - Overview of the electricity system 2011 to 2024

Items	2011	2024	Variation 2011-2024	
			Quantity	%
Total Installed Capacity (MW)	1 391	2 229	838	60%
Production brute RI (GWh)	6 028	11 204	5 177	86%
Peak load (MW)	925	1 545	620	67%
Gross consumption RI (GWh)	5 435	10 020	4 585	84%
Length of high-voltage line - HTB/ 400-225-90 kV (km)	4 446	7 090	2 644	59%
High Voltage Substations - HTB (Number)	45	65	20	47%
High voltage transformers - HTB (Number)	110	189	79	72%
Line length HTA (km)	19 581	26 163	6 582	34%
Electrified and committed localities (Number)	2 847	6 781	3 934	138%
Coverage rate (Number of electrified localities / Total number of localities)	33%	80%	46,2%	138%
Access rate (Population of electrified localities / Total population)	74%	98%	23,9%	32%
Clients (Number)	1 111 533	2 915 688	1 804 155	162%
Overall Yield	71%	82,54%	11	16%
Average outage time - TMC (Hours)	47	16,37	-30,63	-65%

5.4 Expansion Projects

The planned expansion projects are summarised in Table 4, Table 5, Table 6, Table 7.

- Strong scaling of utility-scale solar PV, supported by CI-ENERGIES and private partners.
- Solar PV is being expanded to ~40% of the national energy mix, with strong biomass potential.

- Solar conditions are very good in Côte d'Ivoire. Solar energy production technologies have seen a sharp fall in costs over the past 5 years and as a result, solar energy projects are becoming increasingly competitive.
- Major funding and programs are strengthening the national grid and access to electricity across the country.
  - Exim Bank of China: 500 rural electrifications, 1,681 km of 225/90 kV lines, 11 substations
  - World Bank: 225 kV substations, rural electrification (200 localities), transformer upgrades
  - AFD (France): Network extension in 12 capitals, rehab of Buyo hydro plant (165 MW)
  - AfDB (BAD): Electrification of 252 localities, substation upgrades, Soubré–San Pedro 225 kV line
  - EU (FED/BEI): Rural electrification (1,500 localities), renewable energy and energy efficiency
  - BOAD, KFAED, Spanish Fund, KfW (Germany): 400 kV Abidjan loop, Boundiali solar, new substations, grid reinforcement

Table 4 – Thermal Generation

Central	Installed Power (MW)	Commissioning
AZITO IV (TAG+TAV)	253	2023/2024
CIPREL V (TAG+TAV)	390	2024
Total CT	**643**	

Table 5 – Hydro Electric projects

Central	Installed Power (MW)	Commissioning
Barrage de Singrobo-Ahouati	44	2023
Barrage de Gribo-Popoli	112	2024
Barrage de Boutoubré	140	2028
Barrage de Louga 1	110	2031
Barrage de Louga 2	100	2032
Total GH	ENVIRON + 500	

Table 6 – Solar Projects

Central	Location	Installed power (MW)	Commissioning
CI-ENERGIES	Boundiali	30	2022
Korhogo Solaire	Binguébougou	20	2023
Poro Power	Korhogo	50	2023
Biotherm	Ferkessédougou	20	2023
Avaada	Odienné	20	2023
Africa - VIA	Kong	30	2023
Centrale flottante	Kossou	20	2023

Central	Location	Installed power (MW)	Commissioning
Scaling Solar	Touba - Laboa	60	2025
Project to be developed	*Sérébou*	*25*	2025
Project to be developed	*Bouna 1*	*25*	2026
Project to be developed	*Bouna 2*	*25*	2027
Project to be developed	*Dabakala*	*25*	2028
Project to be developed	*Bondoukou*	*20*	2030
Total SOLAR		**370**	

Table 7 – Renewable projects

Central	Installed power (MW)	Commissioning
SOLAIRE	370	2020-2028
Grosse HYDRO	552	2021-2028
Centrale BIOVEA Biomas	46	2025-2030
Centrale Coton Boundiali	25	2025-2030
Centrale Cacao Gagnoa	20	2025-2030
Mini HYDRO	69	2026-2030
Total	**1 302**	

Côte d'Ivoire has a large biomass resource with an estimated potential of 12 million tonnes per year corresponding to an electrical capacity of over 500 MWe.

Table 8 – Planned projects

Funder	Program	Description of Works
Exim Bank of China	Rehabilitation of the Côte d'Ivoire Electricity Grid (PRODERCI)	Electrification of 500 rural localities/Construction of 945 km of 225 kV network/Construction of 736 km of 90 kV network/Construction of 6, 225 kV substations/Construction of 5, 90 kV substations/Refurbishment of 15 existing 90 kV and 225 kV substations
World Bank	Electricity Transmission, Distribution and Access Project (PTDAE)	225 kV substation at Gagnoa, Yopougon 1, Treichville and Bia-Sud/Supply and installation of transformers at Kossou, Ferké, Man, Abobo and Taabo/Undergrounding of overhead HV networks in Abidjan/Replacement of CPI cables in CIS/Electrification of 200 rural localities
AFD	Agence Française de Développement programme	Electrification of 200 rural localities/Extension and reinforcement of distribution networks in 12 regional capitals/Rehabilitation of the BUYO hydroelectric power station (165 MW)
BAD	Transmission and Distribution Network Reinforcement Programme (PRETD)	Electrification of 252 rural localities/Restructuring of the Bingerville, Duékoué and Zagné MV networks /Bingerville, Duékoué and Zagné 225 kV substation/Doubling of the Soubré - San Pedro 225 kV line/Extension of the Soubré and San Pedro 225 kV substations
FED	Programmes ENERGOS1-UE	Extension and reinforcement of distribution networks at Abidjan, Bouaké, San Pedro /Branchement sociaux/Appui institutionnel
BEI	ENERGOS1-BEI programmes	Construction of the Yamoussoukro dispatching centre/Extension and reinforcement of distribution networks in Abidjan, Bouaké and San Pedro/Street lighting: 74,000 EP households replaced by LBCs
BOAD	Programme BOAD	225 kV source substations Azito, Djibi, Bingerville, Anani, Yopougon 3/90 kV source substations Anoumanbo, Grand-Bassam/90 kV link Yopougon 1-Yopougon 2/Extension of distribution networks in Abidjan/Securing source substations and HV networks in Abidjan/Rehabilitation of the Bingerville feeder and Eloka ring road
KFAED	Programme Koweitien	Construction of a 90/33 kV substation (2 x 50 MVA) in Adzopé /Construction of the Agboville - Adzopé line (52 km)/Extension of the Agboville substation /HV extension in Adzopé
Spanish Fund	Spanish programme	Construction of the 225/33 kV Abobo-Anyama substation . Extension of the Abobo distribution network/Public lighting Capacity building, supervision and project management
UE	Programme ENERGOS2-UE	Renewable Energies/Rural Electrification of 1500 localities and access to electricity/Energy Efficiency Capacity Building, Studies and Project Management
AFD	Promoting Access, Intelligent Networks and Solar Energy (PARIS)	Construction of a floating solar power plant in Kossou/Construction of 3 Regional Distribution Pipeline Centres in Abidjan, Bouaké and Daloa/Extension of distribution network in rural areas/Social connections Support, Capacity Building, Studies and Contingencies
KfW	Abidjan 400 kV loop	Construction of a 400 kV Bingerville - Akoupé Zeudji double-circuit line (50 km)/Construction of the 400/225 kV Bingerville substation equipped with two 400/225 kV 350 MVA transformers/Extension of the 400 kV Akoupé Zeudji substation
	Programme KfW	Construction of the Boundiali solar power plant

CI-ENERGIES works alongside the Ministry of Mines, Oil and Energy (MMPE), represented by the Directorate General of Energy (DGE), for all technical, economic and financial analyses of projects in the Ivorian electricity sector

6 Power Quality

ECG has been working alongside CI-ENERGIES to resolve the requirements at Doropo to ensure the supply meets with the technical performance parameters for reliability and power quality. ECG are waiting for the final CI-ENERGIES report to be received, however ECG conducted a workshop with CI-ENERGIES in July 2025 to model the network and the load requirements at Doropo. ECG expect the outcomes of the CI-ENERGIES final report to be consistent with the outcomes of the power system modelling undertaken in Dubai. The outcomes of the assessment are summarised as follows:

- **Load Flow Assessment**
  - Initial (uncompensated) load flow simulations failed to converge, showing severe voltage drops due to the Doropo MW load. This indicated that Doropo cannot be connected without reactive power support.
  - A STATCOM (Static Synchronous Compensator) was introduced in the model to stabilize the 90kV bus voltage.
- **Reactive Power Compensation Requirement**
  - The workshop determined that at least ~25 MVAr of reactive compensation is required.
  - The STATCOM controller was configured to regulate Doropo's 90 kV busbar to 1.0 p.u.
  - With the STATCOM in place, voltage levels were successfully maintained within acceptable limits, eliminating the previous instability.
- **VSD Mill Start-Up Analysis**
  - During start-up, the process plant draws 14 MW, and the STATCOM injects ~10 MVAr to hold 1.04 p.u. at the 90 kV bus.
  - As the VSD mill ramps from 0 → 8 MW, the STATCOM output rises from 10 MVAr to 23 MVAr, dynamically stabilizing voltage.
  - Outcome: Voltage fluctuations were minimal, confirming that the 25 MVAr STATCOM adequately supports both steady-state and transient operation.
- **Overall Findings**
  - Doropo requires reactive compensation to maintain network stability and enable grid connection.
  - The recommended solution is a STATCOM (≈ 25 MVAr) installed at the Doropo 90 kV bus.
  - With compensation, grid connection is technically feasible and supports both steady-state operation and mill start-up conditions.

The agreed next steps for CI-Energies are to prepare an updated Doropo grid connection report, integrating:

- Dubai ECG workshop results;
- The 2030 network forecast; and
- Planned transmission upgrades from 2026 onwards.

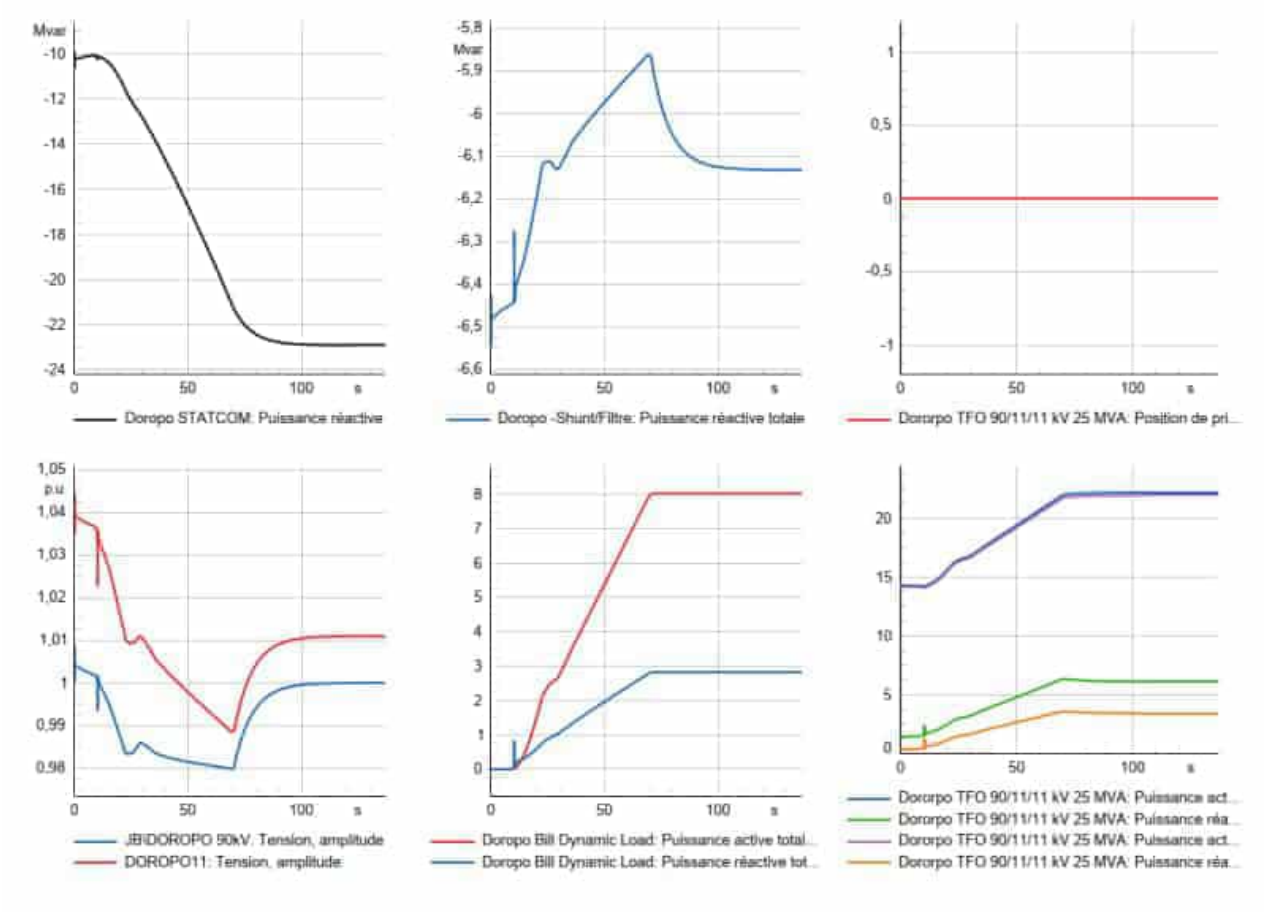


Figure 15 - Doropo Mill Start results with STATCOM

7 Grid Connection Cost Estimate

7.1 Technical Comments

The 90kV supply at Bouna should have an availability greater than 99% as has been evident from experience on this network. Power quality is reasonably predictable by modelling the network and given that this load is a long way from generation sources, power quality and is taken care of by installing a STATCOM at the minesite.

The recently constructed 90kV transmission line from Bondoukou to Bogofa and Bouna is lightly loaded. The supply at Bondoukou is from the 225kV network and is part of a ring-main system which is very reliable.

Further reinforcement is expected in 2027 when the Bouna to Bole Substation in Ghana is completed. This is a 90kV interconnection to Ghana and the connection at Bole Substation is part of the Ghana 161kV interconnected network and is very reliable.

CI-ENERGIES are yet to complete a load flow study before confirming our findings, however indications to date are that this connection is feasible.

System generation has been the issue in recent years with multiple failures of generators earlier this year, and in the past mining of the hydro dams has been a problem however this practice has been eliminated according to CI-ENERGIES by better control of dam levels.

The total outage time for any customer at 90kV or above has significantly reduced between 2011 and 2024 with a reduction to about 16 hours/yr a reduction of over 30%. Disruptions including load shedding at 90kV and 225kV were encountered in early 2025 when two major machine failures occurred concurrently and customers with embedded generation were asked to run their machines in the afternoons when the load was high. This situation continued for approximately 2 months but the network has fully recovered and there is presently a surplus of generation in the network.

There are component failures within any electricity network, and the effect of these can be somewhat mitigated with the augmentation of the network with additional sources of generation and the addition of renewable energy generation both of which are in the Master Plan and some are well developed. Interconnections with other countries also mitigate the effect of single failures. In the past the mining companies have faired well during load shedding situations particularly those without embedded self-generation as these are important and major sources of income to the Government of Côte d'Ivoire.

7.2 Commercial Comments

There is only one grid connection option, and that is the connection as described above.

The following table shows the cost for the selected 90kV connection option.

Table 5A – Substation and Transmission Line Capital Cost Breakdown

Item	90kV single circuit	
	Qty	Cost US$000
Sending-end Bouna Substation		
Extend Bus	1	$250
90kV bay	1	$1,350
SCADA	1	$550
Subtotal		***$2,150***
Transmission Line		
90kV Transmission Line	65km	$11,050
Compensation	65km	$2,275
Clearing	65km	$1,300
Subtotal		***$14,625***
Receiving-end Doropo Substation		
90kV bay	3	$4,050
11kV bay	2	$540
Transformer Plant	1	$950
Aux transformer	1	$65
Metering	1	$50

Item	90kV single circuit	
	Qty	Cost US$000
Communication	1	$650
STATCOM including transformer and switchgear	1	$5,810
Building, yard, fencing	1	$780
Subtotal		***$12,895***
Capital Cost		**$27,520,000**

Note a spare Plant transformer and a CI-ENERGIES transformer are excluded. Room is provided only.

7.2.1 Capital Cost Estimate

A summary of the capital cost estimate, in US dollars (US$), for the electricity grid connection option is presented in Table 9. Estimates are as of quarter four 2025, and to a nominal accuracy of -5% - +15%.

Table 9 - Grid Capital Cost Breakdown

Item	Description	Estimate (USD$)
1	***EPCM***	
1.1	Project Management	133,920
1.2	Site Meetings & Reporting	189,600
1.3	Engineering Design Overview	186,240
1.4	Site Supervision	358,411
1.5	Site Administration	67,548
1.6	Commissioning Assistance	115,660
1.7	Document Translation	20,000
1.8	FAT	50,000
1.9	Survey & Transmission Line Design	231,900
1.10	Tower Pegging	31,120
	Subtotal EPCM	***1,384,399***
2	***Substations and Transmission Line***	
2.1	Transmission Line	11,050,000
2.2	Bouna Substation	2,150,000
2.3	Doropo Substation	12,895,000
	Subtotal Substations and Transmission Line	***26,095,000***
3	***Other***	
3.1	Customs clearance	300,000
3.2	ESIA Consultant	390,000
3.3	Compensation	2,275,000
3.4	Clearing of powerline, tower sites, access roads	1,300,000
3.5	Spares	200,000
3.6	CI-ENERGIES & CIE fees	1,100,000
3.7	FAT	50,000
3.8	Contingency	Not included
	Subtotal Other	***5,615,000***
4	***33kV***	

Item	Description	Estimate (USD$)
4.1	Holidouo Village connection	284,000
4.2	33kV line to new village site (2km)	225,000
	Subtotal 33kV	***509,000***
	Total	**$33,603,399**

A 5% contingency is recommended

7.2.2 Basis of estimate

The estimate has been prepared on the following basis:

- ECG Engineering will carry out the design of the transmission line.
- Quotations were received for major equipment.
- The bulk electrical items were assessed by a take-off of quantities and applying established industry rates and in some cases, factored estimates were used applying known costs from previous projects.
- Engineering services estimates are based on man-hours per area. Hours for engineering and drafting are based on an assessment of the work content, the number of drawings involved, and ECG's in-house data base for similar projects.
- Site supervision and construction management are based on the estimated installation hours and durations to match the overall installation schedule.
- Freight and road transport is included.
- Major equipment is priced as CIF Site. Duties and taxes are excluded.
- WHT has not been allowed on ECG services.
- Accuracy of estimate is -5% - +15%.

7.2.3 Qualifications

The following clarifications should be noted.

- The following is excluded from the scope of work and cost estimate:
  - Government approvals and interface with the authorities other than CI-ENERGIES;
  - Any required work permits and associated costs;
  - In-country taxes, import duties ($300k only allowed for customs clearance);
  - Accommodation for expat construction workers and site office;
  - Crane for unloading of trucks at Doropo site;
  - Construction all risk insurance.
- The proposed Doropo Substation size will be approximately 100m x 100m and this area is assumed to be provided as cleared and compacted. Bulk earthworks are excluded.
- Factory acceptance tests have been allowed with CI-ENERGIES witnessing the Telecom and Control & Protection Panels only.
- The transmission line is estimated as single circuit only.

7.2.4 Operating Costs

The CIE standard tariff schedule for a mining load is the "Article 19 of the Interministerial N° 1355 amendment December 27th, 2023 High Voltage Long Utilisation Tariff". Below are the costs for the Doropo load in Côte d'Ivoire:

Table 10 - Operating Cost Breakdown

Component	HT Long Utilisation
Fee CFA/kW/yr	60,523.39
Energy Normal hours (0730 – 1930, 2300 - 2400) CFA/kWhr	67.53
Energy Peak hours (1930 – 2300) CFA/kWhr	85.78

Component	HT Long Utilisation
Energy Off-peak hours (0000 – 0730) CFA/kWhr	58.71
Rural Electrification Fee Fixed CFA/kW/yr	1,870
RTI Fee CFA/month	1,000

Note:
1. Power factor penalty pf<0.8
2. TVA 18% not included in variable energy costs above

Operating costs have been developed using the loading values provided by Resolute.

The following loadings have been used as the basis of costing:

- Connected load 33.0 MW
- Maximum Demand 26.6 MW
- Average annual demand 23.9 MW (at a load power factor of 0.95 lagging)
- Energy consumption 213 GWhr / yr (Crusher 4 GWhr / yr, Plant 209 GWhr / yr)

Using an exchange rate of USD$1 = 575 FCFA, this represents:

- Fixed premium (Max Demand) 60,523.39 CFA / kW / yr *$105.25 / kW / yr*
- Normal rate (0730hrs – 1930hrs, 2300 – 2400hrs) 67.53 CFA / kWhr *$0.1174 / kWhr*
- Peak rate (1930hrs – 2300hrs) 85.78 CFA / kWhr *$0.1492 / kWhr*
- Off-peak rate (0000hrs – 0730hrs) 58.71 CFA / kWhr *$0.1021 / kWhr*

Assuming that operations carry out the Crushing activities for 20hrs from say 0000hrs to 2000hrs then the annual power bill will be as follows:

- Fixed Premium (60,523.39 CFA/kW/yr*26.6 MW) 1,609,922,174 CFA / yr *$2,799,864 / yr*
- Rural Electrification Fee (1,870 CFA/kW/yr*21 MW) 39,270,000 CFA / yr *$ 68,295 / yr*
- RTI Fee (1,000 CFA/month) 12,000 CFA / yr *$ 20.9 / yr*
- 20hrs for Crushing, 4 GWhr/yr
  - [(7.5/24)*58.71] + [(12/24)*67.53] + [(0.5/24)*85.78] 53.90 CFA / kWhr *$0.09374 / kWhr*
  - x 4 GWhr 215,595,834 CFA / yr *$ 374,949 / yr*
- Plant, 209 GWhr/yr
  - [(7.5/24)*58.71] + [(13/24)*67.53] + [(3.5/24)*85.78] 67.44 CFA / kWhr *$0.1173 / kWhr*
  - x 209 GWhr/yr 14,093,958,541 CFA / yr *$24,511,232 / yr*

Total 15,958,758,549 CFA / yr ***$27,754,362 / yr***

Equivalent Rate ***$0.1303 / kWhr***

Note: if TVA is applicable to the tariff this will increase it to $0.1537 / kWhr

8 Solar Power

8.1 Solar PV Energy Production

The advantages and opportunities that solar offer to the power supply solution at Doropo are:

- Reduced grid electricity costs: the use of solar reduces the overall grid consumption. The operation and maintenance of PV arrays are fairly simple, with cleaning and weeding being the most onerous tasks, and the replacement of solar panels being done intermittently.
- Improved energy cost certainty – the cost of solar PV energy is consistent. The initial cost of the solar PV installation is certain, and the operation and maintenance cost are relatively inexpensive. The quantity of energy that the solar PV plant will produce is also able to be calculated relatively accurately (on an annual basis). This all reduces the energy cost risk for the Doropo operation as it minimises the impact of tariff price increases as a result of fuel price and exchange rate volatility in the international market.
- Reduction of emissions – the reduction in fuel consumed by the HFO power station with the use of solar PV power would reduce the environmental impact of the grid supply in terms of the emissions produced over the life of the mine. Additionally, if there are any carbon credit schemes or carbon emissions taxes in Cote d'Ivoire or West African in the future, the solar PV installation would be beneficial.

8.1.1 Modelling

The modelling of the solar energy production has been carried out using PVSyst.

8.1.2 Solar PV Array

The solar PV array has been modelled based on typical PV cell parameters. Assumptions:

- Temperature Coefficient: 0.5%/˚C (de-rated change in output for increases in cell temperature)
- Nominal Operating Cell Temperature: 45˚C
- Cell Efficiency at Standard Test Conditions: 16%
- Panel slope of 14-degrees is assumed – this is the optimal slope for the Doropo latitude.

The determining factor for selecting PV cells is the factory's production availability. There are several Tier 1 PV module manufacturers and all bidders approached have used a variety of Tier 1 suppliers, however the deciding factor is usually the ability to deliver to the project schedule.

8.1.3 Solar Irradiance

The solar irradiance has been modelled based on the NASA surface meteorological data for the Cote d'Ivoire Doropo site. This is summarized in Figure 9, which demonstrates that solar irradiance is relatively consistent throughout the year at Doropo.

Figure 17 illustrates the solar yield across Cote d'Ivoire, showing that the Doropo site is situated in a good locations within Cote d'Ivoire for solar PV, and above average solar yield can be expected

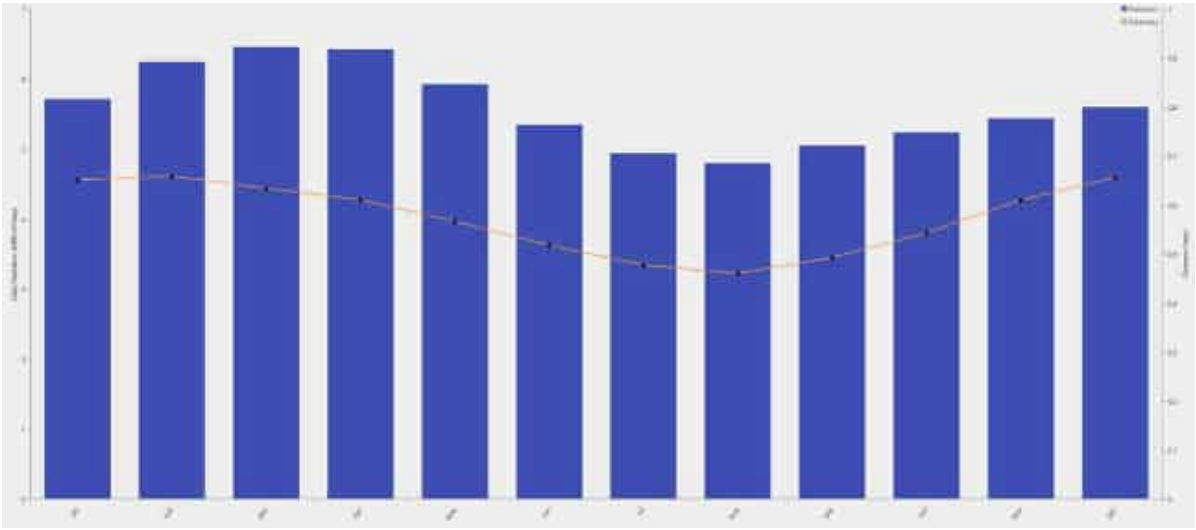


Figure 16 - Solar Horizontal Irradiance Data for Doropo

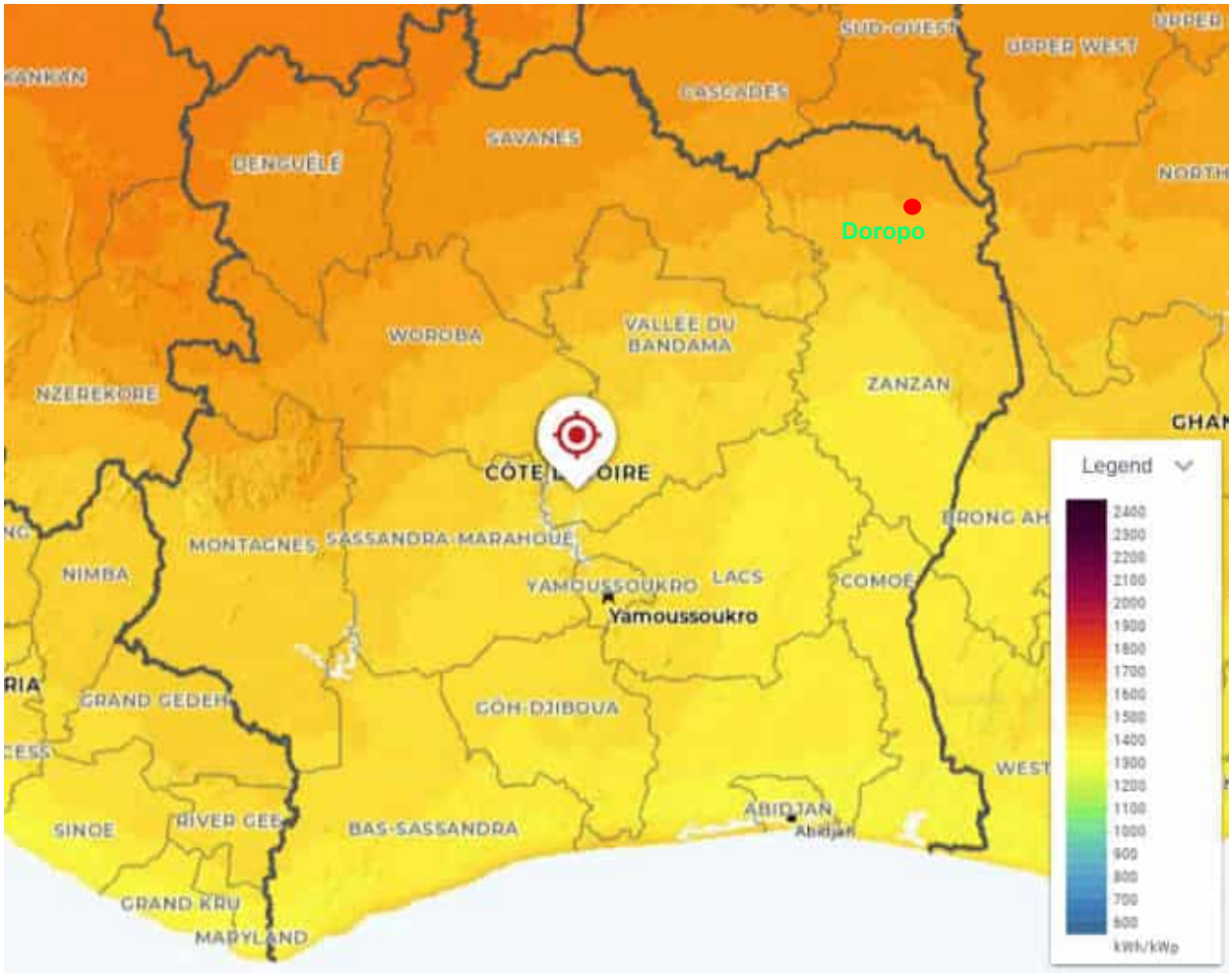


Figure 17 - Cote d'Ivoire Solar yield map with Doropo site

8.1.4 Temperature

The ambient temperature can have a significant impact on the performance of the solar PV array due to the derating effects of the PV cell temperature on the output. The ambient temperature has been modelled based on the NASA surface meteorological data for Cote d'Ivoire. This is shown in Figure 18 . This data represents the average 24-hour temperature, and the model automatically accounts for the natural variances (maximum and minimum temperatures) of the region, including maximum temperatures exceeding 40˚C.

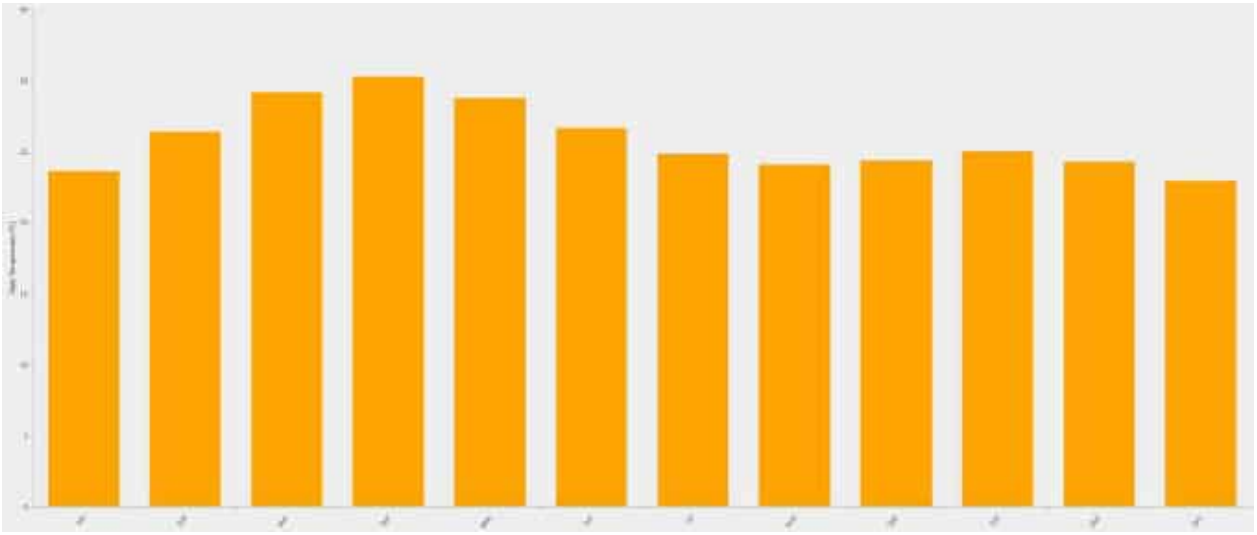


Figure 18 – Ambient temperature data for Cote d'Ivoire

The above data indicate that the temperature remains relatively consistent for most of the year, suggesting a stable yield throughout the year.

8.1.5 Losses

The inverter has been modelled with an efficiency of 95%. This is based on an assumed 2% loss across the inverter, 2% loss across the cable systems, and 1% loss across the transformer connecting the PV plant to the Doropo HV distribution system.

Solar PV cell performance deteriorates over time, with the industry standard being 0.4% deterioration per annum. The system has been modeled to match this over the past 10 years.

8.2 Solar Optimisation

Varying solar PV capacities and BESS capacities were modelled to determine the optimal sizing for the Doropo project. The results show that to achieve higher renewable fractions, higher levels of Battery Energy Storage is required. To achieve a renewable fraction of 50%, 90 MWh of battery storage would be required, which would cost approximately $30 million to implement.

Figure 19 illustrates the Levelized Cost of Energy (LCOE) for varying solar PV capacities for both the fixed-tilt and single-axis tracker options. The results show that the optimal level of solar PV for Doropo is around 31.5 MWp which corresponds to a renewable fraction of approximately 30%.

8.2.1 Grid-Solar Hybrid Operation

Solar PV operating in conjunction with the grid is common. The SENELEC network for a 90 kV connection would be sufficiently stable to compensate for fluctuations in solar PV generation without the need for dynamic compensation (e.g. batteries); hence, it is not required to have batteries for the grid-solar options.

8.3 Solar Production

Solar PV connected at Doropo will be unable to export back into the grid. This means during periods of low plant demand such as during plant shutdowns of unplanned outages on the mill, there will be some curtailment of the solar PV output. Table 6C summarises the estimated net solar production each month at Doropo with solar curtailment factored. The estimated total level of curtailment at Doropo with 31 MWp of solar PV is 4.8 GWhr which represents approximately 8.4% of the total solar production. For the Doropo demand, the solar PV would be capable of meeting up to The renewable fraction represents the fraction of energy delivered to the load by the solar PV facility, and over 12 months this is approximately 24.5%.

Table 11 – Summary of solar yield

Description	Value
Solar PV Capacity (MWp)	31 MWp
Solar PV Capacity (MWac)	24.8 MW

Description	Value
Solar Energy Production	56.7 GWh / year
Utilised Solar Energy (GWh)	51.9 GWh / year
Renewable Percentage	24.50%

8.4 Solar PV Layout

The layout for the fixed tilt and single-axis tracking options has been developed with the area requirements summarised in Table 12.

Table 12 - Solar PV area requirements

Description	Fixed Tilt	Single Axis Tracker
Capacity [MWp / MWac]	31.5 MWp / 26.25 MWac	31.5 MWp / 26.25 MWac
Land area	27.5 hectares	40 hectares
Solar Production [GWh]	50.6 GWh / year	58.3 GWh / year

8.5 Independent Power Producer

One commercial strategy available to Resolute for solar PV is to engage an Independent Power Producer (IPP) to finance, build, own, and operate the solar PV plant. Solar power would be sold to Resolute under a Power Purchase Agreement (PPA). Under the terms of the PPA, Resolute would be required to purchase a minimum energy quantity from the power provider at an agreed rate (tariff). In some cases the IPP may structure the charges such that there is fixed-component and variable-component to the tariff, however in Africa for solar PV it is typically a variable rate.

The advantage of an IPP is that Resolute can minimise the capital outlay required to build the solar PV plant and also leverage the experience of an IPP to operate and maintain the facility. The IPP is incentivised through the PPA to provide the maximum return on investment and maximise solar output, while also assuming the risk of the solar inverter and tracking system's availability and performance. The disadvantage of an IPP is that Resolute cannot fully realise the operating cost savings of the solar PV system due to the charges of the IPP which for solar PV is typically over 10 years.

The typical solar tariff rates in Africa for solar PV fall between the 7c to 9c/kWhr with the lower rates typically having an annual escalation applied.

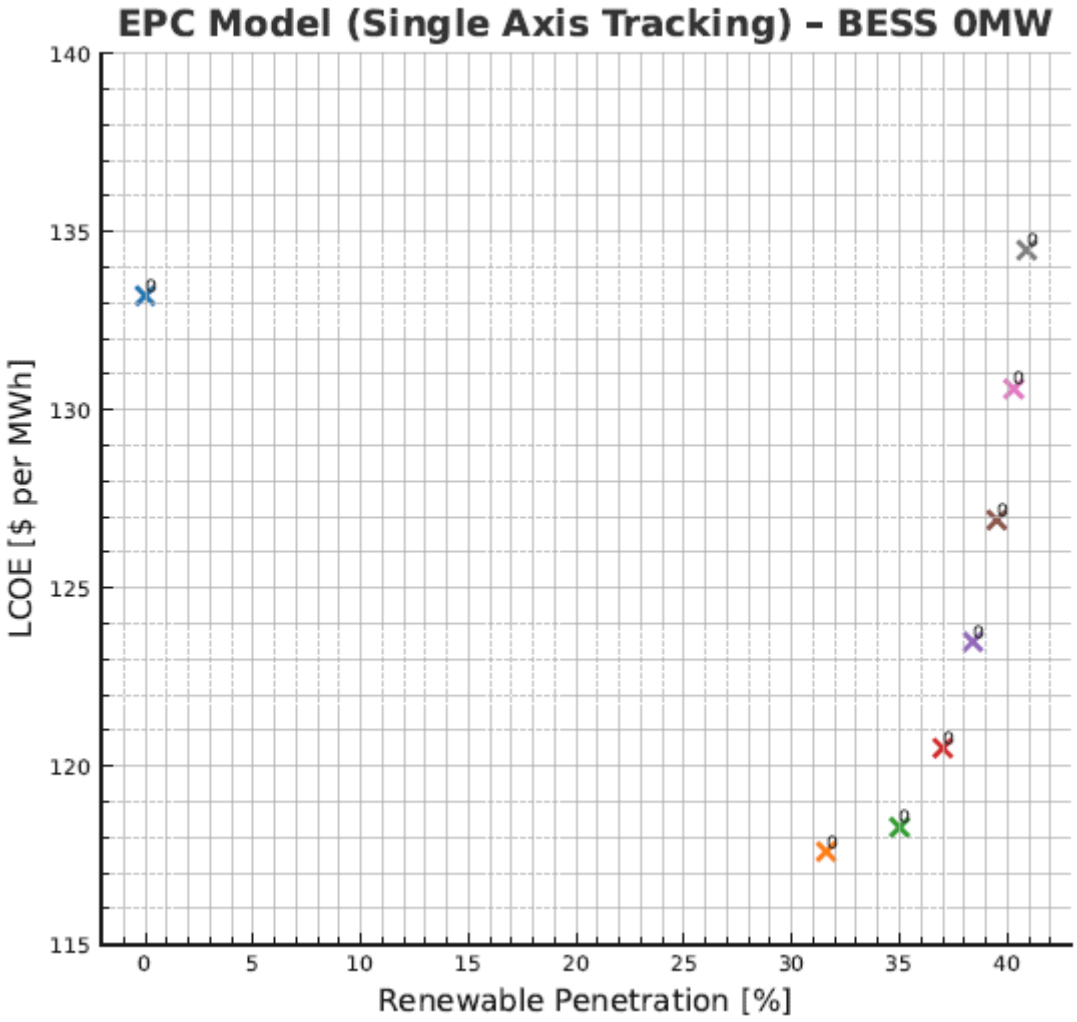


Figure 19 - Levelised Cost of Energy for varying solar and BESS capacities

8.6 Capital Cost Estimate

The capital cost estimates for the solar PV facility is based on the optimal sizing for lowest Levelised Cost of Energy (LCOE). The cost estimate for a 31.5 MWdc solar PV facility with single-axis tracking is summarized in Table 13.

The cost estimate is based on an EPC model for the execution, and includes:

- Engineering, design and project management.
- Civils, including allowance for pre-drilling and concrete foundations
- Detailed earthworks (including trenching)
- Cloud camera system and meteo stations
- Installation, commissioning and performance testing

The capital cost to build a solar PV facility at Doropo is $24.3 million for the fixed tilt option and $27.6 million for the single-axis tracker option. The fixed tilt option saves approximately $3.3M compared to the single-axis tracker.

Table 13 - Capital cost estimate - Single Axis Tracking

Item	Description	Qty	Unit Cost	Unit	Cost (USD$'000)
1	**EPCM**				
1.1	Engineering	1		lot	$457 k
1.2	Project Management	1		lot	$605 k

Item	Description	Qty	Unit Cost	Unit	Cost (USD$'000)
1.3	Site Supervision and Management	1		lot	$983 k
1.4	Geotech Investigation	1		lot	$100 k
1.5	Cold Commissioning, Hot Commissioning and Start-Up	1		lot	$165 k
1.6	Performance Testing	1		lot	$75 k
			Sub-Total:		**$2,385 k**
2	**Preliminaries and General**				
2.1	Laydown yard, workshop, offices,	1		lot	$405 k
2.2	Equipment - Vehicles, cranage, drill rigs	1		lot	$818 k
2.3	Mobilisation	1		lot	$250 k
			Sub-Total:		**$1,473 k**
3	**Civils**				
3.1	Internal Roads (Construction and Maintenance during the construction period)	3	$20,000	m	$60 k
3.2	Access (Construction and Maintenance during the construction period)	1	$50,000		$50 k
3.3	Fencing	1400	$75	m	$105 k
3.4	Platform Foundation for Cabins (Conversion Units, Transformation Cabins or Delivery/Parallel Cabin)	250	$750	m^3	$188 k
3.5	Site Area preparation works - Top Soil Removal (Mandatory for Roads and Platforms)	9500	$10	m^2	$95 k
3.6	Trenching for MV (Single Core Solution)	2085	$19	m	$39 k
3.7	Trenching for Data Cables for the trackers (Include all the Trenching for Tracker's Data Cables also if supplied and installed by Tracker's Contractor)	2250	$19	m	$42 k
3.8	Trenching for LV-AC Cables (from String Inverter to Transformation Cabin)	3770	$19	m	$70 k
3.9	Civil foundations - Tracker	1060	$750	m^3	$795 k
3.10	Construction of Drainage system	1	$255,518	lot	$256 k
3.11	Earthing (grounding) system (sizing depending on electrical study)	1	$194,388	M	$194 k
			Sub-Total:		**$1,892 k**
4	**Supply**				
4.1	Solar Cables, connectors excluded (sizing depending on electrical study)	232,000	$1	m	$320 k
4.2	33kV Switchgear	1	$450,000	Lot	$450 k
4.3	Containerised Switchroom	1	$125,000	Lot	$125 k
4.4	Solar Cables Connectors	3480	$1		$4 k
4.5	Solar Cables & Connectors Installation	232,000	$3	m	$647 k

Item	Description	Qty	Unit Cost	Unit	Cost (USD$'000)
4.6	MV/AC Power cable, connectors excluded (sizing depending on electrical study) - Single Core	10680	$31	m	$334 k
4.7	Terminals Connectors MV cable - Single Core	36	$460		$17 k
4.8	Fiber Optic	4170	$2	m	$7 k
4.9	LV/AC Power Cables (Single Core), connectors excluded (sizing depending on electrical study)	21585	$10	m	$217 k
4.10	Terminal Connectors LV/AC Cables	420	$18		$7 k
4.1	Cloud Camera System	1		lot	$250 k
4.1	Supply of Supporting Structures, including engines, electronic system and cables as per Standard distance from the Ground (50cm)	56,160	$40	W	$2,246 k
4.1	Supply of Communication Cables between control units trackers and its associated trackers	580	$41	Num	$24 k
4.1	Supply and Installation of Meteo Station	4	$31,016	Num	$124 k
4.2	Supply and Installation of the SCADA System & PPC (the communication cables from the CU to the trackers and from the cu	1	$117,393	Num	$117 k
4.2	PV Modules Supply	56160	$205	W	$11,513 k
4.2	Transformer Metal Cabinet	5	$166,842		$834 k
4.2	Supply of Amphenol male connector	1680	$13		$21 k
4.2	Supply of Amphenol female connector	1680	$11		$19 k
4.20	Controller box - Data loggers	7	$1,278		$9 k
4.2	String Inverter	75	$8,720		$654 k
4.2	Back-Up Materials (0.4 % of the total Supply)				$18 k
4.2	Back-Up String Inverter	4	$9,343		$37 k
4.2	Supply of Communication Cable between control units/shead trackers and its associated trackers	10	$48		$0 k
4.3	SCADA & PPC Spare Parts	1	$7,021		$7 k
426	Supply Spares for Supporting Structures including engines, electronic system and cables	lot			$5 k
			Sub-Total:		**$18,006 k**
5	**Installation**				
5.1	Data Cables and Fiber Optic Installation	4170	$10	m	$41 k
5.2	Containerised Switchroom	57500	$1		$58 k
5.3	Installation and Cabling of String Inverters, including accessories. Including Supply and Installation of Supporting Structures for String Inverters (in case the Tracker's Supporting Structures cannot be used)	75	$717		$54 k

Item	Description	Qty	Unit Cost	Unit	Cost (USD$'000)
5.4	MV Cables & Terminals Installation	10680	$12	m	$124 k
5.5	LV/AC Cables & Connectors Installation	21585	$11	m	$246 k
5.6	Commissioning of all the System (SCADA Included)	1	$54,827	Set	$55 k
5.7	Foundations installation: Pre-drilling & Ramming Pole (The supplier must define the percentage of predrilling and ramming installation based on geotechnical studies)	7540	$100		$754 k
5.8	Installation of supporting structure including Electronic System and Cable	624	$525	N°Tracker	$328 k
5.9	Manual Mechanical PV Modules Installation (Nut & Bolt)	56160	$5	N°PV	$266 k
5.10	PV Modules String Cabling	56160	$3	N°PV	$176 k
5.1	Cleaning of PV Modules	56160	$3	N°PV	$177 k
5.1	Installation of the SCADA system (the communication cables from the Conversion Unit to the Control Units / Head trackers and from the CU to the substation is not included)	1	$14,460	Unit	$14 k
5.1	Assembling and test of the overall	1	$32,996	lot	$33 k
5.1	Cold Commissioning, Hot Commissioning and Start-up, Temporary Operation	1	$63,837	lot	$64 k
5.2	Installation of Amphenol male connector	2352	$4		$9 k
5.2	Installation of Amphenol female connector	2352	$4		$9 k
5.2	Installation of Ethernet switches	1	$1,807	lot	$2 k
5.2	HV Connections	1	$200,000	lot	$150 k
			Sub-Total:		**$2,559 k**
6	**Freight**				
6.1	Freight	1		lot	$1,260 k
			Sub-Total:		$1,260 k
			Total:		$27,576 k

Note:

1. Duty - Excluded
2. VAT – Excluded
3. Accuracy -5%, +15%
4. Contingency – not allowed in our analysis
5. Fencing excluded
6. Bulk earthworks excluded

8.7 Battery Energy Storage System

The capital cost estimates for the BESS are based on the smallest BESS capacity to support the full process plant load for approximately 45 mins. The cost estimate for a 30 MW / 30 MWh 1C BESS is summarised in Table 14.

The cost estimate is based on an EPC model for the execution, and includes:

- Engineering, design and project management.
- Installation, commissioning and performance testing
- BESS capital costs provided from Vertiv South Africa.

The capital cost of integrating a BESS into the Doropo power supply is estimated at $12.5 million.

Table 14 - Capital cost estimate for Battery Energy Storage System (BESS)

Item	Description	Qty	Unit Cost	Unit	Cost ($'000)
1	**EPCM**				
1.1	Engineering	1		lot	$188 k
1.2	Project Management	1		lot	$150 k
1.3	Site Supervision and Management	1		lot	$150 k
1.4	Cold Commissioning, Hot Commissioning and Start-Up	1		lot	$85 k
1.5	Performance Testing	1		lot	$5 k
			Sub-total:		**$578 k**
2	**Preliminaries and General**				
2.1	Equipment - Vehicles, cranage, drill rigs	1		lot	$82 k
2.2	Mobilisation	1		lot	$50 k
			Sub-total:		**$132 k**
3	**Civils**				
3.1	Platform Foundation for Cabins (Conversion Units, Transformation Cabins or Delivery/Parallel Cabin)	50	$1 k	m^3	$38 k
3.2	Trenching for MV (Single Core Solution)	150	$0 k	m	$3 k
3.3	Earthing (grounding) system (sizing depending on electrical study)	1	$20 k	M	$20 k
			Sub-total:		**$60 k**
4	**Supply**				
4.1	30MW / MWh BESS	1	$11,000 k	m	$11,000 k
4.2	MV Cables	1	$75 k		$75 k
4.3	Supply of Communication Cable between control units trackers and its associated trackers	10	$0 k		$0 k
4.4	SCADA & PPC Spare Parts	1	$7 k	lot	$7 k
			Sub-total:		**$11,083 k**
Freight and Logistics					
5	Freight				$388 k
			TOTAL:		**$12,553 k**

Note:

1. Duty - Excluded
2. VAT – Excluded
3. Accuracy -5%, +15%

4. Contingency – not allowed in our analysis
5. Fencing excluded

8.8 Integration Costs

The integration costs for the solar PV and Battery include a 33kV powerline with 33 / 11kV step-up transformer and 11 kV switchboard. The 11kV switchboard, located at the diesel power station, integrates all generation sources, including the grid, generators, solar PV, and BESS. The integration costs are summarised in Table 15.

The cost estimate is based on a design and construct execution model for the overhead powerline and transformer installation, and includes:

- Engineering, design and project management.
- Installation and commissioning.

Table 15 - Capital cost estimate for integration

Item	Description	Unit	Qty	Cost (USD$000)
1.1	33/11 kV 25/33MVA Transformer	ea	1	$876 k
1.2	Pole foundation (inclusive of excavation, concrete, backfilling, and similar)	ea	30	$50 k
1.3	Pole Installation	ea	30	$45 k
1.4	Pole-top Hardware - Intermediate Firtree	ea	24	$48 k
1.5	Pole-top Hardware - Vertical Section	ea	4	$36 k
1.6	Pole-top Hardware - Termination with isolator	ea	2	$26 k
1.7	Stringing of HV Conductor	kms	9	$72 k
1.8	Stringing of OPGW	kms	3	$28 k
1.9	HV Cable between Power Station and OHL			$29 k
1.1	HV Cable - OHL to Solar Switchboard			$63 k
1.11	Testing & Pre-commissioning	Days	5	$7 k
1.12	EPCM			$125 k
		Sub-Total:		**$1,405 k**
2	**EPCM**			
2.1	Engineering	lot	1	$45 k
2.2	Project Management	lot	1	$15 k
2.3	Site Supervision and Management	lot	1	$50 k
2.4	Commissioning	lot	1	$75 k
		Sub-Total:		**$185 k**
3	**Supply**			
3.1	11kV Switchgear, 34 panels, 2500A, 25kA	Number of Panels	34	$2,584 k
3.2	Fit-out of switchroom		1	$134 k
		Sub-Total:		**$2,718 k**
4	**Installation**			

Item	Description	Unit	Qty	Cost (USD$000)
4.1	Installation	m	34	$25 k
4.2	Testing		1	$35 k
		Sub-Total:		**$60 k**
5	Freight			$190 k
		Total:		**$3,093 k**

Note:

1. Duty - Excluded
2. VAT – Excluded
3. Accuracy -5%, +15%
4. Contingency – not allowed in our analysis
5. Clearing and grubbing, access roads during construction

9 Power station - HFO

In the case of an outright purchase of the HFO power station, the contractor provides an EPC (Engineering, Procurement, and Construction) solution, supplying, installing, and testing the full power station prior to handing it over to FMC for operation and maintenance.

The pricing is based on the quotation received from African Power Systems (APS). Two options for both APS and HHI have been considered, with N+1 and N+2 redundancy. The advantages of N+1 redundancy include lower capital cost; however, this option does require additional high-speed diesel generators to meet the availability requirements for the supply. The additional diesel units increase operating costs slightly due to higher diesel fuel usage. The advantage of the N+1 option is that it reduces the risk of overcapitalizing on the generators if the actual process plant demand turns out to be lower than originally forecast.

The capital cost estimate for the APS option is summarised in Table 16. The cost estimate also includes the cost to convert to a future gas supply. The HHI capital costs are lower than APS, however for the purpose of the study, the APS costs have been considered.

Table 16 - HFO power station cost estimate

Item	Description	Option 1		Option 2	
		Qty	Cost (USD$)	Qty	Cost (USD$)
1	**HFO power station**				
1.1	12V32 Wartsila HFO generator sets	6	$25,465 k	7	$29,709 k
1.2	3516B	5	$2,444 k	5	$2,444 k
1.3	Mechanical Systems (Medium Speed)	6	$3,444 k	7	$4,017 k
1.4	Electrical Systems (Medium Speed)	6	$1,538 k	7	$1,794 k
1.5	Site Infrastructure (Medium Speed)	6	$2,162 k	7	$2,523 k
1.6	Installation (Medium Speed)	6	$8,579 k	7	$10,009 k
1.7	Mechanical Systems (High Speed)	5	$358 k	5	$358 k
1.8	Electrical Systems (High Speed)	5	$428 k	5	$428 k
1.9	Site Infrastructure (High Speed)	5	$102 k	5	$102 k
1.10	Installation (High Speed)	5	$788 k	5	$788 k
1.11	Warehouse and Workshop	Lot	$550 k	Lot	$550 k
1.12	Civil Works (Concrete Cost per m3)	Lot	$1,855 k	Lot	$2,164 k
1.13	Initial Fill (Lube Oil)	Lot	$361 k	Lot	$361 k
1.14	Initial Fill (Thermal Oil)	Lot	$30 k	Lot	$30 k
1.15	Spares (High Speed)	Lot	$150 k	Lot	$150 k
1.16	BOP Spares	Lot	$150 k	Lot	$150 k
1.17	Spares (Medium Speed)	Lot	$380 k	Lot	$380 k
1.18	Software Licences (Maintenance)	Lot	$75 k	Lot	$75 k
1.19	Tooling	Lot	$90 k	Lot	$90 k
1.20	Admin/office building	Lot	$60 k	Lot	$60 k
1.21	Diesel Storage Day Tanks	Lot	$120 k	Lot	$120 k
1.22	HFO Storage (2x 1000 m3 storage Tank)	Lot	$978 k	Lot	$978 k
1.23	Black-start generation	-	$0 k	Lot	$75 k

Item	Description	Option 1		Option 2	
		Qty	Cost (USD$)	Qty	Cost (USD$)
1.24	EPCM	Lot	$500 k	Lot	$350 k
	Total (HFO Power Station):		**$48 k**		**$57,705 k**

Note:

1. Duty - Excluded
2. VAT – Excluded
3. Accuracy +/- 15 %
4. Contingency – not allowed in our costing

9.1 Diesel Power Station

The cost estimate for the diesel power station has been based on an EPC (Engineering, Procurement, and Construction) solution, supplying, installing, and testing the full power station prior to handing it over to the Resolute for operation.

The pricing is based on budget quotation received from African Power Systems (APS) and summarised in Table 17. The total capital cost for a turn-key back-up power station solution for Doropo is $30.07M and includes the following:

- CAT3516 generating sets, installed within an engine hall
- All balance of plant, including fuel transfer systems
- Civils (including concrete)
- Engine hall
- Control system
- Installation and commissioning
- Spares and consumables

Table 17 – Diesel power station capital cost estimate

Item	Description	Qty	Unit Cost	Unit	Cost ($'000)
1	**Design and Supply**				
1.1	Preliminary and General Cost	1	$417 k	Lump sum	$417 k
1.2	Engineering and Design	1	$160 k	Lump sum	$160 k
1.3	EPCM	1	$350 k	Lump sum	$350 k
1.4	Generators	24	$890 k	Lump sum	$21,352 k
1.5	Mechanical Balance of Plant	1	$463 k	Lump sum	$463 k
1.6	Infrastructure and Buildings	1	$1,577 k	Lump sum	$1,577 k
1.7	Electrical cables and materials	1	$645 k	Lump sum	$645 k
1.8	Control system	1	$839 k	Lump sum	$839 k
1.9	Freight	1	$703 k	Lump sum	$703 k
1.10	Diesel Storage Tank	1	$125 k	Lump sum	$125 k
1.11	Duty and taxes	0	$0 k	Lump sum	$0
			Sub-Total:		**$26,629,554**
2	**Installation and Commissioning**				

Item	Description	Qty	Unit Cost	Unit	Cost ($'000)
2.1	Preliminaries and General (including Mobilisation and Demobilisation)	1	$2,250 k	Lump sum	$2,250 k
2.2	Buildings and Facilities				
2.3	Mechanical Balance of Plant				
2.4	Generators				
2.5	Electrical				
2.6	Control System				
2.7	Civils	1	$525 k	Lump sum	$525 k
2.8	Testing and Commissioning	1	$104 k	Lump sum	$104 k
2.9	Hand over documentation	1	$13 k	Lump sum	$13 k
			Sub-Total:		**$2,892 k**
3	**Miscellaneous**				
3.1	Spares	1	$383 k	Lump sum	$383 k
3.2	Other infrastructure	1	$153 k	Lump sum	$153 k
			Sub-Total:		**$536 k**
			Total:		**$30,058 k**

Note:

1. Duty - Excluded
2. VAT – Excluded
3. Accuracy +/- 15 %
4. Contingency – not allowed in our analysis
5. First-fill, including diesel and lube oil excluded

10 Cost Analysis

10.1 Overview

The following assumptions were used in the cost analysis:

- HFO delivered to the site at a cost of $0.80 / kg
- Diesel delivered to the site at a cost of $1.10 / L
- Discount rate of 6%
- Exchange rate of 1 USD: 575 XOF
- The grid CAPEX and OPEX costs, as per the previous analysis. All grid options with bac-up diesel consider the operation of a diesel power station with 200 hours of annual operating time as backup.
- Net Present Cost (NPC) and Levelised Cost of Energy (LCOE) based on mine life of 10 years.
- Solar lease cost based on SCATEC solar PV and BESS lease arrangement, and includes costs for mobilisation and demobilisation.

10.2 Cost Evaluation of Power Options

A comparison was performed between different configurations power supply options to evaluate the overall Capital Expenditure (CAPEX) and Operating Expenses (OPEX) based on an annual energy consumption of 213 GWh/year.

Table 18 provides a summary of the costs for all power supply options and commercial execution strategies considered.

Table 18 - Summary of capital and operating costs

Description	Unit	HFO (N+1)	HFO (N+2)	Diesel (HS)	HFO (N+1) + Solar	HFO (N+2) + Solar	Diesel (HS) + Solar PV	Grid	Grid + Diesel Backup + Solar PV	HFO (N+1) + Solar Lease	Diesel (HS) + Solar Lease	Grid + Solar Lease	Grid + Diesel Backup
Total Capital Cost	$M	$47.7M	$57.7M	$30.1M	$83.6M	$93.6M	$65.9M	$33.6M	$94.3M	$51.2M	$33.6M	$37.1M	$63.7M
Operating Costs													
Fuel Cost	$ / y	$36.2M	$35.1M	$60.9M	$27.0M	$26.5M	$46.0M	$0.0M	$0.0M	$27.0M	$46.0M	$0.0M	$1.5M
Fixed Costs	$ / y	$1.5M	$1.5M	$1.5M	$1.5M	$1.5M	$0.9M	$0.0M	$0.0M	$5.5M	$4.9M	$4.0M	$0.5M
Variable Costs	$ / y	$3.7M	$3.6M	$7.0M	$2.7M	$2.7M	$5.5M	$0.0M	$0.0M	$2.7M	$5.5M	$0.0M	$0.3M
Grid Cost	$ / y	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$27.8M	$21.7M	$0.0M	$0.0M	$21.7M	$27.2M
Total Operating Cost	$ / y	**$41.4M**	**$40.2M**	**$69.4M**	**$31.2M**	**$30.7M**	**$52.4M**	**$27.8M**	**$21.7M**	**$35.2M**	**$56.4M**	**$25.7M**	**$29.5M**
Unit Operating Cost	$ / MWh	**$194.1**	**$188.5**	**$326.0**	**$146.4**	**$144.3**	**$246.0**	**$130.5**	**$101.8**	**$165.2**	**$264.8**	**$120.6**	**$138.5**
Levelised Cost of Energy (13 years)	$ / MWh	$219.4	$219.1	$342.0	$190.7	$193.9	$281.0	$148.2	$151.7	$192.4	$282.6	$140.3	$172.3
NPC (13 years)	$M	$414M	$413M	$645M	$360M	$366M	$530M	$279M	$286M	$363M	$533M	$265M	$325M

Figure 20 shows the Net Present Cost over the life of mine, and summarised as follows:

- Grid supply is the most economical over the 13 year life of mine;
- Diesel and HFO-only options are technically feasible; however, they involve higher capital expenditure, higher operating costs, and greater carbon emissions. To mitigate fuel costs, the on-site power station will require integration of solar PV generation. Incorporating solar PV will increase the overall capital outlay and occupy a significant land area (at least 40 hectares).
- Diesel is the least economic of all options considered;
- Solar integration has good payback for diesel and HFO options, however payback against the grid is in excess of 10 years:

- HFO – 4-5 year payback
- Diesel – 2-3 year payback
- Grid – in excess of 10 years. The reason the payback is high for the grid option is due to the low operating cost of the grid supply.

Figure 21 summarises the operating costs for the power options, and is summarised as follows:

- The unit operating cost for HFO and diesel options is dominated by the fuel costs, with fixed costs making up very small portion of the total operating cost.
- Solar PV reduces the fuel costs for the HFO and diesel options by approximately $125-145 / MWh.
- Diesel has the highest operating cost at $323 / MWh
- Grid has the lowest operating cost at $130 / MWh. Integrating solar PV to the grid would reduce the grid operating cost to approximately $102 / MWh due to solar offsetting the grid import energy costs.

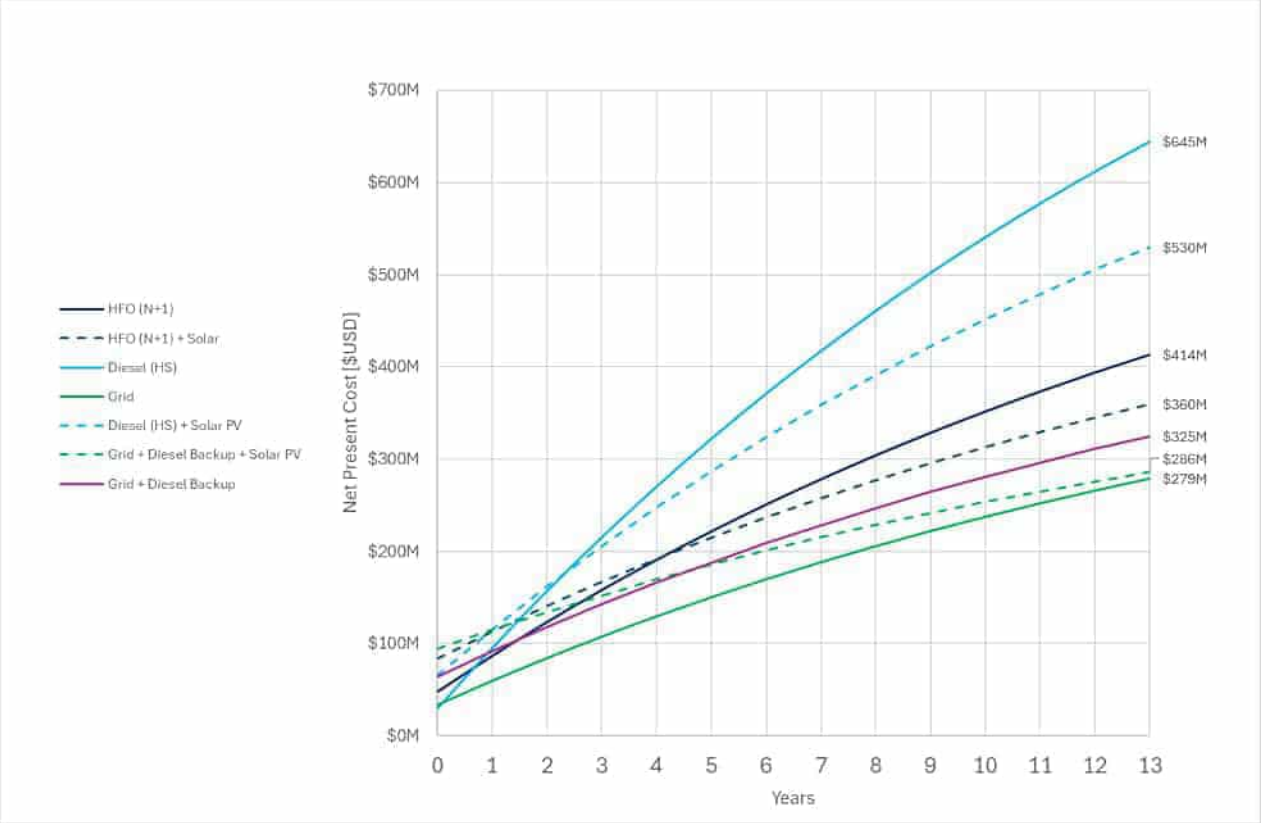


Figure 20 - Net Present Cost over 10 years

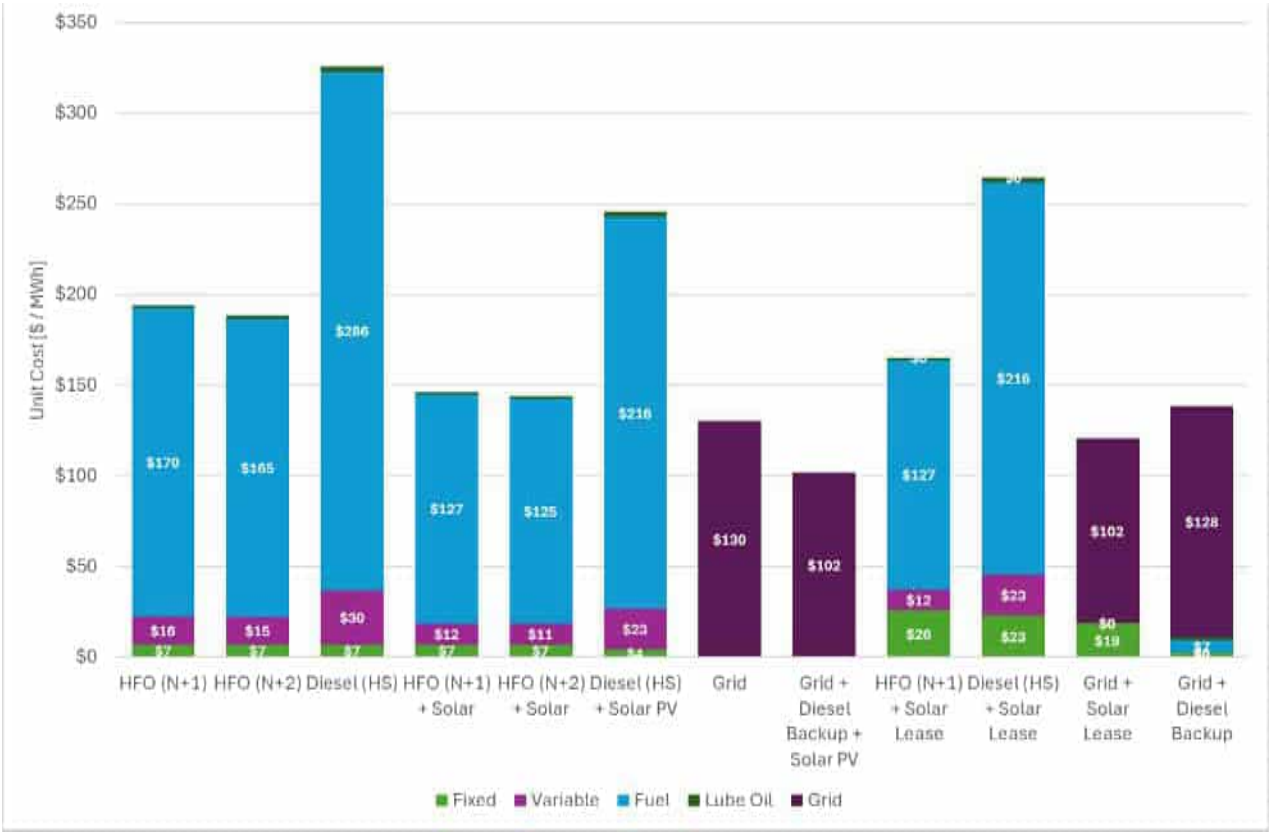


Figure 21 - Breakdown summary of operating costs

10.3 Sensitivity Analysis

10.3.1 Fuel Price

The sensitivity of the fuel price (+- 20%) for each option was analysed and compared to the lowest cost option of the grid supply. The results are shown in Figure 22.

- Operating costs increase linearly with the cost of diesel and HFO.
- Each $0.10 / kg increase in HFO results in an increase of approximately $20 / MWh and is less sensitive than diesel to fuel price increases due to the higher efficiency of the medium speed generators.
- Each $0.10 / kg increase in Diesel results in an increase of approximately $25 / MWh
- Solar PV reduces exposure to fuel price escalation by approximately $45 / MWh for HFO and $60 / MWh for diesel.
- There is no break-even point with the grid cost for HFO or diesel (fuel price +-20%), however there is a break-even point for HFO with solar PV – at a HFO price of $0.70 / kg.

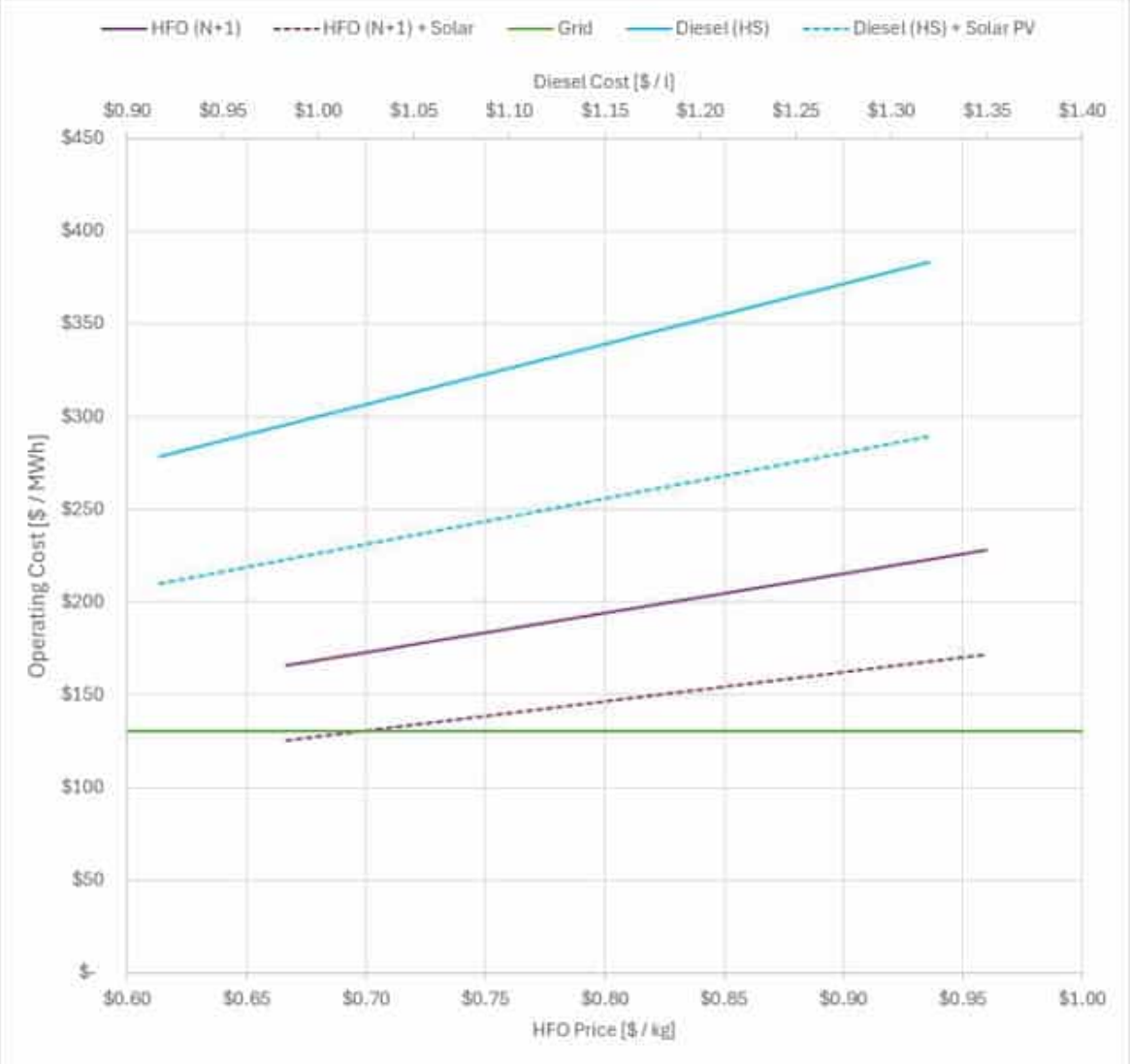


Figure 22 - Sensitivity of power station options to diesel and HFO fuel price

10.3.2 Back-up diesel power station run-hours

The running of diesel back-up generators when the grid is unavailable results in a higher grid electricity price due to the diesel fuel cost. For the case of the grid with back-up diesel generators, the base case considers 200 hours of operation (grid availability of 97.7%). The cost increase for the grid supply with increasing diesel operation is shown in Figure 23. The sensitivity considers diesel run-hours up to 1000 hrs / y (grid availability of 89%). The results show there is no break-even point for diesel or HFO against the grid, except the case of solar PV integration with HFO which has a break-even point of just under 600 hours.

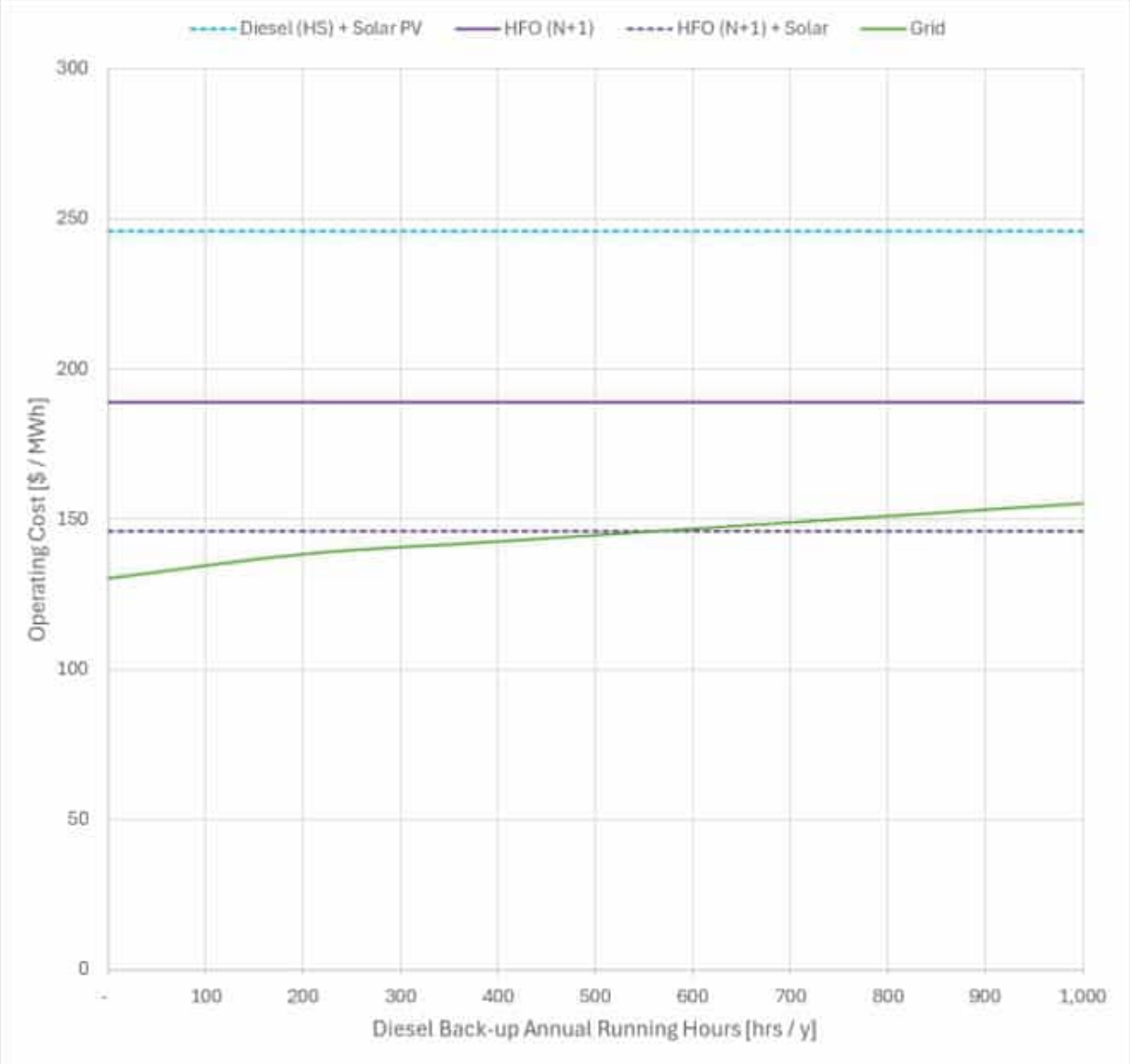


Figure 23 - Sensitivity of grid power cost to diesel back-up power station run-hours

10.3.3 Trigger Points

The trigger points represent the fuel cost that would change the outcome of the option with the lowest NPC over the life of mine. The trigger points for each fuel type are summarised in Table 19.

Table 19 - Fuel price trigger points

Option	Trigger Points
HFO	Decrease of the HFO fuel price to $0.40 / kg to be equivalent NPC to Grid plus solar lease option over 10 years
Diesel	Reduction of diesel cost to $0.60 / litre to be equivalent NPC to HFO over 10 years, or reduction to $0.35 / litre to be equivalent NPC to grid over 10 years
Grid	50-60% increase in the grid tariff rate to be equivalent NPC to HFO over 10 years.

10.4 Carbon Emissions

Approximately 39% of the generation on the CIE network is made up of Hydro, with the rest made up of natural gas and dual fuel generators. There is some increase in renewable fraction occurring, however it is difficult to get the exact level of solar PV that is currently connected to the network. The estimated CO_2 intensity factor for Cote d'Ivoire is 0.34t CO_2 / MWhr.

The estimated CO_2 emissions is summarised in Table 20.

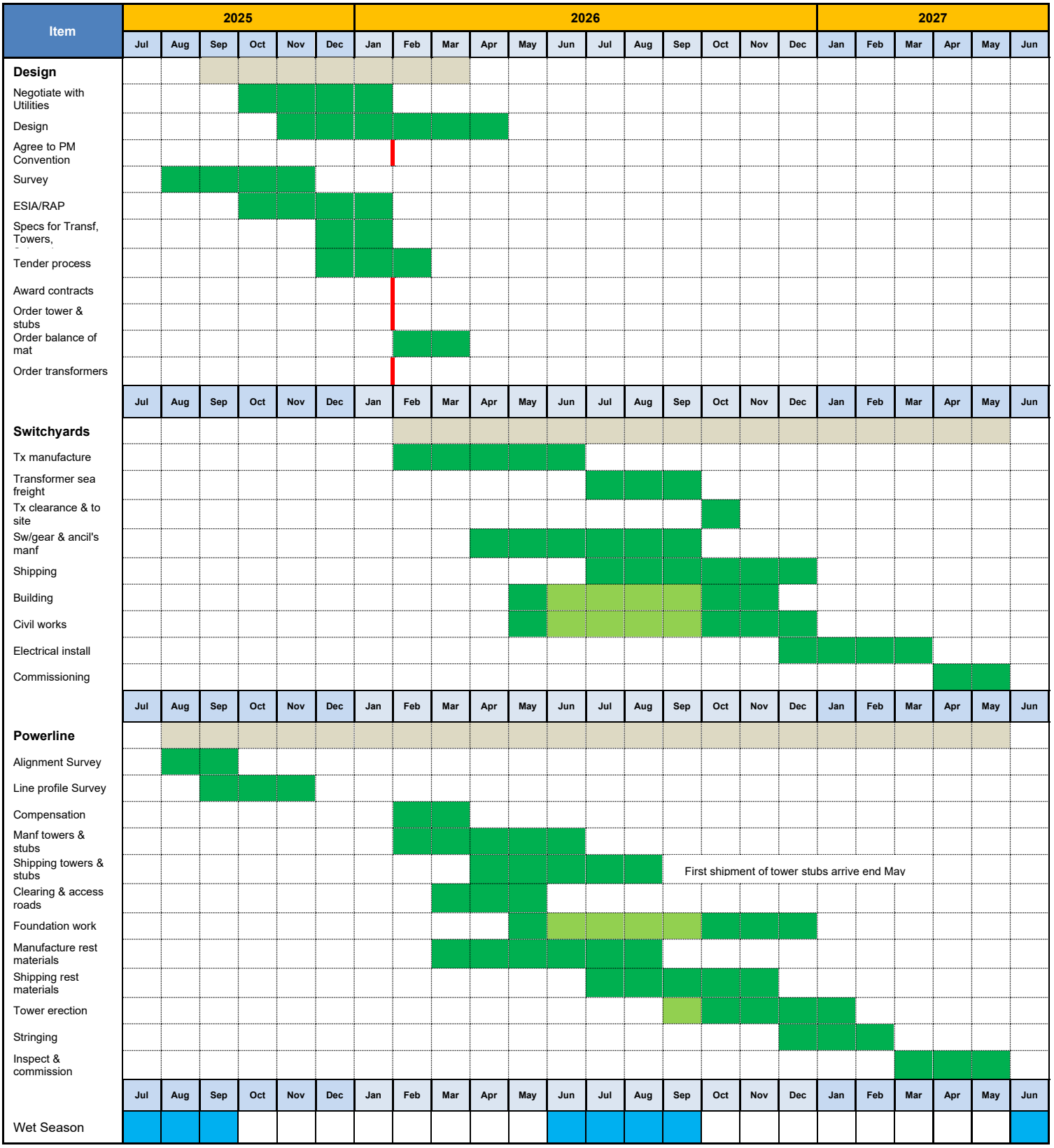
- The grid supply has the lowest carbon emissions, saving approximately 60 kt/year compared to HFO and 80 kt/year compared to diesel.
- The emissions for diesel are higher than HFO due to the lower efficiency of the high-speed diesel generators.

Table 20 - Estimated CO2 emissions

Generation Source	Unit	Estimated Carbon Emissions [kt / year]
Grid	kt/year	72
Grid with 31.5 MWp Solar PV	kt/year	55
HFO	kt/year	132
HFO with 31.5 MWp Solar PV	kt/year	102
Diesel	kt/year	152
Diesel with 31.5 MWp Solar PV	kt/year	117

11 Schedule

The construction schedule to complete this work is largely driven by the survey, compensation and then material delivery. There is a critical process that must be followed in order to get to the stage that the tower steel and substation equipment can be ordered. The following schedule is indicative.



12 Risks & Opportunities

12.1 Risks

The following risks have been considered in this study:

- **The reliability and quality of the power supply**. Electricity power supplies in Africa have been an issue in the past with some mines having to install embedded diesel generation to maintain Plant availability. From experience, the reliability of power in Côte d'Ivoire is generally good especially at transmission voltages. The 90kV supply at Bouna should have high availability. The 90kV transmission line from Bondoukou to Bogofa and Bouna is lightly loaded. The supply at Bondoukou is from the 225kV network and is part of a ring-main system which is very reliable. The availability should be greater than 99% as has been evident from experience on this network. Power quality is reasonably predictable and is taken care of by installing a STATCOM. Reliability of power is a function of generation as well as transmission and the generation is sometimes not predictable. The total outage time for any customer at 90kV or above has significantly reduced between 2011 and 2024 with a reduction to about 16 hours/yr a reduction of over 30%. Disruptions including load shedding at 90kV and 225kV were encountered in early 2025 when two major machine failures occurred concurrently and customers with embedded generation were asked to run their machines in the afternoons when the load was high. This situation continued for approximately 2 months but the network has fully recovered and there is presently a surplus of generation in the network. There are component failures within any electricity network, and the effect of these can be somewhat mitigated with the augmentation of the network with additional sources of generation and the addition of renewable energy generation both of which are in the Master Plan and some are well developed. Interconnections with other countries also mitigate the effect of single failures. In the past the mining companies have faired well during load shedding situations particularly those without embedded self-generation as these are important and major sources of income to the Government of Côte d'Ivoire.
- **Spares**. A spare 90/11 kV transformer has not been allowed forA transformer failure is very rare with a typical minimal life of 50 years. Insurance companies however sometimes insist on a spare transformer. If this was required we would only energise this at 11kV to reduce the cost of having to install another 90kV bay. This is not allowed at present.
- **Electricity Tariff**. The tariffs in Côte d'Ivoire are also subject to change and have the potential to move up as is the trend in other countries. There has traditionally not been a lot of movement in the tariffs in Côte d'Ivoire however an increase was approved in June 2023 and another in December 2023. ECG believe any further steep increases in tariff to be low risk.
- **Wet Weather.** Wet weather during the wet season can cause delays with the erection of the towers and the foundations. This risk can be managed by awarding the contracts early with appropriate contingency in the project schedule if there is construction during the wet months of the year.

12.2 Opportunities

- **Solar/Storage Optimisation.** There is an opportunity to optimise the size and capacity of the solar PV and BESS to align with the demand profile of the site. This would require measuring the demand once the process plant has reached its nameplate throughput. This will ensure optimal investment into the solar PV, and minimise the risk of over-capitalising on the project by over-sizing the solar PV capacity. Solar technology is constantly improving and becoming increasingly affordable. Therefore, there are advantages to waiting until after the power station is operating before committing to additional solar investment – these advantages are:
  - Continuing reductions in the costs of solar PV and battery storage means that a larger solar installation could be achieved for the same cost in 2-3 years' time, or the same size solar PV installation at a significantly reduced cost. Once information about the plant's load demand is well known, the sizing of the solar PV installation can be optimised relative to the power station size to provide the best return on investment.
- **CI-ENERGIES Transformer**. Often CI-ENERGIES would insist on installing a 33kV transformer for their own purposes of local electrification. In this case we should resist this and push back on any request to do so because we are on the end of a long transmission system and the reactive power compensation is designed for the load of the mine and nothing more.
- **Back-up Power Station.** Provision for a diesel back-up power station should be included in the design to enable seamless integration of back-up generation capacity. Diesel generators can be hired or procured second-hand on relatively short notice; however, the critical-path components are typically the switchgear, transformers, and HV cabling. By allowing for generator connection points in the design, Resolute will retain flexibility to:
    - Rapidly integrate hired gensets if required; or

- Stage the implementation of the permanent back-up power station, allowing additional time to source and install suitable generators once project cash flow begins.

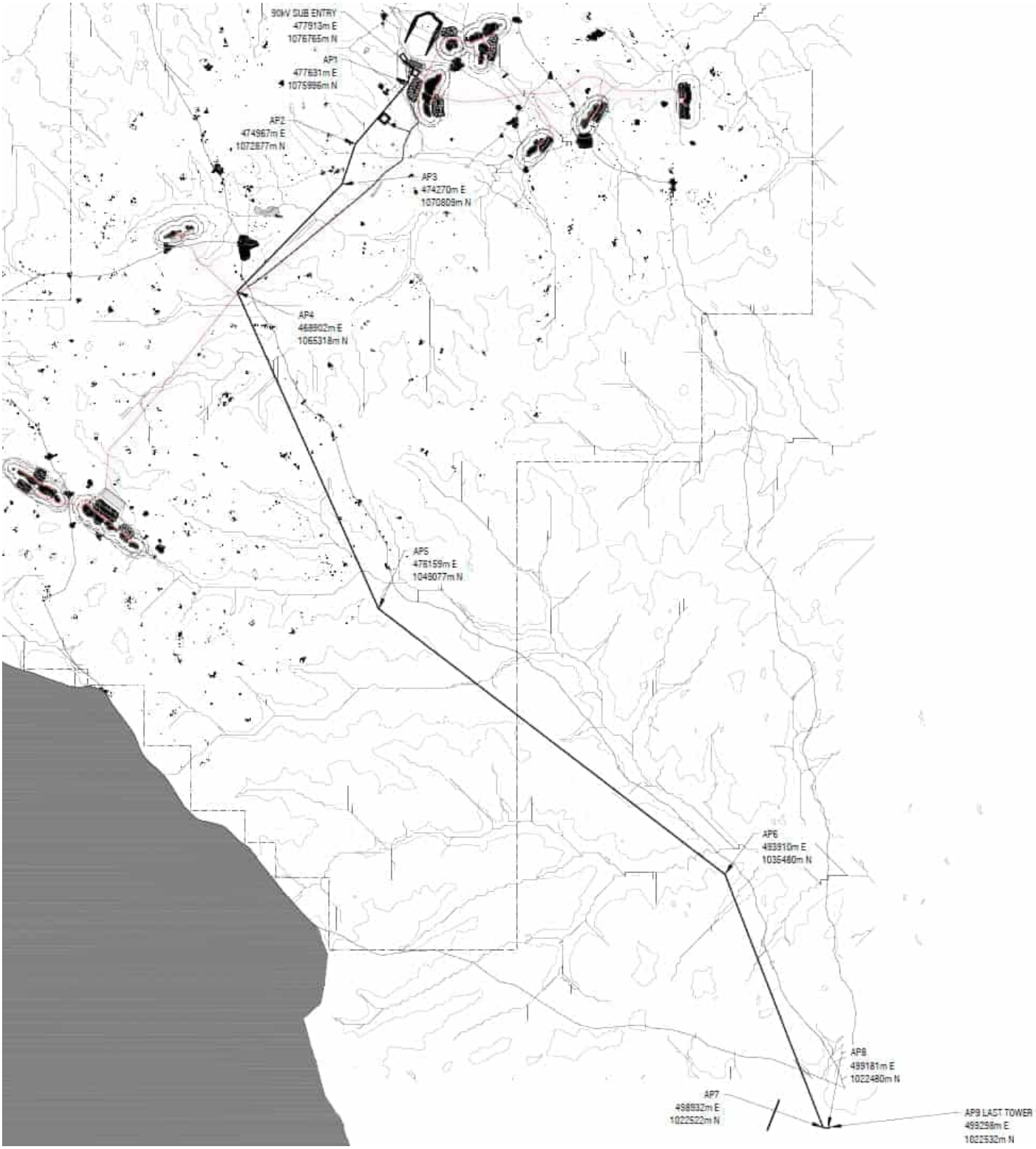
With the switchgear and transformers already installed, connecting hire gensets could typically be achieved within 4–6 weeks, depending on generator location. This contingency measure would only be considered in the event of a long-term outage on the CIE network.

13 Recommendation

ECG recommend a grid connection.

ECG believe a full power station from the outset is not essential and the risks of not having one will have to be assessed by Resolute. If a full power station is not chosen to be installed together with the grid connection, ECG recommend consideration be given to installing the infrastructure, switchgear and transformers such that a high set of generators can be flown in and installed at short notice.

14 Appendix A – Drawing Line Route



14.1 Annex A – Infrastructure Projects to 2030



Figure 24 – Transmission projects till 2030

Number of substations 45 in 2011, increasing to 65 in 2020 and 88 in 2030.
Transmission lines 4,446km in 2011, increasing to 7,103kms in 2020 and 10,753kms in 2030



Figure 25 - Transmission projects till 2030 in Abidjan

An addition of 20 HV substations, 470km of transmission lines, 470km of Optic-fibre, 51 different HV lines, 6,366MVA of additional transformer capacity and an additional 92 transformers.

APPENDIX 9.4

SITE DATA SHEET (PFS)

2234-GDAS-001

SITE DATA SHEET

for the

DOROPO GOLD PROJECT PFS

Site Location

The Doropo Project is located in north-eastern Cote d'Ivoire, in the Bounkani region, 480 km north of the capital Abidjan and 50 km north of the city of Bouna. The block of permits lies between the border with Burkina Faso and the Comoe National Park (Figure 4.1).

The coordinate system utilised for the Project is the Universal Transverse Mercator (UTM) projection, WGS84, zone 30 north. It is centred on about UTM 475,000mE and 1,068,000mN, otherwise, Latitude 9°39'42'' N and Longitude 3°13'40'' W.

The resource area, which fits in a 30 km radius, is centred on about UTM 482,450mE and 1,074,951mN, otherwise Latitude 9°43'28'' N and Longitude 3°9'36'' W.



REV NO.	DATE	DESCRIPTION OF REVISION	DESIGNED	DESIGN APPR'D	PROJECT APPR'D	CLIENT APPR'D
A		ISSUED FOR REVIEW	Sam Hermans 2023.02.17 13:24:07 +08'00'	Michael De Rosa 17.02.2023	pp Michael De Rosa 17.02.2023	

General	The climate is of Sudanese type, with two distinct seasons, a rainy season, and a dry season. The rainy season extends from May/June to September/October when rainfalls total between 1,100 mm and 1,200 mm. The dry season extends from September/October to May/June. The Harmattan, a hot dry wind coming from the Sahara regions, blows generally in December and January, sometimes extending to March, and brings dust clouds, which reduce visibility. The average temperature is 28°C, ranging between 21°C and 33°C. The hottest times of the year occur at the change of seasons.		
Plant Design Life		years	13
Plant Elevation	(Zone 30N, refer to WGS 84, EPSG 4226)	mASL	407
Temperature	Highest Monthly Mean Maximum	°C	33
	Lowest Monthly Mean Minimum	°C	21
	Design Maximum Ambient Temperature	°C	45
	Design Minimum Ambient Temperature	°C	0
Design Temperatures	Design Ambient for 'Air Based' Cooling Duties	°C	45
	Design for 'Water Based' Cooling Duties	°C	34
Rainfall	Annual Average (Client Provided)	mm	1200
	Maximum Monthly Average (meteoblue)	mm	130 (Aug)
	Minimum Monthly Average (meteoblue)	mm	1 (Jan)
	Rainfall Season	April to October	Refer Figure 1.1 (below)
Relative Humidity	Maximum Relative Humidity	%	96.6
	Minimum Relative Humidity	%	17.9
	Design (Minimum / Maximum)	%	20 / 80
Seismicity	Earthquake Design Annual Probability of Exceeding	P	1 / 250
	Earthquake Design to AS 1170.4	K_PZ	0.03
	Site Class to AS 1170.4		Ce
Wind	Regional Wind Speed to AS 1170.4	V_R	45 m/s
	Serviceability Wind Speed	V_S	37 m/s
	Operating Plant Wind Speed	V_O	20 m/s
	Wind Direction		Refer Figure 1.2 (below)
	Wind Speed Diagram		Refer Figure 1.3 (below)
Terrain Category	Classification to AS/NZS 1170.2	TC	2.5
Dust	General	Seasonal variations	
Electrical Power Supply			
	Low Voltage Power	230 VAC, 50 Hz, Single Phase	
		400 VAC, 50 Hz, Three Phase	
	High Voltage Power	11 kV, 50 Hz, Three Phase	
	Control Voltage	24 VDC	
	Analogue Signals	4 – 20 mA	
	Digital Signals	24 VDC	
Power Variations	Voltage	± 10%	
	Frequency	± 2.5%	

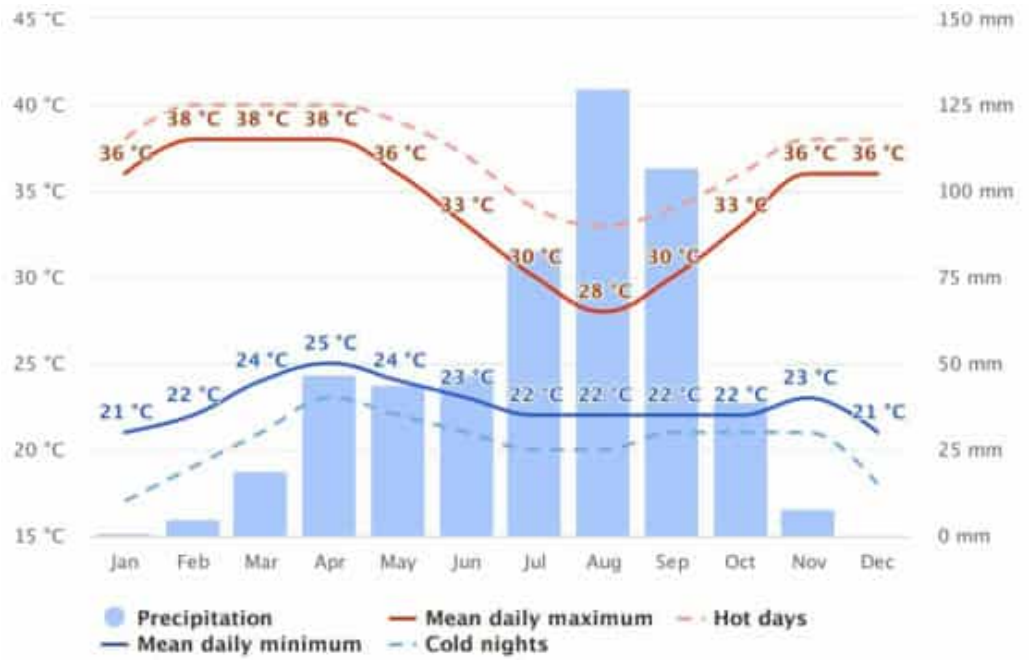


Figure 1.1: Average monthly rainfall and mean daily temperatures for Doropo Gold Project Area (Source: meteoblue.com)

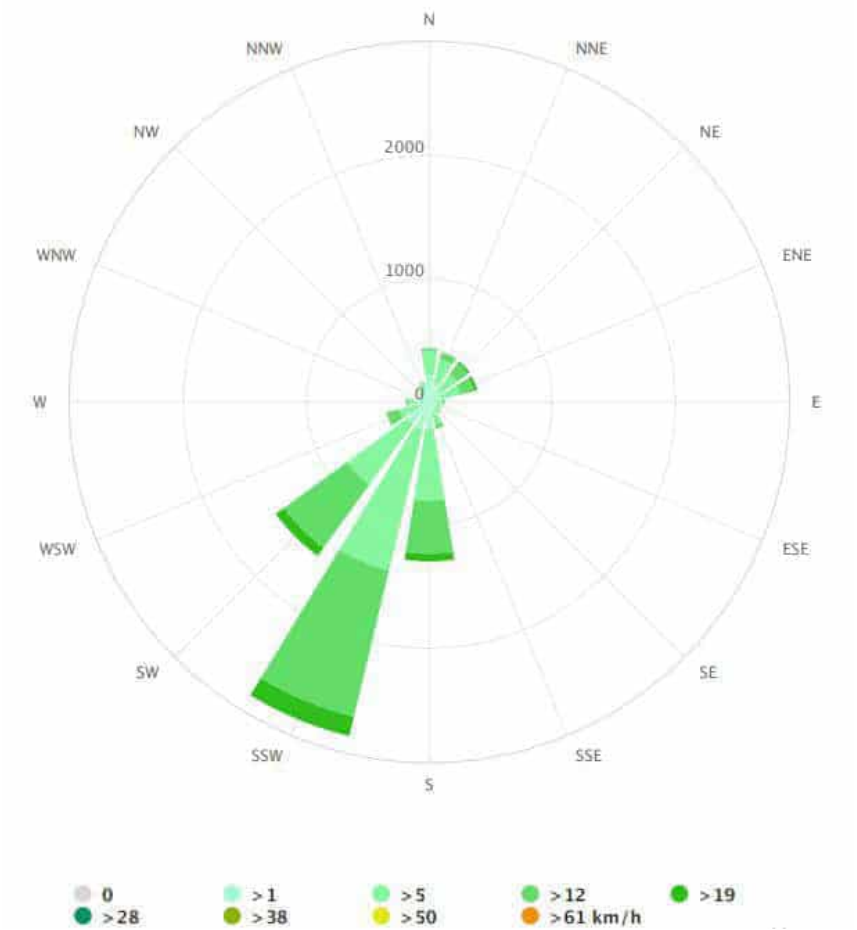


Figure 1.2: Wind direction hours per year for Doropo Gold Project Area (Source: meteoblue.com).

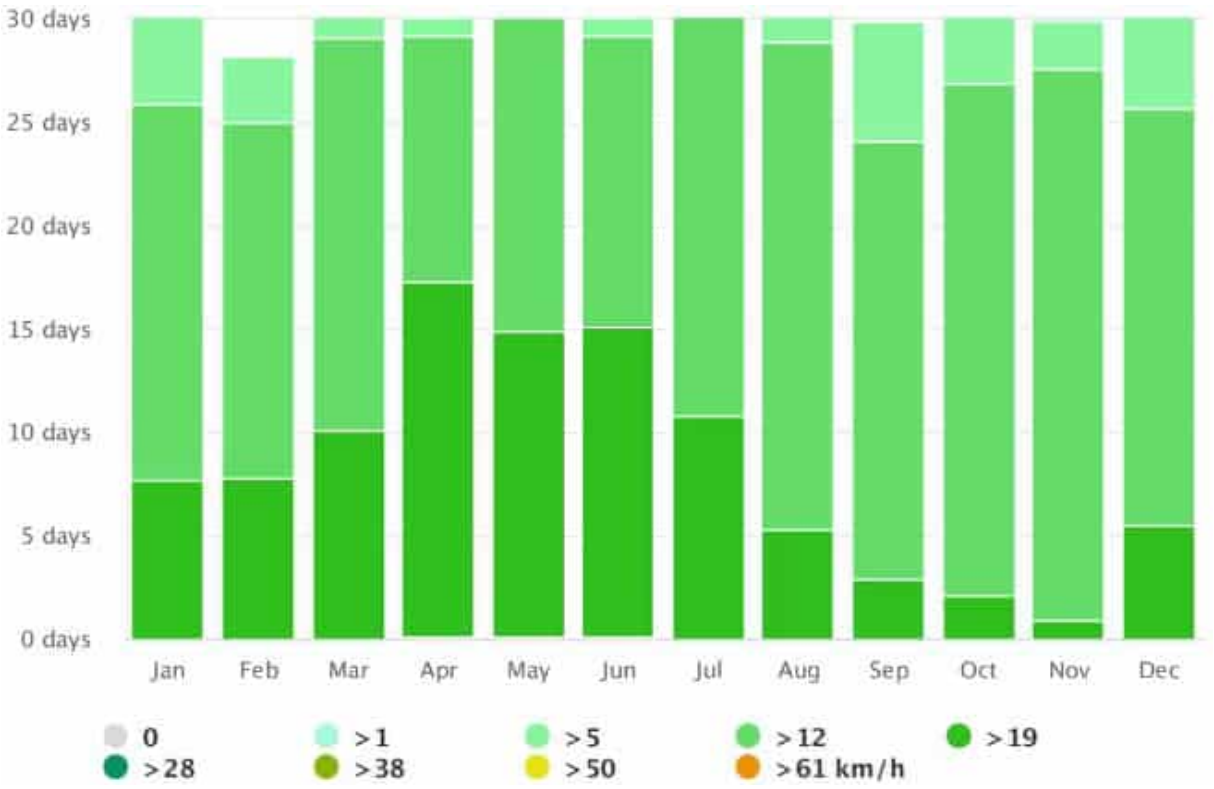


Figure 1.3: Wind Speed Diagram for Doropo Gold Project Area (Source: meteoblue.com).

APPENDIX 12.1

ESTIMATE SUMMARIES AND DETAIL

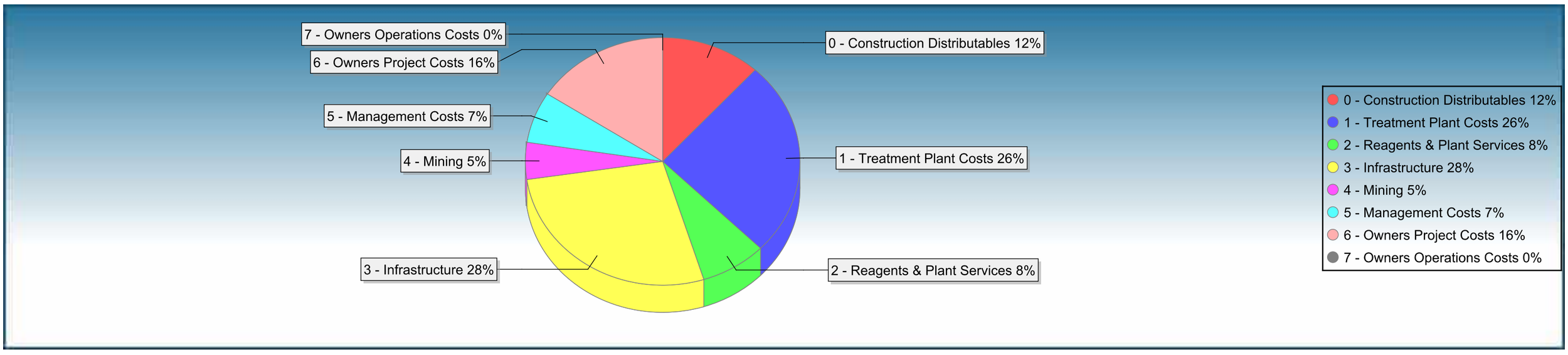
Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Main Area

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
0 - Construction Distributables	7,740,498	2,464,703	130,252	75,247	39,392,500	7,860,554	338,550	55,537,602	5,103,355	-	-	60,640,957
1 - Treatment Plant Costs	81,363,367	1,070,702	13,028,818	9,368,965	-	962,500	13,173,781	117,897,431	14,127,937	-	-	132,025,367
2 - Reagents & Plant Services	27,869,160	251,489	3,062,257	2,263,655	-	-	2,639,153	35,834,225	4,294,471	-	-	40,128,696
3 - Infrastructure	12,164,095	1,272,492	16,147,685	41,021,672	-	59,019,884	2,388,585	130,741,921	11,033,698	-	-	141,775,619
4 - Mining	899,750	-	-	-	-	22,722,127	-	23,621,877	1,217,710	-	-	24,839,587
5 - Management Costs	-	-	-	-	-	32,794,823	-	32,794,823	1,705,863	-	-	34,500,686
6 - Owners Project Costs	13,626,839	-	-	-	-	59,007,127	196,000	72,829,966	4,816,862	-	3,960,428	81,607,256
7 - Owners Operations Costs	-	-	-	-	-	-	-	-	-	-	-	-
	143,663,708	**5,059,386**	**32,369,013**	**52,729,539**	**39,392,500**	**182,367,015**	**18,736,070**	**469,257,844**	**42,299,897**	**-**	**3,960,428**	**515,518,169**



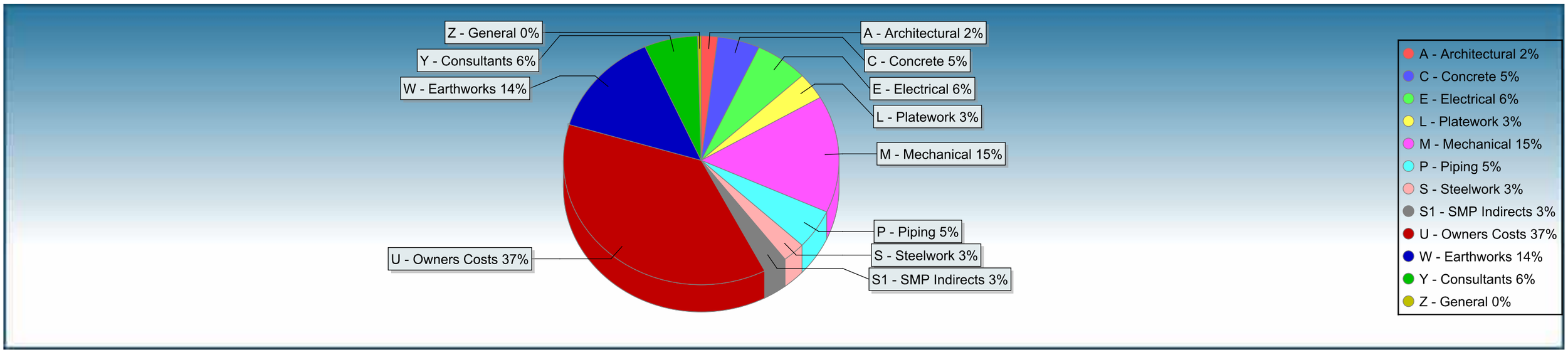
Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
A - Architectural	4,582,581	184,094	1,259,036	532,012	841,876	-	1,604,752	8,820,257	1,124,549	-	-	9,944,806
C - Concrete	8,657,026	850,317	2,757,402	2,475,046	9,315,197	-	-	23,204,671	2,346,994	-	-	25,551,665
E - Electrical	20,788,488	313,621	2,367,538	1,578,359	3,106,100	-	1,247,309	29,087,793	2,908,779	-	-	31,996,573
L - Platework	9,693,685	184,985	2,645,904	1,735,460	-	303,750	1,866,305	16,245,103	1,668,099	-	-	17,913,202
M - Mechanical	55,012,908	99,388	3,264,255	833,652	-	1,309,600	10,053,252	70,473,667	8,067,393	-	-	78,541,060
P - Piping	14,375,048	241,560	3,656,392	2,465,374	-	-	1,644,552	22,141,366	4,374,725	-	-	26,516,091
S - Steelwork	6,595,240	161,085	2,418,038	1,624,017	-	-	1,807,294	12,444,589	1,271,587	-	-	13,716,176
S1 - SMP Indirects	-	364,314	-	-	13,056,541	-	-	13,056,541	1,305,654	-	-	14,362,195
U - Owners Costs	22,604,356	-	-	-	4,262,000	150,004,459	211,000	177,081,816	11,022,911	-	3,960,428	192,065,155
W - Earthworks	782,650	2,641,099	13,772,583	41,317,748	8,141,883	-	-	64,014,863	6,417,150	-	-	70,432,013
Y - Consultants	-	-	-	-	-	30,749,205	-	30,749,205	1,537,460	-	-	32,286,665
Z - General	571,727	18,922	227,865	167,871	668,903	-	301,605	1,937,972	254,596	-	-	2,192,568
	143,663,708	**5,059,386**	**32,369,013**	**52,729,539**	**39,392,500**	**182,367,015**	**18,736,070**	**469,257,844**	**42,299,897**	**-**	**3,960,428**	**515,518,169**



Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
0 - Construction Distributables	**7,740,498**	**2,464,703**	**130,252**	**75,247**	**39,392,500**	**7,860,554**	**338,550**	**55,537,602**	**5,103,355**	**-**	**-**	**60,640,957**
0.1 - Construction Distributables - Contractors	***89,964***	***2,457,223***	***14,943***	***9,744***	***34,531,597***	***303,750***	***-***	***34,949,997***	***3,558,831***	***-***	***-***	***38,508,828***
0.1.1 - Earthworks	-	1,569,140	-	-	8,141,883	-	-	8,141,883	814,188	-	-	8,956,071
0.1.2 - Concrete	-	308,928	-	-	9,315,197	-	-	9,315,197	931,520	-	-	10,246,717
0.1.3 - SMP	89,964	365,371	14,943	9,744	13,056,541	303,750	-	13,474,942	1,347,494	-	-	14,822,436
0.1.7 - Electrical & Instrumentation	-	116,326	-	-	3,106,100	-	-	3,106,100	310,610	-	-	3,416,710
0.1.8 - Buildings	-	97,458	-	-	841,876	-	-	841,876	143,119	-	-	984,995
0.1.9 - Fencing	-	-	-	-	70,000	-	-	70,000	11,900	-	-	81,900
0.2 - Site Construction Distributables - General	***1,060,000***	***5,394***	***92,582***	***59,645***	***216,503***	***1,602,261***	***15,000***	***3,045,991***	***302,399***	***-***	***-***	***3,348,390***
0.2.1 - Construction Equipment	60,000	-	-	-	-	1,015,000	15,000	1,090,000	67,500	-	-	1,157,500
0.2.3 - General Freight & Transport	1,000,000	-	-	-	100,000	-	-	1,100,000	115,000	-	-	1,215,000
0.2.4 - Construction Power & Water	-	594	11,078	1,901	116,503	-	-	129,482	19,422	-	-	148,904
0.2.9 - Commissioning Assistance	-	4,800	81,504	57,744	-	587,261	-	726,509	100,476	-	-	826,985
0.3 - Site Construction Facilities	***1,062,517***	***2,086***	***22,727***	***5,859***	***59,400***	***540,000***	***73,550***	***1,764,053***	***176,171***	***-***	***-***	***1,940,224***
0.3.1 - Construction Site Preparation / Earthworks	-	-	-	-	-	100,000	-	100,000	15,000	-	-	115,000
0.3.3 - Laydown Areas	-	-	-	-	-	-	-	-	-	-	-	-
0.3.4 - Construction Site Offices	375,517	2,086	22,727	5,859	-	-	73,550	477,653	66,561	-	-	544,214
0.3.6 - Medical & First Aid	210,000	-	-	-	59,400	440,000	-	709,400	46,910	-	-	756,310
0.3.7 - Construction Communications	477,000	-	-	-	-	-	-	477,000	47,700	-	-	524,700
0.3.9 - Construction Temporary Works	-	-	-	-	-	-	-	-	-	-	-	-
0.4 - Site Construction Facilities Other	***40,000***	***-***	***-***	***-***	***-***	***-***	***-***	***40,000***	***4,000***	***-***	***-***	***44,000***

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
0.4.1 - Contractor Compounds	40,000	-	-	-	-	-	-	40,000	4,000	-	-	44,000
0.5 - Construction Operations	***4,715,538***	***-***	***-***	***-***	***323,000***	***390,000***	***250,000***	***5,678,538***	***559,004***	***-***	***-***	***6,237,541***
0.5.1 - Construction Operating Costs	-	-	-	-	323,000	-	250,000	573,000	48,450	-	-	621,450
0.5.2 - Construction Fuels & Lubricants	3,425,738	-	-	-	-	-	-	3,425,738	342,574	-	-	3,768,311
0.5.6 - Waste Management	-	-	-	-	-	140,000	-	140,000	14,000	-	-	154,000
0.5.7 - Repairs & Maintenance	789,800	-	-	-	-	250,000	-	1,039,800	103,980	-	-	1,143,780
0.5.8 - Surveying	500,000	-	-	-	-	-	-	500,000	50,000	-	-	550,000
0.6 - Construction Accommodation	***772,480***	***-***	***-***	***-***	***4,262,000***	***5,024,543***	***-***	***10,059,023***	***502,951***	***-***	***-***	***10,561,974***
0.6.2 - Construction Camp	-	-	-	-	4,202,000	-	-	4,202,000	210,100	-	-	4,412,100
0.6.3 - Camp Operations & Maintenance	-	-	-	-	-	463,100	-	463,100	23,155	-	-	486,255
0.6.4 - Meals During Construction	772,480	-	-	-	60,000	4,561,443	-	5,393,923	269,696	-	-	5,663,619
1 - Treatment Plant Costs	**81,363,367**	**1,070,702**	**13,028,818**	**9,368,965**	**-**	**962,500**	**13,173,781**	**117,897,431**	**14,127,937**	**-**	**-**	**132,025,367**
1.1 - Treatment Plant - General	***404,100***	***36,716***	***682,585***	***1,965,634***	***-***	***-***	***33,956***	***3,086,275***	***342,461***	***-***	***-***	***3,428,736***
1.1.1 - Bulk Site Earthworks	-	26,490	538,116	1,614,349	-	-	-	2,152,466	215,247	-	-	2,367,712
1.1.2 - Detailed Site Earthworks	-	4,473	73,805	221,415	-	-	-	295,219	35,426	-	-	330,646
1.1.4 - In-plant Roads	-	2,020	33,336	100,008	-	-	-	133,344	16,001	-	-	149,345
1.1.7 - Site Security Fencing	404,100	3,733	37,328	29,862	-	-	33,956	505,246	75,787	-	-	581,033
1.2 - Feed Preparation	***8,092,074***	***177,559***	***1,816,318***	***1,324,307***	***-***	***-***	***1,191,742***	***12,424,441***	***1,374,019***	***-***	***-***	***13,798,460***
1.2.1 - Primary Crushing	7,057,092	138,343	1,346,821	986,004	-	-	990,795	10,380,711	1,169,638	-	-	11,550,349
1.2.5 - Stockpiling	1,034,982	39,216	469,497	338,304	-	-	200,947	2,043,730	204,381	-	-	2,248,111
1.3 - Milling	***46,305,861***	***437,856***	***5,710,031***	***2,774,373***	***-***	***962,500***	***7,701,096***	***63,453,861***	***7,529,659***	***-***	***-***	***70,983,520***

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
1.3.1 - Reclaim	6,463,101	133,449	1,373,615	999,033	-	-	746,296	9,582,045	1,097,122	-	-	10,679,168
1.3.2 - Grinding	35,608,825	261,542	3,805,168	1,418,278	-	962,500	6,293,204	48,087,975	5,693,750	-	-	53,781,724
1.3.3 - Classification	1,540,628	9,461	132,924	86,744	-	-	225,907	1,986,203	272,294	-	-	2,258,498
1.3.4 - Gravity Concentration	2,137,785	25,593	310,070	209,807	-	-	351,125	3,008,787	369,693	-	-	3,378,480
1.3.6 - Recycle Crushing	555,521	7,811	88,254	60,511	-	-	84,564	788,850	96,800	-	-	885,650
1.4 - Trash Removal & Thickening	***3,603,905***	***55,130***	***497,841***	***367,902***	***-***	***-***	***1,006,710***	***5,476,358***	***694,598***	***-***	***-***	***6,170,957***
1.4.1 - Trash Screening	999,755	15,709	184,554	127,625	-	-	189,738	1,501,673	167,583	-	-	1,669,256
1.4.2 - Feed Thickening	2,604,150	39,421	313,287	240,276	-	-	816,972	3,974,686	527,015	-	-	4,501,701
1.6 - Leaching	***14,023,020***	***245,546***	***3,025,490***	***2,038,701***	***-***	***-***	***1,825,832***	***20,913,042***	***2,627,120***	***-***	***-***	***23,540,163***
1.6.2 - CIL	14,023,020	245,546	3,025,490	2,038,701	-	-	1,825,832	20,913,042	2,627,120	-	-	23,540,163
1.7 - Elution & Gold Room	***6,170,085***	***66,121***	***725,490***	***503,205***	***-***	***-***	***927,895***	***8,326,675***	***1,025,435***	***-***	***-***	***9,352,110***
1.7.1 - Carbon Recovery	104,165	1,094	15,179	9,921	-	-	15,568	144,832	21,400	-	-	166,232
1.7.2 - Acid Wash	365,936	8,774	38,683	37,986	-	-	37,282	479,886	59,283	-	-	539,169
1.7.3 - Elution	1,396,999	15,958	208,124	138,209	-	-	261,928	2,005,260	243,172	-	-	2,248,432
1.7.4 - Carbon Regeneration	1,724,212	11,570	154,256	101,349	-	-	207,554	2,187,371	289,664	-	-	2,477,035
1.7.5 - Intense Cyanidation	488,503	2,261	31,970	20,846	-	-	69,367	610,687	75,205	-	-	685,891
1.7.6 - Electrowinning	1,201,117	10,971	139,893	93,374	-	-	213,147	1,647,532	197,637	-	-	1,845,169
1.7.7 - Gold Room & Smelting	889,153	15,493	137,385	101,520	-	-	123,049	1,251,107	139,075	-	-	1,390,182
1.8 - Tails Handling	***2,764,322***	***51,773***	***571,064***	***394,843***	***-***	***-***	***486,549***	***4,216,778***	***534,644***	***-***	***-***	***4,751,422***
1.8.1 - Carbon Safety Screening	606,833	6,258	82,457	54,606	-	-	109,977	853,872	118,924	-	-	972,796
1.8.2 - Tails Thickening / CCDs	-	-	-	-	-	-	-	-	-	-	-	-

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
1.8.3 - Tails Detoxification	1,765,921	39,664	417,624	292,737	-	-	326,234	2,802,516	351,861	-	-	3,154,377
1.8.4 - Tails Pumping	391,568	5,852	70,984	47,499	-	-	50,339	560,390	63,860	-	-	624,250
2 - Reagents & Plant Services	**27,869,160**	**251,489**	**3,062,257**	**2,263,655**	**-**	**-**	**2,639,153**	**35,834,225**	**4,294,471**	**-**	**-**	**40,128,696**
2.1 - Reagents	***1,780,008***	***39,058***	***440,491***	***303,196***	***-***	***-***	***314,603***	***2,838,298***	***379,288***	***-***	***-***	***3,217,586***
2.1.1 - Cyanide	190,684	5,292	53,455	37,985	-	-	41,516	323,640	42,184	-	-	365,824
2.1.3 - Flocculants	657,667	11,196	128,372	88,083	-	-	105,189	979,311	142,059	-	-	1,121,370
2.1.4 - Acid & Caustic	399,262	10,854	111,988	79,121	-	-	68,359	658,730	83,134	-	-	741,863
2.1.6 - Other Reagents	454,530	9,598	121,256	81,060	-	-	94,868	751,714	99,421	-	-	851,135
2.1.7 - Reagents General	77,866	2,118	25,420	16,947	-	-	4,672	124,904	12,490	-	-	137,395
2.2 - Water Services	***3,319,393***	***51,482***	***656,096***	***522,713***	***-***	***-***	***386,361***	***4,884,563***	***692,157***	***-***	***-***	***5,576,720***
2.2.1 - Water Services - General	106,184	5,763	38,357	31,091	-	-	3,530	179,163	19,236	-	-	198,399
2.2.2 - Raw Water	539,802	13,566	180,311	119,223	-	-	55,000	894,336	110,081	-	-	1,004,417
2.2.3 - Process Water	587,894	8,126	117,416	161,109	-	-	66,900	933,319	141,055	-	-	1,074,374
2.2.4 - Potable Water	511,205	6,940	93,342	61,517	-	-	60,175	726,239	110,968	-	-	837,206
2.2.5 - Gland Seal Water	139,399	1,969	24,621	16,341	-	-	13,508	193,869	24,927	-	-	218,797
2.2.6 - Cooling Water	591,442	1,599	18,894	12,827	-	-	80,240	703,403	110,371	-	-	813,774
2.2.7 - Treated Water	695,745	11,024	148,457	97,911	-	-	87,206	1,029,319	145,100	-	-	1,174,419
2.2.8 - Fire Water	147,721	2,495	34,697	22,695	-	-	19,802	224,914	30,420	-	-	255,334
2.3 - Plant Services	***3,462,681***	***45,203***	***511,693***	***436,986***	***-***	***-***	***475,724***	***4,887,084***	***721,077***	***-***	***-***	***5,608,160***
2.3.1 - Piperacks	624,906	21,285	188,052	138,506	-	-	110,104	1,061,568	122,240	-	-	1,183,808
2.3.2 - Water Treatment Plants	704	156	1,867	1,244	-	-	42	3,857	386	-	-	4,243

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
2.3.3 - Sewage Collection & Treatment	2,263,096	15,933	215,913	142,000	-	-	301,925	2,922,934	454,148	-	-	3,377,081
2.3.4 - Event Pond	158,340	5,002	65,893	129,174	-	-	22,089	375,495	44,890	-	-	420,385
2.3.5 - Control Valves	415,635	2,827	39,969	26,062	-	-	41,563	523,229	99,414	-	-	622,643
2.4 - Air Services	***2,803,769***	***21,554***	***277,585***	***195,750***	***-***	***-***	***379,211***	***3,656,314***	***495,441***	***-***	***-***	***4,151,755***
2.4.1 - Compressed Air	593,377	9,436	132,265	92,323	-	-	80,217	898,181	139,408	-	-	1,037,590
2.4.2 - Blower Air	-	-	-	-	-	-	-	-	-	-	-	-
2.4.3 - Oxygen Plant	2,210,392	12,118	145,320	103,427	-	-	298,994	2,758,133	356,032	-	-	3,114,165
2.5 - Fuels	***29,794***	***436***	***5,512***	***3,872***	***-***	***-***	***5,554***	***44,731***	***6,359***	***-***	***-***	***51,090***
2.5.1 - Fuel Storage & Distribution	29,794	436	5,512	3,872	-	-	5,554	44,731	6,359	-	-	51,090
2.6 - Electrical Services	***16,473,515***	***93,756***	***1,170,881***	***801,138***	***-***	***-***	***1,077,700***	***19,523,234***	***2,000,149***	***-***	***-***	***21,523,384***
2.6.1 - Electrical Services - General	199,548	10,993	131,919	87,946	-	-	11,973	431,386	43,139	-	-	474,525
2.6.2 - Plant HV Distribution	6,753,202	25,457	305,488	203,659	-	-	405,192	7,667,541	766,754	-	-	8,434,295
2.6.3 - Plant Sub Stations	8,447,946	50,921	656,867	458,463	-	-	596,166	10,159,443	1,063,770	-	-	11,223,213
2.6.4 - Plant Control System	1,072,819	6,384	76,606	51,071	-	-	64,369	1,264,865	126,486	-	-	1,391,351
3 - Infrastructure	**12,164,095**	**1,272,492**	**16,147,685**	**41,021,672**	**-**	**59,019,884**	**2,388,585**	**130,741,921**	**11,033,698**	**-**	**-**	**141,775,619**
3.1 - Infrastructure - General	***745,810***	***89,518***	***1,273,391***	***3,820,173***	***-***	***250,000***	***-***	***6,089,373***	***658,937***	***-***	***-***	***6,748,311***
3.1.2 - Sites Roads & Tracks	-	80,583	1,125,969	3,377,906	-	-	-	4,503,875	450,387	-	-	4,954,262
3.1.5 - Site Fencing & Access Control	-	-	-	-	-	-	-	-	-	-	-	-
3.1.6 - Communications	500,000	-	-	-	-	-	-	500,000	100,000	-	-	600,000
3.1.8 - Airport	245,810	8,935	147,422	442,267	-	250,000	-	1,085,499	108,550	-	-	1,194,048
3.2 - Environmental	***603,373***	***91,056***	***288,542***	***798,947***	***-***	***122,500***	***42,474***	***1,855,836***	***184,617***	***-***	***-***	***2,040,453***

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
3.2.1 - Site Drainage Management	-	88,719	259,433	778,300	-	-	-	1,037,733	103,773	-	-	1,141,507
3.2.5 - Incinerator	302,123	2,337	29,108	20,647	-	-	42,474	394,353	51,656	-	-	446,009
3.2.6 - Waste Disposal & Landfill	301,250	-	-	-	-	122,500	-	423,750	29,188	-	-	452,938
3.3 - Raw Water	***3,467,923***	***243,711***	***3,872,719***	***9,732,725***	***-***	***-***	***568,840***	***17,642,207***	***1,925,474***	***-***	***-***	***19,567,681***
3.3.1 - Raw Water Supply	2,798,582	82,987	1,051,397	1,654,933	-	-	472,217	5,977,128	712,085	-	-	6,689,213
3.3.2 - Raw Water Storage	669,341	160,724	2,821,322	8,077,792	-	-	96,623	11,665,079	1,213,389	-	-	12,878,468
3.4 - Power Supply	***-***	***-***	***-***	***-***	***-***	***37,419,000***	***-***	***37,419,000***	***2,290,950***	***-***	***-***	***39,709,950***
3.4.1 - Mains Power	-	-	-	-	-	33,219,000	-	33,219,000	1,660,950	-	-	34,879,950
3.4.6 - Emergency / Standby Power	-	-	-	-	-	4,200,000	-	4,200,000	630,000	-	-	4,830,000
3.5 - Tailings Dam & Water Storage Dam	***1,521,956***	***690,720***	***8,884,487***	***25,703,499***	***-***	***-***	***168,203***	***36,278,146***	***3,688,704***	***-***	***-***	***39,966,849***
3.5.1 - Tailings Dam & Water Storage Dam	548,577	665,194	8,479,009	25,418,118	-	-	15,333	34,461,037	3,450,122	-	-	37,911,160
3.5.2 - Tailings Pipeline	685,194	20,180	342,650	242,761	-	-	123,335	1,393,940	167,273	-	-	1,561,213
3.5.3 - Decant System	288,184	5,346	62,828	42,620	-	-	29,535	423,168	71,308	-	-	494,476
3.6 - Buildings - Admin & Security	***2,507,290***	***56,161***	***597,953***	***164,795***	***-***	***-***	***861,672***	***4,131,709***	***501,030***	***-***	***-***	***4,632,739***
3.6.1 - Main Office	888,120	31,472	325,143	87,515	-	-	213,410	1,514,188	181,008	-	-	1,695,196
3.6.2 - Clinic & Emergency Response	216,679	7,404	79,461	23,104	-	-	313,236	632,482	76,567	-	-	709,048
3.6.4 - Security	1,249,400	12,912	141,569	41,953	-	-	228,427	1,661,350	201,701	-	-	1,863,050
3.6.5 - Ablutions, Change House, Meals	153,090	4,373	51,780	12,223	-	-	106,598	323,691	41,755	-	-	365,445
3.7 - Buildings - Plant	***3,040,189***	***90,776***	***1,113,521***	***712,539***	***-***	***526,384***	***698,806***	***6,091,439***	***682,617***	***-***	***-***	***6,774,056***
3.7.1 - Plant Offices	266,208	9,428	102,438	35,641	-	-	108,199	512,486	59,944	-	-	572,430
3.7.2 - Maintenance / Workshop	940,667	23,034	316,731	226,248	-	-	235,820	1,719,466	199,351	-	-	1,918,818

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
3.7.3 - Warehouse / Store	391,041	19,844	252,030	180,549	-	-	46,118	869,738	103,276	-	-	973,014
3.7.7 - Laboratory	715,335	10,624	119,448	85,864	-	526,384	38,658	1,485,689	140,642	-	-	1,626,331
3.7.8 - Reagent Storage	388,678	16,311	199,180	143,710	-	-	54,223	785,791	90,582	-	-	876,373
3.7.9 - Buildings - Plant General	338,259	11,536	123,695	40,527	-	-	215,788	718,270	88,822	-	-	807,091
3.8 - Permanent Accommodation (300 Beds) + (80 Bed Pioneer Camp)	***277,554***	***10,549***	***117,073***	***88,994***	***-***	***20,702,000***	***48,589***	***21,234,210***	***1,101,369***	***-***	***-***	***22,335,580***
3.8.1 - Earthworks, Drainage & Fencing	82,127	6,522	65,218	52,175	-	-	4,824	204,344	30,652	-	-	234,995
3.8.10 - Raw Water	11,849	380	4,284	3,116	-	-	3,920	23,169	2,440	-	-	25,609
3.8.2 - Potable Water	153,340	2,294	31,336	22,881	-	-	38,031	245,587	27,266	-	-	272,854
3.8.3 - Fire Water	15,364	574	6,890	4,593	-	-	922	27,769	2,777	-	-	30,546
3.8.4 - Sewerage	14,874	779	9,345	6,230	-	-	892	31,342	3,134	-	-	34,476
3.8.5 - Power Supply	-	-	-	-	-	-	-	-	-	-	-	-
3.8.6 - Accommodation	-	-	-	-	-	20,702,000	-	20,702,000	1,035,100	-	-	21,737,100
4 - Mining	**899,750**	**-**	**-**	**-**	**-**	**22,722,127**	**-**	**23,621,877**	**1,217,710**	**-**	**-**	**24,839,587**
4.1 - Mining-General	***-***	***-***	***-***	***-***	***-***	***21,792,500***	***-***	***21,792,500***	***1,089,625***	***-***	***-***	***22,882,125***
4.1.1 - Mining Mobilisation & Establishment	-	-	-	-	-	21,792,500	-	21,792,500	1,089,625	-	-	22,882,125
4.5 - Mining Facilities	***899,750***	***-***	***-***	***-***	***-***	***929,627***	***-***	***1,829,377***	***128,085***	***-***	***-***	***1,957,462***
4.5.1 - Mining Facility - General	-	-	-	-	-	-	-	-	-	-	-	-
4.5.7 - Bulk Fuel & Lubricant Storage	899,750	-	-	-	-	929,627	-	1,829,377	128,085	-	-	1,957,462
5 - Management Costs	**-**	**-**	**-**	**-**	**-**	**32,794,823**	**-**	**32,794,823**	**1,705,863**	**-**	**-**	**34,500,686**
5.1 - EPCM - Home Office	***-***	***-***	***-***	***-***	***-***	***14,338,400***	***-***	***14,338,400***	***716,920***	***-***	***-***	***15,055,320***
5.1.5 - Project Services	-	-	-	-	-	14,338,400	-	14,338,400	716,920	-	-	15,055,320

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
5.2 - EPCM - Site	***-***	***-***	***-***	***-***	***-***	***13,750,632***	***-***	***13,750,632***	***687,532***	***-***	***-***	***14,438,164***
5.2.2 - Construction Services	-	-	-	-	-	13,750,632	-	13,750,632	687,532	-	-	14,438,164
5.3 - Specialist Consultants - Design	***-***	***-***	***-***	***-***	***-***	***4,044,572***	***-***	***4,044,572***	***202,229***	***-***	***-***	***4,246,801***
5.3.1 - Tailings Dam	-	-	-	-	-	2,660,173	-	2,660,173	133,009	-	-	2,793,182
5.3.7 - Power Generation	-	-	-	-	-	1,384,399	-	1,384,399	69,220	-	-	1,453,619
5.5 - Vendor Representatives	***-***	***-***	***-***	***-***	***-***	***661,219***	***-***	***661,219***	***99,183***	***-***	***-***	***760,402***
5.5.1 - Vendor Reps	-	-	-	-	-	661,219	-	661,219	99,183	-	-	760,402
6 - Owners Project Costs	**13,626,839**	**-**	**-**	**-**	**-**	**59,007,127**	**196,000**	**72,829,966**	**4,816,862**	**-**	**3,960,428**	**81,607,256**
6.1 - Owners Costs - General	***5,151,325***	***-***	***-***	***-***	***-***	***20,856,887***	***-***	***26,008,212***	***1,585,639***	***-***	***-***	***27,593,852***
6.1.1 - Owners Project Mng't Team Labour	-	-	-	-	-	17,108,191	-	17,108,191	855,410	-	-	17,963,601
6.1.2 - Project Insurance	-	-	-	-	-	500,000	-	500,000	25,000	-	-	525,000
6.1.3 - Specialist Consultants	77,500	-	-	-	-	2,289,696	-	2,367,196	149,360	-	-	2,516,556
6.1.6 - Owners Costs General	2,685,375	-	-	-	-	20,000	-	2,705,375	270,538	-	-	2,975,912
6.1.7 - Owners Office Costs	1,054,600	-	-	-	-	224,500	-	1,279,100	127,910	-	-	1,407,010
6.1.8 - Owners IT/Software	968,600	-	-	-	-	-	-	968,600	96,860	-	-	1,065,460
6.1.9 - HSES	365,250	-	-	-	-	714,500	-	1,079,750	60,562	-	-	1,140,312
6.2 - Plant & Admin Pre-Production	***683,763***	***-***	***-***	***-***	***-***	***12,644,087***	***-***	***13,327,850***	***943,469***	***-***	***-***	***14,271,319***
6.2.1 - Plant Pre-production Labour	208,160	-	-	-	-	3,352,521	-	3,560,681	188,442	-	-	3,749,123
6.2.2 - Admin Pre-production Labour and G & A Expenses	59,650	-	-	-	-	1,526,632	-	1,586,282	82,297	-	-	1,668,579
6.2.3 - Opening Stocks	-	-	-	-	-	5,273,715	-	5,273,715	527,372	-	-	5,801,086
6.2.4 - First Fill Reagents & Consumables	-	-	-	-	-	2,491,219	-	2,491,219	124,561	-	-	2,615,780

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
6.2.7 - Small Tools & Maint Equipment	415,953	-	-	-	-	-	-	415,953	20,798	-	-	436,751
6.3 - Admin Pre-Production Other	***3,934,527***	***-***	***-***	***-***	***-***	***170,000***	***-***	***4,104,527***	***214,076***	***-***	***-***	***4,318,603***
6.3.1 - Training	-	-	-	-	-	170,000	-	170,000	8,500	-	-	178,500
6.3.3 - Information Technology	177,000	-	-	-	-	-	-	177,000	17,700	-	-	194,700
6.3.4 - Security	3,757,527	-	-	-	-	-	-	3,757,527	187,876	-	-	3,945,403
6.4 - Spare Parts	***-***	***-***	***-***	***-***	***-***	***5,917,391***	***-***	***5,917,391***	***887,609***	***-***	***-***	***6,805,000***
6.4.2 - Spares	-	-	-	-	-	5,917,391	-	5,917,391	887,609	-	-	6,805,000
6.5 - Fees / Taxes / Duties	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***3,960,428***	***3,960,428***
6.5.7 - Taxes & Duties	-	-	-	-	-	-	-	-	-	-	3,960,428	3,960,428
6.6 - Community	***-***	***-***	***-***	***-***	***-***	***19,370,561***	***-***	***19,370,561***	***968,528***	***-***	***-***	***20,339,089***
6.6.2 - Land Compensation	-	-	-	-	-	7,134,035	-	7,134,035	356,702	-	-	7,490,737
6.6.3 - Land Acquisition	-	-	-	-	-	11,186,526	-	11,186,526	559,326	-	-	11,745,852
6.6.6 - Other Community Infrastructure	-	-	-	-	-	600,000	-	600,000	30,000	-	-	630,000
6.6.7 - Community Support	-	-	-	-	-	450,000	-	450,000	22,500	-	-	472,500
6.7 - Plant Mobile Equipment	***3,857,224***	***-***	***-***	***-***	***-***	***48,200***	***196,000***	***4,101,424***	***217,541***	***-***	***-***	***4,318,965***
6.7.1 - Light Vehicles	2,086,108	-	-	-	-	-	2,500	2,088,608	105,805	-	-	2,194,413
6.7.2 - Cranes	522,909	-	-	-	-	-	50,000	572,909	28,645	-	-	601,554
6.7.3 - Forklifts	518,317	-	-	-	-	-	50,000	568,317	28,416	-	-	596,733
6.7.5 - Bobcats	-	-	-	-	-	-	-	-	-	-	-	-
6.7.6 - Trucks	193,000	-	-	-	-	-	25,000	218,000	10,900	-	-	228,900
6.7.7 - Boom & Scissor Lifts	-	-	-	-	-	48,200	15,000	63,200	9,480	-	-	72,680

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
6.7.8 - Other Plant Mobile Equipment	536,890	-	-	-	-	-	53,500	590,390	34,294	-	-	624,685
7 - Owners Operations Costs	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
7.2 - Working Capital	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
7.2.1 - General	-	-	-	-	-	-	-	-	-	-	-	-
	143,663,708	**5,059,386**	**32,369,013**	**52,729,539**	**39,392,500**	**182,367,015**	**18,736,070**	**469,257,844**	**42,299,897**	**-**	**3,960,428**	**515,518,169**

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
0 - Construction Distributables	**7,740,498**	**2,464,703**	**130,252**	**75,247**	**39,392,500**	**7,860,554**	**338,550**	**55,537,602**	**5,103,355**	**-**	**-**	**60,640,957**
0.1 - Construction Distributables - Contractors	***89,964***	***2,457,223***	***14,943***	***9,744***	***34,531,597***	***303,750***	***-***	***34,949,997***	***3,558,831***	***-***	***-***	***38,508,828***
0.1.1 - Earthworks	**-**	**1,569,140**	**-**	**-**	**8,141,883**	**-**	**-**	**8,141,883**	**814,188**	**-**	**-**	**8,956,071**
W Earthworks	-	1,569,140	-	-	8,141,883	-	-	8,141,883	814,188	-	-	8,956,071
0.1.2 - Concrete	**-**	**308,928**	**-**	**-**	**9,315,197**	**-**	**-**	**9,315,197**	**931,520**	**-**	**-**	**10,246,717**
C Concrete	-	308,928	-	-	9,315,197	-	-	9,315,197	931,520	-	-	10,246,717
0.1.3 - SMP	**89,964**	**365,371**	**14,943**	**9,744**	**13,056,541**	**303,750**	**-**	**13,474,942**	**1,347,494**	**-**	**-**	**14,822,436**
L Platework	89,964	1,057	14,943	9,744	-	303,750	-	418,400	41,840	-	-	460,240
S1 SMP Indirects	-	364,314	-	-	13,056,541	-	-	13,056,541	1,305,654	-	-	14,362,195
0.1.7 - Electrical & Instrumentation	**-**	**116,326**	**-**	**-**	**3,106,100**	**-**	**-**	**3,106,100**	**310,610**	**-**	**-**	**3,416,710**
E Electrical	-	116,326	-	-	3,106,100	-	-	3,106,100	310,610	-	-	3,416,710
0.1.8 - Buildings	**-**	**97,458**	**-**	**-**	**841,876**	**-**	**-**	**841,876**	**143,119**	**-**	**-**	**984,995**
A Architectural	-	97,458	-	-	841,876	-	-	841,876	143,119	-	-	984,995
0.1.9 - Fencing	**-**	**-**	**-**	**-**	**70,000**	**-**	**-**	**70,000**	**11,900**	**-**	**-**	**81,900**
Z General	-	-	-	-	70,000	-	-	70,000	11,900	-	-	81,900
0.2 - Site Construction Distributables - General	***1,060,000***	***5,394***	***92,582***	***59,645***	***216,503***	***1,602,261***	***15,000***	***3,045,991***	***302,399***	***-***	***-***	***3,348,390***
0.2.1 - Construction Equipment	**60,000**	**-**	**-**	**-**	**-**	**1,015,000**	**15,000**	**1,090,000**	**67,500**	**-**	**-**	**1,157,500**
U Owners Costs	60,000	-	-	-	-	1,015,000	15,000	1,090,000	67,500	-	-	1,157,500
0.2.3 - General Freight & Transport	**1,000,000**	**-**	**-**	**-**	**100,000**	**-**	**-**	**1,100,000**	**115,000**	**-**	**-**	**1,215,000**
U Owners Costs	1,000,000	-	-	-	-	-	-	1,000,000	100,000	-	-	1,100,000
Z General	-	-	-	-	100,000	-	-	100,000	15,000	-	-	115,000

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
0.2.4 - Construction Power & Water	**-**	**594**	**11,078**	**1,901**	**116,503**	**-**	**-**	**129,482**	**19,422**	**-**	**-**	**148,904**
Z General	-	594	11,078	1,901	116,503	-	-	129,482	19,422	-	-	148,904
0.2.9 - Commissioning Assistance	**-**	**4,800**	**81,504**	**57,744**	**-**	**587,261**	**-**	**726,509**	**100,476**	**-**	**-**	**826,985**
M Mechanical	-	-	-	-	-	347,100	-	347,100	52,065	-	-	399,165
U Owners Costs	-	-	-	-	-	240,161	-	240,161	27,524	-	-	267,685
Z General	-	4,800	81,504	57,744	-	-	-	139,248	20,887	-	-	160,135
0.3 - Site Construction Facilities	***1,062,517***	***2,086***	***22,727***	***5,859***	***59,400***	***540,000***	***73,550***	***1,764,053***	***176,171***	***-***	***-***	***1,940,224***
0.3.1 - Construction Site Preparation / Earthworks	**-**	**-**	**-**	**-**	**-**	**100,000**	**-**	**100,000**	**15,000**	**-**	**-**	**115,000**
U Owners Costs	-	-	-	-	-	100,000	-	100,000	15,000	-	-	115,000
0.3.3 - Laydown Areas	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
U Owners Costs	-	-	-	-	-	-	-	-	-	-	-	-
0.3.4 - Construction Site Offices	**375,517**	**2,086**	**22,727**	**5,859**	**-**	**-**	**73,550**	**477,653**	**66,561**	**-**	**-**	**544,214**
A Architectural	367,752	1,504	18,302	2,521	-	-	73,550	462,125	64,698	-	-	526,823
C Concrete	7,765	581	4,425	3,338	-	-	-	15,527	1,863	-	-	17,391
0.3.6 - Medical & First Aid	**210,000**	**-**	**-**	**-**	**59,400**	**440,000**	**-**	**709,400**	**46,910**	**-**	**-**	**756,310**
U Owners Costs	210,000	-	-	-	-	440,000	-	650,000	38,000	-	-	688,000
Z General	-	-	-	-	59,400	-	-	59,400	8,910	-	-	68,310
0.3.7 - Construction Communications	**477,000**	**-**	**-**	**-**	**-**	**-**	**-**	**477,000**	**47,700**	**-**	**-**	**524,700**
U Owners Costs	477,000	-	-	-	-	-	-	477,000	47,700	-	-	524,700
Z General	-	-	-	-	-	-	-	-	-	-	-	-
0.3.9 - Construction Temporary Works	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
A Architectural	-	-	-	-	-	-	-	-	-	-	-	-
0.4 - Site Construction Facilities Other	***40,000***	**-**	**-**	**-**	**-**	**-**	**-**	***40,000***	***4,000***	**-**	**-**	***44,000***
0.4.1 - Contractor Compounds	**40,000**	**-**	**-**	**-**	**-**	**-**	**-**	**40,000**	**4,000**	**-**	**-**	**44,000**
U Owners Costs	40,000	-	-	-	-	-	-	40,000	4,000	-	-	44,000
0.5 - Construction Operations	***4,715,538***	**-**	**-**	**-**	***323,000***	***390,000***	***250,000***	***5,678,538***	***559,004***	**-**	**-**	***6,237,541***
0.5.1 - Construction Operating Costs	**-**	**-**	**-**	**-**	**323,000**	**-**	**250,000**	**573,000**	**48,450**	**-**	**-**	**621,450**
Z General	-	-	-	-	323,000	-	250,000	573,000	48,450	-	-	621,450
0.5.2 - Construction Fuels & Lubricants	**3,425,738**	**-**	**-**	**-**	**-**	**-**	**-**	**3,425,738**	**342,574**	**-**	**-**	**3,768,311**
U Owners Costs	3,425,738	-	-	-	-	-	-	3,425,738	342,574	-	-	3,768,311
0.5.6 - Waste Management	**-**	**-**	**-**	**-**	**-**	**140,000**	**-**	**140,000**	**14,000**	**-**	**-**	**154,000**
U Owners Costs	-	-	-	-	-	140,000	-	140,000	14,000	-	-	154,000
0.5.7 - Repairs & Maintenance	**789,800**	**-**	**-**	**-**	**-**	**250,000**	**-**	**1,039,800**	**103,980**	**-**	**-**	**1,143,780**
U Owners Costs	789,800	-	-	-	-	250,000	-	1,039,800	103,980	-	-	1,143,780
Z General	-	-	-	-	-	-	-	-	-	-	-	-
0.5.8 - Surveying	**500,000**	**-**	**-**	**-**	**-**	**-**	**-**	**500,000**	**50,000**	**-**	**-**	**550,000**
U Owners Costs	500,000	-	-	-	-	-	-	500,000	50,000	-	-	550,000
Z General	-	-	-	-	-	-	-	-	-	-	-	-
0.6 - Construction Accommodation	***772,480***	**-**	**-**	**-**	***4,262,000***	***5,024,543***	**-**	***10,059,023***	***502,951***	**-**	**-**	***10,561,974***
0.6.2 - Construction Camp	**-**	**-**	**-**	**-**	**4,202,000**	**-**	**-**	**4,202,000**	**210,100**	**-**	**-**	**4,412,100**
U Owners Costs	-	-	-	-	4,202,000	-	-	4,202,000	210,100	-	-	4,412,100
0.6.3 - Camp Operations & Maintenance	**-**	**-**	**-**	**-**	**-**	**463,100**	**-**	**463,100**	**23,155**	**-**	**-**	**486,255**

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
U Owners Costs	-	-	-	-	-	463,100	-	463,100	23,155	-	-	486,255
0.6.4 - Meals During Construction	**772,480**	**-**	**-**	**-**	**60,000**	**4,561,443**	**-**	**5,393,923**	**269,696**	**-**	**-**	**5,663,619**
U Owners Costs	772,480	-	-	-	60,000	4,561,443	-	5,393,923	269,696	-	-	5,663,619
Z General	-	-	-	-	-	-	-	-	-	-	-	-
1 - Treatment Plant Costs	**81,363,367**	**1,070,702**	**13,028,818**	**9,368,965**	**-**	**962,500**	**13,173,781**	**117,897,431**	**14,127,937**	**-**	**-**	**132,025,367**
1.1 - Treatment Plant - General	***404,100***	***36,716***	***682,585***	***1,965,634***	***-***	***-***	***33,956***	***3,086,275***	***342,461***	***-***	***-***	***3,428,736***
1.1.1 - Bulk Site Earthworks	**-**	**26,490**	**538,116**	**1,614,349**	**-**	**-**	**-**	**2,152,466**	**215,247**	**-**	**-**	**2,367,712**
W Earthworks	-	26,490	538,116	1,614,349	-	-	-	2,152,466	215,247	-	-	2,367,712
1.1.2 - Detailed Site Earthworks	**-**	**4,473**	**73,805**	**221,415**	**-**	**-**	**-**	**295,219**	**35,426**	**-**	**-**	**330,646**
W Earthworks	-	4,473	73,805	221,415	-	-	-	295,219	35,426	-	-	330,646
1.1.4 - In-plant Roads	**-**	**2,020**	**33,336**	**100,008**	**-**	**-**	**-**	**133,344**	**16,001**	**-**	**-**	**149,345**
W Earthworks	-	2,020	33,336	100,008	-	-	-	133,344	16,001	-	-	149,345
1.1.7 - Site Security Fencing	**404,100**	**3,733**	**37,328**	**29,862**	**-**	**-**	**33,956**	**505,246**	**75,787**	**-**	**-**	**581,033**
Z General	404,100	3,733	37,328	29,862	-	-	33,956	505,246	75,787	-	-	581,033
1.2 - Feed Preparation	***8,092,074***	***177,559***	***1,816,318***	***1,324,307***	***-***	***-***	***1,191,742***	***12,424,441***	***1,374,019***	***-***	***-***	***13,798,460***
1.2.1 - Primary Crushing	**7,057,092**	**138,343**	**1,346,821**	**986,004**	**-**	**-**	**990,795**	**10,380,711**	**1,169,638**	**-**	**-**	**11,550,349**
C Concrete	1,786,679	102,735	781,817	589,701	-	-	-	3,158,197	322,863	-	-	3,481,061
E Electrical	162,709	7,956	95,467	63,645	-	-	9,763	331,583	33,158	-	-	364,741
L Platework	894,022	6,962	118,221	83,757	-	-	266,857	1,362,857	154,612	-	-	1,517,469
M Mechanical	3,626,551	8,960	152,149	107,794	-	-	585,783	4,472,276	515,023	-	-	4,987,300
P Piping	207,869	2,917	49,537	35,096	-	-	20,787	313,288	68,923	-	-	382,211

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
S Steelwork	379,263	8,812	149,631	106,011	-	-	107,606	742,510	75,057	-	-	817,567
1.2.5 - Stockpiling	**1,034,982**	**39,216**	**469,497**	**338,304**	**-**	**-**	**200,947**	**2,043,730**	**204,381**	**-**	**-**	**2,248,111**
C Concrete	261,367	19,699	149,906	113,070	-	-	-	524,344	52,800	-	-	577,144
E Electrical	69,201	2,372	28,466	18,977	-	-	4,152	120,796	12,080	-	-	132,876
S Steelwork	704,413	17,145	291,125	206,257	-	-	196,795	1,398,590	139,502	-	-	1,538,092
1.3 - Milling	***46,305,861***	***437,856***	***5,710,031***	***2,774,373***	***-***	***962,500***	***7,701,096***	***63,453,861***	***7,529,659***	***-***	***-***	***70,983,520***
1.3.1 - Reclaim	**6,463,101**	**133,449**	**1,373,615**	**999,033**	**-**	**-**	**746,296**	**9,582,045**	**1,097,122**	**-**	**-**	**10,679,168**
C Concrete	1,599,029	89,597	681,830	514,285	-	-	-	2,795,144	282,083	-	-	3,077,226
E Electrical	591,299	10,557	126,682	84,455	-	-	35,478	837,913	83,791	-	-	921,705
L Platework	226,666	2,202	37,139	26,242	-	-	66,251	356,298	38,291	-	-	394,589
M Mechanical	2,879,481	7,911	134,330	95,170	-	-	431,922	3,540,904	375,884	-	-	3,916,788
P Piping	620,668	8,711	147,910	104,791	-	-	62,067	935,436	205,796	-	-	1,141,232
S Steelwork	545,958	14,471	245,724	174,091	-	-	150,578	1,116,351	111,278	-	-	1,227,629
1.3.2 - Grinding	**35,608,825**	**261,542**	**3,805,168**	**1,418,278**	**-**	**962,500**	**6,293,204**	**48,087,975**	**5,693,750**	**-**	**-**	**53,781,724**
C Concrete	2,216,515	138,250	337,329	461,753	-	-	-	3,015,597	301,560	-	-	3,317,157
E Electrical	1,208,965	39,532	474,387	316,258	-	-	72,538	2,072,147	207,215	-	-	2,279,362
L Platework	633,118	5,012	70,868	46,209	-	-	128,769	878,963	98,601	-	-	977,565
M Mechanical	28,563,132	33,731	2,286,042	178,999	-	962,500	5,537,782	37,528,454	4,376,572	-	-	41,905,026
P Piping	1,632,851	12,480	176,469	115,067	-	-	163,285	2,087,672	459,288	-	-	2,546,960
S Steelwork	1,354,245	32,537	460,074	299,992	-	-	390,830	2,505,140	250,514	-	-	2,755,654
1.3.3 - Classification	**1,540,628**	**9,461**	**132,924**	**86,744**	**-**	**-**	**225,907**	**1,986,203**	**272,294**	**-**	**-**	**2,258,498**

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
E Electrical	7,022	401	4,818	3,212	-	-	421	15,473	1,547	-	-	17,020
L Platework	88,009	1,020	14,428	9,408	-	-	26,913	138,757	13,876	-	-	152,633
M Mechanical	1,080,261	1,672	23,642	15,416	-	-	162,039	1,281,358	135,736	-	-	1,417,094
P Piping	365,337	6,367	90,036	58,708	-	-	36,534	550,615	121,135	-	-	671,750
1.3.4 - Gravity Concentration	**2,137,785**	**25,593**	**310,070**	**209,807**	**-**	**-**	**351,125**	**3,008,787**	**369,693**	**-**	**-**	**3,378,480**
C Concrete	61,031	4,276	10,433	14,282	-	-	-	85,745	8,575	-	-	94,320
E Electrical	19,768	837	10,044	6,696	-	-	1,186	37,694	3,769	-	-	41,464
L Platework	101,266	934	13,202	8,609	-	-	24,627	147,704	17,724	-	-	165,428
M Mechanical	1,208,756	2,383	33,690	21,968	-	-	181,313	1,445,727	158,813	-	-	1,604,540
P Piping	285,418	4,975	70,340	45,866	-	-	28,542	430,166	94,637	-	-	524,803
S Steelwork	461,546	12,190	172,360	112,387	-	-	115,457	861,750	86,175	-	-	947,925
1.3.6 - Recycle Crushing	**555,521**	**7,811**	**88,254**	**60,511**	**-**	**-**	**84,564**	**788,850**	**96,800**	**-**	**-**	**885,650**
C Concrete	29,132	2,248	11,436	10,271	-	-	-	50,838	6,101	-	-	56,938
E Electrical	19,574	863	10,354	6,903	-	-	1,174	38,005	3,801	-	-	41,806
L Platework	31,322	287	4,054	2,643	-	-	7,562	45,581	5,400	-	-	50,981
M Mechanical	413,902	3,139	44,379	28,937	-	-	62,085	549,303	65,916	-	-	615,220
P Piping	19,693	343	4,853	3,165	-	-	1,969	29,680	6,530	-	-	36,209
S Steelwork	41,899	932	13,178	8,593	-	-	11,773	75,443	9,053	-	-	84,496
1.4 - Trash Removal & Thickening	***3,603,905***	***55,130***	***497,841***	***367,902***	***-***	***-***	***1,006,710***	***5,476,358***	***694,598***	***-***	***-***	***6,170,957***
1.4.1 - Trash Screening	**999,755**	**15,709**	**184,554**	**127,625**	**-**	**-**	**189,738**	**1,501,673**	**167,583**	**-**	**-**	**1,669,256**
C Concrete	54,539	3,271	7,981	10,925	-	-	-	73,445	7,718	-	-	81,163

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
E Electrical	171,734	1,481	17,773	11,849	-	-	10,304	211,661	21,166	-	-	232,827
L Platework	146,160	1,661	23,493	15,319	-	-	43,823	228,795	22,880	-	-	251,675
M Mechanical	228,769	585	8,275	5,396	-	-	34,315	276,754	33,211	-	-	309,965
P Piping	54,469	949	13,424	8,753	-	-	5,447	82,092	18,060	-	-	100,152
S Steelwork	344,085	7,761	113,608	75,384	-	-	95,849	628,925	64,549	-	-	693,474
1.4.2 - Feed Thickening	**2,604,150**	**39,421**	**313,287**	**240,276**	**-**	**-**	**816,972**	**3,974,686**	**527,015**	**-**	**-**	**4,501,701**
C Concrete	314,118	20,238	49,381	67,595	-	-	-	431,094	43,109	-	-	474,203
E Electrical	152,505	3,428	41,135	27,424	-	-	9,150	230,214	23,021	-	-	253,236
L Platework	10,947	115	1,626	1,060	-	-	3,033	16,666	1,667	-	-	18,333
M Mechanical	1,633,291	6,813	96,342	62,820	-	-	751,197	2,543,649	300,770	-	-	2,844,419
P Piping	459,711	8,012	113,294	73,874	-	-	45,971	692,850	152,427	-	-	845,277
S Steelwork	33,578	814	11,509	7,505	-	-	7,620	60,212	6,021	-	-	66,234
1.6 - Leaching	***14,023,020***	***245,546***	***3,025,490***	***2,038,701***	***-***	***-***	***1,825,832***	***20,913,042***	***2,627,120***	***-***	***-***	***23,540,163***
1.6.2 - CIL	**14,023,020**	**245,546**	**3,025,490**	**2,038,701**	**-**	**-**	**1,825,832**	**20,913,042**	**2,627,120**	**-**	**-**	**23,540,163**
C Concrete	604,907	37,124	90,582	123,994	-	-	-	819,483	81,948	-	-	901,431
E Electrical	342,458	5,693	68,311	45,541	-	-	20,547	476,857	47,686	-	-	524,543
L Platework	6,106,852	120,708	1,706,810	1,112,927	-	-	785,818	9,712,409	971,241	-	-	10,683,650
M Mechanical	3,160,250	8,130	114,960	74,960	-	-	474,038	3,824,207	391,075	-	-	4,215,282
P Piping	2,866,918	53,057	750,221	489,182	-	-	286,692	4,393,013	966,463	-	-	5,359,475
S Steelwork	941,634	20,835	294,606	192,098	-	-	258,737	1,687,074	168,707	-	-	1,855,782
1.7 - Elution & Gold Room	***6,170,085***	***66,121***	***725,490***	***503,205***	***-***	***-***	***927,895***	***8,326,675***	***1,025,435***	***-***	***-***	***9,352,110***

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
1.7.1 - Carbon Recovery	**104,165**	**1,094**	**15,179**	**9,921**	**-**	**-**	**15,568**	**144,832**	**21,400**	**-**	**-**	**166,232**
C Concrete	-	-	-	-	-	-	-	-	-	-	-	-
E Electrical	2,929	134	1,606	1,071	-	-	176	5,781	578	-	-	6,359
L Platework	15,354	147	2,081	1,357	-	-	3,882	22,674	2,721	-	-	25,395
M Mechanical	58,439	334	4,728	3,083	-	-	8,766	75,016	9,002	-	-	84,018
P Piping	27,443	478	6,763	4,410	-	-	2,744	41,361	9,099	-	-	50,460
S Steelwork	-	-	-	-	-	-	-	-	-	-	-	-
1.7.2 - Acid Wash	**365,936**	**8,774**	**38,683**	**37,986**	**-**	**-**	**37,282**	**479,886**	**59,283**	**-**	**-**	**539,169**
C Concrete	105,974	7,297	17,805	24,372	-	-	-	148,150	14,815	-	-	162,965
L Platework	12,375	270	3,817	2,489	-	-	2,107	20,788	2,079	-	-	22,867
M Mechanical	208,338	523	7,388	4,817	-	-	31,251	251,794	29,375	-	-	281,169
P Piping	39,249	684	9,673	6,307	-	-	3,925	59,154	13,014	-	-	72,168
1.7.3 - Elution	**1,396,999**	**15,958**	**208,124**	**138,209**	**-**	**-**	**261,928**	**2,005,260**	**243,172**	**-**	**-**	**2,248,432**
C Concrete	21,771	1,349	3,292	4,506	-	-	-	29,570	2,957	-	-	32,527
E Electrical	53,576	811	9,727	6,485	-	-	3,215	73,003	7,300	-	-	80,303
L Platework	66,803	3,252	45,988	29,987	-	-	45,952	188,729	18,873	-	-	207,602
M Mechanical	810,990	836	11,821	7,708	-	-	121,648	952,167	105,100	-	-	1,057,267
P Piping	181,153	3,157	44,645	29,111	-	-	18,115	273,024	60,065	-	-	333,089
S Steelwork	262,706	6,552	92,651	60,413	-	-	72,998	488,767	48,877	-	-	537,643
1.7.4 - Carbon Regeneration	**1,724,212**	**11,570**	**154,256**	**101,349**	**-**	**-**	**207,554**	**2,187,371**	**289,664**	**-**	**-**	**2,477,035**
C Concrete	-	-	-	-	-	-	-	-	-	-	-	-

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
E Electrical	537,368	4,368	52,420	34,947	-	-	32,242	656,977	65,698	-	-	722,675
L Platework	57,007	974	13,768	8,977	-	-	20,166	99,918	10,873	-	-	110,792
M Mechanical	843,235	1,233	17,436	11,369	-	-	126,485	998,525	118,064	-	-	1,116,589
P Piping	286,602	4,995	70,632	46,056	-	-	28,660	431,950	95,029	-	-	526,979
S Steelwork	-	-	-	-	-	-	-	-	-	-	-	-
1.7.5 - Intense Cyanidation	**488,503**	**2,261**	**31,970**	**20,846**	**-**	**-**	**69,367**	**610,687**	**75,205**	**-**	**-**	**685,891**
M Mechanical	410,343	899	12,708	8,286	-	-	61,551	492,888	49,289	-	-	542,177
P Piping	78,161	1,362	19,262	12,560	-	-	7,816	117,799	25,916	-	-	143,715
1.7.6 - Electrowinning	**1,201,117**	**10,971**	**139,893**	**93,374**	**-**	**-**	**213,147**	**1,647,532**	**197,637**	**-**	**-**	**1,845,169**
C Concrete	14,732	1,149	2,802	3,836	-	-	-	21,371	2,137	-	-	23,508
E Electrical	32,050	844	10,125	6,750	-	-	1,923	50,848	5,085	-	-	55,933
L Platework	108,418	4,110	58,115	37,894	-	-	62,729	267,157	27,121	-	-	294,278
M Mechanical	878,065	1,944	27,484	17,921	-	-	131,710	1,055,179	107,639	-	-	1,162,818
P Piping	167,852	2,926	41,367	26,973	-	-	16,785	252,977	55,655	-	-	308,632
1.7.7 - Gold Room & Smelting	**889,153**	**15,493**	**137,385**	**101,520**	**-**	**-**	**123,049**	**1,251,107**	**139,075**	**-**	**-**	**1,390,182**
C Concrete	100,993	6,636	16,193	22,166	-	-	-	139,352	13,935	-	-	153,287
E Electrical	72,695	1,888	22,662	15,108	-	-	4,362	114,827	11,483	-	-	126,309
L Platework	57,024	362	5,123	3,340	-	-	8,119	73,606	8,680	-	-	82,286
M Mechanical	467,222	1,066	15,072	9,828	-	-	70,083	562,205	59,626	-	-	621,831
P Piping	51,087	890	12,590	8,209	-	-	5,109	76,995	16,939	-	-	93,934
S Steelwork	140,131	4,650	65,746	42,869	-	-	35,377	284,122	28,412	-	-	312,534

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
1.8 - Tails Handling	***2,764,322***	***51,773***	***571,064***	***394,843***	***-***	***-***	***486,549***	***4,216,778***	***534,644***	***-***	***-***	***4,751,422***
1.8.1 - Carbon Safety Screening	**606,833**	**6,258**	**82,457**	**54,606**	**-**	**-**	**109,977**	**853,872**	**118,924**	**-**	**-**	**972,796**
C Concrete	6,647	438	1,068	1,462	-	-	-	9,177	1,101	-	-	10,279
E Electrical	10,761	425	5,103	3,402	-	-	646	19,911	1,991	-	-	21,902
L Platework	78,040	894	12,643	8,244	-	-	23,855	122,782	14,322	-	-	137,103
M Mechanical	292,692	711	10,048	6,552	-	-	43,904	353,195	40,855	-	-	394,050
P Piping	125,439	2,186	30,914	20,158	-	-	12,544	189,055	41,592	-	-	230,647
S Steelwork	93,254	1,604	22,681	14,789	-	-	29,029	159,752	19,063	-	-	178,815
1.8.2 - Tails Thickening / CCDs	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
M Mechanical	-	-	-	-	-	-	-	-	-	-	-	-
1.8.3 - Tails Detoxification	**1,765,921**	**39,664**	**417,624**	**292,737**	**-**	**-**	**326,234**	**2,802,516**	**351,861**	**-**	**-**	**3,154,377**
C Concrete	173,937	10,995	26,827	36,723	-	-	-	237,487	24,992	-	-	262,480
E Electrical	261,970	6,815	81,776	54,517	-	-	15,718	413,982	41,398	-	-	455,380
L Platework	195,409	8,297	117,315	76,495	-	-	128,926	518,145	51,815	-	-	569,960
M Mechanical	521,538	1,379	19,505	12,718	-	-	78,231	631,991	66,114	-	-	698,106
P Piping	372,950	6,500	91,912	59,931	-	-	37,295	562,088	123,659	-	-	685,748
S Steelwork	240,118	5,678	80,288	52,352	-	-	66,065	438,823	43,882	-	-	482,705
1.8.4 - Tails Pumping	**391,568**	**5,852**	**70,984**	**47,499**	**-**	**-**	**50,339**	**560,390**	**63,860**	**-**	**-**	**624,250**
C Concrete	3,609	317	774	1,059	-	-	-	5,442	544	-	-	5,986
E Electrical	177,891	3,761	45,128	30,086	-	-	10,673	263,779	26,378	-	-	290,156
L Platework	37,099	602	8,514	5,552	-	-	15,882	67,047	6,705	-	-	73,752

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
M Mechanical	129,727	418	5,911	3,854	-	-	19,459	158,950	15,895	-	-	174,845
P Piping	43,242	754	10,657	6,949	-	-	4,324	65,172	14,338	-	-	79,510
2 - Reagents & Plant Services	**27,869,160**	**251,489**	**3,062,257**	**2,263,655**	**-**	**-**	**2,639,153**	**35,834,225**	**4,294,471**	**-**	**-**	**40,128,696**
2.1 - Reagents	***1,780,008***	***39,058***	***440,491***	***303,196***	***-***	***-***	***314,603***	***2,838,298***	***379,288***	***-***	***-***	***3,217,586***
2.1.1 - Cyanide	**190,684**	**5,292**	**53,455**	**37,985**	**-**	**-**	**41,516**	**323,640**	**42,184**	**-**	**-**	**365,824**
C Concrete	28,152	1,745	4,258	5,828	-	-	-	38,238	3,824	-	-	42,062
E Electrical	5,496	445	5,345	3,563	-	-	330	14,734	1,473	-	-	16,208
L Platework	40,423	1,703	24,083	15,703	-	-	26,386	106,595	10,659	-	-	117,254
M Mechanical	62,777	460	6,502	4,239	-	-	9,417	82,935	8,377	-	-	91,312
P Piping	53,836	938	13,268	8,651	-	-	5,384	81,138	17,850	-	-	98,988
2.1.3 - Flocculants	**657,667**	**11,196**	**128,372**	**88,083**	**-**	**-**	**105,189**	**979,311**	**142,059**	**-**	**-**	**1,121,370**
C Concrete	31,903	2,435	5,942	8,134	-	-	-	45,979	4,791	-	-	50,770
E Electrical	14,712	677	8,125	5,417	-	-	883	29,136	2,914	-	-	32,050
L Platework	30,937	1,291	18,260	11,906	-	-	20,351	81,455	9,517	-	-	90,972
M Mechanical	272,249	711	10,048	6,552	-	-	40,837	329,686	33,320	-	-	363,005
P Piping	233,401	4,068	57,521	37,507	-	-	23,340	351,769	77,389	-	-	429,158
S Steelwork	74,464	2,014	28,476	18,568	-	-	19,778	141,287	14,129	-	-	155,415
2.1.4 - Acid & Caustic	**399,262**	**10,854**	**111,988**	**79,121**	**-**	**-**	**68,359**	**658,730**	**83,134**	**-**	**-**	**741,863**
C Concrete	49,284	3,417	8,337	11,412	-	-	-	69,033	6,903	-	-	75,937
E Electrical	18,543	705	8,463	5,642	-	-	1,113	33,761	3,376	-	-	37,137
L Platework	34,929	609	8,611	5,614	-	-	16,062	65,216	6,522	-	-	71,738

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
M Mechanical	96,260	1,024	14,481	9,442	-	-	14,439	134,622	15,835	-	-	150,457
P Piping	82,316	1,435	20,286	13,228	-	-	8,232	124,062	27,294	-	-	151,355
S Steelwork	117,929	3,664	51,810	33,783	-	-	28,514	232,036	23,204	-	-	255,239
2.1.6 - Other Reagents	**454,530**	**9,598**	**121,256**	**81,060**	**-**	**-**	**94,868**	**751,714**	**99,421**	**-**	**-**	**851,135**
C Concrete	14,880	1,025	2,502	3,425	-	-	-	20,807	2,202	-	-	23,008
E Electrical	27,714	1,149	13,791	9,194	-	-	1,663	52,362	5,236	-	-	57,599
L Platework	73,614	2,467	34,889	22,749	-	-	42,574	173,826	17,383	-	-	191,209
M Mechanical	148,171	815	11,526	7,515	-	-	22,226	189,437	20,069	-	-	209,506
P Piping	127,189	2,217	31,345	20,439	-	-	12,719	191,691	42,172	-	-	233,864
S Steelwork	62,962	1,924	27,203	17,738	-	-	15,686	123,590	12,359	-	-	135,949
2.1.7 - Reagents General	**77,866**	**2,118**	**25,420**	**16,947**	**-**	**-**	**4,672**	**124,904**	**12,490**	**-**	**-**	**137,395**
E Electrical	77,866	2,118	25,420	16,947	-	-	4,672	124,904	12,490	-	-	137,395
2.2 - Water Services	***3,319,393***	***51,482***	***656,096***	***522,713***	***-***	***-***	***386,361***	***4,884,563***	***692,157***	***-***	***-***	***5,576,720***
2.2.1 - Water Services - General	**106,184**	**5,763**	**38,357**	**31,091**	**-**	**-**	**3,530**	**179,163**	**19,236**	**-**	**-**	**198,399**
C Concrete	47,343	3,222	7,860	10,760	-	-	-	65,963	7,916	-	-	73,879
E Electrical	58,841	2,541	30,497	20,331	-	-	3,530	113,200	11,320	-	-	124,520
2.2.2 - Raw Water	**539,802**	**13,566**	**180,311**	**119,223**	**-**	**-**	**55,000**	**894,336**	**110,081**	**-**	**-**	**1,004,417**
C Concrete	9,862	896	2,185	2,991	-	-	-	15,038	1,805	-	-	16,843
E Electrical	25,166	479	5,753	3,836	-	-	1,510	36,265	3,627	-	-	39,892
L Platework	261,017	9,728	137,554	89,692	-	-	22,551	510,814	51,081	-	-	561,896
M Mechanical	131,254	502	7,093	4,625	-	-	19,688	162,659	16,266	-	-	178,925

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
P Piping	112,503	1,961	27,726	18,079	-	-	11,250	169,559	37,303	-	-	206,862
2.2.3 - Process Water	**587,894**	**8,126**	**117,416**	**161,109**	**-**	**-**	**66,900**	**933,319**	**141,055**	**-**	**-**	**1,074,374**
C Concrete	-	28	70	95	-	-	-	165	20	-	-	184
E Electrical	48,058	1,070	12,834	8,556	-	-	2,883	72,332	7,233	-	-	79,565
M Mechanical	271,573	794	11,230	7,323	-	-	40,736	330,861	35,119	-	-	365,980
P Piping	232,806	4,058	57,374	37,411	-	-	23,281	350,872	77,192	-	-	428,064
W Earthworks	35,457	2,176	35,908	107,724	-	-	-	179,089	21,491	-	-	200,580
2.2.4 - Potable Water	**511,205**	**6,940**	**93,342**	**61,517**	**-**	**-**	**60,175**	**726,239**	**110,968**	**-**	**-**	**837,206**
C Concrete	6,362	330	806	1,103	-	-	-	8,271	993	-	-	9,264
E Electrical	14,291	433	5,197	3,465	-	-	857	23,811	2,381	-	-	26,192
L Platework	59,773	1,311	18,538	12,087	-	-	3,383	93,781	9,378	-	-	103,159
M Mechanical	257,132	1,839	26,006	16,957	-	-	38,570	338,666	40,640	-	-	379,306
P Piping	173,646	3,026	42,795	27,904	-	-	17,365	261,710	57,576	-	-	319,286
2.2.5 - Gland Seal Water	**139,399**	**1,969**	**24,621**	**16,341**	**-**	**-**	**13,508**	**193,869**	**24,927**	**-**	**-**	**218,797**
C Concrete	-	28	70	95	-	-	-	165	20	-	-	184
E Electrical	68,747	1,350	16,202	10,801	-	-	4,125	99,875	9,987	-	-	109,862
M Mechanical	46,366	167	2,364	1,542	-	-	6,955	57,226	6,867	-	-	64,093
P Piping	24,287	423	5,985	3,903	-	-	2,429	36,604	8,053	-	-	44,656
2.2.6 - Cooling Water	**591,442**	**1,599**	**18,894**	**12,827**	**-**	**-**	**80,240**	**703,403**	**110,371**	**-**	**-**	**813,774**
C Concrete	3,151	256	625	855	-	-	-	4,630	466	-	-	5,096
E Electrical	6,514	338	4,053	2,702	-	-	391	13,661	1,366	-	-	15,027

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
L Platework	14,603	248	3,503	2,284	-	-	6,534	26,923	2,692	-	-	29,616
M Mechanical	331,953	334	4,728	3,083	-	-	49,793	389,558	46,747	-	-	436,305
P Piping	235,221	423	5,985	3,903	-	-	23,522	268,631	59,099	-	-	327,730
2.2.7 - Treated Water	**695,745**	**11,024**	**148,457**	**97,911**	**-**	**-**	**87,206**	**1,029,319**	**145,100**	**-**	**-**	**1,174,419**
C Concrete	7,062	634	1,548	2,118	-	-	-	10,728	1,073	-	-	11,800
L Platework	150,405	5,719	80,867	52,729	-	-	15,786	299,787	29,979	-	-	329,766
M Mechanical	351,840	1,421	20,096	13,103	-	-	52,776	437,815	52,231	-	-	490,046
P Piping	186,439	3,249	45,947	29,960	-	-	18,644	280,990	61,818	-	-	342,807
2.2.8 - Fire Water	**147,721**	**2,495**	**34,697**	**22,695**	**-**	**-**	**19,802**	**224,914**	**30,420**	**-**	**-**	**255,334**
C Concrete	-	28	70	95	-	-	-	165	20	-	-	184
E Electrical	5,948	118	1,418	946	-	-	357	8,669	867	-	-	9,536
M Mechanical	105,352	1,714	24,233	15,801	-	-	15,803	161,189	17,457	-	-	178,646
P Piping	36,421	635	8,976	5,853	-	-	3,642	54,892	12,076	-	-	66,968
2.3 - Plant Services	***3,462,681***	***45,203***	***511,693***	***436,986***	***-***	***-***	***475,724***	***4,887,084***	***721,077***	***-***	***-***	***5,608,160***
2.3.1 - Piperacks	**624,906**	**21,285**	**188,052**	**138,506**	**-**	**-**	**110,104**	**1,061,568**	**122,240**	**-**	**-**	**1,183,808**
C Concrete	127,337	8,393	20,479	28,033	-	-	-	175,850	21,102	-	-	196,952
E Electrical	113,070	6,879	82,548	55,032	-	-	6,784	257,434	25,743	-	-	283,178
M Mechanical	109,148	-	-	-	-	-	16,372	125,520	15,062	-	-	140,582
S Steelwork	275,352	6,013	85,025	55,440	-	-	86,948	502,765	60,332	-	-	563,097
2.3.2 - Water Treatment Plants	**704**	**156**	**1,867**	**1,244**	**-**	**-**	**42**	**3,857**	**386**	**-**	**-**	**4,243**
E Electrical	704	156	1,867	1,244	-	-	42	3,857	386	-	-	4,243

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
2.3.3 - Sewage Collection & Treatment	**2,263,096**	**15,933**	**215,913**	**142,000**	**-**	**-**	**301,925**	**2,922,934**	**454,148**	**-**	**-**	**3,377,081**
C Concrete	7,793	563	1,373	1,879	-	-	-	11,045	1,147	-	-	12,191
E Electrical	17,897	1,311	15,728	10,486	-	-	1,074	45,184	4,518	-	-	49,703
M Mechanical	1,542,214	1,944	27,484	17,921	-	-	231,332	1,818,951	217,977	-	-	2,036,928
P Piping	695,192	12,117	171,328	111,715	-	-	69,519	1,047,754	230,506	-	-	1,278,260
2.3.4 - Event Pond	**158,340**	**5,002**	**65,893**	**129,174**	**-**	**-**	**22,089**	**375,495**	**44,890**	**-**	**-**	**420,385**
C Concrete	12,204	880	2,146	2,938	-	-	-	17,289	2,075	-	-	19,363
E Electrical	5,620	86	1,032	688	-	-	337	7,678	768	-	-	8,445
M Mechanical	47,000	439	6,206	4,047	-	-	7,050	64,302	7,474	-	-	71,777
P Piping	13,492	235	3,325	2,168	-	-	1,349	20,335	4,474	-	-	24,809
S Steelwork	48,724	1,211	17,129	11,169	-	-	13,352	90,374	9,037	-	-	99,411
W Earthworks	31,299	2,151	36,055	108,164	-	-	-	175,518	21,062	-	-	196,580
2.3.5 - Control Valves	**415,635**	**2,827**	**39,969**	**26,062**	**-**	**-**	**41,563**	**523,229**	**99,414**	**-**	**-**	**622,643**
P Piping	415,635	2,827	39,969	26,062	-	-	41,563	523,229	99,414	-	-	622,643
2.4 - Air Services	***2,803,769***	***21,554***	***277,585***	***195,750***	***-***	***-***	***379,211***	***3,656,314***	***495,441***	***-***	***-***	***4,151,755***
2.4.1 - Compressed Air	**593,377**	**9,436**	**132,265**	**92,323**	**-**	**-**	**80,217**	**898,181**	**139,408**	**-**	**-**	**1,037,590**
C Concrete	15,390	1,000	2,440	3,340	-	-	-	21,170	2,540	-	-	23,711
E Electrical	4,779	862	10,350	6,900	-	-	287	22,315	2,232	-	-	24,547
M Mechanical	261,907	1,129	15,958	10,406	-	-	39,286	327,558	33,701	-	-	361,259
P Piping	250,274	4,362	74,067	52,475	-	-	25,027	401,844	88,406	-	-	490,249
S Steelwork	61,027	2,083	29,449	19,202	-	-	15,617	125,295	12,529	-	-	137,824

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
2.4.2 - Blower Air	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
M Mechanical	-	-	-	-	-	-	-	-	-	-	-	-
2.4.3 - Oxygen Plant	**2,210,392**	**12,118**	**145,320**	**103,427**	**-**	**-**	**298,994**	**2,758,133**	**356,032**	**-**	**-**	**3,114,165**
C Concrete	40,888	2,691	6,565	8,987	-	-	-	56,440	6,773	-	-	63,213
E Electrical	212,411	2,369	28,426	18,951	-	-	12,745	272,532	27,253	-	-	299,786
M Mechanical	1,633,090	1,254	17,732	11,562	-	-	244,964	1,907,347	228,882	-	-	2,136,229
P Piping	212,500	3,704	62,888	44,555	-	-	21,250	341,194	75,063	-	-	416,256
S Steelwork	111,503	2,101	29,709	19,372	-	-	20,036	180,620	18,062	-	-	198,682
2.5 - Fuels	***29,794***	***436***	***5,512***	***3,872***	***-***	***-***	***5,554***	***44,731***	***6,359***	***-***	***-***	***51,090***
2.5.1 - Fuel Storage & Distribution	**29,794**	**436**	**5,512**	**3,872**	**-**	**-**	**5,554**	**44,731**	**6,359**	**-**	**-**	**51,090**
C Concrete	1,218	88	214	294	-	-	-	1,726	207	-	-	1,933
L Platework	5,512	94	1,322	862	-	-	2,466	10,163	1,016	-	-	11,179
M Mechanical	15,624	125	1,773	1,156	-	-	2,344	20,897	2,508	-	-	23,404
P Piping	7,440	130	2,202	1,560	-	-	744	11,946	2,628	-	-	14,574
2.6 - Electrical Services	***16,473,515***	***93,756***	***1,170,881***	***801,138***	***-***	***-***	***1,077,700***	***19,523,234***	***2,000,149***	***-***	***-***	***21,523,384***
2.6.1 - Electrical Services - General	**199,548**	**10,993**	**131,919**	**87,946**	**-**	**-**	**11,973**	**431,386**	**43,139**	**-**	**-**	**474,525**
E Electrical	199,548	10,993	131,919	87,946	-	-	11,973	431,386	43,139	-	-	474,525
2.6.2 - Plant HV Distribution	**6,753,202**	**25,457**	**305,488**	**203,659**	**-**	**-**	**405,192**	**7,667,541**	**766,754**	**-**	**-**	**8,434,295**
E Electrical	6,753,202	25,457	305,488	203,659	-	-	405,192	7,667,541	766,754	-	-	8,434,295
2.6.3 - Plant Sub Stations	**8,447,946**	**50,921**	**656,867**	**458,463**	**-**	**-**	**596,166**	**10,159,443**	**1,063,770**	**-**	**-**	**11,223,213**
A Architectural	359,881	10,590	179,818	127,398	-	-	71,976	739,073	103,470	-	-	842,543

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
C Concrete	109,019	9,224	70,194	52,945	-	-	-	232,159	27,859	-	-	260,018
E Electrical	7,682,014	22,551	270,613	180,409	-	-	460,921	8,593,956	859,396	-	-	9,453,352
S Steelwork	267,032	7,260	123,282	87,343	-	-	58,769	536,426	64,371	-	-	600,797
Z General	30,000	1,296	12,960	10,368	-	-	4,500	57,828	8,674	-	-	66,502
2.6.4 - Plant Control System	**1,072,819**	**6,384**	**76,606**	**51,071**	**-**	**-**	**64,369**	**1,264,865**	**126,486**	**-**	**-**	**1,391,351**
E Electrical	1,072,819	6,384	76,606	51,071	-	-	64,369	1,264,865	126,486	-	-	1,391,351
3 - Infrastructure	**12,164,095**	**1,272,492**	**16,147,685**	**41,021,672**	**-**	**59,019,884**	**2,388,585**	**130,741,921**	**11,033,698**	**-**	**-**	**141,775,619**
3.1 - Infrastructure - General	***745,810***	***89,518***	***1,273,391***	***3,820,173***	***-***	***250,000***	***-***	***6,089,373***	***658,937***	***-***	***-***	***6,748,311***
3.1.2 - Sites Roads & Tracks	**-**	**80,583**	**1,125,969**	**3,377,906**	**-**	**-**	**-**	**4,503,875**	**450,387**	**-**	**-**	**4,954,262**
W Earthworks	-	80,583	1,125,969	3,377,906	-	-	-	4,503,875	450,387	-	-	4,954,262
3.1.5 - Site Fencing & Access Control	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
U Owners Costs	-	-	-	-	-	-	-	-	-	-	-	-
3.1.6 - Communications	**500,000**	**-**	**-**	**-**	**-**	**-**	**-**	**500,000**	**100,000**	**-**	**-**	**600,000**
U Owners Costs	500,000	-	-	-	-	-	-	500,000	100,000	-	-	600,000
3.1.8 - Airport	**245,810**	**8,935**	**147,422**	**442,267**	**-**	**250,000**	**-**	**1,085,499**	**108,550**	**-**	**-**	**1,194,048**
A Architectural	-	-	-	-	-	-	-	-	-	-	-	-
C Concrete	-	-	-	-	-	-	-	-	-	-	-	-
U Owners Costs	1,500	-	-	-	-	250,000	-	251,500	25,150	-	-	276,650
W Earthworks	244,310	8,935	147,422	442,267	-	-	-	833,999	83,400	-	-	917,398
3.2 - Environmental	***603,373***	***91,056***	***288,542***	***798,947***	***-***	***122,500***	***42,474***	***1,855,836***	***184,617***	***-***	***-***	***2,040,453***
3.2.1 - Site Drainage Management	**-**	**88,719**	**259,433**	**778,300**	**-**	**-**	**-**	**1,037,733**	**103,773**	**-**	**-**	**1,141,507**

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
W Earthworks	-	88,719	259,433	778,300	-	-	-	1,037,733	103,773	-	-	1,141,507
3.2.5 - Incinerator	**302,123**	**2,337**	**29,108**	**20,647**	**-**	**-**	**42,474**	**394,353**	**51,656**	**-**	**-**	**446,009**
C Concrete	11,927	893	6,797	5,127	-	-	-	23,852	2,385	-	-	26,237
E Electrical	5,040	373	4,470	2,980	-	-	302	12,792	1,279	-	-	14,071
M Mechanical	240,715	125	1,773	1,156	-	-	36,107	279,751	33,570	-	-	313,321
P Piping	34,388	599	10,177	7,210	-	-	3,439	55,214	12,147	-	-	67,361
S Steelwork	10,054	347	5,891	4,173	-	-	2,626	22,744	2,274	-	-	25,018
3.2.6 - Waste Disposal & Landfill	**301,250**	**-**	**-**	**-**	**-**	**122,500**	**-**	**423,750**	**29,188**	**-**	**-**	**452,938**
U Owners Costs	301,250	-	-	-	-	122,500	-	423,750	29,188	-	-	452,938
3.3 - Raw Water	***3,467,923***	***243,711***	***3,872,719***	***9,732,725***	***-***	***-***	***568,840***	***17,642,207***	***1,925,474***	***-***	***-***	***19,567,681***
3.3.1 - Raw Water Supply	**2,798,582**	**82,987**	**1,051,397**	**1,654,933**	**-**	**-**	**472,217**	**5,977,128**	**712,085**	**-**	**-**	**6,689,213**
C Concrete	26,953	1,780	4,343	5,945	-	-	-	37,241	4,302	-	-	41,543
E Electrical	4,437	281	3,373	2,249	-	-	266	10,326	1,033	-	-	11,358
L Platework	28,719	1,384	19,568	12,759	-	-	20,279	81,325	9,759	-	-	91,085
M Mechanical	818,872	418	5,911	3,854	-	-	122,831	951,467	114,176	-	-	1,065,643
P Piping	1,907,288	37,072	620,533	437,120	-	-	328,841	3,293,783	422,516	-	-	3,716,299
W Earthworks	12,313	42,052	397,669	1,193,006	-	-	-	1,602,987	160,299	-	-	1,763,285
3.3.2 - Raw Water Storage	**669,341**	**160,724**	**2,821,322**	**8,077,792**	**-**	**-**	**96,623**	**11,665,079**	**1,213,389**	**-**	**-**	**12,878,468**
C Concrete	6,400	439	1,070	1,465	-	-	-	8,935	1,072	-	-	10,007
E Electrical	4,437	281	3,373	2,249	-	-	266	10,326	1,033	-	-	11,358
M Mechanical	261,632	293	4,137	2,698	-	-	39,245	307,712	36,925	-	-	344,638

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
P Piping	357,387	9,475	151,935	105,127	-	-	49,859	664,307	106,979	-	-	771,287
S Steelwork	23,365	487	6,885	4,489	-	-	7,253	41,993	4,199	-	-	46,193
W Earthworks	16,120	149,750	2,653,921	7,961,764	-	-	-	10,631,805	1,063,180	-	-	11,694,985
3.4 - Power Supply	***-***	***-***	***-***	***-***	***-***	***37,419,000***	***-***	***37,419,000***	***2,290,950***	***-***	***-***	***39,709,950***
3.4.1 - Mains Power	**-**	**-**	**-**	**-**	**-**	**33,219,000**	**-**	**33,219,000**	**1,660,950**	**-**	**-**	**34,879,950**
U Owners Costs	-	-	-	-	-	33,219,000	-	33,219,000	1,660,950	-	-	34,879,950
3.4.6 - Emergency / Standby Power	**-**	**-**	**-**	**-**	**-**	**4,200,000**	**-**	**4,200,000**	**630,000**	**-**	**-**	**4,830,000**
U Owners Costs	-	-	-	-	-	4,200,000	-	4,200,000	630,000	-	-	4,830,000
3.5 - Tailings Dam & Water Storage Dam	***1,521,956***	***690,720***	***8,884,487***	***25,703,499***	***-***	***-***	***168,203***	***36,278,146***	***3,688,704***	***-***	***-***	***39,966,849***
3.5.1 - Tailings Dam & Water Storage Dam	**548,577**	**665,194**	**8,479,009**	**25,418,118**	**-**	**-**	**15,333**	**34,461,037**	**3,450,122**	**-**	**-**	**37,911,160**
E Electrical	263	90	1,078	719	-	-	16	2,076	208	-	-	2,283
M Mechanical	96,019	334	4,728	3,083	-	-	14,403	118,233	14,188	-	-	132,421
P Piping	9,145	159	2,254	1,470	-	-	914	13,782	3,032	-	-	16,814
W Earthworks	443,151	664,610	8,470,949	25,412,847	-	-	-	34,326,946	3,432,695	-	-	37,759,641
3.5.2 - Tailings Pipeline	**685,194**	**20,180**	**342,650**	**242,761**	**-**	**-**	**123,335**	**1,393,940**	**167,273**	**-**	**-**	**1,561,213**
P Piping	685,194	20,180	342,650	242,761	-	-	123,335	1,393,940	167,273	-	-	1,561,213
3.5.3 - Decant System	**288,184**	**5,346**	**62,828**	**42,620**	**-**	**-**	**29,535**	**423,168**	**71,308**	**-**	**-**	**494,476**
C Concrete	10,996	768	1,874	2,565	-	-	-	15,436	1,674	-	-	17,109
E Electrical	50,896	1,768	21,218	14,145	-	-	3,054	89,313	8,931	-	-	98,244
M Mechanical	77,047	209	2,955	1,927	-	-	11,557	93,487	11,218	-	-	104,705
P Piping	149,244	2,601	36,781	23,983	-	-	14,924	224,933	49,485	-	-	274,418

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
3.6 - Buildings - Admin & Security	***2,507,290***	***56,161***	***597,953***	***164,795***	***-***	***-***	***861,672***	***4,131,709***	***501,030***	***-***	***-***	***4,632,739***
3.6.1 - Main Office	**888,120**	**31,472**	**325,143**	**87,515**	**-**	**-**	**213,410**	**1,514,188**	**181,008**	**-**	**-**	**1,695,196**
A Architectural	639,360	17,280	207,360	-	-	-	206,851	1,053,571	126,428	-	-	1,179,999
C Concrete	170,272	12,751	97,035	73,191	-	-	-	340,498	34,050	-	-	374,547
E Electrical	32,231	749	8,984	5,989	-	-	1,934	49,137	4,914	-	-	54,051
P Piping	46,257	693	11,764	8,335	-	-	4,626	70,982	15,616	-	-	86,598
3.6.2 - Clinic & Emergency Response	**216,679**	**7,404**	**79,461**	**23,104**	**-**	**-**	**313,236**	**632,482**	**76,567**	**-**	**-**	**709,048**
A Architectural	146,520	3,960	47,520	-	-	-	310,276	504,316	60,518	-	-	564,834
C Concrete	32,517	2,435	18,531	13,977	-	-	-	65,026	6,503	-	-	71,528
E Electrical	20,090	746	8,946	5,964	-	-	1,205	36,206	3,621	-	-	39,827
P Piping	17,552	263	4,464	3,163	-	-	1,755	26,934	5,925	-	-	32,859
3.6.4 - Security	**1,249,400**	**12,912**	**141,569**	**41,953**	**-**	**-**	**228,427**	**1,661,350**	**201,701**	**-**	**-**	**1,863,050**
A Architectural	1,121,705	6,912	82,944	-	-	-	222,199	1,426,848	171,222	-	-	1,598,070
C Concrete	49,347	3,695	28,122	21,212	-	-	-	98,681	9,868	-	-	108,549
E Electrical	40,177	1,733	20,795	13,863	-	-	2,411	77,247	7,725	-	-	84,971
P Piping	38,171	572	9,708	6,878	-	-	3,817	58,574	12,886	-	-	71,460
3.6.5 - Ablutions, Change House, Meals	**153,090**	**4,373**	**51,780**	**12,223**	**-**	**-**	**106,598**	**323,691**	**41,755**	**-**	**-**	**365,445**
A Architectural	106,560	2,880	34,560	-	-	-	103,425	244,545	29,345	-	-	273,891
C Concrete	8,711	652	4,964	3,744	-	-	-	17,419	1,742	-	-	19,161
E Electrical	15,217	407	4,884	3,256	-	-	913	24,270	2,427	-	-	26,697
P Piping	22,602	434	7,372	5,223	-	-	2,260	37,456	8,240	-	-	45,697

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
3.7 - Buildings - Plant	***3,040,189***	***90,776***	***1,113,521***	***712,539***	***-***	***526,384***	***698,806***	***6,091,439***	***682,617***	***-***	***-***	***6,774,056***
3.7.1 - Plant Offices	**266,208**	**9,428**	**102,438**	**35,641**	**-**	**-**	**108,199**	**512,486**	**59,944**	**-**	**-**	**572,430**
A Architectural	159,840	4,320	51,840	-	-	-	103,425	315,105	37,813	-	-	352,918
C Concrete	35,473	2,656	20,216	15,248	-	-	-	70,937	7,094	-	-	78,031
E Electrical	57,898	2,256	27,077	18,051	-	-	3,474	106,500	10,650	-	-	117,150
P Piping	12,997	195	3,305	2,342	-	-	1,300	19,944	4,388	-	-	24,331
3.7.2 - Maintenance / Workshop	**940,667**	**23,034**	**316,731**	**226,248**	**-**	**-**	**235,820**	**1,719,466**	**199,351**	**-**	**-**	**1,918,818**
A Architectural	444,176	13,479	228,878	162,155	-	-	182,677	1,017,887	122,146	-	-	1,140,033
C Concrete	96,548	7,230	55,023	41,503	-	-	-	193,074	19,307	-	-	212,381
E Electrical	54,834	1,333	15,999	10,666	-	-	3,290	84,789	8,479	-	-	93,268
M Mechanical	306,840	418	7,098	5,029	-	-	46,026	364,992	36,499	-	-	401,491
P Piping	38,270	573	9,733	6,895	-	-	3,827	58,725	12,919	-	-	71,644
3.7.3 - Warehouse / Store	**391,041**	**19,844**	**252,030**	**180,549**	**-**	**-**	**46,118**	**869,738**	**103,276**	**-**	**-**	**973,014**
A Architectural	182,850	9,177	155,825	110,399	-	-	36,570	485,645	58,277	-	-	543,922
C Concrete	99,074	7,415	56,430	42,563	-	-	-	198,067	19,807	-	-	217,874
E Electrical	61,277	2,267	27,200	18,133	-	-	3,677	110,286	11,029	-	-	121,315
P Piping	26,090	391	6,635	4,701	-	-	2,609	40,035	8,808	-	-	48,843
Z General	21,750	594	5,940	4,752	-	-	3,262	35,705	5,356	-	-	41,060
3.7.7 - Laboratory	**715,335**	**10,624**	**119,448**	**85,864**	**-**	**526,384**	**38,658**	**1,485,689**	**140,642**	**-**	**-**	**1,626,331**
A Architectural	575,556	3,079	52,223	36,980	-	-	33,900	698,659	83,839	-	-	782,498
C Concrete	76,478	5,719	43,522	32,827	-	-	-	152,828	15,283	-	-	168,110

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
E Electrical	39,301	1,467	17,599	11,733	-	-	2,358	70,991	7,099	-	-	78,090
P Piping	24,000	359	6,104	4,324	-	-	2,400	36,828	8,102	-	-	44,930
U Owners Costs	-	-	-	-	-	526,384	-	526,384	26,319	-	-	552,703
3.7.8 - Reagent Storage	**388,678**	**16,311**	**199,180**	**143,710**	**-**	**-**	**54,223**	**785,791**	**90,582**	**-**	**-**	**876,373**
A Architectural	265,261	7,694	130,645	92,559	-	-	53,052	541,517	64,982	-	-	606,499
C Concrete	107,823	8,070	61,416	46,324	-	-	-	215,564	21,556	-	-	237,121
E Electrical	9,708	432	5,190	3,460	-	-	582	18,941	1,894	-	-	20,835
P Piping	5,885	114	1,929	1,366	-	-	589	9,769	2,149	-	-	11,918
3.7.9 - Buildings - Plant General	**338,259**	**11,536**	**123,695**	**40,527**	**-**	**-**	**215,788**	**718,270**	**88,822**	**-**	**-**	**807,091**
A Architectural	213,120	5,760	69,120	-	-	-	206,851	489,091	58,691	-	-	547,781
C Concrete	41,385	3,099	23,585	17,789	-	-	-	82,760	8,276	-	-	91,036
E Electrical	28,136	966	11,591	7,727	-	-	1,688	49,143	4,914	-	-	54,057
P Piping	21,868	328	5,561	3,940	-	-	2,187	33,556	7,382	-	-	40,939
Z General	33,750	1,384	13,838	11,070	-	-	5,062	63,720	9,558	-	-	73,278
3.8 - Permanent Accommodation (300 Beds) + (80 Bed Pioneer Camp)	***277,554***	***10,549***	***117,073***	***88,994***	***-***	***20,702,000***	***48,589***	***21,234,210***	***1,101,369***	***-***	***-***	***22,335,580***
3.8.1 - Earthworks, Drainage & Fencing	**82,127**	**6,522**	**65,218**	**52,175**	**-**	**-**	**4,824**	**204,344**	**30,652**	**-**	**-**	**234,995**
Z General	82,127	6,522	65,218	52,175	-	-	4,824	204,344	30,652	-	-	234,995
3.8.10 - Raw Water	**11,849**	**380**	**4,284**	**3,116**	**-**	**-**	**3,920**	**23,169**	**2,440**	**-**	**-**	**25,609**
C Concrete	3,088	231	1,760	1,328	-	-	-	6,175	741	-	-	6,916
L Platework	8,761	149	2,524	1,788	-	-	3,920	16,994	1,699	-	-	18,693
3.8.2 - Potable Water	**153,340**	**2,294**	**31,336**	**22,881**	**-**	**-**	**38,031**	**245,587**	**27,266**	**-**	**-**	**272,854**

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
C Concrete	5,440	471	1,148	1,572	-	-	-	8,159	979	-	-	9,139
E Electrical	5,872	155	1,863	1,242	-	-	352	9,330	933	-	-	10,263
L Platework	29,134	1,416	24,038	17,030	-	-	20,744	90,947	9,095	-	-	100,042
M Mechanical	112,894	252	4,286	3,037	-	-	16,934	137,151	16,260	-	-	153,411
3.8.3 - Fire Water	**15,364**	**574**	**6,890**	**4,593**	**-**	**-**	**922**	**27,769**	**2,777**	**-**	**-**	**30,546**
E Electrical	15,364	574	6,890	4,593	-	-	922	27,769	2,777	-	-	30,546
3.8.4 - Sewerage	**14,874**	**779**	**9,345**	**6,230**	**-**	**-**	**892**	**31,342**	**3,134**	**-**	**-**	**34,476**
E Electrical	14,874	779	9,345	6,230	-	-	892	31,342	3,134	-	-	34,476
3.8.5 - Power Supply	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
M Mechanical	-	-	-	-	-	-	-	-	-	-	-	-
3.8.6 - Accommodation	**-**	**-**	**-**	**-**	**-**	**20,702,000**	**-**	**20,702,000**	**1,035,100**	**-**	**-**	**21,737,100**
U Owners Costs	-	-	-	-	-	20,702,000	-	20,702,000	1,035,100	-	-	21,737,100
4 - Mining	**899,750**	**-**	**-**	**-**	**-**	**22,722,127**	**-**	**23,621,877**	**1,217,710**	**-**	**-**	**24,839,587**
4.1 - Mining-General	**-**	**-**	**-**	**-**	**-**	***21,792,500***	**-**	***21,792,500***	***1,089,625***	**-**	**-**	***22,882,125***
4.1.1 - Mining Mobilisation & Establishment	**-**	**-**	**-**	**-**	**-**	**21,792,500**	**-**	**21,792,500**	**1,089,625**	**-**	**-**	**22,882,125**
U Owners Costs	-	-	-	-	-	21,792,500	-	21,792,500	1,089,625	-	-	22,882,125
4.5 - Mining Facilities	***899,750***	**-**	**-**	**-**	**-**	***929,627***	**-**	***1,829,377***	***128,085***	**-**	**-**	***1,957,462***
4.5.1 - Mining Facility - General	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
C Concrete	-	-	-	-	-	-	-	-	-	-	-	-
4.5.7 - Bulk Fuel & Lubricant Storage	**899,750**	**-**	**-**	**-**	**-**	**929,627**	**-**	**1,829,377**	**128,085**	**-**	**-**	**1,957,462**
U Owners Costs	899,750	-	-	-	-	929,627	-	1,829,377	128,085	-	-	1,957,462

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
5 - Management Costs	**-**	**-**	**-**	**-**	**-**	**32,794,823**	**-**	**32,794,823**	**1,705,863**	**-**	**-**	**34,500,686**
5.1 - EPCM - Home Office	***-***	***-***	***-***	***-***	***-***	***14,338,400***	***-***	***14,338,400***	***716,920***	***-***	***-***	***15,055,320***
5.1.5 - Project Services	**-**	**-**	**-**	**-**	**-**	**14,338,400**	**-**	**14,338,400**	**716,920**	**-**	**-**	**15,055,320**
Y Consultants	-	-	-	-	-	14,338,400	-	14,338,400	716,920	-	-	15,055,320
5.2 - EPCM - Site	***-***	***-***	***-***	***-***	***-***	***13,750,632***	***-***	***13,750,632***	***687,532***	***-***	***-***	***14,438,164***
5.2.2 - Construction Services	**-**	**-**	**-**	**-**	**-**	**13,750,632**	**-**	**13,750,632**	**687,532**	**-**	**-**	**14,438,164**
Y Consultants	-	-	-	-	-	13,750,632	-	13,750,632	687,532	-	-	14,438,164
5.3 - Specialist Consultants - Design	***-***	***-***	***-***	***-***	***-***	***4,044,572***	***-***	***4,044,572***	***202,229***	***-***	***-***	***4,246,801***
5.3.1 - Tailings Dam	**-**	**-**	**-**	**-**	**-**	**2,660,173**	**-**	**2,660,173**	**133,009**	**-**	**-**	**2,793,182**
Y Consultants	-	-	-	-	-	2,660,173	-	2,660,173	133,009	-	-	2,793,182
5.3.7 - Power Generation	**-**	**-**	**-**	**-**	**-**	**1,384,399**	**-**	**1,384,399**	**69,220**	**-**	**-**	**1,453,619**
U Owners Costs	-	-	-	-	-	1,384,399	-	1,384,399	69,220	-	-	1,453,619
5.5 - Vendor Representatives	***-***	***-***	***-***	***-***	***-***	***661,219***	***-***	***661,219***	***99,183***	***-***	***-***	***760,402***
5.5.1 - Vendor Reps	**-**	**-**	**-**	**-**	**-**	**661,219**	**-**	**661,219**	**99,183**	**-**	**-**	**760,402**
U Owners Costs	-	-	-	-	-	661,219	-	661,219	99,183	-	-	760,402
6 - Owners Project Costs	**13,626,839**	**-**	**-**	**-**	**-**	**59,007,127**	**196,000**	**72,829,966**	**4,816,862**	**-**	**3,960,428**	**81,607,256**
6.1 - Owners Costs - General	***5,151,325***	***-***	***-***	***-***	***-***	***20,856,887***	***-***	***26,008,212***	***1,585,639***	***-***	***-***	***27,593,852***
6.1.1 - Owners Project Mng't Team Labour	**-**	**-**	**-**	**-**	**-**	**17,108,191**	**-**	**17,108,191**	**855,410**	**-**	**-**	**17,963,601**
U Owners Costs	-	-	-	-	-	17,108,191	-	17,108,191	855,410	-	-	17,963,601
6.1.2 - Project Insurance	**-**	**-**	**-**	**-**	**-**	**500,000**	**-**	**500,000**	**25,000**	**-**	**-**	**525,000**
U Owners Costs	-	-	-	-	-	500,000	-	500,000	25,000	-	-	525,000

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
6.1.3 - Specialist Consultants	**77,500**	**-**	**-**	**-**	**-**	**2,289,696**	**-**	**2,367,196**	**149,360**	**-**	**-**	**2,516,556**
U Owners Costs	77,500	-	-	-	-	2,289,696	-	2,367,196	149,360	-	-	2,516,556
6.1.6 - Owners Costs General	**2,685,375**	**-**	**-**	**-**	**-**	**20,000**	**-**	**2,705,375**	**270,538**	**-**	**-**	**2,975,912**
U Owners Costs	2,685,375	-	-	-	-	20,000	-	2,705,375	270,538	-	-	2,975,912
6.1.7 - Owners Office Costs	**1,054,600**	**-**	**-**	**-**	**-**	**224,500**	**-**	**1,279,100**	**127,910**	**-**	**-**	**1,407,010**
U Owners Costs	1,054,600	-	-	-	-	224,500	-	1,279,100	127,910	-	-	1,407,010
6.1.8 - Owners IT/Software	**968,600**	**-**	**-**	**-**	**-**	**-**	**-**	**968,600**	**96,860**	**-**	**-**	**1,065,460**
U Owners Costs	968,600	-	-	-	-	-	-	968,600	96,860	-	-	1,065,460
6.1.9 - HSES	**365,250**	**-**	**-**	**-**	**-**	**714,500**	**-**	**1,079,750**	**60,562**	**-**	**-**	**1,140,312**
U Owners Costs	365,250	-	-	-	-	714,500	-	1,079,750	60,562	-	-	1,140,312
6.2 - Plant & Admin Pre-Production	***683,763***	***-***	***-***	***-***	***-***	***12,644,087***	***-***	***13,327,850***	***943,469***	***-***	***-***	***14,271,319***
6.2.1 - Plant Pre-production Labour	**208,160**	**-**	**-**	**-**	**-**	**3,352,521**	**-**	**3,560,681**	**188,442**	**-**	**-**	**3,749,123**
U Owners Costs	208,160	-	-	-	-	3,352,521	-	3,560,681	188,442	-	-	3,749,123
6.2.2 - Admin Pre-production Labour and G & A Expenses	**59,650**	**-**	**-**	**-**	**-**	**1,526,632**	**-**	**1,586,282**	**82,297**	**-**	**-**	**1,668,579**
U Owners Costs	59,650	-	-	-	-	1,526,632	-	1,586,282	82,297	-	-	1,668,579
6.2.3 - Opening Stocks	**-**	**-**	**-**	**-**	**-**	**5,273,715**	**-**	**5,273,715**	**527,372**	**-**	**-**	**5,801,086**
U Owners Costs	-	-	-	-	-	5,273,715	-	5,273,715	527,372	-	-	5,801,086
6.2.4 - First Fill Reagents & Consumables	**-**	**-**	**-**	**-**	**-**	**2,491,219**	**-**	**2,491,219**	**124,561**	**-**	**-**	**2,615,780**
U Owners Costs	-	-	-	-	-	2,491,219	-	2,491,219	124,561	-	-	2,615,780
6.2.7 - Small Tools & Maint Equipment	**415,953**	**-**	**-**	**-**	**-**	**-**	**-**	**415,953**	**20,798**	**-**	**-**	**436,751**
U Owners Costs	415,953	-	-	-	-	-	-	415,953	20,798	-	-	436,751

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
6.3 - Admin Pre-Production Other	***3,934,527***	***-***	***-***	***-***	***-***	***170,000***	***-***	***4,104,527***	***214,076***	***-***	***-***	***4,318,603***
6.3.1 - Training	**-**	**-**	**-**	**-**	**-**	**170,000**	**-**	**170,000**	**8,500**	**-**	**-**	**178,500**
U Owners Costs	-	-	-	-	-	170,000	-	170,000	8,500	-	-	178,500
6.3.3 - Information Technology	**177,000**	**-**	**-**	**-**	**-**	**-**	**-**	**177,000**	**17,700**	**-**	**-**	**194,700**
U Owners Costs	177,000	-	-	-	-	-	-	177,000	17,700	-	-	194,700
6.3.4 - Security	**3,757,527**	**-**	**-**	**-**	**-**	**-**	**-**	**3,757,527**	**187,876**	**-**	**-**	**3,945,403**
U Owners Costs	3,757,527	-	-	-	-	-	-	3,757,527	187,876	-	-	3,945,403
6.4 - Spare Parts	***-***	***-***	***-***	***-***	***-***	***5,917,391***	***-***	***5,917,391***	***887,609***	***-***	***-***	***6,805,000***
6.4.2 - Spares	**-**	**-**	**-**	**-**	**-**	**5,917,391**	**-**	**5,917,391**	**887,609**	**-**	**-**	**6,805,000**
U Owners Costs	-	-	-	-	-	5,917,391	-	5,917,391	887,609	-	-	6,805,000
6.5 - Fees / Taxes / Duties	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***3,960,428***	***3,960,428***
6.5.7 - Taxes & Duties	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3,960,428**	**3,960,428**
U Owners Costs	-	-	-	-	-	-	-	-	-	-	3,960,428	3,960,428
6.6 - Community	***-***	***-***	***-***	***-***	***-***	***19,370,561***	***-***	***19,370,561***	***968,528***	***-***	***-***	***20,339,089***
6.6.2 - Land Compensation	**-**	**-**	**-**	**-**	**-**	**7,134,035**	**-**	**7,134,035**	**356,702**	**-**	**-**	**7,490,737**
U Owners Costs	-	-	-	-	-	7,134,035	-	7,134,035	356,702	-	-	7,490,737
6.6.3 - Land Acquisition	**-**	**-**	**-**	**-**	**-**	**11,186,526**	**-**	**11,186,526**	**559,326**	**-**	**-**	**11,745,852**
U Owners Costs	-	-	-	-	-	11,186,526	-	11,186,526	559,326	-	-	11,745,852
6.6.6 - Other Community Infrastructure	**-**	**-**	**-**	**-**	**-**	**600,000**	**-**	**600,000**	**30,000**	**-**	**-**	**630,000**
U Owners Costs	-	-	-	-	-	600,000	-	600,000	30,000	-	-	630,000
6.6.7 - Community Support	**-**	**-**	**-**	**-**	**-**	**450,000**	**-**	**450,000**	**22,500**	**-**	**-**	**472,500**

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Summary x Facility & Discipline Level 1

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Supply Cost	Labour Hrs	Direct Labour	Direct Equipment	Construction Distributables	Project Ancillary	Freight Cost	Subtotal Cost	Contingency Cost	Escalation Cost	Taxes & Duties	Project Total
U Owners Costs	-	-	-	-	-	450,000	-	450,000	22,500	-	-	472,500
6.7 - Plant Mobile Equipment	***3,857,224***	**-**	**-**	**-**	**-**	***48,200***	***196,000***	***4,101,424***	***217,541***	**-**	**-**	***4,318,965***
6.7.1 - Light Vehicles	**2,086,108**	**-**	**-**	**-**	**-**	**-**	**2,500**	**2,088,608**	**105,805**	**-**	**-**	**2,194,413**
U Owners Costs	2,086,108	-	-	-	-	-	2,500	2,088,608	105,805	-	-	2,194,413
6.7.2 - Cranes	**522,909**	**-**	**-**	**-**	**-**	**-**	**50,000**	**572,909**	**28,645**	**-**	**-**	**601,554**
U Owners Costs	522,909	-	-	-	-	-	50,000	572,909	28,645	-	-	601,554
6.7.3 - Forklifts	**518,317**	**-**	**-**	**-**	**-**	**-**	**50,000**	**568,317**	**28,416**	**-**	**-**	**596,733**
U Owners Costs	518,317	-	-	-	-	-	50,000	568,317	28,416	-	-	596,733
6.7.5 - Bobcats	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
U Owners Costs	-	-	-	-	-	-	-	-	-	-	-	-
6.7.6 - Trucks	**193,000**	**-**	**-**	**-**	**-**	**-**	**25,000**	**218,000**	**10,900**	**-**	**-**	**228,900**
U Owners Costs	193,000	-	-	-	-	-	25,000	218,000	10,900	-	-	228,900
6.7.7 - Boom & Scissor Lifts	**-**	**-**	**-**	**-**	**-**	**48,200**	**15,000**	**63,200**	**9,480**	**-**	**-**	**72,680**
U Owners Costs	-	-	-	-	-	48,200	15,000	63,200	9,480	-	-	72,680
6.7.8 - Other Plant Mobile Equipment	**536,890**	**-**	**-**	**-**	**-**	**-**	**53,500**	**590,390**	**34,294**	**-**	**-**	**624,685**
U Owners Costs	536,890	-	-	-	-	-	53,500	590,390	34,294	-	-	624,685
7 - Owners Operations Costs	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
7.2 - Working Capital	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
7.2.1 - General	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
U Owners Costs	-	-	-	-	-	-	-	-	-	-	-	-
	143,663,708	**5,059,386**	**32,369,013**	**52,729,539**	**39,392,500**	**182,367,015**	**18,736,070**	**469,257,844**	**42,299,897**	**-**	**3,960,428**	**515,518,169**

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
0 - Construction Distributables				**7,740,498**		**2,464,703**		**130,252**		**75,247**	**39,392,500**	**7,860,554**	**338,550**		**55,537,602**		**5,103,355**	**-**	**-**	**60,640,957**
0.1 - Construction Distributables - Contractors				***89,964***		***2,457,223***		***14,943***		***9,744***	***34,531,597***	***303,750***	**-**		***34,949,997***		***3,558,831***	**-**	**-**	***38,508,828***
0.1.1 - Earthworks				**-**		**1,569,140**		**-**		**-**	**8,141,883**	**-**	**-**		**8,141,883**		**814,188**	**-**	**-**	**8,956,071**
W Earthworks				***-***		***1,569,140***		***-***		***-***	***8,141,883***	***-***	***-***		***8,141,883***		***814,188***	***-***	***-***	***8,956,071***
B1001 Ps & Gs Earthworks - HDPE Liner	Lot	1	-	-	-	-		-		-	203,050	-	-	225,611	203,050	10.0 %	20,305	-	-	223,355
B1001 Ps & Gs Earthworks - SWM, Airstrip, Roads & Bulk	Lot	1	-	-	-	-		-		-	3,050,700	-	-	3,389,667	3,050,700	10.0 %	305,070	-	-	3,355,770
B1001 Ps & Gs Earthworks - TSF, WHD & WSD Earthworks	Lot	1	-	-	-	-		-		-	4,888,132	-	-	5,431,258	4,888,132	10.0 %	488,813	-	-	5,376,946
ZZ - Indirect Manhours	HR	-	-	-	1.00	1,569,140	-	-	-	-	-	-	-	-	-		-	-	-	-
0.1.2 - Concrete				**-**		**308,928**		**-**		**-**	**9,315,197**	**-**	**-**		**9,315,197**		**931,520**	**-**	**-**	**10,246,717**
C Concrete				***-***		***308,928***		***-***		***-***	***9,315,197***	***-***	***-***		***9,315,197***		***931,520***	***-***	***-***	***10,246,717***
C1000 Preliminaries & General - Dry Plant	Lot	1	-	-	-	-		-		-	2,112,578	-	-	2,347,309	2,112,578	10.0 %	211,258	-	-	2,323,836
C1000 Preliminaries & General - Wet Plant	Lot	1	-	-	-	-		-		-	7,202,619	-	-	8,002,910	7,202,619	10.0 %	720,262	-	-	7,922,881
ZZ - Indirect Manhours	HR	-	-	-	1.00	308,928	-	-	-	-	-	-	-	-	-		-	-	-	-
0.1.3 - SMP				**89,964**		**365,371**		**14,943**		**9,744**	**13,056,541**	**303,750**	**-**		**13,474,942**		**1,347,494**	**-**	**-**	**14,822,436**
L Platework				***89,964***		***1,057***		***14,943***		***9,744***	***-***	***303,750***	***-***		***418,400***		***41,840***	***-***	***-***	***460,240***
1 x Balmoral Tech	Day	107	840	89,964	9.50	1,017	14.1	14,387	9.22	9,381	-	-	-	1,062	113,732	10.0 %	11,373	-	-	125,105
Jack Rental for Bolted Tanks x 3 Sets	Lot	1	-	-	43.7	39.3	14.1	556	9.22	363	-	303,750	-	338,521	304,669	10.0 %	30,467	-	-	335,136
S1 SMP Indirects				***-***		***364,314***		***-***		***-***	***13,056,541***	***-***	***-***		***13,056,541***		***1,305,654***	***-***	***-***	***14,362,195***
Preliminaries & General SMP - Dry Plant Package	Lot	1	-	-	-	-		-		-	3,525,994	-	-	3,917,772	3,525,994	10.0 %	352,599	-	-	3,878,594
Preliminaries & General SMP - Wet Plant + Bolted Tanks Package	Lot	1	-	-	-	-		-		-	8,966,025	-	-	9,962,250	8,966,025	10.0 %	896,602	-	-	9,862,628
S1000A Preliminaries & General - Mill Installation	Lot	1	-	-	-	-		-		-	564,522	-	-	627,246	564,522	10.0 %	56,452	-	-	620,974
ZZ - Indirect Manhours	HR	-	-	-	1.00	364,314	-	-	-	-	-	-	-	-	-		-	-	-	-
0.1.7 - Electrical & Instrumentation				**-**		**116,326**		**-**		**-**	**3,106,100**	**-**	**-**		**3,106,100**		**310,610**	**-**	**-**	**3,416,710**
E Electrical				***-***		***116,326***		***-***		***-***	***3,106,100***	***-***	***-***		***3,106,100***		***310,610***	***-***	***-***	***3,416,710***
Area Electrical USD	EA	1	-	-	-	-		-		-	3,106,100	-	-	3,451,222	3,106,100	10.0 %	310,610	-	-	3,416,710
ZZ - Indirect Manhours	HR	-	-	-	1.00	116,326	-	-	-	-	-	-	-	-	-		-	-	-	-
0.1.8 - Buildings				**-**		**97,458**		**-**		**-**	**841,876**	**-**	**-**		**841,876**		**143,119**	**-**	**-**	**984,995**
A Architectural				***-***		***97,458***		***-***		***-***	***841,876***	***-***	***-***		***841,876***		***143,119***	***-***	***-***	***984,995***
A1000 Architectual Ps & Gs	Lot	1	-	-	-	-		-		-	841,876	-	-	935,418	841,876	17.0 %	143,119	-	-	984,995
ZZ - Indirect Manhours	HR	-	-	-	1.00	97,458	-	-	-	-	-	-	-	-	-		-	-	-	-

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
0.1.9 - Fencing				**-**		**-**		**-**		**-**	**70,000**	**-**	**-**		**70,000**		**11,900**	**-**	**-**	**81,900**
Z General				***-***		***-***		***-***		***-***	***70,000***	***-***	***-***		***70,000***		***11,900***	***-***	***-***	***81,900***
Z1000 Preliminaries & General	Lot	1	-	-	-	-		-		-	70,000	-	-	70,000	70,000	17.0 %	11,900	-	-	81,900
0.2 - Site Construction Distributables - General				***1,060,000***		***5,394***		***92,582***		***59,645***	***216,503***	***1,602,261***	***15,000***		***3,045,991***		***302,399***	***-***	***-***	***3,348,390***
0.2.1 - Construction Equipment				**60,000**		**-**		**-**		**-**	**-**	**1,015,000**	**15,000**		**1,090,000**		**67,500**	**-**	**-**	**1,157,500**
U Owners Costs				***60,000***		***-***		***-***		***-***	***-***	***1,015,000***	***15,000***		***1,090,000***		***67,500***	***-***	***-***	***1,157,500***
40f container - for storage	EA	8	5,000	40,000	-	-		-		-	-	-	-	5,000	40,000	10.0 %	4,000	-	-	44,000
40f container with air con	EA	2	10,000	20,000	-	-		-		-	-	-	-	10,000	20,000	10.0 %	2,000	-	-	22,000
Mill Cranes - Freight	Lot	1	-	-	-	-		-		-	-	-	15,000	15,000	15,000	5.0 %	750	-	-	15,750
Mill Cranes - Kobelco CHE3000G - Crawler crane (hire), complete	WK	26	-	-	-	-		-		-	-	815,000	-	31,346	815,000	5.0 %	40,750	-	-	855,750
Provision for Consumables	Lot	1	-	-	-	-		-		-	-	20,000	-	20,000	20,000	10.0 %	2,000	-	-	22,000
Provision for Hire Equipment	Lot	1	-	-	-	-		-		-	-	150,000	-	150,000	150,000	10.0 %	15,000	-	-	165,000
Provision for misc equipment	Lot	1	-	-	-	-		-		-	-	30,000	-	30,000	30,000	10.0 %	3,000	-	-	33,000
0.2.3 - General Freight & Transport				**1,000,000**		**-**		**-**		**-**	**100,000**	**-**	**-**		**1,100,000**		**115,000**	**-**	**-**	**1,215,000**
U Owners Costs				***1,000,000***		***-***		***-***		***-***	***-***	***-***	***-***		***1,000,000***		***100,000***	***-***	***-***	***1,100,000***
RML General Freight & Transport	Lot	1	1,000,000	1,000,000	-	-		-		-	-	-	-	1,000,000	1,000,000	10.0 %	100,000	-	-	1,100,000
Z General				***-***		***-***		***-***		***-***	***100,000***	***-***	***-***		***100,000***		***15,000***	***-***	***-***	***115,000***
Materials Management (Port & Site)	Lot	1	-	-	-	-		-		-	100,000	-	-	100,000	100,000	15.0 %	15,000	-	-	115,000
0.2.4 - Construction Power & Water				**-**		**594**		**11,078**		**1,901**	**116,503**	**-**	**-**		**129,482**		**19,422**	**-**	**-**	**148,904**
Z General				***-***		***594***		***11,078***		***1,901***	***116,503***	***-***	***-***		***129,482***		***19,422***	***-***	***-***	***148,904***
100 kva Genset	Lot	1	-	-	54.0	54.0	18.7	1,007	3.20	173	56,503	-	-	57,683	57,683	15.0 %	8,652	-	-	66,336
Construction Water, Pumps and Piping	Lot	1	-	-	540	540	18.7	10,071	3.20	1,728	60,000	-	-	71,799	71,799	15.0 %	10,770	-	-	82,569
0.2.9 - Commissioning Assistance				**-**		**4,800**		**81,504**		**57,744**	**-**	**587,261**	**-**		**726,509**		**100,476**	**-**	**-**	**826,985**
M Mechanical				***-***		***-***		***-***		***-***	***-***	***347,100***	***-***		***347,100***		***52,065***	***-***	***-***	***399,165***
Commissioning Spares	Lot	1	-	-	-	-		-		-	-	347,100	-	347,100	347,100	15.0 %	52,065	-	-	399,165
U Owners Costs				***-***		***-***		***-***		***-***	***-***	***240,161***	***-***		***240,161***		***27,524***	***-***	***-***	***267,685***
100 kVA Genset	Lot	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
1st & 2nd Fill Lubricants	Lot	1	-	-	-	-		-		-	-	70,161	-	70,161	70,161	15.0 %	10,524	-	-	80,685
Construction Water, Pumps and Piping	Lot	1	-	-	-	-		-		-	-	20,000	-	20,000	20,000	10.0 %	2,000	-	-	22,000
Tooling & Consumables	Lot	1	-	-	-	-		-		-	-	150,000	-	150,000	150,000	10.0 %	15,000	-	-	165,000

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Z General				***-***		***4,800***		***81,504***		***57,744***	***-***	***-***	***-***		***139,248***		***20,887***	***-***	***-***	***160,135***
PIMS (Deleted by Client)	Lot	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
SMP Commissioning Assistance	Lot	1	-	-	4,800	4,800	17.0	81,504	12.0	57,744	-	-	-	139,248	139,248	15.0 %	20,887	-	-	160,135
0.3 - Site Construction Facilities				***1,062,517***		***2,086***		***22,727***		***5,859***	***59,400***	***540,000***	***73,550***		***1,764,053***		***176,171***	***-***	***-***	***1,940,224***
0.3.1 - Construction Site Preparation / Earthworks				**-**		**-**		**-**		**-**	**-**	**100,000**	**-**		**100,000**		**15,000**	**-**	**-**	**115,000**
U Owners Costs				***-***		***-***		***-***		***-***	***-***	***100,000***	***-***		***100,000***		***15,000***	***-***	***-***	***115,000***
Earthworks	EA	1	-	-	-	-		-		-	-	100,000	-	100,000	100,000	15.0 %	15,000	-	-	115,000
0.3.3 - Laydown Areas				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
U Owners Costs				***-***		***-***		***-***		***-***	***-***	***-***	***-***		***-***		***-***	***-***	***-***	***-***
Laydown Area Fencing, including gates	Lot	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
0.3.4 - Construction Site Offices				**375,517**		**2,086**		**22,727**		**5,859**	**-**	**-**	**73,550**		**477,653**		**66,561**	**-**	**-**	**544,214**
A Architectural				***367,752***		***1,504***		***18,302***		***2,521***	***-***	***-***	***73,550***		***462,125***		***64,698***	***-***	***-***	***526,823***
A4050 Construction Office Covered Area	M2	250	330	82,500	4.00	1,000	12.0	12,000	-	-	-	-	16,500	444	111,000	14.0 %	15,540	-	-	126,540
Construction Office Ablutions - Converted Sea Container 40'	EA	1	66,792	66,792	164	164	12.5	2,052	5.00	821	-	-	13,358	83,023	83,023	14.0 %	11,623	-	-	94,647
Construction Office - Converted Sea Container 40'	EA	5	43,692	218,460	68.0	340	12.5	4,250	5.00	1,700	-	-	43,692	53,620	268,102	14.0 %	37,534	-	-	305,636
C Concrete				***7,765***		***581***		***4,425***		***3,338***	***-***	***-***	***-***		***15,527***		***1,863***	***-***	***-***	***17,391***
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	10	681	6,533	51.0	489	7.61	3,723	5.74	2,808	-	-	-	1,361	13,064	12.0 %	1,568	-	-	14,632
C3060 Ground Slabs < 300 mm thick	M3	3	411	1,232	30.7	92.2	7.61	702	5.74	529	-	-	-	821	2,463	12.0 %	296	-	-	2,759
0.3.6 - Medical & First Aid				**210,000**		**-**		**-**		**-**	**59,400**	**440,000**	**-**		**709,400**		**46,910**	**-**	**-**	**756,310**
U Owners Costs				***210,000***		***-***		***-***		***-***	***-***	***440,000***	***-***		***650,000***		***38,000***	***-***	***-***	***688,000***
Malaria drugs - Construction expats	Lot	1	30,000	30,000	-	-		-		-	-	-	-	30,000	30,000	10.0 %	3,000	-	-	33,000
Management & Mitigation (OHS & Medical) - Medical consumables	Yr	2	80,000	180,000	-	-		-		-	-	-	-	80,000	180,000	5.0 %	9,000	-	-	189,000
Medical Services - monthly consumables charge (@$5000 per	MTH	24	-	-	-	-		-		-	-	120,000	-	5,000	120,000	5.0 %	6,000	-	-	126,000
Medical Services - monthly Labour charge (1 Doctor, 1 Paramedic) -	MTH	24	-	-	-	-		-		-	-	240,000	-	10,000	240,000	5.0 %	12,000	-	-	252,000
Site Medical Facility - first fills, including lockable cabinets, stretcher,	Lot	1	-	-	-	-		-		-	-	80,000	-	80,000	80,000	10.0 %	8,000	-	-	88,000
Z General				***-***		***-***		***-***		***-***	***59,400***	***-***	***-***		***59,400***		***8,910***	***-***	***-***	***68,310***
Construction First Aid facility	M2	36	-	-	-	-		-		-	59,400	-	-	1,650	59,400	15.0 %	8,910	-	-	68,310
0.3.7 - Construction Communications				**477,000**		**-**		**-**		**-**	**-**	**-**	**-**		**477,000**		**47,700**	**-**	**-**	**524,700**
U Owners Costs				***477,000***		***-***		***-***		***-***	***-***	***-***	***-***		***477,000***		***47,700***	***-***	***-***	***524,700***

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Corporate LAN Admin Network	Lot	1	100,000	100,000	-	-		-		-	-	-	-	100,000	100,000	10.0 %	10,000	-	-	110,000
Digital Two way radio system, including basis	EA	150	500	75,000	-	-		-		-	-	-	-	500	75,000	10.0 %	7,500	-	-	82,500
GPS and accessories	Lot	1	1,500	1,500	-	-		-		-	-	-	-	1,500	1,500	10.0 %	150	-	-	1,650
Mobile Phones - hand sets	EA	50	300	15,000	-	-		-		-	-	-	-	300	15,000	10.0 %	1,500	-	-	16,500
Mobile Phones - monthly cost per handset	EA	50	1,200	60,000	-	-		-		-	-	-	-	1,200	60,000	10.0 %	6,000	-	-	66,000
Monthly charges from external telecommunications company	MTH	24	1,000	24,000	-	-		-		-	-	-	-	1,000	24,000	10.0 %	2,400	-	-	26,400
Plant Construction Comms	MTH	24	1,000	24,000	-	-		-		-	-	-	-	1,000	24,000	10.0 %	2,400	-	-	26,400
Satellite Phones	EA	6	3,000	18,000	-	-		-		-	-	-	-	3,000	18,000	10.0 %	1,800	-	-	19,800
Satellite Phones - plans and monthly costs	MTH	144	500	72,000	-	-		-		-	-	-	-	500	72,000	10.0 %	7,200	-	-	79,200
Site Telephone hand sets	EA	50	250	12,500	-	-		-		-	-	-	-	250	12,500	10.0 %	1,250	-	-	13,750
Video Conferencing facilities - hardware etc	Lot	1	15,000	15,000	-	-		-		-	-	-	-	15,000	15,000	10.0 %	1,500	-	-	16,500
VSAT /Star link Internet Comms Temp	MTH	24	2,500	60,000	-	-		-		-	-	-	-	2,500	60,000	10.0 %	6,000	-	-	66,000
Z General				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
Hand Held Radios	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
0.3.9 - Construction Temporary Works				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
A Architectural				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
Chop Kitchen	M2	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
0.4 - Site Construction Facilities Other				***40,000***		**-**		**-**		**-**	**-**	**-**	**-**		***40,000***		***4,000***	**-**	**-**	***44,000***
0.4.1 - Contractor Compounds				**40,000**		**-**		**-**		**-**	**-**	**-**	**-**		**40,000**		**4,000**	**-**	**-**	**44,000**
U Owners Costs				***40,000***		**-**		**-**		**-**	**-**	**-**	**-**		***40,000***		***4,000***	**-**	**-**	***44,000***
Chop Kitchen - earthworks	Lot	1	20,000	20,000	-	-		-		-	-	-	-	20,000	20,000	10.0 %	2,000	-	-	22,000
Chop Kitchen - huts	Lot	1	20,000	20,000	-	-		-		-	-	-	-	20,000	20,000	10.0 %	2,000	-	-	22,000
0.5 - Construction Operations				***4,715,538***		**-**		**-**		***323,000***	***390,000***	***250,000***			***5,678,538***		***559,004***	**-**	**-**	***6,237,541***
0.5.1 - Construction Operating Costs				**-**		**-**		**-**		**323,000**	**-**	**250,000**			**573,000**		**48,450**	**-**	**-**	**621,450**
Z General				**-**		**-**		**-**		***323,000***	**-**	***250,000***			***573,000***		***48,450***	**-**	**-**	***621,450***
Air Freight Allowance	Lot	1	-	-	-	-		-		-	-	250,000	250,000	250,000	250,000	-	-	-	-	250,000
Construction Operation Costs (Duration) (Provided by Owner)	MTH	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Mechanical Special Items	Lot	1	-	-	-	-		-		313,000	-	-	313,000	313,000	313,000	15.0 %	46,950	-	-	359,950
Safety / Environmental Equipment / Breathalyser	Lot	1	-	-	-	-		-		10,000	-	-	10,000	10,000	10,000	15.0 %	1,500	-	-	11,500
Site Vehicle Allowance (Provided by Owner)	Lot	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Waste Management (Provided by Owner)	MTH	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
0.5.2 - Construction Fuels & Lubricants				**3,425,738**		**-**		**-**		**-**	**-**	**-**	**-**		**3,425,738**		**342,574**	**-**	**-**	**3,768,311**

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
U Owners Costs				***3,425,738***		***-***		***-***		***-***	***-***	***-***	***-***		***3,425,738***		***342,574***	***-***	***-***	***3,768,311***
Fuel cost per litre - 10t Konecranes Forklift (600mm) - purchase	LT	72,000	1.15	82,473	-	-		-		-	-	-	-	1.15	82,473	10.0 %	8,247	-	-	90,720
Fuel cost per litre - 20,000 Litre Water Sprinkler Truck, including	LT	277,200	1.15	317,520	-	-		-		-	-	-	-	1.15	317,520	10.0 %	31,752	-	-	349,272
Fuel cost per litre - 226B3 Skid Steer Loader Caterpillar	LT	115,200	1.15	131,956	-	-		-		-	-	-	-	1.15	131,956	10.0 %	13,196	-	-	145,152
Fuel cost per litre - 45 Tonne capacity Container Handler- New	LT	187,200	1.15	214,429	-	-		-		-	-	-	-	1.15	214,429	10.0 %	21,443	-	-	235,872
Fuel cost per litre - Diesel Generator: Model AC110D5 - purchase	LT	75,600	1.15	86,596	-	-		-		-	-	-	-	1.15	86,596	10.0 %	8,660	-	-	95,256
Fuel cost per litre - Diesel Generator: Model AC200D5 - purchase	LT	181,440	1.15	207,831	-	-		-		-	-	-	-	1.15	207,831	10.0 %	20,783	-	-	228,614
Fuel cost per litre - Diesel Generator: Model AC450D5 - purchase	LT	230,160	1.15	263,638	-	-		-		-	-	-	-	1.15	263,638	10.0 %	26,364	-	-	290,002
Fuel cost per litre - Diesel Welding Machines: Vantage 400	LT	32,000	1.15	36,655	-	-		-		-	-	-	-	1.15	36,655	10.0 %	3,665	-	-	40,320
Fuel cost per litre - Forklift - TLT35D 4 x 4: construction - purchase	LT	134,400	1.15	153,949	-	-		-		-	-	-	-	1.15	153,949	10.0 %	15,395	-	-	169,344
Fuel cost per litre - Franna AT-40 40t capacity - purchase (CIF)	LT	115,080	1.15	131,819	-	-		-		-	-	-	-	1.15	131,819	10.0 %	13,182	-	-	145,001
Fuel cost per litre - Koeblco CKE300G - 300T Crane	LT	134,400	1.15	153,949	-	-		-		-	-	-	-	1.15	153,949	10.0 %	15,395	-	-	169,344
Fuel cost per litre - Liebherr 100T Hydraulic Crane LTR1100	LT	143,850	1.15	164,774	-	-		-		-	-	-	-	1.15	164,774	10.0 %	16,477	-	-	181,251
Fuel cost per litre Light Vehicles - Ampella Security (Vehicle hire	LT	9,855	1.15	11,288	-	-		-		-	-	-	-	1.15	11,288	10.0 %	1,129	-	-	12,417
Fuel cost per litre Light Vehicles - Ampella Security (Vehicle hire	LT	9,855	1.15	11,288	-	-		-		-	-	-	-	1.15	11,288	10.0 %	1,129	-	-	12,417
Fuel cost per litre Light Vehicles - Contract - Contract - G4S	LT	9,855	1.15	11,288	-	-		-		-	-	-	-	1.15	11,288	10.0 %	1,129	-	-	12,417
Fuel cost per litre Light Vehicles - Contract - Contract - G4S	LT	9,855	1.15	11,288	-	-		-		-	-	-	-	1.15	11,288	10.0 %	1,129	-	-	12,417
Fuel cost per litre Light Vehicles - Contract - Gendarme (Vehicle	LT	9,855	1.15	11,288	-	-		-		-	-	-	-	1.15	11,288	10.0 %	1,129	-	-	12,417
Fuel cost per litre Light Vehicles - Contract - Gendarme (Vehicle	LT	9,855	1.15	11,288	-	-		-		-	-	-	-	1.15	11,288	10.0 %	1,129	-	-	12,417
Fuel cost per litre Light Vehicles - Contract - Gendarme (Vehicle	LT	9,855	1.15	11,288	-	-		-		-	-	-	-	1.15	11,288	10.0 %	1,129	-	-	12,417
Fuel cost per litre Light Vehicles - Contract - Gendarme (Vehicle	LT	9,855	1.15	11,288	-	-		-		-	-	-	-	1.15	11,288	10.0 %	1,129	-	-	12,417
Fuel cost per litre Light Vehicles - Contract - Gendarme (Vehicle	LT	9,855	1.15	11,288	-	-		-		-	-	-	-	1.15	11,288	10.0 %	1,129	-	-	12,417
Fuel cost per litre - Light Vehicles - ECG (Hire) - Allowance for 3	LT	14,796	1.15	16,948	-	-		-		-	-	-	-	1.15	16,948	10.0 %	1,695	-	-	18,643
Fuel cost per litre - Light Vehicles - EPCM (Hire) - Allowance for 8	LT	39,456	1.15	45,195	-	-		-		-	-	-	-	1.15	45,195	10.0 %	4,520	-	-	49,715
Fuel cost per litre - Light Vehicles - Hilux Pickup (Twin Cab) Diesel	LT	49,320	1.15	56,494	-	-		-		-	-	-	-	1.15	56,494	10.0 %	5,649	-	-	62,143
Fuel cost per litre - Light Vehicles - KP (Hire) - Allowance for 1	LT	6,570	1.15	7,526	-	-		-		-	-	-	-	1.15	7,526	10.0 %	753	-	-	8,278
Fuel cost per litre - Light Vehicles - Landcruiser pickup single cab	LT	5,749	1.15	6,585	-	-		-		-	-	-	-	1.15	6,585	10.0 %	658	-	-	7,243
Fuel cost per litre - Light Vehicles - Landcruiser Troopy (Diesel) -	LT	9,864	1.15	11,299	-	-		-		-	-	-	-	1.15	11,299	10.0 %	1,130	-	-	12,429
Fuel cost per litre - Light Vehicles - Landcruiser Wagon (Diesel) -	LT	5,749	1.15	6,585	-	-		-		-	-	-	-	1.15	6,585	10.0 %	658	-	-	7,243
Fuel cost per litre - Light Vehicles - Landcruiser Wagon Prado	LT	47,141	1.15	53,996	-	-		-		-	-	-	-	1.15	53,996	10.0 %	5,400	-	-	59,396
Fuel cost per litre - Manitou Forklift Trucks Model MI-X30G	LT	86,400	1.15	98,967	-	-		-		-	-	-	-	1.15	98,967	10.0 %	9,897	-	-	108,864
Fuel cost per litre - Manitou Rotating Telehandler Model MRT-	LT	129,600	1.15	148,451	-	-		-		-	-	-	-	1.15	148,451	10.0 %	14,845	-	-	163,296
Fuel cost per litre - Manitou Telehandler Model MT-X1840	LT	96,000	1.15	109,964	-	-		-		-	-	-	-	1.15	109,964	10.0 %	10,996	-	-	120,960
Fuel cost per litre - Misc Fuel allowance	LT	150,000	1.15	171,818	-	-		-		-	-	-	-	1.15	171,818	10.0 %	17,182	-	-	189,000
Fuel cost per litre - Site Bus - Coaster 60 Seater (Diesel) -	LT	27,400	1.15	31,385	-	-		-		-	-	-	-	1.15	31,385	10.0 %	3,139	-	-	34,524
Fuel cost per litre - Village Generator when on line	LT	525,600	1.15	602,051	-	-		-		-	-	-	-	1.15	602,051	10.0 %	60,205	-	-	662,256
0.5.6 - Waste Management				**-**		**-**		**-**		**-**	**-**	**140,000**	**-**		**140,000**		**14,000**	**-**	**-**	**154,000**
U Owners Costs				***-***		***-***		***-***		***-***	***-***	***140,000***	***-***		***140,000***		***14,000***	***-***	***-***	***154,000***

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Sewerage removal from site, including from temporary ablutions and	Lot	1	-	-	-	-		-		-	-	110,000	-	110,000	110,000	10.0 %	11,000	-	-	121,000
Waste removal from site- hydrocarbons, steel, pipe?	Lot	1	-	-	-	-		-		-	-	30,000	-	30,000	30,000	10.0 %	3,000	-	-	33,000
0.5.7 - Repairs & Maintenance				**789,800**		**-**		**-**		**-**	**-**	**250,000**	**-**		**1,039,800**		**103,980**	**-**	**-**	**1,143,780**
U Owners Costs				***789,800***		***-***		***-***		***-***	***-***	***250,000***	***-***		***1,039,800***		***103,980***	***-***	***-***	***1,143,780***
Allowance - Hire earthworks equipment/machinery for upgrade or	Lot	1	-	-	-	-		-		-	-	250,000	-	250,000	250,000	10.0 %	25,000	-	-	275,000
Buildings - Allowance for repairs and maintenance	MTH	24	5,000	120,000	-	-		-		-	-	-	-	5,000	120,000	10.0 %	12,000	-	-	132,000
Danoa Camp upgrade - Works required to bring 60 man camp up to	WK	4	50,000	200,000	-	-		-		-	-	-	-	50,000	200,000	10.0 %	20,000	-	-	220,000
Light Vehicles - (Hire) - Allowance for maintenance - 13 vehicles for	MTH	234	500	117,000	-	-		-		-	-	-	-	500	117,000	10.0 %	11,700	-	-	128,700
Light Vehicles - (Hire) - Allowance for maintenance - 2 vehicles for	MTH	24	500	12,000	-	-		-		-	-	-	-	500	12,000	10.0 %	1,200	-	-	13,200
Purchased Vehicles (21 vehicles) - Allowance for repairs and	MTH	504	200	100,800	-	-		-		-	-	-	-	200	100,800	10.0 %	10,080	-	-	110,880
Villages - Allowance for repairs and maintenance	MTH	24	10,000	240,000	-	-		-		-	-	-	-	10,000	240,000	10.0 %	24,000	-	-	264,000
Z General				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
Maintenance	MTH	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
0.5.8 - Surveying				**500,000**		**-**		**-**		**-**	**-**	**-**	**-**		**500,000**		**50,000**	**-**	**-**	**550,000**
U Owners Costs				***500,000***		***-***		***-***		***-***	***-***	***-***	***-***		***500,000***		***50,000***	***-***	***-***	***550,000***
Drones	EA	1	15,000	15,000	-	-		-		-	-	-	-	15,000	15,000	10.0 %	1,500	-	-	16,500
Survey Equipment	Lot	1	125,000	125,000	-	-		-		-	-	-	-	125,000	125,000	10.0 %	12,500	-	-	137,500
Surveyor Contractor (survey control)	MTH	12	30,000	360,000	-	-		-		-	-	-	-	30,000	360,000	10.0 %	36,000	-	-	396,000
Z General				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
Surveying (Plant)	Lot	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
0.6 - Construction Accommodation				***772,480***		***-***		***-***		***-***	***4,262,000***	***5,024,543***	***-***		***10,059,023***		***502,951***	***-***	***-***	***10,561,974***
0.6.2 - Construction Camp				**-**		**-**		**-**		**-**	**4,202,000**	**-**	**-**		**4,202,000**		**210,100**	**-**	**-**	**4,412,100**
U Owners Costs				***-***		***-***		***-***		***-***	***4,202,000***	***-***	***-***		***4,202,000***		***210,100***	***-***	***-***	***4,412,100***
Construction Camp Contractor - 2 Storey Dormitory building (88	Lot	1	-	-	-	-		-		-	1,222,000	-	-	1,222,000	1,222,000	5.0 %	61,100	-	-	1,283,100
Construction Camp Contractor - Earthworks	Lot	1	-	-	-	-		-		-	165,000	-	-	165,000	165,000	5.0 %	8,250	-	-	173,250
Construction Camp Contractor - Furniture & Equipment	Lot	1	-	-	-	-		-		-	350,000	-	-	350,000	350,000	5.0 %	17,500	-	-	367,500
Construction Camp Contractor - Installation	Lot	1	-	-	-	-		-		-	1,100,000	-	-	1,100,000	1,100,000	5.0 %	55,000	-	-	1,155,000
Construction Camp Contractor - Kitchen & Dinning	Lot	1	-	-	-	-		-		-	125,000	-	-	125,000	125,000	5.0 %	6,250	-	-	131,250
Construction Camp Contractor - Laundry	Lot	1	-	-	-	-		-		-	50,000	-	-	50,000	50,000	5.0 %	2,500	-	-	52,500
Construction Camp Contractor - P&G's	Lot	1	-	-	-	-		-		-	35,000	-	-	35,000	35,000	5.0 %	1,750	-	-	36,750
Construction Camp Contractor - Power Generation & Distribution	Lot	1	-	-	-	-		-		-	170,000	-	-	170,000	170,000	5.0 %	8,500	-	-	178,500
Construction Camp Contractor - RML Office	Lot	1	-	-	-	-		-		-	160,000	-	-	160,000	160,000	5.0 %	8,000	-	-	168,000
Construction Camp Contractor - Septic System	Lot	1	-	-	-	-		-		-	45,000	-	-	45,000	45,000	5.0 %	2,250	-	-	47,250

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Construction Camp Contractor - Supply	Lot	1	-	-	-	-		-		-	200,000	-	-	200,000	200,000	5.0 %	10,000	-	-	210,000
Construction Camp Contractor - Transport	Lot	1	-	-	-	-		-		-	350,000	-	-	350,000	350,000	5.0 %	17,500	-	-	367,500
Construction Camp Contractor - Wet Mess & Rec Room	Lot	1	-	-	-	-		-		-	230,000	-	-	230,000	230,000	5.0 %	11,500	-	-	241,500
0.6.3 - Camp Operations & Maintenance				**-**		**-**		**-**		**-**	**-**	**463,100**	**-**		**463,100**		**23,155**	**-**	**-**	**486,255**
U Owners Costs				***-***		***-***		***-***		***-***	***-***	***463,100***	***-***		***463,100***		***23,155***	***-***	***-***	***486,255***
Bed Linen, pillows, towels, laundry bags, shower curtains, mats -	Lot	1	-	-	-	-		-		-	-	137,500	-	137,500	137,500	5.0 %	6,875	-	-	144,375
Communication facilities (office, telephone, copy machine) for Camp	Lot	1	-	-	-	-		-		-	-	20,000	-	20,000	20,000	5.0 %	1,000	-	-	21,000
Initial first inventory for Wet Mess	Lot	1	-	-	-	-		-		-	-	10,000	-	10,000	10,000	5.0 %	500	-	-	10,500
Initial fit out of light equipment for mess hall and catering (e.g.	Lot	1	-	-	-	-		-		-	-	215,600	-	215,600	215,600	5.0 %	10,780	-	-	226,380
Preventative Pest Control Services within the buildings and facilities,	Lot	1	-	-	-	-		-		-	-	60,000	-	60,000	60,000	5.0 %	3,000	-	-	63,000
Removal of Garbage from camp's designated area to respective	Lot	1	-	-	-	-		-		-	-	20,000	-	20,000	20,000	5.0 %	1,000	-	-	21,000
0.6.4 - Meals During Construction				**772,480**		**-**		**-**		**-**	**60,000**	**4,561,443**	**-**		**5,393,923**		**269,696**	**-**	**-**	**5,663,619**
U Owners Costs				***772,480***		***-***		***-***		***-***	***60,000***	***4,561,443***	***-***		***5,393,923***		***269,696***	***-***	***-***	***5,663,619***
Accommodation/Meals during Construction , including Owners,	EA	238,819	-	-	-	-		-		-	-	4,561,443	-	19.1	4,561,443	5.0 %	228,072	-	-	4,789,515
Camp Contractor mobilisation	Lot	1	20,000	20,000	-	-		-		-	20,000	-	-	40,000	40,000	5.0 %	2,000	-	-	42,000
Monthly Management Fee	MTH	24	29,270	702,480	-	-		-		-	20,000	-	-	30,103	722,480	5.0 %	36,124	-	-	758,604
Owner Accommodation - Special menus for parties, special events,	Lot	1	50,000	50,000	-	-		-		-	-	-	-	50,000	50,000	5.0 %	2,500	-	-	52,500
Packaging Materials for packed meals	Lot	1	-	-	-	-		-		-	20,000	-	-	20,000	20,000	5.0 %	1,000	-	-	21,000
Z General				***-***		***-***		***-***		***-***	***-***	***-***	***-***		***-***		***-***	***-***	***-***	***-***
Owners, EPCM and Contractor Expat Acomm & Messing @	Day	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
1 - Treatment Plant Costs				**81,363,367**		**1,070,702**		**13,028,818**		**9,368,965**	**-**	**962,500**	**13,173,781**		**117,897,431**		**14,127,937**	**-**	**-**	**132,025,367**
1.1 - Treatment Plant - General				***404,100***		***36,716***		***682,585***		***1,965,634***	***-***	***-***	***33,956***		***3,086,275***		***342,461***	***-***	***-***	***3,428,736***
1.1.1 - Bulk Site Earthworks				**-**		**26,490**		**538,116**		**1,614,349**	**-**	**-**	**-**		**2,152,466**		**215,247**	**-**	**-**	**2,367,712**
W Earthworks				***-***		***26,490***		***538,116***		***1,614,349***	***-***	***-***	***-***		***2,152,466***		***215,247***	***-***	***-***	***2,367,712***
Bulk Earthworks - Cut to fill, place & compact - rippable	M3	36,476	-	-	0.10	3,675	16.5	60,640	49.5	181,919	-	-	-	6.65	242,559	10.0 %	24,256	-	-	266,815
Bulk Earthworks - Cut to Stockpile	M3	321,887	-	-	0.01	4,363	66.2	288,873	199	866,618	-	-	-	3.59	1,155,491	10.0 %	115,549	-	-	1,271,040
Bulk Earthworks - Trim all cutting and embankment slopes	M2	30,001	-	-	0.32	9,699	4.55	44,174	13.7	132,521	-	-	-	5.89	176,695	10.0 %	17,670	-	-	194,365
Clear & Grub, Medium Vegetation	HA	58	-	-	38.3	2,224	16.5	36,694	49.5	110,081	-	-	-	2,531	146,775	10.0 %	14,678	-	-	161,453
Stockpile Topsoil average 200mm & stockpile	M3	72,727	-	-	0.08	6,049	16.5	99,816	49.5	299,449	-	-	-	5.49	399,266	10.0 %	39,927	-	-	439,192
Trapezoidal Drains - 1m wide x 0.5m deep	LM	3,000	-	-	0.16	480	16.5	7,920	49.5	23,760	-	-	-	10.6	31,680	10.0 %	3,168	-	-	34,848
Win from borrow, load, haul, place, spread, moisture condition and	M3	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
1.1.2 - Detailed Site Earthworks				**-**		**4,473**		**73,805**		**221,415**	**-**	**-**	**-**		**295,219**		**35,426**	**-**	**-**	**330,646**

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
W Earthworks				**-**		***4,473***		***73,805***		***221,415***	**-**	**-**	**-**		***295,219***		***35,426***	**-**	**-**	***330,646***
B4010 Construction Pads - Cut to Waste	M3	11,217	-	-	0.07	795	16.5	13,124	49.5	39,373	-	-	-	4.68	52,498	12.0 %	6,300	-	-	58,797
B4020 Construction Pads - Structural fill, win, haul & place	M3	17,794	-	-	0.16	2,863	16.5	47,243	49.5	141,728	-	-	-	10.6	188,971	12.0 %	22,677	-	-	211,648
B4040 Construction Pads - Grade & Trim - Structural fill	M2	17,794	-	-	0.02	297	16.5	4,893	49.5	14,680	-	-	-	1.10	19,573	12.0 %	2,349	-	-	21,922
B4050 Construction Pads - Area Sheeting 75mm thick, graded,	M2	6,375	-	-	0.02	110	16.5	1,817	49.5	5,451	-	-	-	1.14	7,267	12.0 %	872	-	-	8,140
Crushing Chamber Backfill - Supply and install 160mm plastic drain	M3	187	-	-	0.25	46.7	16.5	770	49.5	2,310	-	-	-	16.5	3,080	12.0 %	370	-	-	3,449
Crushing Chamber Backfill - Supply and install clean granite rock	CM	47	-	-	1.68	78.4	16.5	1,294	49.5	3,882	-	-	-	111	5,177	12.0 %	621	-	-	5,798
Crushing Chamber Backfill - Win from stockpile, haul, place &	M3	2,805	-	-	0.10	283	16.5	4,663	49.5	13,990	-	-	-	6.65	18,653	12.0 %	2,238	-	-	20,892
1.1.4 - In-plant Roads				**-**		**2,020**		**33,336**		**100,008**	**-**	**-**	**-**		**133,344**		**16,001**	**-**	**-**	**149,345**
W Earthworks				**-**		***2,020***		***33,336***		***100,008***	**-**	**-**	**-**		***133,344***		***16,001***	**-**	**-**	***149,345***
B5320 Roads - 150mm thick basecourse, graded, rolled &	M2	26,200	-	-	0.03	762	16.5	12,576	49.5	37,728	-	-	-	1.92	50,304	12.0 %	6,036	-	-	56,340
B5510 Roads - V Drains 600mm deep	LM	1,275	-	-	0.11	138	16.5	2,279	49.5	6,837	-	-	-	7.15	9,116	12.0 %	1,094	-	-	10,210
B5540 CSP Culverts 400 diam	LM	75	-	-	3.73	280	16.5	4,621	49.5	13,863	-	-	-	246	18,484	12.0 %	2,218	-	-	20,703
B5630 Culvert head walls suit 400 diam	EA	15	-	-	56.0	840	16.5	13,860	49.5	41,579	-	-	-	3,696	55,439	12.0 %	6,653	-	-	62,092
1.1.7 - Site Security Fencing				**404,100**		**3,733**		**37,328**		**29,862**	**-**	**-**	**33,956**		**505,246**		**75,787**	**-**	**-**	**581,033**
Z General				***404,100***		***3,733***		***37,328***		***29,862***	**-**	**-**	***33,956***		***505,246***		***75,787***	**-**	**-**	***581,033***
Z4020 Plant Fencing	LM	8,500	45.0	382,500	0.34	2,869	10.0	28,688	8.00	22,950	-	-	31,196	54.7	465,334	15.0 %	69,800	-	-	535,134
Z4070 Fencing - Double swing gates - 8.0m wide	EA	6	3,000	18,000	108	648	10.0	6,480	8.00	5,184	-	-	2,400	5,344	32,064	15.0 %	4,810	-	-	36,874
Z4080 Fencing - Personnel gates - 1.0 wide	EA	4	900	3,600	54.0	216	10.0	2,160	8.00	1,728	-	-	360	1,962	7,848	15.0 %	1,177	-	-	9,025
1.2 - Feed Preparation				***8,092,074***		***177,559***		***1,816,318***		***1,324,307***	**-**	**-**	***1,191,742***		***12,424,441***		***1,374,019***	**-**	**-**	***13,798,460***
1.2.1 - Primary Crushing				**7,057,092**		**138,343**		**1,346,821**		**986,004**	**-**	**-**	**990,795**		**10,380,711**		**1,169,638**	**-**	**-**	**11,550,349**
C Concrete				***1,786,679***		***102,735***		***781,817***		***589,701***	**-**	**-**	**-**		***3,158,197***		***322,863***	**-**	**-**	***3,481,061***
C3010 Blinding Concrete 50mm thick	CM	69	250	17,344	18.7	1,299	7.61	9,882	5.74	7,454	-	-	-	499	34,680	10.1 %	3,487	-	-	38,167
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	7	681	4,500	51.0	337	7.61	2,565	5.74	1,934	-	-	-	1,361	8,999	12.0 %	1,080	-	-	10,079
C3040 Footings & Pedestals - Large >2 m3	M3	1	731	928	54.7	69.5	7.61	529	5.74	399	-	-	-	1,461	1,855	12.0 %	223	-	-	2,077
C3050 Footings & Pedestals - Strip	M3	9	706	6,351	52.9	476	7.61	3,621	5.74	2,731	-	-	-	1,411	12,703	12.0 %	1,524	-	-	14,227
C3060 Ground Slabs < 300 mm thick	M3	45	411	18,281	30.7	1,369	7.61	10,418	5.74	7,858	-	-	-	821	36,557	10.8 %	3,948	-	-	40,505
C3070 Ground Slabs - Rafts > 300 mm thick	M3	1,302	687	894,849	51.5	67,048	7.61	510,239	5.74	384,858	-	-	-	1,374	1,789,946	10.2 %	182,357	-	-	1,972,303
C3100 Bunds > 500 mm high	M3	2	472	719	35.3	53.9	7.61	410	5.74	309	-	-	-	943	1,438	12.0 %	173	-	-	1,611
C3120 Walls 250 - 600 mm thick	M3	135	606	81,997	48.8	6,606	7.61	50,274	5.74	37,920	-	-	-	1,258	170,191	11.5 %	19,649	-	-	189,841
C3130 Walls >600 mm thick (Mass Pour)	M3	1,020	715	729,300	22.3	22,718	7.61	172,881	5.74	130,399	-	-	-	1,012	1,032,579	10.0 %	103,258	-	-	1,135,837
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	2	536	1,032	40.1	77.3	7.61	588	5.74	444	-	-	-	1,072	2,063	12.0 %	248	-	-	2,311
C3142 Equipment Bases - Major Pedestals > 50 m3	M3	2	536	1,061	37.2	73.7	7.61	561	5.74	423	-	-	-	1,033	2,044	12.0 %	245	-	-	2,290
C3180 Suspended Slabs < 300 mm thick	M3	51	581	29,784	50.1	2,570	7.61	19,559	5.74	14,753	-	-	-	1,249	64,095	10.2 %	6,567	-	-	70,662

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
C3420 Precast Concrete Sumps 1200 diam.	EA	1	533	533	38.4	38.4	7.61	292	5.74	220	-	-	-	1,046	1,046	10.0 %	105	-	-	1,150
E Electrical				***162,709***		***7,956***		***95,467***		***63,645***	***-***	***-***	***9,763***		***331,583***		***33,158***	***-***	***-***	***364,741***
Area Electrical AUD	EA	1	134,127	134,127	7,461	7,461	12.0	89,529	8.00	59,686	-	-	8,048	291,390	291,390	10.0 %	29,139	-	-	320,528
Area Electrical EUR	EA	1	20,799	20,799	427	427	12.0	5,125	8.00	3,417	-	-	1,248	30,589	30,589	10.0 %	3,059	-	-	33,648
Area Electrical USD	EA	1	7,782	7,782	67.8	67.8	12.0	813	8.00	542	-	-	467	9,604	9,604	10.0 %	960	-	-	10,565
L Platework				***894,022***		***6,962***		***118,221***		***83,757***	***-***	***-***	***266,857***		***1,362,857***		***154,612***	***-***	***-***	***1,517,469***
L1010 Chutes - Paint Spec A - Dry Plant	T	21	3,129	66,272	64.1	1,358	17.0	23,062	12.0	16,339	-	-	35,823	6,681	141,496	10.0 %	14,150	-	-	155,645
L1030 Chutes - Paint Spec B - Wet Plant	T	5	3,234	15,135	64.1	300	17.0	5,096	12.0	3,610	-	-	7,916	6,786	31,757	10.0 %	3,176	-	-	34,932
L1160 Bins - Large - Paint Spec A - Dry Plant > 100 m3	T	125	3,129	390,679	38.5	4,804	17.0	81,570	12.0	57,791	-	-	211,179	5,937	741,220	11.6 %	86,180	-	-	827,400
L1230 Linings - Rubber 6thk Natural Rubber	M2	6	292	1,734	-	-		-		-	-	-	-	292	1,734	10.0 %	173	-	-	1,907
L1250 Linings - Rubber 10thk Natural Rubber	M2	2	416	632	-	-		-		-	-	-	-	416	632	10.0 %	63.2	-	-	695
L1262 Lip Linings - 304 SS	T	0	11,025	1,323	-	-		-		-	-	-	-	11,025	1,323	10.0 %	132	-	-	1,455
L1310 Linings - Bisalloy 12thk	M2	70	502	35,253	-	-		-		-	-	-	-	502	35,253	10.0 %	3,525	-	-	38,779
L1316 Linings - Bisalloy 16thk	M2	281	670	188,491	-	-		-		-	-	-	-	670	188,491	11.6 %	21,915	-	-	210,406
L1320 Linings - Bisalloy 20thk	M2	205	836	171,735	-	-		-		-	-	-	-	836	171,735	11.9 %	20,375	-	-	192,110
L1325 Linings - Bisalloy 25thk	M2	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
L1340 Linings - Bisalloy 40thk	M2	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
L3020 Support frames etc < 25kg/m Paint Spec B - Wet Area.	T	7	2,919	19,849	64.1	436	17.0	7,404	12.0	5,246	-	-	11,501	6,471	44,000	10.0 %	4,400	-	-	48,400
L3021 Sump Pump Support Frame & Screen	Lot	1	2,919	2,919	64.1	64.1	17.0	1,089	12.0	771	-	-	438	5,217	5,217	10.0 %	522	-	-	5,739
M Mechanical				***3,626,551***		***8,960***		***152,149***		***107,794***	***-***	***-***	***585,783***		***4,472,276***		***515,023***	***-***	***-***	***4,987,300***
Crushing Area Drive-In Sump Pump - 22kW	EA	1	19,122	19,122	83.6	83.6	17.0	1,420	12.0	1,006	-	-	2,868	24,415	24,415	10.0 %	2,442	-	-	26,857
Crushing Area Maintenance Crane - 17 m lift, 7.87kW	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Primary Crusher Apron Feeder - 1.5 m wide x 22.5 m long, 75kW	EA	1	1,758,814	1,758,814	1,463	1,463	17.0	24,842	12.0	17,600	-	-	263,822	2,065,078	2,065,078	12.0 %	247,809	-	-	2,312,887
Primary Crusher - C160, 250kW	EA	1	836,000	836,000	1,254	1,254	17.0	21,293	12.0	15,086	-	-	167,200	1,039,579	1,039,579	10.0 %	103,958	-	-	1,143,536
Primary Crusher Discharge Conveyor Cv01 - 70 m long x 8 m lift,	M	70	3,073	215,086	22.4	1,567	17.0	26,606	12.0	18,849	-	-	32,263	4,183	292,804	12.0 %	35,136	-	-	327,940
Primary Crusher Discharge Conveyor Weightometer	EA	1	45,502	45,502	125	125	17.0	2,129	12.0	1,509	-	-	6,825	55,965	55,965	12.0 %	6,716	-	-	62,680
Primary Crusher Dust Collector - 5.5kW	EA	1	13,721	13,721	125	125	17.0	2,129	12.0	1,509	-	-	2,058	19,417	19,417	12.0 %	2,330	-	-	21,747
Primary Crusher Dust Collector Fan (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Primary Crusher Hydraulic Power Pack (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Primary Crusher Lubrication Unit (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Primary Crusher Water Pump - 5.5kW	EA	1	6,446	6,446	41.8	41.8	17.0	710	12.0	503	-	-	967	8,626	8,626	10.0 %	863	-	-	9,488
Primary Crusher Water Tank - 10M3	EA	1	12,099	12,099	523	523	17.0	8,872	12.0	6,286	-	-	1,815	29,072	29,072	12.0 %	3,489	-	-	32,561
Primary Crushing Area Air Receiver - 2m3	EA	1	6,998	6,998	62.7	62.7	17.0	1,065	12.0	754	-	-	1,050	9,866	9,866	10.0 %	987	-	-	10,853
Primary Feeder Lubrication Unit 1 (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Primary Vibrating Grizzly Feeder - 1420 x 4500 mm, 37kW	EA	1	311,434	311,434	418	418	17.0	7,098	12.0	5,029	-	-	46,715	370,276	370,276	12.0 %	44,433	-	-	414,709
Stockpile Feed Conveyor - Cv02 170 m long x 36 m lift, 1,200mm	M	170	2,361	401,329	19.4	3,297	17.0	55,986	12.0	39,665	-	-	60,199	3,278	557,179	12.0 %	66,862	-	-	624,041
P Piping				***207,869***		***2,917***		***49,537***		***35,096***	***-***	***-***	***20,787***		***313,288***		***68,923***	***-***	***-***	***382,211***
1.2.1 - Primary Crushing - Area Piping	EA	1	207,869	207,869	2,917	2,917	17.0	49,537	12.0	35,096	-	-	20,787	313,288	313,288	22.0 %	68,923	-	-	382,211

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
S Steelwork				***379,263***		***8,812***		***149,631***		***106,011***	-	-	***107,606***		***742,510***		***75,057***	-	-	***817,567***
S2010 Light Steel - < 25kg/m Paint Spec A - Dry Area.	T	19	2,091	40,565	64.1	1,244	17.0	21,124	12.0	14,966	-	-	14,062	4,676	90,716	10.0 %	9,072	-	-	99,788
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	51	2,298	117,704	48.7	2,496	17.0	42,389	12.0	30,032	-	-	37,131	4,437	227,256	10.0 %	22,726	-	-	249,982
S2050 Heavy Steel - > 75kg/m Paint Spec A - Dry Area.	T	12	2,235	25,775	38.5	444	17.0	7,533	12.0	5,337	-	-	8,358	4,076	47,003	10.0 %	4,700	-	-	51,704
S2070 Hollow Sections - Paint Spec A - Dry Area	T	16	2,273	36,913	64.1	1,041	17.0	17,685	12.0	12,529	-	-	11,773	4,858	78,900	10.0 %	7,890	-	-	86,790
S2100 Welded Beams & Columns - Paint Spec A - Dry Area	T	18	2,260	41,648	38.5	709	17.0	12,038	12.0	8,529	-	-	13,357	4,101	75,572	10.0 %	7,557	-	-	83,129
S2130 Conveyor Trusses - Paint Spec A - Dry Area	T	12	2,279	28,305	48.7	605	17.0	10,279	12.0	7,283	-	-	9,004	4,417	54,871	10.9 %	5,965	-	-	60,837
S2150 Conveyor Trestles - Paint Spec A - Dry Area	T	2	2,310	4,073	48.7	85.9	17.0	1,459	12.0	1,034	-	-	1,278	4,448	7,844	12.0 %	941	-	-	8,785
S3050 Stair Treads x 750w - Galvanised	EA	167	53.3	8,897	1.41	236	17.0	4,000	12.0	2,834	-	-	1,335	102	17,066	10.0 %	1,707	-	-	18,773
S3090 Grating - Standard Galvanised	M2	273	103	28,081	3.85	1,049	17.0	17,818	12.0	12,623	-	-	4,212	230	62,734	10.1 %	6,346	-	-	69,080
S3130 Chequer Plate 6 mm thick Paint Spec A - Dry Area	M2	1	148	90.1	3.85	2.35	17.0	39.9	12.0	28.2	-	-	13.5	282	172	10.0 %	17.2	-	-	189
S3150 Handrails - Platform - Paint Spec A - Dry Area (including	LM	329	135	44,311	2.57	844	17.0	14,328	12.0	10,151	-	-	6,647	229	75,438	10.0 %	7,544	-	-	82,982
S3160 Handrails - Platform - Paint Spec B - Wet Area (including	LM	22	135	2,900	2.57	55.2	17.0	938	12.0	664	-	-	435	229	4,937	12.0 %	592	-	-	5,529
1.2.5 - Stockpiling				**1,034,982**		**39,216**		**469,497**		**338,304**	-	-	**200,947**		**2,043,730**		**204,381**	-	-	**2,248,111**
C Concrete				***261,367***		***19,699***		***149,906***		***113,070***	-	-	-		***524,344***		***52,800***	-	-	***577,144***
C3010 Blinding Concrete 50mm thick	CM	20	250	4,915	18.7	368	7.61	2,800	5.74	2,112	-	-	-	499	9,828	9.9 %	976	-	-	10,804
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	-2	681	-1,561	51.0	-117	7.61	-889	5.74	-671	-	-	-	1,361	-3,121	12.0 %	-375	-	-	-3,495
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	11	681	7,785	10.0	114	7.61	871	5.74	657	-	-	-	814	9,312	10.0 %	931	-	-	10,244
C3040 Footings & Pedestals - Large >2 m3	M3	316	731	230,861	54.7	17,285	7.61	131,537	5.74	99,214	-	-	-	1,461	461,612	10.0 %	46,142	-	-	507,754
C3060 Ground Slabs < 300 mm thick	M3	-6	411	-2,626	30.7	-197	7.61	-1,496	5.74	-1,129	-	-	-	821	-5,251	12.0 %	-630	-	-	-5,881
C3070 Ground Slabs - Rafts > 300 mm thick	M3	11	687	7,394	51.5	554	7.61	4,216	5.74	3,180	-	-	-	1,374	14,789	12.0 %	1,775	-	-	16,564
C3110 Walls < 250 mm thick	M3	31	391	11,999	48.8	1,500	7.61	11,416	5.74	8,611	-	-	-	1,043	32,025	10.7 %	3,414	-	-	35,439
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	2	536	1,286	40.1	96.3	7.61	733	5.74	553	-	-	-	1,072	2,571	10.0 %	257	-	-	2,828
C3320 Embedded Steel - Mild Steel - Black	T	1	2,086	1,314	150	94.7	7.61	720	5.74	543	-	-	-	4,092	2,578	12.0 %	309	-	-	2,887
E Electrical				***69,201***		***2,372***		***28,466***		***18,977***	-	-	***4,152***		***120,796***		***12,080***	-	-	***132,876***
Area Electrical AUD	EA	1	61,427	61,427	2,194	2,194	12.0	26,327	8.00	17,552	-	-	3,686	108,991	108,991	10.0 %	10,899	-	-	119,890
Area Electrical EUR	EA	1	7,573	7,573	166	166	12.0	1,988	8.00	1,326	-	-	454	11,341	11,341	10.0 %	1,134	-	-	12,476
Area Electrical USD	EA	1	201	201	12.5	12.5	12.0	150	8.00	100	-	-	12.1	463	463	10.0 %	46.3	-	-	510
S Steelwork				***704,413***		***17,145***		***291,125***		***206,257***	-	-	***196,795***		***1,398,590***		***139,502***	-	-	***1,538,092***
S2010 Light Steel - < 25kg/m Paint Spec A - Dry Area.	T	20	2,091	42,656	64.1	1,308	17.0	22,212	12.0	15,737	-	-	14,787	4,676	95,392	10.0 %	9,539	-	-	104,932
S2030 Medium Steel - 25 - 75 kg/m Paint Spec A - Dry Area.	T	36	2,235	81,141	48.7	1,769	17.0	30,039	12.0	21,282	-	-	26,313	4,374	158,774	10.0 %	15,877	-	-	174,652
S2050 Heavy Steel - > 75kg/m Paint Spec A - Dry Area.	T	3	2,235	7,377	38.5	127	17.0	2,156	12.0	1,527	-	-	2,392	4,076	13,452	10.0 %	1,345	-	-	14,797
S2070 Hollow Sections - Paint Spec A - Dry Area	T	24	2,273	55,000	64.1	1,552	17.0	26,350	12.0	18,668	-	-	17,542	4,858	117,560	10.0 %	11,756	-	-	129,317
S2090 Welded Beams & Columns - Paint Spec A - Dry Area	T	2	2,260	4,747	38.5	80.8	17.0	1,372	12.0	972	-	-	1,522	4,101	8,613	10.0 %	861	-	-	9,474
S2130 Conveyor Trusses - Paint Spec A - Dry Area	T	128	2,279	291,889	48.7	6,243	17.0	106,005	12.0	75,103	-	-	92,856	4,417	565,853	10.0 %	56,373	-	-	622,226
S2150 Conveyor Trestles - Paint Spec A - Dry Area	T	22	2,310	49,699	48.7	1,049	17.0	17,807	12.0	12,616	-	-	15,598	4,448	95,719	9.9 %	9,502	-	-	105,222
S3050 Stair Treads x 750w - Galvanised	EA	264	53.3	14,065	1.41	372	17.0	6,324	12.0	4,480	-	-	2,110	102	26,979	10.0 %	2,698	-	-	29,677

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
S3090 Grating - Standard Galvanised	M2	449	103	46,254	3.85	1,728	17.0	29,348	12.0	20,793	-	-	6,938	230	103,333	10.0 %	10,301	-	-	113,635
S3130 Chequer Plate 6 mm thick Paint Spec A - Dry Area	M2	13	148	1,951	3.85	50.8	17.0	862	12.0	611	-	-	293	282	3,716	10.0 %	372	-	-	4,088
S3150 Handrails - Platform - Paint Spec A - Dry Area (including	LM	487	135	65,636	2.57	1,250	17.0	21,224	12.0	15,037	-	-	9,845	229	111,742	10.0 %	11,174	-	-	122,916
S3160 Handrails - Platform - Paint Spec B - Wet Area (including	LM	-10	135	-1,286	2.57	-24.5	17.0	-416	12.0	-295	-	-	-193	229	-2,189	12.0 %	-263	-	-	-2,452
S3170 Handrails - Stair - Paint Spec A - Dry Area (including	LM	107	149	15,951	3.85	412	17.0	7,003	12.0	4,962	-	-	2,393	283	30,309	10.0 %	3,031	-	-	33,340
S4110 Purlins - Galvanised	LM	98	20.1	1,975	1.15	113	17.0	1,927	12.0	1,365	-	-	296	56.6	5,562	10.0 %	556	-	-	6,118
S5010 Safety Mesh / Guards	M2	217	126	27,359	5.13	1,114	17.0	18,911	12.0	13,398	-	-	4,104	294	63,772	10.0 %	6,377	-	-	70,149
1.3 - Milling				***46,305,861***		***437,856***		***5,710,031***		***2,774,373***	***-***	***962,500***	***7,701,096***		***63,453,861***		***7,529,659***	***-***	***-***	***70,983,520***
1.3.1 - Reclaim				**6,463,101**		**133,449**		**1,373,615**		**999,033**	**-**	**-**	**746,296**		**9,582,045**		**1,097,122**	**-**	**-**	**10,679,168**
C Concrete				***1,599,029***		***89,597***		***681,830***		***514,285***	***-***	***-***	***-***		***2,795,144***		***282,083***	***-***	***-***	***3,077,226***
C3010 Blinding Concrete 50mm thick	CM	46	250	11,376	18.7	852	7.61	6,482	5.74	4,889	-	-	-	499	22,746	10.0 %	2,283	-	-	25,029
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	2	681	1,395	51.0	104	7.61	795	5.74	600	-	-	-	1,361	2,789	7.8 %	219	-	-	3,008
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	36	681	24,508	51.0	1,835	7.61	13,967	5.74	10,535	-	-	-	1,361	49,010	10.0 %	4,901	-	-	53,911
C3040 Footings & Pedestals - Large >2 m3	M3	191	731	139,787	54.7	10,466	7.61	79,645	5.74	60,074	-	-	-	1,461	279,506	10.0 %	27,931	-	-	307,437
C3060 Ground Slabs < 300 mm thick	M3	67	411	27,422	30.7	2,054	7.61	15,627	5.74	11,787	-	-	-	821	54,837	9.8 %	5,398	-	-	60,234
C3070 Ground Slabs - Rafts > 300 mm thick	M3	647	687	444,505	51.5	33,305	7.61	253,455	5.74	191,173	-	-	-	1,374	889,133	10.2 %	90,744	-	-	979,877
C3090 Kerbs < 500mm high	M3	5	442	1,996	35.3	159	7.61	1,213	5.74	915	-	-	-	914	4,125	10.0 %	412	-	-	4,537
C3110 Walls < 250 mm thick	M3	6	391	2,354	48.8	294	7.61	2,240	5.74	1,690	-	-	-	1,043	6,284	10.0 %	628	-	-	6,912
C3120 Walls 250 - 600 mm thick	M3	27	606	16,079	48.8	1,295	7.61	9,859	5.74	7,436	-	-	-	1,258	33,374	12.0 %	4,005	-	-	37,379
C3130 Walls >600 mm thick (Mass Pour)	M3	840	715	600,506	22.3	18,706	7.61	142,350	5.74	107,370	-	-	-	1,012	850,227	10.0 %	85,023	-	-	935,249
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	1	536	489	40.1	36.6	7.61	279	5.74	210	-	-	-	1,072	979	10.0 %	97.9	-	-	1,076
C3150 Equipment Bases - Minor Rafts < 50 m3	M3	1	536	769	37.2	53.4	7.61	406	5.74	307	-	-	-	1,033	1,483	10.0 %	148	-	-	1,631
C3190 Suspended Slabs 300 - 600 mm thick	M3	323	669	216,057	50.1	16,178	7.61	123,114	5.74	92,862	-	-	-	1,338	432,033	10.0 %	43,203	-	-	475,236
C3270 5.44 m diam x 7 mm thick Multiplate Tunnel	LM	18	2,546	45,193	67.5	1,197	7.61	9,111	5.74	6,872	-	-	-	3,447	61,177	10.0 %	6,118	-	-	67,294
C3272 2.5 m diam x 3.7 mm thick Multiplate Tunnel	LM	34	1,326	45,193	45.0	1,533	7.61	11,662	5.74	8,797	-	-	-	1,926	65,652	10.0 %	6,565	-	-	72,217
C3320 Embedded Steelwork - Mild Steel - Black	T	10	2,086	21,158	150	1,524	7.61	11,597	5.74	8,747	-	-	-	4,092	41,502	10.5 %	4,378	-	-	45,880
C3401 Bollards HD Steel Concrete Filled Including Footing	EA	7	33.9	241	0.50	3.57	7.61	27.2	5.74	20.5	-	-	-	40.6	288	10.0 %	28.8	-	-	317
E Electrical				***591,299***		***10,557***		***126,682***		***84,455***	***-***	***-***	***35,478***		***837,913***		***83,791***	***-***	***-***	***921,705***
Area Electrical AUD	EA	1	106,700	106,700	7,926	7,926	12.0	95,118	8.00	63,412	-	-	6,402	271,632	271,632	10.0 %	27,163	-	-	298,795
Area Electrical EUR	EA	1	206,163	206,163	2,020	2,020	12.0	24,236	8.00	16,158	-	-	12,370	258,926	258,926	10.0 %	25,893	-	-	284,819
Area Electrical USD	EA	1	278,436	278,436	611	611	12.0	7,328	8.00	4,885	-	-	16,706	307,356	307,356	10.0 %	30,736	-	-	338,091
L Platework				***226,666***		***2,202***		***37,139***		***26,242***	***-***	***-***	***66,251***		***356,298***		***38,291***	***-***	***-***	***394,589***
L1010 Chutes - Paint Spec A - Dry Plant	T	5	3,129	16,584	64.1	340	16.2	5,521	11.3	3,842	-	-	8,964	6,587	34,911	10.0 %	3,491	-	-	38,402
L1030 Chutes - Paint Spec B - Wet Plant	T	17	3,234	54,849	64.1	1,088	17.0	18,467	12.0	13,083	-	-	28,685	6,786	115,084	10.0 %	11,508	-	-	126,593
L1035 Chutes - Stainless Steel 304	T	0	12,999	2,080	77.0	12.3	17.0	209	12.0	148	-	-	271	16,923	2,708	10.0 %	271	-	-	2,978
L1160 Bins - Large - Paint Spec A - Dry Plant > 100 m3	T	13	3,129	41,772	38.5	514	17.0	8,722	12.0	6,179	-	-	22,580	5,937	79,253	12.0 %	9,510	-	-	88,763
L1250 Linings - Rubber 10thk Natural Rubber	M2	1	416	316	-	-		-		-	-	-	-	416	316	10.0 %	31.6	-	-	348

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
L1261 Linings - Conveyor Rubber Skirt	M2	22	63.0	1,371	-	-		-		-	-	-	-	63.0	1,371	10.0 %	137	-	-	1,508
L1310 Linings - Bisalloy 12thk	M2	65	502	32,714	-	-		-		-	-	-	-	502	32,714	10.0 %	3,271	-	-	35,985
L1316 Linings - Bisalloy 16thk	M2	80	670	53,786	-	-		-		-	-	-	-	670	53,786	12.0 %	6,454	-	-	60,241
L1330 Linings - Bisalloy 12thk	M2	26	502	13,270	1.15	30.5	17.0	518	12.0	367	-	-	-	535	14,156	10.0 %	1,416	-	-	15,571
L3020 Support frames etc < 25kg/m Paint Spec B - Wet Area.	T	3	2,919	9,925	64.1	218	17.0	3,702	12.0	2,623	-	-	5,751	6,471	22,000	10.0 %	2,200	-	-	24,200
M Mechanical				***2,879,481***		***7,911***		***134,330***		***95,170***	***-***	***-***	***431,922***		***3,540,904***		***375,884***	***-***	***-***	***3,916,788***
Impact Bed - Reclaim Feeder 1 Discharge 2 ,000 X 1,200	EA	1	23,814	23,814	418	418	17.0	7,098	12.0	5,029	-	-	3,572	39,512	39,512	12.0 %	4,741	-	-	44,254
Impact Bed - Reclaim Feeder 2 Discharge	EA	1	23,814	23,814	83.6	83.6	17.0	1,420	12.0	1,006	-	-	3,572	29,811	29,811	12.0 %	3,577	-	-	33,389
Lime Bag Breaker Dust Collector (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Lime Silo - 285 t live capacity	EA	1	1,028,974	1,028,974	1,045	1,045	17.0	17,744	12.0	12,571	-	-	154,346	1,213,636	1,213,636	10.0 %	121,364	-	-	1,335,000
Lime Silo Bin Activator (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Lime Silo Dust Collector	EA	1	13,721	13,721	83.6	83.6	17.0	1,420	12.0	1,006	-	-	2,058	18,205	18,205	12.0 %	2,185	-	-	20,389
Lime Silo Rotary Valve (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Lime Transfer Blower - 55kW (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Lime Transfer Hopper	EA	1	103,201	103,201	261	261	17.0	4,436	12.0	3,143	-	-	15,480	126,260	126,260	8.0 %	10,101	-	-	136,360
Lime Transfer Loading Hoist - 3t	EA	1	32,098	32,098	83.6	83.6	17.0	1,420	12.0	1,006	-	-	4,815	39,338	39,338	8.0 %	3,147	-	-	42,485
Reclaim Area Air Receiver - 2m3	EA	1	6,998	6,998	62.7	62.7	17.0	1,065	12.0	754	-	-	1,050	9,866	9,866	12.0 %	1,184	-	-	11,050
Reclaim Area Sump Pump - 22kW	EA	1	19,122	19,122	62.7	62.7	17.0	1,065	12.0	754	-	-	2,868	23,809	23,809	10.0 %	2,381	-	-	26,190
Reclaim Chamber Maintenance Hoist 1 - 5t	EA	1	8,821	8,821	83.6	83.6	17.0	1,420	12.0	1,006	-	-	1,323	12,570	12,570	10.0 %	1,257	-	-	13,826
Reclaim Chamber Maintenance Hoist 2 - 5t	EA	1	8,821	8,821	83.6	83.6	17.0	1,420	12.0	1,006	-	-	1,323	12,570	12,570	10.0 %	1,257	-	-	13,826
Reclaim Dust Collector	EA	1	13,721	13,721	125	125	17.0	2,129	12.0	1,509	-	-	2,058	19,417	19,417	12.0 %	2,330	-	-	21,747
Reclaim Dust Collector Fan (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Reclaim Feeder 1 - 1.2 m W x 9.0 m, 75kW	EA	1	323,688	323,688	836	836	17.0	14,195	12.0	10,057	-	-	48,553	396,494	396,494	10.0 %	39,649	-	-	436,144
Reclaim Feeder 1 Lubrication System (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Reclaim Feeder 2 - 1.2 m W x 9.0 m, 75kW	EA	1	323,688	323,688	836	836	17.0	14,195	12.0	10,057	-	-	48,553	396,494	396,494	10.0 %	39,649	-	-	436,144
Reclaim Feeder 2 Lubrication System (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Reclaim Tunnel Sump Pump - 22kW	EA	1	19,122	19,122	62.7	62.7	17.0	1,065	12.0	754	-	-	2,868	23,809	23,809	10.0 %	2,381	-	-	26,190
Reclaim Tunnel Ventilation Fan - 15kW	EA	1	33,756	33,756	62.7	62.7	17.0	1,065	12.0	754	-	-	5,063	40,638	40,638	10.0 %	4,064	-	-	44,702
Sag Mill Charging Feeder - 5.5kW	EA	1	505,285	505,285	314	314	17.0	5,323	12.0	3,771	-	-	75,793	590,173	590,173	12.0 %	70,821	-	-	660,993
Sag Mill Feed Conveyor Cv03 - 220 m long x 32 m lift, 1,200mm belt	M	220	1,522	334,834	14.4	3,177	17.0	53,949	12.0	38,222	-	-	50,225	2,169	477,231	12.0 %	57,268	-	-	534,498
Sag Mill Feed Conveyor Weightometer	EA	1	45,502	45,502	125	125	17.0	2,129	12.0	1,509	-	-	6,825	55,965	55,965	12.0 %	6,716	-	-	62,680
Stockpile Dust Spray Manifold	EA	1	10,500	10,500	105	105	17.0	1,774	12.0	1,257	-	-	1,575	15,107	15,107	12.0 %	1,813	-	-	16,919
P Piping				***620,668***		***8,711***		***147,910***		***104,791***	***-***	***-***	***62,067***		***935,436***		***205,796***	***-***	***-***	***1,141,232***
1.3.1 - Reclaim - Area Piping	EA	1	620,668	620,668	8,711	8,711	17.0	147,910	12.0	104,791	-	-	62,067	935,436	935,436	22.0 %	205,796	-	-	1,141,232
S Steelwork				***545,958***		***14,471***		***245,724***		***174,091***	***-***	***-***	***150,578***		***1,116,351***		***111,278***	***-***	***-***	***1,227,629***
S2010 Light Steel - < 25kg/m Paint Spec A - Dry Area.	T	54	2,091	111,932	64.1	3,433	17.0	58,287	12.0	41,295	-	-	38,803	4,676	250,318	10.0 %	25,032	-	-	275,350
S2030 Medium Steel - 25 - 75 kg/m Paint Spec A - Dry Area.	T	61	2,235	135,729	48.7	2,959	17.0	50,248	12.0	35,600	-	-	44,015	4,374	265,593	10.0 %	26,559	-	-	292,152
S2050 Heavy Steel - > 75kg/m Paint Spec A - Dry Area.	T	8	2,235	17,138	38.5	295	17.0	5,009	12.0	3,549	-	-	5,557	4,076	31,253	10.0 %	3,125	-	-	34,378
S2070 Hollow Sections - Paint Spec A - Dry Area	T	8	2,273	19,148	64.1	540	17.0	9,174	12.0	6,499	-	-	6,107	4,858	40,929	10.0 %	4,093	-	-	45,021

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
S2090 Welded Beams & Columns - Paint Spec A - Dry Area	T	10	2,260	22,593	38.5	385	17.0	6,530	12.0	4,627	-	-	7,246	4,101	40,996	10.0 %	4,100	-	-	45,096
S2130 Conveyor Trusses - Paint Spec A - Dry Area	T	31	2,279	71,159	48.7	1,522	17.0	25,843	12.0	18,309	-	-	22,637	4,417	137,949	9.8 %	13,583	-	-	151,532
S2150 Conveyor Trestles - Paint Spec A - Dry Area	T	3	2,310	5,945	48.7	125	17.0	2,130	12.0	1,509	-	-	1,866	4,448	11,450	9.4 %	1,075	-	-	12,525
S3040 Caged Ladders - Paint Spec B - Wet Area	LM	4	93.7	394	7.70	32.3	17.0	549	12.0	389	-	-	59.1	331	1,390	10.0 %	139	-	-	1,529
S3050 Stair Treads x 750w - Galvanised	EA	162	53.3	8,637	1.41	229	17.0	3,884	12.0	2,751	-	-	1,296	102	16,568	10.0 %	1,657	-	-	18,225
S3090 Grating - Standard Galvanised	M2	504	103	51,908	3.85	1,940	17.0	32,936	12.0	23,335	-	-	7,786	230	115,966	10.0 %	11,564	-	-	127,530
S3130 Chequer Plate 6 mm thick Paint Spec A - Dry Area	M2	4	148	665	3.85	17.3	17.0	294	12.0	208	-	-	99.7	282	1,266	10.0 %	127	-	-	1,393
S3150 Handrails - Platform - Paint Spec A - Dry Area (including	LM	300	135	40,389	2.57	769	17.0	13,060	12.0	9,253	-	-	6,058	229	68,759	10.0 %	6,876	-	-	75,635
S3160 Handrails - Platform - Paint Spec B - Wet Area (including	LM	-10	135	-1,286	2.57	-24.5	17.0	-416	12.0	-295	-	-	-193	229	-2,189	12.0 %	-263	-	-	-2,452
S3180 Handrails - Stair - Paint Spec B - Wet Area (including	LM	128	149	18,985	3.85	491	17.0	8,336	12.0	5,906	-	-	2,848	283	36,074	10.0 %	3,607	-	-	39,682
S4110 Purlins - Galvanised	LM	70	20.1	1,410	1.15	81.0	17.0	1,376	12.0	975	-	-	211	56.6	3,971	10.0 %	397	-	-	4,369
S5010 Safety Mesh / Guards	M2	327	126	41,210	5.13	1,678	17.0	28,485	12.0	20,181	-	-	6,182	294	96,058	10.0 %	9,606	-	-	105,664
1.3.2 - Grinding				**35,608,825**		**261,542**		**3,805,168**		**1,418,278**	**-**	**962,500**	**6,293,204**		**48,087,975**		**5,693,750**	**-**	**-**	**53,781,724**
C Concrete				***2,216,515***		***138,250***		***337,329***		***461,753***	***-***	***-***	***-***		***3,015,597***		***301,560***	***-***	***-***	***3,317,157***
C3010 Blinding Concrete 50mm thick	CM	56	313	17,431	24.4	1,360	2.44	3,317	3.34	4,541	-	-	-	454	25,289	10.0 %	2,529	-	-	27,818
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	38	450	16,910	32.2	1,212	2.44	2,958	3.34	4,049	-	-	-	636	23,916	10.0 %	2,392	-	-	26,308
C3040 Footings & Pedestals - Large >2 m3	M3	285	429	122,423	30.3	8,646	2.44	21,096	3.34	28,877	-	-	-	604	172,396	10.0 %	17,240	-	-	189,635
C3060 Ground Slabs < 300 mm thick	M3	337	406	137,024	25.8	8,691	2.44	21,206	3.34	29,028	-	-	-	555	187,258	10.0 %	18,726	-	-	205,984
C3070 Ground Slabs - Rafts > 300 mm thick	M3	1,206	425	512,578	26.8	32,321	2.44	78,864	3.34	107,953	-	-	-	580	699,394	10.0 %	69,939	-	-	769,333
C3090 Kerbs < 500mm high	M3	9	414	3,895	24.2	228	2.44	556	3.34	761	-	-	-	554	5,213	10.0 %	521	-	-	5,734
C3110 Walls < 250 mm thick	M3	13	565	7,317	38.5	499	2.44	1,217	3.34	1,666	-	-	-	788	10,199	10.0 %	1,020	-	-	11,219
C3120 Walls 250 - 600 mm thick	M3	127	471	59,857	29.6	3,764	2.44	9,185	3.34	12,573	-	-	-	642	81,615	10.0 %	8,161	-	-	89,776
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	38	450	17,161	32.2	1,230	2.44	3,002	3.34	4,109	-	-	-	636	24,271	10.0 %	2,427	-	-	26,698
C3150 Equipment Bases - Minor Rafts < 50 m3	M3	42	450	18,941	32.2	1,358	2.44	3,313	3.34	4,535	-	-	-	636	26,789	10.0 %	2,679	-	-	29,468
C3160 Equipment Bases - Major Pedestals > 50 m3	M3	2,134	461	983,525	32.8	70,097	2.44	171,037	3.34	234,124	-	-	-	651	1,388,685	10.0 %	138,869	-	-	1,527,554
C3190 Suspended Slabs 300 - 600 mm thick	M3	287	452	129,576	27.8	7,978	2.44	19,465	3.34	26,645	-	-	-	613	175,686	10.0 %	17,569	-	-	193,254
C3320 Embedded Steelwork - Mild Steel - Black	T	22	8,611	189,289	37.6	828	2.44	2,019	3.34	2,764	-	-	-	8,828	194,073	10.0 %	19,407	-	-	213,480
C3401 Bollards HD Steel Concrete Filled Including Footing	EA	4	140	589	9.30	39.0	2.44	95.3	3.34	130	-	-	-	194	814	10.0 %	81.4	-	-	896
E Electrical				***1,208,965***		***39,532***		***474,387***		***316,258***	***-***	***-***	***72,538***		***2,072,147***		***207,215***	***-***	***-***	***2,279,362***
Area Electrical AUD	EA	1	871,442	871,442	35,641	35,641	12.0	427,689	8.00	285,126	-	-	52,287	1,636,543	1,636,543	10.0 %	163,654	-	-	1,800,197
Area Electrical EUR	EA	1	335,482	335,482	3,724	3,724	12.0	44,686	8.00	29,791	-	-	20,129	430,087	430,087	10.0 %	43,009	-	-	473,096
Area Electrical USD	EA	1	2,041	2,041	168	168	12.0	2,012	8.00	1,342	-	-	122	5,517	5,517	10.0 %	552	-	-	6,069
L Platework				***633,118***		***5,012***		***70,868***		***46,209***	***-***	***-***	***128,769***		***878,963***		***98,601***	***-***	***-***	***977,565***
L1010 Chutes - Paint Spec A - Dry Plant	T	1	3,129	2,126	64.1	43.6	14.1	616	9.22	402	-	-	1,149	6,318	4,293	12.0 %	515	-	-	4,808
L1030 Chutes - Paint Spec B - Wet Plant	T	65	3,234	209,225	64.1	4,149	14.1	58,661	9.22	38,250	-	-	109,423	6,423	415,559	11.2 %	46,454	-	-	462,013
L1060 Chutes - 3CR12 Paint B	T	4	10,290	40,748	77.0	305	14.1	4,309	9.22	2,810	-	-	6,698	13,779	54,564	10.0 %	5,456	-	-	60,021
L1120 Launders - Paint Spec B - Wet Plant	T	6	3,549	20,567	64.1	372	14.1	5,255	9.22	3,426	-	-	9,802	6,738	39,049	12.0 %	4,686	-	-	43,735
L1230 Linings - Rubber 6thk Natural Rubber	M2	75	292	21,954	-	-		-		-	-	-	-	292	21,954	12.0 %	2,634	-	-	24,588

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
L1240 Linings - Rubber 8thk Natural Rubber	M2	121	376	45,320	-	-		-		-	-	-	-	376	45,320	10.1 %	4,585	-	-	49,905
L1250 Linings - Rubber 10thk Natural Rubber	M2	49	416	20,495	-	-		-		-	-	-	-	416	20,495	12.0 %	2,459	-	-	22,954
L1260 Linings - Rubber 12thk Natural Rubber	M2	236	416	98,306	-	-		-		-	-	-	-	416	98,306	12.0 %	11,797	-	-	110,103
L1261 Linings - Conveyor Rubber Skirt	M2	9	63.0	545	-	-		-		-	-	-	-	63.0	545	12.0 %	65.4	-	-	611
L1261 Linings - Wear Rubber	M2	24	2,772	65,426	-	-		-		-	-	-	-	2,772	65,426	12.0 %	7,851	-	-	73,277
L1262 Linings - Rubber 20thk Natural Rubber	M2	21	720	14,998	-	-		-		-	-	-	-	720	14,998	12.0 %	1,800	-	-	16,798
L1262 Lip Linings - 304 SS	T	0	11,025	1,172	-	-		-		-	-	-	-	11,025	1,172	12.0 %	141	-	-	1,313
L1270 Linings - Rubber 20thk Natural Rubber	M2	69	720	49,585	-	-		-		-	-	-	-	720	49,585	10.0 %	4,959	-	-	54,544
L1273 Linings - Rubber 20thk Natural Rubber (Rubber Wear)	M2	28	720	20,370	-	-		-		-	-	-	-	720	20,370	10.0 %	2,037	-	-	22,407
L1320 Linings - Bisalloy 20thk	M2	9	836	7,193	-	-		-		-	-	-	-	836	7,193	12.0 %	863	-	-	8,057
L1330 Linings - Bisalloy 12thk	M2	19	502	9,561	1.15	22.0	14.1	311	9.22	203	-	-	-	529	10,074	12.0 %	1,209	-	-	11,283
L3020 Support frames etc < 25kg/m Paint Spec B - Wet Area.	T	1	2,919	2,022	64.1	44.4	14.1	628	9.22	410	-	-	1,172	6,108	4,232	12.0 %	508	-	-	4,739
L3021 Sump Pump Support Frame & Screen	Lot	1	2,919	3,503	64.1	77.0	14.1	1,088	9.22	709	-	-	525	4,855	5,826	10.0 %	583	-	-	6,408
M Mechanical				***28,563,132***		***33,731***		***2,286,042***		***178,999***	***-***	***962,500***	***5,537,782***		***37,528,454***		***4,376,572***	***-***	***-***	***41,905,026***
Ball & Sag Mill - Installation	Lot	1	-	-	14,317	14,317	141	2,011,525	-	-	-	-	-	2,011,525	2,011,525	8.0 %	160,922	-	-	2,172,447
Ball & Sag Mill - Supervision	Lot	1	-	-	-	-		-		-	-	600,000	-	600,000	600,000	8.0 %	48,000	-	-	648,000
Ball Mill - 6.71 m dia (inside shell) x 11.58 m EGL, 10,000kW	EA	1	11,726,534	11,726,534	8,892	8,892	14.1	125,733	9.22	81,984	-	-	2,345,307	14,279,558	14,279,558	12.0 %	1,713,547	-	-	15,993,105
Ball Mill Ball Charger (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Ball Mill Bearing Lubrication Skid (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Ball Mill Charging Hoist - 3t, 13.5 m long travel, 21 m lift, 15kW	EA	1	43,993	43,993	125	125	14.1	1,773	9.22	1,156	-	-	6,599	53,521	53,521	10.0 %	5,352	-	-	58,873
Ball Mill Feed Spout Removal Trolley	EA	1	5,775	5,775	41.8	41.8	14.1	591	9.22	385	-	-	866	7,618	7,618	12.0 %	914	-	-	8,532
Ball Mill Gearbox / Pinion Lubrication Skid (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Ball Mill Inching Drive (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Ball Mill Ring Gear Grease System (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Ball Mill Trommel (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Grinding Area Air Receiver - 5m3	EA	1	14,759	14,759	83.6	83.6	14.1	1,182	9.22	771	-	-	2,214	18,926	18,926	12.0 %	2,271	-	-	21,197
Mill Feed End Sump Pump 1 - 22kW	EA	1	19,122	19,122	83.6	83.6	14.1	1,182	9.22	771	-	-	2,868	23,943	23,943	10.0 %	2,394	-	-	26,337
Mill Feed End Sump Pump 2 - 30kW	EA	1	22,946	22,946	83.6	83.6	14.1	1,182	9.22	771	-	-	3,442	28,341	28,341	12.0 %	3,401	-	-	31,742
Milling Area Drive In Sump Pump - 30kW	EA	1	22,946	22,946	83.6	83.6	14.1	1,182	9.22	771	-	-	3,442	28,341	28,341	12.0 %	3,401	-	-	31,742
Milling Area Drive In Sump Pump Hoist - 2t	EA	1	1,294	1,294	83.6	83.6	14.1	1,182	9.22	771	-	-	194	3,441	3,441	10.0 %	344	-	-	3,786
Mill Liner Bolt Removal Tool - 37.8kW	EA	1	417,598	417,598	83.6	83.6	14.1	1,182	9.22	771	-	-	62,640	482,190	482,190	12.0 %	57,863	-	-	540,053
Sag & Ball Mill - Install tooling and consumables containers	Lot	1	-	-	-	-		-		-	-	362,500	-	362,500	362,500	8.0 %	29,000	-	-	391,500
Sag Mill - 9.75 m dia x 5.26 m EGL, 10,000kW	EA	1	13,339,704	13,339,704	8,892	8,892	14.1	125,733	9.22	81,984	-	-	2,667,941	16,215,362	16,215,362	12.0 %	1,945,843	-	-	18,161,205
Sag Mill Bearing Lubrication Skid (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Sag Mill Discharge Screen - 3.0 x 6.0m, 22kW	EA	1	262,136	262,136	502	502	14.1	7,093	9.22	4,625	-	-	39,320	313,174	313,174	10.0 %	31,317	-	-	344,491
Sag Mill Feed Spout Removal Trolley	EA	1	5,775	5,775	41.8	41.8	14.1	591	9.22	385	-	-	866	7,618	7,618	12.0 %	914	-	-	8,532
Sag Mill Gearbox / Pinion Lubrication Skid (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Sag Mill Inching Drive (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Sag Mill Liner Handler - 120kW	EA	1	2,680,549	2,680,549	418	418	14.1	5,911	9.22	3,854	-	-	402,082	3,092,396	3,092,396	12.0 %	371,088	-	-	3,463,484
Sag Mill Ring Gear Grease System (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
P Piping				***1,632,851***		***12,480***		***176,469***		***115,067***	***-***	***-***	***163,285***		***2,087,672***		***459,288***	***-***	***-***	***2,546,960***
1.3.2 - Grinding - Area Piping	EA	1	1,632,851	1,632,851	12,480	12,480	14.1	176,469	9.22	115,067	-	-	163,285	2,087,672	2,087,672	22.0 %	459,288	-	-	2,546,960
S Steelwork				***1,354,245***		***32,537***		***460,074***		***299,992***	***-***	***-***	***390,830***		***2,505,140***		***250,514***	***-***	***-***	***2,755,654***
S2020 Light Steel - < 25kg/m Paint Spec B - Wet Area.	T	105	2,165	227,484	64.1	6,737	14.1	95,261	9.22	62,115	-	-	76,155	4,388	461,015	10.0 %	46,101	-	-	507,116
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	162	2,298	371,100	48.7	7,871	14.1	111,292	9.22	72,568	-	-	117,066	4,161	672,025	10.0 %	67,203	-	-	739,228
S2060 Heavy Steel - > 75kg/m Paint Spec B - Wet Area.	T	47	2,283	107,911	38.5	1,818	14.1	25,711	9.22	16,765	-	-	34,257	3,907	184,645	10.0 %	18,464	-	-	203,109
S2080 Hollow Sections - Paint Spec B - Wet Area	T	39	2,321	90,949	64.1	2,513	14.1	35,530	9.22	23,167	-	-	28,404	4,544	178,051	10.0 %	17,805	-	-	195,856
S2100 Welded Beams & Columns - Paint Spec B - Wet Area	T	123	2,260	278,000	38.5	4,732	14.1	66,914	9.22	43,631	-	-	89,155	3,884	477,700	10.0 %	47,770	-	-	525,470
S2130 Conveyor Trusses - Paint Spec A - Dry Area	T	10	2,279	23,629	48.7	505	14.1	7,146	9.22	4,660	-	-	7,517	4,142	42,952	10.0 %	4,295	-	-	47,247
S3040 Caged Ladders - Paint Spec B - Wet Area	LM	3	93.7	287	7.70	23.5	14.1	333	9.22	217	-	-	43.0	288	880	10.0 %	88.0	-	-	968
S3050 Stair Treads x 750w - Galvanised	EA	196	53.3	10,461	1.41	277	14.1	3,917	9.22	2,554	-	-	1,569	94.2	18,501	10.0 %	1,850	-	-	20,351
S3090 Grating - Standard Galvanised	M2	1,153	103	118,666	3.85	4,434	14.1	62,701	9.22	40,884	-	-	17,800	208	240,052	10.0 %	24,005	-	-	264,057
S3160 Handrails - Platform - Paint Spec B - Wet Area (including	LM	586	135	78,918	2.57	1,503	14.1	21,250	9.22	13,856	-	-	11,838	215	125,862	10.0 %	12,586	-	-	138,448
S3180 Handrails - Stair - Paint Spec B - Wet Area (including	LM	222	149	33,036	3.85	854	14.1	12,079	9.22	7,876	-	-	4,955	261	57,946	10.0 %	5,795	-	-	63,740
S4080 Cladding - Flashings	LM	224	7.72	1,730	2.57	575	14.1	8,130	9.22	5,301	-	-	259	68.8	15,420	10.0 %	1,542	-	-	16,962
S4110 Purlins - Galvanised	LM	601	20.1	12,074	1.15	694	14.1	9,811	9.22	6,397	-	-	1,811	50.1	30,094	10.0 %	3,009	-	-	33,103
1.3.3 - Classification				**1,540,628**		**9,461**		**132,924**		**86,744**	**-**	**-**	**225,907**		**1,986,203**		**272,294**	**-**	**-**	**2,258,498**
E Electrical				***7,022***		***401***		***4,818***		***3,212***	***-***	***-***	***421***		***15,473***		***1,547***	***-***	***-***	***17,020***
Area Electrical AUD	EA	1	1,232	1,232	161	161	12.0	1,937	8.00	1,291	-	-	73.9	4,533	4,533	10.0 %	453	-	-	4,986
Area Electrical EUR	EA	1	5,790	5,790	240	240	12.0	2,881	8.00	1,921	-	-	347	10,940	10,940	10.0 %	1,094	-	-	12,034
L Platework				***88,009***		***1,020***		***14,428***		***9,408***	***-***	***-***	***26,913***		***138,757***		***13,876***	***-***	***-***	***152,633***
L1030 Chutes - Paint Spec B - Wet Plant	T	5	3,234	16,726	64.1	332	14.1	4,690	9.22	3,058	-	-	8,748	6,423	33,221	10.0 %	3,322	-	-	36,544
L1080 Hoppers - Paint Spec B - Wet Plant	T	1	3,234	3,525	64.1	69.9	14.1	988	9.22	644	-	-	1,844	6,423	7,001	10.0 %	700	-	-	7,702
L1120 Launders - Paint Spec B - Wet Plant	T	10	3,549	34,248	64.1	619	14.1	8,750	9.22	5,705	-	-	16,322	6,738	65,025	10.0 %	6,502	-	-	71,527
L1225 Linings - Rubber 3thk Natural Rubber	M2	0	292	55.5	-	-		-		-	-	-	-	292	55.5	10.0 %	5.55	-	-	61.0
L1230 Linings - Rubber 6thk Natural Rubber	M2	19	292	5,578	-	-		-		-	-	-	-	292	5,578	10.0 %	558	-	-	6,136
L1260 Linings - Rubber 12thk Natural Rubber	M2	50	416	20,911	-	-		-		-	-	-	-	416	20,911	10.0 %	2,091	-	-	23,003
L1261 Linings - Wear Rubber	M2	2	2,772	4,324	-	-		-		-	-	-	-	2,772	4,324	10.0 %	432	-	-	4,757
L1262 Lip Linings - 304 SS	T	0	11,025	265	-	-		-		-	-	-	-	11,025	265	10.0 %	26.5	-	-	291
L1316 Linings - Bisalloy 16thk	M2	0	670	209	-	-		-		-	-	-	-	670	209	10.0 %	20.9	-	-	230
L1320 Linings - Bisalloy 20thk	M2	3	836	2,166	-	-		-		-	-	-	-	836	2,166	10.0 %	217	-	-	2,383
M Mechanical				***1,080,261***		***1,672***		***23,642***		***15,416***	***-***	***-***	***162,039***		***1,281,358***		***135,736***	***-***	***-***	***1,417,094***
Cyclone Area Davit Crane - 2t, 30m Lift, 8.2kW	EA	1	117,036	117,036	125	125	14.1	1,773	9.22	1,156	-	-	17,555	137,521	137,521	10.0 %	13,752	-	-	151,273
Cyclone Cluster - 15 port, 14 installed (11 duty / 3 standby), 1	EA	1	315,165	315,165	627	627	14.1	8,866	9.22	5,781	-	-	47,275	377,086	377,086	12.0 %	45,250	-	-	422,337
Cyclone Feed Pump 1 - 700kW	EA	1	292,069	292,069	334	334	14.1	4,728	9.22	3,083	-	-	43,810	343,691	343,691	10.0 %	34,369	-	-	378,060
Cyclone Feed Pump 2 - 700kW	EA	1	292,069	292,069	334	334	14.1	4,728	9.22	3,083	-	-	43,810	343,691	343,691	10.0 %	34,369	-	-	378,060

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Cyclone Overflow Launder (Part of Package)	EA	1	-	-	62.7	62.7	14.1	887	9.22	578	-	-	-	1,465	1,465	12.0 %	176	-	-	1,640
Cyclone Underflow Launder (Part of Package)	EA	1	-	-	62.7	62.7	14.1	887	9.22	578	-	-	-	1,465	1,465	12.0 %	176	-	-	1,640
Leach Feed Sampler	EA	1	63,923	63,923	125	125	14.1	1,773	9.22	1,156	-	-	9,588	76,441	76,441	10.0 %	7,644	-	-	84,085
P Piping				***365,337***		***6,367***		***90,036***		***58,708***	***-***	***-***	***36,534***		***550,615***		***121,135***	***-***	***-***	***671,750***
1.3.3 - Classification - Area Piping	EA	1	365,337	365,337	6,367	6,367	14.1	90,036	9.22	58,708	-	-	36,534	550,615	550,615	22.0 %	121,135	-	-	671,750
1.3.4 - Gravity Concentration				**2,137,785**		**25,593**		**310,070**		**209,807**	**-**	**-**	**351,125**		**3,008,787**		**369,693**	**-**	**-**	**3,378,480**
C Concrete				***61,031***		***4,276***		***10,433***		***14,282***	***-***	***-***	***-***		***85,745***		***8,575***	***-***	***-***	***94,320***
C3010 Blinding Concrete 50mm thick	CM	6	313	1,985	24.4	155	2.44	378	3.34	517	-	-	-	454	2,880	10.0 %	288	-	-	3,168
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	13	450	5,768	32.2	413	2.44	1,009	3.34	1,381	-	-	-	636	8,158	10.0 %	816	-	-	8,974
C3040 Footings & Pedestals - Large >2 m3	M3	85	429	36,516	30.3	2,579	2.44	6,292	3.34	8,613	-	-	-	604	51,421	10.0 %	5,142	-	-	56,563
C3060 Ground Slabs < 300 mm thick	M3	20	406	8,046	25.8	510	2.44	1,245	3.34	1,705	-	-	-	555	10,996	10.0 %	1,100	-	-	12,095
C3090 Kerbs < 500mm high	M3	1	414	542	24.2	31.8	2.44	77.5	3.34	106	-	-	-	554	726	10.0 %	72.6	-	-	799
C3110 Walls < 250 mm thick	M3	1	565	571	38.5	38.9	2.44	94.9	3.34	130	-	-	-	788	796	10.0 %	79.6	-	-	875
C3120 Walls 250 - 600 mm thick	M3	1	471	249	29.6	15.7	2.44	38.3	3.34	52.4	-	-	-	642	340	10.0 %	34.0	-	-	374
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	10	450	4,720	32.2	338	2.44	826	3.34	1,130	-	-	-	636	6,676	10.0 %	668	-	-	7,344
C3150 Equipment Bases - Minor Rafts < 50 m3	M3	0	450	171	32.2	12.2	2.44	29.9	3.34	40.9	-	-	-	636	242	10.0 %	24.2	-	-	266
C3320 Embedded Steelwork - Mild Steel - Black	T	0	8,611	861	37.6	3.76	2.44	9.19	3.34	12.6	-	-	-	8,828	883	10.0 %	88.3	-	-	971
C3410 Precast Concrete Sumps 900 diam.	EA	1	1,601	1,601	178	178	2.44	434	3.34	594	-	-	-	2,628	2,628	10.0 %	263	-	-	2,891
E Electrical				***19,768***		***837***		***10,044***		***6,696***	***-***	***-***	***1,186***		***37,694***		***3,769***	***-***	***-***	***41,464***
Area Electrical AUD	EA	1	13,957	13,957	716	716	12.0	8,588	8.00	5,725	-	-	837	29,108	29,108	10.0 %	2,911	-	-	32,019
Area Electrical EUR	EA	1	5,810	5,810	121	121	12.0	1,457	8.00	971	-	-	349	8,586	8,586	10.0 %	859	-	-	9,445
L Platework				***101,266***		***934***		***13,202***		***8,609***	***-***	***-***	***24,627***		***147,704***		***17,724***	***-***	***-***	***165,428***
L1030 Chutes - Paint Spec B - Wet Plant	T	15	3,234	47,088	64.1	934	14.1	13,202	9.22	8,609	-	-	24,627	6,423	93,525	12.0 %	11,223	-	-	104,748
L1230 Linings - Rubber 6thk Natural Rubber	M2	141	292	41,115	-	-		-		-	-	-	-	292	41,115	12.0 %	4,934	-	-	46,049
L1260 Linings - Rubber 12thk Natural Rubber	M2	28	416	11,800	-	-		-		-	-	-	-	416	11,800	12.0 %	1,416	-	-	13,216
L1261 Linings - Conveyor Rubber Skirt	M2	11	63.0	672	-	-		-		-	-	-	-	63.0	672	12.0 %	80.6	-	-	753
L1262 Lip Linings - 304 SS	T	0	11,025	314	-	-		-		-	-	-	-	11,025	314	12.0 %	37.7	-	-	352
L1310 Linings - Bisalloy 12thk	M2	0	502	14.3	-	-		-		-	-	-	-	502	14.3	12.0 %	1.72	-	-	16.0
L1320 Linings - Bisalloy 20thk	M2	0	836	262	-	-		-		-	-	-	-	836	262	12.0 %	31.5	-	-	294
M Mechanical				***1,208,756***		***2,383***		***33,690***		***21,968***	***-***	***-***	***181,313***		***1,445,727***		***158,813***	***-***	***-***	***1,604,540***
Bowl Maintenance Stand	EA	1	1,575	1,575	41.8	41.8	14.1	591	9.22	385	-	-	236	2,788	2,788	12.0 %	335	-	-	3,122
Gravity Concentrator 1 - 75kW	EA	1	274,041	274,041	627	627	14.1	8,866	9.22	5,781	-	-	41,106	329,794	329,794	10.0 %	32,979	-	-	362,773
Gravity Concentrator 2 - 75kW	EA	1	274,041	274,041	627	627	14.1	8,866	9.22	5,781	-	-	41,106	329,794	329,794	10.0 %	32,979	-	-	362,773
Gravity Concentrator Fluidising Water Filters (Part of Package)	EA	1	10,000	10,000	-	-		-		-	-	-	1,500	11,500	11,500	12.0 %	1,380	-	-	12,880
Gravity Concentrator Hoist - 3t, 15m Lift, 5.5kW	EA	1	1,294	1,294	83.6	83.6	14.1	1,182	9.22	771	-	-	194	3,441	3,441	10.0 %	344	-	-	3,786
Gravity Feed Pump - 250kW	EA	1	58,068	58,068	167	167	14.1	2,364	9.22	1,542	-	-	8,710	70,684	70,684	10.0 %	7,068	-	-	77,752

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Gravity Screen 1 - 2.44 m x 4.88 m, 15kW	EA	1	294,869	294,869	418	418	14.1	5,911	9.22	3,854	-	-	44,230	348,864	348,864	12.0 %	41,864	-	-	390,728
Gravity Screen 2 - 2.44 m x 4.88 m, 15kW	EA	1	294,869	294,869	418	418	14.1	5,911	9.22	3,854	-	-	44,230	348,864	348,864	12.0 %	41,864	-	-	390,728
P Piping				***285,418***		***4,975***		***70,340***		***45,866***	***-***	***-***	***28,542***		***430,166***		***94,637***	***-***	***-***	***524,803***
1.3.4 - Gravity Concentration - Area Piping	EA	1	285,418	285,418	4,975	4,975	14.1	70,340	9.22	45,866	-	-	28,542	430,166	430,166	22.0 %	94,637	-	-	524,803
S Steelwork				***461,546***		***12,190***		***172,360***		***112,387***	***-***	***-***	***115,457***		***861,750***		***86,175***	***-***	***-***	***947,925***
S2020 Light Steel - < 25kg/m Paint Spec B - Wet Area.	T	25	2,165	54,782	64.1	1,622	14.1	22,940	9.22	14,958	-	-	18,339	4,388	111,019	10.0 %	11,102	-	-	122,121
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	73	2,298	168,661	48.7	3,577	14.1	50,581	9.22	32,981	-	-	53,205	4,161	305,428	10.0 %	30,543	-	-	335,971
S2060 Heavy Steel - > 75kg/m Paint Spec B - Wet Area.	T	4	2,283	9,133	38.5	154	14.1	2,176	9.22	1,419	-	-	2,899	3,907	15,628	10.0 %	1,563	-	-	17,191
S2080 Hollow Sections - Paint Spec B - Wet Area	T	18	2,321	41,082	64.1	1,135	14.1	16,049	9.22	10,465	-	-	12,830	4,544	80,426	10.0 %	8,043	-	-	88,469
S3040 Caged Ladders - Paint Spec B - Wet Area	LM	6	93.7	581	7.70	47.7	14.1	675	9.22	440	-	-	87.2	288	1,783	10.0 %	178	-	-	1,961
S3050 Stair Treads x 750w - Galvanised	EA	120	53.3	6,393	1.41	169	14.1	2,394	9.22	1,561	-	-	959	94.2	11,307	10.0 %	1,131	-	-	12,438
S3090 Grating - Standard Galvanised	M2	1,008	103	103,797	3.85	3,879	14.1	54,844	9.22	35,761	-	-	15,570	208	209,972	10.0 %	20,997	-	-	230,969
S3140 Chequer Plate 6 mm thick Paint Spec B - Wet Area	M2	11	148	1,611	3.85	41.9	14.1	593	9.22	387	-	-	242	260	2,832	10.0 %	283	-	-	3,115
S3160 Handrails - Platform - Paint Spec B - Wet Area (including	LM	424	135	57,070	2.57	1,087	14.1	15,367	9.22	10,020	-	-	8,560	215	91,018	10.0 %	9,102	-	-	100,120
S3180 Handrails - Stair - Paint Spec B - Wet Area (including	LM	124	149	18,436	3.85	477	14.1	6,741	9.22	4,395	-	-	2,765	261	32,337	10.0 %	3,234	-	-	35,571
1.3.6 - Recycle Crushing				**555,521**		**7,811**		**88,254**		**60,511**	**-**	**-**	**84,564**		**788,850**		**96,800**	**-**	**-**	**885,650**
C Concrete				***29,132***		***2,248***		***11,436***		***10,271***	***-***	***-***	***-***		***50,838***		***6,101***	***-***	***-***	***56,938***
C3010 Blinding Concrete 50mm thick	CM	4	307	1,308	23.9	102	2.77	282	3.49	356	-	-	-	457	1,946	12.0 %	234	-	-	2,180
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	9	450	3,995	32.2	286	2.44	699	3.34	956	-	-	-	636	5,650	12.0 %	678	-	-	6,328
C3040 Footings & Pedestals - Large >2 m3	M3	3	429	1,090	30.3	77.0	2.44	188	3.34	257	-	-	-	604	1,535	12.0 %	184	-	-	1,720
C3060 Ground Slabs < 300 mm thick	M3	25	406	10,065	25.8	638	2.44	1,558	3.34	2,132	-	-	-	555	13,755	12.0 %	1,651	-	-	15,405
C3070 Ground Slabs - Rafts > 300 mm thick	M3	11	687	7,394	51.5	554	7.61	4,216	5.74	3,180	-	-	-	1,374	14,789	12.0 %	1,775	-	-	16,564
C3110 Walls < 250 mm thick	M3	10	391	3,966	48.8	496	7.61	3,773	5.74	2,846	-	-	-	1,043	10,585	12.0 %	1,270	-	-	11,855
C3320 Embedded Steel - Mild Steel - Black	T	1	2,086	1,314	150	94.7	7.61	720	5.74	543	-	-	-	4,092	2,578	12.0 %	309	-	-	2,887
E Electrical				***19,574***		***863***		***10,354***		***6,903***	***-***	***-***	***1,174***		***38,005***		***3,801***	***-***	***-***	***41,806***
Area Electrical AUD	EA	1	16,414	16,414	804	804	12.0	9,651	8.00	6,434	-	-	985	33,483	33,483	10.0 %	3,348	-	-	36,832
Area Electrical EUR	EA	1	3,160	3,160	58.6	58.6	12.0	703	8.00	469	-	-	190	4,522	4,522	10.0 %	452	-	-	4,975
L Platework				***31,322***		***287***		***4,054***		***2,643***	***-***	***-***	***7,562***		***45,581***		***5,400***	***-***	***-***	***50,981***
L1010 Chutes - Paint Spec A - Dry Plant	T	4	3,129	12,300	64.1	252	14.1	3,564	9.22	2,324	-	-	6,649	6,318	24,837	12.0 %	2,980	-	-	27,817
L1030 Chutes - Paint Spec B - Wet Plant	T	1	3,234	1,746	64.1	34.6	14.1	490	9.22	319	-	-	913	6,423	3,469	10.0 %	347	-	-	3,815
L1261 Linings - Conveyor Rubber Skirt	M2	1	63.0	34.8	-	-		-		-	-	-	-	63.0	34.8	10.0 %	3.48	-	-	38.3
L1300 Linings - Bisalloy 6thk	M2	2	334	635	-	-		-		-	-	-	-	334	635	12.0 %	76.2	-	-	711
L1310 Linings - Bisalloy 12thk	M2	33	502	16,606	-	-		-		-	-	-	-	502	16,606	12.0 %	1,993	-	-	18,599
M Mechanical				***413,902***		***3,139***		***44,379***		***28,937***	***-***	***-***	***62,085***		***549,303***		***65,916***	***-***	***-***	***615,220***
Pebble Recirculation Conveyor Cv04 - 80 m long x 4 m lift, 800 mm	M	80	2,040	163,178	19.6	1,565	14.1	22,129	9.22	14,429	-	-	24,477	2,803	224,212	12.0 %	26,905	-	-	251,118

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Pebble Recirculation Conveyor Cv04 Weightometer	EA	1	45,502	45,502	105	105	14.1	1,478	9.22	963	-	-	6,825	54,768	54,768	12.0 %	6,572	-	-	61,340
Sacrificial Pebble Conveyor CV07 - 30 m long x 4 m lift, 800 mm	M	30	4,253	127,591	38.5	1,156	14.1	16,340	9.22	10,654	-	-	19,139	5,791	173,723	12.0 %	20,847	-	-	194,570
Sacrificial Pebble Conveyor CV07 Tramp Metal Magnet	EA	1	32,130	32,130	209	209	14.1	2,955	9.22	1,927	-	-	4,820	41,832	41,832	12.0 %	5,020	-	-	46,852
Sacrificial Pebble Conveyor CV07 Weightometer	EA	1	45,502	45,502	105	105	14.1	1,478	9.22	963	-	-	6,825	54,768	54,768	12.0 %	6,572	-	-	61,340
P Piping				***19,693***		***343***		***4,853***		***3,165***	***-***	***-***	***1,969***		***29,680***		***6,530***	***-***	***-***	***36,209***
1.3.6 - Recycle Crushing - Area Piping	EA	1	19,693	19,693	343	343	14.1	4,853	9.22	3,165	-	-	1,969	29,680	29,680	22.0 %	6,530	-	-	36,209
S Steelwork				***41,899***		***932***		***13,178***		***8,593***	***-***	***-***	***11,773***		***75,443***		***9,053***	***-***	***-***	***84,496***
S2130 Conveyor Trusses - Paint Spec A - Dry Area	T	11	2,279	24,697	48.7	528	14.1	7,469	9.22	4,870	-	-	7,857	4,142	44,893	12.0 %	5,387	-	-	50,280
S2150 Conveyor Trestles - Paint Spec A - Dry Area	T	4	2,310	8,155	48.7	172	14.1	2,433	9.22	1,586	-	-	2,559	4,173	14,734	12.0 %	1,768	-	-	16,502
S3090 Grating - Standard Galvanised	M2	31	103	3,241	3.85	121	14.1	1,712	9.22	1,117	-	-	486	208	6,556	12.0 %	787	-	-	7,343
S3160 Handrails - Platform - Paint Spec B - Wet Area (including	LM	43	135	5,806	2.57	111	14.1	1,563	9.22	1,019	-	-	871	215	9,260	12.0 %	1,111	-	-	10,372
1.4 - Trash Removal & Thickening				***3,603,905***		***55,130***		***497,841***		***367,902***	***-***	***-***	***1,006,710***		***5,476,358***		***694,598***	***-***	***-***	***6,170,957***
1.4.1 - Trash Screening				**999,755**		**15,709**		**184,554**		**127,625**	**-**	**-**	**189,738**		**1,501,673**		**167,583**	**-**	**-**	**1,669,256**
C Concrete				***54,539***		***3,271***		***7,981***		***10,925***	***-***	***-***	***-***		***73,445***		***7,718***	***-***	***-***	***81,163***
C3010 Blinding Concrete 50mm thick	CM	13	313	3,986	24.4	311	2.44	759	3.34	1,038	-	-	-	454	5,783	10.1 %	581	-	-	6,364
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	5	450	2,113	32.2	151	2.44	370	3.34	506	-	-	-	636	2,988	10.0 %	299	-	-	3,287
C3040 Footings & Pedestals - Large >2 m3	M3	25	429	10,724	30.3	757	2.44	1,848	3.34	2,529	-	-	-	604	15,101	10.0 %	1,510	-	-	16,611
C3060 Ground Slabs < 300 mm thick	M3	53	406	21,526	25.8	1,365	2.44	3,331	3.34	4,560	-	-	-	555	29,418	10.0 %	2,942	-	-	32,360
C3070 Ground Slabs - Rafts > 300 mm thick	M3	11	425	4,573	26.8	288	2.44	704	3.34	963	-	-	-	580	6,239	12.0 %	749	-	-	6,988
C3090 Kerbs < 500mm high	M3	3	414	1,242	24.2	72.7	2.44	177	3.34	243	-	-	-	554	1,663	10.0 %	166	-	-	1,829
C3120 Walls 250 - 600 mm thick	M3	10	471	4,778	29.6	300	2.44	733	3.34	1,004	-	-	-	642	6,515	12.0 %	782	-	-	7,297
C3320 Embedded Steelwork - Mild Steel - Black	T	1	8,611	5,597	37.6	24.5	2.44	59.7	3.34	81.7	-	-	-	8,828	5,738	12.0 %	689	-	-	6,427
E Electrical				***171,734***		***1,481***		***17,773***		***11,849***	***-***	***-***	***10,304***		***211,661***		***21,166***	***-***	***-***	***232,827***
Area Electrical AUD	EA	1	163,457	163,457	1,295	1,295	12.0	15,542	8.00	10,361	-	-	9,807	199,168	199,168	10.0 %	19,917	-	-	219,084
Area Electrical EUR	EA	1	7,782	7,782	151	151	12.0	1,811	8.00	1,207	-	-	467	11,267	11,267	10.0 %	1,127	-	-	12,394
Area Electrical USD	EA	1	496	496	35.0	35.0	12.0	420	8.00	280	-	-	29.8	1,226	1,226	10.0 %	123	-	-	1,348
L Platework				***146,160***		***1,661***		***23,493***		***15,319***	***-***	***-***	***43,823***		***228,795***		***22,880***	***-***	***-***	***251,675***
L1030 Chutes - Paint Spec B - Wet Plant	T	6	3,234	19,967	64.1	396	14.1	5,598	9.22	3,650	-	-	10,442	6,423	39,658	10.0 %	3,966	-	-	43,623
L1080 Hoppers - Paint Spec B - Wet Plant	T	12	3,234	38,245	64.1	758	14.1	10,723	9.22	6,992	-	-	20,002	6,423	75,962	10.0 %	7,596	-	-	83,558
L1225 Linings - Rubber 3thk Natural Rubber	M2	1	292	202	-	-		-		-	-	-	-	292	202	10.0 %	20.2	-	-	223
L1227 Linings - Rubber 5thk Natural Rubber	M2	1	292	405	-	-		-		-	-	-	-	292	405	10.0 %	40.5	-	-	445
L1230 Linings - Rubber 6thk Natural Rubber	M2	207	292	60,300	-	-		-		-	-	-	-	292	60,300	10.0 %	6,030	-	-	66,330
L1250 Linings - Rubber 10thk Natural Rubber	M2	10	416	3,952	-	-		-		-	-	-	-	416	3,952	10.0 %	395	-	-	4,347
L3020 Support frames etc < 25kg/m Paint Spec B - Wet Area.	T	8	2,919	23,089	64.1	507	14.1	7,172	9.22	4,677	-	-	13,379	6,108	48,317	10.0 %	4,832	-	-	53,148

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
M Mechanical				***228,769***		***585***		***8,275***		***5,396***	***-***	***-***	***34,315***		***276,754***		***33,211***	***-***	***-***	***309,965***
Trash Screen - 3.05m W x 7.3m L, 45kW	EA	1	228,769	228,769	585	585	14.1	8,275	9.22	5,396	-	-	34,315	276,754	276,754	12.0 %	33,211	-	-	309,965
P Piping				***54,469***		***949***		***13,424***		***8,753***	***-***	***-***	***5,447***		***82,092***		***18,060***	***-***	***-***	***100,152***
1.4.1 - Trash Screening - Area Piping	EA	1	54,469	54,469	949	949	14.1	13,424	9.22	8,753	-	-	5,447	82,092	82,092	22.0 %	18,060	-	-	100,152
S Steelwork				***344,085***		***7,761***		***113,608***		***75,384***	***-***	***-***	***95,849***		***628,925***		***64,549***	***-***	***-***	***693,474***
S2020 Light Steel - < 25kg/m Paint Spec B - Wet Area.	T	13	2,165	27,672	64.1	820	14.1	11,588	9.22	7,556	-	-	9,264	4,388	56,080	10.0 %	5,608	-	-	61,688
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	45	2,298	102,276	48.7	2,169	14.1	30,672	9.22	20,000	-	-	32,264	4,161	185,213	10.0 %	18,521	-	-	203,734
S2060 Heavy Steel - > 75kg/m Paint Spec B - Wet Area.	T	38	2,283	86,105	38.5	1,451	14.1	20,516	9.22	13,377	-	-	27,335	3,907	147,333	10.0 %	14,733	-	-	162,066
S2080 Hollow Sections - Paint Spec B - Wet Area	T	11	2,321	25,601	64.1	707	14.1	10,001	9.22	6,521	-	-	7,995	4,544	50,119	10.0 %	5,012	-	-	55,131
S2100 Welded Beams & Columns - Paint Spec B - Wet Area	T	9	2,260	21,246	38.5	362	14.1	5,114	9.22	3,335	-	-	6,814	3,884	36,509	10.0 %	3,651	-	-	40,159
S3050 Stair Treads x 750w - Galvanised	EA	76	53.3	4,049	1.41	107	17.0	1,821	12.0	1,290	-	-	607	102	7,767	12.0 %	932	-	-	8,699
S3090 Grating - Standard Galvanised	M2	326	103	33,597	3.85	1,255	17.0	21,317	12.0	15,103	-	-	5,040	230	75,057	12.0 %	9,007	-	-	84,063
S3160 Handrails - Platform - Paint Spec B - Wet Area (including	LM	257	135	34,662	2.57	660	14.1	9,333	9.22	6,086	-	-	5,199	215	55,281	10.0 %	5,528	-	-	60,809
S3180 Handrails - Stair - Paint Spec B - Wet Area (including	LM	60	149	8,876	3.85	230	14.1	3,245	9.22	2,116	-	-	1,331	261	15,568	10.0 %	1,557	-	-	17,125
1.4.2 - Feed Thickening				**2,604,150**		**39,421**		**313,287**		**240,276**	**-**	**-**	**816,972**		**3,974,686**		**527,015**	**-**	**-**	**4,501,701**
C Concrete				***314,118***		***20,238***		***49,381***		***67,595***	***-***	***-***	***-***		***431,094***		***43,109***	***-***	***-***	***474,203***
C3010 Blinding Concrete 50mm thick	CCM	47	313	14,833	24.4	1,157	2.44	2,823	3.34	3,864	-	-	-	454	21,521	10.0 %	2,152	-	-	23,673
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	94	450	42,278	32.2	3,031	2.44	7,395	3.34	10,122	-	-	-	636	59,794	10.0 %	5,979	-	-	65,774
C3060 Ground Slabs < 300 mm thick	M3	161	406	65,550	25.8	4,158	2.44	10,145	3.34	13,886	-	-	-	555	89,581	10.0 %	8,958	-	-	98,539
C3070 Ground Slabs - Rafts > 300 mm thick	M3	386	425	164,055	26.8	10,345	2.44	25,241	3.34	34,551	-	-	-	580	223,847	10.0 %	22,385	-	-	246,232
C3090 Kerbs < 500mm high	M3	6	414	2,559	24.2	150	2.44	365	3.34	500	-	-	-	554	3,425	10.0 %	343	-	-	3,768
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	28	450	12,696	32.2	910	2.44	2,221	3.34	3,040	-	-	-	636	17,956	10.0 %	1,796	-	-	19,752
C3210 Ring Beams - Concrete	M3	6	659	3,858	47.4	278	2.44	677	3.34	927	-	-	-	934	5,462	10.0 %	546	-	-	6,008
C3220 Ring Beams - Structural Fill	CM	11	5.73	65.6	2.47	28.3	2.44	69.0	3.34	94.4	-	-	-	20.0	229	10.0 %	22.9	-	-	252
C3232 Ring Beams - HDPE Liner 2mm Thick	M2	31	64.6	2,027	0.15	4.72	2.44	11.5	3.34	15.8	-	-	-	65.5	2,055	10.0 %	205	-	-	2,260
C3320 Embedded Steelwork - Mild Steel - Black	T	1	8,611	4,392	37.6	19.2	2.44	46.8	3.34	64.1	-	-	-	8,828	4,502	10.0 %	450	-	-	4,953
C3420 Precast Concrete Sumps 1200 diam.	EA	1	1,804	1,804	159	159	2.44	387	3.34	530	-	-	-	2,721	2,721	10.0 %	272	-	-	2,993
E Electrical				***152,505***		***3,428***		***41,135***		***27,424***	***-***	***-***	***9,150***		***230,214***		***23,021***	***-***	***-***	***253,236***
Area Electrical AUD	EA	2	19,824	39,647	1,380	2,760	12.0	33,125	8.00	22,083	-	-	2,379	48,617	97,234	10.0 %	9,723	-	-	106,958
Area Electrical EUR	EA	1	53,050	53,050	502	502	12.0	6,023	8.00	4,015	-	-	3,183	66,270	66,270	10.0 %	6,627	-	-	72,897
Area Electrical USD	EA	2	29,904	59,808	82.8	166	12.0	1,988	8.00	1,325	-	-	3,589	33,355	66,710	10.0 %	6,671	-	-	73,381
L Platework				***10,947***		***115***		***1,626***		***1,060***	***-***	***-***	***3,033***		***16,666***		***1,667***	***-***	***-***	***18,333***
L1030 Chutes - Paint Spec B - Wet Plant	T	2	3,234	5,799	64.1	115	14.1	1,626	9.22	1,060	-	-	3,033	6,423	11,518	10.0 %	1,152	-	-	12,670
L1230 Linings - Rubber 6thk Natural Rubber	M2	18	292	5,148	-	-		-		-	-	-	-	292	5,148	10.0 %	515	-	-	5,663

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
M Mechanical				***1,633,291***		***6,813***		***96,342***		***62,820***	***-***	***-***	***751,197***		***2,543,649***		***300,770***	***-***	***-***	***2,844,419***
Leach Feed Pump 1 - 200kW	EA	1	50,519	50,519	146	146	14.1	2,069	9.22	1,349	-	-	7,578	61,514	61,514	10.0 %	6,151	-	-	67,666
Leach Feed Pump 2 - 200kW	EA	1	50,519	50,519	146	146	14.1	2,069	9.22	1,349	-	-	7,578	61,514	61,514	10.0 %	6,151	-	-	67,666
Leach Feed Sampler	EA	1	63,923	63,923	125	125	14.1	1,773	9.22	1,156	-	-	9,588	76,441	76,441	10.0 %	7,644	-	-	84,085
Pre-Leach Thickener - 38m Ø	EA	1	1,446,296	1,446,296	6,270	6,270	14.1	88,658	9.22	57,809	-	-	723,148	2,315,912	2,315,912	12.0 %	277,909	-	-	2,593,821
Pre-Leach Thickener Static Mixer	EA	1	2,912	2,912	41.8	41.8	14.1	591	9.22	385	-	-	437	4,325	4,325	12.0 %	519	-	-	4,845
Pre-Leach Thickening Area Sump Pump - 22kW	EA	1	19,122	19,122	83.6	83.6	14.1	1,182	9.22	771	-	-	2,868	23,943	23,943	10.0 %	2,394	-	-	26,337
P Piping				***459,711***		***8,012***		***113,294***		***73,874***	***-***	***-***	***45,971***		***692,850***		***152,427***	***-***	***-***	***845,277***
1.4.2 - Feed Thickening - Area Piping	EA	1	436,823	436,823	7,613	7,613	14.1	107,654	9.22	70,196	-	-	43,682	658,355	658,355	22.0 %	144,838	-	-	803,193
1.6.1 - Pre-Leach - Area Piping	EA	1	22,887	22,887	399	399	14.1	5,641	9.22	3,678	-	-	2,289	34,495	34,495	22.0 %	7,589	-	-	42,084
S Steelwork				***33,578***		***814***		***11,509***		***7,505***	***-***	***-***	***7,620***		***60,212***		***6,021***	***-***	***-***	***66,234***
S2020 Light Steel - < 25kg/m Paint Spec B - Wet Area.	T	2	2,165	4,785	64.1	142	14.1	2,004	9.22	1,307	-	-	1,602	4,388	9,698	10.0 %	970	-	-	10,667
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	2	2,298	5,538	48.7	117	14.1	1,661	9.22	1,083	-	-	1,747	4,161	10,028	10.0 %	1,003	-	-	11,031
S2100 Welded Beams & Columns - Paint Spec B - Wet Area	T	2	2,260	4,588	38.5	78.1	14.1	1,104	9.22	720	-	-	1,471	3,884	7,884	10.0 %	788	-	-	8,673
S3050 Stair Treads x 750w - Galvanised	EA	4	53.3	213	1.41	5.64	14.1	79.8	9.22	52.0	-	-	32.0	94.2	377	10.0 %	37.7	-	-	415
S3090 Grating - Standard Galvanised	M2	63	103	6,528	3.85	244	14.1	3,449	9.22	2,249	-	-	979	208	13,205	10.0 %	1,321	-	-	14,526
S3160 Handrails - Platform - Paint Spec B - Wet Area (including	EA	89	135	11,926	2.57	227	14.1	3,211	9.22	2,094	-	-	1,789	215	19,020	10.0 %	1,902	-	-	20,922
1.6 - Leaching				***14,023,020***		***245,546***		***3,025,490***		***2,038,701***	***-***	***-***	***1,825,832***		***20,913,042***		***2,627,120***	***-***	***-***	***23,540,163***
1.6.2 - CIL				**14,023,020**		**245,546**		**3,025,490**		**2,038,701**	**-**	**-**	**1,825,832**		**20,913,042**		**2,627,120**	**-**	**-**	**23,540,163**
C Concrete				***604,907***		***37,124***		***90,582***		***123,994***	***-***	***-***	***-***		***819,483***		***81,948***	***-***	***-***	***901,431***
C3010 Blinding Concrete 50mm thick	CM	81	313	25,374	24.4	1,979	2.44	4,829	3.34	6,610	-	-	-	454	36,814	10.0 %	3,681	-	-	40,495
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	60	450	26,974	32.2	1,934	2.44	4,718	3.34	6,458	-	-	-	636	38,150	10.0 %	3,815	-	-	41,965
C3060 Ground Slabs < 300 mm thick	M3	167	406	67,910	25.8	4,307	2.44	10,510	3.34	14,386	-	-	-	555	92,806	10.0 %	9,281	-	-	102,087
C3070 Ground Slabs - Rafts > 300 mm thick	M3	22	425	9,350	26.8	590	2.44	1,438	3.34	1,969	-	-	-	580	12,757	10.0 %	1,276	-	-	14,033
C3100 Bunds > 500 mm high	M3	23	471	11,015	29.6	693	2.44	1,690	3.34	2,314	-	-	-	642	15,019	10.0 %	1,502	-	-	16,521
C3210 Ring Beams - Concrete	M3	417	659	275,297	47.4	19,803	2.44	48,320	3.34	66,143	-	-	-	934	389,760	10.0 %	38,976	-	-	428,736
C3220 Ring Beams - Structural Fill	CM	2,938	5.73	16,835	2.47	7,254	2.44	17,699	3.34	24,227	-	-	-	20.0	58,760	10.0 %	5,876	-	-	64,636
C3230 Infill Oil Impregnated Sand < 50 mm thick	CM	144	58.2	8,414	0.20	28.9	2.44	70.5	3.34	96.5	-	-	-	59.4	8,581	10.0 %	858	-	-	9,439
C3232 Ring Beams - HDPE Liner 2mm Thick	M2	2,506	64.6	161,933	0.15	377	2.44	920	3.34	1,260	-	-	-	65.5	164,114	10.0 %	16,411	-	-	180,525
C3420 Precast Concrete Sumps 1200 diam.	EA	1	1,804	1,804	159	159	2.44	387	3.34	530	-	-	-	2,721	2,721	10.0 %	272	-	-	2,993
E Electrical				***342,458***		***5,693***		***68,311***		***45,541***	***-***	***-***	***20,547***		***476,857***		***47,686***	***-***	***-***	***524,543***
Area Electrical AUD	EA	2	37,380	74,760	1,653	3,307	12.0	39,679	8.00	26,453	-	-	4,486	72,688	145,377	10.0 %	14,538	-	-	159,915
Area Electrical EUR	EA	2	118,175	236,350	1,090	2,181	12.0	26,172	8.00	17,448	-	-	14,181	147,076	294,151	10.0 %	29,415	-	-	323,566
Area Electrical USD	EA	1	31,348	31,348	205	205	12.0	2,460	8.00	1,640	-	-	1,881	37,329	37,329	10.0 %	3,733	-	-	41,062

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
L Platework				***6,106,852***		***120,708***		***1,706,810***		***1,112,927***	***-***	***-***	***785,818***		***9,712,409***		***971,241***	***-***	***-***	***10,683,650***
L1030 Chutes - Paint Spec B - Wet Plant	T	2	3,234	7,697	64.1	153	14.1	2,158	9.22	1,407	-	-	4,025	6,423	15,288	10.0 %	1,529	-	-	16,816
L1120 Launders - Paint Spec B - Wet Plant	T	22	3,549	76,956	64.1	1,390	14.1	19,661	9.22	12,820	-	-	36,675	6,738	146,112	10.0 %	14,611	-	-	160,724
L1260 Linings - Rubber 12thk Natural Rubber	M2	27	416	11,060	-	-		-		-	-	-	-	416	11,060	10.0 %	1,106	-	-	12,166
L1261 Linings - Conveyor Rubber Skirt	M2	1	63.0	37.2	-	-		-		-	-	-	-	63.0	37.2	10.0 %	3.72	-	-	40.9
L1261 Linings - Wear Rubber	M2	3	2,772	9,563	-	-		-		-	-	-	-	2,772	9,563	10.0 %	956	-	-	10,520
L1262 Lip Linings - 304 SS	T	0	11,025	110	-	-		-		-	-	-	-	11,025	110	10.0 %	11.0	-	-	121
L2500 Bolted Tanks and Launders	T	1,320	4,545	5,999,842	90.2	119,130	14.1	1,684,498	9.22	1,098,379	-	-	744,198	7,217	9,526,917	10.0 %	952,692	-	-	10,479,608
L3020 Support frames etc < 25kg/m Paint Spec B - Wet Area.	T	1	2,919	1,587	64.1	34.9	14.1	493	9.22	321	-	-	920	6,108	3,321	10.0 %	332	-	-	3,653
M Mechanical				***3,160,250***		***8,130***		***114,960***		***74,960***	***-***	***-***	***474,038***		***3,824,207***		***391,075***	***-***	***-***	***4,215,282***
Carbon Recovery Pump - 22kW	EA	1	16,177	16,177	83.6	83.6	14.1	1,182	9.22	771	-	-	2,427	20,556	20,556	12.0 %	2,467	-	-	23,023
Cil Area Sump Pump 1 - 22kW	EA	1	19,122	19,122	83.6	83.6	14.1	1,182	9.22	771	-	-	2,868	23,943	23,943	10.0 %	2,394	-	-	26,337
Cil Area Sump Pump 2 - 22kW	EA	1	19,122	19,122	83.6	83.6	14.1	1,182	9.22	771	-	-	2,868	23,943	23,943	10.0 %	2,394	-	-	26,337
Cil Area Sump Pump 3 - 22kW	EA	1	19,122	19,122	83.6	83.6	14.1	1,182	9.22	771	-	-	2,868	23,943	23,943	10.0 %	2,394	-	-	26,337
Cil Feed Sampler	EA	1	63,923	63,923	125	125	14.1	1,773	9.22	1,156	-	-	9,588	76,441	76,441	10.0 %	7,644	-	-	84,085
Cil Gantry Crane - 25t, 22 m span, 110 m long travel, 34 m lift,	EA	1	274,367	274,367	627	627	14.1	8,866	9.22	5,781	-	-	41,155	330,168	330,168	12.0 %	39,620	-	-	369,789
Cil Intertank Screen Spare - 2.4 m dia, 26m, 11kW	EA	1	156,579	156,579	314	314	14.1	4,433	9.22	2,890	-	-	23,487	187,390	187,390	10.0 %	18,739	-	-	206,129
Cil Tails Area Sump Pump - 22kW	EA	1	19,122	19,122	83.6	83.6	14.1	1,182	9.22	771	-	-	2,868	23,943	23,943	10.0 %	2,394	-	-	26,337
Cil Tank 1 Agitator - 180kW	EA	1	185,183	185,183	523	523	14.1	7,388	9.22	4,817	-	-	27,777	225,166	225,166	10.0 %	22,517	-	-	247,683
Cil Tank 1 Intertank Screen 1 - 2.4 m dia, 26m, 11kW	EA	1	156,579	156,579	314	314	14.1	4,433	9.22	2,890	-	-	23,487	187,390	187,390	10.0 %	18,739	-	-	206,129
Cil Tank 2 Agitator - 180kW	EA	1	185,183	185,183	523	523	14.1	7,388	9.22	4,817	-	-	27,777	225,166	225,166	10.0 %	22,517	-	-	247,683
Cil Tank 2 Carbon Advance Pump - 22kW	EA	1	16,177	16,177	83.6	83.6	14.1	1,182	9.22	771	-	-	2,427	20,556	20,556	10.0 %	2,056	-	-	22,612
Cil Tank 2 Intertank Screen 1 - 2.4 m dia, 26m, 11kW	EA	1	156,579	156,579	314	314	14.1	4,433	9.22	2,890	-	-	23,487	187,390	187,390	10.0 %	18,739	-	-	206,129
Cil Tank 3 Agitator - 180kW	EA	1	185,183	185,183	523	523	14.1	7,388	9.22	4,817	-	-	27,777	225,166	225,166	10.0 %	22,517	-	-	247,683
Cil Tank 3 Carbon Advance Pump - 22kW	EA	1	16,177	16,177	83.6	83.6	14.1	1,182	9.22	771	-	-	2,427	20,556	20,556	10.0 %	2,056	-	-	22,612
Cil Tank 3 Intertank Screen 1 - 2.4 m dia, 26m, 11kW	EA	1	156,579	156,579	314	314	14.1	4,433	9.22	2,890	-	-	23,487	187,390	187,390	10.0 %	18,739	-	-	206,129
Cil Tank 4 Agitator - 180kW	EA	1	185,183	185,183	523	523	14.1	7,388	9.22	4,817	-	-	27,777	225,166	225,166	10.0 %	22,517	-	-	247,683
Cil Tank 4 Carbon Advance Pump - 22kW	EA	1	16,177	16,177	83.6	83.6	14.1	1,182	9.22	771	-	-	2,427	20,556	20,556	10.0 %	2,056	-	-	22,612
Cil Tank 4 Intertank Screen 1 - 2.4 m dia, 26m, 11kW	EA	1	156,579	156,579	314	314	14.1	4,433	9.22	2,890	-	-	23,487	187,390	187,390	10.0 %	18,739	-	-	206,129
Cil Tank 5 Agitator - 180kW	EA	1	185,183	185,183	523	523	14.1	7,388	9.22	4,817	-	-	27,777	225,166	225,166	10.0 %	22,517	-	-	247,683
Cil Tank 5 Carbon Advance Pump - 22kW	EA	1	16,177	16,177	83.6	83.6	14.1	1,182	9.22	771	-	-	2,427	20,556	20,556	10.0 %	2,056	-	-	22,612
Cil Tank 5 Intertank Screen 1 - 2.4 m dia, 26m, 11kW	EA	1	156,579	156,579	314	314	14.1	4,433	9.22	2,890	-	-	23,487	187,390	187,390	10.0 %	18,739	-	-	206,129
Cil Tank 6 Agitator - 180kW	EA	1	185,183	185,183	523	523	14.1	7,388	9.22	4,817	-	-	27,777	225,166	225,166	10.0 %	22,517	-	-	247,683
Cil Tank 6 Carbon Advance Pump - 22kW	EA	1	16,177	16,177	83.6	83.6	14.1	1,182	9.22	771	-	-	2,427	20,556	20,556	10.0 %	2,056	-	-	22,612
Cil Tank 6 Intertank Screen 1 - 2.4 m dia, 26m, 11kW	EA	1	156,579	156,579	314	314	14.1	4,433	9.22	2,890	-	-	23,487	187,390	187,390	10.0 %	18,739	-	-	206,129
Free Cyanide Analyser	EA	1	68,763	68,763	125	125	14.1	1,773	9.22	1,156	-	-	10,314	82,007	82,007	12.0 %	9,841	-	-	91,848
Intertank Screen Hp Wash	EA	1	2,129	2,129	41.8	41.8	14.1	591	9.22	385	-	-	319	3,425	3,425	10.0 %	342	-	-	3,767
Leach Tank 1 Agitator - 180kW	EA	1	185,183	185,183	523	523	14.1	7,388	9.22	4,817	-	-	27,777	225,166	225,166	10.0 %	22,517	-	-	247,683
Leach Tank 2 Agitator - 180kW	EA	1	185,183	185,183	523	523	14.1	7,388	9.22	4,817	-	-	27,777	225,166	225,166	10.0 %	22,517	-	-	247,683

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
P Piping				***2,866,918***		***53,057***		***750,221***		***489,182***	**-**	**-**	***286,692***		***4,393,013***		***966,463***	**-**	**-**	***5,359,475***
1.6.2 - CIL - Area Piping	EA	1	2,866,918	2,866,918	53,057	53,057	14.1	750,221	9.22	489,182	-	-	286,692	4,393,013	4,393,013	22.0 %	966,463	-	-	5,359,475
S Steelwork				***941,634***		***20,835***		***294,606***		***192,098***	**-**	**-**	***258,737***		***1,687,074***		***168,707***	**-**	**-**	***1,855,782***
S2020 Light Steel - < 25kg/m Paint Spec B - Wet Area.	T	21	2,165	46,467	64.1	1,376	14.1	19,458	9.22	12,688	-	-	15,556	4,388	94,169	10.0 %	9,417	-	-	103,586
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	90	2,298	205,794	48.7	4,365	14.1	61,717	9.22	40,243	-	-	64,919	4,161	372,672	10.0 %	37,267	-	-	409,940
S2060 Heavy Steel - > 75kg/m Paint Spec B - Wet Area.	T	45	2,283	102,385	38.5	1,725	14.1	24,395	9.22	15,907	-	-	32,503	3,907	175,190	10.0 %	17,519	-	-	192,709
S2080 Hollow Sections - Paint Spec B - Wet Area	T	8	2,321	18,174	64.1	502	14.1	7,100	9.22	4,629	-	-	5,676	4,544	35,578	10.0 %	3,558	-	-	39,136
S2100 Welded Beams & Columns - Paint Spec B - Wet Area	T	142	2,260	320,797	38.5	5,461	14.1	77,215	9.22	50,348	-	-	102,881	3,884	551,241	10.0 %	55,124	-	-	606,365
S3090 Grating - Standard Galvanised	M2	1,422	103	146,413	3.85	5,471	14.1	77,362	9.22	50,444	-	-	21,962	208	296,181	10.0 %	29,618	-	-	325,799
S3160 Handrails - Platform - Paint Spec B - Wet Area (including	LM	754	135	101,604	2.57	1,935	14.1	27,359	9.22	17,839	-	-	15,241	215	162,043	10.0 %	16,204	-	-	178,247
1.7 - Elution & Gold Room				***6,170,085***		***66,121***		***725,490***		***503,205***	**-**	**-**	***927,895***		***8,326,675***		***1,025,435***	**-**	**-**	***9,352,110***
1.7.1 - Carbon Recovery				**104,165**		**1,094**		**15,179**		**9,921**	**-**	**-**	**15,568**		**144,832**		**21,400**	**-**	**-**	**166,232**
C Concrete				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
NOTE: Concrete Included in 1.7.3 Elution	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
E Electrical				***2,929***		***134***		***1,606***		***1,071***	**-**	**-**	***176***		***5,781***		***578***	**-**	**-**	***6,359***
Area Electrical AUD	EA	1	1,218	1,218	68.2	68.2	12.0	818	8.00	546	-	-	73.1	2,656	2,656	10.0 %	266	-	-	2,921
Area Electrical EUR	EA	1	1,538	1,538	49.9	49.9	12.0	599	8.00	399	-	-	92.3	2,628	2,628	10.0 %	263	-	-	2,891
Area Electrical USD	EA	1	172	172	15.7	15.7	12.0	189	8.00	126	-	-	10.3	498	498	10.0 %	49.8	-	-	547
L Platework				***15,354***		***147***		***2,081***		***1,357***	**-**	**-**	***3,882***		***22,674***		***2,721***	**-**	**-**	***25,395***
L1030 Chutes - Paint Spec B - Wet Plant	T	2	3,234	7,422	64.1	147	14.1	2,081	9.22	1,357	-	-	3,882	6,423	14,742	12.0 %	1,769	-	-	16,511
L1230 Linings - Rubber 6thk Natural Rubber	M2	27	292	7,932	-	-		-		-	-	-	-	292	7,932	12.0 %	952	-	-	8,884
M Mechanical				***58,439***		***334***		***4,728***		***3,083***	**-**	**-**	***8,766***		***75,016***		***9,002***	**-**	**-**	***84,018***
Loaded Carbon Recovery Screen - 1.525 m wide x 4.2 m long, 7.5	EA	1	58,439	58,439	334	334	14.1	4,728	9.22	3,083	-	-	8,766	75,016	75,016	12.0 %	9,002	-	-	84,018
P Piping				***27,443***		***478***		***6,763***		***4,410***	**-**	**-**	***2,744***		***41,361***		***9,099***	**-**	**-**	***50,460***
1.7.1 - Carbon Recovery - Area Piping	EA	1	27,443	27,443	478	478	14.1	6,763	9.22	4,410	-	-	2,744	41,361	41,361	22.0 %	9,099	-	-	50,460
S Steelwork				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
NOTE: Steel Structure Included in 1.7.3 Elution	Lot	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
1.7.2 - Acid Wash				**365,936**		**8,774**		**38,683**		**37,986**	**-**	**-**	**37,282**		**479,886**		**59,283**	**-**	**-**	**539,169**
C Concrete				***105,974***		***7,297***		***17,805***		***24,372***	**-**	**-**	**-**		***148,150***		***14,815***	**-**	**-**	***162,965***
C3010 Blinding Concrete 50mm thick	CCM	9	313	2,662	24.4	208	2.44	507	3.34	693	-	-	-	454	3,861	10.0 %	386	-	-	4,248
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	126	450	56,783	32.2	4,070	2.44	9,932	3.34	13,595	-	-	-	636	80,310	10.0 %	8,031	-	-	88,341

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
C3060 Ground Slabs < 300 mm thick	M3	83	406	33,592	25.8	2,131	2.44	5,199	3.34	7,116	-	-	-	555	45,907	10.0 %	4,591	-	-	50,498
C3090 Kerbs < 500mm high	M3	6	414	2,625	24.2	154	2.44	375	3.34	513	-	-	-	554	3,513	10.0 %	351	-	-	3,865
C3100 Bunds > 500 mm high	M3	1	471	508	29.6	32.0	2.44	78.0	3.34	107	-	-	-	642	693	10.0 %	69.3	-	-	763
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	22	450	9,803	32.2	703	2.44	1,715	3.34	2,347	-	-	-	636	13,865	10.0 %	1,386	-	-	15,251
L Platework				***12,375***		***270***		***3,817***		***2,489***	***-***	***-***	***2,107***		***20,788***		***2,079***	***-***	***-***	***22,867***
L1540 Shop Fab Tanks - SS 316 c/w Roof & Appurtenances	T	0	3,780	378	64.1	6.41	14.1	90.7	9.22	59.1	-	-	169	6,969	697	10.0 %	69.7	-	-	767
L3020 Support frames etc < 25kg/m Paint Spec B - Wet Area.	T	0	2,919	321	64.1	7.05	14.1	99.7	9.22	65.0	-	-	186	6,108	672	10.0 %	67.2	-	-	739
L3021 Sump Pump Support Frame & Screen	Lot	4	2,919	11,676	64.1	257	14.1	3,627	9.22	2,365	-	-	1,751	4,855	19,419	10.0 %	1,942	-	-	21,361
M Mechanical				***208,338***		***523***		***7,388***		***4,817***	***-***	***-***	***31,251***		***251,794***		***29,375***	***-***	***-***	***281,169***
Acid Wash Area Sump Pump - 11kW	EA	1	7,982	7,982	62.7	62.7	14.1	887	9.22	578	-	-	1,197	10,644	10,644	10.0 %	1,064	-	-	11,708
Acid Wash Column - 16 t carbon capacity	EA	1	173,920	173,920	418	418	14.1	5,911	9.22	3,854	-	-	26,088	209,773	209,773	12.0 %	25,173	-	-	234,945
Acid Wash Filters	EA	2	13,218	26,436	20.9	41.8	14.1	591	9.22	385	-	-	3,965	15,689	31,377	10.0 %	3,138	-	-	34,515
P Piping				***39,249***		***684***		***9,673***		***6,307***	***-***	***-***	***3,925***		***59,154***		***13,014***	***-***	***-***	***72,168***
1.7.2 - Acid Wash - Area Piping	EA	1	39,249	39,249	684	684	14.1	9,673	9.22	6,307	-	-	3,925	59,154	59,154	22.0 %	13,014	-	-	72,168
1.7.3 - Elution				**1,396,999**		**15,958**		**208,124**		**138,209**	**-**	**-**	**261,928**		**2,005,260**		**243,172**	**-**	**-**	**2,248,432**
C Concrete				***21,771***		***1,349***		***3,292***		***4,506***	***-***	***-***	***-***		***29,570***		***2,957***	***-***	***-***	***32,527***
C3010 Blinding Concrete 50mm thick	CM	1	313	463	24.4	36.1	2.44	88.1	3.34	121	-	-	-	454	672	10.0 %	67.2	-	-	739
C3060 Ground Slabs < 300 mm thick	M3	15	406	6,092	25.8	386	2.44	943	3.34	1,291	-	-	-	555	8,326	10.0 %	833	-	-	9,158
C3210 Ring Beams - Concrete	M3	13	659	8,671	47.4	624	2.44	1,522	3.34	2,083	-	-	-	934	12,277	10.0 %	1,228	-	-	13,504
C3220 Ring Beams - Structural Fill	CM	53	5.73	306	2.47	132	2.44	322	3.34	441	-	-	-	20.0	1,069	10.0 %	107	-	-	1,176
C3230 Infill Oil Impregnated Sand < 50 mm thick	CM	4	58.2	252	0.20	0.87	2.44	2.12	3.34	2.90	-	-	-	59.4	257	10.0 %	25.7	-	-	283
C3232 Ring Beams - HDPE Liner 2mm Thick	M2	51	64.6	3,320	0.15	7.74	2.44	18.9	3.34	25.8	-	-	-	65.5	3,365	10.0 %	337	-	-	3,702
C3320 Embedded Steelwork - Mild Steel - Black	T	0	8,611	861	37.6	3.76	2.44	9.19	3.34	12.6	-	-	-	8,828	883	10.0 %	88.3	-	-	971
C3420 Precast Concrete Sumps 1200 diam.	EA	1	1,804	1,804	159	159	2.44	387	3.34	530	-	-	-	2,721	2,721	10.0 %	272	-	-	2,993
E Electrical				***53,576***		***811***		***9,727***		***6,485***	***-***	***-***	***3,215***		***73,003***		***7,300***	***-***	***-***	***80,303***
Area Electrical AUD	EA	1	20,215	20,215	608	608	12.0	7,295	8.00	4,864	-	-	1,213	33,586	33,586	10.0 %	3,359	-	-	36,945
Area Electrical EUR	EA	1	28,223	28,223	168	168	12.0	2,016	8.00	1,344	-	-	1,693	33,276	33,276	10.0 %	3,328	-	-	36,604
Area Electrical USD	EA	1	5,138	5,138	34.7	34.7	12.0	416	8.00	278	-	-	308	6,141	6,141	10.0 %	614	-	-	6,755
L Platework				***66,803***		***3,252***		***45,988***		***29,987***	***-***	***-***	***45,952***		***188,729***		***18,873***	***-***	***-***	***207,602***
Deaerator Vessel (Part of Package)	EA	1	-	-	64.1	64.1	14.1	907	9.22	591	-	-	-	1,498	1,498	10.0 %	150	-	-	1,648
Expansion Tank (Part of Package)	EA	1	-	-	64.1	64.1	14.1	907	9.22	591	-	-	-	1,498	1,498	10.0 %	150	-	-	1,648
L1540 Shop Fab Tanks - SS 316 c/w Roof & Appurtenances	T	0	3,780	416	64.1	7.05	14.1	99.7	9.22	65.0	-	-	186	6,969	767	10.0 %	76.7	-	-	843
L2010 Field Erected Tanks G350 Fabricated Components - Paint	T	13	2,612	34,394	115	1,520	14.1	21,488	9.22	14,011	-	-	22,268	7,000	92,161	10.0 %	9,216	-	-	101,377
L2020 Field Erected Tanks G350 Slab Plate Trim & Sized - Paint	T	14	2,297	31,640	115	1,590	14.1	22,477	9.22	14,656	-	-	23,293	6,685	92,067	10.0 %	9,207	-	-	101,274
L3020 Support frames etc < 25kg/m Paint Spec B - Wet Area.	T	0	2,919	353	64.1	7.76	14.1	110	9.22	71.5	-	-	205	6,108	739	10.0 %	73.9	-	-	813

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
M Mechanical				***810,990***		***836***		***11,821***		***7,708***	***-***	***-***	***121,648***		***952,167***		***105,100***	***-***	***-***	***1,057,267***
Eluate Filters	EA	2	13,218	26,436	20.9	41.8	14.1	591	9.22	385	-	-	3,965	15,689	31,377	10.0 %	3,138	-	-	34,515
Elution Area Air Receiver - 2m3	EA	1	6,998	6,998	62.7	62.7	14.1	887	9.22	578	-	-	1,050	9,512	9,512	12.0 %	1,141	-	-	10,653
Elution Column - 16 t carbon capacity	EA	1	173,920	173,920	418	418	14.1	5,911	9.22	3,854	-	-	26,088	209,773	209,773	12.0 %	25,173	-	-	234,945
Heat Input Heat Exchanger (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Strip Solution Anti Scalant Pump	EA	1	3,916	3,916	41.8	41.8	14.1	591	9.22	385	-	-	587	5,480	5,480	12.0 %	658	-	-	6,138
Strip Solution Heater Oil Circulation Pump 1 (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Strip Solution Heater Oil Circulation Pump 2 (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Strip Solution Heater Package - 11kW	EA	1	344,642	344,642	83.6	83.6	14.1	1,182	9.22	771	-	-	51,696	398,291	398,291	10.0 %	39,829	-	-	438,120
Strip Solution Heat Input Heat Exchanger (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Strip Solution Oil Heater (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Strip Solution Pump - 30kW	EA	1	22,946	22,946	83.6	83.6	14.1	1,182	9.22	771	-	-	3,442	28,341	28,341	10.0 %	2,834	-	-	31,175
Sulphamic Acid Package	EA	1	232,133	232,133	105	105	14.1	1,478	9.22	963	-	-	34,820	269,394	269,394	12.0 %	32,327	-	-	301,721
P Piping				***181,153***		***3,157***		***44,645***		***29,111***	***-***	***-***	***18,115***		***273,024***		***60,065***	***-***	***-***	***333,089***
1.7.3 - Elution - Area Piping	EA	1	181,153	181,153	3,157	3,157	14.1	44,645	9.22	29,111	-	-	18,115	273,024	273,024	22.0 %	60,065	-	-	333,089
S Steelwork				***262,706***		***6,552***		***92,651***		***60,413***	***-***	***-***	***72,998***		***488,767***		***48,877***	***-***	***-***	***537,643***
S2010 Light Steel - < 25kg/m Paint Spec A - Dry Area.	T	11	2,091	22,940	64.1	704	14.1	9,948	9.22	6,486	-	-	7,953	4,314	47,327	10.0 %	4,733	-	-	52,059
S2030 Medium Steel - 25 - 75 kg/m Paint Spec A - Dry Area.	T	41	2,235	91,434	48.7	1,994	14.1	28,188	9.22	18,380	-	-	29,651	4,099	167,653	10.0 %	16,765	-	-	184,419
S2050 Heavy Steel - > 75kg/m Paint Spec A - Dry Area.	T	26	2,235	57,577	38.5	991	14.1	14,013	9.22	9,137	-	-	18,671	3,859	99,399	10.0 %	9,940	-	-	109,339
S2070 Hollow Sections - Paint Spec A - Dry Area	T	8	2,273	18,409	64.1	519	14.1	7,344	9.22	4,789	-	-	5,871	4,496	36,414	10.0 %	3,641	-	-	40,055
S3030 Caged Ladders - Paint Spec A - Dry Area	LM	6	93.7	592	7.70	48.6	14.1	687	9.22	448	-	-	88.8	288	1,817	10.0 %	182	-	-	1,998
S3050 Stair Treads x 750w - Galvanised	EA	82	53.3	4,363	1.41	116	14.1	1,634	9.22	1,065	-	-	655	94.2	7,717	10.0 %	772	-	-	8,489
S3090 Grating - Standard Galvanised	M2	256	103	26,394	3.85	986	14.1	13,946	9.22	9,094	-	-	3,959	208	53,393	10.0 %	5,339	-	-	58,733
S3150 Handrails - Platform - Paint Spec A - Dry Area (including	LM	137	135	18,470	2.57	352	14.1	4,973	9.22	3,243	-	-	2,770	215	29,456	10.0 %	2,946	-	-	32,402
S3170 Handrails - Stair - Paint Spec A - Dry Area (including	LM	70	149	10,353	3.85	268	14.1	3,785	9.22	2,468	-	-	1,553	261	18,160	10.0 %	1,816	-	-	19,976
S4030 Building Cladding Colorbond - Uninsulated	M2	622	16.9	10,494	0.77	479	14.1	6,767	9.22	4,412	-	-	1,574	37.4	23,247	10.0 %	2,325	-	-	25,571
S4110 Purlins - Galvanised	LM	84	20.1	1,679	1.15	96.5	14.1	1,364	9.22	889	-	-	252	50.1	4,184	10.0 %	418	-	-	4,602
1.7.4 - Carbon Regeneration				**1,724,212**		**11,570**		**154,256**		**101,349**	**-**	**-**	**207,554**		**2,187,371**		**289,664**	**-**	**-**	**2,477,035**
C Concrete				***-***		***-***		***-***		***-***	***-***	***-***	***-***		***-***		***-***	***-***	***-***	***-***
NOTE: Concrete Included in 1.7.3 Elution	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
E Electrical				***537,368***		***4,368***		***52,420***		***34,947***	***-***	***-***	***32,242***		***656,977***		***65,698***	***-***	***-***	***722,675***
Area Electrical AUD	EA	1	26,921	26,921	1,190	1,190	12.0	14,279	8.00	9,520	-	-	1,615	52,335	52,335	10.0 %	5,234	-	-	57,569
Area Electrical EUR	EA	1	510,103	510,103	3,147	3,147	12.0	37,762	8.00	25,175	-	-	30,606	603,646	603,646	10.0 %	60,365	-	-	664,011
Area Electrical USD	EA	1	344	344	31.5	31.5	12.0	378	8.00	252	-	-	20.7	995	995	10.0 %	99.5	-	-	1,095
L Platework				***57,007***		***974***		***13,768***		***8,977***	***-***	***-***	***20,166***		***99,918***		***10,873***	***-***	***-***	***110,792***

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
L1030 Chutes - Paint Spec B - Wet Plant	T	10	3,234	33,453	64.1	663	14.1	9,379	9.22	6,116	-	-	17,496	6,423	66,444	11.1 %	7,350	-	-	73,794
L1120 Launders - Paint Spec B - Wet Plant	T	0	3,549	1,562	64.1	28.2	14.1	399	9.22	260	-	-	744	6,738	2,965	10.0 %	296	-	-	3,261
L1230 Linings - Rubber 6thk Natural Rubber	M2	17	292	5,031	-	-		-		-	-	-	-	292	5,031	12.0 %	604	-	-	5,634
L1261 Linings - Conveyor Rubber Skirt	M2	8	63.0	518	-	-		-		-	-	-	-	63.0	518	12.0 %	62.1	-	-	580
L1262 Lip Linings - 304 SS	T	0	11,025	3,600	-	-		-		-	-	-	-	11,025	3,600	11.8 %	425	-	-	4,025
L3021 Sump Pump Support Frame & Screen	Lot	4	2,919	12,844	64.1	282	14.1	3,990	9.22	2,601	-	-	1,927	4,855	21,361	10.0 %	2,136	-	-	23,497
M Mechanical				***843,235***		***1,233***		***17,436***		***11,369***	***-***	***-***	***126,485***		***998,525***		***118,064***	***-***	***-***	***1,116,589***
Carbon Dewatering Screen - 1.22 m wide x 2.44 m long	EA	1	59,157	59,157	251	251	14.1	3,546	9.22	2,312	-	-	8,874	73,889	73,889	10.0 %	7,389	-	-	81,278
Carbon Regeneration Area Sump Pump - 11kW	EA	1	7,982	7,982	62.7	62.7	14.1	887	9.22	578	-	-	1,197	10,644	10,644	10.0 %	1,064	-	-	11,708
Carbon Regeneration Kiln - 14kW Diesel	EA	1	704,056	704,056	523	523	14.1	7,388	9.22	4,817	-	-	105,608	821,870	821,870	12.0 %	98,624	-	-	920,494
Carbon Regeneration Kiln Barring Drive (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Carbon Regeneration Kiln Feed Hopper (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Carbon Regeneration Kiln Screw Feeder (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Carbon Regeneration Kiln Stacks (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Carbon Sizing Screen - 1.22 m wide x 2.44 m long	EA	1	59,157	59,157	251	251	14.1	3,546	9.22	2,312	-	-	8,874	73,889	73,889	12.0 %	8,867	-	-	82,756
Carbon Transfer Pump - 18kW	EA	1	11,589	11,589	62.7	62.7	14.1	887	9.22	578	-	-	1,738	14,792	14,792	12.0 %	1,775	-	-	16,567
Service And New Carbon Hoist - 2t	EA	1	1,294	1,294	83.6	83.6	14.1	1,182	9.22	771	-	-	194	3,441	3,441	10.0 %	344	-	-	3,786
P Piping				***286,602***		***4,995***		***70,632***		***46,056***	***-***	***-***	***28,660***		***431,950***		***95,029***	***-***	***-***	***526,979***
1.7.4 - Carbon Regeneration - Area Piping	EA	1	286,602	286,602	4,995	4,995	14.1	70,632	9.22	46,056	-	-	28,660	431,950	431,950	22.0 %	95,029	-	-	526,979
S Steelwork				***-***		***-***		***-***		***-***	***-***	***-***	***-***		***-***		***-***	***-***	***-***	***-***
NOTE: Steel Structure Included in 1.7.3 Elution	Lot	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
1.7.5 - Intense Cyanidation				**488,503**		**2,261**		**31,970**		**20,846**	**-**	**-**	**69,367**		**610,687**		**75,205**	**-**	**-**	**685,891**
M Mechanical				***410,343***		***899***		***12,708***		***8,286***	***-***	***-***	***61,551***		***492,888***		***49,289***	***-***	***-***	***542,177***
Ilr Area Sump Pump - 11kW	EA	1	7,982	7,982	62.7	62.7	14.1	887	9.22	578	-	-	1,197	10,644	10,644	10.0 %	1,064	-	-	11,708
ILR Package	EA	1	402,361	402,361	836	836	14.1	11,821	9.22	7,708	-	-	60,354	482,244	482,244	10.0 %	48,224	-	-	530,468
P Piping				***78,161***		***1,362***		***19,262***		***12,560***	***-***	***-***	***7,816***		***117,799***		***25,916***	***-***	***-***	***143,715***
1.7.5 - Intense Cyanidasion - Area Piping	EA	1	78,161	78,161	1,362	1,362	14.1	19,262	9.22	12,560	-	-	7,816	117,799	117,799	22.0 %	25,916	-	-	143,715
1.7.6 - Electrowinning				**1,201,117**		**10,971**		**139,893**		**93,374**	**-**	**-**	**213,147**		**1,647,532**		**197,637**	**-**	**-**	**1,845,169**
C Concrete				***14,732***		***1,149***		***2,802***		***3,836***	***-***	***-***	***-***		***21,371***		***2,137***	***-***	***-***	***23,508***
C3010 Blinding Concrete 50mm thick	CM	2	313	589	24.4	45.9	2.44	112	3.34	153	-	-	-	454	854	10.0 %	85.4	-	-	939
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	14	450	6,285	32.2	451	2.44	1,099	3.34	1,505	-	-	-	636	8,889	10.0 %	889	-	-	9,778
C3210 Ring Beams - Concrete	M3	11	659	7,335	47.4	528	2.44	1,287	3.34	1,762	-	-	-	934	10,385	10.0 %	1,038	-	-	11,423
C3220 Ring Beams - Structural Fill	CM	50	5.73	287	2.47	124	2.44	302	3.34	413	-	-	-	20.0	1,002	10.0 %	100	-	-	1,102
C3230 Infill Oil Impregnated Sand < 50 mm thick	CM	4	58.2	237	0.20	0.81	2.44	1.98	3.34	2.71	-	-	-	59.4	241	10.0 %	24.1	-	-	265

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
E Electrical				***32,050***		***844***		***10,125***		***6,750***	***-***	***-***	***1,923***		***50,848***		***5,085***	***-***	***-***	***55,933***
Area Electrical AUD	EA	1	12,849	12,849	537	537	12.0	6,443	8.00	4,295	-	-	771	24,358	24,358	10.0 %	2,436	-	-	26,793
Area Electrical EUR	EA	1	19,201	19,201	307	307	12.0	3,683	8.00	2,455	-	-	1,152	26,491	26,491	10.0 %	2,649	-	-	29,140
L Platework				***108,418***		***4,110***		***58,115***		***37,894***	***-***	***-***	***62,729***		***267,157***		***27,121***	***-***	***-***	***294,278***
L1040 Chutes - Stainless Steel 316	T	1	12,999	15,989	77.0	94.6	14.1	1,338	9.22	873	-	-	2,080	16,488	20,280	12.0 %	2,434	-	-	22,714
L1080 Hoppers - Paint Spec B - Wet Plant	T	3	3,234	10,510	64.1	208	14.1	2,947	9.22	1,922	-	-	5,497	6,423	20,876	10.0 %	2,088	-	-	22,963
L2010 Field Erected Tanks G350 Fabricated Components - Paint	T	12	2,612	31,088	115	1,374	14.1	19,422	9.22	12,664	-	-	20,127	7,000	83,302	10.0 %	8,330	-	-	91,632
L2020 Field Erected Tanks G350 Slab Plate Trim & Sized - Paint	T	17	2,297	38,408	115	1,930	14.1	27,286	9.22	17,792	-	-	28,276	6,685	111,762	10.0 %	11,176	-	-	122,938
L2120 Field Erected Tanks SS 316 Fabricated Components	T	2	2,297	5,126	154	343	14.1	4,855	9.22	3,166	-	-	3,773	7,584	16,920	10.0 %	1,692	-	-	18,612
L3020 Support frames etc < 25kg/m Paint Spec B - Wet Area.	T	2	2,919	4,378	64.1	96.2	14.1	1,360	9.22	887	-	-	2,537	6,108	9,162	10.0 %	916	-	-	10,079
L3021 Sump Pump Support Frame & Screen	Lot	1	2,919	2,919	64.1	64.1	14.1	907	9.22	591	-	-	438	4,855	4,855	10.0 %	485	-	-	5,340
M Mechanical				***878,065***		***1,944***		***27,484***		***17,921***	***-***	***-***	***131,710***		***1,055,179***		***107,639***	***-***	***-***	***1,162,818***
Anode Holding Rack	EA	1	5,250	5,250	83.6	83.6	14.1	1,182	9.22	771	-	-	788	7,990	7,990	12.0 %	959	-	-	8,949
Anode Lifting Frame	EA	1	8,231	8,231	41.8	41.8	14.1	591	9.22	385	-	-	1,235	10,442	10,442	10.0 %	1,044	-	-	11,486
Electrowinning Cell 1 - 1,000 x 1,000 x 22 Cathodes	EA	1	117,336	117,336	209	209	14.1	2,955	9.22	1,927	-	-	17,600	139,819	139,819	10.0 %	13,982	-	-	153,800
Electrowinning Cell 1 Rectifier - 55kW	EA	1	62,026	62,026	62.7	62.7	14.1	887	9.22	578	-	-	9,304	72,794	72,794	10.0 %	7,279	-	-	80,073
Electrowinning Cell 2 - 1,000 x 1,000 x 22 Cathodes	EA	1	117,336	117,336	209	209	14.1	2,955	9.22	1,927	-	-	17,600	139,819	139,819	10.0 %	13,982	-	-	153,800
Electrowinning Cell 2 Rectifier - 55kW	EA	1	62,026	62,026	62.7	62.7	14.1	887	9.22	578	-	-	9,304	72,794	72,794	10.0 %	7,279	-	-	80,073
Electrowinning Cell 3 - 1,000 x 1,000 x 22 Cathodes	EA	1	117,336	117,336	209	209	14.1	2,955	9.22	1,927	-	-	17,600	139,819	139,819	10.0 %	13,982	-	-	153,800
Electrowinning Cell 3 Rectifier - 55kW	EA	1	62,026	62,026	62.7	62.7	14.1	887	9.22	578	-	-	9,304	72,794	72,794	10.0 %	7,279	-	-	80,073
Electrowinning Cell Fume Extraction Fan - 1.5kW	EA	1	8,485	8,485	41.8	41.8	14.1	591	9.22	385	-	-	1,273	10,734	10,734	10.0 %	1,073	-	-	11,808
Fume Stack	EA	1	8,231	8,231	83.6	83.6	14.1	1,182	9.22	771	-	-	1,235	11,418	11,418	12.0 %	1,370	-	-	12,788
Gold Room Crane - 2t, 9.6 m span, 15 m long travel, 10 m lift	EA	1	68,120	68,120	209	209	14.1	2,955	9.22	1,927	-	-	10,218	83,220	83,220	12.0 %	9,986	-	-	93,207
Gold Room Ventilation Fans - 2.2kW	EA	3	10,699	32,096	41.8	125	14.1	1,773	9.22	1,156	-	-	4,814	13,280	39,840	10.0 %	3,984	-	-	43,824
High Pressure Cathode Wash Spray - 4kW	EA	1	2,129	2,129	41.8	41.8	14.1	591	9.22	385	-	-	319	3,425	3,425	12.0 %	411	-	-	3,836
Ilr Electrowinning Cell - 1,000 x 1,000 x 22 Cathodes	EA	1	117,336	117,336	209	209	14.1	2,955	9.22	1,927	-	-	17,600	139,819	139,819	10.0 %	13,982	-	-	153,800
Ilr Electrowinning Cell Rectifier - 55kW	EA	1	62,026	62,026	62.7	62.7	14.1	887	9.22	578	-	-	9,304	72,794	72,794	10.0 %	7,279	-	-	80,073
Ilr Pregnant Solution Pump - 5.5kW	EA	1	6,446	6,446	41.8	41.8	14.1	591	9.22	385	-	-	967	8,390	8,390	10.0 %	839	-	-	9,229
Pregnant Solution Area Sump Pump - 11kW	EA	1	7,982	7,982	62.7	62.7	14.1	887	9.22	578	-	-	1,197	10,644	10,644	10.0 %	1,064	-	-	11,708
Pregnant Solution Pump 1 - 11kW	EA	1	6,824	6,824	62.7	62.7	14.1	887	9.22	578	-	-	1,024	9,313	9,313	10.0 %	931	-	-	10,244
Pregnant Solution Pump 2 - 11kW	EA	1	6,824	6,824	62.7	62.7	14.1	887	9.22	578	-	-	1,024	9,313	9,313	10.0 %	931	-	-	10,244
P Piping				***167,852***		***2,926***		***41,367***		***26,973***	***-***	***-***	***16,785***		***252,977***		***55,655***	***-***	***-***	***308,632***
1.7.6 - Electrowinning - Area Piping	EA	1	167,852	167,852	2,926	2,926	14.1	41,367	9.22	26,973	-	-	16,785	252,977	252,977	22.0 %	55,655	-	-	308,632
1.7.7 - Gold Room & Smelting				**889,153**		**15,493**		**137,385**		**101,520**	**-**	**-**	**123,049**		**1,251,107**		**139,075**	**-**	**-**	**1,390,182**
C Concrete				***100,993***		***6,636***		***16,193***		***22,166***	***-***	***-***	***-***		***139,352***		***13,935***	***-***	***-***	***153,287***
C3010 Blinding Concrete 50mm thick	CM	3	313	969	24.4	75.6	2.44	184	3.34	252	-	-	-	454	1,406	10.0 %	141	-	-	1,547

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	63	450	28,372	32.2	2,034	2.44	4,963	3.34	6,793	-	-	-	636	40,128	10.0 %	4,013	-	-	44,141
C3060 Ground Slabs < 300 mm thick	M3	115	406	46,530	25.8	2,951	2.44	7,201	3.34	9,857	-	-	-	555	63,588	10.0 %	6,359	-	-	69,946
C3100 Bunds > 500 mm high	M3	18	471	8,337	29.6	524	2.44	1,279	3.34	1,751	-	-	-	642	11,367	10.0 %	1,137	-	-	12,504
C3110 Walls < 250 mm thick	M3	2	565	1,345	38.5	91.7	2.44	224	3.34	306	-	-	-	788	1,875	10.0 %	187	-	-	2,062
C3120 Walls 250 - 600 mm thick	M3	15	471	6,990	29.6	440	2.44	1,073	3.34	1,468	-	-	-	642	9,531	10.0 %	953	-	-	10,485
C3190 Suspended Slabs 300 - 600 mm thick	M3	19	452	8,450	27.8	520	2.44	1,269	3.34	1,738	-	-	-	613	11,457	10.0 %	1,146	-	-	12,603
E Electrical				***72,695***		***1,888***		***22,662***		***15,108***	***-***	***-***	***4,362***		***114,827***		***11,483***	***-***	***-***	***126,309***
Area Electrical AUD	EA	1	30,918	30,918	1,121	1,121	12.0	13,457	8.00	8,971	-	-	1,855	55,201	55,201	10.0 %	5,520	-	-	60,721
Area Electrical EUR	EA	1	41,260	41,260	720	720	12.0	8,637	8.00	5,758	-	-	2,476	58,131	58,131	10.0 %	5,813	-	-	63,944
Area Electrical USD	EA	1	517	517	47.3	47.3	12.0	568	8.00	379	-	-	31.0	1,495	1,495	10.0 %	149	-	-	1,644
L Platework				***57,024***		***362***		***5,123***		***3,340***	***-***	***-***	***8,119***		***73,606***		***8,680***	***-***	***-***	***82,286***
L1030 Chutes - Paint Spec B - Wet Plant	T	1	3,234	1,779	64.1	35.3	14.1	499	9.22	325	-	-	930	6,423	3,533	10.0 %	353	-	-	3,886
L1040 Chutes - Stainless Steel 316	T	4	12,999	55,246	77.0	327	14.1	4,624	9.22	3,015	-	-	7,188	16,488	70,074	11.9 %	8,326	-	-	78,400
M Mechanical				***467,222***		***1,066***		***15,072***		***9,828***	***-***	***-***	***70,083***		***562,205***		***59,626***	***-***	***-***	***621,831***
Cell Sludge Filter (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Cell Sludge Filter Vacuum Pump - 2.4kW	EA	1	8,821	8,821	41.8	41.8	14.1	591	9.22	385	-	-	1,323	11,121	11,121	12.0 %	1,334	-	-	12,455
Dore Balance	EA	1	21,000	21,000	41.8	41.8	14.1	591	9.22	385	-	-	3,150	25,126	25,126	12.0 %	3,015	-	-	28,142
Drying Oven 1 - 37kW	EA	1	43,498	43,498	105	105	14.1	1,478	9.22	963	-	-	6,525	52,463	52,463	12.0 %	6,296	-	-	58,759
Drying Oven 2 - 37kW	EA	1	43,498	43,498	105	105	14.1	1,478	9.22	963	-	-	6,525	52,463	52,463	12.0 %	6,296	-	-	58,759
Drying Oven Tray Frame (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Flux Platform Scale	EA	1	22,865	22,865	62.7	62.7	14.1	887	9.22	578	-	-	3,430	27,760	27,760	10.0 %	2,776	-	-	30,536
Furnace Cooling System (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Furnace Extraction Fan - 4kW	EA	1	15,310	15,310	41.8	41.8	14.1	591	9.22	385	-	-	2,297	18,583	18,583	10.0 %	1,858	-	-	20,441
Furnace Extraction Stack	EA	1	8,231	8,231	83.6	83.6	14.1	1,182	9.22	771	-	-	1,235	11,418	11,418	12.0 %	1,370	-	-	12,788
Gold Room Area Sump Pump - 11kW	EA	1	7,982	7,982	41.8	41.8	14.1	591	9.22	385	-	-	1,197	10,156	10,156	10.0 %	1,016	-	-	11,171
Goldroom Mixer	EA	1	10,500	10,500	83.6	83.6	14.1	1,182	9.22	771	-	-	1,575	14,028	14,028	12.0 %	1,683	-	-	15,711
Goldroom Safe	EA	1	10,172	10,172	83.6	83.6	14.1	1,182	9.22	771	-	-	1,526	13,651	13,651	10.0 %	1,365	-	-	15,016
Induction Furnace - 150kW	EA	1	257,774	257,774	105	105	14.1	1,478	9.22	963	-	-	38,666	298,881	298,881	10.0 %	29,888	-	-	328,769
Pouring Moulds	EA	1	1,050	1,050	41.8	41.8	14.1	591	9.22	385	-	-	158	2,184	2,184	12.0 %	262	-	-	2,446
Prill Balance	EA	1	5,737	5,737	41.8	41.8	14.1	591	9.22	385	-	-	861	7,574	7,574	10.0 %	757	-	-	8,332
Slag Kibble (Part of Package)	EA	1	-	-	62.7	62.7	14.1	887	9.22	578	-	-	-	1,465	1,465	12.0 %	176	-	-	1,640
Vault Door	EA	1	10,784	10,784	125	125	14.1	1,773	9.22	1,156	-	-	1,618	15,331	15,331	10.0 %	1,533	-	-	16,864
P Piping				***51,087***		***890***		***12,590***		***8,209***	***-***	***-***	***5,109***		***76,995***		***16,939***	***-***	***-***	***93,934***
1.7.7 - Gold Room & Smelting - Area Piping	EA	1	51,087	51,087	890	890	14.1	12,590	9.22	8,209	-	-	5,109	76,995	76,995	22.0 %	16,939	-	-	93,934
S Steelwork				***140,131***		***4,650***		***65,746***		***42,869***	***-***	***-***	***35,377***		***284,122***		***28,412***	***-***	***-***	***312,534***
S2020 Light Steel - < 25kg/m Paint Spec B - Wet Area.	T	6	2,165	13,858	64.1	410	14.1	5,803	9.22	3,784	-	-	4,639	4,388	28,084	10.0 %	2,808	-	-	30,892
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	26	2,298	58,824	48.7	1,248	14.1	17,641	9.22	11,503	-	-	18,557	4,161	106,525	10.0 %	10,653	-	-	117,178

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
S2080 Hollow Sections - Paint Spec B - Wet Area	T	4	2,321	9,957	64.1	275	14.1	3,890	9.22	2,536	-	-	3,110	4,544	19,493	10.0 %	1,949	-	-	21,442
S2100 Welded Beams & Columns - Paint Spec B - Wet Area	T	1	2,260	2,622	38.5	44.6	14.1	631	9.22	411	-	-	841	3,884	4,505	10.0 %	451	-	-	4,956
S3050 Stair Treads x 750w - Galvanised	EA	26	53.3	1,385	1.41	36.7	14.1	519	9.22	338	-	-	208	94.2	2,450	10.0 %	245	-	-	2,695
S3090 Grating - Standard Galvanised	M2	19	103	1,925	3.85	71.9	14.1	1,017	9.22	663	-	-	289	208	3,895	10.0 %	389	-	-	4,284
S3160 Handrails - Platform - Paint Spec B - Wet Area (including	LM	32	135	4,357	2.57	83.0	14.1	1,173	9.22	765	-	-	654	215	6,949	10.0 %	695	-	-	7,644
S3180 Handrails - Stair - Paint Spec B - Wet Area (including	LM	15	149	2,257	3.85	58.4	14.1	825	9.22	538	-	-	339	261	3,959	10.0 %	396	-	-	4,355
S4030 Building Cladding Colorbond - Uninsulated	M2	1,177	16.9	19,868	0.77	906	14.1	12,812	9.22	8,354	-	-	2,980	37.4	44,015	10.0 %	4,401	-	-	48,416
S4060 Cladding - Downpipe	LM	81	7.72	626	1.03	83.2	14.1	1,177	9.22	767	-	-	93.9	32.8	2,664	10.0 %	266	-	-	2,930
S4070 Cladding - Gutter	LM	47	7.72	366	1.03	48.7	14.1	688	9.22	449	-	-	54.9	32.8	1,558	10.0 %	156	-	-	1,713
S4110 Purlins - Galvanised	LM	1,199	20.1	24,084	1.15	1,384	14.1	19,569	9.22	12,760	-	-	3,613	50.1	60,025	10.0 %	6,003	-	-	66,028
1.8 - Tails Handling				***2,764,322***		***51,773***		***571,064***		***394,843***	***-***	***-***	***486,549***		***4,216,778***		***534,644***	***-***	***-***	***4,751,422***
1.8.1 - Carbon Safety Screening				**606,833**		**6,258**		**82,457**		**54,606**	**-**	**-**	**109,977**		**853,872**		**118,924**	**-**	**-**	**972,796**
C Concrete				***6,647***		***438***		***1,068***		***1,462***	***-***	***-***	***-***		***9,177***		***1,101***	***-***	***-***	***10,279***
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	5	450	2,135	32.2	153	2.44	374	3.34	511	-	-	-	636	3,020	12.0 %	362	-	-	3,383
C3060 Ground Slabs < 300 mm thick	M3	10	406	4,201	25.8	266	2.44	650	3.34	890	-	-	-	555	5,741	12.0 %	689	-	-	6,430
C3090 Kerbs < 500mm high	M3	1	414	311	24.2	18.2	2.44	44.4	3.34	60.7	-	-	-	554	416	12.0 %	49.9	-	-	466
E Electrical				***10,761***		***425***		***5,103***		***3,402***	***-***	***-***	***646***		***19,911***		***1,991***	***-***	***-***	***21,902***
Area Electrical AUD	EA	1	2,798	2,798	224	224	12.0	2,691	8.00	1,794	-	-	168	7,451	7,451	10.0 %	745	-	-	8,196
Area Electrical EUR	EA	1	7,963	7,963	201	201	12.0	2,411	8.00	1,607	-	-	478	12,460	12,460	10.0 %	1,246	-	-	13,706
L Platework				***78,040***		***894***		***12,643***		***8,244***	***-***	***-***	***23,855***		***122,782***		***14,322***	***-***	***-***	***137,103***
L1030 Chutes - Paint Spec B - Wet Plant	T	11	3,234	35,286	64.1	700	14.1	9,893	9.22	6,451	-	-	18,455	6,423	70,085	12.0 %	8,410	-	-	78,496
L1080 Hoppers - Paint Spec B - Wet Plant	T	3	3,234	8,916	64.1	177	14.1	2,500	9.22	1,630	-	-	4,663	6,423	17,710	10.0 %	1,771	-	-	19,481
L1160 Bins - Large - Paint Spec A - Dry Plant > 100 m3	T	0	3,129	1,252	38.5	15.4	14.1	218	9.22	142	-	-	677	5,719	2,288	10.0 %	229	-	-	2,516
L1229 Linings - Rubber 5thk Natural Rubber	M2	106	292	30,806	-	-		-		-	-	-	-	292	30,806	12.0 %	3,697	-	-	34,503
L1261 Linings - Conveyor Rubber Skirt	M2	8	63.0	527	-	-		-		-	-	-	-	63.0	527	12.0 %	63.2	-	-	590
L1262 Lip Linings - 304 SS	T	0	11,025	1,148	-	-		-		-	-	-	-	11,025	1,148	11.3 %	130	-	-	1,278
L3020 Support frames etc < 25kg/m Paint Spec B - Wet Area.	T	0	2,919	104	64.1	2.29	14.1	32.3	9.22	21.1	-	-	60.3	6,108	218	10.0 %	21.8	-	-	240
M Mechanical				***292,692***		***711***		***10,048***		***6,552***	***-***	***-***	***43,904***		***353,195***		***40,855***	***-***	***-***	***394,050***
Carbon Safety Screen - 3.05 x 7.32 m, 75kW	EA	1	228,769	228,769	585	585	14.1	8,275	9.22	5,396	-	-	34,315	276,754	276,754	12.0 %	33,211	-	-	309,965
Cil Tails Sampler	EA	1	63,923	63,923	125	125	14.1	1,773	9.22	1,156	-	-	9,588	76,441	76,441	10.0 %	7,644	-	-	84,085
P Piping				***125,439***		***2,186***		***30,914***		***20,158***	***-***	***-***	***12,544***		***189,055***		***41,592***	***-***	***-***	***230,647***
1.8.1 - Carbon Safety Screening - Area Piping	EA	1	125,439	125,439	2,186	2,186	14.1	30,914	9.22	20,158	-	-	12,544	189,055	189,055	22.0 %	41,592	-	-	230,647
S Steelwork				***93,254***		***1,604***		***22,681***		***14,789***	***-***	***-***	***29,029***		***159,752***		***19,063***	***-***	***-***	***178,815***
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	3	2,298	5,802	48.7	123	14.1	1,740	9.22	1,135	-	-	1,830	4,161	10,507	12.0 %	1,261	-	-	11,768

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
S2060 Heavy Steel - > 75kg/m Paint Spec B - Wet Area.	T	37	2,283	84,084	38.5	1,417	14.1	20,034	9.22	13,063	-	-	26,693	3,907	143,875	12.0 %	17,265	-	-	161,140
S3150 Handrails - Platform - Paint Spec A - Dry Area (including	LM	25	135	3,367	2.57	64.1	14.1	907	9.22	591	-	-	505	215	5,370	10.0 %	537	-	-	5,907
1.8.2 - Tails Thickening / CCDs				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
M Mechanical				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
Intentionally Left Blank for Estimate Comparison	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
1.8.3 - Tails Detoxification				**1,765,921**		**39,664**		**417,624**		**292,737**	**-**	**-**	**326,234**		**2,802,516**		**351,861**	**-**	**-**	**3,154,377**
C Concrete				***173,937***		***10,995***		***26,827***		***36,723***	**-**	**-**	**-**		***237,487***		***24,992***	**-**	**-**	***262,480***
C3010 Blinding Concrete 50mm thick	CCM	5	313	1,477	24.4	115	2.44	281	3.34	385	-	-	-	454	2,142	12.0 %	257	-	-	2,400
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	81	450	36,262	32.2	2,599	2.44	6,343	3.34	8,682	-	-	-	636	51,287	10.0 %	5,129	-	-	56,416
C3060 Ground Slabs < 300 mm thick	M3	169	406	68,690	25.8	4,357	2.44	10,630	3.34	14,552	-	-	-	555	93,872	10.0 %	9,387	-	-	103,259
C3100 Bunds > 500 mm high	M3	18	471	8,605	29.6	541	2.44	1,320	3.34	1,807	-	-	-	642	11,733	10.0 %	1,173	-	-	12,906
C3210 Ring Beams - Concrete	M3	58	659	38,253	47.4	2,752	2.44	6,714	3.34	9,191	-	-	-	934	54,158	12.0 %	6,499	-	-	60,657
C3220 Ring Beams - Structural Fill	CM	237	5.73	1,357	2.47	584	2.44	1,426	3.34	1,952	-	-	-	20.0	4,735	12.0 %	568	-	-	5,303
C3230 Infill Oil Impregnated Sand < 50 mm thick	CM	19	58.2	1,118	0.20	3.84	2.44	9.37	3.34	12.8	-	-	-	59.4	1,140	12.0 %	137	-	-	1,277
C3232 Ring Beams - HDPE Liner 2mm Thick	M2	281	64.6	18,176	0.15	42.3	2.44	103	3.34	141	-	-	-	65.5	18,421	10.0 %	1,842	-	-	20,263
E Electrical				***261,970***		***6,815***		***81,776***		***54,517***	**-**	**-**	***15,718***		***413,982***		***41,398***	**-**	**-**	***455,380***
Area Electrical AUD	EA	3	74,929	224,786	1,822	5,467	12.0	65,601	8.00	43,734	-	-	13,487	115,869	347,608	10.0 %	34,761	-	-	382,369
Area Electrical EUR	EA	3	9,043	27,128	234	702	12.0	8,421	8.00	5,614	-	-	1,628	14,263	42,790	10.0 %	4,279	-	-	47,069
Area Electrical USD	EA	1	10,056	10,056	646	646	12.0	7,754	8.00	5,170	-	-	603	23,583	23,583	10.0 %	2,358	-	-	25,941
L Platework				***195,409***		***8,297***		***117,315***		***76,495***	**-**	**-**	***128,926***		***518,145***		***51,815***	**-**	**-**	***569,960***
L1120 Launders - Paint Spec B - Wet Plant	T	10	3,549	34,709	64.1	627	14.1	8,868	9.22	5,782	-	-	16,541	6,738	65,901	10.0 %	6,590	-	-	72,491
L2010 Field Erected Tanks G350 Fabricated Components - Paint	T	26	2,612	66,734	115	2,949	14.1	41,692	9.22	27,185	-	-	43,206	7,000	178,817	10.0 %	17,882	-	-	196,698
L2020 Field Erected Tanks G350 Slab Plate Trim & Sized - Paint	T	41	2,297	93,966	115	4,721	14.1	66,755	9.22	43,528	-	-	69,179	6,685	273,428	10.0 %	27,343	-	-	300,770
M Mechanical				***521,538***		***1,379***		***19,505***		***12,718***	**-**	**-**	***78,231***		***631,991***		***66,114***	**-**	**-**	***698,106***
Cyanide Destruction Tank 1 Agitator - 220kW	EA	1	198,670	198,670	627	627	14.1	8,866	9.22	5,781	-	-	29,801	243,118	243,118	10.0 %	24,312	-	-	267,430
Cyanide Destruction Tank 2 Agitator - 220kW	EA	1	198,670	198,670	627	627	14.1	8,866	9.22	5,781	-	-	29,801	243,118	243,118	10.0 %	24,312	-	-	267,430
Wad Cyanide Analyser	EA	1	124,197	124,197	125	125	14.1	1,773	9.22	1,156	-	-	18,630	145,756	145,756	12.0 %	17,491	-	-	163,247
P Piping				***372,950***		***6,500***		***91,912***		***59,931***	**-**	**-**	***37,295***		***562,088***		***123,659***	**-**	**-**	***685,748***
1.8.3 - Tails Detoxification - Area Piping	EA	1	372,950	372,950	6,500	6,500	14.1	91,912	9.22	59,931	-	-	37,295	562,088	562,088	22.0 %	123,659	-	-	685,748
S Steelwork				***240,118***		***5,678***		***80,288***		***52,352***	**-**	**-**	***66,065***		***438,823***		***43,882***	**-**	**-**	***482,705***
S2020 Light Steel - < 25kg/m Paint Spec B - Wet Area.	T	19	2,165	40,101	64.1	1,188	14.1	16,793	9.22	10,950	-	-	13,425	4,388	81,268	10.0 %	8,127	-	-	89,395
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	32	2,298	74,679	48.7	1,584	14.1	22,396	9.22	14,603	-	-	23,558	4,161	135,237	10.0 %	13,524	-	-	148,761
S2060 Heavy Steel - > 75kg/m Paint Spec B - Wet Area.	T	8	2,283	18,267	38.5	308	14.1	4,352	9.22	2,838	-	-	5,799	3,907	31,256	10.0 %	3,126	-	-	34,382

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
S2080 Hollow Sections - Paint Spec B - Wet Area	T	4	2,321	8,959	64.1	248	14.1	3,500	9.22	2,282	-	-	2,798	4,544	17,539	10.0 %	1,754	-	-	19,293
S2100 Welded Beams & Columns - Paint Spec B - Wet Area	T	15	2,260	33,791	38.5	575	14.1	8,133	9.22	5,303	-	-	10,837	3,884	58,064	10.0 %	5,806	-	-	63,871
S3040 Caged Ladders - Paint Spec B - Wet Area	LM	2	93.7	219	7.70	18.0	14.1	255	9.22	166	-	-	32.9	288	673	10.0 %	67.3	-	-	740
S3050 Stair Treads x 750w - Galvanised	EA	70	53.3	3,729	1.41	98.8	14.1	1,396	9.22	910	-	-	559	94.2	6,596	10.0 %	660	-	-	7,255
S3120 Grating - FRP	M2	236	103	24,293	3.85	908	14.1	12,836	9.22	8,370	-	-	3,644	208	49,143	10.0 %	4,914	-	-	54,057
S3160 Handrails - Platform - Paint Spec B - Wet Area (including	LM	198	135	26,616	2.57	507	14.1	7,167	9.22	4,673	-	-	3,992	215	42,448	10.0 %	4,245	-	-	46,693
S3180 Handrails - Stair - Paint Spec B - Wet Area (including	LM	64	149	9,463	3.85	245	14.1	3,460	9.22	2,256	-	-	1,420	261	16,599	10.0 %	1,660	-	-	18,259
1.8.4 - Tails Pumping				**391,568**		**5,852**		**70,984**		**47,499**	**-**	**-**	**50,339**		**560,390**		**63,860**	**-**	**-**	**624,250**
C Concrete				***3,609***		***317***		***774***		***1,059***	**-**	**-**	**-**		***5,442***		***544***	**-**	**-**	***5,986***
C3420 Precast Concrete Sumps 1200 diam.	EA	2	1,804	3,609	159	317	2.44	774	3.34	1,059	-	-	-	2,721	5,442	10.0 %	544	-	-	5,986
E Electrical				***177,891***		***3,761***		***45,128***		***30,086***	**-**	**-**	***10,673***		***263,779***		***26,378***	**-**	**-**	***290,156***
Area Electrical AUD	EA	1	74,408	74,408	3,166	3,166	12.0	37,996	8.00	25,330	-	-	4,465	142,199	142,199	10.0 %	14,220	-	-	156,419
Area Electrical EUR	EA	1	43,136	43,136	397	397	12.0	4,767	8.00	3,178	-	-	2,588	53,669	53,669	10.0 %	5,367	-	-	59,036
Area Electrical USD	EA	1	60,347	60,347	197	197	12.0	2,366	8.00	1,577	-	-	3,621	67,911	67,911	10.0 %	6,791	-	-	74,702
L Platework				***37,099***		***602***		***8,514***		***5,552***	**-**	**-**	***15,882***		***67,047***		***6,705***	**-**	**-**	***73,752***
L1030 Chutes - Paint Spec B - Wet Plant	T	9	3,234	30,367	64.1	602	14.1	8,514	9.22	5,552	-	-	15,882	6,423	60,315	10.0 %	6,031	-	-	66,346
L1237 Linings - Premium Red Linatex 6thk Rubber	M2	15	449	6,732	-	-		-		-	-	-	-	449	6,732	10.0 %	673	-	-	7,405
M Mechanical				***129,727***		***418***		***5,911***		***3,854***	**-**	**-**	***19,459***		***158,950***		***15,895***	**-**	**-**	***174,845***
Tailings Area Sump Pump - 22kW	EA	1	19,122	19,122	83.6	83.6	14.1	1,182	9.22	771	-	-	2,868	23,943	23,943	10.0 %	2,394	-	-	26,337
Tailings Pump 1 - 250kW	EA	1	55,302	55,302	167	167	14.1	2,364	9.22	1,542	-	-	8,295	67,504	67,504	10.0 %	6,750	-	-	74,254
Tailings Pump 2 - 250kW	EA	1	55,302	55,302	167	167	14.1	2,364	9.22	1,542	-	-	8,295	67,504	67,504	10.0 %	6,750	-	-	74,254
P Piping				***43,242***		***754***		***10,657***		***6,949***	**-**	**-**	***4,324***		***65,172***		***14,338***	**-**	**-**	***79,510***
1.8.4 - Tails Pumping - Area Piping	EA	1	43,242	43,242	754	754	14.1	10,657	9.22	6,949	-	-	4,324	65,172	65,172	22.0 %	14,338	-	-	79,510
2 - Reagents & Plant Services				**27,869,160**		**251,489**		**3,062,257**		**2,263,655**	**-**	**-**	**2,639,153**		**35,834,225**		**4,294,471**	**-**	**-**	**40,128,696**
2.1 - Reagents				***1,780,008***		***39,058***		***440,491***		***303,196***	**-**	**-**	***314,603***		***2,838,298***		***379,288***	**-**	**-**	***3,217,586***
2.1.1 - Cyanide				**190,684**		**5,292**		**53,455**		**37,985**	**-**	**-**	**41,516**		**323,640**		**42,184**	**-**	**-**	**365,824**
C Concrete				***28,152***		***1,745***		***4,258***		***5,828***	**-**	**-**	**-**		***38,238***		***3,824***	**-**	**-**	***42,062***
C3010 Blinding Concrete 50mm thick	CM	3	313	927	24.4	72.3	2.44	176	3.34	241	-	-	-	454	1,345	10.0 %	134	-	-	1,479
C3060 Ground Slabs < 300 mm thick	M3	35	406	14,329	25.8	909	2.44	2,218	3.34	3,036	-	-	-	555	19,583	10.0 %	1,958	-	-	21,541
C3210 Ring Beams - Concrete	M3	8	659	5,234	47.4	376	2.44	919	3.34	1,258	-	-	-	934	7,410	10.0 %	741	-	-	8,151
C3220 Ring Beams - Structural Fill	CM	25	5.73	141	2.47	60.9	2.44	149	3.34	203	-	-	-	20.0	493	10.0 %	49.3	-	-	543
C3230 Infill Oil Impregnated Sand < 50 mm thick	CM	2	58.2	116	0.20	0.40	2.44	0.98	3.34	1.34	-	-	-	59.4	119	10.0 %	11.9	-	-	131

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
C3232 Ring Beams - HDPE Liner 2mm Thick	M2	59	64.6	3,795	0.15	8.84	2.44	21.6	3.34	29.5	-	-	-	65.5	3,846	10.0 %	385	-	-	4,231
C3420 Precast Concrete Sumps 1200 diam.	EA	2	1,804	3,609	159	317	2.44	774	3.34	1,059	-	-	-	2,721	5,442	10.0 %	544	-	-	5,986
E Electrical				***5,496***		***445***		***5,345***		***3,563***	***-***	***-***	***330***		***14,734***		***1,473***	***-***	***-***	***16,208***
Area Electrical AUD	EA	1	2,122	2,122	252	252	12.0	3,020	8.00	2,013	-	-	127	7,283	7,283	10.0 %	728	-	-	8,011
Area Electrical EUR	EA	1	3,374	3,374	194	194	12.0	2,325	8.00	1,550	-	-	202	7,452	7,452	10.0 %	745	-	-	8,197
L Platework				***40,423***		***1,703***		***24,083***		***15,703***	***-***	***-***	***26,386***		***106,595***		***10,659***	***-***	***-***	***117,254***
L1030 Chutes - Paint Spec B - Wet Plant	T	2	3,234	6,015	64.1	119	14.1	1,687	9.22	1,100	-	-	3,146	6,423	11,947	10.0 %	1,195	-	-	13,142
L1261 Linings - Conveyor Rubber Skirt	M2	1	63.0	63.6	-	-		-		-	-	-	-	63.0	63.6	10.0 %	6.36	-	-	70.0
L1262 Lip Linings - 304 SS	T	0	11,025	41.7	-	-		-		-	-	-	-	11,025	41.7	10.0 %	4.17	-	-	45.8
L1300 Linings - Bisalloy 6thk	M2	2	334	588	-	-		-		-	-	-	-	334	588	10.0 %	58.8	-	-	646
L2010 Field Erected Tanks G350 Fabricated Components - Paint	T	7	2,612	17,607	115	778	14.1	11,000	9.22	7,173	-	-	11,399	7,000	47,179	10.0 %	4,718	-	-	51,897
L2020 Field Erected Tanks G350 Slab Plate Trim & Sized - Paint	T	7	2,297	15,991	115	803	14.1	11,360	9.22	7,407	-	-	11,773	6,685	46,531	10.0 %	4,653	-	-	51,184
L3020 Support frames etc < 25kg/m Paint Spec B - Wet Area.	T	0	2,919	117	64.1	2.57	14.1	36.3	9.22	23.6	-	-	67.7	6,108	244	10.0 %	24.4	-	-	269
M Mechanical				***62,777***		***460***		***6,502***		***4,239***	***-***	***-***	***9,417***		***82,935***		***8,377***	***-***	***-***	***91,312***
Cyanide Area Sump Pump - 11kW	EA	1	7,982	7,982	62.7	62.7	14.1	887	9.22	578	-	-	1,197	10,644	10,644	10.0 %	1,064	-	-	11,708
Cyanide Dosing Pump - 3kW	EA	1	2,783	2,783	41.8	41.8	14.1	591	9.22	385	-	-	417	4,177	4,177	12.0 %	501	-	-	4,678
Cyanide Hoist - 2t, 9 m travel, 12 m lift, 5.5kW	EA	1	31,331	31,331	83.6	83.6	14.1	1,182	9.22	771	-	-	4,700	37,983	37,983	10.0 %	3,798	-	-	41,782
Cyanide Mixing Tank Agitator - 5.5kW	EA	1	6,446	6,446	125	125	14.1	1,773	9.22	1,156	-	-	967	10,343	10,343	10.0 %	1,034	-	-	11,377
Cyanide Recirculation Pump 1 - 5.5kW	EA	1	3,706	3,706	41.8	41.8	14.1	591	9.22	385	-	-	556	5,238	5,238	10.0 %	524	-	-	5,762
Cyanide Recirculation Pump 2 - 5.5kW	EA	1	3,706	3,706	41.8	41.8	14.1	591	9.22	385	-	-	556	5,238	5,238	10.0 %	524	-	-	5,762
Cyanide Transfer Pump - 11kW	EA	1	6,824	6,824	62.7	62.7	14.1	887	9.22	578	-	-	1,024	9,313	9,313	10.0 %	931	-	-	10,244
P Piping				***53,836***		***938***		***13,268***		***8,651***	***-***	***-***	***5,384***		***81,138***		***17,850***	***-***	***-***	***98,988***
2.1.1 - Cyanide - Area Piping	EA	1	53,836	53,836	938	938	14.1	13,268	9.22	8,651	-	-	5,384	81,138	81,138	22.0 %	17,850	-	-	98,988
2.1.3 - Flocculants				**657,667**		**11,196**		**128,372**		**88,083**	**-**	**-**	**105,189**		**979,311**		**142,059**	**-**	**-**	**1,121,370**
C Concrete				***31,903***		***2,435***		***5,942***		***8,134***	***-***	***-***	***-***		***45,979***		***4,791***	***-***	***-***	***50,770***
C3010 Blinding Concrete 50mm thick	CM	2	313	695	24.4	54.2	2.44	132	3.34	181	-	-	-	454	1,009	10.3 %	104	-	-	1,113
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	1	450	561	32.2	40.2	2.44	98.1	3.34	134	-	-	-	636	794	10.0 %	79.4	-	-	873
C3060 Ground Slabs < 300 mm thick	M3	46	406	18,787	25.8	1,192	2.44	2,908	3.34	3,980	-	-	-	555	25,675	10.0 %	2,567	-	-	28,242
C3090 Kerbs < 500mm high	M3	2	414	888	24.2	52.0	2.44	127	3.34	174	-	-	-	554	1,188	10.0 %	119	-	-	1,307
C3210 Ring Beams - Concrete	M3	12	659	8,127	47.4	585	2.44	1,426	3.34	1,953	-	-	-	934	11,506	10.8 %	1,246	-	-	12,752
C3220 Ring Beams - Structural Fill	CM	64	5.73	368	7.89	506	2.44	1,236	3.34	1,692	-	-	-	51.3	3,295	11.5 %	378	-	-	3,674
C3230 Infill Oil Impregnated Sand < 50 mm thick	CM	5	58.2	303	0.20	1.04	2.44	2.54	3.34	3.48	-	-	-	59.4	309	10.6 %	32.9	-	-	342
C3232 Ring Beams - HDPE Liner 2mm Thick	M2	34	64.6	2,173	0.15	5.06	2.44	12.4	3.34	16.9	-	-	-	65.5	2,203	12.0 %	264	-	-	2,467
E Electrical				***14,712***		***677***		***8,125***		***5,417***	***-***	***-***	***883***		***29,136***		***2,914***	***-***	***-***	***32,050***
Area Electrical AUD	EA	1	6,654	6,654	446	446	12.0	5,357	8.00	3,571	-	-	399	15,982	15,982	10.0 %	1,598	-	-	17,580

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Area Electrical EUR	EA	1	3,584	3,584	201	201	12.0	2,415	8.00	1,610	-	-	215	7,824	7,824	10.0 %	782	-	-	8,606
Area Electrical USD	EA	1	4,474	4,474	29.4	29.4	12.0	353	8.00	235	-	-	268	5,330	5,330	10.0 %	533	-	-	5,863
L Platework				***30,937***		***1,291***		***18,260***		***11,906***	***-***	***-***	***20,351***		***81,455***		***9,517***	***-***	***-***	***90,972***
L1030 Chutes - Paint Spec B - Wet Plant	T	2	3,234	6,015	64.1	119	14.1	1,687	9.22	1,100	-	-	3,146	6,423	11,947	10.0 %	1,195	-	-	13,142
L1261 Linings - Conveyor Rubber Skirt	M2	1	63.0	63.6	-	-		-		-	-	-	-	63.0	63.6	10.0 %	6.36	-	-	70.0
L1262 Lip Linings - 304 SS	T	0	11,025	41.7	-	-		-		-	-	-	-	11,025	41.7	10.0 %	4.17	-	-	45.8
L1300 Linings - Bisalloy 6thk	M2	2	334	588	-	-		-		-	-	-	-	334	588	10.0 %	58.8	-	-	646
L2010 Field Erected Tanks G350 Fabricated Components - Paint	T	3	2,612	6,921	115	306	14.1	4,324	9.22	2,819	-	-	4,481	7,000	18,544	12.0 %	2,225	-	-	20,769
L2020 Field Erected Tanks G350 Slab Plate Trim & Sized - Paint	T	7	2,297	17,192	115	864	14.1	12,213	9.22	7,964	-	-	12,657	6,685	50,026	12.0 %	6,003	-	-	56,029
L3020 Support frames etc < 25kg/m Paint Spec B - Wet Area.	T	0	2,919	117	64.1	2.57	14.1	36.3	9.22	23.6	-	-	67.7	6,108	244	10.0 %	24.4	-	-	269
M Mechanical				***272,249***		***711***		***10,048***		***6,552***	***-***	***-***	***40,837***		***329,686***		***33,320***	***-***	***-***	***363,005***
Flocculant Area Sump Pump - 11kW	EA	1	10,510	10,510	62.7	62.7	14.1	887	9.22	578	-	-	1,577	13,552	13,552	10.0 %	1,355	-	-	14,907
Flocculant Bag Breaker	EA	1	6,840	6,840	167	167	14.1	2,364	9.22	1,542	-	-	1,026	11,771	11,771	12.0 %	1,413	-	-	13,184
Flocculant Bag Lifting Frame	EA	1	3,756	3,756	62.7	62.7	14.1	887	9.22	578	-	-	563	5,784	5,784	12.0 %	694	-	-	6,478
Flocculant Dosing Pump 1 - 3kW	EA	1	2,783	2,783	41.8	41.8	14.1	591	9.22	385	-	-	417	4,177	4,177	10.0 %	418	-	-	4,594
Flocculant Dosing Pump 2 - 3kW	EA	1	2,783	2,783	41.8	41.8	14.1	591	9.22	385	-	-	417	4,177	4,177	10.0 %	418	-	-	4,594
Flocculant Hoist - 2t, 9 m travel, 12 m lift	EA	1	31,331	31,331	83.6	83.6	14.1	1,182	9.22	771	-	-	4,700	37,983	37,983	10.0 %	3,798	-	-	41,782
Flocculant Mixing Tank Package - 1600 kg/day, 15kW	EA	1	207,023	207,023	209	209	14.1	2,955	9.22	1,927	-	-	31,053	242,959	242,959	10.0 %	24,296	-	-	267,255
Ilr Flocculant Transfer Pump - 1.1kW	EA	1	7,224	7,224	41.8	41.8	14.1	591	9.22	385	-	-	1,084	9,284	9,284	10.0 %	928	-	-	10,212
P Piping				***233,401***		***4,068***		***57,521***		***37,507***	***-***	***-***	***23,340***		***351,769***		***77,389***	***-***	***-***	***429,158***
2.1.3 - Flocculants - Area Piping	EA	1	233,401	233,401	4,068	4,068	14.1	57,521	9.22	37,507	-	-	23,340	351,769	351,769	22.0 %	77,389	-	-	429,158
S Steelwork				***74,464***		***2,014***		***28,476***		***18,568***	***-***	***-***	***19,778***		***141,287***		***14,129***	***-***	***-***	***155,415***
S2020 Light Steel - < 25kg/m Paint Spec B - Wet Area.	T	4	2,165	7,693	64.1	228	14.1	3,222	9.22	2,101	-	-	2,575	4,388	15,591	10.0 %	1,559	-	-	17,150
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	16	2,298	36,122	48.7	766	14.1	10,833	9.22	7,064	-	-	11,395	4,161	65,413	10.0 %	6,541	-	-	71,955
S2080 Hollow Sections - Paint Spec B - Wet Area	T	3	2,321	7,455	64.1	206	14.1	2,912	9.22	1,899	-	-	2,328	4,544	14,595	10.0 %	1,459	-	-	16,054
S3050 Stair Treads x 750w - Galvanised	EA	34	53.3	1,811	1.41	48.0	14.1	678	9.22	442	-	-	272	94.2	3,204	10.0 %	320	-	-	3,524
S3090 Grating - Standard Galvanised	M2	51	103	5,210	3.85	195	14.1	2,753	9.22	1,795	-	-	781	208	10,539	10.0 %	1,054	-	-	11,593
S3160 Handrails - Platform - Paint Spec B - Wet Area (including	LM	32	135	4,325	2.57	82.4	14.1	1,165	9.22	759	-	-	649	215	6,898	10.0 %	690	-	-	7,588
S3180 Handrails - Stair - Paint Spec B - Wet Area (including	LM	33	149	4,839	3.85	125	14.1	1,769	9.22	1,154	-	-	726	261	8,487	10.0 %	849	-	-	9,336
S4030 Cladding Colorbond	M2	194	16.9	3,282	0.77	150	14.1	2,116	9.22	1,380	-	-	492	37.4	7,270	10.0 %	727	-	-	7,997
S4110 Purlins - Galvanised	LM	186	20.1	3,727	1.15	214	14.1	3,029	9.22	1,975	-	-	559	50.1	9,290	10.0 %	929	-	-	10,219
2.1.4 - Acid & Caustic				**399,262**		**10,854**		**111,988**		**79,121**	**-**	**-**	**68,359**		**658,730**		**83,134**	**-**	**-**	**741,863**
C Concrete				***49,284***		***3,417***		***8,337***		***11,412***	***-***	***-***	***-***		***69,033***		***6,903***	***-***	***-***	***75,937***
C3010 Blinding Concrete 50mm thick	CM	15	313	4,724	24.4	368	2.44	899	3.34	1,231	-	-	-	454	6,854	10.0 %	685	-	-	7,539
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	26	450	11,594	32.2	831	2.44	2,028	3.34	2,776	-	-	-	636	16,398	10.0 %	1,640	-	-	18,038
C3060 Ground Slabs < 300 mm thick	M3	53	406	21,547	25.8	1,367	2.44	3,335	3.34	4,565	-	-	-	555	29,446	10.0 %	2,945	-	-	32,391

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
C3090 Kerbs < 500mm high	M3	5	414	2,013	24.2	118	2.44	287	3.34	393	-	-	-	554	2,693	10.0 %	269	-	-	2,963
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	13	450	5,798	32.2	416	2.44	1,014	3.34	1,388	-	-	-	636	8,200	10.0 %	820	-	-	9,020
C3420 Precast Concrete Sumps 1200 diam.	EA	2	1,804	3,609	159	317	2.44	774	3.34	1,059	-	-	-	2,721	5,442	10.0 %	544	-	-	5,986
E Electrical				***18,543***		***705***		***8,463***		***5,642***	***-***	***-***	***1,113***		***33,761***		***3,376***	***-***	***-***	***37,137***
Area Electrical AUD	EA	1	7,927	7,927	378	378	12.0	4,538	8.00	3,025	-	-	476	15,966	15,966	10.0 %	1,597	-	-	17,562
Area Electrical EUR	EA	1	8,370	8,370	312	312	12.0	3,743	8.00	2,495	-	-	502	15,109	15,109	10.0 %	1,511	-	-	16,620
Area Electrical USD	EA	1	2,246	2,246	15.2	15.2	12.0	183	8.00	122	-	-	135	2,686	2,686	10.0 %	269	-	-	2,955
L Platework				***34,929***		***609***		***8,611***		***5,614***	***-***	***-***	***16,062***		***65,216***		***6,522***	***-***	***-***	***71,738***
L1030 Chutes - Paint Spec B - Wet Plant	T	2	3,234	5,724	64.1	114	14.1	1,605	9.22	1,046	-	-	2,994	6,423	11,369	10.0 %	1,137	-	-	12,506
L1530 Shop Fab Tanks - Grade 350 - Paint Spec B - Wet Plant	T	8	3,780	29,205	64.1	495	14.1	7,006	9.22	4,568	-	-	13,068	6,969	53,847	10.0 %	5,385	-	-	59,231
M Mechanical				***96,260***		***1,024***		***14,481***		***9,442***	***-***	***-***	***14,439***		***134,622***		***15,835***	***-***	***-***	***150,457***
Acid Wash Pump - 11kW	EA	1	6,824	6,824	62.7	62.7	14.1	887	9.22	578	-	-	1,024	9,313	9,313	10.0 %	931	-	-	10,244
Hydrochloric Acid Area Sump Pump	EA	1	10,510	10,510	41.8	41.8	14.1	591	9.22	385	-	-	1,577	13,064	13,064	12.0 %	1,568	-	-	14,631
Hydrochloric Acid Mixing / Storage Tank - 20M3	EA	1	21,200	21,200	523	523	14.1	7,388	9.22	4,817	-	-	3,180	36,585	36,585	15.0 %	5,488	-	-	42,073
Hydrochloric Acid Pump	EA	1	4,181	4,181	41.8	41.8	14.1	591	9.22	385	-	-	627	5,784	5,784	12.0 %	694	-	-	6,478
Sodium Hydroxide Bag Lifting Frame	EA	1	3,756	3,756	62.7	62.7	14.1	887	9.22	578	-	-	563	5,784	5,784	10.0 %	578	-	-	6,362
Sodium Hydroxide Detox Dosing Pump - 3kW	EA	1	2,783	2,783	41.8	41.8	14.1	591	9.22	385	-	-	417	4,177	4,177	12.0 %	501	-	-	4,678
Sodium Hydroxide Dosing Pump - 2.2kW	EA	1	2,783	2,783	41.8	41.8	14.1	591	9.22	385	-	-	417	4,177	4,177	12.0 %	501	-	-	4,678
Sodium Hydroxide Hoist - 2t, 9 m travel, 12 m lift	EA	1	31,331	31,331	83.6	83.6	14.1	1,182	9.22	771	-	-	4,700	37,983	37,983	10.0 %	3,798	-	-	41,782
Sodium Hydroxide Mixing Pump - 5.5kW	EA	1	6,446	6,446	41.8	41.8	14.1	591	9.22	385	-	-	967	8,390	8,390	10.0 %	839	-	-	9,229
Sodium Hydroxide Mixing Tank Agitator - 2.2kW	EA	1	6,446	6,446	83.6	83.6	14.1	1,182	9.22	771	-	-	967	9,366	9,366	10.0 %	937	-	-	10,303
P Piping				***82,316***		***1,435***		***20,286***		***13,228***	***-***	***-***	***8,232***		***124,062***		***27,294***	***-***	***-***	***151,355***
2.1.4 - Acid & Caustic - Area Piping	EA	1	82,316	82,316	1,435	1,435	14.1	20,286	9.22	13,228	-	-	8,232	124,062	124,062	22.0 %	27,294	-	-	151,355
S Steelwork				***117,929***		***3,664***		***51,810***		***33,783***	***-***	***-***	***28,514***		***232,036***		***23,204***	***-***	***-***	***255,239***
S2020 Light Steel - < 25kg/m Paint Spec B - Wet Area.	T	7	2,165	15,655	64.1	464	14.1	6,556	9.22	4,275	-	-	5,241	4,388	31,726	10.0 %	3,173	-	-	34,899
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	19	2,298	43,843	48.7	930	14.1	13,148	9.22	8,573	-	-	13,830	4,161	79,395	10.0 %	7,939	-	-	87,334
S2080 Hollow Sections - Paint Spec B - Wet Area	T	2	2,321	4,178	64.1	115	14.1	1,632	9.22	1,064	-	-	1,305	4,544	8,179	10.0 %	818	-	-	8,997
S3050 Stair Treads x 750w - Galvanised	EA	27	53.3	1,438	1.41	38.1	14.1	539	9.22	351	-	-	216	94.2	2,544	10.0 %	254	-	-	2,798
S3090 Grating - Standard Galvanised	M2	114	103	11,738	3.85	439	14.1	6,202	9.22	4,044	-	-	1,761	208	23,744	10.0 %	2,374	-	-	26,119
S3160 Handrails - Platform - Paint Spec B - Wet Area (including	LM	76	135	10,243	2.57	195	14.1	2,758	9.22	1,799	-	-	1,537	215	16,337	10.0 %	1,634	-	-	17,970
S3180 Handrails - Stair - Paint Spec B - Wet Area (including	LM	16	149	2,427	3.85	62.8	14.1	887	9.22	579	-	-	364	261	4,257	10.0 %	426	-	-	4,682
S4030 Building Cladding Colorbond - Uninsulated	M2	1,058	16.9	17,856	0.77	814	14.1	11,514	9.22	7,508	-	-	2,678	37.4	39,556	10.0 %	3,956	-	-	43,512
S4110 Purlins - Galvanised	LM	525	20.1	10,551	1.15	606	14.1	8,573	9.22	5,590	-	-	1,583	50.1	26,297	10.0 %	2,630	-	-	28,927
2.1.6 - Other Reagents				**454,530**		**9,598**		**121,256**		**81,060**	**-**	**-**	**94,868**		**751,714**		**99,421**	**-**	**-**	**851,135**
C Concrete				***14,880***		***1,025***		***2,502***		***3,425***	***-***	***-***	***-***		***20,807***		***2,202***	***-***	***-***	***23,008***

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
C3010 Blinding Concrete 50mm thick	CM	2	313	631	24.4	49.2	2.44	120	3.34	164	-	-	-	454	915	10.6 %	97.0	-	-	1,012
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	11	450	5,067	32.2	363	2.44	886	3.34	1,213	-	-	-	636	7,167	10.9 %	778	-	-	7,945
C3210 Ring Beams - Concrete	M3	8	659	5,358	47.4	385	2.44	940	3.34	1,287	-	-	-	934	7,586	10.0 %	759	-	-	8,345
C3220 Ring Beams - Structural Fill	CM	26	5.73	149	2.47	64.4	2.44	157	3.34	215	-	-	-	20.0	521	10.0 %	52.1	-	-	574
C3230 Infill Oil Impregnated Sand < 50 mm thick	CM	2	58.2	123	0.20	0.42	2.44	1.03	3.34	1.41	-	-	-	59.4	126	10.0 %	12.6	-	-	138
C3232 Ring Beams - HDPE Liner 2mm Thick	M2	27	64.6	1,747	0.15	4.07	2.44	9.93	3.34	13.6	-	-	-	65.5	1,771	10.0 %	177	-	-	1,948
C3420 Precast Concrete Sumps 1200 diam.	EA	1	1,804	1,804	159	159	2.44	387	3.34	530	-	-	-	2,721	2,721	12.0 %	327	-	-	3,048
E Electrical				***27,714***		***1,149***		***13,791***		***9,194***	***-***	***-***	***1,663***		***52,362***		***5,236***	***-***	***-***	***57,599***
Area Electrical AUD	EA	1	11,642	11,642	733	733	12.0	8,795	8.00	5,864	-	-	699	26,999	26,999	10.0 %	2,700	-	-	29,699
Area Electrical EUR	EA	1	7,106	7,106	356	356	12.0	4,277	8.00	2,852	-	-	426	14,661	14,661	10.0 %	1,466	-	-	16,127
Area Electrical USD	EA	1	8,966	8,966	59.9	59.9	12.0	719	8.00	479	-	-	538	10,702	10,702	10.0 %	1,070	-	-	11,773
L Platework				***73,614***		***2,467***		***34,889***		***22,749***	***-***	***-***	***42,574***		***173,826***		***17,383***	***-***	***-***	***191,209***
L1030 Chutes - Paint Spec B - Wet Plant	T	4	3,234	12,030	64.1	239	14.1	3,373	9.22	2,199	-	-	6,292	6,423	23,895	10.0 %	2,389	-	-	26,284
L1530 Shop Fab Tanks - Grade 350 - Paint Spec B - Wet Plant	T	5	3,780	20,737	64.1	352	14.1	4,974	9.22	3,244	-	-	9,279	6,969	38,234	10.0 %	3,823	-	-	42,058
L2010 Field Erected Tanks G350 Fabricated Components - Paint	T	6	2,612	15,287	115	675	14.1	9,551	9.22	6,228	-	-	9,898	7,000	40,963	10.0 %	4,096	-	-	45,059
L2020 Field Erected Tanks G350 Slab Plate Trim & Sized - Paint	T	10	2,297	22,640	115	1,137	14.1	16,084	9.22	10,488	-	-	16,668	6,685	65,879	10.0 %	6,588	-	-	72,467
L3021 Sump Pump Support Frame & Screen	EA	1	2,919	2,919	64.1	64.1	14.1	907	9.22	591	-	-	438	4,855	4,855	10.0 %	485	-	-	5,340
M Mechanical				***148,171***		***815***		***11,526***		***7,515***	***-***	***-***	***22,226***		***189,437***		***20,069***	***-***	***-***	***209,506***
Coagulant Pump	EA	1	4,181	4,181	62.7	62.7	14.1	887	9.22	578	-	-	627	6,272	6,272	12.0 %	753	-	-	7,025
Copper Sulphate Area Sump Pump - 11kW	EA	1	7,982	7,982	62.7	62.7	14.1	887	9.22	578	-	-	1,197	10,644	10,644	10.0 %	1,064	-	-	11,708
Copper Sulphate Dosing Pump 1 - 0.8kW	EA	1	6,251	6,251	41.8	41.8	14.1	591	9.22	385	-	-	938	8,165	8,165	12.0 %	980	-	-	9,145
Copper Sulphate Dosing Pump 2 - 0.8kW	EA	1	6,251	6,251	41.8	41.8	14.1	591	9.22	385	-	-	938	8,165	8,165	12.0 %	980	-	-	9,145
Copper Sulphate Hoist - 2t, 9 m travel, 12 m lift	EA	1	31,331	31,331	83.6	83.6	14.1	1,182	9.22	771	-	-	4,700	37,983	37,983	10.0 %	3,798	-	-	41,782
Copper Sulphate Mixing Pump - 5.5kW	EA	1	6,446	6,446	41.8	41.8	14.1	591	9.22	385	-	-	967	8,390	8,390	10.0 %	839	-	-	9,229
Copper Sulphate Mixing Tank Agitator - 2.2kW	EA	1	6,446	6,446	83.6	83.6	14.1	1,182	9.22	771	-	-	967	9,366	9,366	10.0 %	937	-	-	10,303
Smbs Area Sump Pump	EA	1	10,510	10,510	62.7	62.7	14.1	887	9.22	578	-	-	1,577	13,552	13,552	12.0 %	1,626	-	-	15,178
Smbs Dosing Pump 1 - 1.5kW	EA	1	7,892	7,892	41.8	41.8	14.1	591	9.22	385	-	-	1,184	10,052	10,052	12.0 %	1,206	-	-	11,258
Smbs Dosing Pump 2 - 1.5kW	EA	1	7,892	7,892	41.8	41.8	14.1	591	9.22	385	-	-	1,184	10,052	10,052	12.0 %	1,206	-	-	11,258
Smbs Hoist - 2t, 9 m travel, 12 m lift	EA	1	31,331	31,331	83.6	83.6	14.1	1,182	9.22	771	-	-	4,700	37,983	37,983	10.0 %	3,798	-	-	41,782
Smbs Mixing Tank Agitator - 3kW	EA	1	6,446	6,446	83.6	83.6	14.1	1,182	9.22	771	-	-	967	9,366	9,366	10.0 %	937	-	-	10,303
Smbs Tank Ventilation Fan - 2.2kW	EA	1	10,699	10,699	41.8	41.8	14.1	591	9.22	385	-	-	1,605	13,280	13,280	10.0 %	1,328	-	-	14,608
Smbs Transfer Pump - 3kW	EA	1	4,512	4,512	41.8	41.8	14.1	591	9.22	385	-	-	677	6,166	6,166	10.0 %	617	-	-	6,782
P Piping				***127,189***		***2,217***		***31,345***		***20,439***	***-***	***-***	***12,719***		***191,691***		***42,172***	***-***	***-***	***233,864***
2.1.6 - Other Reagents - Area Piping	EA	1	127,189	127,189	2,217	2,217	14.1	31,345	9.22	20,439	-	-	12,719	191,691	191,691	22.0 %	42,172	-	-	233,864
S Steelwork				***62,962***		***1,924***		***27,203***		***17,738***	***-***	***-***	***15,686***		***123,590***		***12,359***	***-***	***-***	***135,949***
S2020 Light Steel - < 25kg/m Paint Spec B - Wet Area.	T	4	2,165	8,921	64.1	264	14.1	3,736	9.22	2,436	-	-	2,986	4,388	18,079	10.0 %	1,808	-	-	19,887
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	10	2,298	23,461	48.7	498	14.1	7,036	9.22	4,588	-	-	7,401	4,161	42,485	10.0 %	4,249	-	-	46,734

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
S2080 Hollow Sections - Paint Spec B - Wet Area	T	2	2,321	4,387	64.1	121	14.1	1,714	9.22	1,117	-	-	1,370	4,544	8,588	10.0 %	859	-	-	9,447
S3030 Caged Ladders - Paint Spec A - Dry Area	LM	5	93.7	501	7.70	41.1	14.1	581	9.22	379	-	-	75.1	288	1,536	10.0 %	154	-	-	1,689
S3050 Stair Treads x 750w - Galvanised	EA	47	53.3	2,504	1.41	66.3	14.1	938	9.22	611	-	-	376	94.2	4,429	10.0 %	443	-	-	4,871
S3090 Grating - Standard Galvanised	M2	90	103	9,318	3.85	348	14.1	4,924	9.22	3,210	-	-	1,398	208	18,850	10.0 %	1,885	-	-	20,735
S3180 Handrails - Stair - Paint Spec B - Wet Area (including	LM	35	149	5,142	3.85	133	14.1	1,880	9.22	1,226	-	-	771	261	9,020	10.0 %	902	-	-	9,922
S4030 Cladding Colorbond	M2	262	16.9	4,425	0.77	202	14.1	2,854	9.22	1,861	-	-	664	37.4	9,804	10.0 %	980	-	-	10,784
S4070 Cladding - Gutter	LM	6	7.72	43.1	1.03	5.73	14.1	81.0	9.22	52.8	-	-	6.46	32.8	183	10.0 %	18.3	-	-	202
S4110 Purlins - Galvanised	LM	212	20.1	4,260	1.15	245	14.1	3,461	9.22	2,257	-	-	639	50.1	10,617	10.0 %	1,062	-	-	11,678
2.1.7 - Reagents General				**77,866**		**2,118**		**25,420**		**16,947**	**-**	**-**	**4,672**		**124,904**		**12,490**	**-**	**-**	**137,395**
E Electrical				***77,866***		***2,118***		***25,420***		***16,947***	***-***	***-***	***4,672***		***124,904***		***12,490***	***-***	***-***	***137,395***
Area Electrical AUD	EA	1	71,431	71,431	1,920	1,920	12.0	23,040	8.00	15,360	-	-	4,286	114,116	114,116	10.0 %	11,412	-	-	125,528
Area Electrical USD	EA	1	6,435	6,435	198	198	12.0	2,380	8.00	1,587	-	-	386	10,788	10,788	10.0 %	1,079	-	-	11,867
2.2 - Water Services				***3,319,393***		***51,482***		***656,096***		***522,713***	***-***	***-***	***386,361***		***4,884,563***		***692,157***	***-***	***-***	***5,576,720***
2.2.1 - Water Services - General				**106,184**		**5,763**		**38,357**		**31,091**	**-**	**-**	**3,530**		**179,163**		**19,236**	**-**	**-**	**198,399**
C Concrete				***47,343***		***3,222***		***7,860***		***10,760***	***-***	***-***	***-***		***65,963***		***7,916***	***-***	***-***	***73,879***
C3010 Blinding Concrete 50mm thick	CM	4	313	1,129	24.4	88.0	2.44	215	3.34	294	-	-	-	454	1,637	12.0 %	196	-	-	1,834
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	5	450	2,176	32.2	156	2.44	381	3.34	521	-	-	-	636	3,077	12.0 %	369	-	-	3,447
C3060 Ground Slabs < 300 mm thick	M3	46	406	18,846	25.8	1,195	2.44	2,917	3.34	3,992	-	-	-	555	25,755	12.0 %	3,091	-	-	28,845
C3090 Kerbs < 500mm high	M3	4	414	1,801	24.2	105	2.44	257	3.34	352	-	-	-	554	2,411	12.0 %	289	-	-	2,700
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	52	450	23,391	32.2	1,677	2.44	4,091	3.34	5,600	-	-	-	636	33,083	12.0 %	3,970	-	-	37,053
E Electrical				***58,841***		***2,541***		***30,497***		***20,331***	***-***	***-***	***3,530***		***113,200***		***11,320***	***-***	***-***	***124,520***
Area Electrical AUD	EA	1	47,978	47,978	2,297	2,297	12.0	27,564	8.00	18,376	-	-	2,879	96,798	96,798	10.0 %	9,680	-	-	106,477
Area Electrical EUR	EA	1	10,699	10,699	229	229	12.0	2,753	8.00	1,835	-	-	642	15,928	15,928	10.0 %	1,593	-	-	17,521
Area Electrical USD	EA	1	164	164	15.0	15.0	12.0	180	8.00	120	-	-	9.84	474	474	10.0 %	47.4	-	-	521
2.2.2 - Raw Water				**539,802**		**13,566**		**180,311**		**119,223**	**-**	**-**	**55,000**		**894,336**		**110,081**	**-**	**-**	**1,004,417**
C Concrete				***9,862***		***896***		***2,185***		***2,991***	***-***	***-***	***-***		***15,038***		***1,805***	***-***	***-***	***16,843***
C3010 Blinding Concrete 50mm thick	CM	1	313	352	24.4	27.5	2.44	67.0	3.34	91.7	-	-	-	454	511	12.0 %	61.3	-	-	572
C3210 Ring Beams - Concrete	M3	13	659	8,252	47.4	594	2.44	1,448	3.34	1,983	-	-	-	934	11,683	12.0 %	1,402	-	-	13,085
C3220 Ring Beams - Structural Fill	CM	110	5.73	632	2.47	272	2.44	665	3.34	910	-	-	-	20.0	2,207	12.0 %	265	-	-	2,472
C3230 Infill Oil Impregnated Sand < 50 mm thick	CM	11	58.2	625	0.20	2.15	2.44	5.24	3.34	7.17	-	-	-	59.4	638	12.0 %	76.5	-	-	714
E Electrical				***25,166***		***479***		***5,753***		***3,836***	***-***	***-***	***1,510***		***36,265***		***3,627***	***-***	***-***	***39,892***
Area Electrical AUD	EA	1	4,772	4,772	352	352	12.0	4,222	8.00	2,815	-	-	286	12,094	12,094	10.0 %	1,209	-	-	13,304
Area Electrical EUR	EA	1	20,395	20,395	128	128	12.0	1,532	8.00	1,021	-	-	1,224	24,171	24,171	10.0 %	2,417	-	-	26,588

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
L Platework				***261,017***		***9,728***		***137,554***		***89,692***	***-***	***-***	***22,551***		***510,814***		***51,081***	***-***	***-***	***561,896***
L2500 Bolted Tanks and Launders	T	40	6,525	261,017	243	9,728	14.1	137,554	9.22	89,692	-	-	22,551	12,770	510,814	10.0 %	51,081	-	-	561,896
M Mechanical				***131,254***		***502***		***7,093***		***4,625***	***-***	***-***	***19,688***		***162,659***		***16,266***	***-***	***-***	***178,925***
Raw Water Pump 1 - 220kW	EA	1	62,321	62,321	167	167	14.1	2,364	9.22	1,542	-	-	9,348	75,575	75,575	10.0 %	7,557	-	-	83,132
Raw Water Pump 2 - 220kW	EA	1	62,321	62,321	167	167	14.1	2,364	9.22	1,542	-	-	9,348	75,575	75,575	10.0 %	7,557	-	-	83,132
Water Filtration Feed Pump 1 - 37kW	EA	1	3,306	3,306	83.6	83.6	14.1	1,182	9.22	771	-	-	496	5,755	5,755	10.0 %	576	-	-	6,331
Water Filtration Feed Pump 2 - 37kW	EA	1	3,306	3,306	83.6	83.6	14.1	1,182	9.22	771	-	-	496	5,755	5,755	10.0 %	576	-	-	6,331
P Piping				***112,503***		***1,961***		***27,726***		***18,079***	***-***	***-***	***11,250***		***169,559***		***37,303***	***-***	***-***	***206,862***
2.2.2 - Raw Water - Area Piping	EA	1	112,503	112,503	1,961	1,961	14.1	27,726	9.22	18,079	-	-	11,250	169,559	169,559	22.0 %	37,303	-	-	206,862
2.2.3 - Process Water				**587,894**		**8,126**		**117,416**		**161,109**	**-**	**-**	**66,900**		**933,319**		**141,055**	**-**	**-**	**1,074,374**
C Concrete				***-***		***28***		***70***		***95***	***-***	***-***	***-***		***165***		***20***	***-***	***-***	***184***
NOTE: Included in 2.2.1	EA	1	-	-	28.5	28.5	2.44	69.5	3.34	95.2	-	-	-	165	165	12.0 %	19.8	-	-	184
E Electrical				***48,058***		***1,070***		***12,834***		***8,556***	***-***	***-***	***2,883***		***72,332***		***7,233***	***-***	***-***	***79,565***
Area Electrical AUD	EA	1	44,785	44,785	1,035	1,035	12.0	12,414	8.00	8,276	-	-	2,687	68,163	68,163	10.0 %	6,816	-	-	74,979
Area Electrical EUR	EA	1	3,273	3,273	35.0	35.0	12.0	420	8.00	280	-	-	196	4,169	4,169	10.0 %	417	-	-	4,586
M Mechanical				***271,573***		***794***		***11,230***		***7,323***	***-***	***-***	***40,736***		***330,861***		***35,119***	***-***	***-***	***365,980***
Gravity Fluidisation Water Pump - 37kW	EA	1	24,823	24,823	83.6	83.6	14.1	1,182	9.22	771	-	-	3,723	30,499	30,499	10.0 %	3,050	-	-	33,549
Hp Process Water Pump 1 - 110kW	EA	1	43,695	43,695	125	125	14.1	1,773	9.22	1,156	-	-	6,554	53,178	53,178	10.0 %	5,318	-	-	58,496
Hp Process Water Pump 2 - 110kW	EA	1	43,695	43,695	125	125	14.1	1,773	9.22	1,156	-	-	6,554	53,178	53,178	10.0 %	5,318	-	-	58,496
Lp Process Water Pump 1 - 315kW	EA	1	76,069	76,069	209	209	14.1	2,955	9.22	1,927	-	-	11,410	92,361	92,361	12.0 %	11,083	-	-	103,444
Lp Process Water Pump 2 - 315kW	EA	1	76,069	76,069	209	209	14.1	2,955	9.22	1,927	-	-	11,410	92,361	92,361	10.0 %	9,236	-	-	101,597
Process Water Antiscalant Pump - 1.1kW	EA	1	7,224	7,224	41.8	41.8	14.1	591	9.22	385	-	-	1,084	9,284	9,284	12.0 %	1,114	-	-	10,398
P Piping				***232,806***		***4,058***		***57,374***		***37,411***	***-***	***-***	***23,281***		***350,872***		***77,192***	***-***	***-***	***428,064***
2.2.3 - Process Water - Area Piping	EA	1	232,806	232,806	4,058	4,058	14.1	57,374	9.22	37,411	-	-	23,281	350,872	350,872	22.0 %	77,192	-	-	428,064
W Earthworks				***35,457***		***2,176***		***35,908***		***107,724***	***-***	***-***	***-***		***179,089***		***21,491***	***-***	***-***	***200,580***
B6040 Ponds - Level & compact to walls - Structural fill	M3	5,252	-	-	0.16	845	16.5	13,943	49.5	41,830	-	-	-	10.6	55,774	12.0 %	6,693	-	-	62,466
B6050 Ponds - Level & compact to floor - Structural fill	M3	1,083	-	-	0.16	174	16.5	2,875	49.5	8,626	-	-	-	10.6	11,501	12.0 %	1,380	-	-	12,882
W6010 Ponds - Cut to waste - rippable	M3	2,561	-	-	0.07	182	16.5	2,996	49.5	8,989	-	-	-	4.68	11,985	12.0 %	1,438	-	-	13,424
W6020 Ponds - Cut to fill & place - rippable	M3	4,864	-	-	0.10	490	16.5	8,086	49.5	24,259	-	-	-	6.65	32,346	12.0 %	3,881	-	-	36,227
W6060 Ponds - Grade & Trim - Structural fill	M2	4,544	-	-	0.02	75.7	16.5	1,250	49.5	3,749	-	-	-	1.10	4,998	12.0 %	600	-	-	5,598
W6070 Ponds - Sand bedding - 50mm thick	M2	144	-	-	0.09	13.1	16.5	217	49.5	650	-	-	-	6.02	866	12.0 %	104	-	-	970
W6080 Ponds - Excavate liner trench - 750mm x 1000mm	M3	167	-	-	0.12	20.4	16.5	337	49.5	1,010	-	-	-	8.06	1,346	12.0 %	162	-	-	1,508
W6090 Ponds - Backfill liner trench - 750mm x 1000mm	M3	167	-	-	0.13	22.2	16.5	366	49.5	1,097	-	-	-	8.76	1,463	12.0 %	176	-	-	1,638

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
W6105 Ponds - HDPE liner 2.0mm thick (Double Lined)	M2	6,554	5.41	35,457	0.05	354	16.5	5,838	49.5	17,514	-	-	-	8.97	58,810	12.0 %	7,057	-	-	65,867
2.2.4 - Potable Water				**511,205**		**6,940**		**93,342**		**61,517**	**-**	**-**	**60,175**		**726,239**		**110,968**	**-**	**-**	**837,206**
C Concrete				***6,362***		***330***		***806***		***1,103***	***-***	***-***	***-***		***8,271***		***993***	***-***	***-***	***9,264***
C3010 Blinding Concrete 50mm thick	CM	0	313	127	24.4	9.88	2.44	24.1	3.34	33.0	-	-	-	454	184	12.0 %	22.0	-	-	206
C3210 Ring Beams - Concrete	M3	5	659	3,562	47.4	256	2.44	625	3.34	856	-	-	-	934	5,043	12.0 %	605	-	-	5,648
C3220 Ring Beams - Structural Fill	CM	24	5.73	135	2.47	58.1	2.44	142	3.34	194	-	-	-	20.0	471	12.0 %	56.5	-	-	528
C3230 Infill Oil Impregnated Sand < 50 mm thick	CM	2	58.2	111	0.20	0.38	2.44	0.93	3.34	1.28	-	-	-	59.4	113	12.0 %	13.6	-	-	127
C3232 Ring Beams - HDPE Liner 2mm Thick	M2	38	64.6	2,428	0.15	5.66	2.44	13.8	3.34	18.9	-	-	-	65.5	2,461	12.0 %	295	-	-	2,756
E Electrical				***14,291***		***433***		***5,197***		***3,465***	***-***	***-***	***857***		***23,811***		***2,381***	***-***	***-***	***26,192***
Area Electrical AUD	EA	1	5,092	5,092	325	325	12.0	3,902	8.00	2,602	-	-	306	11,902	11,902	10.0 %	1,190	-	-	13,092
Area Electrical EUR	EA	1	4,325	4,325	78.5	78.5	12.0	942	8.00	628	-	-	259	6,154	6,154	10.0 %	615	-	-	6,770
Area Electrical USD	EA	1	4,874	4,874	29.4	29.4	12.0	353	8.00	235	-	-	292	5,754	5,754	10.0 %	575	-	-	6,330
L Platework				***59,773***		***1,311***		***18,538***		***12,087***	***-***	***-***	***3,383***		***93,781***		***9,378***	***-***	***-***	***103,159***
L2500 Bolted Tanks and Launders	T	6	9,962	59,773	218	1,311	14.1	18,538	9.22	12,087	-	-	3,383	15,630	93,781	10.0 %	9,378	-	-	103,159
M Mechanical				***257,132***		***1,839***		***26,006***		***16,957***	***-***	***-***	***38,570***		***338,666***		***40,640***	***-***	***-***	***379,306***
Plant Potable Water Accumulator (Part of Package)	EA	1	-	-	41.8	41.8	14.1	591	9.22	385	-	-	-	976	976	12.0 %	117	-	-	1,094
Plant Potable Water Pump 1 - 4kW	EA	1	14,057	14,057	41.8	41.8	14.1	591	9.22	385	-	-	2,109	17,142	17,142	12.0 %	2,057	-	-	19,199
Plant Potable Water Pump 2 - 4kW	EA	1	14,057	14,057	41.8	41.8	14.1	591	9.22	385	-	-	2,109	17,142	17,142	12.0 %	2,057	-	-	19,199
Plant Potable Water Uv Steriliser	EA	1	6,090	6,090	41.8	41.8	14.1	591	9.22	385	-	-	914	7,980	7,980	12.0 %	958	-	-	8,938
Potable Water Treatment Plant - 6.5 m3/h, 22kW	EA	1	203,238	203,238	1,045	1,045	14.1	14,776	9.22	9,635	-	-	30,486	258,135	258,135	12.0 %	30,976	-	-	289,111
Safety Showers	EA	15	1,313	19,691	41.8	627	14.1	8,866	9.22	5,781	-	-	2,954	2,486	37,291	12.0 %	4,475	-	-	41,766
P Piping				***173,646***		***3,026***		***42,795***		***27,904***	***-***	***-***	***17,365***		***261,710***		***57,576***	***-***	***-***	***319,286***
2.2.4 - Potable Water - Area Piping	EA	1	173,646	173,646	3,026	3,026	14.1	42,795	9.22	27,904	-	-	17,365	261,710	261,710	22.0 %	57,576	-	-	319,286
2.2.5 - Gland Seal Water				**139,399**		**1,969**		**24,621**		**16,341**	**-**	**-**	**13,508**		**193,869**		**24,927**	**-**	**-**	**218,797**
C Concrete				***-***		***28***		***70***		***95***	***-***	***-***	***-***		***165***		***20***	***-***	***-***	***184***
NOTE: Included in 2.2.1	EA	1	-	-	28.5	28.5	2.44	69.5	3.34	95.2	-	-	-	165	165	12.0 %	19.8	-	-	184
E Electrical				***68,747***		***1,350***		***16,202***		***10,801***	***-***	***-***	***4,125***		***99,875***		***9,987***	***-***	***-***	***109,862***
Area Electrical AUD	EA	1	14,535	14,535	1,031	1,031	12.0	12,373	8.00	8,249	-	-	872	36,029	36,029	10.0 %	3,603	-	-	39,632
Area Electrical EUR	EA	1	24,552	24,552	256	256	12.0	3,068	8.00	2,045	-	-	1,473	31,138	31,138	10.0 %	3,114	-	-	34,251
Area Electrical USD	EA	1	29,660	29,660	63.4	63.4	12.0	761	8.00	508	-	-	1,780	32,709	32,709	10.0 %	3,271	-	-	35,979
M Mechanical				***46,366***		***167***		***2,364***		***1,542***	***-***	***-***	***6,955***		***57,226***		***6,867***	***-***	***-***	***64,093***
Gland Water Pump 1 - 22kW	EA	1	23,183	23,183	83.6	83.6	14.1	1,182	9.22	771	-	-	3,477	28,613	28,613	12.0 %	3,434	-	-	32,047

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Gland Water Pump 2 - 22kW	EA	1	23,183	23,183	83.6	83.6	14.1	1,182	9.22	771	-	-	3,477	28,613	28,613	12.0 %	3,434	-	-	32,047
P Piping				***24,287***		***423***		***5,985***		***3,903***	***-***	***-***	***2,429***		***36,604***		***8,053***	***-***	***-***	***44,656***
2.2.5 - Gland Seal Water - Area Piping	EA	1	24,287	24,287	423	423	14.1	5,985	9.22	3,903	-	-	2,429	36,604	36,604	22.0 %	8,053	-	-	44,656
2.2.6 - Cooling Water				**591,442**		**1,599**		**18,894**		**12,827**	**-**	**-**	**80,240**		**703,403**		**110,371**	**-**	**-**	**813,774**
C Concrete				***3,151***		***256***		***625***		***855***	***-***	***-***	***-***		***4,630***		***466***	***-***	***-***	***5,096***
C3010 Blinding Concrete 50mm thick	CM	1	313	252	24.4	19.7	2.44	48.0	3.34	65.6	-	-	-	454	366	10.0 %	36.6	-	-	402
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	6	450	2,899	32.2	208	2.44	507	3.34	694	-	-	-	636	4,100	10.0 %	410	-	-	4,510
NOTE: Included in 2.2.1	EA	1	-	-	28.5	28.5	2.44	69.5	3.34	95.2	-	-	-	165	165	12.0 %	19.8	-	-	184
E Electrical				***6,514***		***338***		***4,053***		***2,702***	***-***	***-***	***391***		***13,661***		***1,366***	***-***	***-***	***15,027***
Area Electrical AUD	EA	1	1,600	1,600	182	182	12.0	2,186	8.00	1,457	-	-	96.0	5,338	5,338	10.0 %	534	-	-	5,872
Area Electrical EUR	EA	1	4,915	4,915	156	156	12.0	1,868	8.00	1,245	-	-	295	8,322	8,322	10.0 %	832	-	-	9,154
L Platework				***14,603***		***248***		***3,503***		***2,284***	***-***	***-***	***6,534***		***26,923***		***2,692***	***-***	***-***	***29,616***
L1530 Shop Fab Tanks - Grade 350 - Paint Spec B - Wet Plant	T	4	3,780	14,603	64.1	248	14.1	3,503	9.22	2,284	-	-	6,534	6,969	26,923	10.0 %	2,692	-	-	29,616
M Mechanical				***331,953***		***334***		***4,728***		***3,083***	***-***	***-***	***49,793***		***389,558***		***46,747***	***-***	***-***	***436,305***
Antiscalant Pump (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Biocide Pump (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Chilled Water Pump 1 (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Chilled Water Pump 2 (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Cooling System Heat Exchanger (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Cooling Tower Refrigerative Chiller - 215.8kW (Part of Package)	EA	1	-	-	167	167	14.1	2,364	9.22	1,542	-	-	-	3,906	3,906	12.0 %	469	-	-	4,374
Cooling Water Pump (Part of Package)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Cooling Water System - 15kW	EA	1	331,953	331,953	167	167	14.1	2,364	9.22	1,542	-	-	49,793	385,652	385,652	12.0 %	46,278	-	-	431,930
P Piping				***235,221***		***423***		***5,985***		***3,903***	***-***	***-***	***23,522***		***268,631***		***59,099***	***-***	***-***	***327,730***
2.2.6 - Cooling Water - Area Piping	EA	1	235,221	235,221	423	423	14.1	5,985	9.22	3,903	-	-	23,522	268,631	268,631	22.0 %	59,099	-	-	327,730
2.2.7 - Treated Water				**695,745**		**11,024**		**148,457**		**97,911**	**-**	**-**	**87,206**		**1,029,319**		**145,100**	**-**	**-**	**1,174,419**
C Concrete				***7,062***		***634***		***1,548***		***2,118***	***-***	***-***	***-***		***10,728***		***1,073***	***-***	***-***	***11,800***
C3010 Blinding Concrete 50mm thick	CM	1	313	217	24.4	16.9	2.44	41.2	3.34	56.4	-	-	-	454	314	10.0 %	31.4	-	-	346
C3210 Ring Beams - Concrete	M3	9	659	6,092	47.4	438	2.44	1,069	3.34	1,464	-	-	-	934	8,625	10.0 %	862	-	-	9,487
C3220 Ring Beams - Structural Fill	CM	72	5.73	413	2.47	178	2.44	434	3.34	594	-	-	-	20.0	1,442	10.0 %	144	-	-	1,586
C3230 Infill Oil Impregnated Sand < 50 mm thick	CM	6	58.2	340	0.20	1.17	2.44	2.85	3.34	3.90	-	-	-	59.4	347	10.0 %	34.7	-	-	382
L Platework				***150,405***		***5,719***		***80,867***		***52,729***	***-***	***-***	***15,786***		***299,787***		***29,979***	***-***	***-***	***329,766***
L2500 Bolted Tanks and Launders	T	28	5,372	150,405	204	5,719	14.1	80,867	9.22	52,729	-	-	15,786	10,707	299,787	10.0 %	29,979	-	-	329,766

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
M Mechanical				***351,840***		***1,421***		***20,096***		***13,103***	-	-	***52,776***		***437,815***		***52,231***	-	-	***490,046***
Filtered Water Pump 1 - 30kW	EA	1	4,968	4,968	83.6	83.6	14.1	1,182	9.22	771	-	-	745	7,666	7,666	10.0 %	767	-	-	8,433
Filtered Water Pump 2 - 30kW	EA	1	4,968	4,968	83.6	83.6	14.1	1,182	9.22	771	-	-	745	7,666	7,666	10.0 %	767	-	-	8,433
Filtered Water Treatment Plant - 100 m3/h, 45kW	EA	1	341,904	341,904	1,254	1,254	14.1	17,732	9.22	11,562	-	-	51,286	422,483	422,483	12.0 %	50,698	-	-	473,181
P Piping				***186,439***		***3,249***		***45,947***		***29,960***	-	-	***18,644***		***280,990***		***61,818***	-	-	***342,807***
2.2.7 - Treated Water for Elution - Area Piping	EA	1	186,439	186,439	3,249	3,249	14.1	45,947	9.22	29,960	-	-	18,644	280,990	280,990	22.0 %	61,818	-	-	342,807
2.2.8 - Fire Water				**147,721**		**2,495**		**34,697**		**22,695**	-	-	**19,802**		**224,914**		**30,420**	-	-	**255,334**
C Concrete				-		***28***		***70***		***95***	-	-	-		***165***		***20***	-	-	***184***
NOTE: Included in 2.2.1	EA	1	-	-	28.5	28.5	2.44	69.5	3.34	95.2	-	-	-	165	165	12.0 %	19.8	-	-	184
E Electrical				***5,948***		***118***		***1,418***		***946***	-	-	***357***		***8,669***		***867***	-	-	***9,536***
Area Electrical AUD	EA	1	465	465	63.2	63.2	12.0	758	8.00	506	-	-	27.9	1,757	1,757	10.0 %	176	-	-	1,932
Area Electrical EUR	EA	1	5,483	5,483	55.0	55.0	12.0	660	8.00	440	-	-	329	6,912	6,912	10.0 %	691	-	-	7,604
M Mechanical				***105,352***		***1,714***		***24,233***		***15,801***	-	-	***15,803***		***161,189***		***17,457***	-	-	***178,646***
Fire Hose Reels (Plant)	EA	10	542	5,417	41.8	418	14.1	5,911	9.22	3,854	-	-	813	1,599	15,994	12.0 %	1,919	-	-	17,914
Fire Hydrants (Fire Water)	EA	5	1,423	7,117	62.7	314	14.1	4,433	9.22	2,890	-	-	1,068	3,102	15,508	12.0 %	1,861	-	-	17,369
Fire Hydrants (Plant)	EA	5	1,423	7,117	62.7	314	14.1	4,433	9.22	2,890	-	-	1,068	3,102	15,508	12.0 %	1,861	-	-	17,369
Fire Water Jockey Pump - 22kW	EA	1	80,283	80,283	83.6	83.6	14.1	1,182	9.22	771	-	-	12,042	94,278	94,278	10.0 %	9,428	-	-	103,706
Fire Water Pump (Diesel) (Part of Package)	EA	1	-	-	83.6	83.6	14.1	1,182	9.22	771	-	-	-	1,953	1,953	12.0 %	234	-	-	2,187
Fire Water Pump (Electric) - 45kW (Part of Package)	EA	1	-	-	83.6	83.6	14.1	1,182	9.22	771	-	-	-	1,953	1,953	12.0 %	234	-	-	2,187
Hose Reels (Fire Water)	EA	10	542	5,417	41.8	418	14.1	5,911	9.22	3,854	-	-	813	1,599	15,994	12.0 %	1,919	-	-	17,914
P Piping				***36,421***		***635***		***8,976***		***5,853***	-	-	***3,642***		***54,892***		***12,076***	-	-	***66,968***
2.2.8 - Fire Water - Area Piping	EA	1	36,421	36,421	635	635	14.1	8,976	9.22	5,853	-	-	3,642	54,892	54,892	22.0 %	12,076	-	-	66,968
2.3 - Plant Services				***3,462,681***		***45,203***		***511,693***		***436,986***	-	-	***475,724***		***4,887,084***		***721,077***	-	-	***5,608,160***
2.3.1 - Piperacks				**624,906**		**21,285**		**188,052**		**138,506**	-	-	**110,104**		**1,061,568**		**122,240**	-	-	**1,183,808**
C Concrete				***127,337***		***8,393***		***20,479***		***28,033***	-	-	-		***175,850***		***21,102***	-	-	***196,952***
C3010 Blinding Concrete 50mm thick (Pipe Racks)	CM	14	313	4,305	24.4	336	2.44	819	3.34	1,121	-	-	-	454	6,245	12.0 %	749	-	-	6,995
C3040 Footings & Pedestals - Large >2 m3 (Pipe Racks)	M3	107	429	46,085	30.3	3,255	2.44	7,941	3.34	10,870	-	-	-	604	64,897	12.0 %	7,788	-	-	72,685
C3060 Ground Slabs < 300 mm thick (Pipe Racks)	M3	150	406	61,107	25.8	3,876	2.44	9,457	3.34	12,945	-	-	-	555	83,509	12.0 %	10,021	-	-	93,530
C3090 Kerbs < 500mm high (Pipe Racks)	M3	38	414	15,840	24.2	927	2.44	2,262	3.34	3,096	-	-	-	554	21,199	12.0 %	2,544	-	-	23,742
E Electrical				***113,070***		***6,879***		***82,548***		***55,032***	-	-	***6,784***		***257,434***		***25,743***	-	-	***283,178***
Area Electrical AUD	EA	1	110,053	110,053	6,786	6,786	12.0	81,432	8.00	54,288	-	-	6,603	252,376	252,376	10.0 %	25,238	-	-	277,614
Area Electrical EUR	EA	1	3,017	3,017	93.0	93.0	12.0	1,116	8.00	744	-	-	181	5,058	5,058	10.0 %	506	-	-	5,564

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
M Mechanical				***109,148***		***-***		***-***		***-***	***-***	***-***	***16,372***		***125,520***		***15,062***	***-***	***-***	***140,582***
Misc Mechanical Items (Pipe Racks)	EA	1	109,148	109,148	-	-		-		-	-	-	16,372	125,520	125,520	12.0 %	15,062	-	-	140,582
S Steelwork				***275,352***		***6,013***		***85,025***		***55,440***	***-***	***-***	***86,948***		***502,765***		***60,332***	***-***	***-***	***563,097***
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area. (Pipe	T	109	2,298	250,647	48.7	5,316	14.1	75,168	9.22	49,014	-	-	79,069	4,161	453,898	12.0 %	54,468	-	-	508,366
S2070 Hollow Sections - Paint Spec A - Dry Area (Pipe Racks)	T	11	2,273	24,705	64.1	697	14.1	9,856	9.22	6,427	-	-	7,879	4,496	48,867	12.0 %	5,864	-	-	54,731
2.3.2 - Water Treatment Plants				**704**		**156**		**1,867**		**1,244**	**-**	**-**	**42**		**3,857**		**386**	**-**	**-**	**4,243**
E Electrical				***704***		***156***		***1,867***		***1,244***	***-***	***-***	***42***		***3,857***		***386***	***-***	***-***	***4,243***
Area Electrical AUD	EA	1	704	704	156	156	12.0	1,867	8.00	1,244	-	-	42.2	3,857	3,857	10.0 %	386	-	-	4,243
2.3.3 - Sewage Collection & Treatment				**2,263,096**		**15,933**		**215,913**		**142,000**	**-**	**-**	**301,925**		**2,922,934**		**454,148**	**-**	**-**	**3,377,081**
C Concrete				***7,793***		***563***		***1,373***		***1,879***	***-***	***-***	***-***		***11,045***		***1,147***	***-***	***-***	***12,191***
C3010 Blinding Concrete 50mm thick	CM	2	313	623	24.4	48.6	2.44	119	3.34	162	-	-	-	454	904	10.4 %	93.9	-	-	998
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	16	450	7,170	32.2	514	2.44	1,254	3.34	1,717	-	-	-	636	10,140	10.4 %	1,053	-	-	11,193
E Electrical				***17,897***		***1,311***		***15,728***		***10,486***	***-***	***-***	***1,074***		***45,184***		***4,518***	***-***	***-***	***49,703***
Area Electrical AUD	EA	1	16,816	16,816	1,251	1,251	12.0	15,008	8.00	10,006	-	-	1,009	42,839	42,839	10.0 %	4,284	-	-	47,123
Area Electrical EUR	EA	1	1,080	1,080	60.0	60.0	12.0	720	8.00	480	-	-	64.8	2,345	2,345	10.0 %	235	-	-	2,580
M Mechanical				***1,542,214***		***1,944***		***27,484***		***17,921***	***-***	***-***	***231,332***		***1,818,951***		***217,977***	***-***	***-***	***2,036,928***
Camp Grey Water Pump - 2.2kW	EA	1	5,615	5,615	41.8	41.8	14.1	591	9.22	385	-	-	842	7,434	7,434	10.0 %	743	-	-	8,177
Camp Grey Water Tank - 1.4m Dia x 2.35 m H	EA	1	13,589	13,589	105	105	14.1	1,478	9.22	963	-	-	2,038	18,069	18,069	12.0 %	2,168	-	-	20,237
Camp Sewage Treatment Plant	EA	1	682,858	682,858	523	523	14.1	7,388	9.22	4,817	-	-	102,429	797,492	797,492	12.0 %	95,699	-	-	893,191
Camp Treated Sludge Tank - 3.3m dia x 3.3m O/A	EA	1	27,566	27,566	209	209	14.1	2,955	9.22	1,927	-	-	4,135	36,584	36,584	12.0 %	4,390	-	-	40,974
Plant Grey Water Tank - 1.4m Dia x 2.35 m H	EA	1	13,589	13,589	105	105	14.1	1,478	9.22	963	-	-	2,038	18,069	18,069	12.0 %	2,168	-	-	20,237
Plant Grey Water Transfer Pump - 2.2kW	EA	1	5,615	5,615	41.8	41.8	14.1	591	9.22	385	-	-	842	7,434	7,434	10.0 %	743	-	-	8,177
Plant Sewage Forwarding Pump 1 - 18kW	EA	1	20,739	20,739	62.7	62.7	14.1	887	9.22	578	-	-	3,111	25,315	25,315	12.0 %	3,038	-	-	28,353
Plant Sewage Forwarding Pump 2 - 4.2kW	EA	1	20,739	20,739	41.8	41.8	14.1	591	9.22	385	-	-	3,111	24,827	24,827	12.0 %	2,979	-	-	27,806
Plant Sewage Forwarding Pump 3 - 4.2kW	EA	1	20,739	20,739	41.8	41.8	14.1	591	9.22	385	-	-	3,111	24,827	24,827	12.0 %	2,979	-	-	27,806
Plant Sewage Forwarding Pump 4 - 4.2kW	EA	1	20,739	20,739	41.8	41.8	14.1	591	9.22	385	-	-	3,111	24,827	24,827	12.0 %	2,979	-	-	27,806
Plant Sewage Treatment Plant - 50m3, 10kW	EA	1	682,858	682,858	523	523	14.1	7,388	9.22	4,817	-	-	102,429	797,492	797,492	12.0 %	95,699	-	-	893,191
Plant Treated Sludge Tank - 3.3m dia x 3.3m O/A	EA	1	27,566	27,566	209	209	14.1	2,955	9.22	1,927	-	-	4,135	36,584	36,584	12.0 %	4,390	-	-	40,974
P Piping				***695,192***		***12,117***		***171,328***		***111,715***	***-***	***-***	***69,519***		***1,047,754***		***230,506***	***-***	***-***	***1,278,260***
2.3.3 - Sewage Collection & Treatment - Area Piping	EA	1	695,192	695,192	12,117	12,117	14.1	171,328	9.22	111,715	-	-	69,519	1,047,754	1,047,754	22.0 %	230,506	-	-	1,278,260
2.3.4 - Event Pond				**158,340**		**5,002**		**65,893**		**129,174**	**-**	**-**	**22,089**		**375,495**		**44,890**	**-**	**-**	**420,385**
C Concrete				***12,204***		***880***		***2,146***		***2,938***	***-***	***-***	***-***		***17,289***		***2,075***	***-***	***-***	***19,363***

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
C3010 Blinding Concrete 50mm thick	CM	2	313	760	24.4	59.3	2.44	145	3.34	198	-	-	-	454	1,103	12.0 %	132	-	-	1,235
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	22	450	10,035	32.2	719	2.44	1,755	3.34	2,403	-	-	-	636	14,193	12.0 %	1,703	-	-	15,896
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	3	450	1,409	32.2	101	2.44	247	3.34	337	-	-	-	636	1,993	12.0 %	239	-	-	2,233
E Electrical				***5,620***		***86***		***1,032***		***688***	***-***	***-***	***337***		***7,678***		***768***	***-***	***-***	***8,445***
Area Electrical AUD	EA	1	3,366	3,366	48.9	48.9	12.0	586	8.00	391	-	-	202	4,546	4,546	10.0 %	455	-	-	5,000
Area Electrical EUR	EA	1	2,254	2,254	37.1	37.1	12.0	446	8.00	297	-	-	135	3,132	3,132	10.0 %	313	-	-	3,445
M Mechanical				***47,000***		***439***		***6,206***		***4,047***	***-***	***-***	***7,050***		***64,302***		***7,474***	***-***	***-***	***71,777***
Event Pond Monitor Cannons	EA	2	3,129	6,258	125	251	14.1	3,546	9.22	2,312	-	-	939	6,528	13,055	12.0 %	1,567	-	-	14,622
Event Pond Pump - 55kW	EA	1	31,921	31,921	105	105	14.1	1,478	9.22	963	-	-	4,788	39,150	39,150	12.0 %	4,698	-	-	43,848
Event Pond Pump Maintenance Hoist - 5t	EA	1	8,821	8,821	83.6	83.6	14.1	1,182	9.22	771	-	-	1,323	12,097	12,097	10.0 %	1,210	-	-	13,307
P Piping				***13,492***		***235***		***3,325***		***2,168***	***-***	***-***	***1,349***		***20,335***		***4,474***	***-***	***-***	***24,809***
2.3.4 - Event Pond - Area Piping	EA	1	13,492	13,492	235	235	14.1	3,325	9.22	2,168	-	-	1,349	20,335	20,335	22.0 %	4,474	-	-	24,809
S Steelwork				***48,724***		***1,211***		***17,129***		***11,169***	***-***	***-***	***13,352***		***90,374***		***9,037***	***-***	***-***	***99,411***
S2020 Light Steel - < 25kg/m Paint Spec B - Wet Area.	T	5	2,165	11,099	64.1	329	14.1	4,648	9.22	3,031	-	-	3,716	4,388	22,493	10.0 %	2,249	-	-	24,743
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	8	2,298	17,921	48.7	380	14.1	5,374	9.22	3,504	-	-	5,653	4,161	32,453	10.0 %	3,245	-	-	35,698
S2080 Hollow Sections - Paint Spec B - Wet Area	T	3	2,321	6,332	64.1	175	14.1	2,474	9.22	1,613	-	-	1,977	4,544	12,396	10.0 %	1,240	-	-	13,635
S3050 Stair Treads x 750w - Galvanised	EA	13	53.3	703	1.41	18.6	14.1	263	9.22	172	-	-	105	94.2	1,244	10.0 %	124	-	-	1,368
S3090 Grating - Standard Galvanised	M2	29	103	3,012	3.85	113	14.1	1,591	9.22	1,038	-	-	452	208	6,092	10.0 %	609	-	-	6,701
S3160 Handrails - Platform - Paint Spec B - Wet Area (including	LM	58	135	7,811	2.57	149	14.1	2,103	9.22	1,371	-	-	1,172	215	12,458	10.0 %	1,246	-	-	13,703
S3180 Handrails - Stair - Paint Spec B - Wet Area (including	LM	12	149	1,846	3.85	47.7	14.1	675	9.22	440	-	-	277	261	3,238	10.0 %	324	-	-	3,562
W Earthworks				***31,299***		***2,151***		***36,055***		***108,164***	***-***	***-***	***-***		***175,518***		***21,062***	***-***	***-***	***196,580***
B6030 Ponds - Structural fill, win, haul & place	M3	892	-	-	0.12	109	21.6	2,368	64.9	7,103	-	-	-	10.6	9,471	12.0 %	1,137	-	-	10,607
B6040 Ponds - Level & compact to walls - Structural fill	M3	5,837	-	-	0.16	939	16.5	15,497	49.5	46,492	-	-	-	10.6	61,990	12.0 %	7,439	-	-	69,429
B6050 Ponds - Level & compact to floor - Structural fill	M3	552	-	-	0.16	88.8	16.5	1,466	49.5	4,397	-	-	-	10.6	5,862	12.0 %	703	-	-	6,565
W6020 Ponds - Cut to fill & place - rippable	M3	5,837	-	-	0.10	588	16.5	9,704	49.5	29,112	-	-	-	6.65	38,817	12.0 %	4,658	-	-	43,475
W6060 Ponds - Grade & Trim - Structural fill	M2	4,065	-	-	0.02	67.7	16.5	1,118	49.5	3,353	-	-	-	1.10	4,471	12.0 %	537	-	-	5,008
W6070 Ponds - Sand bedding - 50mm thick	M2	107	-	-	0.09	9.72	16.5	160	49.5	481	-	-	-	6.02	642	12.0 %	77.0	-	-	719
W6080 Ponds - Excavate liner trench - 750mm x 1000mm	M3	140	-	-	0.12	17.1	16.5	282	49.5	846	-	-	-	8.06	1,127	12.0 %	135	-	-	1,263
W6090 Ponds - Backfill liner trench - 750mm x 1000mm	M3	140	-	-	0.13	18.6	16.5	306	49.5	919	-	-	-	8.76	1,225	12.0 %	147	-	-	1,372
W6105 Ponds - HDPE liner 2.0mm thick (Double Lined)	M2	5,785	5.41	31,299	0.05	312	16.5	5,153	49.5	15,460	-	-	-	8.97	51,913	12.0 %	6,230	-	-	58,143
2.3.5 - Control Valves				**415,635**		**2,827**		**39,969**		**26,062**	**-**	**-**	**41,563**		**523,229**		**99,414**	**-**	**-**	**622,643**
P Piping				***415,635***		***2,827***		***39,969***		***26,062***	***-***	***-***	***41,563***		***523,229***		***99,414***	***-***	***-***	***622,643***
Control Valves	Lot	79	2,896	228,029	20.5	1,616	14.1	22,850	9.22	14,899	-	-	22,803	3,664	288,581	19.0 %	54,830	-	-	343,412
Plant Actuated Valves	Lot	1	187,606	187,606	1,211	1,211	14.1	17,119	9.22	11,162	-	-	18,761	234,648	234,648	19.0 %	44,583	-	-	279,231

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
2.4 - Air Services				***2,803,769***		***21,554***		***277,585***		***195,750***	-	-	***379,211***		***3,656,314***		***495,441***	-	-	***4,151,755***
2.4.1 - Compressed Air				**593,377**		**9,436**		**132,265**		**92,323**	-	-	**80,217**		**898,181**		**139,408**	-	-	**1,037,590**
C Concrete				***15,390***		***1,000***		***2,440***		***3,340***	-	-	-		***21,170***		***2,540***	-	-	***23,711***
C3010 Blinding Concrete 50mm thick	CM	2	313	479	24.4	37.4	2.44	91.2	3.34	125	-	-	-	454	695	12.0 %	83.4	-	-	779
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	1	450	515	32.2	36.9	2.44	90.0	3.34	123	-	-	-	636	728	12.0 %	87.3	-	-	815
C3060 Ground Slabs < 300 mm thick	M3	32	406	12,862	25.8	816	2.44	1,991	3.34	2,725	-	-	-	555	17,578	12.0 %	2,109	-	-	19,687
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	3	450	1,534	32.2	110	2.44	268	3.34	367	-	-	-	636	2,170	12.0 %	260	-	-	2,430
E Electrical				***4,779***		***862***		***10,350***		***6,900***	-	-	***287***		***22,315***		***2,232***	-	-	***24,547***
Area Electrical AUD	EA	2	2,043	4,086	404	809	12.0	9,707	8.00	6,471	-	-	245	10,255	20,510	10.0 %	2,051	-	-	22,560
Area Electrical EUR	EA	1	76.8	76.8	4.37	4.37	12.0	52.5	8.00	35.0	-	-	4.61	169	169	10.0 %	16.9	-	-	186
Area Electrical USD	EA	1	616	616	49.2	49.2	12.0	590	8.00	394	-	-	36.9	1,637	1,637	10.0 %	164	-	-	1,800
M Mechanical				***261,907***		***1,129***		***15,958***		***10,406***	-	-	***39,286***		***327,558***		***33,701***	-	-	***361,259***
Compressor Inline Filter 1	EA	1	13,218	13,218	41.8	41.8	14.1	591	9.22	385	-	-	1,983	16,177	16,177	10.0 %	1,618	-	-	17,795
Compressor Inline Filter 2	EA	1	13,218	13,218	41.8	41.8	14.1	591	9.22	385	-	-	1,983	16,177	16,177	10.0 %	1,618	-	-	17,795
Dryer Discharge Filter 1	EA	1	686	686	41.8	41.8	14.1	591	9.22	385	-	-	103	1,765	1,765	10.0 %	176	-	-	1,941
Dryer Discharge Filter 2	EA	1	686	686	41.8	41.8	14.1	591	9.22	385	-	-	103	1,765	1,765	10.0 %	176	-	-	1,941
Dryer Inlet Filter 1	EA	1	686	686	41.8	41.8	14.1	591	9.22	385	-	-	103	1,765	1,765	10.0 %	176	-	-	1,941
Dryer Inlet Filter 2	EA	1	686	686	41.8	41.8	14.1	591	9.22	385	-	-	103	1,765	1,765	10.0 %	176	-	-	1,941
Oil / Water Separator	EA	1	1,175	1,175	314	314	14.1	4,433	9.22	2,890	-	-	176	8,674	8,674	12.0 %	1,041	-	-	9,715
Plant Air Compressor 1 - 60kW	EA	1	100,480	100,480	209	209	14.1	2,955	9.22	1,927	-	-	15,072	120,434	120,434	10.0 %	12,043	-	-	132,478
Plant Air Compressor 2 - 60kW	EA	1	100,480	100,480	209	209	14.1	2,955	9.22	1,927	-	-	15,072	120,434	120,434	10.0 %	12,043	-	-	132,478
Plant Air Dryer 1	EA	1	7,918	7,918	62.7	62.7	14.1	887	9.22	578	-	-	1,188	10,570	10,570	12.0 %	1,268	-	-	11,839
Plant Air Dryer 2	EA	1	7,918	7,918	-	-		-		-	-	-	1,188	9,105	9,105	12.0 %	1,093	-	-	10,198
Plant Air Receiver - 5m3	EA	1	14,759	14,759	83.6	83.6	14.1	1,182	9.22	771	-	-	2,214	18,926	18,926	12.0 %	2,271	-	-	21,197
P Piping				***250,274***		***4,362***		***74,067***		***52,475***	-	-	***25,027***		***401,844***		***88,406***	-	-	***490,249***
2.4.1 - Compressed Air - Area Piping	EA	1	250,274	250,274	4,362	4,362	17.0	74,067	12.0	52,475	-	-	25,027	401,844	401,844	22.0 %	88,406	-	-	490,249
S Steelwork				***61,027***		***2,083***		***29,449***		***19,202***	-	-	***15,617***		***125,295***		***12,529***	-	-	***137,824***
S2010 Light Steel - < 25kg/m Paint Spec A - Dry Area.	T	1	2,091	2,437	64.1	74.7	14.1	1,057	9.22	689	-	-	845	4,314	5,028	10.0 %	503	-	-	5,530
S2020 Light Steel - < 25kg/m Paint Spec B - Wet Area.	T	3	2,165	6,574	64.1	195	14.1	2,753	9.22	1,795	-	-	2,201	4,388	13,322	10.0 %	1,332	-	-	14,655
S2030 Medium Steel - 25 - 75 kg/m Paint Spec A - Dry Area.	T	5	2,235	10,515	48.7	229	14.1	3,242	9.22	2,114	-	-	3,410	4,099	19,280	10.0 %	1,928	-	-	21,208
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	7	2,298	16,334	48.7	346	14.1	4,899	9.22	3,194	-	-	5,153	4,161	29,580	10.0 %	2,958	-	-	32,537
S2080 Hollow Sections - Paint Spec B - Wet Area	T	1	2,321	1,441	64.1	39.8	14.1	563	9.22	367	-	-	450	4,544	2,822	10.0 %	282	-	-	3,104
S4030 Cladding Colorbond	M2	828	16.9	13,966	0.77	637	14.1	9,006	9.22	5,872	-	-	2,095	37.4	30,940	10.0 %	3,094	-	-	34,034
S4110 Purlins - Galvanised	LM	486	20.1	9,759	1.15	561	14.1	7,930	9.22	5,171	-	-	1,464	50.1	24,324	10.0 %	2,432	-	-	26,756

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
2.4.2 - Blower Air				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
M Mechanical				***-***		***-***		***-***		***-***	***-***	***-***	***-***		***-***		***-***	***-***	***-***	***-***
No Longer Required	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
2.4.3 - Oxygen Plant				**2,210,392**		**12,118**		**145,320**		**103,427**	**-**	**-**	**298,994**		**2,758,133**		**356,032**	**-**	**-**	**3,114,165**
C Concrete				***40,888***		***2,691***		***6,565***		***8,987***	***-***	***-***	***-***		***56,440***		***6,773***	***-***	***-***	***63,213***
C3010 Blinding Concrete 50mm thick	CM	23	313	7,221	24.4	563	2.44	1,374	3.34	1,881	-	-	-	454	10,477	12.0 %	1,257	-	-	11,734
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	3	450	1,454	32.2	104	2.44	254	3.34	348	-	-	-	636	2,056	12.0 %	247	-	-	2,303
C3060 Ground Slabs < 300 mm thick	M3	69	406	28,147	25.8	1,785	2.44	4,356	3.34	5,963	-	-	-	555	38,466	12.0 %	4,616	-	-	43,082
C3090 Kerbs < 500mm high	M3	10	414	4,066	24.2	238	2.44	581	3.34	795	-	-	-	554	5,441	12.0 %	653	-	-	6,094
E Electrical				***212,411***		***2,369***		***28,426***		***18,951***	***-***	***-***	***12,745***		***272,532***		***27,253***	***-***	***-***	***299,786***
Area Electrical AUD	EA	1	13,082	13,082	1,063	1,063	12.0	12,758	8.00	8,506	-	-	785	35,130	35,130	10.0 %	3,513	-	-	38,643
Area Electrical EUR	EA	1	198,978	198,978	1,285	1,285	12.0	15,417	8.00	10,278	-	-	11,939	236,611	236,611	10.0 %	23,661	-	-	260,273
Area Electrical USD	EA	1	352	352	20.9	20.9	12.0	251	8.00	167	-	-	21.1	791	791	10.0 %	79.1	-	-	870
M Mechanical				***1,633,090***		***1,254***		***17,732***		***11,562***	***-***	***-***	***244,964***		***1,907,347***		***228,882***	***-***	***-***	***2,136,229***
PSA Oxygen Plant 1 & 2- 800kW	EA	1	1,633,090	1,633,090	1,254	1,254	14.1	17,732	9.22	11,562	-	-	244,964	1,907,347	1,907,347	12.0 %	228,882	-	-	2,136,229
P Piping				***212,500***		***3,704***		***62,888***		***44,555***	***-***	***-***	***21,250***		***341,194***		***75,063***	***-***	***-***	***416,256***
2.4.3 - Oxygen Plant - Area Piping	EA	1	212,500	212,500	3,704	3,704	17.0	62,888	12.0	44,555	-	-	21,250	341,194	341,194	22.0 %	75,063	-	-	416,256
S Steelwork				***111,503***		***2,101***		***29,709***		***19,372***	***-***	***-***	***20,036***		***180,620***		***18,062***	***-***	***-***	***198,682***
Insulated Cladding Colorbond	M2	964	78.8	75,948	0.77	742	14.1	10,494	9.22	6,842	-	-	11,392	109	104,677	10.0 %	10,468	-	-	115,144
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	6	2,298	14,597	48.7	310	14.1	4,378	9.22	2,854	-	-	4,605	4,161	26,434	10.0 %	2,643	-	-	29,077
S2070 Hollow Sections - Paint Spec A - Dry Area	T	2	2,273	5,298	64.1	149	14.1	2,114	9.22	1,378	-	-	1,690	4,496	10,479	10.0 %	1,048	-	-	11,527
S4110 Purlins - Galvanised	LM	780	20.1	15,660	1.15	900	14.1	12,724	9.22	8,297	-	-	2,349	50.1	39,030	10.0 %	3,903	-	-	42,933
2.5 - Fuels				***29,794***		***436***		***5,512***		***3,872***	***-***	***-***	***5,554***		***44,731***		***6,359***	***-***	***-***	***51,090***
2.5.1 - Fuel Storage & Distribution				**29,794**		**436**		**5,512**		**3,872**	**-**	**-**	**5,554**		**44,731**		**6,359**	**-**	**-**	**51,090**
C Concrete				***1,218***		***88***		***214***		***294***	***-***	***-***	***-***		***1,726***		***207***	***-***	***-***	***1,933***
C3010 Blinding Concrete 50mm thick	CM	0	313	97.4	24.4	7.59	2.44	18.5	3.34	25.4	-	-	-	454	141	12.0 %	17.0	-	-	158
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	2	450	1,120	32.2	80.3	2.44	196	3.34	268	-	-	-	636	1,584	12.0 %	190	-	-	1,774
L Platework				***5,512***		***94***		***1,322***		***862***	***-***	***-***	***2,466***		***10,163***		***1,016***	***-***	***-***	***11,179***
L1530 Shop Fab Tanks - Grade 350 - Paint Spec B - Wet Plant	T	1	3,780	5,512	64.1	93.5	14.1	1,322	9.22	862	-	-	2,466	6,969	10,163	10.0 %	1,016	-	-	11,179
M Mechanical				***15,624***		***125***		***1,773***		***1,156***	***-***	***-***	***2,344***		***20,897***		***2,508***	***-***	***-***	***23,404***

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Msa Diesel Transfer Pump - 11kW	EA	1	7,812	7,812	62.7	62.7	14.1	887	9.22	578	-	-	1,172	10,448	10,448	12.0 %	1,254	-	-	11,702
Plant Diesel Transfer Pump - 11kW	EA	1	7,812	7,812	62.7	62.7	14.1	887	9.22	578	-	-	1,172	10,448	10,448	12.0 %	1,254	-	-	11,702
P Piping				***7,440***		***130***		***2,202***		***1,560***	***-***	***-***	***744***		***11,946***		***2,628***	***-***	***-***	***14,574***
2.5.1 - Fuel Storage & Distribution - Area Piping	EA	1	7,440	7,440	130	130	17.0	2,202	12.0	1,560	-	-	744	11,946	11,946	22.0 %	2,628	-	-	14,574
2.6 - Electrical Services				***16,473,515***		***93,756***		***1,170,881***		***801,138***	***-***	***-***	***1,077,700***		***19,523,234***		***2,000,149***	***-***	***-***	***21,523,384***
2.6.1 - Electrical Services - General				**199,548**		**10,993**		**131,919**		**87,946**	**-**	**-**	**11,973**		**431,386**		**43,139**	**-**	**-**	**474,525**
E Electrical				***199,548***		***10,993***		***131,919***		***87,946***	***-***	***-***	***11,973***		***431,386***		***43,139***	***-***	***-***	***474,525***
Area Electrical AUD	EA	1	177,363	177,363	10,689	10,689	12.0	128,268	8.00	85,512	-	-	10,642	401,784	401,784	10.0 %	40,178	-	-	441,962
Area Electrical EUR	EA	1	19,687	19,687	211	211	12.0	2,526	8.00	1,684	-	-	1,181	25,078	25,078	10.0 %	2,508	-	-	27,586
Area Electrical USD	EA	1	2,499	2,499	93.7	93.7	12.0	1,125	8.00	750	-	-	150	4,524	4,524	10.0 %	452	-	-	4,976
2.6.2 - Plant HV Distribution				**6,753,202**		**25,457**		**305,488**		**203,659**	**-**	**-**	**405,192**		**7,667,541**		**766,754**	**-**	**-**	**8,434,295**
E Electrical				***6,753,202***		***25,457***		***305,488***		***203,659***	***-***	***-***	***405,192***		***7,667,541***		***766,754***	***-***	***-***	***8,434,295***
Area Electrical AUD	EA	1	1,813,334	1,813,334	19,904	19,904	12.0	238,848	8.00	159,232	-	-	108,800	2,320,214	2,320,214	10.0 %	232,021	-	-	2,552,235
Area Electrical EUR	EA	1	504,561	504,561	4,075	4,075	12.0	48,903	8.00	32,602	-	-	30,274	616,340	616,340	10.0 %	61,634	-	-	677,974
Area Electrical USD	EA	1	4,435,306	4,435,306	1,478	1,478	12.0	17,737	8.00	11,825	-	-	266,118	4,730,987	4,730,987	10.0 %	473,099	-	-	5,204,086
2.6.3 - Plant Sub Stations				**8,447,946**		**50,921**		**656,867**		**458,463**	**-**	**-**	**596,166**		**10,159,443**		**1,063,770**	**-**	**-**	**11,223,213**
A Architectural				***359,881***		***10,590***		***179,818***		***127,398***	***-***	***-***	***71,976***		***739,073***		***103,470***	***-***	***-***	***842,543***
HV Flatpack Switchroom (Supply & Install)	M2	226	1,592	359,881	15.0	3,390	17.0	57,562	12.0	40,782	-	-	71,976	2,346	530,201	14.0 %	74,228	-	-	604,429
Switch Room Installation	M2	480	-	-	15.0	7,200	17.0	122,256	12.0	86,616	-	-	-	435	208,872	14.0 %	29,242	-	-	238,114
C Concrete				***109,019***		***9,224***		***70,194***		***52,945***	***-***	***-***	***-***		***232,159***		***27,859***	***-***	***-***	***260,018***
C3010 Blinding Concrete 50mm thick	CM	6	250	1,495	18.7	112	7.61	852	5.74	643	-	-	-	499	2,990	12.0 %	359	-	-	3,349
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	113	681	76,773	51.0	5,749	7.61	43,753	5.74	33,001	-	-	-	1,361	153,527	12.0 %	18,423	-	-	171,951
C3060 Ground Slabs < 300 mm thick	M3	19	411	7,609	30.7	570	7.61	4,336	5.74	3,271	-	-	-	821	15,216	12.0 %	1,826	-	-	17,042
C3090 Kerbs < 500mm high	M3	5	442	2,223	35.3	178	7.61	1,351	5.74	1,019	-	-	-	914	4,592	12.0 %	551	-	-	5,144
C3110 Walls < 250 mm thick	M3	54	391	20,919	48.8	2,615	7.61	19,902	5.74	15,012	-	-	-	1,043	55,833	12.0 %	6,700	-	-	62,533
E Electrical				***7,682,014***		***22,551***		***270,613***		***180,409***	***-***	***-***	***460,921***		***8,593,956***		***859,396***	***-***	***-***	***9,453,352***
Area Electrical AUD	EA	1	3,051,041	3,051,041	14,106	14,106	12.0	169,272	8.00	112,848	-	-	183,062	3,516,224	3,516,224	10.0 %	351,622	-	-	3,867,847
Area Electrical EUR	EA	1	884,830	884,830	5,908	5,908	12.0	70,891	8.00	47,260	-	-	53,090	1,056,071	1,056,071	10.0 %	105,607	-	-	1,161,679
Area Electrical USD	EA	1	3,746,142	3,746,142	2,537	2,537	12.0	30,450	8.00	20,300	-	-	224,769	4,021,661	4,021,661	10.0 %	402,166	-	-	4,423,827
S Steelwork				***267,032***		***7,260***		***123,282***		***87,343***	***-***	***-***	***58,769***		***536,426***		***64,371***	***-***	***-***	***600,797***
S2010 Light Steel - < 25kg/m Paint Spec A - Dry Area.	T	5	2,091	10,654	64.1	327	17.0	5,548	12.0	3,931	-	-	3,693	4,676	23,826	12.0 %	2,859	-	-	26,685
S2030 Medium Steel - 25 - 75 kg/m Paint Spec A - Dry Area.	T	39	2,235	86,481	48.7	1,886	17.0	32,016	12.0	22,683	-	-	28,044	4,374	169,224	12.0 %	20,307	-	-	189,530

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
S2070 Hollow Sections - Paint Spec A - Dry Area	T	4	2,273	9,157	64.1	258	17.0	4,387	12.0	3,108	-	-	2,920	4,858	19,572	12.0 %	2,349	-	-	21,920
S3050 Stair Treads x 750w - Galvanised	EA	130	53.3	6,944	1.41	184	17.0	3,122	12.0	2,212	-	-	1,042	102	13,321	12.0 %	1,598	-	-	14,919
S3090 Grating - Standard Galvanised	M2	98	103	10,066	3.85	376	17.0	6,387	12.0	4,525	-	-	1,510	230	22,487	12.0 %	2,698	-	-	25,185
S3130 Chequer Plate 6 mm thick Paint Spec A - Dry Area	M2	692	148	102,327	3.85	2,664	17.0	45,241	12.0	32,052	-	-	15,349	282	194,969	12.0 %	23,396	-	-	218,365
S3150 Handrails - Platform - Paint Spec A - Dry Area (including	LM	83	135	11,172	2.57	213	17.0	3,613	12.0	2,559	-	-	1,676	229	19,021	12.0 %	2,282	-	-	21,303
S3170 Handrails - Stair - Paint Spec A - Dry Area (including	LM	82	149	12,166	3.85	315	17.0	5,342	12.0	3,784	-	-	1,825	283	23,117	12.0 %	2,774	-	-	25,891
S4110 Purlins - Galvanised	LM	899	20.1	18,065	1.15	1,038	17.0	17,627	12.0	12,489	-	-	2,710	56.6	50,891	12.0 %	6,107	-	-	56,998
Z General				***30,000***		***1,296***		***12,960***		***10,368***	***-***	***-***	***4,500***		***57,828***		***8,674***	***-***	***-***	***66,502***
Z4070 Fencing - Double swing gates - 6.0m wide	EA	12	2,500	30,000	108	1,296	10.0	12,960	8.00	10,368	-	-	4,500	4,819	57,828	15.0 %	8,674	-	-	66,502
2.6.4 - Plant Control System				**1,072,819**		**6,384**		**76,606**		**51,071**	**-**	**-**	**64,369**		**1,264,865**		**126,486**	**-**	**-**	**1,391,351**
E Electrical				***1,072,819***		***6,384***		***76,606***		***51,071***	***-***	***-***	***64,369***		***1,264,865***		***126,486***	***-***	***-***	***1,391,351***
Area Electrical AUD	EA	1	929,458	929,458	5,263	5,263	12.0	63,160	8.00	42,107	-	-	55,767	1,090,492	1,090,492	10.0 %	109,049	-	-	1,199,541
Area Electrical EUR	EA	1	48,565	48,565	580	580	12.0	6,966	8.00	4,644	-	-	2,914	63,089	63,089	10.0 %	6,309	-	-	69,398
Area Electrical USD	EA	1	94,796	94,796	540	540	12.0	6,480	8.00	4,320	-	-	5,688	111,284	111,284	10.0 %	11,128	-	-	122,412
3 - Infrastructure				**12,164,095**		**1,272,492**		**16,147,685**		**41,021,672**	**-**	**59,019,884**	**2,388,585**		**130,741,921**		**11,033,698**	**-**	**-**	**141,775,619**
3.1 - Infrastructure - General				***745,810***		***89,518***		***1,273,391***		***3,820,173***	***-***	***250,000***	***-***		***6,089,373***		***658,937***	***-***	***-***	***6,748,311***
3.1.2 - Sites Roads & Tracks				**-**		**80,583**		**1,125,969**		**3,377,906**	**-**	**-**	**-**		**4,503,875**		**450,387**	**-**	**-**	**4,954,262**
W Earthworks				***-***		***80,583***		***1,125,969***		***3,377,906***	***-***	***-***	***-***		***4,503,875***		***450,387***	***-***	***-***	***4,954,262***
Install 1.5 mm (60 mil) double sided textured HDPE geomembrane	M2	18,200	-	-	0.02	391	36.3	14,196	109	42,588	-	-	-	3.12	56,784	10.0 %	5,678	-	-	62,462
Site Access Road - Clear and grub road footprint, haul to designated	M2	245,000	-	-	0.01	1,262	16.5	20,825	49.5	62,475	-	-	-	0.34	83,300	10.0 %	8,330	-	-	91,630
Site Access Road - Drainage and Re-vegetation - Scarify and re-	M2	90,000	-	-	0.03	2,318	16.5	38,250	49.5	114,750	-	-	-	1.70	153,000	10.0 %	15,300	-	-	168,300
Site Access Road - Drainage and Re-vegetation - Win from	M3	18,000	-	-	0.04	805	16.5	13,275	49.5	39,825	-	-	-	2.95	53,100	10.0 %	5,310	-	-	58,410
Site Access Road - Excavate culvert trenches to finished profile,	M3	900	-	-	0.18	165	16.5	2,716	49.5	8,147	-	-	-	12.1	10,863	10.0 %	1,086	-	-	11,949
Site Access Road - Excavate unsuitable material in footprint, haul to	M3	2,500	-	-	0.03	77.6	51.6	4,000	155	12,000	-	-	-	6.40	16,000	10.0 %	1,600	-	-	17,600
Site Access Road - Extra over for breaking hard rock material	M3	6,300	-	-	0.12	757	16.5	12,490	49.5	37,469	-	-	-	7.93	49,959	10.0 %	4,996	-	-	54,955
Site Access Road - Material Supply - Supply Zone E erosion	CM	650	-	-	0.43	279	16.5	4,599	49.5	13,796	-	-	-	28.3	18,395	10.0 %	1,839	-	-	20,234
Site Access Road - Material Supply - Supply Zone F protection	CM	330	-	-	0.60	198	16.5	3,272	49.5	9,816	-	-	-	39.7	13,088	10.0 %	1,309	-	-	14,397
Site Access Road - Miscellaneous - Supply and install guide posts	Item	320	-	-	0.60	192	16.5	3,173	49.5	9,518	-	-	-	39.7	12,691	10.0 %	1,269	-	-	13,960
Site Access Road - Miscellaneous - Supply and install road signs	Item	80	-	-	6.01	481	16.5	7,931	49.5	23,793	-	-	-	397	31,724	10.0 %	3,172	-	-	34,896
Site Access Road - Scarify, moisture condition and compact in-situ	M2	3,000	-	-	0.01	38.6	16.5	637	49.5	1,912	-	-	-	0.85	2,550	10.0 %	255	-	-	2,805
Site Access Road - Scarify, moisture condition and compact in-situ	M2	75,000	-	-	0.01	705	16.5	11,625	49.5	34,875	-	-	-	0.62	46,500	10.0 %	4,650	-	-	51,150
Site Access Road - Stockpiles & Borrow Areas - Clear and grub	M2	18,000	-	-	0.00	62.7	16.5	1,035	49.5	3,105	-	-	-	0.23	4,140	10.0 %	414	-	-	4,554
Site Access Road - Stockpiles & Borrow Areas - Clear and grub	M2	73,000	-	-	0.00	254	16.5	4,197	49.5	12,592	-	-	-	0.23	16,790	10.0 %	1,679	-	-	18,469
Site Access Road - Stockpiles & Borrow Areas - Rehabilitate borrow	M2	18,000	-	-	0.06	1,129	16.5	18,630	49.5	55,890	-	-	-	4.14	74,520	10.0 %	7,452	-	-	81,972
Site Access Road - Stockpiles & Borrow Areas - Strip topsoil	M3	3,600	-	-	2.41	8,683	0.54	4,689	1.62	14,067	-	-	-	5.21	18,756	10.0 %	1,876	-	-	20,632

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Site Access Road - Strip topsoil (200 mm) from footprint, haul to	M3	49,000	-	-	0.18	8,683	7.35	63,822	22.0	191,467	-	-	-	5.21	255,290	10.0 %	25,529	-	-	280,819
Site Access Road - Supply and Install 300mm of cement stabilised	M3	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Site Access Road - Supply and install 300 mm of concrete for	M3	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Site Access Road - Supply and Install Thrace P500 non-woven	M2	2,910	-	-	0.07	207	16.5	3,419	49.5	10,258	-	-	-	4.70	13,677	10.0 %	1,368	-	-	15,045
Site Access Road - Suppy and Install 1200 mm ID Corrugated Metal	LM	50	-	-	17.4	871	16.5	14,375	49.5	43,125	-	-	-	1,150	57,500	10.0 %	5,750	-	-	63,250
Site Access Road - Suppy and Install 1200 mm x 1200 mm (H mm x	LM	1,610	-	-	23.9	38,556	16.5	636,167	49.5	1,908,502	-	-	-	1,581	2,544,669	10.0 %	254,467	-	-	2,799,136
Site Access Road - Suppy and Install 600 mm ID Corrugated Metal	LM	220	-	-	13.0	2,870	16.5	47,359	49.5	142,078	-	-	-	861	189,438	10.0 %	18,944	-	-	208,381
Site Access Road - Suppy and Install 900 mm ID Corrugated Metal	LM	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Site Access Road - Win from borrow, load, haul, place, spread,	M3	1	-	-	0.10	0.10	16.5	1.68	49.5	5.03	-	-	-	6.70	6.70	10.0 %	0.67	-	-	7.37
Site Access Road - Win from borrow, load, haul, place, spread,	M3	24,000	-	-	0.16	3,811	16.5	62,880	49.5	188,640	-	-	-	10.5	251,520	10.0 %	25,152	-	-	276,672
Site Access Road - Win from borrow, load, haul, place, spread and	M3	3,000	-	-	0.06	182	38.1	6,922	114	20,767	-	-	-	9.23	27,690	10.0 %	2,769	-	-	30,459
Site Access Road - Win from borrow, load, haul, place, spread and	M3	2,000	-	-	0.15	297	16.5	4,900	49.5	14,700	-	-	-	9.80	19,600	10.0 %	1,960	-	-	21,560
Site Access Road - Win from cut areas along alignment, haul	M3	4,400	-	-	0.09	404	16.5	6,666	49.5	19,998	-	-	-	6.06	26,664	10.0 %	2,666	-	-	29,330
Site Access Road - Win from cut areas from along alignment, haul	M3	58,000	-	-	0.12	6,723	16.5	110,925	49.5	332,775	-	-	-	7.65	443,700	10.0 %	44,370	-	-	488,070
Site Access Road - Win from stockpile, haul, place and compact	M3	300	-	-	0.19	58.5	16.5	964	49.5	2,893	-	-	-	12.9	3,858	10.0 %	386	-	-	4,244
Site Access Road - Win from stockpile, load, haul, place and spread	M3	400	-	-	0.13	53.2	16.5	878	49.5	2,634	-	-	-	8.78	3,512	10.0 %	351	-	-	3,863
Site Access Road - Win from supplied stockpile, load, haul, place	M3	370	-	-	0.12	45.7	16.5	755	49.5	2,264	-	-	-	8.16	3,019	10.0 %	302	-	-	3,321
Site Access Road - Win from supplied stockpile, load, haul and	M3	220	-	-	0.11	23.8	16.5	393	49.5	1,178	-	-	-	7.14	1,571	10.0 %	157	-	-	1,728
3.1.5 - Site Fencing & Access Control				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
U Owners Costs				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
Management & mitigation (Physical Environment) - Livestock	KM	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Management & mitigation (Physical Environment) - Livestock	KM	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
3.1.6 - Communications				**500,000**		**-**		**-**		**-**	**-**	**-**	**-**		**500,000**		**100,000**	**-**	**-**	**600,000**
U Owners Costs				***500,000***		**-**		**-**		**-**	**-**	**-**	**-**		***500,000***		***100,000***	**-**	**-**	***600,000***
Communication Infrastructure (Towers etc)	Lot	1	500,000	500,000	-	-		-		-	-	-	-	500,000	500,000	20.0 %	100,000	-	-	600,000
3.1.8 - Airport				**245,810**		**8,935**		**147,422**		**442,267**	**-**	**250,000**	**-**		**1,085,499**		**108,550**	**-**	**-**	**1,194,048**
A Architectural				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
Ablution Block	M2	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Arrival/ Departure Building	M2	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Arrival/ Departure Building - Furniture & Equipment	M2	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
C Concrete				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
C3060 Ground Slabs < 300 mm thick	M3	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
U Owners Costs				***1,500***		**-**		**-**		**-**	**-**	***250,000***	**-**		***251,500***		***25,150***	**-**	**-**	***276,650***

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Airstrip license	Yr	3	500	1,500	-	-		-		-	-	-	-	500	1,500	10.0 %	150	-	-	1,650
Site inspection visits, the ESIA report addendum and drafting	EA	1	-	-	-	-		-		-	-	100,000	-	100,000	100,000	10.0 %	10,000	-	-	110,000
Upgrading Bouna Airstrip	EA	1	-	-	-	-		-		-	-	150,000	-	150,000	150,000	10.0 %	15,000	-	-	165,000
W Earthworks				***244,310***		***8,935***		***147,422***		***442,267***	***-***	***-***	***-***		***833,999***		***83,400***	***-***	***-***	***917,398***
Aerodrome Earthworks - Excavate airstrip and apron from cut areas,	M3	28,000	-	-	0.12	3,292	16.5	54,320	49.5	162,960	-	-	-	7.76	217,280	10.0 %	21,728	-	-	239,008
Aerodrome Earthworks - Excavate airstrip and apron from cut areas,	M3	1,000	-	-	0.12	118	16.5	1,940	49.5	5,820	-	-	-	7.76	7,760	10.0 %	776	-	-	8,536
Aerodrome Earthworks - Excavate and shape Aerodrome runway	M3	900	-	-	0.12	106	16.5	1,746	49.5	5,238	-	-	-	7.76	6,984	10.0 %	698	-	-	7,682
Aerodrome Earthworks - Scarify, moisture condition and compact	M2	47,100	-	-	0.01	528	16.5	8,713	49.5	26,140	-	-	-	0.74	34,854	10.0 %	3,485	-	-	38,339
Aerodrome Earthworks - Win from borrow, load, haul,spread,	M3	850	-	-	0.15	124	16.5	2,046	49.5	6,139	-	-	-	9.63	8,185	10.0 %	819	-	-	9,004
Aerodrome Earthworks - Win from borrow, load, haul, spread,	M3	2,600	-	-	0.15	379	16.5	6,259	49.5	18,778	-	-	-	9.63	25,038	10.0 %	2,504	-	-	27,542
Aerodrome Earthworks - Win from borrow, load, haul, spread,	M3	2,600	-	-	0.16	413	16.5	6,812	49.5	20,436	-	-	-	10.5	27,248	10.0 %	2,725	-	-	29,973
Aerodrome Earthworks - Win from borrow, load, haul, spread,	M3	8,000	-	-	0.12	995	16.5	16,420	49.5	49,260	-	-	-	8.21	65,680	10.0 %	6,568	-	-	72,248
Aerodrome Earthworks - Win from borrow, load, haul and spread	M3	1,500	-	-	0.13	192	16.5	3,165	49.5	9,495	-	-	-	8.44	12,660	10.0 %	1,266	-	-	13,926
Aerodrome Site Preparation - Clear and grub aerodrome footprint,	M2	91,000	-	-	0.01	469	16.5	7,735	49.5	23,205	-	-	-	0.34	30,940	10.0 %	3,094	-	-	34,034
Aerodrome Site Preparation - Excavate unsuitable material in	M3	1,000	-	-	0.10	97.0	16.5	1,600	49.5	4,800	-	-	-	6.40	6,400	10.0 %	640	-	-	7,040
Aerodrome Site Preparation - Strip topsoil (200 mm) from footprint,	M3	18,100	-	-	0.08	1,429	16.5	23,575	49.5	70,726	-	-	-	5.21	94,301	10.0 %	9,430	-	-	103,731
Aerodrome - Stockpiles & Borrow Areas - Clear and grub	M2	1,100	-	-	0.00	3.83	16.5	63.2	49.5	190	-	-	-	0.23	253	10.0 %	25.3	-	-	278
Aerodrome - Stockpiles & Borrow Areas - Clear and grub	M2	7,000	-	-	0.00	24.4	16.5	402	49.5	1,207	-	-	-	0.23	1,610	10.0 %	161	-	-	1,771
Aerodrome - Stockpiles & Borrow Areas - Clear and grub	M2	10,000	-	-	0.00	34.8	16.5	575	49.5	1,725	-	-	-	0.23	2,300	10.0 %	230	-	-	2,530
Aerodrome - Stockpiles & Borrow Areas - Rehabilitate borrow areas,	M2	1,100	-	-	0.06	69.0	16.5	1,138	49.5	3,415	-	-	-	4.14	4,554	10.0 %	455	-	-	5,009
Aerodrome - Stockpiles & Borrow Areas - Strip topsoil from borrow	M3	220	-	-	0.08	17.4	16.5	287	49.5	860	-	-	-	5.21	1,146	10.0 %	115	-	-	1,261
Material Supply - Supply suitable Zone E erosion protection material	CM	1,500	-	-	0.43	644	16.5	10,624	49.5	31,871	-	-	-	28.3	42,495	10.0 %	4,249	-	-	46,744
Miscellaneous - Supply and install blue taxiway and apron concrete	Item	8	20.0	160	-	-		-		-	-	-	-	20.0	160	10.0 %	16.0	-	-	176
Miscellaneous - Supply and install marker anchor pins (4 per item)	Item	40	25.0	1,000	-	-		-		-	-	-	-	25.0	1,000	10.0 %	100	-	-	1,100
Miscellaneous - Supply and install primary wind direction indicator	Item	1	20.0	20.0	-	-		-		-	-	-	-	20.0	20.0	10.0 %	2.00	-	-	22.0
Miscellaneous - Supply and install reinforced concrete parking pad	Item	1	242,565	242,565	-	-		-		-	-	-	-	242,565	242,565	10.0 %	24,256	-	-	266,821
Miscellaneous - Supply and install threshold and runway designation	Item	1	20.0	20.0	-	-		-		-	-	-	-	20.0	20.0	10.0 %	2.00	-	-	22.0
Miscellaneous - Supply and install unserviceability cone markers	Item	10	20.0	200	-	-		-		-	-	-	-	20.0	200	10.0 %	20.0	-	-	220
Miscellaneous - Supply and install unserviceability cross marker	Item	1	15.0	15.0	-	-		-		-	-	-	-	15.0	15.0	10.0 %	1.50	-	-	16.5
Miscellaneous - Supply and install white runway concrete markers	Item	22	15.0	330	-	-		-		-	-	-	-	15.0	330	10.0 %	33.0	-	-	363
3.2 - Environmental				***603,373***		***91,056***		***288,542***		***798,947***	***-***	***122,500***	***42,474***		***1,855,836***		***184,617***	***-***	***-***	***2,040,453***
3.2.1 - Site Drainage Management				**-**		**88,719**		**259,433**		**778,300**	**-**	**-**	**-**		**1,037,733**		**103,773**	**-**	**-**	**1,141,507**
W Earthworks				***-***		***88,719***		***259,433***		***778,300***	***-***	***-***	***-***		***1,037,733***		***103,773***	***-***	***-***	***1,141,507***
SWM - Downstream Toe Collection Ditch Construction - Excavate	M3	670	-	-	0.13	90.2	16.5	1,489	49.5	4,467	-	-	-	8.89	5,956	10.0 %	596	-	-	6,552
SWM - Drainage and Re-vegetation - Win from stockpile, load, haul,	M2	5,000	-	-	0.01	47.0	16.5	775	49.5	2,325	-	-	-	0.62	3,100	10.0 %	310	-	-	3,410
SWM - Drainage and Re-vegetion - Win from stockpile, load, haul,	M3	700	-	-	0.01	6.58	16.5	108	49.5	325	-	-	-	0.62	434	10.0 %	43.4	-	-	477
SWM - Drainage and Re-vegiation - Win from stockpile, load, haul,	M3	3,300	-	-	0.01	31.0	16.5	511	49.5	1,534	-	-	-	0.62	2,046	10.0 %	205	-	-	2,251
SWM - Earthworks and Erosion Protection - Excavate and shape	M3	1,700	-	-	0.12	207	16.5	3,417	49.5	10,251	-	-	-	8.04	13,668	10.0 %	1,367	-	-	15,035

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
SWM - Earthworks and Erosion Protection - Excavate and shape	M3	2,000	-	-	0.13	251	16.5	4,135	49.5	12,405	-	-	-	8.27	16,540	10.0 %	1,654	-	-	18,194
SWM - Earthworks and Erosion Protection - Excavate channels,	M3	4,500	-	-	0.11	483	16.5	7,965	49.5	23,895	-	-	-	7.08	31,860	10.0 %	3,186	-	-	35,046
SWM - Earthworks and Erosion Protection - Extra over for breaking	M3	470	-	-	0.12	56.5	16.5	932	49.5	2,795	-	-	-	7.93	3,727	10.0 %	373	-	-	4,100
SWM - Earthworks and Erosion Protection - Scarify, condition and	M2	2,000	-	-	0.01	22.4	16.5	370	49.5	1,110	-	-	-	0.74	1,480	10.0 %	148	-	-	1,628
SWM - Earthworks and Erosion Protection - Scarify, condition and	M2	17,600	-	-	0.01	197	16.5	3,256	49.5	9,768	-	-	-	0.74	13,024	10.0 %	1,302	-	-	14,326
SWM - Earthworks and Erosion Protection - Scarify, condition and	M2	2,000	-	-	0.01	22.4	16.5	370	49.5	1,110	-	-	-	0.74	1,480	10.0 %	148	-	-	1,628
SWM - Earthworks and Erosion Protection - Selectively win from	M3	450	-	-	0.11	48.7	16.5	803	49.5	2,410	-	-	-	7.14	3,213	10.0 %	321	-	-	3,534
SWM - Earthworks and Erosion Protection - Supply and install Bidim	M2	2,000	-	-	0.06	125	16.5	2,070	49.5	6,210	-	-	-	4.14	8,280	10.0 %	828	-	-	9,108
SWM - Earthworks and Erosion Protection - Win from borrow, load,	M3	23,300	-	-	0.14	3,258	16.5	53,765	49.5	161,294	-	-	-	9.23	215,059	10.0 %	21,506	-	-	236,565
SWM - Earthworks and Erosion Protection - Win from stockpile,	M3	1,000	-	-	0.11	107	16.5	1,770	49.5	5,310	-	-	-	7.08	7,080	10.0 %	708	-	-	7,788
SWM - Earthworks and Erosion Protection - Win from stockpiles,	M3	500	-	-	0.11	53.6	16.5	885	49.5	2,655	-	-	-	7.08	3,540	10.0 %	354	-	-	3,894
SWM - Earthworks and Erosion Protection - Win from supplied	M3	900	-	-	0.11	97.4	16.5	1,606	49.5	4,819	-	-	-	7.14	6,426	10.0 %	643	-	-	7,069
SWM - Material Supply - Supply suitable Zone E erosion protection	CM	6,490	-	-	1.33	8,628	5.33	45,965	16.0	137,896	-	-	-	28.3	183,862	10.0 %	18,386	-	-	202,248
SWM - Sediment Collection Drains - Clear and grub sediment	M2	40,800	-	-	0.01	210	16.5	3,468	49.5	10,404	-	-	-	0.34	13,872	10.0 %	1,387	-	-	15,259
SWM - Sediment Collection Drains - Excavate drains, load and haul	M3	24,600	-	-	0.13	3,314	16.5	54,673	49.5	164,020	-	-	-	8.89	218,694	10.0 %	21,869	-	-	240,563
SWM - Sediment Collection Drains - Selectively win from supplied	M3	4,470	-	-	0.12	553	16.5	9,119	49.5	27,356	-	-	-	8.16	36,475	10.0 %	3,648	-	-	40,123
SWM - Sediment Collection Drains - Strip topsoil (200 mm) from site	M3	8,300	-	-	3.14	26,050	0.41	10,811	1.24	32,432	-	-	-	5.21	43,243	10.0 %	4,324	-	-	47,567
SWM - Site Preparation - Clear and grub diversion channel	M2	8,400	-	-	0.01	43.3	16.5	714	49.5	2,142	-	-	-	0.34	2,856	10.0 %	286	-	-	3,142
SWM - Site Preparation - Clear and grub SCS footprint and haul	M2	108,000	-	-	0.01	556	16.5	9,180	49.5	27,540	-	-	-	0.34	36,720	10.0 %	3,672	-	-	40,392
SWM - Site Preparation - Excavate unsuitable material from the	M3	2,700	-	-	0.10	262	16.5	4,320	49.5	12,960	-	-	-	6.40	17,280	10.0 %	1,728	-	-	19,008
SWM - Site Preparation - Strip topsoil (200 mm) from SCS	M3	23,000	-	-	1.51	34,733	0.86	29,957	2.59	89,872	-	-	-	5.21	119,830	10.0 %	11,983	-	-	131,813
SWM - Site Preparation - Strip topsoil (200 mm) from site diversion	M3	1,700	-	-	5.11	8,683	0.25	2,214	0.76	6,643	-	-	-	5.21	8,857	10.0 %	886	-	-	9,743
SWM - Stockpile & Borrow Areas - Clear and grub designated	M2	3,000	-	-	0.00	10.5	16.5	172	49.5	517	-	-	-	0.23	690	10.0 %	69.0	-	-	759
SWM - Stockpile & Borrow Areas - Clear and grub designated	M2	10,800	-	-	0.00	37.6	16.5	621	49.5	1,863	-	-	-	0.23	2,484	10.0 %	248	-	-	2,732
SWM - Stockpile & Borrow Areas - Strip topsoil from borrow areas,	M3	600	-	-	0.17	103	7.62	781	22.8	2,344	-	-	-	5.21	3,126	10.0 %	313	-	-	3,439
SWM - Stockpiles & Borrow Areas - Clear and grub designated	M2	4,400	-	-	0.00	15.3	16.5	253	49.5	759	-	-	-	0.23	1,012	10.0 %	101	-	-	1,113
SWM - Stockpiles & Borrow Areas - Clear and grub designated	M2	31,000	-	-	0.00	108	16.5	1,782	49.5	5,347	-	-	-	0.23	7,130	10.0 %	713	-	-	7,843
SWM - Stockpiles & Borrow Areas - Strip topsoil from borrow areas,	M3	900	-	-	0.34	308	3.81	1,172	11.4	3,517	-	-	-	5.21	4,689	10.0 %	469	-	-	5,158
3.2.5 - Incinerator				**302,123**		**2,337**		**29,108**		**20,647**	**-**	**-**	**42,474**		**394,353**		**51,656**	**-**	**-**	**446,009**
C Concrete				***11,927***		***893***		***6,797***		***5,127***	***-***	***-***	***-***		***23,852***		***2,385***	***-***	***-***	***26,237***
C3010 Blinding Concrete 50mm thick	CM	0	250	30.0	18.7	2.24	7.61	17.1	5.74	12.9	-	-	-	499	59.9	10.0 %	5.99	-	-	65.9
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	2	681	1,633	51.0	122	7.61	931	5.74	702	-	-	-	1,361	3,266	10.0 %	327	-	-	3,593
C3060 Ground Slabs < 300 mm thick	M3	25	411	10,264	30.7	769	7.61	5,849	5.74	4,412	-	-	-	821	20,526	10.0 %	2,053	-	-	22,578
E Electrical				***5,040***		***373***		***4,470***		***2,980***	***-***	***-***	***302***		***12,792***		***1,279***	***-***	***-***	***14,071***
Area Electrical AUD	EA	1	4,477	4,477	358	358	12.0	4,290	8.00	2,860	-	-	269	11,896	11,896	10.0 %	1,190	-	-	13,085
Area Electrical EUR	EA	1	563	563	15.0	15.0	12.0	180	8.00	120	-	-	33.8	897	897	10.0 %	89.7	-	-	986
M Mechanical				***240,715***		***125***		***1,773***		***1,156***	***-***	***-***	***36,107***		***279,751***		***33,570***	***-***	***-***	***313,321***
Plant Incinerator	EA	1	240,715	240,715	125	125	14.1	1,773	9.22	1,156	-	-	36,107	279,751	279,751	12.0 %	33,570	-	-	313,321

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
P Piping				***34,388***		***599***		***10,177***		***7,210***	***-***	***-***	***3,439***		***55,214***		***12,147***	***-***	***-***	***67,361***
2.5.4 - Incinerator - Area Piping	EA	0	114,626	34,388	1,998	599	17.0	10,177	12.0	7,210	-	-	3,439	184,046	55,214	22.0 %	12,147	-	-	67,361
S Steelwork				***10,054***		***347***		***5,891***		***4,173***	***-***	***-***	***2,626***		***22,744***		***2,274***	***-***	***-***	***25,018***
S2020 Light Steel - < 25kg/m Paint Spec B - Wet Area.	T	1	2,165	2,512	64.1	74.4	17.0	1,263	12.0	895	-	-	841	4,750	5,510	10.0 %	551	-	-	6,062
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	2	2,298	3,952	48.7	83.8	17.0	1,423	12.0	1,008	-	-	1,247	4,437	7,631	10.0 %	763	-	-	8,394
S4030 Cladding Colorbond	M2	88	16.9	1,480	0.77	67.5	17.0	1,146	12.0	812	-	-	222	41.7	3,661	10.0 %	366	-	-	4,027
S4110 Purlins - Galvanised	LM	105	20.1	2,109	1.15	121	17.0	2,058	12.0	1,458	-	-	316	56.6	5,941	10.0 %	594	-	-	6,535
3.2.6 - Waste Disposal & Landfill				**301,250**		**-**		**-**		**-**	**-**	**122,500**	**-**		**423,750**		**29,188**	**-**	**-**	**452,938**
U Owners Costs				***301,250***		***-***		***-***		***-***	***-***	***122,500***	***-***		***423,750***		***29,188***	***-***	***-***	***452,938***
Additional provision for Landfill for general waste (Project review -	Lot	1	60,000	60,000	-	-		-		-	-	-	-	60,000	60,000	10.0 %	6,000	-	-	66,000
Establishment of waste management area, including containers	Lot	1	50,000	50,000	-	-		-		-	-	-	-	50,000	50,000	10.0 %	5,000	-	-	55,000
Hardstand and warehousing for storage of hazardous materials	Lot	1	-	-	-	-		-		-	-	50,000	-	50,000	50,000	10.0 %	5,000	-	-	55,000
Management & mitigation (Physical Environment) - Contracted	Yr	2	5,000	11,250	-	-		-		-	-	-	-	5,000	11,250	5.0 %	562	-	-	11,812
Management & mitigation (Physical Environment) - Engineered	Yr	2	40,000	90,000	-	-		-		-	-	-	-	40,000	90,000	5.0 %	4,500	-	-	94,500
Management & mitigation (Physical Environment) -Hardstand for	Lot	1	-	-	-	-		-		-	-	20,000	-	20,000	20,000	5.0 %	1,000	-	-	21,000
Management & mitigation (Physical Environment) - Landfill for	Yr	2	40,000	90,000	-	-		-		-	-	-	-	40,000	90,000	5.0 %	4,500	-	-	94,500
Management & mitigation (Physical Environment) - Processing of	Lot	3	-	-	-	-		-		-	-	45,000	-	15,000	45,000	5.0 %	2,250	-	-	47,250
Management & mitigation (Physical Environment) - Waste	Lot	1	-	-	-	-		-		-	-	7,500	-	7,500	7,500	5.0 %	375	-	-	7,875
3.3 - Raw Water				***3,467,923***		***243,711***		***3,872,719***		***9,732,725***	***-***	***-***	***568,840***		***17,642,207***		***1,925,474***	***-***	***-***	***19,567,681***
3.3.1 - Raw Water Supply				**2,798,582**		**82,987**		**1,051,397**		**1,654,933**	**-**	**-**	**472,217**		**5,977,128**		**712,085**	**-**	**-**	**6,689,213**
C Concrete				***26,953***		***1,780***		***4,343***		***5,945***	***-***	***-***	***-***		***37,241***		***4,302***	***-***	***-***	***41,543***
C3010 Blinding Concrete 50mm thick	CM	2	313	703	24.4	54.9	2.44	134	3.34	183	-	-	-	454	1,021	12.0 %	122	-	-	1,143
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	33	450	14,618	32.2	1,048	2.44	2,557	3.34	3,500	-	-	-	636	20,674	12.0 %	2,481	-	-	23,155
C3060 Ground Slabs < 300 mm thick	M3	15	406	6,092	25.8	386	2.44	943	3.34	1,291	-	-	-	555	8,326	10.0 %	833	-	-	9,158
C3210 Ring Beams - Concrete	M3	5	659	3,326	47.4	239	2.44	584	3.34	799	-	-	-	934	4,708	12.0 %	565	-	-	5,273
C3220 Ring Beams - Structural Fill	CM	19	5.73	108	2.47	46.6	2.44	114	3.34	156	-	-	-	20.0	378	12.0 %	45.3	-	-	423
C3230 Infill Oil Impregnated Sand < 50 mm thick	CM	2	58.2	89.1	0.20	0.31	2.44	0.75	3.34	1.02	-	-	-	59.4	90.9	12.0 %	10.9	-	-	102
C3232 Ring Beams - HDPE Liner 2mm Thick	M2	31	64.6	2,016	0.15	4.70	2.44	11.5	3.34	15.7	-	-	-	65.5	2,043	12.0 %	245	-	-	2,288
E Electrical				***4,437***		***281***		***3,373***		***2,249***	***-***	***-***	***266***		***10,326***		***1,033***	***-***	***-***	***11,358***
Area Electrical AUD	EA	1	4,218	4,218	277	277	12.0	3,325	8.00	2,216	-	-	253	10,012	10,012	10.0 %	1,001	-	-	11,013
Area Electrical EUR	EA	1	219	219	4.06	4.06	12.0	48.7	8.00	32.5	-	-	13.1	314	314	10.0 %	31.4	-	-	345
L Platework				***28,719***		***1,384***		***19,568***		***12,759***	***-***	***-***	***20,279***		***81,325***		***9,759***	***-***	***-***	***91,085***
L2010 Field Erected Tanks G350 Fabricated Components - Paint	T	4	2,612	9,742	115	430	14.1	6,086	9.22	3,969	-	-	6,307	7,000	26,104	12.0 %	3,133	-	-	29,237

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
L2020 Field Erected Tanks G350 Slab Plate Trim & Sized - Paint	T	8	2,297	18,977	115	953	14.1	13,482	9.22	8,791	-	-	13,971	6,685	55,221	12.0 %	6,627	-	-	61,848
M Mechanical				***818,872***		***418***		***5,911***		***3,854***	***-***	***-***	***122,831***		***951,467***		***114,176***	***-***	***-***	***1,065,643***
Water Harvest Decant Pump 1 - 355kW	EA	1	409,436	409,436	209	209	14.1	2,955	9.22	1,927	-	-	61,415	475,734	475,734	12.0 %	57,088	-	-	532,822
Water Harvest Decant Pump 2 - 355kW	EA	1	409,436	409,436	209	209	14.1	2,955	9.22	1,927	-	-	61,415	475,734	475,734	12.0 %	57,088	-	-	532,822
P Piping				***1,907,288***		***37,072***		***620,533***		***437,120***	***-***	***-***	***328,841***		***3,293,783***		***422,516***	***-***	***-***	***3,716,299***
3.3.1 - Raw Water Supply - Area Piping	EA	1	180,887	180,887	3,153	3,153	14.1	44,579	9.22	29,068	-	-	18,089	272,622	272,622	22.0 %	59,977	-	-	332,599
560PN10 HDPE	LM	5,400	121	653,524	2.72	14,682	17.0	249,301	12.0	176,625	-	-	117,634	222	1,197,085	12.0 %	143,650	-	-	1,340,735
560PN16 HDPE	LM	6,000	179	1,072,877	3.21	19,238	17.0	326,653	12.0	231,427	-	-	193,118	304	1,824,075	12.0 %	218,889	-	-	2,042,964
W Earthworks				***12,313***		***42,052***		***397,669***		***1,193,006***	***-***	***-***	***-***		***1,602,987***		***160,299***	***-***	***-***	***1,763,285***
WHD - Abstraction Tower - Excavate Abstraction Tower Sump and	M3	400	-	-	0.20	80.7	16.5	1,331	49.5	3,993	-	-	-	13.3	5,324	10.0 %	532	-	-	5,856
WHD - Abstraction Tower - Supply and install 1800mm dia precast	LM	7	-	-	38.6	270	16.5	4,461	49.5	13,384	-	-	-	2,549	17,845	10.0 %	1,784	-	-	19,629
WHD - Abstraction Tower - Supply and install 1800mm square (I.D.)	LM	8	-	-	45.5	364	16.5	6,005	49.5	18,015	-	-	-	3,002	24,020	10.0 %	2,402	-	-	26,422
WHD - Abstraction Tower - Supply and install 25MPa reinforced	Item	1	-	-	25.7	25.7	16.5	425	49.5	1,275	-	-	-	1,699	1,699	10.0 %	170	-	-	1,869
WHD - Abstraction Tower - Supply and install 900mm internal	LM	14	-	-	8.33	117	16.5	1,923	49.5	5,770	-	-	-	550	7,693	10.0 %	769	-	-	8,462
WHD - Abstraction Tower - Win from borrow, load, haul, place,	M3	3,000	-	-	0.11	332	16.5	5,482	49.5	16,447	-	-	-	7.31	21,930	10.0 %	2,193	-	-	24,123
WHD - Abstraction Tower - Win from borrow, load, haul, place,	M3	2,000	-	-	0.11	218	16.5	3,595	49.5	10,785	-	-	-	7.19	14,380	10.0 %	1,438	-	-	15,818
WHD - Abstraction Tower - Win from stockpile, load, haul, place and	M3	270	-	-	0.13	33.8	16.5	558	49.5	1,675	-	-	-	8.27	2,233	10.0 %	223	-	-	2,456
WHD - Abstraction Tower - Win from stockpile, load, haul, place and	M3	10	-	-	0.12	1.16	16.5	19.1	49.5	57.4	-	-	-	7.65	76.5	10.0 %	7.65	-	-	84.1
WHD - Access Road - Excavate V-drain and place suitable material	M3	3,000	-	-	0.19	557	16.5	9,192	49.5	27,576	-	-	-	12.3	36,769	10.0 %	3,677	-	-	40,445
WHD - Access Road - Scarify, condition and compact suitable insitu	M2	50,000	-	-	0.01	470	16.5	7,750	49.5	23,250	-	-	-	0.62	31,000	10.0 %	3,100	-	-	34,100
WHD - Access Road - Win from borrow, load, haul, place, spread,	M3	14,900	-	-	0.16	2,366	16.5	39,038	49.5	117,114	-	-	-	10.5	156,152	10.0 %	15,615	-	-	171,767
WHD - Embankment Construction - Excavate continuous sill wall	CM	100	-	-	4.38	438	16.5	7,223	49.5	21,669	-	-	-	289	28,892	10.0 %	2,889	-	-	31,781
WHD - Embankment Construction - Excavate embankment cut off	M3	2,600	-	-	0.11	297	16.5	4,894	49.5	14,683	-	-	-	7.53	19,578	10.0 %	1,958	-	-	21,536
WHD - Embankment Construction - Excavate the downstream	M3	4,600	-	-	0.10	471	21.7	10,223	65.1	30,670	-	-	-	8.89	40,894	10.0 %	4,089	-	-	44,983
WHD - Embankment Construction - Extra over for breaking hard	M3	300	-	-	0.12	36.0	16.5	595	49.5	1,784	-	-	-	7.93	2,379	10.0 %	238	-	-	2,617
WHD - Embankment Construction - Install Grade 1 Geotextile to	M2	2,200	-	-	0.01	28.3	16.5	467	49.5	1,402	-	-	-	0.85	1,870	10.0 %	187	-	-	2,057
WHD - Embankment Construction - Scarify, condition and compact	M2	6,200	-	-	0.00	8.97	128	1,147	384	3,441	-	-	-	0.74	4,588	10.0 %	459	-	-	5,047
WHD - Embankment Construction - Win from borrow, load, haul,	M3	1,700	-	-	0.11	182	21.6	3,923	64.7	11,768	-	-	-	9.23	15,691	10.0 %	1,569	-	-	17,260
WHD - Embankment Construction - Win from stockpile, load, haul,	M3	6,000	-	-	0.01	42.9	248	10,620	742	31,860	-	-	-	7.08	42,480	10.0 %	4,248	-	-	46,728
WHD - Material Supply - Supply Grade 1 Geotextile (including 10%	M2	2,400	-	-	0.03	68.0	16.5	1,122	49.5	3,366	-	-	-	1.87	4,488	10.0 %	449	-	-	4,937
WHD - Material Supply - Supply suitable Zone E erosion protection	CM	4,900	-	-	0.43	2,103	16.5	34,704	49.5	104,113	-	-	-	28.3	138,817	10.0 %	13,882	-	-	152,699
WHD - Material Supply - Supply suitable Zone F1 drainage material	CM	1	-	-	1.28	1.28	16.5	21.0	49.5	63.1	-	-	-	84.2	84.2	10.0 %	8.42	-	-	92.6
WHD Monitoring & Instrumentation - Supply and install survey pins	Item	3	1,404	4,212	-	-		-		-	-	-	-	1,404	4,212	10.0 %	421	-	-	4,633
WHD - Monitoring & Instrumentation - Supply and install vibrating	Item	3	2,700	8,100	-	-		-		-	-	-	-	2,700	8,100	10.0 %	810	-	-	8,910
WHD - Site Preparation - Clear and grub access road footprint, haul	M2	50,000	-	-	0.06	2,828	1.50	4,250	4.51	12,750	-	-	-	0.34	17,000	10.0 %	1,700	-	-	18,700
WHD - Site Preparation - Clear and grub area of basin, haul	M2	549,000	-	-	0.01	2,828	16.5	46,665	49.5	139,995	-	-	-	0.34	186,660	10.0 %	18,666	-	-	205,326
WHD - Site Preparation - Clear and grub embankment footprints,	M2	6,200	-	-	0.01	31.9	16.5	527	49.5	1,581	-	-	-	0.34	2,108	10.0 %	211	-	-	2,319
WHD - Site Preparation - Excavate unsuitable material from the	M3	1,900	-	-	0.10	184	16.5	3,040	49.5	9,120	-	-	-	6.40	12,160	10.0 %	1,216	-	-	13,376
WHD - Site Preparation - Strip topsoil (200 mm) from access road	M3	10,000	-	-	0.87	8,683	1.50	13,025	4.50	39,075	-	-	-	5.21	52,100	10.0 %	5,210	-	-	57,310

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
WHD - Site Preparation - Strip topsoil (200mm) from basin area,	M3	110,000	-	-	0.08	8,683	16.5	143,275	49.5	429,825	-	-	-	5.21	573,100	10.0 %	57,310	-	-	630,410
WHD - Site Preparation - Strip topsoil (200mm) from embankment	M3	1,300	-	-	0.08	103	16.5	1,693	49.5	5,080	-	-	-	5.21	6,773	10.0 %	677	-	-	7,450
WHD - Stockpile & Borrow Areas - Clear and grub designated	M2	21,000	-	-	0.00	73.2	16.5	1,207	49.5	3,622	-	-	-	0.23	4,830	10.0 %	483	-	-	5,313
WHD - Stockpile & Borrow Areas - Clear and grub designated	M2	127,000	-	-	0.00	443	16.5	7,302	49.5	21,907	-	-	-	0.23	29,210	10.0 %	2,921	-	-	32,131
WHD - Stockpile & Borrow Areas - Strip topsoil (200mm) from	M3	4,200	-	-	2.07	8,683	0.63	5,470	1.89	16,411	-	-	-	5.21	21,882	10.0 %	2,188	-	-	24,070
WHD - Win from stockpile, load, haul, place, and spread the Zone E	M3	4,600	-	-	0.13	576	16.5	9,510	49.5	28,531	-	-	-	8.27	38,042	10.0 %	3,804	-	-	41,846
Win from borrow, load, haul, place, spread, condition and compact	M3	2,900	-	-	0.15	423	16.5	6,982	49.5	20,945	-	-	-	9.63	27,927	10.0 %	2,793	-	-	30,720
3.3.2 - Raw Water Storage				**669,341**		**160,724**		**2,821,322**		**8,077,792**	**-**	**-**	**96,623**		**11,665,079**		**1,213,389**	**-**	**-**	**12,878,468**
C Concrete				***6,400***		***439***		***1,070***		***1,465***	***-***	***-***	***-***		***8,935***		***1,072***	***-***	***-***	***10,007***
C3010 Blinding Concrete 50mm thick	CM	1	313	306	24.4	23.9	2.44	58.3	3.34	79.7	-	-	-	454	444	12.0 %	53.3	-	-	497
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	8	450	3,685	32.2	264	2.44	644	3.34	882	-	-	-	636	5,211	12.0 %	625	-	-	5,837
C3060 Ground Slabs < 300 mm thick	M3	5	406	1,950	25.8	124	2.44	302	3.34	413	-	-	-	555	2,664	12.0 %	320	-	-	2,984
C3090 Kerbs < 500mm high	M3	1	414	460	24.2	26.9	2.44	65.6	3.34	89.9	-	-	-	554	615	12.0 %	73.8	-	-	689
E Electrical				***4,437***		***281***		***3,373***		***2,249***	***-***	***-***	***266***		***10,326***		***1,033***	***-***	***-***	***11,358***
Area Electrical AUD	EA	1	4,218	4,218	277	277	12.0	3,325	8.00	2,216	-	-	253	10,012	10,012	10.0 %	1,001	-	-	11,013
Area Electrical EUR	EA	1	219	219	4.06	4.06	12.0	48.7	8.00	32.5	-	-	13.1	314	314	10.0 %	31.4	-	-	345
M Mechanical				***261,632***		***293***		***4,137***		***2,698***	***-***	***-***	***39,245***		***307,712***		***36,925***	***-***	***-***	***344,638***
Water Storage Dam Seepage Pump - 22kW	EA	1	25,266	25,266	83.6	83.6	14.1	1,182	9.22	771	-	-	3,790	31,009	31,009	12.0 %	3,721	-	-	34,730
Water Storage Decant Pump 1 - 75kW	EA	1	118,183	118,183	105	105	14.1	1,478	9.22	963	-	-	17,727	138,352	138,352	12.0 %	16,602	-	-	154,954
Water Storage Decant Pump 2 - 75kW	EA	1	118,183	118,183	105	105	14.1	1,478	9.22	963	-	-	17,727	138,352	138,352	12.0 %	16,602	-	-	154,954
P Piping				***357,387***		***9,475***		***151,935***		***105,127***	***-***	***-***	***49,859***		***664,307***		***106,979***	***-***	***-***	***771,287***
110PN10 HDPE	LM	5,750	6.04	34,727	0.26	1,475	17.0	25,043	12.0	17,743	-	-	6,251	14.6	83,764	12.0 %	10,052	-	-	93,816
3.3.2 - Raw Water Storage - Area Piping	EA	1	180,887	180,887	3,153	3,153	14.1	44,579	9.22	29,068	-	-	18,089	272,622	272,622	22.0 %	59,977	-	-	332,599
400PN10 HDPE	LM	2,277	62.3	141,773	2.13	4,848	17.0	82,313	12.0	58,317	-	-	25,519	135	307,921	12.0 %	36,951	-	-	344,872
S Steelwork				***23,365***		***487***		***6,885***		***4,489***	***-***	***-***	***7,253***		***41,993***		***4,199***	***-***	***-***	***46,193***
S2020 Light Steel - < 25kg/m Paint Spec B - Wet Area.	T	0	2,165	762	64.1	22.6	14.1	319	9.22	208	-	-	255	4,388	1,545	10.0 %	154	-	-	1,699
S2040 Medium Steel - 25 - 75 kg/m Paint Spec B - Wet Area.	T	5	2,298	11,880	48.7	252	14.1	3,563	9.22	2,323	-	-	3,748	4,161	21,513	10.0 %	2,151	-	-	23,664
S2080 Hollow Sections - Paint Spec B - Wet Area	T	1	2,321	2,630	64.1	72.7	14.1	1,027	9.22	670	-	-	821	4,544	5,148	10.0 %	515	-	-	5,663
S2100 Welded Beams & Columns - Paint Spec B - Wet Area	T	3	2,260	7,120	38.5	121	14.1	1,714	9.22	1,117	-	-	2,283	3,884	12,234	10.0 %	1,223	-	-	13,458
S3160 Handrails - Platform - Paint Spec B - Wet Area (including	LM	7	135	974	2.57	18.5	14.1	262	9.22	171	-	-	146	215	1,553	10.0 %	155	-	-	1,708
W Earthworks				***16,120***		***149,750***		***2,653,921***		***7,961,764***	***-***	***-***	***-***		***10,631,805***		***1,063,180***	***-***	***-***	***11,694,985***
WHD - Embankment Construction - Supply and install grade 1	M2	15,100	-	-	0.04	590	16.5	9,739	49.5	29,218	-	-	-	2.58	38,958	10.0 %	3,896	-	-	42,854
WSD - Culvert Installation - Excavate culvert trenches to finished	M3	200	-	-	0.12	23.7	16.5	391	49.5	1,174	-	-	-	7.83	1,566	10.0 %	157	-	-	1,722
WSD - Culvert Installation - Scarify, moisture condition and compact	M2	400	-	-	0.01	3.64	16.5	60.0	49.5	180	-	-	-	0.60	240	10.0 %	24.0	-	-	264
WSD - Culvert Installation - Supply and Install 2500 mm x 2500 mm	LM	76	-	-	0.09	7.17	16.5	118	49.5	355	-	-	-	6.23	474	10.0 %	47.4	-	-	521

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
WSD - Culvert Installation - Supply and Install Grade 1 geotextile	M2	200	-	-	0.04	7.82	16.5	129	49.5	387	-	-	-	2.58	516	10.0 %	51.6	-	-	568
WSD - Culvert Installation - Win from borrow, load, haul, place,	M3	1,000	-	-	0.18	183	16.5	3,018	49.5	9,054	-	-	-	12.1	12,071	10.0 %	1,207	-	-	13,279
WSD - Culvert Installation - Win from stockpile,load, haul, place,	M3	100	-	-	0.13	13.1	16.5	216	49.5	649	-	-	-	8.65	865	10.0 %	86.5	-	-	952
WSD - Culvert Installation - Win from stockpile, load, haul, place,	M3	4,000	-	-	0.11	443	16.5	7,313	49.5	21,938	-	-	-	7.31	29,251	10.0 %	2,925	-	-	32,176
WSD - Culvert Installation - Win from supplied stockpile, load, haul,	M3	20	-	-	0.04	0.78	16.5	12.9	49.5	38.7	-	-	-	2.58	51.6	10.0 %	5.16	-	-	56.8
WSD - Culvert Installation - Win from supplied stockpile, load, haul	M3	40	-	-	0.41	16.4	3.30	54.1	9.90	162	-	-	-	5.41	216	10.0 %	21.6	-	-	238
WSD Decant Tower - Excavate decant tower sump and trench, haul	M3	150	-	-	0.12	18.1	16.5	298	49.5	895	-	-	-	7.95	1,193	10.0 %	119	-	-	1,312
WSD Decant Tower - Supply and install 2250 mm diameter slotted	M	18	-	-	48.3	870	16.5	14,347	49.5	43,040	-	-	-	3,188	57,387	10.0 %	5,739	-	-	63,126
WSD Decant Tower - Supply and install 3200 mm square reinforced	EA	1	-	-	83.2	83.2	16.5	1,373	49.5	4,119	-	-	-	5,493	5,493	10.0 %	549	-	-	6,042
WSD Decant Tower - Supply and install lockable steel cover for	Item	1	-	-	135	135	16.5	2,228	49.5	6,683	-	-	-	8,910	8,910	10.0 %	891	-	-	9,801
WSD Decant Tower - Supply and install pump bipod stand over the	Item	1	-	-	208	208	16.5	3,427	49.5	10,281	-	-	-	13,708	13,708	10.0 %	1,371	-	-	15,078
WSD Decant Tower - Win from borrow, load, haul, place, spread,	M3	160	-	-	0.19	29.7	16.5	490	49.5	1,471	-	-	-	12.3	1,961	10.0 %	196	-	-	2,157
WSD Decant Tower - Win from borrow, load, haul, place, spread	M3	100	-	-	0.20	20.2	16.5	333	49.5	999	-	-	-	13.3	1,332	10.0 %	133	-	-	1,465
WSD Decant Tower - Win from stockpile or mine waste, load, haul,	M3	47,690	-	-	0.11	5,365	16.5	88,525	49.5	265,574	-	-	-	7.42	354,098	10.0 %	35,410	-	-	389,508
WSD Decant Tower - Win from supplied borrow, load, haul and	M3	23,720	-	-	0.11	2,668	16.5	44,030	49.5	132,091	-	-	-	7.42	176,121	10.0 %	17,612	-	-	193,733
WSD - Embankment Construction - Excavate embankment cut-off	M3	14,000	-	-	0.15	2,111	16.5	34,835	49.5	104,504	-	-	-	9.95	139,339	10.0 %	13,934	-	-	153,273
WSD - Embankment Construction - Extra over for breaking hard	CM	1,400	-	-	0.78	1,097	16.5	18,103	49.5	54,310	-	-	-	51.7	72,414	10.0 %	7,241	-	-	79,655
WSD - Embankment Construction - Scarify, condition and compact	M2	4,700	-	-	0.01	43.2	16.5	713	49.5	2,140	-	-	-	0.61	2,854	10.0 %	285	-	-	3,139
WSD - Embankment Construction - Scarify, condition and compact	M2	66,000	-	-	0.01	607	16.5	10,019	49.5	30,056	-	-	-	0.61	40,075	10.0 %	4,008	-	-	44,083
WSD - Embankment Construction - Win from borrow, load, haul,	M3	1,000	-	-	0.19	186	16.5	3,064	49.5	9,192	-	-	-	12.3	12,256	10.0 %	1,226	-	-	13,482
WSD - Embankment Construction - Win from borrow, load, haul,	M3	15,400	-	-	0.18	2,841	16.5	46,881	49.5	140,644	-	-	-	12.2	187,526	10.0 %	18,753	-	-	206,278
WSD - Embankment Construction - Win from borrow, load, haul,	M3	161,000	-	-	0.18	29,028	16.5	478,967	49.5	1,436,901	-	-	-	11.9	1,915,868	10.0 %	191,587	-	-	2,107,455
WSD - Embankment Construction - Win from borrow, load, haul,	M3	500	-	-	0.20	101	16.5	1,665	49.5	4,995	-	-	-	13.3	6,659	10.0 %	666	-	-	7,325
WSD - Embankment Construction - Win from pre-stripping, load,	M3	241,000	-	-	0.16	37,355	16.5	616,358	49.5	1,849,072	-	-	-	10.2	2,465,430	10.0 %	246,543	-	-	2,711,973
WSD - Embankment Construction - Win from spillway excavation,	M3	1	-	-	0.15	0.15	16.5	2.49	49.5	7.46	-	-	-	9.95	9.95	10.0 %	1.00	-	-	10.9
WSD - Material Supply - Supply Zone E erosion protection material	CM	16,000	-	-	0.00	16.4	1,320	21,648	3,960	64,944	-	-	-	5.41	86,592	10.0 %	8,659	-	-	95,251
WSD Monitoring Instrumentation - Install survey pins complete in	Item	5	-	-	21.6	108	16.5	1,779	49.5	5,337	-	-	-	1,423	7,116	10.0 %	712	-	-	7,827
WSD Monitoring Instrumentation - Install Vibrating Wire	Item	5	-	-	138	688	16.5	11,344	49.5	34,032	-	-	-	9,075	45,376	10.0 %	4,538	-	-	49,913
WSD - Public Causeway - Scarify, moisture condition and compact	M2	38,300	-	-	0.01	348	16.5	5,745	49.5	17,235	-	-	-	0.60	22,980	10.0 %	2,298	-	-	25,278
WSD - Public Causeway - Supply and Install c/w metal personnel	LM	830	6.50	5,395	-	-		-		-	-	-	-	6.50	5,395	10.0 %	540	-	-	5,934
WSD - Public Causeway - Supply and Install c/w metal safety berms	LM	1,650	6.50	10,725	-	-		-		-	-	-	-	6.50	10,725	10.0 %	1,072	-	-	11,798
WSD - Public Causeway - Win from borrow, load, haul, place,	M3	900	-	-	0.18	165	16.5	2,716	49.5	8,147	-	-	-	12.1	10,863	10.0 %	1,086	-	-	11,949
WSD - Public Causeway - Win from stockpile, load, haul, place,	M3	154,000	-	-	0.18	28,162	16.5	464,673	49.5	1,394,018	-	-	-	12.1	1,858,691	10.0 %	185,869	-	-	2,044,560
WSD - Site Preparation - Clear and grub WSD basin footprints, haul	M2	1,192,0	-	-	0.00	1,936	89.4	173,078	268	519,235	-	-	-	0.58	692,314	10.0 %	69,231	-	-	761,545
WSD - Site Preparation - Clear and grub WSD embankment	M2	66,000	-	-	0.01	581	16.5	9,583	49.5	28,750	-	-	-	0.58	38,333	10.0 %	3,833	-	-	42,166
WSD - Site Preparation - Clear and grub WSD emergency spillway	M2	1	-	-	0.01	0.01	16.5	0.15	49.5	0.44	-	-	-	0.58	0.58	10.0 %	0.06	-	-	0.64
WSD - Site Preparation - Excavate unsuitable material from the	M3	63,000	-	-	0.07	4,158	16.5	68,607	49.5	205,821	-	-	-	4.36	274,428	10.0 %	27,443	-	-	301,871
WSD - Site Preparation - Strip topsoil (250 mm) from WSD basin	M3	298,000	-	-	0.07	19,370	16.5	319,605	49.5	958,815	-	-	-	4.29	1,278,420	10.0 %	127,842	-	-	1,406,262
WSD - Site Preparation - Strip topsoil (250 mm) from WSD	M3	16,500	-	-	0.08	1,292	16.5	21,317	49.5	63,952	-	-	-	5.17	85,269	10.0 %	8,527	-	-	93,796
WSD - Site Preparation - Strip topsoil (250 mm) from WSD	M3	1	-	-	0.08	0.08	16.5	1.29	49.5	3.88	-	-	-	5.17	5.17	10.0 %	0.52	-	-	5.68
WSD - Stockpile & Borrow Areas - Clear and grub designated	M2	119,000	-	-	0.01	1,047	16.5	17,279	49.5	51,836	-	-	-	0.58	69,115	10.0 %	6,912	-	-	76,027
WSD - Stockpile & Borrow Areas - Clear and grub designated	M2	315,000	-	-	0.01	2,772	16.5	45,738	49.5	137,214	-	-	-	0.58	182,952	10.0 %	18,295	-	-	201,247

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
WSD - Stockpile & Borrow Areas - Strip topsoil (200mm) from	M3	29,800	-	-	0.08	2,333	16.5	38,500	49.5	115,500	-	-	-	5.17	154,000	10.0 %	15,400	-	-	169,400
WSD - Supply suitable Zone G material to stockpile	M3	23,720	-	-	0.11	2,668	16.5	44,030	49.5	132,091	-	-	-	7.42	176,121	10.0 %	17,612	-	-	193,733
WSD - Win from stockpile, load, haul and place Zone E erosion	M3	7,200	-	-	0.00	16.4	594	9,742	1,782	29,225	-	-	-	5.41	38,966	10.0 %	3,897	-	-	42,863
WSD - Win from supplied stockpile, load, haul and place Zone E	M3	8,000	-	-	0.00	16.4	660	10,824	1,980	32,472	-	-	-	5.41	43,296	10.0 %	4,330	-	-	47,626
WSD - Win from supplied stockpile, load, haul and place Zone E	M3	740	-	-	0.02	16.4	61.1	1,001	183	3,004	-	-	-	5.41	4,005	10.0 %	400	-	-	4,405
3.4 - Power Supply				**-**		**-**		**-**		**-**	**-**	***37,419,000***	**-**		***37,419,000***		***2,290,950***	**-**	**-**	***39,709,950***
3.4.1 - Mains Power				**-**		**-**		**-**		**-**	**-**	**33,219,000**	**-**		**33,219,000**		**1,660,950**	**-**	**-**	**34,879,950**
U Owners Costs				**-**		**-**		**-**		**-**	**-**	***33,219,000***	**-**		***33,219,000***		***1,660,950***	**-**	**-**	***34,879,950***
Operational costs (option 1) - Grid Power (during construction) -	MTH	1	-	-	-	-		-		-	-	1,000,000	-	1,000,000	1,000,000	5.0 %	50,000	-	-	1,050,000
Permanent Power CAPEX - option 1 Grid power only (assume	Lot	1	-	-	-	-		-		-	-	225,000	-	225,000	225,000	5.0 %	11,250	-	-	236,250
Permanent Power CAPEX - option 1 Grid power only (assume	Lot	1	-	-	-	-		-		-	-	284,000	-	284,000	284,000	5.0 %	14,200	-	-	298,200
Permanent Power CAPEX - option 1 Grid power only (assume	Lot	1	-	-	-	-		-		-	-	2,150,000	-	2,150,000	2,150,000	5.0 %	107,500	-	-	2,257,500
Permanent Power CAPEX - option 1 Grid power only (assume	Lot	1	-	-	-	-		-		-	-	12,895,000	-	12,895,000	12,895,000	5.0 %	644,750	-	-	13,539,750
Permanent Power CAPEX - option 1 Grid power only (assume	Lot	1	-	-	-	-		-		-	-	1,100,000	-	1,100,000	1,100,000	5.0 %	55,000	-	-	1,155,000
Permanent Power CAPEX - option 1 Grid power only (assume	Lot	1	-	-	-	-		-		-	-	1,300,000	-	1,300,000	1,300,000	5.0 %	65,000	-	-	1,365,000
Permanent Power CAPEX - option 1 Grid power only (assume	Lot	1	-	-	-	-		-		-	-	2,275,000	-	2,275,000	2,275,000	5.0 %	113,750	-	-	2,388,750
Permanent Power CAPEX - option 1 Grid power only (assume	Lot	1	-	-	-	-		-		-	-	300,000	-	300,000	300,000	5.0 %	15,000	-	-	315,000
Permanent Power CAPEX - option 1 Grid power only (assume	Lot	1	-	-	-	-		-		-	-	390,000	-	390,000	390,000	5.0 %	19,500	-	-	409,500
Permanent Power CAPEX - option 1 Grid power only (assume	Lot	1	-	-	-	-		-		-	-	50,000	-	50,000	50,000	5.0 %	2,500	-	-	52,500
Permanent Power CAPEX - option 1 Grid power only (assume	Lot	1	-	-	-	-		-		-	-	200,000	-	200,000	200,000	5.0 %	10,000	-	-	210,000
Permanent Power CAPEX - option 1 Grid power only (assume	Lot	1	-	-	-	-		-		-	-	11,050,000	-	11,050,000	11,050,000	5.0 %	552,500	-	-	11,602,500
3.4.6 - Emergency / Standby Power				**-**		**-**		**-**		**-**	**-**	**4,200,000**	**-**		**4,200,000**		**630,000**	**-**	**-**	**4,830,000**
U Owners Costs				**-**		**-**		**-**		**-**	**-**	***4,200,000***	**-**		***4,200,000***		***630,000***	**-**	**-**	***4,830,000***
Emergency Power	MW	4	-	-	-	-		-		-	-	4,200,000	-	1,200,000	4,200,000	15.0 %	630,000	-	-	4,830,000
Standby Power (Included Elsewhere)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
3.5 - Tailings Dam & Water Storage Dam				***1,521,956***		***690,720***		***8,884,487***		***25,703,499***	**-**	**-**	***168,203***		***36,278,146***		***3,688,704***	**-**	**-**	***39,966,849***
3.5.1 - Tailings Dam & Water Storage Dam				**548,577**		**665,194**		**8,479,009**		**25,418,118**	**-**	**-**	**15,333**		**34,461,037**		**3,450,122**	**-**	**-**	**37,911,160**
E Electrical				***263***		***90***		***1,078***		***719***	**-**	**-**	***16***		***2,076***		***208***	**-**	**-**	***2,283***
Area Electrical AUD	EA	1	263	263	89.9	89.9	12.0	1,078	8.00	719	-	-	15.8	2,076	2,076	10.0 %	208	-	-	2,283
M Mechanical				***96,019***		***334***		***4,728***		***3,083***	**-**	**-**	***14,403***		***118,233***		***14,188***	**-**	**-**	***132,421***
Monitoring Bore Pumps - 11kW	EA	3	17,688	53,064	62.7	188	14.1	2,660	9.22	1,734	-	-	7,960	21,806	65,418	12.0 %	7,850	-	-	73,268
Seepage Pump - 22kW	EA	1	25,266	25,266	83.6	83.6	14.1	1,182	9.22	771	-	-	3,790	31,009	31,009	12.0 %	3,721	-	-	34,730
Underdrainage Pump - 11kW	EA	1	17,688	17,688	62.7	62.7	14.1	887	9.22	578	-	-	2,653	21,806	21,806	12.0 %	2,617	-	-	24,423

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
P Piping				***9,145***		***159***		***2,254***		***1,470***	***-***	***-***	***914***		***13,782***		***3,032***	***-***	***-***	***16,814***
3.5.1 - Tailings Dam & Water Storage Dam - Area Piping	EA	1	9,145	9,145	159	159	14.1	2,254	9.22	1,470	-	-	914	13,782	13,782	22.0 %	3,032	-	-	16,814
W Earthworks				***443,151***		***664,610***		***8,470,949***		***25,412,847***	***-***	***-***	***-***		***34,326,946***		***3,432,695***	***-***	***-***	***37,759,641***
Basin Liner Construction - Scarify, condition and compact suitable	M2	497,000	-	-	0.01	4,523	16.5	74,625	49.5	223,874	-	-	-	0.60	298,498	10.0 %	29,850	-	-	328,348
Basin Liner Construction - Win from borrow, load, haul, place,	M3	229,000	-	-	0.17	38,106	16.5	628,742	49.5	1,886,227	-	-	-	11.0	2,514,970	10.0 %	251,497	-	-	2,766,467
Culvert Installation - Excavate culvert trenches to finished profile,	M3	30	-	-	0.12	3.53	16.5	58.2	49.5	175	-	-	-	7.76	233	10.0 %	23.3	-	-	256
Culvert Installation Install Grade 1 Geotextile in areas of placed	M2	30	-	-	0.02	0.61	16.5	10.00	49.5	30.0	-	-	-	1.33	40.0	10.0 %	4.00	-	-	44.0
Culvert Installation - Scarify, moisture condition and compact in-situ	M2	90	-	-	0.01	0.82	16.5	13.5	49.5	40.5	-	-	-	0.60	54.1	10.0 %	5.41	-	-	59.5
Culvert Installation - Supply and Install 1200 mm ID Corrugated	LM	28	-	-	6.40	179	16.5	2,955	49.5	8,866	-	-	-	422	11,822	10.0 %	1,182	-	-	13,004
Culvert Installation - Win from borrow, load, haul, place, spread and	M3	180	-	-	0.13	23.0	16.5	379	49.5	1,138	-	-	-	8.43	1,517	10.0 %	152	-	-	1,669
Culvert Installation - Win from stockpile,load, haul, place, spread	M3	10	-	-	0.13	1.28	16.5	21.1	49.5	63.2	-	-	-	8.43	84.3	10.0 %	8.43	-	-	92.7
Culvert Installation - Win from stockpile, load, haul, place and	M3	10	-	-	1.64	16.4	0.83	13.5	2.48	40.6	-	-	-	5.41	54.1	10.0 %	5.41	-	-	59.5
Culvert Installation - Win from stockpile, load, haul, place and	M3	10	-	-	1.64	16.4	0.83	13.5	2.48	40.6	-	-	-	5.41	54.1	10.0 %	5.41	-	-	59.5
Decant Access Road - Win from borrow, load, haul, place, spread,	M3	1,100	-	-	0.18	200	16.5	3,300	49.5	9,899	-	-	-	12.0	13,199	10.0 %	1,320	-	-	14,519
Decant Access Road - Win from borrow, load, haul, place, spread,	M3	3,600	-	-	0.17	599	16.5	9,884	49.5	29,652	-	-	-	11.0	39,537	10.0 %	3,954	-	-	43,490
Decant Access Road - Win from borrow, load, haul and place safety	M3	600	-	-	0.20	118	16.5	1,954	49.5	5,863	-	-	-	13.0	7,817	10.0 %	782	-	-	8,599
Decant Turret Slot - Excavate decant trench and sump bases, load,	M3	26,000	-	-	0.12	3,050	16.5	50,322	49.5	150,965	-	-	-	7.74	201,287	10.0 %	20,129	-	-	221,415
Decant Turret Slot - Relocate pump and decant turret infrastructure	Item	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Decant Turret Slot - Supply and install decant turret and pump	Item	1	-	-	1,432	1,432	16.5	23,633	49.5	70,899	-	-	-	94,532	94,532	10.0 %	9,453	-	-	103,985
Deposition - Supply and install 225 mm diameter slotted uPVC pipe	LM	6,460	-	-	1.71	11,070	16.5	182,653	49.5	547,958	-	-	-	113	730,610	10.0 %	73,061	-	-	803,672
Deposition - Supply and install spigot offtakes, including reducing	Item	98	-	-	40.0	3,920	16.5	64,680	49.5	194,040	-	-	-	2,640	258,720	10.0 %	25,872	-	-	284,592
Downstream Toe Drain - Install Grade 2 geotextile in downstream	M2	3,300	-	-	0.02	66.7	16.5	1,100	49.5	3,300	-	-	-	1.33	4,400	10.0 %	440	-	-	4,840
Downstream Toe Drain - Supply and install 160mm draincoil with all	LM	1,490	-	-	0.26	389	16.5	6,414	49.5	19,243	-	-	-	17.2	25,657	10.0 %	2,566	-	-	28,223
Downstream Toe Drain - Win from suppled stockpile, load, haul,	M3	500	-	-	0.03	16.4	41.3	676	124	2,030	-	-	-	5.41	2,706	10.0 %	271	-	-	2,977
Downstream Toe Drain - Win from supplied stockpile, load, haul,	M3	800	-	-	0.13	102	16.5	1,686	49.5	5,057	-	-	-	8.43	6,743	10.0 %	674	-	-	7,417
Finger Drains - Install Grade 1 geotextile inner wrap in finger drain	M2	24,000	-	-	0.02	485	16.5	7,999	49.5	23,998	-	-	-	1.33	31,997	10.0 %	3,200	-	-	35,196
Finger Drains - Install Grade 2 geotextile outer cover in finger drain	M2	24,000	-	-	0.02	485	16.5	7,999	49.5	23,998	-	-	-	1.33	31,997	10.0 %	3,200	-	-	35,196
Finger Drains - Supply and install 63mm draincoil with all tees,	LM	16,560	-	-	0.12	1,909	16.5	31,505	49.5	94,514	-	-	-	7.61	126,018	10.0 %	12,602	-	-	138,620
Finger Drains - Win from supplied stockpile, load, haul, place and	M3	1,500	-	-	0.13	192	16.5	3,161	49.5	9,482	-	-	-	8.43	12,642	10.0 %	1,264	-	-	13,907
Install 1.5 mm (60 mil) double sided textured HDPE geomembrane	M2	340	-	-	0.05	16.1	16.5	265	49.5	796	-	-	-	3.12	1,061	10.0 %	106	-	-	1,167
Install 1.5 mm (60 mil) double sided textured HDPE geomembrane	M2	88,000	-	-	0.05	4,267	16.5	70,400	49.5	211,200	-	-	-	3.20	281,600	10.0 %	28,160	-	-	309,760
Install 1.5 mm (60 mil) smooth HDPE geomembrane erosion	M2	8,280	-	-	0.05	391	16.5	6,458	49.5	19,375	-	-	-	3.12	25,834	10.0 %	2,583	-	-	28,417
Install 1.5 mm (60 mil) smooth HDPE geomembrane to spillway	M2	13,000	-	-	0.00	16.1	631	10,140	1,893	30,420	-	-	-	3.12	40,560	10.0 %	4,056	-	-	44,616
Install 1.5 mm (60 mil) smooth HDPE geomembrane to TDRT	M2	31,600	-	-	0.00	16.1	1,534	24,648	4,601	73,944	-	-	-	3.12	98,592	10.0 %	9,859	-	-	108,451
Install 1.5 mm (60 mil) smooth HDPE geomembrane to TSF basin	M2	1,633,0	-	-	0.05	77,196	16.5	1,273,740	49.5	3,821,220	-	-	-	3.12	5,094,960	10.0 %	509,496	-	-	5,604,456
LCRS Collection Sump - Excavate and shape ground water	M3	240	-	-	0.12	28.2	16.5	465	49.5	1,394	-	-	-	7.74	1,858	10.0 %	186	-	-	2,044
LCRS Collection Sump - Install Grade 2 geotextile in LCRS	M2	590	-	-	0.02	11.9	16.5	197	49.5	590	-	-	-	1.33	787	10.0 %	78.7	-	-	865
LCRS Collection Sump - Win from supplied stockpile, load, haul,	M3	240	-	-	0.13	30.6	16.5	506	49.5	1,517	-	-	-	8.43	2,023	10.0 %	202	-	-	2,225
LCRS Riser Pipe - Excavate and shape LCRS riser channel, haul	M3	180	-	-	0.12	21.1	16.5	348	49.5	1,045	-	-	-	7.74	1,394	10.0 %	139	-	-	1,533
LCRS Riser Pipe - Supply and install cement stabilised backfill	CM	140	-	-	0.64	89.3	16.5	1,474	49.5	4,421	-	-	-	42.1	5,895	10.0 %	590	-	-	6,485

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
LCRS Riser Pipe - Supply and install DN630mm PN12.5 SDR 9	LM	6	1,015	6,091	6.58	39.5	16.5	651	49.5	1,954	-	-	-	1,449	8,697	10.0 %	870	-	-	9,566
LCRS Riser Pipe - Supply and install DN630mm PN12.5 SDR 9	LM	133	932	123,996	5.81	772	16.5	12,741	49.5	38,223	-	-	-	1,315	174,960	10.0 %	17,496	-	-	192,456
Main Collector Drain & Channel - Excavate and shape trench for	M3	10,200	-	-	0.12	1,200	16.5	19,792	49.5	59,376	-	-	-	7.76	79,168	10.0 %	7,917	-	-	87,085
Main Collector Drain & Channel - Install Grade 1 geotextile in LCRS	M2	8,700	-	-	0.02	176	16.5	2,900	49.5	8,699	-	-	-	1.33	11,599	10.0 %	1,160	-	-	12,759
Main Collector Drain & Channel - Install Grade 1 geotextile inner	M2	25,000	-	-	0.02	505	16.5	8,332	49.5	24,998	-	-	-	1.33	33,330	10.0 %	3,333	-	-	36,663
Main Collector Drain & Channel - Install Grade 2 geotextile outer	M2	25,000	-	-	0.02	505	16.5	8,332	49.5	24,998	-	-	-	1.33	33,330	10.0 %	3,333	-	-	36,663
Main Collector Drain & Channel - Supply and install 100mm	LM	2,530	-	-	0.18	447	16.5	7,368	49.5	22,104	-	-	-	11.6	29,472	10.0 %	2,947	-	-	32,419
Main Collector Drain & Channel - Supply and install 100mm	LM	5,060	-	-	0.09	447	33.0	14,736	99.0	44,208	-	-	-	11.6	58,944	10.0 %	5,894	-	-	64,838
Main Collector Drain & Channel - Supply and install 160mm solid	LM	1,100	-	-	0.26	287	16.5	4,735	49.5	14,206	-	-	-	17.2	18,941	10.0 %	1,894	-	-	20,835
Main Collector Drain & Channel - Win from supplied stockpile, load,	M3	2,500	-	-	0.13	319	16.5	5,268	49.5	15,803	-	-	-	8.43	21,070	10.0 %	2,107	-	-	23,178
Main Collector Drain & Channel - Win from supplied stockpile, load,	M3	1,800	-	-	0.13	230	16.5	3,793	49.5	11,378	-	-	-	8.43	15,171	10.0 %	1,517	-	-	16,688
Material Supply - Supply Grade 1 geotextile (including 10%	M2	80,400	-	-	0.02	1,495	16.5	24,675	49.5	74,024	-	-	-	1.23	98,699	10.0 %	9,870	-	-	108,569
Material Supply - Supply Grade 2 geotextile (including 10%	M2	75,100	-	-	0.02	1,397	16.5	23,048	49.5	69,145	-	-	-	1.23	92,193	10.0 %	9,219	-	-	101,412
Material Supply - Supply suitable Zone E erosion protection material	CM	520	-	-	0.03	16.4	42.9	704	129	2,111	-	-	-	5.41	2,814	10.0 %	281	-	-	3,096
Material Supply - Supply suitable Zone F1 sand drainage medium	CM	6,800	-	-	1.15	7,840	16.5	129,367	49.5	388,100	-	-	-	76.1	517,466	10.0 %	51,747	-	-	569,213
Material Supply - Supply suitable Zone F2 gravel drainage medium	CM	2,200	-	-	1.15	2,537	16.5	41,854	49.5	125,562	-	-	-	76.1	167,416	10.0 %	16,742	-	-	184,157
Monitoring & Instrumentation - Decomission Vibrating Wire	Item	1	-	-	31.9	31.9	16.5	526	49.5	1,579	-	-	-	2,105	2,105	10.0 %	211	-	-	2,316
Monitoring & Instrumentation - Install monitoring bores complete (10	Item	2	-	-	149	297	16.5	4,905	49.5	14,716	-	-	-	9,811	19,622	10.0 %	1,962	-	-	21,584
Monitoring & Instrumentation - Install monitoring bores complete (60	Item	2	-	-	327	653	16.5	10,781	49.5	32,343	-	-	-	21,562	43,125	10.0 %	4,312	-	-	47,437
Monitoring & Instrumentation - Install survey pins complete in TSF	Item	10	-	-	21.2	212	16.5	3,504	49.5	10,512	-	-	-	1,402	14,015	10.0 %	1,402	-	-	15,417
Monitoring & Instrumentation - Install Vibrating Wire Piezometers	Item	10	-	-	135	1,354	16.5	22,344	49.5	67,032	-	-	-	8,938	89,377	10.0 %	8,938	-	-	98,314
Perimeter Access Track - Clear and grub access track footprint	M2	27,100	-	-	0.01	230	16.5	3,801	49.5	11,402	-	-	-	0.56	15,203	10.0 %	1,520	-	-	16,723
Perimeter Access Track - Win from borrow, load, haul, place,	M3	1,900	-	-	0.18	345	16.5	5,699	49.5	17,098	-	-	-	12.0	22,798	10.0 %	2,280	-	-	25,077
Perimeter Access Track - Win from borrow, load, haul and place	M3	800	-	-	0.20	158	16.5	2,606	49.5	7,817	-	-	-	13.0	10,423	10.0 %	1,042	-	-	11,465
Seepage Collection Sump - Excavate downstream seepage	M3	60	-	-	0.15	8.84	16.5	146	49.5	437	-	-	-	9.72	583	10.0 %	58.3	-	-	642
Seepage Collection Sump - Supply and install 1200mm diameter	LM	3	-	-	19.9	59.7	16.5	985	49.5	2,956	-	-	-	1,314	3,941	10.0 %	394	-	-	4,335
Seepage Collection Sump - Supply and install 25MPa reinforced	Item	1	-	-	25.8	25.8	16.5	426	49.5	1,277	-	-	-	1,702	1,702	10.0 %	170	-	-	1,873
Seepage Collection Sump - Win from borrow, load, haul, place,	M3	60	-	-	0.22	13.0	16.5	215	49.5	644	-	-	-	14.3	859	10.0 %	85.9	-	-	945
Seepage Outlet Channel - Backfill outfall pipe trench with excavated	M3	50	-	-	0.13	6.66	16.5	110	49.5	330	-	-	-	8.80	440	10.0 %	44.0	-	-	484
Seepage Outlet Channel - Excavate outlet trench from downstream	M3	50	-	-	0.15	7.37	16.5	122	49.5	365	-	-	-	9.72	486	10.0 %	48.6	-	-	535
Seepage Outlet Channel - Install 160mm PE100 PN2 SDR9 Solid	LM	130	114	14,873	0.73	95.0	16.5	1,568	49.5	4,705	-	-	-	163	21,146	10.0 %	2,115	-	-	23,261
Seepage Outlet Channel - Win from supplied stockpile, load, haul,	M3	3	-	-	0.13	0.38	16.5	6.32	49.5	19.0	-	-	-	8.43	25.3	10.0 %	2.53	-	-	27.8
Site Preparation - Clear and grub area of TSF basin, haul vegetation	M2	1,656,0	-	-	0.01	14,076	16.5	232,254	49.5	696,762	-	-	-	0.56	929,016	10.0 %	92,902	-	-	1,021,918
Site Preparation - Clear and grub TSF embankment footprints, haul	M2	153,000	-	-	0.01	1,301	16.5	21,458	49.5	64,375	-	-	-	0.56	85,833	10.0 %	8,583	-	-	94,416
Site Preparation - Clear and grub TSF emergency spillway footprint,	M2	11,400	-	-	0.01	96.9	16.5	1,599	49.5	4,797	-	-	-	0.56	6,395	10.0 %	640	-	-	7,035
Site Preparation - Excavate unsuitable material from the TSF	M3	91,000	-	-	0.06	5,788	16.5	95,495	49.5	286,486	-	-	-	4.20	381,982	10.0 %	38,198	-	-	420,180
Site Preparation - Strip topsoil (250 mm) from TSF basin area, haul	M3	414,000	-	-	0.08	31,381	16.5	517,790	49.5	1,553,369	-	-	-	5.00	2,071,159	10.0 %	207,116	-	-	2,278,275
Site Preparation - Strip topsoil (250 mm) from TSF embankment	M3	38,300	-	-	0.08	2,903	16.5	47,902	49.5	143,705	-	-	-	5.00	191,607	10.0 %	19,161	-	-	210,768
Site Preparation - Strip topsoil (250 mm) from TSF emergency	M3	2,900	-	-	0.08	220	16.5	3,627	49.5	10,881	-	-	-	5.00	14,508	10.0 %	1,451	-	-	15,959
Stockpile & Borrow Areas - Clear and grub designated borrow	M2	831,000	-	-	0.01	4,404	16.5	72,671	49.5	218,013	-	-	-	0.35	290,684	10.0 %	29,068	-	-	319,752
Stockpile & Borrow Areas - Clear and grub designated stockpiles,	M2	509,000	-	-	0.01	3,563	16.5	58,790	49.5	176,368	-	-	-	0.46	235,158	10.0 %	23,516	-	-	258,674
Stockpile & Borrow Areas - Strip topsoil (250 mm) from borrow	M3	207,800	-	-	0.08	15,751	16.5	259,895	49.5	779,686	-	-	-	5.00	1,039,582	10.0 %	103,958	-	-	1,143,540

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Supply 1.5 mm (60 mil) smooth HDPE geomembrane (including	M2	1,855,0	-	-	0.04	77,292	16.5	1,275,312	49.5	3,825,937	-	-	-	2.75	5,101,249	10.0 %	510,125	-	-	5,611,374
Supply 1.5 mm (60 mil) textured HDPE geomembrane (including	M2	117,200	-	-	0.04	5,238	16.5	86,435	49.5	259,305	-	-	-	2.95	345,740	10.0 %	34,574	-	-	380,314
Supply and install geomembrane wearsheet to embankment face at	M2	133	-	-	0.12	16.1	6.45	104	19.4	311	-	-	-	3.12	415	10.0 %	41.5	-	-	456
Supply and install geomembrane wearsheet to embankment face at	LM	13,560	-	-	11.4	154,393	0.07	10,577	0.21	31,730	-	-	-	3.12	42,307	10.0 %	4,231	-	-	46,538
Tailings and Decant Return Trench - Clear and grub TDRT footprint	M2	28,000	-	-	0.01	238	16.5	3,927	49.5	11,781	-	-	-	0.56	15,708	10.0 %	1,571	-	-	17,279
Tailings and Decant Return Trench - Excavate and backfill (in	M3	2,100	-	-	0.24	510	16.5	8,410	49.5	25,229	-	-	-	16.0	33,638	10.0 %	3,364	-	-	37,002
Tailings and Decant Return Trench - Excavate material along TDRT	M3	14,000	-	-	0.15	2,062	16.5	34,026	49.5	102,079	-	-	-	9.72	136,105	10.0 %	13,611	-	-	149,716
Tailings and Decant Return Trench - Strip topsoil (250 mm) from	M3	7,000	-	-	0.08	531	16.5	8,755	49.5	26,265	-	-	-	5.00	35,020	10.0 %	3,502	-	-	38,522
Tailings and Decant Return Trench - Win from borrow, load, haul,	M3	7,000	-	-	0.18	1,235	16.5	20,374	49.5	61,123	-	-	-	11.6	81,497	10.0 %	8,150	-	-	89,646
TSF Embankment Construction - Excavate anchor trench and	M3	900	-	-	0.24	218	16.5	3,604	49.5	10,812	-	-	-	16.0	14,416	10.0 %	1,442	-	-	15,858
TSF Embankment Construction - Excavate embankment cut-off	M3	29,000	-	-	0.15	4,272	16.5	70,483	49.5	211,449	-	-	-	9.72	281,932	10.0 %	28,193	-	-	310,125
TSF Embankment Construction - Extra over for breaking hard rock	CM	2,900	-	-	0.77	2,238	16.5	36,931	49.5	110,792	-	-	-	50.9	147,723	10.0 %	14,772	-	-	162,495
TSF Embankment Construction - Scarify, condition and compact in-	M2	9,700	-	-	0.01	88.3	16.5	1,456	49.5	4,369	-	-	-	0.60	5,826	10.0 %	583	-	-	6,408
TSF Embankment Construction - Scarify, condition and compact	M2	153,000	-	-	0.01	1,392	16.5	22,973	49.5	68,919	-	-	-	0.60	91,892	10.0 %	9,189	-	-	101,081
TSF Embankment Construction - Win from borrow, load, haul, place,	M3	2,100	-	-	0.18	382	16.5	6,299	49.5	18,898	-	-	-	12.0	25,197	10.0 %	2,520	-	-	27,717
TSF Embankment Construction - Win from borrow, load, haul, place,	M3	31,900	-	-	0.18	5,758	16.5	95,006	49.5	285,019	-	-	-	11.9	380,025	10.0 %	38,002	-	-	418,027
TSF Embankment Construction - Win from borrow, load, haul, place,	M3	136,000	-	-	0.18	23,990	16.5	395,842	49.5	1,187,525	-	-	-	11.6	1,583,366	10.0 %	158,337	-	-	1,741,703
TSF Embankment Construction - Win from borrow, load, haul, place,	M3	1	-	-	0.18	0.18	16.5	2.91	49.5	8.73	-	-	-	11.6	11.6	10.0 %	1.16	-	-	12.8
TSF Embankment Construction - Win from borrow, load, haul, place,	M3	1,100	-	-	0.20	217	16.5	3,583	49.5	10,748	-	-	-	13.0	14,331	10.0 %	1,433	-	-	15,764
TSF Embankment Construction - Win from mine waste, load, haul,	M3	1	-	-	0.10	0.10	16.5	1.67	49.5	5.02	-	-	-	6.70	6.70	10.0 %	0.67	-	-	7.37
TSF Embankment Construction - Win from pre-stripping, load, haul,	M3	828,000	-	-	0.15	127,346	16.5	2,101,216	49.5	6,303,647	-	-	-	10.2	8,404,862	10.0 %	840,486	-	-	9,245,349
TSF Embankment Construction - Win from supplied stockpile, load,	M3	1	-	-	0.13	0.13	16.5	2.11	49.5	6.32	-	-	-	8.43	8.43	10.0 %	0.84	-	-	9.27
TSF Emergency Spillway - Excavate anchor trench and backfill with	M3	300	-	-	0.24	72.8	16.5	1,201	49.5	3,604	-	-	-	16.0	4,805	10.0 %	481	-	-	5,286
TSF Emergency Spillway - Excavate and shape emergency	M3	22,000	-	-	0.12	2,581	16.5	42,580	49.5	127,740	-	-	-	7.74	170,320	10.0 %	17,032	-	-	187,352
TSF Emergency Spillway - Extra over for breaking hard rock	CM	1,100	-	-	0.77	849	16.5	14,008	49.5	42,025	-	-	-	50.9	56,033	10.0 %	5,603	-	-	61,636
TSF Emergency Spillway - Scarify, condition and compact base of	M2	8,000	-	-	0.01	72.8	16.5	1,201	49.5	3,604	-	-	-	0.60	4,805	10.0 %	480	-	-	5,285
TSF Emergency Spillway - Win from spillway excavation, spread,	M3	1	-	-	0.12	0.12	16.5	1.94	49.5	5.82	-	-	-	7.76	7.76	10.0 %	0.78	-	-	8.54
Underdrainage Collection Sump - Excavate and shape	M3	240	-	-	0.12	28.2	16.5	465	49.5	1,394	-	-	-	7.74	1,858	10.0 %	186	-	-	2,044
Underdrainage Collection Sump - Install Grade 1 geotextile in	M2	380	-	-	0.02	7.68	16.5	127	49.5	380	-	-	-	1.33	507	10.0 %	50.7	-	-	557
Underdrainage Collection Sump - Install Grade 2 geotextile outer	M2	400	-	-	0.02	8.08	16.5	133	49.5	400	-	-	-	1.33	533	10.0 %	53.3	-	-	587
Underdrainage Collection Sump - Win from supplied stockpile, load,	M3	120	-	-	0.13	15.3	16.5	253	49.5	759	-	-	-	8.43	1,011	10.0 %	101	-	-	1,113
Underdrainage Collection Sump - Win from supplied stockpile, load,	M3	130	-	-	0.13	16.6	16.5	274	49.5	822	-	-	-	8.43	1,096	10.0 %	110	-	-	1,205
Underdrainage Riser Pipe - Supply and install 316 stainless steel	Item	133	52.0	6,916	-	-		-		-	-	-	-	52.0	6,916	10.0 %	692	-	-	7,608
Underdrainage Riser Pipe - Supply and install concrete filled DN355	LM	266	605	161,028	3.95	1,050	16.5	17,328	49.5	51,983	-	-	-	866	230,340	10.0 %	23,034	-	-	253,373
Underdrainage Riser Pipe - Supply and install concrete for DN355	CM	27	5.90	159	1.32	35.5	16.5	586	49.5	1,759	-	-	-	92.8	2,504	10.0 %	250	-	-	2,755
Underdrainage Riser Pipe - Supply and install DN630mm PN12.5	LM	6	1,015	6,091	6.58	39.5	16.5	651	49.5	1,954	-	-	-	1,449	8,697	10.0 %	870	-	-	9,566
Underdrainage Riser Pipe - Supply and install DN630mm PN12.5	LM	133	932	123,996	5.81	772	16.5	12,741	49.5	38,223	-	-	-	1,315	174,960	10.0 %	17,496	-	-	192,456
Upstream Toe Drain - Install Grade 1 geotextile inner wrap in	M2	14,900	-	-	0.02	301	16.5	4,966	49.5	14,899	-	-	-	1.33	19,865	10.0 %	1,986	-	-	21,851
Upstream Toe Drain - Install Grade 2 geotextile outer cover in toe	M2	14,900	-	-	0.02	301	16.5	4,966	49.5	14,899	-	-	-	1.33	19,865	10.0 %	1,986	-	-	21,851
Upstream Toe Drain - Supply and install 160mm draincoil with all	LM	2,410	-	-	0.26	629	16.5	10,375	49.5	31,124	-	-	-	17.2	41,499	10.0 %	4,150	-	-	45,649
Upstream Toe Drain - Win from supplied stockpile, load, haul, place	M3	1,810	-	-	0.13	231	16.5	3,814	49.5	11,441	-	-	-	8.43	15,255	10.0 %	1,526	-	-	16,781

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
3.5.2 - Tailings Pipeline				**685,194**		**20,180**		**342,650**		**242,761**	**-**	**-**	**123,335**		**1,393,940**		**167,273**	**-**	**-**	**1,561,213**
P Piping				***685,194***		***20,180***		***342,650***		***242,761***	***-***	***-***	***123,335***		***1,393,940***		***167,273***	***-***	***-***	***1,561,213***
355PN10 HDPE	LM	2,600	49.4	128,468	1.95	5,068	17.0	86,062	12.0	60,973	-	-	23,124	115	298,628	12.0 %	35,835	-	-	334,463
450PN10 HDPE	LM	6,115	78.2	478,205	2.21	13,489	17.0	229,045	12.0	162,274	-	-	86,077	156	955,600	12.0 %	114,672	-	-	1,070,272
450PN16 HDPE	LM	680	115	78,521	2.39	1,622	17.0	27,543	12.0	19,514	-	-	14,134	205	139,713	12.0 %	16,766	-	-	156,478
3.5.3 - Decant System				**288,184**		**5,346**		**62,828**		**42,620**	**-**	**-**	**29,535**		**423,168**		**71,308**	**-**	**-**	**494,476**
C Concrete				***10,996***		***768***		***1,874***		***2,565***	***-***	***-***	***-***		***15,436***		***1,674***	***-***	***-***	***17,109***
C3010 Blinding Concrete 50mm thick	CM	1	313	306	24.4	23.9	2.44	58.3	3.34	79.7	-	-	-	454	444	10.0 %	44.4	-	-	489
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	18	450	8,281	32.2	594	2.44	1,448	3.34	1,983	-	-	-	636	11,712	11.1 %	1,301	-	-	13,013
C3060 Ground Slabs < 300 mm thick	M3	5	406	1,950	25.8	124	2.44	302	3.34	413	-	-	-	555	2,664	10.0 %	266	-	-	2,931
C3090 Kerbs < 500mm high	M3	1	414	460	24.2	26.9	2.44	65.6	3.34	89.9	-	-	-	554	615	10.0 %	61.5	-	-	677
E Electrical				***50,896***		***1,768***		***21,218***		***14,145***	***-***	***-***	***3,054***		***89,313***		***8,931***	***-***	***-***	***98,244***
Area Electrical AUD	EA	1	44,891	44,891	1,688	1,688	12.0	20,258	8.00	13,505	-	-	2,693	81,347	81,347	10.0 %	8,135	-	-	89,482
Area Electrical EUR	EA	1	6,005	6,005	80.0	80.0	12.0	960	8.00	640	-	-	360	7,965	7,965	10.0 %	797	-	-	8,762
M Mechanical				***77,047***		***209***		***2,955***		***1,927***	***-***	***-***	***11,557***		***93,487***		***11,218***	***-***	***-***	***104,705***
Decant Return Water Pump 1 - 55kW	EA	1	38,524	38,524	105	105	14.1	1,478	9.22	963	-	-	5,779	46,743	46,743	12.0 %	5,609	-	-	52,353
Decant Return Water Pump 2 - 55kW	EA	1	38,524	38,524	105	105	14.1	1,478	9.22	963	-	-	5,779	46,743	46,743	12.0 %	5,609	-	-	52,353
P Piping				***149,244***		***2,601***		***36,781***		***23,983***	***-***	***-***	***14,924***		***224,933***		***49,485***	***-***	***-***	***274,418***
3.5.3 - Decant System - Area Piping	EA	1	149,244	149,244	2,601	2,601	14.1	36,781	9.22	23,983	-	-	14,924	224,933	224,933	22.0 %	49,485	-	-	274,418
3.6 - Buildings - Admin & Security				***2,507,290***		***56,161***		***597,953***		***164,795***	***-***	***-***	***861,672***		***4,131,709***		***501,030***	***-***	***-***	***4,632,739***
3.6.1 - Main Office				**888,120**		**31,472**		**325,143**		**87,515**	**-**	**-**	**213,410**		**1,514,188**		**181,008**	**-**	**-**	**1,695,196**
A Architectural				***639,360***		***17,280***		***207,360***		***-***	***-***	***-***	***206,851***		***1,053,571***		***126,428***	***-***	***-***	***1,179,999***
HR / Finance / IT / CSR / SCM Admin Offices and Mess	M2	691	370	255,744	10.0	6,912	12.0	82,944	-	-	-	-	103,425	640	442,113	12.0 %	53,054	-	-	495,167
Mining / Process / HSE Administration Offices	M2	1,037	370	383,616	10.0	10,368	12.0	124,416	-	-	-	-	103,425	590	611,457	12.0 %	73,375	-	-	684,832
C Concrete				***170,272***		***12,751***		***97,035***		***73,191***	***-***	***-***	***-***		***340,498***		***34,050***	***-***	***-***	***374,547***
C3060 Ground Slabs < 300 mm thick	M3	415	411	170,272	30.7	12,751	7.61	97,035	5.74	73,191	-	-	-	821	340,498	10.0 %	34,050	-	-	374,547
E Electrical				***32,231***		***749***		***8,984***		***5,989***	***-***	***-***	***1,934***		***49,137***		***4,914***	***-***	***-***	***54,051***
Area Electrical AUD	EA	1	12,959	10,367	778	623	12.0	7,472	8.00	4,981	-	-	622	29,303	23,442	10.0 %	2,344	-	-	25,786
Area Electrical EUR	EA	1	21,545	17,236	145	116	12.0	1,392	8.00	928	-	-	1,034	25,738	20,591	10.0 %	2,059	-	-	22,650
Area Electrical USD	EA	1	5,784	4,627	12.5	10.0	12.0	120	8.00	80.0	-	-	278	6,381	5,105	10.0 %	510	-	-	5,615

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
P Piping				***46,257***		***693***		***11,764***		***8,335***	***-***	***-***	***4,626***		***70,982***		***15,616***	***-***	***-***	***86,598***
3.6.1 - Community Relations Building - Area Piping	EA	1	16,174	10,397	242	156	17.0	2,644	12.0	1,873	-	-	1,040	24,819	15,955	22.0 %	3,510	-	-	19,465
3.6.1 - HR / Finance / IT / CSR / SCM Admin Offices - Area Piping	EA	1	16,174	15,760	242	236	17.0	4,008	12.0	2,840	-	-	1,576	24,819	24,183	22.0 %	5,320	-	-	29,503
3.6.1 - Mining / Process / HSE Admin Offices - Area Piping	EA	1	16,174	20,100	242	301	17.0	5,112	12.0	3,622	-	-	2,010	24,819	30,844	22.0 %	6,786	-	-	37,629
3.6.2 - Clinic & Emergency Response				**216,679**		**7,404**		**79,461**		**23,104**	**-**	**-**	**313,236**		**632,482**		**76,567**	**-**	**-**	**709,048**
A Architectural				***146,520***		***3,960***		***47,520***		***-***	***-***	***-***	***310,276***		***504,316***		***60,518***	***-***	***-***	***564,834***
Clinic and Emergency Response Building - Ablutions Block	M2	36	370	13,320	10.0	360	12.0	4,320	-	-	-	-	103,425	3,363	121,065	12.0 %	14,528	-	-	135,593
Clinic and Emergency Response Building - Medical Centre	M2	288	370	106,560	10.0	2,880	12.0	34,560	-	-	-	-	103,425	849	244,545	12.0 %	29,345	-	-	273,891
Clinic and Emergency Response Building - Office	M2	72	370	26,640	10.0	720	12.0	8,640	-	-	-	-	103,425	1,926	138,705	12.0 %	16,645	-	-	155,350
C Concrete				***32,517***		***2,435***		***18,531***		***13,977***	***-***	***-***	***-***		***65,026***		***6,503***	***-***	***-***	***71,528***
C3060 Ground Slabs < 300 mm thick	M3	79	411	32,517	30.7	2,435	7.61	18,531	5.74	13,977	-	-	-	821	65,026	10.0 %	6,503	-	-	71,528
E Electrical				***20,090***		***746***		***8,946***		***5,964***	***-***	***-***	***1,205***		***36,206***		***3,621***	***-***	***-***	***39,827***
Area Electrical AUD	EA	1	12,313	12,313	690	690	12.0	8,274	8.00	5,516	-	-	739	26,843	26,843	10.0 %	2,684	-	-	29,527
Area Electrical EUR	EA	1	4,885	4,885	49.8	49.8	12.0	597	8.00	398	-	-	293	6,173	6,173	10.0 %	617	-	-	6,790
Area Electrical USD	EA	1	2,892	2,892	6.25	6.25	12.0	75.0	8.00	50.0	-	-	174	3,190	3,190	10.0 %	319	-	-	3,510
P Piping				***17,552***		***263***		***4,464***		***3,163***	***-***	***-***	***1,755***		***26,934***		***5,925***	***-***	***-***	***32,859***
3.6.2 - Clinic and Emergency Response Building - Area Piping	EA	1	16,174	17,552	242	263	17.0	4,464	12.0	3,163	-	-	1,755	24,819	26,934	22.0 %	5,925	-	-	32,859
3.6.4 - Security				**1,249,400**		**12,912**		**141,569**		**41,953**	**-**	**-**	**228,427**		**1,661,350**		**201,701**	**-**	**-**	**1,863,050**
A Architectural				***1,121,705***		***6,912***		***82,944***		***-***	***-***	***-***	***222,199***		***1,426,848***		***171,222***	***-***	***-***	***1,598,070***
A4020 Main Entrance Gatehouse - Furniture & Equipment	M2	292	132	38,690	-	-		-		-	-	-	7,738	159	46,428	12.0 %	5,571	-	-	51,999
A4020 Security Gatehouse and Change Room - Furniture &	M2	287	132	38,054	-	-		-		-	-	-	7,611	159	45,665	12.0 %	5,480	-	-	51,145
Command Post	M2	346	370	127,872	10.0	3,456	12.0	41,472	-	-	-	-	103,425	789	272,769	12.0 %	32,732	-	-	305,502
Main Entrance Gatehouse (Blockwork) - All In	M2	293	1,361	398,311	-	-		-		-	-	-	-	1,361	398,311	12.0 %	47,797	-	-	446,108
Security Control Centre	M2	346	370	127,872	10.0	3,456	12.0	41,472	-	-	-	-	103,425	789	272,769	12.0 %	32,732	-	-	305,502
Security Gatehouse and Change Room (Blockwork) - All In	M2	287	1,361	390,906	-	-		-		-	-	-	-	1,361	390,906	12.0 %	46,909	-	-	437,815
C Concrete				***49,347***		***3,695***		***28,122***		***21,212***	***-***	***-***	***-***		***98,681***		***9,868***	***-***	***-***	***108,549***
C3060 Ground Slabs < 300 mm thick	M3	120	411	49,347	30.7	3,695	7.61	28,122	5.74	21,212	-	-	-	821	98,681	10.0 %	9,868	-	-	108,549
E Electrical				***40,177***		***1,733***		***20,795***		***13,863***	***-***	***-***	***2,411***		***77,247***		***7,725***	***-***	***-***	***84,971***
Area Electrical AUD	EA	1	35,962	28,769	2,036	1,629	12.0	19,547	8.00	13,031	-	-	1,726	78,843	63,074	10.0 %	6,307	-	-	69,382
Area Electrical EUR	EA	1	8,476	6,781	117	94.0	12.0	1,128	8.00	752	-	-	407	11,335	9,068	10.0 %	907	-	-	9,974
Area Electrical USD	EA	1	5,784	4,627	12.5	10.0	12.0	120	8.00	80.0	-	-	278	6,381	5,105	10.0 %	510	-	-	5,615
P Piping				***38,171***		***572***		***9,708***		***6,878***	***-***	***-***	***3,817***		***58,574***		***12,886***	***-***	***-***	***71,460***

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
3.6.4 - Command Post - Area Piping	EA	1	16,174	10,351	242	155	17.0	2,633	12.0	1,865	-	-	1,035	24,819	15,884	22.0 %	3,495	-	-	19,379
3.6.4 - Main Entrance Gatehouse - Area Piping	EA	1	16,174	9,446	242	141	17.0	2,402	12.0	1,702	-	-	945	24,819	14,494	22.0 %	3,189	-	-	17,683
3.6.4 - Security Control Centre - Area Piping	EA	1	16,174	9,058	242	136	17.0	2,304	12.0	1,632	-	-	906	24,819	13,899	22.0 %	3,058	-	-	16,957
3.6.4 - Security Gatehouse and Change Room - Area Piping	EA	1	16,174	9,316	242	140	17.0	2,369	12.0	1,679	-	-	932	24,819	14,296	22.0 %	3,145	-	-	17,441
3.6.5 - Ablutions, Change House, Meals				**153,090**		**4,373**		**51,780**		**12,223**	**-**	**-**	**106,598**		**323,691**		**41,755**	**-**	**-**	**365,445**
A Architectural				***106,560***		***2,880***		***34,560***		***-***	***-***	***-***	***103,425***		***244,545***		***29,345***	***-***	***-***	***273,891***
Ablutions (Male & Female)	M2	288	370	106,560	10.0	2,880	12.0	34,560	-	-	-	-	103,425	849	244,545	12.0 %	29,345	-	-	273,891
C Concrete				***8,711***		***652***		***4,964***		***3,744***	***-***	***-***	***-***		***17,419***		***1,742***	***-***	***-***	***19,161***
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	13	681	8,711	51.0	652	7.61	4,964	5.74	3,744	-	-	-	1,361	17,419	10.0 %	1,742	-	-	19,161
E Electrical				***15,217***		***407***		***4,884***		***3,256***	***-***	***-***	***913***		***24,270***		***2,427***	***-***	***-***	***26,697***
Area Electrical AUD	EA	1	15,030	15,030	402	402	12.0	4,824	8.00	3,216	-	-	902	23,971	23,971	10.0 %	2,397	-	-	26,368
Area Electrical EUR	EA	1	188	188	5.00	5.00	12.0	60.0	8.00	40.0	-	-	11.3	299	299	10.0 %	29.9	-	-	329
P Piping				***22,602***		***434***		***7,372***		***5,223***	***-***	***-***	***2,260***		***37,456***		***8,240***	***-***	***-***	***45,697***
3.6.5 - Plant Ablutions - Area Piping	EA	1	22,602	22,602	434	434	17.0	7,372	12.0	5,223	-	-	2,260	37,456	37,456	22.0 %	8,240	-	-	45,697
3.7 - Buildings - Plant				***3,040,189***		***90,776***		***1,113,521***		***712,539***	***-***	***526,384***	***698,806***		***6,091,439***		***682,617***	***-***	***-***	***6,774,056***
3.7.1 - Plant Offices				**266,208**		**9,428**		**102,438**		**35,641**	**-**	**-**	**108,199**		**512,486**		**59,944**	**-**	**-**	**572,430**
A Architectural				***159,840***		***4,320***		***51,840***		***-***	***-***	***-***	***103,425***		***315,105***		***37,813***	***-***	***-***	***352,918***
Plant Office and Control Room	M2	432	370	159,840	10.0	4,320	12.0	51,840	-	-	-	-	103,425	729	315,105	12.0 %	37,813	-	-	352,918
C Concrete				***35,473***		***2,656***		***20,216***		***15,248***	***-***	***-***	***-***		***70,937***		***7,094***	***-***	***-***	***78,031***
C3060 Ground Slabs < 300 mm thick	M3	86	411	35,473	30.7	2,656	7.61	20,216	5.74	15,248	-	-	-	821	70,937	10.0 %	7,094	-	-	78,031
E Electrical				***57,898***		***2,256***		***27,077***		***18,051***	***-***	***-***	***3,474***		***106,500***		***10,650***	***-***	***-***	***117,150***
Area Electrical AUD	EA	1	36,042	36,042	2,091	2,091	12.0	25,097	8.00	16,731	-	-	2,163	80,033	80,033	10.0 %	8,003	-	-	88,036
Area Electrical EUR	EA	1	16,072	16,072	153	153	12.0	1,830	8.00	1,220	-	-	964	20,086	20,086	10.0 %	2,009	-	-	22,094
Area Electrical USD	EA	1	5,784	5,784	12.5	12.5	12.0	150	8.00	100	-	-	347	6,381	6,381	10.0 %	638	-	-	7,019
P Piping				***12,997***		***195***		***3,305***		***2,342***	***-***	***-***	***1,300***		***19,944***		***4,388***	***-***	***-***	***24,331***
3.7.1 - Plant Office - Area Piping	EA	1	16,174	12,997	242	195	17.0	3,305	12.0	2,342	-	-	1,300	24,819	19,944	22.0 %	4,388	-	-	24,331
3.7.2 - Maintenance / Workshop				**940,667**		**23,034**		**316,731**		**226,248**	**-**	**-**	**235,820**		**1,719,466**		**199,351**	**-**	**-**	**1,918,818**
A Architectural				***444,176***		***13,479***		***228,878***		***162,155***	***-***	***-***	***182,677***		***1,017,887***		***122,146***	***-***	***-***	***1,140,033***
A4030 Plant Workshop	M2	1,728	229	396,260	6.65	11,494	17.0	195,164	12.0	138,270	-	-	79,252	468	808,945	12.0 %	97,073	-	-	906,019
Light Vehicle Workshop	M2	209	229	47,917	9.50	1,986	17.0	33,714	12.0	23,886	-	-	103,425	1,000	208,941	12.0 %	25,073	-	-	234,014

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Workshop Racking (Included in Owners)	Lot	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Workshop Tools (Included in Owners)	Lot	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
C Concrete				***96,548***		***7,230***		***55,023***		***41,503***	***-***	***-***	***-***		***193,074***		***19,307***	***-***	***-***	***212,381***
C3010 Blinding Concrete 50mm thick	CM	0	250	97.4	18.7	7.29	7.61	55.5	5.74	41.9	-	-	-	499	195	10.0 %	19.5	-	-	214
C3050 Footings & Pedestals - Strip	M3	12	706	8,327	52.9	624	7.61	4,747	5.74	3,581	-	-	-	1,411	16,655	10.0 %	1,665	-	-	18,320
C3060 Ground Slabs < 300 mm thick	M3	215	411	88,124	30.7	6,599	7.61	50,221	5.74	37,880	-	-	-	821	176,225	10.0 %	17,622	-	-	193,847
E Electrical				***54,834***		***1,333***		***15,999***		***10,666***	***-***	***-***	***3,290***		***84,789***		***8,479***	***-***	***-***	***93,268***
Area Electrical AUD	EA	1	22,731	22,731	1,187	1,187	12.0	14,244	8.00	9,496	-	-	1,364	47,835	47,835	10.0 %	4,783	-	-	52,618
Area Electrical EUR	EA	1	29,211	29,211	140	140	12.0	1,680	8.00	1,120	-	-	1,753	33,764	33,764	10.0 %	3,376	-	-	37,140
Area Electrical USD	EA	1	2,892	2,892	6.25	6.25	12.0	75.0	8.00	50.0	-	-	174	3,190	3,190	10.0 %	319	-	-	3,510
M Mechanical				***306,840***		***418***		***7,098***		***5,029***	***-***	***-***	***46,026***		***364,992***		***36,499***	***-***	***-***	***401,491***
Warehouse Crane - 25 t MRC, 18.7 m span, 72 m long travel, 31 m	EA	1	306,840	306,840	418	418	17.0	7,098	12.0	5,029	-	-	46,026	364,992	364,992	10.0 %	36,499	-	-	401,491
P Piping				***38,270***		***573***		***9,733***		***6,895***	***-***	***-***	***3,827***		***58,725***		***12,919***	***-***	***-***	***71,644***
3.7.2 - Plant Workshop - Area Piping	EA	2	16,174	38,270	242	573	17.0	9,733	12.0	6,895	-	-	3,827	24,819	58,725	22.0 %	12,919	-	-	71,644
3.7.3 - Warehouse / Store				**391,041**		**19,844**		**252,030**		**180,549**	**-**	**-**	**46,118**		**869,738**		**103,276**	**-**	**-**	**973,014**
A Architectural				***182,850***		***9,177***		***155,825***		***110,399***	***-***	***-***	***36,570***		***485,645***		***58,277***	***-***	***-***	***543,922***
A4030 Main Warehouse and Office	M2	1,380	132	182,850	6.65	9,177	17.0	155,825	12.0	110,399	-	-	36,570	352	485,645	12.0 %	58,277	-	-	543,922
C Concrete				***99,074***		***7,415***		***56,430***		***42,563***	***-***	***-***	***-***		***198,067***		***19,807***	***-***	***-***	***217,874***
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	1	681	638	51.0	47.8	7.61	364	5.74	274	-	-	-	1,361	1,276	10.0 %	128	-	-	1,404
C3060 Ground Slabs < 300 mm thick	M3	240	411	98,368	30.7	7,366	7.61	56,058	5.74	42,283	-	-	-	821	196,710	10.0 %	19,671	-	-	216,381
C3401 Bollards HD Steel Concrete Filled Including Footing	EA	2	33.9	67.8	0.50	1.01	7.61	7.65	5.74	5.77	-	-	-	40.6	81.2	10.0 %	8.12	-	-	89.3
E Electrical				***61,277***		***2,267***		***27,200***		***18,133***	***-***	***-***	***3,677***		***110,286***		***11,029***	***-***	***-***	***121,315***
Area Electrical AUD	EA	1	36,070	36,070	2,094	2,094	12.0	25,130	8.00	16,753	-	-	2,164	80,117	80,117	10.0 %	8,012	-	-	88,129
Area Electrical EUR	EA	1	19,423	19,423	160	160	12.0	1,920	8.00	1,280	-	-	1,165	23,788	23,788	10.0 %	2,379	-	-	26,167
Area Electrical USD	EA	1	5,784	5,784	12.5	12.5	12.0	150	8.00	100	-	-	347	6,381	6,381	10.0 %	638	-	-	7,019
P Piping				***26,090***		***391***		***6,635***		***4,701***	***-***	***-***	***2,609***		***40,035***		***8,808***	***-***	***-***	***48,843***
3.7.3 - Main Warehouse and Office - Area Piping	EA	2	16,174	26,090	242	391	17.0	6,635	12.0	4,701	-	-	2,609	24,819	40,035	22.0 %	8,808	-	-	48,843
Z General				***21,750***		***594***		***5,940***		***4,752***	***-***	***-***	***3,262***		***35,705***		***5,356***	***-***	***-***	***41,060***
Z4020 Plant Fencing	LM	400	45.0	18,000	0.68	270	10.0	2,700	8.00	2,160	-	-	2,700	63.9	25,560	15.0 %	3,834	-	-	29,394
Z4070 Fencing - Double swing gates - 8.0m wide	EA	1	3,000	3,000	216	216	10.0	2,160	8.00	1,728	-	-	450	7,338	7,338	15.0 %	1,101	-	-	8,439
Z4080 Fencing - Personnel gates - 1.0 wide	EA	1	750	750	108	108	10.0	1,080	8.00	864	-	-	112	2,807	2,807	15.0 %	421	-	-	3,227
3.7.7 - Laboratory				**715,335**		**10,624**		**119,448**		**85,864**	**-**	**526,384**	**38,658**		**1,485,689**		**140,642**	**-**	**-**	**1,626,331**

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
A Architectural				***575,556***		***3,079***		***52,223***		***36,980***	***-***	***-***	***33,900***		***698,659***		***83,839***	***-***	***-***	***782,498***
A3040 Titration Room (Inc Fixtures)	Lot	1	64,724	64,724	40.0	40.0	15.5	620	10.5	420	-	-	12,945	78,708	78,708	12.0 %	9,445	-	-	88,153
Laboratory	M2	908	447	406,058	-	-		-		-	-	-	-	447	406,058	12.0 %	48,727	-	-	454,785
Sample Prep Shed	M2	457	229	104,775	6.65	3,039	17.0	51,603	12.0	36,560	-	-	20,955	468	213,892	12.0 %	25,667	-	-	239,559
C Concrete				***76,478***		***5,719***		***43,522***		***32,827***	***-***	***-***	***-***		***152,828***		***15,283***	***-***	***-***	***168,110***
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	7	681	4,921	51.0	369	7.61	2,805	5.74	2,115	-	-	-	1,361	9,841	10.0 %	984	-	-	10,825
C3060 Ground Slabs < 300 mm thick	M3	174	411	71,422	30.7	5,348	7.61	40,702	5.74	30,700	-	-	-	821	142,824	10.0 %	14,282	-	-	157,106
C3401 Bollards HD Steel Concrete Filled Including Footing	EA	4	33.9	136	0.50	2.01	7.61	15.3	5.74	11.5	-	-	-	40.6	162	10.0 %	16.2	-	-	179
E Electrical				***39,301***		***1,467***		***17,599***		***11,733***	***-***	***-***	***2,358***		***70,991***		***7,099***	***-***	***-***	***78,090***
Area Electrical AUD	EA	1	32,979	32,979	1,435	1,435	12.0	17,224	8.00	11,483	-	-	1,979	63,664	63,664	10.0 %	6,366	-	-	70,031
Area Electrical EUR	EA	1	3,430	3,430	25.0	25.0	12.0	300	8.00	200	-	-	206	4,136	4,136	10.0 %	414	-	-	4,550
Area Electrical USD	EA	1	2,892	2,892	6.25	6.25	12.0	75.0	8.00	50.0	-	-	174	3,190	3,190	10.0 %	319	-	-	3,510
P Piping				***24,000***		***359***		***6,104***		***4,324***	***-***	***-***	***2,400***		***36,828***		***8,102***	***-***	***-***	***44,930***
Laboratory - Area Piping	EA	1	16,174	10,557	242	158	17.0	2,685	12.0	1,902	-	-	1,056	24,819	16,200	22.0 %	3,564	-	-	19,764
Sample Prep Shed - Area Piping	EA	1	16,174	13,443	242	201	17.0	3,419	12.0	2,422	-	-	1,344	24,819	20,628	22.0 %	4,538	-	-	25,167
U Owners Costs				***-***		***-***		***-***		***-***	***-***	***526,384***	***-***		***526,384***		***26,319***	***-***	***-***	***552,703***
Lab - Equipment Investment (based on three months of operations	MTH	3	-	-	-	-		-		-	-	71,412	-	23,804	71,412	5.0 %	3,571	-	-	74,983
Lab - offsite analysis (provision only)	Lot	1	-	-	-	-		-		-	-	36,000	-	36,000	36,000	5.0 %	1,800	-	-	37,800
Lab - Operational Fixed fee (based on three months of operations	MTH	3	-	-	-	-		-		-	-	229,476	-	76,492	229,476	5.0 %	11,474	-	-	240,950
Lab - Variable Fee (based on three months of operations during	MTH	3	-	-	-	-		-		-	-	113,496	-	37,832	113,496	5.0 %	5,675	-	-	119,171
Mobilisation costs for SGS - Lab service provider	Lot	1	-	-	-	-		-		-	-	76,000	-	76,000	76,000	5.0 %	3,800	-	-	79,800
3.7.8 - Reagent Storage				**388,678**		**16,311**		**199,180**		**143,710**	**-**	**-**	**54,223**		**785,791**		**90,582**	**-**	**-**	**876,373**
A Architectural				***265,261***		***7,694***		***130,645***		***92,559***	***-***	***-***	***53,052***		***541,517***		***64,982***	***-***	***-***	***606,499***
Reagent Storage Shed A	M2	1,157	229	265,261	6.65	7,694	17.0	130,645	12.0	92,559	-	-	53,052	468	541,517	12.0 %	64,982	-	-	606,499
Reagent Storage Shed B	M2	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
C Concrete				***107,823***		***8,070***		***61,416***		***46,324***	***-***	***-***	***-***		***215,564***		***21,556***	***-***	***-***	***237,121***
C3030 Footings & Pedestals - Small to Medium < 2m3	M3	29	681	19,504	51.0	1,461	7.61	11,115	5.74	8,384	-	-	-	1,361	39,003	10.0 %	3,900	-	-	42,903
C3060 Ground Slabs < 300 mm thick	M3	215	411	88,252	30.7	6,609	7.61	50,293	5.74	37,935	-	-	-	821	176,480	10.0 %	17,648	-	-	194,128
C3401 Bollards HD Steel Concrete Filled Including Footing	EA	2	33.9	67.8	0.50	1.01	7.61	7.65	5.74	5.77	-	-	-	40.6	81.2	10.0 %	8.12	-	-	89.3
E Electrical				***9,708***		***432***		***5,190***		***3,460***	***-***	***-***	***582***		***18,941***		***1,894***	***-***	***-***	***20,835***
Area Electrical AUD	EA	0	16,662	8,331	827	414	12.0	4,965	8.00	3,310	-	-	500	34,211	17,106	10.0 %	1,711	-	-	18,816
Area Electrical EUR	EA	0	2,755	1,377	37.5	18.7	12.0	225	8.00	150	-	-	82.6	3,670	1,835	10.0 %	184	-	-	2,019

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
P Piping				***5,885***		***114***		***1,929***		***1,366***	***-***	***-***	***589***		***9,769***		***2,149***	***-***	***-***	***11,918***
3.7.8 - Reagent Storage - Area Piping	EA	2	3,052	5,885	58.9	114	17.0	1,929	12.0	1,366	-	-	589	5,066	9,769	22.0 %	2,149	-	-	11,918
3.7.9 - Buildings - Plant General				**338,259**		**11,536**		**123,695**		**40,527**	**-**	**-**	**215,788**		**718,270**		**88,822**	**-**	**-**	**807,091**
A Architectural				***213,120***		***5,760***		***69,120***		***-***	***-***	***-***	***206,851***		***489,091***		***58,691***	***-***	***-***	***547,781***
Diner	M2	144	370	53,280	10.0	1,440	12.0	17,280	-	-	-	-	103,425	1,208	173,985	12.0 %	20,878	-	-	194,864
Training / Meeting Room	M2	432	370	159,840	10.0	4,320	12.0	51,840	-	-	-	-	103,425	729	315,105	12.0 %	37,813	-	-	352,918
C Concrete				***41,385***		***3,099***		***23,585***		***17,789***	***-***	***-***	***-***		***82,760***		***8,276***	***-***	***-***	***91,036***
C3060 Ground Slabs < 300 mm thick	M3	101	411	41,385	30.7	3,099	7.61	23,585	5.74	17,789	-	-	-	821	82,760	10.0 %	8,276	-	-	91,036
E Electrical				***28,136***		***966***		***11,591***		***7,727***	***-***	***-***	***1,688***		***49,143***		***4,914***	***-***	***-***	***54,057***
Area Electrical AUD	EA	1	17,248	17,248	892	892	12.0	10,706	8.00	7,137	-	-	1,035	36,126	36,126	10.0 %	3,613	-	-	39,739
Area Electrical EUR	EA	1	7,996	7,996	67.5	67.5	12.0	810	8.00	540	-	-	480	9,826	9,826	10.0 %	983	-	-	10,809
Area Electrical USD	EA	1	2,892	2,892	6.25	6.25	12.0	75.0	8.00	50.0	-	-	174	3,190	3,190	10.0 %	319	-	-	3,510
P Piping				***21,868***		***328***		***5,561***		***3,940***	***-***	***-***	***2,187***		***33,556***		***7,382***	***-***	***-***	***40,939***
3.7.0 - Kitchen Diner - Area Piping	EA	1	16,174	8,871	242	133	17.0	2,256	12.0	1,598	-	-	887	24,819	13,613	22.0 %	2,995	-	-	16,608
3.7.0 - Training / Meeting Room - Area Piping	EA	1	16,174	12,997	242	195	17.0	3,305	12.0	2,342	-	-	1,300	24,819	19,944	22.0 %	4,388	-	-	24,331
Z General				***33,750***		***1,384***		***13,838***		***11,070***	***-***	***-***	***5,062***		***63,720***		***9,558***	***-***	***-***	***73,278***
Z4020 Plant Fencing	LM	450	45.0	20,250	0.68	304	10.0	3,038	8.00	2,430	-	-	3,038	63.9	28,755	15.0 %	4,313	-	-	33,068
Z4070 Fencing - Double swing gates - 8.0m wide	EA	4	3,000	12,000	216	864	10.0	8,640	8.00	6,912	-	-	1,800	7,338	29,352	15.0 %	4,403	-	-	33,755
Z4080 Fencing - Personnel gates - 1.0 wide	EA	2	750	1,500	108	216	10.0	2,160	8.00	1,728	-	-	225	2,807	5,613	15.0 %	842	-	-	6,455
3.8 - Permanent Accommodation (300 Beds) + (80 Bed Pioneer Camp)				***277,554***		***10,549***		***117,073***		***88,994***	***-***	***20,702,000***	***48,589***		***21,234,210***		***1,101,369***	***-***	***-***	***22,335,580***
3.8.1 - Earthworks, Drainage & Fencing				**82,127**		**6,522**		**65,218**		**52,175**	**-**	**-**	**4,824**		**204,344**		**30,652**	**-**	**-**	**234,995**
Z General				***82,127***		***6,522***		***65,218***		***52,175***	***-***	***-***	***4,824***		***204,344***		***30,652***	***-***	***-***	***234,995***
Yard fencing - Personnel gates - 1.0 wide	EA	1	900	1,035	54.0	62.1	10.0	621	8.00	497	-	-	360	2,185	2,513	15.0 %	377	-	-	2,890
Z4020 Fencing	LM	1,725	45.0	77,641	3.67	6,335	10.0	63,355	8.00	50,684	-	-	1,584	112	193,264	15.0 %	28,990	-	-	222,253
Z4070 Fencing - Double swing gates - 8.0m wide	EA	1	3,000	3,451	108	124	10.0	1,242	8.00	994	-	-	2,880	7,448	8,567	15.0 %	1,285	-	-	9,852
3.8.10 - Raw Water				**11,849**		**380**		**4,284**		**3,116**	**-**	**-**	**3,920**		**23,169**		**2,440**	**-**	**-**	**25,609**
C Concrete				***3,088***		***231***		***1,760***		***1,328***	***-***	***-***	***-***		***6,175***		***741***	***-***	***-***	***6,916***
C3010 Blinding Concrete 50mm thick	CM	1	250	170	18.7	12.7	7.61	96.8	5.74	73.0	-	-	-	499	340	12.0 %	40.8	-	-	381
C3140 Equipment Bases - Minor Pedestals < 50 m3	M3	5	536	2,918	40.1	219	7.61	1,663	5.74	1,254	-	-	-	1,072	5,835	12.0 %	700	-	-	6,536
L Platework				***8,761***		***149***		***2,524***		***1,788***	***-***	***-***	***3,920***		***16,994***		***1,699***	***-***	***-***	***18,693***

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
L1530 Shop Fab Tanks - Grade 350 - Paint Spec B - Wet Plant	T	2	3,780	8,761	64.1	149	17.0	2,524	12.0	1,788	-	-	3,920	7,332	16,994	10.0 %	1,699	-	-	18,693
3.8.2 - Potable Water				**153,340**		**2,294**		**31,336**		**22,881**	**-**	**-**	**38,031**		**245,587**		**27,266**	**-**	**-**	**272,854**
C Concrete				***5,440***		***471***		***1,148***		***1,572***	***-***	***-***	***-***		***8,159***		***979***	***-***	***-***	***9,139***
C3010 Blinding Concrete 50mm thick	CM	1	313	270	24.4	21.1	2.44	51.5	3.34	70.4	-	-	-	454	392	12.0 %	47.1	-	-	439
C3210 Ring Beams - Concrete	M3	7	659	4,753	47.4	342	2.44	834	3.34	1,142	-	-	-	934	6,729	12.0 %	807	-	-	7,536
C3220 Ring Beams - Structural Fill	CM	43	5.73	248	2.47	107	2.44	261	3.34	357	-	-	-	20.0	867	12.0 %	104	-	-	971
C3230 Infill Oil Impregnated Sand < 50 mm thick	CM	3	58.2	168	0.20	0.58	2.44	1.41	3.34	1.93	-	-	-	59.4	172	12.0 %	20.6	-	-	192
E Electrical				***5,872***		***155***		***1,863***		***1,242***	***-***	***-***	***352***		***9,330***		***933***	***-***	***-***	***10,263***
Area Electrical AUD	EA	1	2,795	1,608	187	108	12.0	1,291	8.00	861	-	-	96.5	6,705	3,856	10.0 %	386	-	-	4,242
Area Electrical EUR	EA	1	2,541	1,461	53.5	30.8	12.0	369	8.00	246	-	-	87.7	3,763	2,164	10.0 %	216	-	-	2,381
Area Electrical USD	EA	1	4,874	2,803	29.4	16.9	12.0	203	8.00	135	-	-	168	5,754	3,309	10.0 %	331	-	-	3,640
L Platework				***29,134***		***1,416***		***24,038***		***17,030***	***-***	***-***	***20,744***		***90,947***		***9,095***	***-***	***-***	***100,042***
L2010 Field Erected Tanks G350 Fabricated Components - Paint	T	3	2,612	7,939	115	351	17.0	5,956	12.0	4,220	-	-	5,140	7,652	23,255	10.0 %	2,325	-	-	25,580
L2020 Field Erected Tanks G350 Slab Plate Trim & Sized - Paint	T	9	2,297	21,195	115	1,065	17.0	18,082	12.0	12,811	-	-	15,604	7,337	67,692	10.0 %	6,769	-	-	74,461
M Mechanical				***112,894***		***252***		***4,286***		***3,037***	***-***	***-***	***16,934***		***137,151***		***16,260***	***-***	***-***	***153,411***
Camp Potable Water Accumulator (Part of Package)	EA	1	-	-	83.6	48.1	17.0	816	12.0	578	-	-	-	2,425	1,395	12.0 %	167	-	-	1,562
Camp Potable Water Pump 1 - 5.5kW	EA	1	8,891	5,113	41.8	24.0	17.0	408	12.0	289	-	-	767	11,437	6,577	12.0 %	789	-	-	7,367
Camp Potable Water Pump 2 - 5.5kW	EA	1	8,891	5,113	41.8	24.0	17.0	408	12.0	289	-	-	767	11,437	6,577	12.0 %	789	-	-	7,367
Camp Potable Water Pump 3 - 5.5kW	EA	1	8,891	5,113	41.8	24.0	17.0	408	12.0	289	-	-	767	11,437	6,577	12.0 %	789	-	-	7,367
Camp Potable Water Treatment Plant - 11kW	EA	1	150,643	86,638	62.7	36.1	17.0	612	12.0	434	-	-	12,996	175,059	100,679	12.0 %	12,082	-	-	112,761
Camp Raw Water Pump 1 - 5.5kW	EA	1	6,446	3,707	41.8	24.0	17.0	408	12.0	289	-	-	556	8,626	4,961	10.0 %	496	-	-	5,457
Camp Raw Water Pump 2 - 5.5kW	EA	1	6,446	3,707	41.8	24.0	17.0	408	12.0	289	-	-	556	8,626	4,961	10.0 %	496	-	-	5,457
Camp Uv Steriliser	EA	1	6,090	3,502	83.6	48.1	17.0	816	12.0	578	-	-	525	9,429	5,423	12.0 %	651	-	-	6,073
3.8.3 - Fire Water				**15,364**		**574**		**6,890**		**4,593**	**-**	**-**	**922**		**27,769**		**2,777**	**-**	**-**	**30,546**
E Electrical				***15,364***		***574***		***6,890***		***4,593***	***-***	***-***	***922***		***27,769***		***2,777***	***-***	***-***	***30,546***
Area Electrical AUD	EA	1	15,136	8,705	842	484	12.0	5,810	8.00	3,873	-	-	522	32,882	18,911	10.0 %	1,891	-	-	20,802
Area Electrical EUR	EA	1	11,578	6,659	156	90.0	12.0	1,080	8.00	720	-	-	400	15,403	8,858	10.0 %	886	-	-	9,744
3.8.4 - Sewerage				**14,874**		**779**		**9,345**		**6,230**	**-**	**-**	**892**		**31,342**		**3,134**	**-**	**-**	**34,476**
E Electrical				***14,874***		***779***		***9,345***		***6,230***	***-***	***-***	***892***		***31,342***		***3,134***	***-***	***-***	***34,476***
Area Electrical AUD	EA	1	20,432	11,751	1,157	666	12.0	7,986	8.00	5,324	-	-	705	44,802	25,766	10.0 %	2,577	-	-	28,343
Area Electrical EUR	EA	1	5,431	3,123	197	113	12.0	1,359	8.00	906	-	-	187	9,694	5,575	10.0 %	558	-	-	6,133
3.8.5 - Power Supply				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
M Mechanical				-		-		-		-	-	-	-		-		-	-	-	-
Intentionally Left Blank for Estimate Comparison	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
3.8.6 - Accommodation				-		-		-		-	-	20,702,000	-		20,702,000		1,035,100	-	-	21,737,100
U Owners Costs				-		-		-		-	-	***20,702,000***	-		***20,702,000***		***1,035,100***	-	-	***21,737,100***
Permanent Village Package - Install - Buildings (De Simone)	Lot	1	-	-	-	-		-		-	-	3,856,731	-	3,856,731	3,856,731	5.0 %	192,837	-	-	4,049,568
Permanent Village Package - P&G's (DAP)	Lot	1	-	-	-	-		-		-	-	904,332	-	904,332	904,332	5.0 %	45,217	-	-	949,549
Permanent Village Package - P&G's Install (De Simone)	Lot	1	-	-	-	-		-		-	-	6,001,018	-	6,001,018	6,001,018	5.0 %	300,051	-	-	6,301,069
Permanent Village Package - Supply - Buildings (DAP)	Lot	1	-	-	-	-		-		-	-	7,267,819	-	7,267,819	7,267,819	5.0 %	363,391	-	-	7,631,210
Permanent Village Package - Supply - Furniture & equipment(DAP	Lot	1	-	-	-	-		-		-	-	1,681,500	-	1,681,500	1,681,500	5.0 %	84,075	-	-	1,765,575
Permanent Village - Transport (DAP)	Lot	1	-	-	-	-		-		-	-	990,600	-	990,600	990,600	5.0 %	49,530	-	-	1,040,130
4 - Mining				**899,750**		**-**		**-**		**-**	**-**	**22,722,127**	**-**		**23,621,877**		**1,217,710**	**-**	**-**	**24,839,587**
4.1 - Mining-General				-		-		-		-	-	***21,792,500***	-		***21,792,500***		***1,089,625***	-	-	***22,882,125***
4.1.1 - Mining Mobilisation & Establishment				-		-		-		-	-	21,792,500	-		21,792,500		1,089,625	-	-	22,882,125
U Owners Costs				-		-		-		-	-	***21,792,500***	-		***21,792,500***		***1,089,625***	-	-	***22,882,125***
Mining - Dayworks	EA	1	-	-	-	-		-		-	-	308,666	-	308,666	308,666	5.0 %	15,433	-	-	324,099
Mining - Drill & Blast	EA	1	-	-	-	-		-		-	-	2,269,641	-	2,269,641	2,269,641	5.0 %	113,482	-	-	2,383,123
Mining - Early Works	EA	1	-	-	-	-		-		-	-	5,785,739	-	5,785,739	5,785,739	5.0 %	289,287	-	-	6,075,026
Mining - Fixed Costs	EA	1	-	-	-	-		-		-	-	6,128,952	-	6,128,952	6,128,952	5.0 %	306,448	-	-	6,435,400
Mining - Load & Haul	EA	1	-	-	-	-		-		-	-	5,216,018	-	5,216,018	5,216,018	5.0 %	260,801	-	-	5,476,819
Mining - Rehandle	EA	1	-	-	-	-		-		-	-	264,818	-	264,818	264,818	5.0 %	13,241	-	-	278,059
Mining - Site Prep	EA	1	-	-	-	-		-		-	-	1,818,666	-	1,818,666	1,818,666	5.0 %	90,933	-	-	1,909,599
4.5 - Mining Facilities				***899,750***		**-**		**-**		**-**	**-**	***929,627***	**-**		***1,829,377***		***128,085***	**-**	**-**	***1,957,462***
4.5.1 - Mining Facility - General				-		-		-		-	-	-	-		-		-	-	-	-
C Concrete				-		-		-		-	-	-	-		-		-	-	-	-
Wet Concrete Supply	M3	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
4.5.7 - Bulk Fuel & Lubricant Storage				**899,750**		**-**		**-**		**-**	**-**	**929,627**	**-**		**1,829,377**		**128,085**	**-**	**-**	**1,957,462**
U Owners Costs				***899,750***		**-**		**-**		**-**	**-**	***929,627***	**-**		***1,829,377***		***128,085***	**-**	**-**	***1,957,462***
Construction facility (Temporary Facility) - construction 3 off	MTH	18	-	-	-	-		-		-	-	350,000	-	19,444	350,000	10.0 %	35,000	-	-	385,000
Establishment of Construction Fuel Facility - Concrete - 15 MPa	M3	97	500	48,500	-	-		-		-	-	-	-	500	48,500	5.0 %	2,425	-	-	50,925
Establishment of Construction Fuel Facility - Concrete - 30 Mpa	M3	558	1,375	767,250	-	-		-		-	-	-	-	1,375	767,250	5.0 %	38,362	-	-	805,612
Establishment of Construction Fuel Facility - Daily transport from	MTH	12	1,000	12,000	-	-		-		-	-	-	-	1,000	12,000	10.0 %	1,200	-	-	13,200

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Establishment of Construction Fuel Facility - E&I (including gensets	MTH	12	2,000	24,000	-	-		-		-	-	-	-	2,000	24,000	10.0 %	2,400	-	-	26,400
Establishment of Construction Fuel Facility - Services	MTH	12	2,000	24,000	-	-		-		-	-	-	-	2,000	24,000	10.0 %	2,400	-	-	26,400
Establishment of Construction Fuel Facility - Temp office &	MTH	12	2,000	24,000	-	-		-		-	-	-	-	2,000	24,000	10.0 %	2,400	-	-	26,400
Management of Fuel Facilities (Over all 10 year Contract period) -	MTH	6	-	-	-	-		-		-	-	99,444	-	16,574	99,444	5.0 %	4,972	-	-	104,416
Management of Fuel Facilities for Construction fuel facility - 18	MTH	18	-	-	-	-		-		-	-	298,332	-	16,574	298,332	10.0 %	29,833	-	-	328,165
Permanent Fuel facility - Operations 2 vertical tanks (1000m3) & 2	MTH	6	-	-	-	-		-		-	-	181,851	-	30,308	181,851	5.0 %	9,093	-	-	190,944
5 - Management Costs				**-**		**-**		**-**		**-**	**-**	**32,794,823**	**-**		**32,794,823**		**1,705,863**	**-**	**-**	**34,500,686**
5.1 - EPCM - Home Office				**-**		**-**		**-**		**-**	**-**	***14,338,400***	**-**		***14,338,400***		***716,920***	**-**	**-**	***15,055,320***
5.1.5 - Project Services				**-**		**-**		**-**		**-**	**-**	**14,338,400**	**-**		**14,338,400**		**716,920**	**-**	**-**	**15,055,320**
Y Consultants				**-**		**-**		**-**		**-**	**-**	***14,338,400***	**-**		***14,338,400***		***716,920***	**-**	**-**	***15,055,320***
EPCM Contract - EP Offshore	Lot	1	-	-	-	-		-		-	-	14,338,400	-	14,338,400	14,338,400	5.0 %	716,920	-	-	15,055,320
5.2 - EPCM - Site				**-**		**-**		**-**		**-**	**-**	***13,750,632***	**-**		***13,750,632***		***687,532***	**-**	**-**	***14,438,164***
5.2.2 - Construction Services				**-**		**-**		**-**		**-**	**-**	**13,750,632**	**-**		**13,750,632**		**687,532**	**-**	**-**	**14,438,164**
Y Consultants				**-**		**-**		**-**		**-**	**-**	***13,750,632***	**-**		***13,750,632***		***687,532***	**-**	**-**	***14,438,164***
EPCM Contract - CM Onshore	Lot	1	-	-	-	-		-		-	-	12,074,264	-	12,074,264	12,074,264	5.0 %	603,713	-	-	12,677,977
EPCM Contract - Commissioning	Lot	1	-	-	-	-		-		-	-	1,676,368	-	1,676,368	1,676,368	5.0 %	83,818	-	-	1,760,186
5.3 - Specialist Consultants - Design				**-**		**-**		**-**		**-**	**-**	***4,044,572***	**-**		***4,044,572***		***202,229***	**-**	**-**	***4,246,801***
5.3.1 - Tailings Dam				**-**		**-**		**-**		**-**	**-**	**2,660,173**	**-**		**2,660,173**		**133,009**	**-**	**-**	**2,793,182**
Y Consultants				**-**		**-**		**-**		**-**	**-**	***2,660,173***	**-**		***2,660,173***		***133,009***	**-**	**-**	***2,793,182***
V1050 CM Costs - KP Scope Offshore	Lot	1	-	-	-	-		-		-	-	287,071	-	287,071	287,071	5.0 %	14,354	-	-	301,425
V1050 CM Costs - KP Scope Onshore	Lot	1	-	-	-	-		-		-	-	2,239,998	-	2,239,998	2,239,998	5.0 %	112,000	-	-	2,351,998
V1050 EP Costs - KP Scope Offshore	Lot	1	-	-	-	-		-		-	-	133,104	-	133,104	133,104	5.0 %	6,655	-	-	139,759
5.3.7 - Power Generation				**-**		**-**		**-**		**-**	**-**	**1,384,399**	**-**		**1,384,399**		**69,220**	**-**	**-**	**1,453,619**
U Owners Costs				**-**		**-**		**-**		**-**	**-**	***1,384,399***	**-**		***1,384,399***		***69,220***	**-**	**-**	***1,453,619***
Power Connection EPCM - Commissioning Assistance	Lot	1	-	-	-	-		-		-	-	115,660	-	115,660	115,660	5.0 %	5,783	-	-	121,443
Power Connection EPCM - Document Translation	Lot	1	-	-	-	-		-		-	-	20,000	-	20,000	20,000	5.0 %	1,000	-	-	21,000
Power Connection EPCM - Engineering Design Overview	Lot	1	-	-	-	-		-		-	-	186,240	-	186,240	186,240	5.0 %	9,312	-	-	195,552
Power Connection EPCM - FAT	Lot	1	-	-	-	-		-		-	-	50,000	-	50,000	50,000	5.0 %	2,500	-	-	52,500
Power Connection EPCM - Project Management	Lot	1	-	-	-	-		-		-	-	133,920	-	133,920	133,920	5.0 %	6,696	-	-	140,616
Power Connection EPCM - Site administration	Lot	1	-	-	-	-		-		-	-	67,548	-	67,548	67,548	5.0 %	3,377	-	-	70,925
Power Connection EPCM - Site Meetings & Reporting	Lot	1	-	-	-	-		-		-	-	189,600	-	189,600	189,600	5.0 %	9,480	-	-	199,080

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Power Connection EPCM - Site supervision	Lot	1	-	-	-	-		-		-	-	358,411	-	358,411	358,411	5.0 %	17,921	-	-	376,332
Power Connection EPCM - Survey & Transmission Line Design	Lot	1	-	-	-	-		-		-	-	231,900	-	231,900	231,900	5.0 %	11,595	-	-	243,495
Power Connection EPCM - Tower Pegging	Lot	1	-	-	-	-		-		-	-	31,120	-	31,120	31,120	5.0 %	1,556	-	-	32,676
5.5 - Vendor Representatives				**-**		**-**		**-**		**-**	**-**	***661,219***	**-**		***661,219***		***99,183***	**-**	**-**	***760,402***
5.5.1 - Vendor Reps				**-**		**-**		**-**		**-**	**-**	**661,219**	**-**		**661,219**		**99,183**	**-**	**-**	**760,402**
U Owners Costs				**-**		**-**		**-**		**-**	**-**	***661,219***	**-**		***661,219***		***99,183***	**-**	**-**	***760,402***
Vendor Representatives	Lot	1	-	-	-	-		-		-	-	661,219	-	661,219	661,219	15.0 %	99,183	-	-	760,402
6 - Owners Project Costs				**13,626,839**		**-**		**-**		**-**	**-**	**59,007,127**	**196,000**		**72,829,966**		**4,816,862**	**-**	**3,960,428**	**81,607,256**
6.1 - Owners Costs - General				***5,151,325***		**-**		**-**		**-**	**-**	***20,856,887***	**-**		***26,008,212***		***1,585,639***	**-**	**-**	***27,593,852***
6.1.1 - Owners Project Mng't Team Labour				**-**		**-**		**-**		**-**	**-**	**17,108,191**	**-**		**17,108,191**		**855,410**	**-**	**-**	**17,963,601**
U Owners Costs				**-**		**-**		**-**		**-**	**-**	***17,108,191***	**-**		***17,108,191***		***855,410***	**-**	**-**	***17,963,601***
Owners Project Labour Cost - Abidjan	Lot	1	-	-	-	-		-		-	-	873,337	-	873,337	873,337	5.0 %	43,667	-	-	917,004
Owners Project Labour Cost - Perth - Engineering	Lot	1	-	-	-	-		-		-	-	301,150	-	301,150	301,150	5.0 %	15,058	-	-	316,208
Owners Project Labour Cost - Perth - Management	Lot	1	-	-	-	-		-		-	-	2,103,057	-	2,103,057	2,103,057	5.0 %	105,153	-	-	2,208,210
Owners Project Labour Cost - Perth - Project Services	Lot	1	-	-	-	-		-		-	-	1,640,192	-	1,640,192	1,640,192	5.0 %	82,010	-	-	1,722,202
Owners Project Labour Cost - Site - Camp Management	Lot	1	-	-	-	-		-		-	-	420,903	-	420,903	420,903	5.0 %	21,045	-	-	441,948
Owners Project Labour Cost - Site - Communications	Lot	1	-	-	-	-		-		-	-	468,177	-	468,177	468,177	5.0 %	23,409	-	-	491,586
Owners Project Labour Cost - Site - Construction	Lot	1	-	-	-	-		-		-	-	1,968,030	-	1,968,030	1,968,030	5.0 %	98,402	-	-	2,066,432
Owners Project Labour Cost - Site - Construction Management	Lot	1	-	-	-	-		-		-	-	2,083,163	-	2,083,163	2,083,163	5.0 %	104,158	-	-	2,187,321
Owners Project Labour Cost - Site - Engineering	Lot	1	-	-	-	-		-		-	-	1,270,845	-	1,270,845	1,270,845	5.0 %	63,542	-	-	1,334,387
Owners Project Labour Cost - Site - Health, Safety, Environment &	Lot	1	-	-	-	-		-		-	-	3,220,696	-	3,220,696	3,220,696	5.0 %	161,035	-	-	3,381,731
Owners Project Labour Cost - Site - Health, Safety, Environment &	Lot	1	-	-	-	-		-		-	-	156,733	-	156,733	156,733	5.0 %	7,837	-	-	164,570
Owners Project Labour Cost - Site - Project Services	Lot	1	-	-	-	-		-		-	-	580,855	-	580,855	580,855	5.0 %	29,043	-	-	609,898
Owners Project Labour Cost - Site - Security	Lot	1	-	-	-	-		-		-	-	1,310,793	-	1,310,793	1,310,793	5.0 %	65,540	-	-	1,376,333
Owners Project Labour Cost - Site - Site Admin	Lot	1	-	-	-	-		-		-	-	710,260	-	710,260	710,260	5.0 %	35,513	-	-	745,773
6.1.2 - Project Insurance				**-**		**-**		**-**		**-**	**-**	**500,000**	**-**		**500,000**		**25,000**	**-**	**-**	**525,000**
U Owners Costs				**-**		**-**		**-**		**-**	**-**	***500,000***	**-**		***500,000***		***25,000***	**-**	**-**	***525,000***
Marine Cargo Insurance	EA	1	-	-	-	-		-		-	-	500,000	-	500,000	500,000	5.0 %	25,000	-	-	525,000
6.1.3 - Specialist Consultants				**77,500**		**-**		**-**		**-**	**-**	**2,289,696**	**-**		**2,367,196**		**149,360**	**-**	**-**	**2,516,556**
U Owners Costs				***77,500***		**-**		**-**		**-**	**-**	***2,289,696***	**-**		***2,367,196***		***149,360***	**-**	**-**	***2,516,556***
Engineering reviews	Lot	1	-	-	-	-		-		-	-	40,000	-	40,000	40,000	10.0 %	4,000	-	-	44,000
HSES Management System - Consultant - Construction OHS & ES	EA	1	-	-	-	-		-		-	-	40,000	-	40,000	40,000	5.0 %	2,000	-	-	42,000

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
HSES Management System - Consultant - Operation OHS & ES	EA	1	-	-	-	-		-		-	-	40,000	-	40,000	40,000	5.0 %	2,000	-	-	42,000
Land Acquisition, Resettlement and Livelihoods (Execution) -	Lot	2	30,000	67,500	-	-		-		-	-	-	-	30,000	67,500	5.0 %	3,375	-	-	70,875
Land Acquisition, Resettlement and Livelihoods (Execution) -	EA	393	-	-	-	-		-		-	-	3,451	-	8.78	3,451	5.0 %	173	-	-	3,624
Land Acquisition, Resettlement and Livelihoods (Execution) -	EA	2,143	-	-	-	-		-		-	-	18,798	-	8.77	18,798	5.0 %	940	-	-	19,738
Land Acquisition, Resettlement and Livelihoods (Execution) -	HA	917	-	-	-	-		-		-	-	32,175	-	35.1	32,175	5.0 %	1,609	-	-	33,784
Land Acquisition, Resettlement and Livelihoods (Execution) -	HA	2,212	-	-	-	-		-		-	-	77,614	-	35.1	77,614	5.0 %	3,881	-	-	81,495
Land Acquisition, Resettlement and Livelihoods (Execution) -	HA	1,954	-	-	-	-		-		-	-	68,561	-	35.1	68,561	5.0 %	3,428	-	-	71,989
Land Acquisition, Resettlement and Livelihoods (Execution) -	EA	949	-	-	-	-		-		-	-	8,325	-	8.77	8,325	5.0 %	416	-	-	8,741
Land Acquisition, Resettlement and Livelihoods (Execution) -	HA	917	-	-	-	-		-		-	-	289,772	-	316	289,772	5.0 %	14,489	-	-	304,261
Land Acquisition, Resettlement and Livelihoods (Execution) -	HA	630	-	-	-	-		-		-	-	198,947	-	316	198,947	5.0 %	9,947	-	-	208,895
Land Acquisition, Resettlement and Livelihoods (Execution) -	HA	1,954	-	-	-	-		-		-	-	617,053	-	316	617,053	5.0 %	30,853	-	-	647,906
Land Acquisition, Resettlement and Livelihoods (Execution) - RAP	Yr	2	-	-	-	-		-		-	-	200,000	-	100,000	200,000	5.0 %	10,000	-	-	210,000
Land Acquisition, Resettlement and Livelihoods (Execution) -	Lot	1	10,000	10,000	-	-		-		-	-	-	-	10,000	10,000	5.0 %	500	-	-	10,500
Land Acquisition, Resettlement and Livelihoods (Execution) - Socio-	Lot	1	-	-	-	-		-		-	-	75,000	-	75,000	75,000	5.0 %	3,750	-	-	78,750
Misc. Consultants - Allowance	Lot	1	-	-	-	-		-		-	-	150,000	-	150,000	150,000	10.0 %	15,000	-	-	165,000
On going Legal support	MTH	24	-	-	-	-		-		-	-	240,000	-	10,000	240,000	10.0 %	24,000	-	-	264,000
Specialist and Technical consultants	Lot	1	-	-	-	-		-		-	-	40,000	-	40,000	40,000	10.0 %	4,000	-	-	44,000
Translation Services - consultants	Lot	1	-	-	-	-		-		-	-	150,000	-	150,000	150,000	10.0 %	15,000	-	-	165,000
6.1.6 - Owners Costs General				**2,685,375**		**-**		**-**		**-**	**-**	**20,000**	**-**		**2,705,375**		**270,538**	**-**	**-**	**2,975,912**
U Owners Costs				***2,685,375***		***-***		***-***		***-***	***-***	***20,000***	***-***		***2,705,375***		***270,538***	***-***	***-***	***2,975,912***
Allowance for site PPE stock & consumables (visitors, lost PPE etc)	Lot	1	70,000	70,000	-	-		-		-	-	-	-	70,000	70,000	10.0 %	7,000	-	-	77,000
Construction Domestic Airfares	EA	876	350	306,600	-	-		-		-	-	-	-	350	306,600	10.0 %	30,660	-	-	337,260
Construction International Airfares (BC)	EA	185	9,900	1,831,500	-	-		-		-	-	-	-	9,900	1,831,500	10.0 %	183,150	-	-	2,014,650
Construction International Airfares (EC)	EA	60	2,310	138,600	-	-		-		-	-	-	-	2,310	138,600	10.0 %	13,860	-	-	152,460
Expat Hotel travel expenses	EA	230	400	92,000	-	-		-		-	-	-	-	400	92,000	10.0 %	9,200	-	-	101,200
Expat Travel Expenses	EA	230	75.0	17,250	-	-		-		-	-	-	-	75.0	17,250	10.0 %	1,725	-	-	18,975
Issued PPE for Owners team only	EA	165	300	49,500	-	-		-		-	-	-	-	300	49,500	10.0 %	4,950	-	-	54,450
Pre-employment Medicals - Expats	EA	30	990	29,700	-	-		-		-	-	-	-	990	29,700	10.0 %	2,970	-	-	32,670
Pre-employment Medicals - in country labour	EA	112	500	56,000	-	-		-		-	-	-	-	500	56,000	10.0 %	5,600	-	-	61,600
Provision for in country personnel travel/accommodation expenses	Lot	1	-	-	-	-		-		-	-	20,000	-	20,000	20,000	10.0 %	2,000	-	-	22,000
Recruitment allowance for in country labour	Lot	2	10,000	20,000	-	-		-		-	-	-	-	10,000	20,000	10.0 %	2,000	-	-	22,000
Recruitment of senior management/expats	EA	16	2,500	40,000	-	-		-		-	-	-	-	2,500	40,000	10.0 %	4,000	-	-	44,000
Residency Card Costs	EA	15	715	10,725	-	-		-		-	-	-	-	715	10,725	10.0 %	1,072	-	-	11,798
Training Provision	Lot	2	10,000	20,000	-	-		-		-	-	-	-	10,000	20,000	10.0 %	2,000	-	-	22,000
Visa cost	EA	35	100	3,500	-	-		-		-	-	-	-	100	3,500	10.0 %	350	-	-	3,850
6.1.7 - Owners Office Costs				**1,054,600**		**-**		**-**		**-**	**-**	**224,500**	**-**		**1,279,100**		**127,910**	**-**	**-**	**1,407,010**
U Owners Costs				***1,054,600***		***-***		***-***		***-***	***-***	***224,500***	***-***		***1,279,100***		***127,910***	***-***	***-***	***1,407,010***
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	550	13,200	-	-		-		-	-	-	-	550	13,200	10.0 %	1,320	-	-	14,520

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	3,300	79,200	-	-		-		-	-	-	-	3,300	79,200	10.0 %	7,920	-	-	87,120
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	55.0	1,320	-	-		-		-	-	-	-	55.0	1,320	10.0 %	132	-	-	1,452
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	82.5	1,980	-	-		-		-	-	-	-	82.5	1,980	10.0 %	198	-	-	2,178
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	1,241	29,781	-	-		-		-	-	-	-	1,241	29,781	10.0 %	2,978	-	-	32,759
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	82.5	1,980	-	-		-		-	-	-	-	82.5	1,980	10.0 %	198	-	-	2,178
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	385	9,240	-	-		-		-	-	-	-	385	9,240	10.0 %	924	-	-	10,164
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	11.0	264	-	-		-		-	-	-	-	11.0	264	10.0 %	26.4	-	-	290
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	1,134	27,225	-	-		-		-	-	-	-	1,134	27,225	10.0 %	2,722	-	-	29,948
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	825	19,800	-	-		-		-	-	-	-	825	19,800	10.0 %	1,980	-	-	21,780
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	4,361	104,660	-	-		-		-	-	-	-	4,361	104,660	10.0 %	10,466	-	-	115,126
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	275	6,600	-	-		-		-	-	-	-	275	6,600	10.0 %	660	-	-	7,260
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	1,094	26,246	-	-		-		-	-	-	-	1,094	26,246	10.0 %	2,625	-	-	28,871
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	550	13,200	-	-		-		-	-	-	-	550	13,200	10.0 %	1,320	-	-	14,520
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	660	15,840	-	-		-		-	-	-	-	660	15,840	10.0 %	1,584	-	-	17,424
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	110	2,640	-	-		-		-	-	-	-	110	2,640	10.0 %	264	-	-	2,904
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	808	19,404	-	-		-		-	-	-	-	808	19,404	10.0 %	1,940	-	-	21,344
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	2,379	57,090	-	-		-		-	-	-	-	2,379	57,090	10.0 %	5,709	-	-	62,799
Abidjan Office - office costs as per adjusted CDI 2026 - 2027 Budget	MTH	24	1,516	36,379	-	-		-		-	-	-	-	1,516	36,379	10.0 %	3,638	-	-	40,017
Camp Danoa - site costs as per adjusted CDI 2026 - 2027 Budget	MTH	6	83.3	500	-	-		-		-	-	-	-	83.3	500	10.0 %	50.0	-	-	550
Camp Danoa - site costs as per adjusted CDI 2026 - 2027 Budget	MTH	6	4,262	25,575	-	-		-		-	-	-	-	4,262	25,575	10.0 %	2,558	-	-	28,132
Camp Danoa - site costs as per adjusted CDI 2026 - 2027 Budget	MTH	6	13,740	82,440	-	-		-		-	-	-	-	13,740	82,440	10.0 %	8,244	-	-	90,684
Camp Danoa - site costs as per adjusted CDI 2026 - 2027 Budget	MTH	6	8,931	53,586	-	-		-		-	-	-	-	8,931	53,586	10.0 %	5,359	-	-	58,945
Camp Danoa - site costs as per adjusted CDI 2026 - 2027 Budget	MTH	6	9,333	56,000	-	-		-		-	-	-	-	9,333	56,000	10.0 %	5,600	-	-	61,600
Camp Danoa - site costs as per adjusted CDI 2026 - 2027 Budget	MTH	6	3,075	18,450	-	-		-		-	-	-	-	3,075	18,450	10.0 %	1,845	-	-	20,295
Perth Office - Car bays (5 bays)	MTH	24	-	-	-	-		-		-	-	39,000	-	1,625	39,000	10.0 %	3,900	-	-	42,900
Perth Office - Internet and communications (Phone etc)	MTH	24	2,500	60,000	-	-		-		-	-	-	-	2,500	60,000	10.0 %	6,000	-	-	66,000
Perth Office - Misc items, including cleaning	MTH	24	2,000	48,000	-	-		-		-	-	-	-	2,000	48,000	10.0 %	4,800	-	-	52,800
Perth Office - Office outgoings (as per rental agreement, including	MTH	24	-	-	-	-		-		-	-	36,000	-	1,500	36,000	10.0 %	3,600	-	-	39,600
Perth Office - office outgoings (Meeting catering, kitchen supplies)	MTH	24	500	12,000	-	-		-		-	-	-	-	500	12,000	10.0 %	1,200	-	-	13,200
Perth office - Office rental - assume the office is fully kitted out and	MTH	24	-	-	-	-		-		-	-	149,500	-	6,229	149,500	10.0 %	14,950	-	-	164,450
Perth office - repairs and maintenance	MTH	24	1,000	24,000	-	-		-		-	-	-	-	1,000	24,000	10.0 %	2,400	-	-	26,400
Perth Office - Stationary supplies	MTH	24	300	7,200	-	-		-		-	-	-	-	300	7,200	10.0 %	720	-	-	7,920
Perth Office - Stationary supplies (set up)	Lot	1	800	800	-	-		-		-	-	-	-	800	800	10.0 %	80.0	-	-	880
Project Site Office - cleaning services	MTH	24	1,500	36,000	-	-		-		-	-	-	-	1,500	36,000	10.0 %	3,600	-	-	39,600
Project Site Office - Furniture (Desks, returns, bookcases, chairs,	Lot	1	60,000	60,000	-	-		-		-	-	-	-	60,000	60,000	10.0 %	6,000	-	-	66,000
Project Site Office - IT misc items	MTH	24	1,000	24,000	-	-		-		-	-	-	-	1,000	24,000	10.0 %	2,400	-	-	26,400
Project Site Office - Kitchen set up (coffee machines, microwaves,	Lot	1	15,000	15,000	-	-		-		-	-	-	-	15,000	15,000	10.0 %	1,500	-	-	16,500
Project Site Office - Kitchen supplies/sundries (including water,	MTH	24	1,500	36,000	-	-		-		-	-	-	-	1,500	36,000	10.0 %	3,600	-	-	39,600
Project Site Office - Stationary set up (first fills)	Lot	1	5,000	5,000	-	-		-		-	-	-	-	5,000	5,000	10.0 %	500	-	-	5,500
Project Site Office - Stationary supplies	MTH	24	1,000	24,000	-	-		-		-	-	-	-	1,000	24,000	10.0 %	2,400	-	-	26,400
6.1.8 - Owners IT/Software				**968,600**	**-**	**-**		**-**		**-**	**-**	**-**	**-**		**968,600**		**96,860**	**-**	**-**	**1,065,460**

Capital Cost Estimate

Detailed Print

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
U Owners Costs				***968,600***		***-***		***-***		***-***	***-***	***-***	***-***		***968,600***		***96,860***	***-***	***-***	***1,065,460***
Computers/laptops, including general software requirements	EA	91	3,000	273,000	-	-		-		-	-	-	-	3,000	273,000	10.0 %	27,300	-	-	300,300
Environment Database	Lot	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Environment Database - Maintenance	Lot	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Environment - GIS- MapInfo	Lot	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Geology GEOVIA (Allowance)	Lot	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Local Server - Allowance	MTH	24	8,000	192,000	-	-		-		-	-	-	-	8,000	192,000	10.0 %	19,200	-	-	211,200
Mining Operations Software (surpac, Map Tec) (Allowance) -	Lot	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
P6 Planning Software	MTH	24	1,000	24,000	-	-		-		-	-	-	-	1,000	24,000	10.0 %	2,400	-	-	26,400
Printer / Copier - ink and maintenance costs	EA	24	5,000	120,000	-	-		-		-	-	-	-	5,000	120,000	10.0 %	12,000	-	-	132,000
Printers - Purchase (1 x Perth Office, 2 x Project Site office - Abidjan	EA	3	13,200	39,600	-	-		-		-	-	-	-	13,200	39,600	10.0 %	3,960	-	-	43,560
Project Costing Software - Contruent (License software and	Lot	1	300,000	300,000	-	-		-		-	-	-	-	300,000	300,000	10.0 %	30,000	-	-	330,000
Software Training	Lot	1	20,000	20,000	-	-		-		-	-	-	-	20,000	20,000	10.0 %	2,000	-	-	22,000
6.1.9 - HSES				**365,250**		**-**		**-**		**-**	**-**	**714,500**	**-**		**1,079,750**		**60,562**	**-**	**-**	**1,140,312**
U Owners Costs				***365,250***		***-***		***-***		***-***	***-***	***714,500***	***-***		***1,079,750***		***60,562***	***-***	***-***	***1,140,312***
Breathing apparatus	Lot	1	20,000	20,000	-	-		-		-	-	-	-	20,000	20,000	10.0 %	2,000	-	-	22,000
Breath Testing Equipment & Calibration	EA	3	2,500	7,500	-	-		-		-	-	-	-	2,500	7,500	10.0 %	750	-	-	8,250
Fire fighting	Lot	1	20,000	20,000	-	-		-		-	-	-	-	20,000	20,000	10.0 %	2,000	-	-	22,000
Hazmat	Lot	1	4,000	4,000	-	-		-		-	-	-	-	4,000	4,000	10.0 %	400	-	-	4,400
HSES Management System - Awareness and training materials	EA	2	-	-	-	-		-		-	-	45,000	-	20,000	45,000	5.0 %	2,250	-	-	47,250
HSES Management System - external Audits (annually - 2 years)	Yr	2	-	-	-	-		-		-	-	112,500	-	50,000	112,500	5.0 %	5,625	-	-	118,125
HSES Management System - Regulatory inspections	EA	2	-	-	-	-		-		-	-	22,500	-	10,000	22,500	5.0 %	1,125	-	-	23,625
HSES Monitoring - Camp hygiene monitoring	Yr	2	-	-	-	-		-		-	-	22,500	-	10,000	22,500	5.0 %	1,125	-	-	23,625
HSES Monitoring - Census socio-economic survey	Lot	1	-	-	-	-		-		-	-	50,000	-	50,000	50,000	5.0 %	2,500	-	-	52,500
HSES Monitoring - Environmental monitoring bores - 7 x nested	EA	7	-	-	-	-		-		-	-	140,000	-	20,000	140,000	5.0 %	7,000	-	-	147,000
HSES Monitoring - Monitoring consumables (20 % of equipment	Yr	2	-	-	-	-		-		-	-	4,500	-	2,000	4,500	5.0 %	225	-	-	4,725
HSES Monitoring - Monitoring Equipment (water, AQNV,	Lot	1	-	-	-	-		-		-	-	10,000	-	10,000	10,000	5.0 %	500	-	-	10,500
HSES Monitoring - Offsite water quality lab analysis	Yr	2	-	-	-	-		-		-	-	112,500	-	50,000	112,500	5.0 %	5,625	-	-	118,125
HSES Monitoring - Terrestrial and aquatic ecology survey	Lot	1	-	-	-	-		-		-	-	30,000	-	30,000	30,000	5.0 %	1,500	-	-	31,500
Lightning alert Service	Lot	1	10,000	10,000	-	-		-		-	-	-	-	10,000	10,000	10.0 %	1,000	-	-	11,000
Management & Mitigation (OHS & Medical) - Chemical spill kits	Lot	1	-	-	-	-		-		-	-	15,000	-	15,000	15,000	5.0 %	750	-	-	15,750
Management & Mitigation (OHS & Medical) - HSE emergency	Lot	1	50,000	50,000	-	-		-		-	-	-	-	50,000	50,000	5.0 %	2,500	-	-	52,500
Management & Mitigation (OHS & Medical) - Malaria control	Yr	2	25,000	56,250	-	-		-		-	-	-	-	25,000	56,250	5.0 %	2,812	-	-	59,062
Management & mitigation (Physical Environment) - Erosion control	Yr	2	15,000	33,750	-	-		-		-	-	-	-	15,000	33,750	5.0 %	1,688	-	-	35,438
Management & Mitigation (Social) - Local economic participation;	Lot	2	30,000	60,000	-	-		-		-	-	-	-	30,000	60,000	5.0 %	3,000	-	-	63,000
Management & Mitigation (Social) - Stakeholder engagement	Yr	2	15,000	33,750	-	-		-		-	-	-	-	15,000	33,750	5.0 %	1,688	-	-	35,438
Misc. ERT equipment	Lot	1	15,000	15,000	-	-		-		-	-	-	-	15,000	15,000	10.0 %	1,500	-	-	16,500
Road crash Rescue	Lot	1	40,000	40,000	-	-		-		-	-	-	-	40,000	40,000	10.0 %	4,000	-	-	44,000
Supplementary ESIA /RAP Studies (to address optimised DFS) -	EA	1	-	-	-	-		-		-	-	50,000	-	50,000	50,000	5.0 %	2,500	-	-	52,500

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Supplementary ESIA /RAP Studies (to address optimised DFS) -	EA	1	-	-	-	-		-		-	-	100,000	-	100,000	100,000	5.0 %	5,000	-	-	105,000
Weather station	Lot	1	15,000	15,000	-	-		-		-	-	-	-	15,000	15,000	10.0 %	1,500	-	-	16,500
6.2 - Plant & Admin Pre-Production				***683,763***		***-***		***-***		***-***	***-***	***12,644,087***	***-***		***13,327,850***		***943,469***	***-***	***-***	***14,271,319***
6.2.1 - Plant Pre-production Labour				**208,160**		**-**		**-**		**-**	**-**	**3,352,521**	**-**		**3,560,681**		**188,442**	**-**	**-**	**3,749,123**
U Owners Costs				***208,160***		***-***		***-***		***-***	***-***	***3,352,521***	***-***		***3,560,681***		***188,442***	***-***	***-***	***3,749,123***
Owners Pre-Ops Labour Cost - Mining	Lot	1	-	-	-	-		-		-	-	1,610,708	-	1,610,708	1,610,708	5.0 %	80,535	-	-	1,691,243
Owners Pre-Ops Labour Cost - Mining - Domestic Flights	EA	29	350	10,150	-	-		-		-	-	-	-	350	10,150	10.0 %	1,015	-	-	11,165
Owners Pre-Ops Labour Cost - Mining - International Flights	EA	19	2,000	38,000	-	-		-		-	-	-	-	2,000	38,000	10.0 %	3,800	-	-	41,800
Owners Pre-Ops Labour Cost - Plant Maintenance	Lot	1	-	-	-	-		-		-	-	488,630	-	488,630	488,630	5.0 %	24,432	-	-	513,062
Owners Pre-Ops Labour Cost - Plant Maintenance - Domestic	EA	67	350	23,450	-	-		-		-	-	-	-	350	23,450	10.0 %	2,345	-	-	25,795
Owners Pre-Ops Labour Cost - Plant Maintenance - International	EA	6	2,000	12,000	-	-		-		-	-	-	-	2,000	12,000	10.0 %	1,200	-	-	13,200
Owners Pre-Ops Labour Cost - Plant Operations	Lot	1	-	-	-	-		-		-	-	1,253,183	-	1,253,183	1,253,183	5.0 %	62,659	-	-	1,315,842
Owners Pre-Ops Labour Cost - Plant Operations - Domestic Flights	EA	36	350	12,600	-	-		-		-	-	-	-	350	12,600	10.0 %	1,260	-	-	13,860
Owners Pre-Ops Labour Cost - Plant Operations - International	EA	37	2,000	74,660	-	-		-		-	-	-	-	2,000	74,660	10.0 %	7,466	-	-	82,126
Owners Pre-Ops Pre-employment costs - Expats	EA	20	990	19,800	-	-		-		-	-	-	-	990	19,800	10.0 %	1,980	-	-	21,780
Owners Pre-Ops Pre-employment costs - In country	EA	35	500	17,500	-	-		-		-	-	-	-	500	17,500	10.0 %	1,750	-	-	19,250
6.2.2 - Admin Pre-production Labour and G & A Expenses				**59,650**		**-**		**-**		**-**	**-**	**1,526,632**	**-**		**1,586,282**		**82,297**	**-**	**-**	**1,668,579**
U Owners Costs				***59,650***		***-***		***-***		***-***	***-***	***1,526,632***	***-***		***1,586,282***		***82,297***	***-***	***-***	***1,668,579***
Owners Pre-Ops Labour Cost - Administration	Lot	1	-	-	-	-		-		-	-	1,526,632	-	1,526,632	1,526,632	5.0 %	76,332	-	-	1,602,964
Owners Pre-Ops Labour Cost - Administration - Domestic Flights	EA	39	350	13,650	-	-		-		-	-	-	-	350	13,650	10.0 %	1,365	-	-	15,015
Owners Pre-Ops Labour Cost - Administration - International Flights	EA	23	2,000	46,000	-	-		-		-	-	-	-	2,000	46,000	10.0 %	4,600	-	-	50,600
6.2.3 - Opening Stocks				**-**		**-**		**-**		**-**	**-**	**5,273,715**	**-**		**5,273,715**		**527,372**	**-**	**-**	**5,801,086**
U Owners Costs				***-***		***-***		***-***		***-***	***-***	***5,273,715***	***-***		***5,273,715***		***527,372***	***-***	***-***	***5,801,086***
Opening Stocks	Lot	1	-	-	-	-		-		-	-	5,273,715	-	5,273,715	5,273,715	10.0 %	527,372	-	-	5,801,086
6.2.4 - First Fill Reagents & Consumables				**-**		**-**		**-**		**-**	**-**	**2,491,219**	**-**		**2,491,219**		**124,561**	**-**	**-**	**2,615,780**
U Owners Costs				***-***		***-***		***-***		***-***	***-***	***2,491,219***	***-***		***2,491,219***		***124,561***	***-***	***-***	***2,615,780***
First Fills, as per Lycopodiums "Operating Cost Estimate Rev C"	Lot	1	-	-	-	-		-		-	-	2,491,219	-	2,491,219	2,491,219	5.0 %	124,561	-	-	2,615,780
6.2.7 - Small Tools & Maint Equipment				**415,953**		**-**		**-**		**-**	**-**	**-**	**-**		**415,953**		**20,798**	**-**	**-**	**436,751**
U Owners Costs				***415,953***		***-***		***-***		***-***	***-***	***-***	***-***		***415,953***		***20,798***	***-***	***-***	***436,751***
Stores tools and equipment and tooling - refer to Tooling Spread	Lot	1	365,953	365,953	-	-		-		-	-	-	-	365,953	365,953	5.0 %	18,298	-	-	384,251
Workshop Shelving	Lot	1	50,000	50,000	-	-		-		-	-	-	-	50,000	50,000	5.0 %	2,500	-	-	52,500

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
6.3 - Admin Pre-Production Other				***3,934,527***		***-***		***-***		***-***	***-***	***170,000***	***-***		***4,104,527***		***214,076***	***-***	***-***	***4,318,603***
6.3.1 - Training				**-**		**-**		**-**		**-**	**-**	**170,000**	**-**		**170,000**		**8,500**	**-**	**-**	**178,500**
U Owners Costs				***-***		***-***		***-***		***-***	***-***	***170,000***	***-***		***170,000***		***8,500***	***-***	***-***	***178,500***
Process Training Costs	Lot	1	-	-	-	-		-		-	-	170,000	-	170,000	170,000	5.0 %	8,500	-	-	178,500
6.3.3 - Information Technology				**177,000**		**-**		**-**		**-**	**-**	**-**	**-**		**177,000**		**17,700**	**-**	**-**	**194,700**
U Owners Costs				***177,000***		***-***		***-***		***-***	***-***	***-***	***-***		***177,000***		***17,700***	***-***	***-***	***194,700***
Computers/laptops, including general software requirements	EA	59	3,000	177,000	-	-		-		-	-	-	-	3,000	177,000	10.0 %	17,700	-	-	194,700
6.3.4 - Security				**3,757,527**		**-**		**-**		**-**	**-**	**-**	**-**		**3,757,527**		**187,876**	**-**	**-**	**3,945,403**
U Owners Costs				***3,757,527***		***-***		***-***		***-***	***-***	***-***	***-***		***3,757,527***		***187,876***	***-***	***-***	***3,945,403***
Ampella Security Vehicles (Vehicle hire cost) #1	MTH	27	2,550	68,850	-	-		-		-	-	-	-	2,550	68,850	5.0 %	3,442	-	-	72,292
Ampella Security Vehicles (Vehicle hire cost) #2	MTH	27	2,550	68,850	-	-		-		-	-	-	-	2,550	68,850	5.0 %	3,442	-	-	72,292
Contract - Civilian Guards	MTH	12	31,941	383,286	-	-		-		-	-	-	-	31,941	383,286	5.0 %	19,164	-	-	402,451
Contract - G4S (126 full time personnel)	MTH	27	62,051	1,675,384	-	-		-		-	-	-	-	62,051	1,675,384	5.0 %	83,769	-	-	1,759,154
Contract - G4S (Cell Phone costs)	MTH	27	326	8,806	-	-		-		-	-	-	-	326	8,806	5.0 %	440	-	-	9,246
Contract - G4S (Radio cost per post)	MTH	27	1,675	45,220	-	-		-		-	-	-	-	1,675	45,220	5.0 %	2,261	-	-	47,481
Contract - G4S (vehicle hire costs) #1	MTH	27	2,550	68,850	-	-		-		-	-	-	-	2,550	68,850	5.0 %	3,442	-	-	72,292
Contract - G4S (vehicle hire costs) #2	MTH	27	2,550	68,850	-	-		-		-	-	-	-	2,550	68,850	5.0 %	3,442	-	-	72,292
Contract - G4S (vehicle hire costs) - troopy #3	MTH	26	4,420	114,920	-	-		-		-	-	-	-	4,420	114,920	5.0 %	5,746	-	-	120,666
Contract - Gendarme (80 full time personnel)	MTH	27	28,552	770,900	-	-		-		-	-	-	-	28,552	770,900	5.0 %	38,545	-	-	809,445
Contract - Gendarme (Vehicle hire cost) #1	MTH	27	2,550	68,850	-	-		-		-	-	-	-	2,550	68,850	5.0 %	3,442	-	-	72,292
Contract - Gendarme (Vehicle hire cost) #2	MTH	27	2,550	68,850	-	-		-		-	-	-	-	2,550	68,850	5.0 %	3,442	-	-	72,292
Contract - Gendarme (Vehicle hire cost) #3	MTH	27	2,550	68,850	-	-		-		-	-	-	-	2,550	68,850	5.0 %	3,442	-	-	72,292
Contract - Gendarme (Vehicle hire cost) #4	MTH	27	2,550	68,850	-	-		-		-	-	-	-	2,550	68,850	5.0 %	3,442	-	-	72,292
Contract - Gendarme (Vehicle hire cost) #5	MTH	27	2,550	68,850	-	-		-		-	-	-	-	2,550	68,850	5.0 %	3,442	-	-	72,292
Hand held radios (5 for Ampella, 5 for Gendarme) - $68 per month	MTH	270	68.0	18,360	-	-		-		-	-	-	-	68.0	18,360	5.0 %	918	-	-	19,278
Misc security equipment (e.g. TV screen, computer screen)	Lot	1	30,000	30,000	-	-		-		-	-	-	-	30,000	30,000	5.0 %	1,500	-	-	31,500
Radio Base station (Office)	EA	1	10,000	10,000	-	-		-		-	-	-	-	10,000	10,000	5.0 %	500	-	-	10,500
Vehicle Base Radios	MTH	27	2,000	54,000	-	-		-		-	-	-	-	2,000	54,000	5.0 %	2,700	-	-	56,700
Vehicle tracking system (total 10 vehicles)	MTH	27	1,000	27,000	-	-		-		-	-	-	-	1,000	27,000	5.0 %	1,350	-	-	28,350
6.4 - Spare Parts				***-***		***-***		***-***		***-***	***-***	***5,917,391***	***-***		***5,917,391***		***887,609***	***-***	***-***	***6,805,000***
6.4.2 - Spares				**-**		**-**		**-**		**-**	**-**	**5,917,391**	**-**		**5,917,391**		**887,609**	**-**	**-**	**6,805,000**
U Owners Costs				***-***		***-***		***-***		***-***	***-***	***5,917,391***	***-***		***5,917,391***		***887,609***	***-***	***-***	***6,805,000***

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
General Plant Spares	Lot	1	-	-	-	-		-		-	-	5,917,391	-	5,917,391	5,917,391	15.0 %	887,609	-	-	6,805,000
6.5 - Fees / Taxes / Duties				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	***3,960,428***	***3,960,428***
6.5.7 - Taxes & Duties				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**3,960,428**	**3,960,428**
U Owners Costs				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	***3,960,428***	***3,960,428***
Taxes & Duties	Lot	1	-	-	-	-		-		-	-	-	-	-	-		-	-	3,960,428	3,960,428
6.6 - Community				**-**		**-**		**-**		**-**	**-**	***19,370,561***	**-**		***19,370,561***		***968,528***	**-**	**-**	***20,339,089***
6.6.2 - Land Compensation				**-**		**-**		**-**		**-**	**-**	**7,134,035**	**-**		**7,134,035**		**356,702**	**-**	**-**	**7,490,737**
U Owners Costs				**-**		**-**		**-**		**-**	**-**	***7,134,035***	**-**		***7,134,035***		***356,702***	**-**	**-**	***7,490,737***
Land Acquisition, Resettlement and Livelihoods (Compensation) -	HA	917	-	-	-	-		-		-	-	1,287,018	-	1,404	1,287,018	5.0 %	64,351	-	-	1,351,369
Land Acquisition, Resettlement and Livelihoods (Compensation) -	HA	2,212	-	-	-	-		-		-	-	3,104,561	-	1,404	3,104,561	5.0 %	155,228	-	-	3,259,789
Land Acquisition, Resettlement and Livelihoods (Compensation) -	HA	1,954	-	-	-	-		-		-	-	2,742,456	-	1,404	2,742,456	5.0 %	137,123	-	-	2,879,579
6.6.3 - Land Acquisition				**-**		**-**		**-**		**-**	**-**	**11,186,526**	**-**		**11,186,526**		**559,326**	**-**	**-**	**11,745,852**
U Owners Costs				**-**		**-**		**-**		**-**	**-**	***11,186,526***	**-**		***11,186,526***		***559,326***	**-**	**-**	***11,745,852***
Land Acquisition, Resettlement and Livelihoods (Compensation) -	Lot	1	-	-	-	-		-		-	-	3,228,063	-	3,228,063	3,228,063	5.0 %	161,403	-	-	3,389,466
Land Acquisition, Resettlement and Livelihoods (Compensation) -	Lot	1	-	-	-	-		-		-	-	6,260,963	-	6,260,963	6,260,963	5.0 %	313,048	-	-	6,574,011
Land Acquisition, Resettlement and Livelihoods (Compensation) -	EA	485	-	-	-	-		-		-	-	1,697,500	-	3,500	1,697,500	5.0 %	84,875	-	-	1,782,375
6.6.6 - Other Community Infrastructure				**-**		**-**		**-**		**-**	**-**	**600,000**	**-**		**600,000**		**30,000**	**-**	**-**	**630,000**
U Owners Costs				**-**		**-**		**-**		**-**	**-**	***600,000***	**-**		***600,000***		***30,000***	**-**	**-**	***630,000***
Management & Mitigation (Social) - Community infrastructure	Lot	6	-	-	-	-		-		-	-	600,000	-	100,000	600,000	5.0 %	30,000	-	-	630,000
6.6.7 - Community Support				**-**		**-**		**-**		**-**	**-**	**450,000**	**-**		**450,000**		**22,500**	**-**	**-**	**472,500**
U Owners Costs				**-**		**-**		**-**		**-**	**-**	***450,000***	**-**		***450,000***		***22,500***	**-**	**-**	***472,500***
Community Development Programme - community investment,	Yr	2	-	-	-	-		-		-	-	450,000	-	200,000	450,000	5.0 %	22,500	-	-	472,500
6.7 - Plant Mobile Equipment				***3,857,224***		**-**		**-**		**-**	**-**	***48,200***	***196,000***		***4,101,424***		***217,541***	**-**	**-**	***4,318,965***
6.7.1 - Light Vehicles				**2,086,108**		**-**		**-**		**-**	**-**	**-**	**2,500**		**2,088,608**		**105,805**	**-**	**-**	**2,194,413**
U Owners Costs				***2,086,108***		**-**		**-**		**-**	**-**	**-**	***2,500***		***2,088,608***		***105,805***	**-**	**-**	***2,194,413***
Fuel Trailer	Lot	1	25,000	25,000	-	-		-		-	-	-	2,500	27,500	27,500	10.0 %	2,750	-	-	30,250
Light Vehicles - ECG (Hire) - Allowance for 3 vehicles for 18 months	Day	1,644	150	246,600	-	-		-		-	-	-	-	150	246,600	5.0 %	12,330	-	-	258,930
Light Vehicles - EPCM (Hire) - Allowance for 10 vehicles, required	Day	4,384	150	657,600	-	-		-		-	-	-	-	150	657,600	5.0 %	32,880	-	-	690,480

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
Light Vehicles - Hilux Pickup (Twin Cab) Diesel - purchase	EA	10	41,949	419,490	-	-		-		-	-	-	-	41,949	419,490	5.0 %	20,974	-	-	440,464
Light Vehicles - KP (Hire) - Allowance for 1 vehicles for 12 months	Day	730	150	109,500	-	-		-		-	-	-	-	150	109,500	5.0 %	5,475	-	-	114,975
Light Vehicles - Landcruiser pickup single cab (Diesel) - purchase	EA	1	85,668	85,668	-	-		-		-	-	-	-	85,668	85,668	5.0 %	4,283	-	-	89,951
Light Vehicles - Landcruiser Troopy (Diesel) - purchase	EA	2	85,491	170,982	-	-		-		-	-	-	-	85,491	170,982	5.0 %	8,549	-	-	179,531
Light Vehicles - Landcruiser Wagon (Diesel) - purchase	EA	1	87,615	87,615	-	-		-		-	-	-	-	87,615	87,615	5.0 %	4,381	-	-	91,996
Light Vehicles - Landcruiser Wagon Prado (Diesel) - purchase	EA	2	61,862	123,723	-	-		-		-	-	-	-	61,862	123,723	5.0 %	6,186	-	-	129,909
Site Bus - Tata 62 Seater (Diesel) - purchase	EA	2	79,965	159,930	-	-		-		-	-	-	-	79,965	159,930	5.0 %	7,996	-	-	167,926
6.7.2 - Cranes				**522,909**		**-**		**-**		**-**	**-**	**-**	**50,000**		**572,909**		**28,645**	**-**	**-**	**601,554**
U Owners Costs				***522,909***		**-**		**-**		**-**	**-**	**-**	***50,000***		***572,909***		***28,645***	**-**	**-**	***601,554***
Franna AT-40 40t capacity - purchase (CIF) - transport to Abidjan	EA	1	522,909	522,909	-	-		-		-	-	-	50,000	572,909	572,909	5.0 %	28,645	-	-	601,554
Hydraulic Cranes - Liebherr 100T Hydraulic Crane LTR1100	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Mill Cranes - Kobelco CHE3000G - Crawler crane (hire), complete	WK	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
6.7.3 - Forklifts				**518,317**		**-**		**-**		**-**	**-**	**-**	**50,000**		**568,317**		**28,416**	**-**	**-**	**596,733**
U Owners Costs				***518,317***		**-**		**-**		**-**	**-**	**-**	***50,000***		***568,317***		***28,416***	**-**	**-**	***596,733***
10t Konecranes Forklift (600mm) - purchase (CIF) - transport to	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
45 Tonne capacity Container Handler- New XCMG (China)	EA	1	353,000	353,000	-	-		-		-	-	-	40,000	393,000	393,000	5.0 %	19,650	-	-	412,650
Forklift - TLT35D 4 x 4: construction - purchase (CIF) - transport to	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Manitou Electric Forklift model ME 430 (purchase) (EURO)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Manitou Forklift Trucks Model MI-X30G (purchase) (EURO)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Manitou Rotating Telehandler Model MRT-X2260 visions (purchase)	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Manitou Telehandler Model MT-X1840 (purchase) (EURO)	EA	1	165,317	165,317	-	-		-		-	-	-	10,000	175,317	175,317	5.0 %	8,766	-	-	184,083
6.7.5 - Bobcats				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
U Owners Costs				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
226B3 Skid Steer Loader Caterpillar (purchase) - CIF Abidjan	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
6.7.6 - Trucks				**193,000**		**-**		**-**		**-**	**-**	**-**	**25,000**		**218,000**		**10,900**	**-**	**-**	**228,900**
U Owners Costs				***193,000***		**-**		**-**		**-**	**-**	**-**	***25,000***		***218,000***		***10,900***	**-**	**-**	***228,900***
20,000 Litre Water Sprinkler Truck, including rear spray bar, water	EA	1	193,000	193,000	-	-		-		-	-	-	25,000	218,000	218,000	5.0 %	10,900	-	-	228,900
6.7.7 - Boom & Scissor Lifts				**-**		**-**		**-**		**-**	**-**	**48,200**	**15,000**		**63,200**		**9,480**	**-**	**-**	**72,680**
U Owners Costs				**-**		**-**		**-**		**-**	**-**	***48,200***	***15,000***		***63,200***		***9,480***	**-**	**-**	***72,680***
JLG RT3394 Scissor Lift 33ft Platform Height with Outriggers -	Lot	1	-	-	-	-		-		-	-	48,200	15,000	63,200	63,200	15.0 %	9,480	-	-	72,680
6.7.8 - Other Plant Mobile Equipment				**536,890**		**-**		**-**		**-**	**-**	**-**	**53,500**		**590,390**		**34,294**	**-**	**-**	**624,685**

Prepared: AF
Period: 3Q25
Currency: $
Accuracy: USD +15% / -10%

Capital Cost Estimate

Detailed Print

S2326
Resolute
Doropo Gold Project DFS - Rev C3
Project Country: CI

	Unit	Qnty	Supply Rate	Supply Cost	Unit Hrs	Labour Hrs	Labour Rate	Direct Labour	Unit Equip.	Direct Equip.	Construct. Distribut.	Project Ancillary	Freight Cost	Line Item Rate	Subtotal Cost	Conting. %	Conting. Cost	Escalat. Cost	Taxes Duties	Project Total
U Owners Costs				***536,890***		***-***		***-***		***-***	***-***	***-***	***53,500***		***590,390***		***34,294***	***-***	***-***	***624,685***
Diesel Generator: Model AC110D5 - purchase outright	EA	3	17,030	51,090	-	-		-		-	-	-	5,000	18,697	56,090	5.0 %	2,804	-	-	58,895
Diesel Generator: Model AC200D5 - purchase outright	EA	2	25,900	51,800	-	-		-		-	-	-	5,000	28,400	56,800	5.0 %	2,840	-	-	59,640
Diesel Generator: Model AC450D5 - purchase outright	EA	2	59,000	118,000	-	-		-		-	-	-	5,000	61,500	123,000	5.0 %	6,150	-	-	129,150
Diesel Welding Machines: Vantage 400 welding machine (purchase)	EA	2	29,000	58,000	-	-		-		-	-	-	5,000	31,500	63,000	5.0 %	3,150	-	-	66,150
HDPE Welding Machine : McElroy T500 Series 3 c/w hydraulic	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
HPDE welding machine: Weldmaster - product code 130-0315 (110-	EA	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
Small tools and equipment - Sea container and specialised hire	Lot	1	45,000	45,000	-	-		-		-	-	-	3,500	48,500	48,500	10.0 %	4,850	-	-	53,350
Smal tools and equipment - compressors, mobile scaffolding	Lot	1	45,000	45,000	-	-		-		-	-	-	2,000	47,000	47,000	10.0 %	4,700	-	-	51,700
Solar Lighting towers: GP86K Daymake (purchase)	EA	6	28,000	168,000	-	-		-		-	-	-	28,000	32,667	196,000	5.0 %	9,800	-	-	205,800
7 - Owners Operations Costs				**-**		**-**		**-**		**-**	**-**	**-**	**-**		**-**		**-**	**-**	**-**	**-**
7.2 - Working Capital				-		-		-		-	-	-	-		-		-	-	-	-
7.2.1 - General				-		-		-		-	-	-	-		-		-	-	-	-
U Owners Costs				-		-		-		-	-	-	-		-		-	-	-	-
Working Capital	Lot	-	-	-	-	-		-		-	-	-	-	-	-		-	-	-	-
				143,663,708		**5,059,386**		**32,369,013**		**52,729,539**	**39,392,500**	**182,367,015**	**18,736,070**		**469,257,844**	**9.0 %**	**42,299,897**	**-**	**3,960,428**	**515,518,169**

APPENDIX 12.2

ESTIMATE SCOPE AND RESPONSIBILITIES MATRIX

Estimate Scope and Responsibilities Matrix

Facility Description	Engineering, Scope & Quantities			Material Supply Cost			Construction Cost			Resolute / Other Inputs Due	Comments
	Lyco	Resolute	Other	Lyco	Resolute	Other	Lyco	Resolute	Other		
S2317 Doropo Gold Project											
0 Construction Distributables											
0.1 Construction Distributables - Contractors											
0.1.1 Earthworks	X			X			X				
0.1.2 Concrete	X			X			X				
0.1.3 SMP	X			X			X				
0.1.7 Electrical & Instrumentation	X			X			X				
0.1.8 Buildings	X			X			X				
0.1.9 Fencing	X			X			X				
0.2 Site Construction Distributables General											
0.2.1 Construction Equipment	X			X			X				
0.2.3 General Freight & Transport	X			X			X				
0.2.4 Construction Power & Water	X			X			X				
0.2.9 Commissioning Assistance	X			X			X				
0.3 Site Construction Facilities											
0.3.1 Construction Site Preparation / Earthworks	X			X			X				
0.3.3 Laydown Areas (Hardstand)	X			X			X				
0.3.4 Construction Site Offices	X			X			X				
0.3.6 Medical & First Aid	X	X		X	X		X	X			Lyco to cost supply of 1st aid hut, Resolute to include operating costs.
0.3.7 Construction Communications	X	X		X	X		X	X			Lyco to cost supply of radios, Resolute to cost internet connection and data usage.
0.3.9 Construction Temporary Works	X			X			X				
0.5 Construction Operations											
0.5.1 Construction Operating Costs	X			X			X				
0.5.7 Repairs & Maintenance	X			X			X				
0.5.8 Surveying	X			X			X				
0.6 Construction Accommodation											
0.6.4 Meals During Construction	X	X		X	X		X	X			Lyco & Resolute to quantify, rate by Resolute

Facility Description	Engineering, Scope & Quantities			Material Supply Cost			Construction Cost			Resolute / Other Inputs Due	Comments
	Lyco	Resolute	Other	Lyco	Resolute	Other	Lyco	Resolute	Other		
1 Treatment Plant Costs											
1.1 Treatment Plant - General											
1.1.1 Bulk Site Earthworks	X			X			X				
1.1.2 Detailed Site Earthworks	X			X			X				
1.1.4 In-plant Roads	X			X			X				
1.1.7 Site Security Fencing	X			X			X				
1.2 Feed Preparation											
1.2.1 Primary Crushing	X			X			X				
1.2.5 Stockpiling	X			X			X				
1.3 Milling											
1.3.1 Reclaim	X			X			X				
1.3.2 Grinding	X			X			X				
1.3.3 Classification	X			X			X				
1.3.4 Gravity Concentration	X			X			X				
1.3.6 Recycle Crushing	X			X			X				
1.3.7 Emergency Feed Bin	X			X			X				
1.4 Trash Removal & Thickening											
1.4.1 Trash Screening	X			X			X				
1.4.2 Feed Thickening	X			X			X				
1.6 Leaching											
1.6.1 Pre-Leach	X			X			X				
1.6.2 CIL	X			X			X				
1.7 Elution & Gold Room											
1.7.1 Carbon Recovery	X			X			X				
1.7.2 Acid Wash	X			X			X				
1.7.3 Elution	X			X			X				
1.7.4 Carbon Regeneration	X			X			X				
1.7.5 Intense Cyanidasion	X			X			X				
1.7.6 Electrowinning	X			X			X				
1.7.7 Gold Room & Smelting	X			X			X				
1.8 Tails Handling											
1.8.1 Carbon Safety Screening	X			X			X				
1.8.2 Tails Thickening	X			X			X				
1.8.3 Tails Detoxification	X			X			X				
1.8.4 Tails Pumping	X			X			X				
2 Reagents & Plant Services											
2.1 Reagents											
2.1.1 Cyanide	X			X			X				
2.1.2 Lime	X			X			X				
2.1.3 Flocculants	X			X			X				

Facility Description	Engineering, Scope & Quantities			Material Supply Cost			Construction Cost			Resolute / Other Inputs Due	Comments
	Lyco	Resolute	Other	Lyco	Resolute	Other	Lyco	Resolute	Other		
2.1.4 Acid & Caustic	X			X			X				
2.1.6 Other Reagents	X			X			X				
2.2 Water Services											
2.2.1 Water Services - General	X			X			X				
2.2.2 Raw Water	X			X			X				
2.2.3 Process Water	X			X			X				
2.2.4 Potable Water	X			X			X				
2.2.5 Gland Seal Water	X			X			X				
2.2.6 Cooling Water	X			X			X				
2.2.7 Treated Water for Elution	X			X			X				
2.2.8 Fire Water	X			X			X				
2.3 Plant Services											
2.3.1 Piperacks	X			X			X				
2.3.3 Sewage Collection & Treatment	X			X			X				
2.3.4 Event Pond	X			X			X				
2.4 Air Services											
2.4.1 Compressed Air	X			X			X				
2.4.2 Blower Air	X			X			X				
2.4.3 Oxygen Plant	X			X			X				
2.5 Fuels											
2.5.1 Fuel Storage & Distribution	X			X			X				
2.6 Electrical Services											
2.6.1 Electrical Services - General	X			X			X				
2.6.3 Plant Sub-Stations	X			X			X				
2.6.4 Plant Control System	X			X			X				
2.6.6 Fire Control System	X			X			X				
3 Infrastructure											
3.1 Infrastructure - General											
3.1.2 Sites Roads & Tracks	X			X			X				
3.1.8 Airport	X			X			X				
3.2 Environmental											
3.2.1 Site Drainage Management			KP	X			X				Sediment Control Structures
3.3 Water & Sewerage											
3.3.1 Raw Water Supply			KP	X			X				Raw Water Harvest Dam
3.3.2 Raw Water Storage			KP	X			X				Raw Water Storage Dam
3.4 Power Supply											
3.4.1 Mains Power		X	ECG		X	ECG		X	ECG		ECG engaged directly by Resolute
3.4.6 Emergency / Standby Power		X	ECG		X	ECG		X	ECG		ECG engaged directly by Resolute
3.5 Tailings Dam											
3.5.1 Tailings Dam			KP	X			X				TSF
3.5.2 Tailings Pipeline	X			X			X				

Facility Description	Engineering, Scope & Quantities			Material Supply Cost			Construction Cost			Resolute / Other Inputs Due	Comments
	Lyco	Resolute	Other	Lyco	Resolute	Other	Lyco	Resolute	Other		
3.5.3 Decant System	X			X			X				
3.6 Buildings - Admin & Security											
3.6.1 Main Office	X			X			X				
3.6.2 Clinic & Emergency Response	X			X			X				
3.6.4 Security	X			X			X				
3.6.5 Ablutions, Change House, Meals	X			X			X				
3.7 Buildings - Plant											
3.7.1 Plant Offices	X			X			X				
3.7.2 Maintenance / Workshop	X			X			X				
3.7.3 Warehouse / Store	X			X			X				
3.7.5 Control Room	X			X			X				
3.7.7 Laboratory	X			X			X				
3.7.8 Reagent Storage	X			X			X				
3.8 Permanent Accommodation (300 Beds) + (80 Bed Pioneer Camp)											
3.8.1 Earthworks, Drainage & Fencing	X			X			X				Bulk Earthworks pad by Lyco
3.8.2 Potable Water		X			X			X			Turn key camp cost by Resolute
3.8.3 Fire Water		X			X			X			Turn key camp cost by Resolute
3.8.4 Sewerage		X			X			X			Turn key camp cost by Resolute
3.8.5 Power Supply		X			X			X			Turn key camp cost by Resolute
3.8.6 Accommodation		X			X			X			Turn key camp cost by Resolute
3.8.7 Wet & Dry Mess		X			X			X			Turn key camp cost by Resolute
3.8.8 Administration & Services Buildings		X			X			X			Turn key camp cost by Resolute
3.8.9 Recreational Facilities		X			X			X			Turn key camp cost by Resolute
3.8.10 Raw Water		X			X			X			Turn key camp cost by Resolute
4 Mining											
4.1 Mining-General											
4.1.1 Mining Mobilisation & Establishment		X			X			X			
4.1.2 Mining Infrastructure & Services		X			X			X			
4.2 Mine Establishment											
4.2.1 Haul Roads		X			X			X			
4.2.2 Pre Stripping		X			X			X			
4.5 Mining Facilities											
4.5.2 Mining Administration Building		X			X			X			Not required if contractor mining
4.5.3 Mine Workshop		X			X			X			Not required if contractor mining
4.5.4 Mine Washdown Facility		X			X			X			Not required if contractor mining
4.5.7 Bulk Fuel & Lubricant Storage		X			X			X			Not required if vendor supplied
5 Management Costs											
5.1 EPCM - Home Office											
5.1.5 Project Services	X			X			X				
5.3 Specialist Consultants - Design											

Facility Description	Engineering, Scope & Quantities			Material Supply Cost			Construction Cost			Resolute / Other Inputs Due	Comments
	Lyco	Resolute	Other	Lyco	Resolute	Other	Lyco	Resolute	Other		
5.3.1 Tailings Dam & Water Infrastructure			KP			KP			KP		
5.5 Vendor Representatives											
5.5.1 Vendor Reps	X			X			X				
6 Owners Project Costs											
6.1 Owners Costs - General											
6.1.2 Project Insurance		X			X			X			
6.1.4 Medical		X			X			X			
6.1.6 Owners Costs General		X			X			X			
6.2 Plant & Admin Pre-Production											
6.2.1 Plant Pre-production Labour	X			X			X				
6.2.3 Opening Stocks	X			X			X				
6.2.4 First Fill Reagents & Consumables	X			X			X				
6.2.5 Fuels & Lubricants	X			X			X				
6.3 Admin Pre-Production Other											
6.3.1 Training	X			X			X				
6.3.3 Information Technology		X			X			X			
6.3.4 Security		X			X			X			
6.4 Spare Parts											
6.4.2 Spares	X			X			X				
6.7 Plant Mobile Equipment											
6.7.1 Light Vehicles	X	X		X	X		X	X			
6.7.8 Other Plant Mobile Equipment	X	X		X	X		X	X			

Legend - Other = Resolute engaged and/or other managed subcontractor / consultant

APPENDIX 12.3

WORK BREAKDOWN STRUCTURE

Code	Title
0	**Construction Distributables**
0.1	Construction Distributables - Contractors
0.1.1	Earthworks
0.1.2	Concrete
0.1.3	SMP
0.1.4	Incinerator
0.1.5	Site Erected Tankage
0.1.6	Piping - Overland
0.1.7	Electrical & Instrumentation
0.1.8	Buildings
0.1.9	Fencing
0.2	Site Construction Distributables - General
0.2.1	Construction Equipment
0.2.2	Construction Security
0.2.3	General Freight & Transport
0.2.4	Construction Power & Water
0.2.9	Commissioning Assistance
0.3	Site Construction Facilities
0.3.1	Construction Site Preparation / Earthworks
0.3.2	Construction Roads & Drainage
0.3.3	Laydown Areas
0.3.4	Construction Site Offices
0.3.5	Construction Stores
0.3.6	Medical & First Aid
0.3.7	Construction Communications
0.3.8	Construction Furniture & Equipment
0.3.9	Construction Temporary Works
0.4	Site Construction Facilities Other
0.4.1	Contractor Compounds
0.4.2	Aggregate Plant
0.4.3	Concrete Batching Plant
0.4.4	Sand Washing Plant
0.5	Construction Operations
0.5.1	Construction Operating Costs
0.5.2	Construction Fuels & Lubricants
0.5.3	Construction Consumable Supplies
0.5.4	Material Handling & Warehousing
0.5.5	Weather Protection & Cleanup
0.5.6	Waste Management
0.5.7	Repairs & Maintenance
0.5.8	Surveying
0.6	Construction Accommodation
0.6.1	Pioneer Camp
0.6.2	Construction Camp
0.6.3	Camp Operations & Maintenance
0.6.4	Meals During Construction
1	**Treatment Plant Costs**
1.1	Treatment Plant - General
1.1.1	Bulk Site Earthworks

Code	Title
1.1.2	Detailed Site Earthworks
1.1.3	Site Drainage & Culverts
1.1.4	In-plant Roads
1.1.5	Carparks & Hardstand Areas
1.1.6	Site Improvements
1.1.7	Site Security Fencing
1.1.8	Erosion Controls
1.2	Feed Preparation
1.2.1	Primary Crushing
1.2.2	Secondary Crushing
1.2.3	Tertiary Crushing
1.2.4	Dry Screening
1.2.5	Stockpiling
1.3	Milling
1.3.1	Reclaim
1.3.2	Grinding
1.3.3	Classification
1.3.4	Gravity Concentration
1.3.5	Flash Flotation
1.3.6	Recycle Crushing
1.3.7	Emergency Feed Bin
1.4	Trash Removal & Thickening
1.4.1	Trash Screening
1.4.2	Feed Thickening
1.4.3	Water Recycling
1.5	Flotation & Concentrate Handling
1.5.1	Flotation Roughers
1.5.2	Flotation Cleaners
1.5.3	Regrinding
1.5.4	Concentrate Thickening
1.5.5	Concentrate Filtration
1.5.6	Concentrate Storage & Load Out
1.6	Leaching
1.6.1	Pre-Leach
1.6.2	CIL
1.7	Elution & Gold Room
1.7.1	Carbon Recovery
1.7.2	Acid Wash
1.7.3	Elution
1.7.4	Carbon Regeneration
1.7.5	Intense Cyanidation
1.7.6	Electrowinning
1.7.7	Gold Room & Smelting
1.8	Tails Handling
1.8.1	Carbon Safety Screening
1.8.2	Tails Thickening / CCDs
1.8.3	Tails Detoxification
1.8.4	Tails Pumping
2	**Reagents & Plant Services**

Code	Title
2.1	Reagents
2.1.1	Cyanide
2.1.2	Lime
2.1.3	Flocculants
2.1.4	Acid & Caustic
2.1.5	Flotation Reagents
2.1.6	Other Reagents
2.1.7	Reagents General
2.1.8	Reagents Storage
2.2	Water Services
2.2.1	Water Services - General
2.2.2	Raw Water
2.2.3	Process Water
2.2.4	Potable Water
2.2.5	Gland Seal Water
2.2.6	Cooling Water
2.2.7	Treated Water
2.2.8	Fire Water
2.2.9	Sewage
2.3	Plant Services
2.3.1	Piperacks
2.3.2	Water Treatment Plants
2.3.3	Sewage Collection & Treatment
2.3.4	Event Pond
2.3.5	Control Valves
2.4	Air Services
2.4.1	Compressed Air
2.4.2	Blower Air
2.4.3	Oxygen Plant
2.5	Fuels
2.5.1	Fuel Storage & Distribution
2.5.2	Gas Supply & Distribution
2.5.3	Refuelling Bay
2.5.4	Incinerator
2.6	Electrical Services
2.6.1	Electrical Services - General
2.6.2	Plant HV Distribution
2.6.3	Plant Sub Stations
2.6.4	Plant Control System
2.6.5	PLant Security System
2.6.6	Fire Control System
2.6.7	Plant LV Distribution
3	**Infrastructure**
3.1	Infrastructure - General
3.1.1	Public Roads
3.1.2	Sites Roads & Tracks
3.1.3	Carparks & Hardstands
3.1.4	Weighbridge
3.1.5	Site Fencing & Access Control

Code	Title
3.1.6	Communications
3.1.7	Port
3.1.8	Airport
3.1.9	Helipad
3.2	Environmental
3.2.1	Site Drainage Management
3.2.2	Evaporation Ponds
3.2.3	Landscaping & Rehabilitation
3.2.4	Monitoring Equipment
3.2.5	Incinerator
3.2.6	Waste Disposal & Landfill
3.3	Raw Water
3.3.1	Raw Water Supply
3.3.2	Raw Water Storage
3.3.3	Water Treatment & Disposal
3.4	Power Supply
3.4.1	Mains Power
3.4.2	HV Switchyard / Sub Station
3.4.3	SVCs & Power Conditioning
3.4.4	Site Power Distribution
3.4.5	Site Power Station
3.4.6	Emergency / Standby Power
3.5	Tailings Dam & Water Storage Dam
3.5.1	Tailings Dam & Water Storage Dam
3.5.2	Tailings Pipeline
3.5.3	Decant System
3.6	Buildings - Admin & Security
3.6.1	Main Office
3.6.2	Clinic & Emergency Response
3.6.3	Gatehouse & Access Control
3.6.4	Security
3.6.5	Ablutions, Change House, Meals
3.7	Buildings - Plant
3.7.1	Plant Offices
3.7.2	Maintenance / Workshop
3.7.3	Warehouse / Store
3.7.4	Ablutions, Change House, Meals
3.7.5	Control Room
3.7.6	MCC Buildings
3.7.7	Laboratory
3.7.8	Reagent Storage
3.7.9	Buildings - Plant General
3.8	Permanent Accommodation (300 Beds) + (80 Bed Pioneer Camp)
3.8.1	Earthworks, Drainage & Fencing
3.8.2	Potable Water
3.8.3	Fire Water
3.8.4	Sewerage
3.8.5	Power Supply
3.8.6	Accommodation

Code	Title
3.8.7	Wet & Dry Mess
3.8.8	Administration & Services Buildings
3.8.9	Recreational Facilities
3.8.10	Raw Water
3.9	Security (80 Beds)
3.9.1	Earthworks, Drainage & Fencing
3.9.2	Potable Water
3.9.3	Fire Water
3.9.4	Sewerage
3.9.5	Electrical & Communications
3.9.6	Accommodation (80 Beds) Included In 3.8
3.9.7	Wet & Dry Mess
3.9.8	Administration & Services Buildings
3.9.9	Recreational Facilities
3.9.10	Raw Water
4	**Mining**
4.1	Mining-General
4.1.1	Mining Mobilisation & Establishment
4.1.2	Mining Infrastructure & Services
4.1.3	Survey Equipment
4.1.4	Explosives Supply
4.1.5	Mining Contractor Mob/Demob
4.1.6	Pit Control / Dispatch System
4.1.7	Mine Planning
4.2	Mine Establishment
4.2.1	Haul Roads
4.2.2	Pre Stripping
4.2.3	ROM Pad
4.2.4	Dewatering
4.2.5	Waste Dumps
4.2.6	Settlement Ponds
4.2.7	River / Creek Diversions
4.3	Mining Pre-Production
4.3.1	Mining Pre-production Labour
4.3.2	Mining Pre-production Expenses
4.4	Mining Consultants
4.4.1	Consultant Mining Engineer
4.4.2	Geological
4.4.3	Geotechnical
4.4.4	Hydrology
4.5	Mining Facilities
4.5.1	Mining Facility - General
4.5.2	Mining Administration Building
4.5.3	Mine Workshop
4.5.4	Mine Washdown Facility
4.5.5	Mine Rescue
4.5.6	Core Shed
4.5.7	Bulk Fuel & Lubricant Storage
4.5.8	Ablutions

Code	Title
4.5.9	Laboratory
4.6	Mine Mobile Equipment - HME
4.6.1	Haul Trucks
4.6.2	Dozers
4.6.3	Front End Loaders
4.6.4	Excavators
4.6.5	Graders
4.6.6	Drill Rigs
4.6.7	Fuel Trucks
4.6.8	Water Carts
4.7	Mine Mobile Equipment - LME
4.7.1	Rock Breaker
4.7.2	Lighting Towers
4.7.3	Mobile Pumps
4.7.4	Mobile Compressors
4.7.5	Mobile Welding Machines
4.7.6	Mobile Crane
4.7.7	Light Vehicles
4.7.8	Maintenance Vehicle
5	**Management Costs**
5.1	EPCM - Home Office
5.1.1	Home Office - General
5.1.2	Process / Engineering
5.1.3	Drafting
5.1.4	Projects
5.1.5	Project Services
5.1.6	Project Support
5.1.7	Home Office Expenses
5.1.8	Fees
5.1.9	Hedging
5.2	EPCM - Site
5.2.1	Site - General
5.2.2	Construction Services
5.2.3	Commissioning
5.2.4	Site Related Expenses
5.2.5	In-Country Office Labour
5.2.6	In-Country Office Expenses
5.3	Specialist Consultants - Design
5.3.1	Tailings Dam
5.3.2	Environmental
5.3.3	Geotechnical
5.3.4	Hydrology
5.3.5	Architectural Services
5.3.6	HV Electrical
5.3.7	Power Generation
5.4	Specialist Consultants - Client Scope
5.4.1	Client Scope
5.4.2	Medical
5.4.3	Risk

Code	Title
5.4.4	Insurance
5.4.5	HR / IR
5.4.6	Expediting Services
5.4.7	Testing & Inspection Services
5.5	Vendor Representatives
5.5.1	Vendor Reps
6	**Owners Project Costs**
6.1	Owners Costs - General
6.1.1	Owners Project Mng't Team Labour
6.1.2	Project Insurance
6.1.3	Specialist Consultants
6.1.4	Medical
6.1.5	Project Corporate Cost Allocation
6.1.6	Owners Costs General
6.1.7	Owners Office Costs
6.1.8	Owners IT/Software
6.1.9	HSES
6.2	Plant & Admin Pre-Production
6.2.1	Plant Pre-production Labour
6.2.2	Admin Pre-production Labour and G & A Expenses
6.2.3	Opening Stocks
6.2.4	First Fill Reagents & Consumables
6.2.5	Fuels & Lubricants
6.2.6	Purchased Utilities
6.2.7	Small Tools & Maint Equipment
6.3	Admin Pre-Production Other
6.3.1	Training
6.3.2	Recruiting
6.3.3	Information Technology
6.3.4	Security
6.4	Spare Parts
6.4.1	Commissioning Spares
6.4.2	Spares
6.4.3	Insurance Spares
6.5	Fees / Taxes / Duties
6.5.1	Permits & Approvals
6.5.2	Corporate Overheads
6.5.3	Legal & Accounting Fees
6.5.4	Technology Fees
6.5.5	License Fees
6.5.6	Shipment Inspection Fees
6.5.7	Taxes & Duties
6.6	Community
6.6.1	Crop Compensation
6.6.2	Land Compensation
6.6.3	Land Acquisition
6.6.4	Road Improvements
6.6.5	Housing
6.6.6	Other Community Infrastructure

Code	Title
6.6.7	Community Support
6.6.8	Relocation Costs
6.7	Plant Mobile Equipment
6.7.1	Light Vehicles
6.7.2	Cranes
6.7.3	Forklifts
6.7.4	Front End Loaders
6.7.5	Bobcats
6.7.6	Trucks
6.7.7	Boom & Scissor Lifts
6.7.8	Other Plant Mobile Equipment
7	**Owners Operations Costs**
7.1	Owners Operations Costs-General
7.1.1	Owners Operations Costs-General
7.2	Working Capital
7.2.1	General
7.2.2	Labour
7.2.3	Reagents & Consumables
7.2.4	Expenses
7.2.10	Withholding Taxes
8	**Future Capital**
8.1	Sustaining Capital
8.1.1	Mine
8.1.2	Plant
8.1.3	Other
8.2	Deferred Capital
8.2.1	Mine
8.2.2	Plant
8.2.3	Tailings Dam
8.2.4	Other
9	**Contingency**
9.1	Project Contingency
9.1.1	Construction Indirects
9.1.2	Treatment Plant
9.1.3	Reagents & Plant Services
9.1.4	Infrastructure
9.1.5	Management Costs
9.2	Owners Contingency
9.2.1	Mining
9.2.2	Owner's Project Costs
9.2.3	Owner's Operations Costs
9.2.4	Owner's Reserve
9.3	Escalation
9.3.1	Escalation General

APPENDIX 13.1

OPERATING COST ESTIMATE

Resolute Mining Limited

Doropo Gold Project DFS

Operating Cost Estimate

2326-FEST-001

November 2025

REV NO.	DATE	DESCRIPTION OF REVISION	BY	DESIGN APPROVED	PROJECT APPROVED	CLIENT APPROVED
D	04.12.25	ISSUED FOR STUDY		Ryan Harrison	Alwyn Scholtz	
C	19.11.25	ISSUED FOR STUDY	AG	RH	AS	
B	05.11.25	ISSUED FOR CLIENT REVIEW	AG	RH	AS	
A	31.10.25	ISSUED FOR INTERNAL REVIEW	AG	RH	AS	

This document is the property of Lycopodium. It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium.

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

QUALIFICATIONS

OPERATING COST ESTIMATE

1. *Exclusions*

1 All sunk costs.

General and Administration

2 All head office costs and corporate overheads, including head office labour.
3 Withholding taxes, GST and/or VAT and other taxes.
4 Import duties, except customs duties for consumables.
5 Any impact from fluctuations in foreign exchange rate.
6 Any escalation from the date of the estimate.
7 Project finance costs.
8 Interest charges.
9 All costs associated with areas beyond the battery limits of the study (mining etc).
10 Relocation, land or crop compensation costs.
11 Any licence fee or royalties.
12 No allowance for contingency.
13 Costs for maintenance of non-process infrastructure such as the camp, access roads or fuel storage.
14 Government monitoring or compliance costs
15 Procurement of operating and insurance spares.
16 Client provided data including fuel price, and labour costs have not been verified.

Mining

17 All geology and exploration costs.
18 Mining and mining pre-production costs, including mining services.
19 Maintenance cost of all mine, haul and plant access roads.
20 ROM rehandling costs.

Bullion

21 Gold refining costs.
22 Bullion transport costs including security staff for the transport of bullion.
23 Bullion marketing costs.
24 Bullion insurance in transit costs.

Tailings and Water Dam

25 Tailings storage costs, including future lifts and rehabilitation.
26 Tailings dust suppression costs.
27 Water dam earthworks including lifts and rehabilitation.

Environmental

28 Any closure costs.

Labour

29 Union fees.
30 Contract labour - with the exception of contract maintenance.

2. *Estimate Basis*

1 All costs and exchange rates are as at 4Q25, except where noted.
2 Accuracy: +15% /-10%.
3 Currency of Estimate: US$.
4 36 hour fresh ore leach residence time.
5 Grind size of 75 micron for Oxide, Transition and Fresh material.
6 Consumables costs have been based on data from quotes from relevant suppliers and from Lycopodium data base of previous projects
7 Grinding media and mill liner consumption rates from OMC modelling, based on testwork programme, average ore properties
8 Reagent consumption rates based on results from testwork programme
9 Cyanide destruction reagent consumption rates have been calculated based on assumed performance the cyanide destruction circuit.
10 In-country transportation rates are based on client advice.
11 Milling power consumption based on OMC modelling to achieve a grind size of 75 micron for Oxide, Transition and Fresh material.
12 Other power consumption has been based on the mechanical equipment list.
13 Power costs, US$0.1305 kWh, as advised by Client.
14 Administration costs agreed with Client.
15 Fuel costs, as advised by Client based on diesel price US$ 1.20/L.
16 Maintenance costs have been factored from the capital cost estimate supply cost, using factors from the Lycopodium database.
17 Water consumption has been based on typical operations and high level water balance.
18 Labour roster, manning and costs have been agreed with Client.
19 Pre-production costs have been agreed with Client.
20 Mobile equipment cost provides for fuel and maintenance, not for purchase or vehicle lease.
21 Travel and worker transport costs have been included in the labour and mobile equipment costs.
22 All Mining costs excluded except; first aid and medical costs, medicals, visa & passports, bedding and messing.
23 Grade control sample preparation and assay cost included in Laboratory cost.
24 No allowances have been made for costs derived from COVID-19 management.

3. *Battery Limits*

1 ROM feed to ROM Bin.
2 Tails in tailings dam.
3 Decant water at suction intake of TSF decant water pumps.
4 Gold bullion in safe on site.
5 Raw water to plant from Raw Water Dam.
6 Reagents and consumables delivered to site storage facilities.
7 Power at HV switchroom.

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any
third party without written authority from Lycopodium Minerals Pty Ltd.

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

OPERATING COST SUMMARY

Oxide	5,400,000 t/y
Transitional	5,400,000 t/y
Fresh	4,900,000 t/y
Grind Size - Oxide / Transitional	75 micron
Grind Size - Fresh	75 micron
Power Unit Cost	US$0.131/kWh
Estimate Period	4Q25
Accuracy	+15% / -10%

Annual Cost (US$)			
COST CENTRE	Oxide	Transitional	Fresh
Power (excluding grinding)	$8,867,448	$8,867,448	$8,867,448
Grinding Power	$17,124,210	$14,305,410	$16,881,480
Operating Consumables	$40,622,412	$34,668,341	$33,766,125
Maintenance Materials	$7,616,875	$7,616,875	$7,616,875
Laboratory	$1,657,536	$1,657,536	$1,657,536
Process & Maintenance Labour	$4,548,212	$4,548,212	$4,548,212
Total Processing	$80,436,692	$71,663,821	$73,337,676
Administration Labour	$6,846,149	$6,846,149	$6,846,149
General & Administration Costs	$9,016,761	$9,016,761	$9,016,761
Mining Tech Services Labour	$1,774,750	$1,774,750	$1,774,750
Total G&A	$17,637,660	$17,637,660	$17,637,660
Total OPEX (Excl. Mining)	$98,074,352	$89,301,481	$90,975,335

Exclusions:
All Mining Costs, except catering and camp costs.

Annual Cost (US$/tonne)			
COST CENTRE	Oxide	Transitional	Fresh
Power (excluding grinding)	$1.64	$1.64	$1.81
Grinding Power	$3.17	$2.65	$3.45
Operating Consumables	$7.52	$6.42	$6.89
Maintenance Materials	$1.41	$1.41	$1.55
Laboratory	$0.31	$0.31	$0.34
Process & Maintenance Labour	$0.84	$0.84	$0.93
Total Processing	$14.90	$13.27	$14.97
Administration Labour	$1.27	$1.27	$1.40
General & Administration Costs	$1.67	$1.67	$1.84
Mining Tech Services Labour	$0.33	$0.33	$0.36
Total G&A	$3.27	$3.27	$3.60
Total OPEX (Excl. Mining)	$18.16	$16.54	$18.57

Exclusions:
All Mining Costs, except catering and camp costs.

FIXED & VARIABLE COMPONENTS

COST CENTRE	Oxide			Transitional			Fresh		
	Fixed US$/y	Variable US$/t	% Fixed	Fixed US$/y	Variable US$/t	% Fixed	Fixed US$/y	Variable US$/t	% Fixed
Power	$15,985,113	$1.85	62%	$15,209,943	$1.47	66%	$14,406,063	$2.31	56%
Operating Consumables	$0	$7.52	0%	$0	$6.42	0%	$0	$6.89	0%
Maintenance	$6,182,900	$0.27	81%	$6,182,900	$0.27	81%	$6,182,900	$0.29	81%
Laboratory	$917,904	$0.14	55%	$917,904	$0.14	55%	$917,904	$0.15	55%
Process & Maintenance Labour	$4,548,212	$0.00	100%	$4,548,212	$0.00	100%	$4,548,212	$0.00	100%
Total Processing	$27,634,128	$9.78	34%	$26,858,958	$8.30	37%	$26,055,078	$9.65	36%
Administration Labour	$6,846,149	$0.00	100%	$6,846,149	$0.00	100%	$6,846,149	$0.00	100%
General & Administration Costs	$9,016,761	$0.00	100%	$9,016,761	$0.00	100%	$9,016,761	$0.00	100%
Mining Tech Services Labour	$1,774,750	$0.00	100%	$1,774,750	$0.00	100%	$1,774,750	$0.00	100%
Total G&A	$17,637,660	$0.00	100%	$17,637,660	$0.00	100%	$17,637,660	$0.00	100%
Total OPEX (Excl. Mining)	$45,271,787	$9.78	46%	$44,496,617	$8.30	50%	$43,692,737	$9.65	48%

Exclusions:
All Mining Costs, except catering and camp costs.

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any
third party without written authority from Lycopodium Minerals Pty Ltd.

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

OPERATING COST LIFE OF MINE SUMMARY

Estimate Period	4Q25
Accuracy	+15% / -10%

LIFE OF MINE COSTS

	Units	Year													LOM
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	
Ore Processed															
Oxide	t	2,523,799	137,661	1,655	636,086	620,886	158,681	254,520	19,081	125,606	1,014,018	194,799	64,916	7,666	5,759,374
Transitional	t	2,729,497	1,271,042	568,934	1,253,086	1,439,615	1,006,558	1,463,916	1,223,928	1,033,420	1,758,341	1,684,865	711,559	91,334	16,236,095
Fresh	t	-	3,504,722	4,329,412	3,010,831	2,839,495	3,734,763	3,181,563	3,656,992	3,740,975	2,127,641	3,020,332	4,123,526	1,909,281	39,179,533
Total	t	5,253,296	4,913,425	4,900,001	4,900,003	4,899,996	4,900,002	4,899,999	4,900,001	4,900,001	4,900,000	4,899,996	4,900,001	2,008,281	61,175,002
Ore Proportions															
Oxide	%	48%	3%	0%	13%	13%	3%	5%	0%	3%	21%	4%	1%	0%	9%
Transitional	%	52%	26%	12%	26%	29%	21%	30%	25%	21%	36%	34%	15%	5%	27%
Fresh	%	0%	71%	88%	61%	58%	76%	65%	75%	76%	43%	62%	84%	95%	64%
Operating Costs															
Mining (By Others)	US$														
Processing	US$	$74,556,885	$72,018,291	$72,662,393	$72,135,591	$71,907,025	$72,213,211	$71,712,948	$71,891,951	$72,166,366	$71,705,637	$71,423,441	$72,521,448	$45,354,067	$912,269,254
G&A	US$	$17,637,660	$17,637,660	$17,637,660	$17,637,660	$17,637,660	$17,637,660	$17,637,660	$17,637,660	$17,637,660	$17,637,660	$17,637,660	$17,637,660	$17,637,660	$229,289,574
Total Procssing + G&A	US$	$92,194,545	$89,655,951	$90,300,052	$89,773,251	$89,544,685	$89,850,871	$89,350,607	$89,529,611	$89,804,026	$89,343,297	$89,061,100	$90,159,108	$62,991,726	$1,141,558,828

Mine schedule by Oreology, version "Doropo 4.9MTPA Preliminary Ore Processed Tonnages for Lyco_6Oct25"

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any
third party without written authority from Lycopodium Minerals Pty Ltd.

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

INPUTS

THROUGHPUT SUMMARY		Oxide	Transitional	Fresh
Plant Throughput - Overall	t/a	5,400,000	5,400,000	4,900,000

Exchange Rates

1.00 USD	605	XOF	Client email 15 October 2025
1.00 USD	0.94	EUR	Client email 15 October 2025
1.00 USD	0.82	GBP	Client email 15 October 2025
1.00 USD	16.9	ZAR	Client email 15 October 2025
1.00 USD	1.58	AUD	Client email 15 October 2025

Basis of Estimate

Estimate Period	4Q25
Estimate Accuracy	+15% / -10%

Energy Cost

Energy Source	Grid		
Selected charge for Project	0.1305	US$/kWh	Email "Operating cost comments", R. Cicchini, 12/11/25
Diesel Cost	1.200	US$/L	Email "Opex estimate inputs", R. Harrison, 24/10/25

OPERATIONAL DATA		Oxide	Transitional	Fresh
Crushing Operating Hours	h/a	7,008	7,008	7,008
Crushing Availability	%	80%	80%	80%
Crushing Feed Rate	dry t/h	771	771	699
Milling Operating Hours	h/a	8,000	8,000	8,000
Milling Availability	%	91.3%	91.3%	91.3%
Milling Feed Rate	t/h	675	675	613
Design Feed grade	g Au/t	2	2	2
Grind Size P_{80}	µm	75 micron	75 micron	75 micron
Total Leach Tanks	#	2	2	2
Total CIL Tanks	#	6	6	6
Total Tanks	#	8	8	8
Carbon Batch Size	t/strip	16	16	16
ILR Batches	#/day	1	1	1
Strips	#/week	6	6	6
Cyanide Strength in Strip	%w/v	2.0	2.0	2.0
Caustic Strength in Strip	%w/v	3.0	3.0	3.0
Hydrochloric Acid dilute	%w/v	3.0	3.0	3.0
Hydrochloric Acid conc	%w/v	32.0	32.0	32.0
Gravity Concentrate	t/d	5.1	5.1	5.1
Smelts per week	#/week	4	4	4
CIL Tails Solids Concentration	%w/w	46%	46%	48%
Average Decant Return Rate	% of Water in Tails	40%	40%	40%

MINE PLAN		Oxide	Transitional	Fresh	LOM	
Souwa	%LOM	5.9	7.3	13.2	26.4	PDC
Nokpa	%LOM	0.0	1.3	6.1	7.5	PDC
Chegue	%LOM	1.6	5.0	8.0	14.6	PDC
Kilosegui	%LOM	0.4	7.5	27.6	35.6	PDC
Kekeda	%LOM	0.2	2.9	2.3	5.5	PDC
Enioda	%LOM	1.3	1.8	1.0	4.1	PDC
Han	%LOM	0.0	0.7	5.6	6.3	PDC
Total	%LOM	9.4	26.5	64.0	100.0	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any
third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

REAGENT CONSUMPTION		Oxide	Transitional	Fresh	
Sodium Cyanide					
NaCN (100% w/w) Addition					
CIL	kg/t ore	0.96	0.83	0.82	PDC - includes losses
Elution	kg/strip	456	456	456	PDC
ILR	kg/batch	300	300	300	PDC
Sodium Cyanide Purity	% w/w	98%	98%	98%	PDC
Lime					
Testwork Lime Addition	kg/t	1.08	0.58	0.26	PDC
Testwork Lime Available CaO	%	70%	70%	70%	PDC
Supply Lime Available CaO	%	90%	90%	90%	PDC
Lime Addition - CIL	kg/t	0.84	0.45	0.20	
Activated Carbon					
Activated Carbon Losses	g/t CIL Feed	30	30	30	PDC
Flocculant					
Flocculant Addition					
Pre-Leach Thickener	kg/t ore	0.05	0.05	0.01	PDC
ILR	kg/batch	0.26	0.26	0.26	PDC
Coagulant					
Coagulant Addition					
Pre-Leach Thickener	g/t	300	300	0	PDC
Hydrochloric Acid					
HCl (32% w/w) Addition - Elution	kg/strip	684	684	684	PDC
Sodium Hydroxide					
NaOH (100%) Addition					
Elution + EW	kg/strip	851	851	851	PDC
ILR	kg/batch	300	300	300	PDC
Cyanide Destruction	kg/h	168	168	143	PDC
Sodium Hydroxide Purity	% w/w	98%	98%	98%	PDC
Sulphamic Acid					
Sulphamic Acid Addition - Elution	kg/t ore	0.001	0.001	0.001	PDC
Sodium Metabisulphite					
SMBS (100% w/w) Addition - Cyanide Destruction	kg/h	369	369	313	PDC
SMBS Purity	% w/w	100%	100%	100%	PDC
Copper Sulphate Pentahydrate					
$CuSO_4.5H_2O$ (100%) Addition - Cyanide Destruction	kg/h	161	161	138	PDC
$CuSO_4.5H_2O$ Purity	% w/w	98%	98%	98%	PDC
Diesel					
Diesel Addition					
Elution Heater	L/strip	2,610	2,610	2,610	PDC
Smelting Furnace	L/smelt	0	0	0	PDC, electric
Reactivation Kiln	L/strip	2,880	2,880	2,880	PDC
Process Vehicles	L/a	773,153	773,153	773,153	
Water					
Raw Water Demand	kL/y	3,416,000	3,416,000	3,648,000	PDC
Potable Water Demand	kL/y	87,600	87,600	87,600	PDC
Filtered Water Demand	kL/y	688,000	688,000	688,000	PDC

COMMINUTION CONSUMABLES & POWER		Oxide	Transitional	Fresh	
Primary Crusher					
Fixed Jaw Consumption	sets/y	9.10	6.10	7.50	OMC A046-03 Table 5-1, C160
Moving Jaw Consumption	sets/y	6.70	4.50	5.60	OMC A046-03 Table 5-1, C160
Gross Power	kWh/t plant feed	0.13	0.29	0.28	OMC A046-03 Table 5-1, C160
Pebble Crusher					
Liners	sets/y	0.00	0.00	0.00	n/a
Gross Specific Energy	kWh/t reclaim rate	0.00	0.00	0.00	n/a
Gross Specific Energy	kWh/t plant feed	0.00	0.00	0.00	n/a
SAG Mill					
Grinding Media	kg/t milled	0.432	0.120	0.461	OMC A046-03 Table 5-2 Option 2
Mill Liner (Steel Basis)	kg/t milled	0.071	0.040	0.087	OMC A046-03 Table 5-2 Option 2
Mill Liner (Steel)	set/y	1.47	0.83	1.64	Assume minimum 0.5 set/y
Gross Power	kWh/t ore	9.9	7.0	13.0	OMC A046-03 Table 5-2 Option 2
Ball Mill					
Grinding Media	kg/t milled	0.730	0.550	0.732	OMC A046-03 Table 5-2 Option 2
Mill Liner (Steel Basis)	kg/t milled	0.048	0.037	0.048	OMC A046-03 Table 5-2 Option 2
Mill Liner (Steel)	set/y	0.99	0.77	0.90	Assume minimum 0.5 set/y
Gross Power	kWh/t ore	14.4	13.3	13.4	OMC A046-03 Table 5-2 Option 2

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any
third party without written authority from Lycopodium Minerals Pty Ltd.

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

MILL LINERS		Oxide	Transitional	Fresh	
SAG Mill					
SAG Mill EGL	m	5.26	5.26	5.26	PDC
SAG Mill Diameter	m	9.75	9.75	9.75	PDC
Steel Liner Mass	t	391	391	391	Benchmarked
Wastage Factor - Steel Mill Liners	%	30.00%	30.00%	30.00%	OMC A046-03 Section 5.0
Steel Liner Mass (Less Wastage)	t	274	274	274	
Ball Mill					
Ball Mill EGL	m	11.58	11.58	11.58	PDC
Ball Mill Diameter	m	6.71	6.71	6.71	PDC
Steel Liner Mass	t	257	257	257	Benchmarked
Wastage Factor - Steel Mill Liners	%	30.00%	30.00%	30.00%	OMC A046-03 Section 5.0
Steel Liner Mass (Less Wastage)	t	180	180	180	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any
third party without written authority from Lycopodium Minerals Pty Ltd.

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

POWER

Operational Data		
Oxide	t/a	5,400,000
Transitional	t/a	5,400,000
Fresh	t/a	4,900,000
Crushing Operating time	h/y	7,008
CIL Plant Operating time	h/y	8,000
Total hours per year	h/y	8,760
Selected power source		Grid
Power unit cost	US$/kWh	0.131

Utilisation	
Crushing Availability	80.0%
Milling Availability	91.3%
Sump + Misc	5%

Default Load Factors (Drive Efficiency)	
Equipment	Load Factor
Agitators	85%
Crushers:	70%
Conveyors:	90%
Feeders:	80%
Pumps:	85%
Screens:	80%
Sump Pumps:	75%
Other Motors	80%

Power Summary	Installed kW	Peak kW	Average kW	Average kWh	Cost US$/y	Fixed %	Fixed US$	Variable US$
PRIMARY CRUSHING	799	652	505	4,422,747	$ 577,168	30%	$ 174,220	$ 402,948
RECLAIM	410	344	286	2,505,494	$ 326,967	62%	$ 201,687	$ 125,280
GRINDING								
OXIDE	20,000	16,403	14,979	131,220,000	$ 17,124,210	59%	$ 10,147,680	$ 6,976,530
TRANSITION	20,000	13,703	12,514	109,620,000	$ 14,305,410	66%	$ 9,372,510	$ 4,932,900
FRESH	20,000	16,170	14,767	129,360,000	$ 16,881,480	51%	$ 8,568,630	$ 8,312,850
MILLING (EXCL GRINDING)	658	522	172	1,507,372	$ 196,712	100%	$ 196,712	$ -
CLASSIFICATION	1,408	602	544	4,762,856	$ 621,553	0%	$ 373	$ 621,180
GRAVITY	436	361	326	2,853,927	$ 372,437	40%	$ 150,587	$ 221,850
RECYCLE CRUSHER	627	138	112	976,827	$ 127,476	43%	$ 55,127	$ 72,349
PRE-LEACH	482	235	200	1,751,227	$ 228,535	22%	$ 51,055	$ 177,480
CIL	1,999	1,494	1,217	10,656,948	$ 1,390,732	100%	$ 1,390,732	$ -
ELUTION & GOLDROOM	776	571	211	1,847,902	$ 241,151	88%	$ 212,574	$ 28,577
CYANIDE DESTRUCTION & TAILINGS	1,042	667	595	5,211,227	$ 680,065	67%	$ 458,215	$ 221,850
REAGENTS	146	113	53	468,142	$ 61,093	54%	$ 33,139	$ 27,953
WATER SERVICES	1,910	1,381	1,226	10,736,429	$ 1,401,104	19%	$ 270,556	$ 1,130,548
AIR SERVICES	1,107	833	761	6,665,600	$ 869,861	100%	$ 869,861	$ -
WATER SUPPLY AND TREATMENT INCL CAMP	1,324	678	576	5,045,764	$ 658,472	100%	$ 658,472	$ -
PLANT BUILDINGS AND WORKSHOPS	1,009	807	791	6,928,585	$ 904,180	100%	$ 904,180	$ -
MINING FACILITIES	337	232	184	1,608,744	$ 209,941	100%	$ 209,941	$ -
Total Processing (Excl.Grinding Energy)	14,470	9,631	7,757	67,949,792	$ 8,867,448	66%	$ 5,837,433	$ 3,030,015
TOTAL (Inc. Grinding Energy)								
OXIDE	34,470	26,033	22,736	199,169,792	$ 25,991,658	62%	$ 15,985,113	$ 10,006,545
TRANSITION	34,470	23,333	20,271	177,569,792	$ 23,172,858	66%	$ 15,209,943	$ 7,962,915
FRESH	34,470	25,801	22,524	197,309,792	$ 25,748,928	56%	$ 14,406,063	$ 11,342,865

Mill Power Calc				
	Oxide	Transitional	Fresh	
%LOM	9%	27%	64%	
SAG Mill Gross Power - Peak (kW)	6,683	4,725	7,963	
Ball Mill Gross Power - Peak (kW)	9,720	8,978	8,208	
SAG Mill Gross Power - Average (kW)	6,103	4,315	7,272	
Ball Mill Gross Power - Average (kW)	8,877	8,199	7,495	
SAG Power Cost (US$/y)	$6,976,530	$4,932,900	$8,312,850	Allow 10% drive losses
Ball Power Cost (US$/y)	$10,147,680	$9,372,510	$8,568,630	Allow 10% drive losses
Grinding Energy (kWh/t)	24.3	20.3	26.4	
Milling Power Cost (US$/t)	$3.17	$2.65	$3.45	
Fixed % Grinding Energy	59.3%	65.5%	50.8%	
Average Continuous Power Draw (kW)	22,736	20,271	22,524	
Total Power Cost (US$/y)	$25,991,658	$23,172,858	$25,748,928	
Total Power Cost (US$/t)	$4.81	$4.29	$5.25	
Fixed Average Continuous Power Draw (kW)	13,983	13,305	12,602	
Fixed Power Cost (US$/y)	$15,985,113	$15,209,943	$14,406,063	
% Fixed	62%	66%	56%	

Power Summary (US$/tonne)	Oxide	Transitional	Fresh
PRIMARY CRUSHING	$0.11	$0.11	$0.12
RECLAIM	$0.06	$0.06	$0.07
GRINDING	$3.17	$2.65	$3.45
MILLING (EXCL GRINDING)	$0.04	$0.04	$0.04
CLASSIFICATION	$0.12	$0.12	$0.13
GRAVITY	$0.07	$0.07	$0.08
RECYCLE CRUSHER	$0.02	$0.02	$0.03
PRE-LEACH	$0.04	$0.04	$0.05
CIL	$0.26	$0.26	$0.28
ELUTION & GOLDROOM	$0.04	$0.04	$0.05
CYANIDE DESTRUCTION & TAILINGS	$0.13	$0.13	$0.14
REAGENTS	$0.01	$0.01	$0.01
WATER SERVICES	$0.26	$0.26	$0.29
AIR SERVICES	$0.16	$0.16	$0.18
WATER SUPPLY AND TREATMENT INCL CAMP	$0.12	$0.12	$0.13
PLANT BUILDINGS AND WORKSHOPS	$0.17	$0.17	$0.18
MINING FACILITIES	$0.04	$0.04	$0.04
TOTAL (Inc. Grinding Energy)	$4.81	$4.29	$5.25

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

CONSUMABLES

Oxide	5,400,000 t/y
Transitional	5,400,000 t/y
Fresh	4,900,000 t/y
ILR	1 batch/day
Elution - Oxide	6 strips/week
Elution - Trans	6 strips/week
Elution - Fresh	6 strips/week

Consumption						
		(to Site) US$/unit	% of LOM	Oxide 9.4	Transitional 26.5	Fresh 64.0
Comminution						
Primary Jaw Crusher	Fixed Jaw	$18,615	set	9.1 set/yr	6.1 set/yr	7.5 set/yr
	Moving Jaw	$21,956	set	6.7 set/yr	4.5 set/yr	7.5 set/yr
Pebble Crusher	Mantle	-	set	0.0 set/yr	0.0 set/yr	0.0 set/yr
	Bowl	-	set	0.0 set/yr	0.0 set/yr	0.0 set/yr
SAG Mill	Lifters/Liners US$/t	$1,224,210	set	1.5 set/yr	0.8 set/yr	1.6 set/yr
	Grinding Media US$/t	$1,302	t	0.43 kg/t	0.12 kg/t	0.46 kg/t
Ball Mill	Lifters/Liners US$/t	$1,080,701	set	1.0 set/yr	0.8 set/yr	0.9 set/yr
	Grinding Media US$/t	$1,214	t	0.73 kg/t	0.55 kg/t	0.73 kg/t
Sodium Cyanide (98% w/w)	CIL	$2,523	t	0.98 kg/t	0.85 kg/t	0.84 kg/t
	ILR	$2,523	t	306 kg/batch	306 kg/batch	306 kg/batch
	Elution	$2,523	t	465 kg/strip	465 kg/strip	465 kg/strip
Quicklime (90% w/w)	CIL	$372	t	0.84 kg/t	0.45 kg/t	0.20 kg/t
Carbon	CIL	$4,360	t	30 g/t	30 g/t	30 g/t
Hydrochloric Acid (32% w/w)	Elution	$524	t	684 kg/strip	684 kg/strip	684 kg/strip
Sodium Hydroxide (98% w/w)	Elution	$974	t	868 kg/strip	868 kg/strip	868 kg/strip
	ILR	$974	t	306 kg/batch	306 kg/batch	306 kg/batch
	Cyanide Destruction	$974	t	0.25 kg/t	0.25 kg/t	0.24 kg/t
Copper Sulphate (98% w/w)	Cyanide Destruction	$3,769	t	0.24 kg/t	0.24 kg/t	0.23 kg/t
SMBS (100% w/w)	Cyanide Destruction	$651	t	0.55 kg/t	0.55 kg/t	0.51 kg/t
Flocculant	Pre-leach Thickener	$2,371	t	0.05 kg/t	0.05 kg/t	0.01 kg/t
	ILR	$2,371	t	0.26 kg/batch	0.26 kg/batch	0.26 kg/batch
Coagulant	Pre-leach Thickener	$1,834	t	41 g/t	156 g/t	0 g/t
Sulphamic Acid	Elution	$1,027	t	100 kg/week	100 kg/week	100 kg/week
Pre-oxidation						
High Shear Aeration Devices Lease		-	-	-	-	-
Refining						
Stainless Steel Stocking	EW	$730	kg	1,584 kg/yr	1,584 kg/yr	1,584 kg/yr
Crucibles	Smelt	$1,340	set	35 sets/yr	35 sets/yr	35 sets/yr
Borax	Smelt	$2,532	t	2,019 kg/yr	2,019 kg/yr	2,019 kg/yr
Silica	Smelt	$1,027	t	505 kg/yr	505 kg/yr	505 kg/yr
Nitre	Smelt	$2,425	t	337 kg/yr	337 kg/yr	337 kg/yr
Soda Ash	Smelt	$1,189	t	337 kg/yr	337 kg/yr	337 kg/yr
Water Treatment & Cleaning						
Antiscalant	Decant Return Water	$3,263	t	12,678 kg/yr	12,678 kg/yr	12,678 kg/yr
Antiscalant	Elution	$4,893	t	701 kg/yr	701 kg/yr	701 kg/yr
Biocide	Cooling Water	$9,676	t	800 kg/yr	800 kg/yr	800 kg/yr
Operator Consumables	Allowance	$1,000	person	150 people	150 people	150 people
Fuel						
Diesel	Plant	$1,200	kL	0.32 L/t	0.32 L/t	0.35 L/t
	Incinerator	$1,200	kL	0 L/d	0 L/d	0 L/d
	Mobile Equipment	$1,200	kL	0.14 L/t	0.14 L/t	0.16 L/t

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

CONSUMABLES

Oxide	5,400,000 t/y
Transitional	5,400,000 t/y
Fresh	4,900,000 t/y
ILR	1 batch/day
Elution - Oxide	6 strips/week
Elution - Trans	6 strips/week
Elution - Fresh	6 strips/week

		Annual Cost (to Site) US$/unit		Oxide	Transitional	Fresh
Comminution						
Primary Jaw Crusher	Fixed Jaw	$18,615	set	$169,400	$113,554	$139,616
	Moving Jaw	$21,956	set	$147,104	$98,801	$164,668
Pebble Crusher	Mantle	-	set	$0	$0	$0
	Bowl	-	set	$0	$0	$0
SAG Mill	Lifters/Liners US$/t	$1,224,210	set	$1,801,404	$1,014,875	$2,002,969
	Grinding Media US$/t	$1,302	t	$3,036,219	$843,394	$2,940,036
Ball Mill	Lifters/Liners US$/t	$1,080,701	set	$1,075,087	$828,713	$975,541
	Grinding Media US$/t	$1,214	t	$4,786,081	$3,605,951	$4,354,824
Sodium Cyanide (98% w/w)	CIL	$2,523	t	$13,348,363	$11,540,772	$10,346,011
	ILR	$2,523	t	$281,953	$281,953	$281,953
	Elution	$2,523	t	$366,338	$366,338	$366,338
Quicklime (90% w/w)	CIL	$372	t	$1,688,936	$907,021	$368,948
Carbon	CIL	$4,360	t	$706,305	$706,305	$640,907
Hydrochloric Acid (32% w/w)	Elution	$524	t	$111,808	$111,808	$111,808
Sodium Hydroxide (98% w/w)	Elution	$974	t	$263,794	$263,794	$263,794
	ILR	$974	t	$108,792	$108,792	$108,792
	Cyanide Destruction	$974	t	$1,335,304	$1,335,304	$1,136,598
Copper Sulphate (98% w/w)	Cyanide Destruction	$3,769	t	$4,953,095	$4,953,095	$4,245,510
SMBS (100% w/w)	Cyanide Destruction	$651	t	$1,922,222	$1,922,222	$1,630,503
Flocculant	Pre-leach Thickener	$2,371	t	$640,213	$640,213	$116,187
	ILR	$2,371	t	$222	$222	$222
Coagulant	Pre-leach Thickener	$1,834	t	$403,543	$1,548,984	$0
Sulphamic Acid	Elution	$1,027	t	$5,343	$5,343	$5,343
Pre-oxidation						
High Shear Aeration Devices Lease		-	-	-	-	-
Refining						
Stainless Steel Stocking	EW	$730	kg	$231,347	$231,347	$231,347
Crucibles	Smelt	$1,340	set	$46,906	$46,906	$46,906
Borax	Smelt	$2,532	t	$5,114	$5,114	$5,114
Silica	Smelt	$1,027	t	$519	$519	$519
Nitre	Smelt	$2,425	t	$816	$816	$816
Soda Ash	Smelt	$1,189	t	$400	$400	$400
Water Treatment & Cleaning						
Antiscalant	Decant Return Water	$3,263	t	$41,374	$41,374	$41,374
Antiscalant	Elution	$4,893	t	$3,430	$3,430	$3,430
Biocide	Cooling Water	$9,676	t	$7,741	$7,741	$7,741
Operator Consumables	Allowance	$1,000	person	$150,000	$150,000	$150,000
Fuel						
Diesel	Plant	$1,200	kL	$2,055,456	$2,055,456	$2,055,456
	Incinerator	$1,200	kL	$0	$0	$0
	Mobile Equipment	$1,200	kL	$927,784	$927,784	$1,022,455
TOTAL CONSUMABLE COST				$40,622,412	$34,668,341	$33,766,125

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

CONSUMABLES

Oxide	5,400,000 t/y
Transitional	5,400,000 t/y
Fresh	4,900,000 t/y
ILR	1 batch/day
Elution - Oxide	6 strips/week
Elution - Trans	6 strips/week
Elution - Fresh	6 strips/week

		Annual Cost (US$/tonne)				
		(to Site) US$/unit		Oxide	Transitional	Fresh
Comminution						
Primary Jaw Crusher	Fixed Jaw	$18,615	set	$0.03	$0.02	$0.03
	Moving Jaw	$21,956	set	$0.03	$0.02	$0.03
Pebble Crusher	Mantle	-	set	$0.00	$0.00	$0.00
	Bowl	-	set	$0.00	$0.00	$0.00
SAG Mill	Lifters/Liners US$/t	$1,224,210	set	$0.33	$0.19	$0.41
	Grinding Media US$/t	$1,302	t	$0.56	$0.16	$0.60
Ball Mill	Lifters/Liners US$/t	$1,080,701	set	$0.20	$0.15	$0.20
	Grinding Media US$/t	$1,214	t	$0.89	$0.67	$0.89
Sodium Cyanide (98% w/w)	CIL	$2,523	t	$2.47	$2.14	$2.11
	ILR	$2,523	t	$0.05	$0.05	$0.06
	Elution	$2,523	t	$0.07	$0.07	$0.07
Quicklime (90% w/w)	CIL	$372	t	$0.31	$0.17	$0.08
Carbon	CIL	$4,360	t	$0.13	$0.13	$0.13
Hydrochloric Acid (32% w/w)	Elution	$524	t	$0.02	$0.02	$0.02
Sodium Hydroxide (98% w/w)	Elution	$974	t	$0.05	$0.05	$0.05
	ILR	$974	t	$0.02	$0.02	$0.02
	Cyanide Destruction	$974	t	$0.25	$0.25	$0.23
Copper Sulphate (98% w/w)	Cyanide Destruction	$3,769	t	$0.92	$0.92	$0.87
SMBS (100% w/w)	Cyanide Destruction	$651	t	$0.36	$0.36	$0.33
Flocculant	Pre-leach Thickener	$2,371	t	$0.12	$0.12	$0.02
	ILR	$2,371	t	$0.00	$0.00	$0.00
Coagulant	Pre-leach Thickener	$1,834	t	$0.07	$0.29	$0.00
Sulphamic Acid	Elution	$1,027	t	$0.00	$0.00	$0.00
Pre-oxidation						
High Shear Aeration Devices Lease		-	-	$0.00	$0.00	$0.00
Refining						
Stainless Steel Stocking	EW	$730	kg	$0.04	$0.04	$0.05
Crucibles	Smelt	$1,340	set	$0.01	$0.01	$0.01
Borax	Smelt	$2,532	t	$0.00	$0.00	$0.00
Silica	Smelt	$1,027	t	$0.00	$0.00	$0.00
Nitre	Smelt	$2,425	t	$0.00	$0.00	$0.00
Soda Ash	Smelt	$1,189	t	$0.00	$0.00	$0.00
Water Treatment & Cleaning						
Antiscalant	Decant Return Water	$3,263	t	$0.01	$0.01	$0.01
Antiscalant	Elution	$4,893	t	$0.00	$0.00	$0.00
Biocide	Cooling Water	$9,676	t	$0.00	$0.00	$0.00
Operator Consumables	Allowance	$1,000	person	$0.03	$0.03	$0.03
Fuel						
Diesel	Plant	$1,200	kL	$0.38	$0.38	$0.42
	Incinerator	$1,200	kL	$0.00	$0.00	$0.00
	Mobile Equipment	$1,200	kL	$0.17	$0.17	$0.21
TOTAL CONSUMABLE COST				$7.52	$6.42	$6.89

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

MAINTENANCE

Area	% of Capital	Supply CAPEX[1] US$	Maintenance Cost US$/y	US$/t (Fresh)	US$/t (Oxide)	US$/t (Trans)	Fixed Cost %	Fixed Cost US$/y
Plant Maintenance								
Treatment Plant								
Feed Preparation	6.0%	9.08	544,897	0.11	0.10	0.10	80%	435,918
Milling	6.0%	46.92	2,815,047	0.57	0.52	0.52	80%	2,252,037
Trash Removal & Thickening	5.0%	3.65	182,291	0.04	0.03	0.03	80%	145,833
Leaching	5.0%	14.18	709,174	0.14	0.13	0.13	80%	567,340
Elution & Gold Room	5.0%	6.23	311,469	0.06	0.06	0.06	80%	249,175
Tails Handling	5.0%	2.81	140,697	0.03	0.03	0.03	80%	112,557
Reagents & Plant Services								
Reagents	5.0%	1.80	90,224	0.02	0.02	0.02	80%	72,179
Water Services	5.0%	3.33	166,609	0.03	0.03	0.03	80%	133,287
Plant Services	5.0%	3.09	154,467	0.03	0.03	0.03	80%	123,574
Air Services	5.0%	2.84	141,888	0.03	0.03	0.03	80%	113,511
Fuels	5.0%	0.42						
Electrical Services	5.0%	17.26	862,945	0.18	0.16	0.16	80%	690,356
Infrastructure								
Tailings Dam & Water Storage Dam	5.0%	3.57	178,386	0.04	0.03	0.03	80%	142,709
Buildings - Admin & Security	5.0%	3.22	160,996	0.03	0.03	0.03	80%	128,797
Buildings - Plant	5.0%	3.76	188,200	0.04	0.03	0.03	80%	150,560
Mine Services - Excluded	5.0%	-		0.00	0.00	0.00	100%	0
Mobile Equipment			522,585	0.11	0.10	0.10	80%	418,068
Sub-Total - Plant Maintenance			7,169,875	1.46	1.33	1.33		5,735,900
Maintenance - General								
Mill Reline			250,000	0.05	0.05	0.05	100%	250,000
Incinerator Maintenance			20,000	0.00	0.00	0.00	100%	20,000
Maintenance Software (SAP etc)			50,000	0.01	0.01	0.01	100%	50,000
Maintenance Manuals			50,000	0.01	0.01	0.01	100%	50,000
Maintenance Training			50,000	0.01	0.01	0.01	100%	50,000
Control Systems Licences			3,000	0.00	0.00	0.00	100%	3,000
Control Systems Maintenance			24,000	0.00	0.00	0.00	100%	24,000
Sub-Total - General Maintenance			447,000	0.09	0.08	0.08		447,000
TOTAL			7,616,875	1.55	1.41	1.41	81%	6,182,900

NOTES:

1. Supply Capital Costs are based on Doropo DFS Update capex estimate rev. A4.
2. Mobile equipment maintenance cost estimated on separate '*Mobile Equipment* ' sheet.

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

MOBILE EQUIPMENT

Vehicles/Equipment	Number of units	Make	Daily Operating hours (ea)	Annual Operating hours (ea)	Total Annual hours	Annual Diesel Consumption		Maintenance (per annum)							
						L/hr	L/y	Tyres $ per Unit	Drive Train $ per Unit	Brakes $ per Unit	Oils/Lub $ per Unit	General $ per Unit	General $/h	Total US$ per Unit	Total US$
Light Vehicles															
4WD Single Cab Ute	3	Toyota	3	1,095	3,285	6	19,710	1,200	1,000	500	400	1,500		4,600	13,800
2WD Double Cab Ute	0	Toyota	3	1,095	0	8	0	1,200	1,000	500	400	1,500		4,600	0
4WD Double Cab Ute	7	Toyota	3	1,095	7,665	8	61,320	1,200	1,000	500	400	1,500		4,600	32,200
4WD Wagon (Patrol/Cruiser)	7		3	1,095	7,665	9	68,985	1,200	1,000	500	400	1,500		4,600	32,200
52 Seater Bus	1		5	1,825	1,825	30	54,750						15	27,375	27,375
22 Seater Minibus	3		5	1,825	5,475	12	65,700						6	10,950	32,850
Personnel Carrier	2		8	2,920	5,840	10	58,400	1,200	1,600	500	400	1,500		5,200	10,400
Subtotal	23				31,755		328,865								148,825
Medium / Heavy Equipment															
8t Twincab 4WD Hiab Truck	1	Isuzu FER500	2	730	730	12	8,760	1,600	2,000	500	250	1,500		5,850	5,850
3t Tip Truck	1	Isuzu	2	730	730	12	8,760	1,600	2,000	500	250	2,500		6,850	6,850
Fuel Truck	1	Isuzu	3	1,095	1,095	12	13,140	1,600	2,000	500	250	2,500		6,850	6,850
Water Truck	1	Isuzu	4	1,460	1,460	12	17,520	1,600	2,000	500	250	2,500		6,850	6,850
All Terrain Forklift	1		3	1,095	1,095	6	6,570	800	1,200	300	250	1,500		4,050	4,050
Warehouse Forklift	1		6	2,190	2,190	6	13,140	800	1,200	300	250	1,500		4,050	4,050
Bobcat	2	Bobcat 753	6	2,190	4,380	6	26,280	800	1,200	300	250	1,500		4,050	8,100
Integrated Tool Carrier	2	Cat IT28G	6	2,190	4,380	15	65,700						30	65,700	131,400
3t Telescopic Handler	2	Cat TH62	4	1,460	2,920	6	17,520						8	11,680	23,360
15t Franna	2	Franna	1	365	730	10	7,300						40	14,600	29,200
40/50t All Terrain Crane	1	Grove	2	730	730	10	7,300						50	36,500	36,500
250t Crawler Crane	1	Grove	2	730	730	12	8,760						50	36,500	36,500
Backhoe / Front End Loader	2		2	730	1,460	18	26,280						20	14,600	29,200
Manlift / Scissor Lift	1		2	730	730	10	7,300						20	14,600	14,600
Fire truck	1	Toyota		26	26	8	208	800	800	200	250	1,500		3,550	3,550
Ambulance	1	Toyota	0.5	183	183	8	1,460	1000	300	300	250	1,500		3,350	3,350
Subtotal	21				23,569		235,998								350,260
Equipment															
Plant Emergency Generator - 1,000 kVA	2			120	240	421	101,040	-	-	-	-	-	40	4,800	9,600
Portable Pumps Generator - 200 kVA	2		1.5	548	1,095	50	54,750	200			500	1,000		1,700	3,400
Generator - 5 kVA	2			800	1,600	2	3,200	200			500	500		1,200	2,400
Portable Compressor	2			800	1,600	4	6,400	200			500	500		1,200	2,400
Diesel Welder	3	Lincon		640	1,920	2	3,840	200			200	500		900	2,700
Mobile Lighting Towers	2	Mobi-glow	10	3,650	7,300	5	36,500	200				500		700	1,400
Fusion Butt Welder 90/315	2	Damos 90/315		640	1,280	2	2,560	200			100	500		800	1,600
Subtotal	15				15,035		208,290								23,500
Total	59				70,359		773,153								522,585

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

LABORATORY

SGS Contract Laboratory (including Labour)

Item		Samples/ Month	Samples/ Period	US$/ Month	US$/ Year
Fixed Fee				76,492	917,904
Equipment Investment				23,804	285,648
Variable Fee (Based on the following samples)				37,832	453,984
Mine Exploration & Grade Control		8,000	263 per day		
Plant Solids (Assay, Moisture, Sizing)	Dry	62	2 per day		
	Slurry	365	12 per day		
	Total	427	14 per day		
Plant Solutions (Assay)		523	17 per day		
Plant Carbon (Assay)		118	4 per day		
Bullion (Au)		42	11 per week		
Environmental (CN, WAD, Total CN)		93	47 per fortnight		
Environmental (pH, TSS,TDS,E Coli, Assay)		11	11 per month		
Total		9,214	110,564 per year	138,128	1,657,536

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any
third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

LABOUR

Area/Position	Number of Employees	Accommodation Type	Classification	Base Annual Salary/Wage US$/person	Overhead Costs %	Overhead Costs US$/person	Annual Labour Costs US$/person	Total Annual Labour Costs US$	Personnel in Camp
MINING									
Mine Manager	1	Camp	LS	250,000	55%	137,500	387,500	387,500	1
Principal mining Engineer	1	Camp	LS	175,000	55%	96,250	271,250	271,250	1
Mining Engineers	4	Camp	LS	125,000	55%	68,750	193,750	775,000	4
Mine Planner	2	Camp	LS	100,000	55%	55,000	155,000	310,000	2
Mine Admin Staff	4	Villages	LS	5,000	55%	2,750	7,750	31,000	0
Contractors (Camp)	150	Camp							150
Contractors (Village)	16	Villages							0
Mining Subtotal	178							1,774,750	
Note: Mining Costs are not applied to the OPEX, the purpose of the list is to determine the manning numbers for camp and catering costs.									
ADMINISTRATION									
General Manager	1	Camp	FE	350,000	55%	192,500	542,500	542,500	1
Executive Assistant	1	Camp	RS	31,830	55%	17,507	49,337	49,337	1
HR Manager	1	Camp	RS	125,000	55%	68,750	193,750	193,750	1
HR Officer	2	Camp	LS	31,830	55%	17,507	49,337	98,673	2
HR Assistant	2	Camp	LS	10,610	55%	5,836	16,446	32,891	2
Payroll Supervisor	1	Camp	LS	37,140	55%	20,427	57,567	57,567	1
Payroll Assistant	2	Villages	LS	15,920	55%	8,756	24,676	49,352	0
Administration Supt.	1	Camp	RS	84,880	55%	46,684	131,564	131,564	1
Secretary / Receptionist	2	Camp	RS	15,920	55%	8,756	24,676	49,352	2
Admin Assistant	4	Villages	LS	10,610	55%	5,836	16,446	65,782	0
Admin Driver	3	Villages	LS						
Finance & Admin Manager / Finance Controller	1	Camp	RS	125,000	55%	68,750	193,750	193,750	1
Senior Legal / Tax Advisors	2	Camp	RS	84,800	55%	46,640	131,440	262,880	2
Accounts Supt.	2	Camp	RS	84,880	55%	46,684	131,564	263,128	2
Accountant Senior	3	Camp	RS	42,440	55%	23,342	65,782	197,346	3
Accountant	3	Camp	LS	15,920	55%	8,756	24,676	74,028	3
IT Officer Supt.	1	Camp	FE	84,880	55%	46,684	131,564	131,564	1
IT Officer	2	Camp	RS	21,220	55%	11,671	32,891	65,782	2
Supply Supt.	1	Camp	RS	84,880	55%	46,684	131,564	131,564	1
Purchasing Officer	3	Camp	RS	29,710	55%	16,341	46,051	138,152	3
Store Person Senior	2	Camp	RS	37,140	55%	20,427	57,567	115,134	2
Store Person	4	Villages	LS	10,610	55%	5,836	16,446	65,782	0
Logistics Supt	1	Camp	RS	84,800	55%	46,640	131,440	131,440	1
Expedite Person Senior / Logistician	1	Camp	RS	37,140	55%	20,427	57,567	57,567	1
ESG Manager	1	Camp	RS	125,000	55%	68,750	193,750	193,750	1
Comm. Relations Supt.	1	Camp	RS	84,880	55%	46,684	131,564	131,564	1
Comm. Relations Officer	1	Camp	RS	26,530	55%	14,592	41,122	41,122	1
Comm. Relations Assistant	3	Camp	LS	13,270	55%	7,299	20,569	61,706	3
Environmental Supt.	1	Camp	RS	84,880	55%	46,684	131,564	131,564	1
Environmental Officer	1	Camp	LS	13,270	55%	7,299	20,569	20,569	1
Environmental Technician	2	Camp	LS	10,610	55%	5,836	16,446	32,891	2
Environmental Sampler	3	Villages	LS	10,610	55%	5,836	16,446	49,337	0
Camp Manager	1	Camp	FE						1
Camp Supervisor	2	Camp	RS						2
Chef	4	Camp	RS						4
Kitchen Staff	18	Villages	LS						0
Laundry Staff	12	Villages	LS						0
Cleaner	18	Villages	LS						0
Camp Driver	3	Villages	LS						0
Security Manager	1	Camp	RS	125,000	55%	68,750	193,750	193,750	1
Security Supt Site	1	Camp	RS	57,290	55%	31,510	88,800	88,800	1
Security Supt CID	1	Camp	RS	57,290	55%	31,510	88,800	88,800	1
Security Supervisor	6	Camp	RS	53,050	55%	29,178	82,228	493,365	6
Security Sergeant	20	Camp	RS	12,740	55%	7,007	19,747	394,940	20
Security Guard	80	Camp	LS	6,790	55%	3,735	10,525	841,960	80
Doctor	2	Camp	RS	63,660	55%	35,013	98,673	197,346	2
Nurse	2	Camp	RS	19,100	55%	10,505	29,605	59,210	2
Safety & Training Manager	1	Camp	FE	125,000	55%	68,750	193,750	193,750	1
Safety Supervisor Senior	1	Camp	FE	84,880	55%	46,684	131,564	131,564	1
Safety Supervisor	2	Camp	RS	53,050	55%	29,178	82,228	164,455	2
Safety Officer	3	Camp	RS	29,710	55%	16,341	46,051	138,152	3
Safety Assistant	1	Villages	LS	10,610	55%	5,836	16,446	16,446	0
Training Supervisor	1	Camp	RS	53,050	55%	29,178	82,228	82,228	1
Administration Subtotal	239							6,846,149	

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

LABOUR

Area/Position	Number of Employees	Accommodation Type	Classification	Base Annual Salary/Wage US$/person	Overhead Costs %	Overhead Costs US$/person	Annual Labour Costs US$/person	Total Annual Labour Costs US$	Personnel in Camp
PLANT OPERATIONS									
Plant Manager	1	Camp	FE	225,000	55%	123,750	348,750	348,750	1
Metallurgist Senior	1	Camp	FE	175,000	55%	96,250	271,250	271,250	1
Metallurgist	3	Camp	RS	74,270	55%	40,849	115,119	345,356	3
Senior Metallurgical Technician	3	Camp	LS	31,830	55%	17,507	49,337	148,010	3
Metallurgical Technician	3	Camp	LS	10,610	55%	5,836	16,446	49,337	3
General Foreman	1	Camp	FE	125,000	55%	68,750	193,750	193,750	1
Metallurgical Clerk	1	Villages	LS	10,610	55%	5,836	16,446	16,446	0
Shift Supervisor	3	Camp	RS	31,830	55%	17,507	49,337	148,010	3
Shift Lead Operator	3	Camp	LS	15,920	55%	8,756	24,676	74,028	3
Shift Operator	18	Villages	LS	10,610	55%	5,836	16,446	296,019	0
Goldroom Supervisor	2	Camp	FE	125,000	55%	68,750	193,750	387,500	2
Goldroom Operator	2	Villages	LS	10,610	55%	5,836	16,446	32,891	0
Day Crew Supervisor	1	Camp	LS	21,220	55%	11,671	32,891	32,891	1
Reagents / TSF Operator	6	Camp	LS	10,610	55%	5,836	16,446	98,673	6
Day Crew Operator	12	Villages	LS	10,610	55%	5,836	16,446	197,346	0
Assay Laboratory Manager	1	Camp	RS						1
Assay Laboratory Supervisor	3	Camp	RS						3
Assay Laboratory Technician	18	Villages	LS						0
Plant Operations Subtotal	82							2,640,255	
PLANT MAINTENANCE									
Maintenance Supt.	1	Camp	FE	175,000	55%	96,250	271,250	271,250	1
Maintenance Planner	2	Camp	RS	42,440	55%	23,342	65,782	131,564	2
Maintenance Clerk	2	Camp	LS	13,270	55%	7,299	20,569	41,137	2
Maintenance Supervisor Senior	1	Camp	FE	150,000	55%	82,500	232,500	232,500	1
Maintenance Supervisor	1	Camp	RS	31,830	55%	17,507	49,337	49,337	1
Fitter Leading Hand	2	Camp	RS	28,000	55%	15,400	43,400	86,800	2
Fitter Senior	3	Camp	LS	21,220	55%	11,671	32,891	98,673	3
Fitter	10	Camp	LS	10,610	55%	5,836	16,446	164,455	10
Boilermaker Leading Hand	2	Camp	RS	31,830	55%	17,507	49,337	98,673	2
Boilermaker	10	Camp	LS	10,610	55%	5,836	16,446	164,455	10
Instrument Tech Leading Hand	1	Camp	RS	31,830	55%	17,507	49,337	49,337	1
Instrument Tech	3	Camp	LS	10,610	55%	5,836	16,446	49,337	3
Electrical Leading Hand	1	Camp	RS	31,830	55%	17,507	49,337	49,337	1
Electrician Senior	3	Camp	LS	21,220	55%	11,671	32,891	98,673	3
Electrician	6	Camp	LS	10,610	55%	5,836	16,446	98,673	6
Mechanics	4	Villages	LS	10,610	55%	5,836	16,446	65,782	0
Trade Assistant	16	Villages	LS	6,370	55%	3,504	9,874	157,976	0
Plant Maintenance Subtotal	68							1,907,957	
Total Plant	150							4,548,212	
Total Plant + Administration	389							11,394,360	408
Total Plant + Administration + Mining	567							13,169,110	

Overhead Costs	55%

NOTES:

1. Labour numbers, categorisations, salaries and overheads agreed with Resolute Mining.

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

GENERAL & ADMINISTRATION

Item	Allowance US$	Basis	Annual Cost (US$)	Comment
Abidjan Office				
SAP ERP (Licence+Modules from Corporate)	$ 1,667	per month	$ 20,000	Allowance, agreed with Resolute
Communications	$ 15,000	per month	$ 180,000	Allowance, agreed with Resolute
Communications Maintenance	0%	of telecoms	$ -	Allowance, agreed with Resolute
Postage, Courier and Light Freight	$ 6,000	per month	$ 72,000	Allowance, agreed with Resolute
Stationery & Office Supplies	$ 1,500	per month	$ 18,000	Allowance, agreed with Resolute
Computer Supplies	$ 1,200	per month	$ 14,400	Allowance, agreed with Resolute
Software Licenses	$ 5,000	per month	$ 60,000	Allowance, agreed with Resolute
Public Relations	$ 2,500	per month	$ 30,000	Allowance, agreed with Resolute
Office Rental and Services	$ 7,500	per month	$ 90,000	Allowance, agreed with Resolute
Office Equipment	$ 7,000	per month	$ 84,000	Allowance, agreed with Resolute
Doropo Site Office				
SAP ERP (Licence+Modules from Corporate)	$ 1,667	per month	$ 20,000	Allowance, agreed with Resolute
Communications	$ 50,000	per month	$ 600,000	Allowance, agreed with Resolute
Communications Maintenance	0%	of telecoms	$ -	Allowance, agreed with Resolute
Postage, Courier and Light Freight	$ 6,000	per month	$ 72,000	Allowance, agreed with Resolute
Stationery & Office Supplies	$ 1,500	per month	$ 18,000	Allowance, agreed with Resolute
Computer Supplies	$ 1,200	per month	$ 14,400	Allowance, agreed with Resolute
Software Licenses	$ 5,000	per month	$ 60,000	Allowance, agreed with Resolute
Office Equipment	$ 7,000	per month	$ 84,000	Allowance, agreed with Resolute
Hired Equipment	$ 20,000	per month	$ 240,000	Allowance, agreed with Resolute
Insurances				
Medical			$ 200,000	Allowance, agreed with Resolute
Death and Disability				Included in labour overheads
Workers Liability Insurance				Included in labour overheads
Industrial Special Risks			$ 1,350,000	Allowance, agreed with Resolute
Third Party Liability			$ 75,000	Allowance, agreed with Resolute
Workers Compensation				Excluded
Directors and Officers Liability				Excluded - in corporate budget
Corporate Travel				Excluded - in corporate budget
Motor Vehicle Fleet			$ 100,000	Allowance, agreed with Resolute
Marine Transit				Excluded
Bullion			$ 150,000	Allowance, agreed with Resolute
Political Risk Insurance			$ 50,000	Allowance, agreed with Resolute
Financial				
Banking Charges	$ 8,000	per month	$ 96,000	Allowance, agreed with Resolute
Legal Fees	$ 5,000	per month	$ 60,000	Allowance, agreed with Resolute
Auditing Costs			$ 70,000	Allowance, agreed with Resolute
Accounting Consultants			$ 20,000	Allowance, agreed with Resolute
Bullion Refining				Excluded - in financial model
Royalties				Excluded - in financial model
Government Charges				
Tenement Fees			$ 100,000	Allowance, agreed with Resolute
Native Title Fees				Excluded
Environmental Licence			$ 40,000	Allowance, agreed with Resolute
Local Government Fees				Excluded
Personnel				
First Aid and Medical Costs	$ 10,000	per month	$ 120,000	Allowance, agreed with Resolute
Medicals, Visas, Passports (Expats)	$ 10,000	per month	$ 120,000	Allowance, agreed with Resolute
Safety Supplies	$ 5,000	per month	$ 60,000	Allowance, agreed with Resolute
Business Travel & Accommodation	$ -	per month	$ -	Included In owners project wages & flights
Recruiting/Relocation - Expats			$ 51,275	Allow 15% of Total Salary assuming 10% Expat total workforce at 30% turnover
Training	$ 5,000	per month	$ 60,000	Allowance, agreed with Resolute
Recreational and Local Facilities	$ 2,400	per month	$ 28,800	Allowance, agreed with Resolute
Professional Memberships & Subscriptions	$ 5,000	per month	$ 60,000	Allowance, agreed with Resolute
Entertainment	$ 2,400	per month	$ 28,800	Allowance, agreed with Resolute
Contracts				
Worker Transport Contract	$ 5,000	per week	$ 260,000	Allowance, agreed with Resolute
Camp, Catering & Cleaning Contract			$ 2,770,086	Calculated
Offices & Facilities Cleaning	$ 500	per month	$ 6,000	Abjidjan Office - Site by Catering
Environmental Compliance Testing	$ 5,000	per month	$ 60,000	Allowance, agreed with Resolute
Security Consultants	$ 5,000	per month	$ 60,000	Allowance, agreed with Resolute
OHS & Environmental Consultants	$ 5,000	per month	$ 60,000	Allowance, agreed with Resolute
Other Consultants	$ 15,000	per month	$ 180,000	Allowance, agreed with Resolute
Community Relations				
Community Relations Expenses	$ 6,500	per month	$ 78,000	Allowance, agreed with Resolute
Community Projects	$ 6,500	per month	$ 78,000	Allowance, agreed with Resolute
Community Scholarships	$ 1,000	per month	$ 12,000	Allowance, agreed with Resolute
Transport				
Light Vehicles	$ 25,000	per month	$ 300,000	Allowance, agreed with Resolute
Heavy Vehicles	$ 20,000	per month	$ 240,000	Allowance, agreed with Resolute
Freight & Logistics	$ 5,000	per month	$ 60,000	Allowance, agreed with Resolute
Other				
Hired Services	$ 25,000	per month	$ 300,000	Allowance, agreed with Resolute
Admin Light Vehicles	$ 3,000	per month	$ 36,000	Allowance, agreed with Resolute
Subtotal			9,016,761	
Administration Labour			6,846,149	
Total			15,862,910	

Camp, Catering & Cleaning Contract Calculation					
Classification	Rate (US$/person/day)	Time On Site (weeks/year)	Personnel	Annual Cost (US$)	Source
Personnel in Camp (Permanent Accom.)	24.88	35	408	$ 2,470,086	Rate and time on site (based on 6:3 roster) advised by Resolute
SUBTOTAL			408	$ 2,470,086	
Fixed Costs (US$/month)			25,000	$ 300,000	Agreed with Resolute
TOTAL				$ 2,770,086	

Notes:

1. G&A cost inputs based on Doropo PFS, agreed with Resolute (email "Operating cost comments", R. Cicchini, 12/10/2025)

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

PRE-PRODUCTION COSTS

Cost Centre		US$
Mine	Labour	Excluded
	Expenses	Excluded
	Sub-Total	0
Administration	Labour (Note 1)	5,109,670
	Expenses (Note 2)	
	Sub-Total	5,109,670
Process Plant	Labour (Incl. in Admin Labour, Note 1)	
	First Fill	2,491,219
	Opening Stocks	5,273,715
	Vendor Representatives	661,219
	Training	170,000
	Working Capital	5,735,145
	Sub-Total	14,331,298
TOTAL		19,440,968

Notes:
1. Pre-production labour provided by Resolute, includes Mining (Resolute employees), Administration and Processing staff, and flights (email R. Cicchini, 12/11/25).
2. Pre-production admin costs by Resolute Mining, captured elsewhere (email R. Cicchini, 12/11/25)

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any
third party without written authority from Lycopodium Minerals Pty Ltd.

Lycopodium

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

FIRST FILL AND OPENING STOCKS

Item		Cost (Total) US$/Unit	Unit	Consumption (units)	Delivery Size	First Fill		Opening Stocks			TOTAL
						units	US$	units	No Days	US$	US$
Primary Jaw Crusher	Fixed Jaw Liners	$18,615	set	9.1 set/yr	1 set(s)	Included	0	1 set(s)	40	18,615	18,615
	Swing Jaw Liners	$21,956	set	6.7 set/yr	1 set(s)	Included	0	1 set(s)	54	21,956	21,956
SAG Mill	Lifters/Liners	$1,224,210	set	1.5 set/yr	1 set(s)	Included	0	1.0 set(s)	248	1,224,210	1,224,210
	Grinding Media	$1,302	t	0.43 kg/t	20 t	247 t	322,019	200 t	30	260,307	582,326
Ball Mill	Lifters/Liners	$1,080,701	set	1.0 set/yr	1 set(s)	Included	0	1.0 set(s)	367	1,080,701	1,080,701
	Grinding Media	$1,214	t	0.73 kg/t	20 t	553 t	671,183	340 t	30	412,803	1,083,985
Quicklime		$372	t	0.84 kg/t	24 t	250 t	93,085	384 t	30	142,979	236,064
Sodium Cyanide		$2,523	t	1.03 kg/t	20 t	31 t	78,226	460 t	30	1,160,772	1,238,998
Sodium Hydroxide		$974	t	0.07 kg/t	20 t	21.0 t	20,447	40 t	30	38,946	59,393
Hydrochloric Acid		$524	t	0.04 kg/t	20 t	4.3 t	2,254	20 t	30	10,478	12,733
Carbon		$4,360	t	30.0 g/t	20 t	272 t	1,185,895	20 t	30	87,198	1,273,094
SMBS		$651	t	0.55 kg/t	20 t	29 t	18,884	260 t	30	169,301	188,185
Copper Sulphate		$3,769	t	0.24 kg/t	20 t	10 t	36,179	120 t	30	452,239	488,418
Stainless Steel Stocking		$730	kg	1,584 kg/yr	1 set(s)	2 set(s)	1,461	1 set(s)	365	730	2,191
Crucibles		$1,340	ea	35 /yr	2 each	2	2,680	1	41	1,340	4,020
Borax		$2,532	t	2,019 kg/yr	1 t	1 t	2,532	1 t	30	2,532	5,065
Silica		$1,027	t	505 kg/yr	1 t	1 t	1,027	1 t	30	1,027	2,055
Nitre		$2,425	t	337 kg/yr	1 t	1 t	2,425	1 t	30	2,425	4,850
Soda Ash		$1,189	t	337 kg/yr	1 t	1 t	1,189	1 t	30	1,189	2,377
Antiscalant	Decant Return Water	$3,263	t	12,678 kg/yr	1 t	1 t	3,263	2 t	30	6,527	9,790
Antiscalant	Elution	$4,893	t	701 kg/yr	1 t	1 t	4,893	1 t	30	4,893	9,786
Sulphamic Acid		$1,027	t	100 kg/week	1 t	1 t	1,027	1 t	30	1,027	2,055
Flocculant		$2,371	t	0.05 kg/t	20 t	1.08 t	2,549	40 t	30	94,846	97,395
Coagulant		$1,834	t	0.04 kg/t	20 t			20 t	30	36,673	36,673
Diesel		$1,200	kL	0.46 kL/t						0	0
Lubricants		$20,000	lot			1	20,000			20,000	40,000
Plant Operating Tools & Equipment		$10,000	lot			1	10,000			10,000	20,000
Gold Room Tools & Equipment		$10,000	lot			1	10,000			10,000	20,000
Laboratory Reagents		$0	lot			1	0			0	0
TOTAL CONSUMABLE COST							2,491,219			5,273,715	7,764,934

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium Minerals Pty Ltd.

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

VENDOR REPRESENTATIVES

Consultants	Duration	Rate US$/day/person	Expenses US$/trip/person	No. of People	Total US$	Location
Crushers	10 days	1,750	7,500	1	25,000	RSA
Mills	30 days	2,250	12,500	1	80,000	Europe/Aus
Thickeners	7 days	2,250	12,500	1	28,250	Europe/Aus
Regeneration Kiln/Furnace	10 days	1,750	7,500	1	25,000	RSA
Elution Heater	10 days	1,750	7,500	1	25,000	RSA
Air Compressors/Blowers	5 days	1,750	7,500	1	16,250	RSA
ILR	14 days	1,750	7,500	1	32,000	RSA
Gravity Concentrators	7 days	2,250	12,500	1	28,250	Europe/Aus
HV System	21 days	2,250	12,500	2	59,750	Europe/Aus
Laboratory	days				76,000	RSA
VSDs	14 days	2,250	12,500	1	44,000	Europe/Aus
PSA Oxygen Plant	7 days	2,250	12,500	1	28,250	Europe/Aus/USA
Water Treatment Plant	10 days	2,250	12,500	1	35,000	Europe/Aus
Sewage Treatment Plant	4 days	1,750	7,500	1	14,500	RSA
Filter Water Treatment Plant	10 days	2,250	12,500	1	35,000	Europe/Aus
Others (Allowance)	20 days	1,750	7,500	1	42,500	RSA
Travel Time (average)	2 days	2,017	-	16	66,469	
TOTAL					661,219	

NOTES:

1.) Expenses Local Africa	2,000	per person
2.) Rate Local Africa	500	per person
3.) Expenses South Africa	7,500	per person
4.) Rate South Africa	1,750	per person
5.) Expenses Australia/Europe/USA	12,500	per person
6.) Rate Australia/Europe/USA	2,250	per person

PROCESSING TRAINING COSTS

Activity	Qty	Rate US$		Total US$
Local (Site) Training	12 months	5,000	/month	$ 60,000
Overseas Training	0 trips	20,000	/trip	$ -
Manuals		50,000		$ 50,000
Post-Commissioning Training	3 months	20,000	/month	$ 60,000
TOTAL				$170,000

Client	Resolute Mining Limited
Project	Doropo Gold Project
Job Description	DFS
Job No	S2326
Revision	D

WORKING CAPITAL

The Working Capital will be 4 weeks operating costs based on mine oxide feed

Operating Cost - Processing	Year 1	=	$74,556,885
Working Capital Period	weeks	=	4
Processing Working Capital	US$	=	$5,735,145

This document is the property of Lycopodium Minerals Pty Ltd.
It must not be copied or reproduced in any way or transmitted on to any
third party without written authority from Lycopodium Minerals Pty Ltd.

APPENDIX 15.1

ATTENDANCE LIST

S2326 - Doropo Gold Project

HAZID STUDY

Location: Lycopodium, East Perth
Date: 10/24/2025

Workshop Attendees:

Name	Position	Company
Mike Warren	Facilitator	Lycopodium
PAUDIE WHALLEY	SCRIBE	Lycopodium
AJ Scholtz	Study Manager	Lycopodium
ASHLEY COOK	MECH ENG	Lycos
Stephen Cashin	Group Metallurgist	RML
Lou Giancristofaro		RML
Rob Cicchini		RML
RYAN HARRISON	PRINCIPAL PROCESS	LYCOPODIUM

APPENDIX 15.2

HAZARD RATING MATRIX

Consequence criteria should be read as either/or

Table 1 - Consequence Level Descriptions

Level	Category	Project Schedule	Health & Safety	Environmental	Community	Legal Compliance	Estimated Cost
1	Insignificant	Schedule slips one day	First Aid injury, Nuisance value	No or very low environmenatl impact Impact confined to small area	Isolated complaint. No media enquiry	Minor technical/legal compliance issue unlikely to attract regulatory response	> $ 5,000
2	Minor	Schedule slips one week	Medical Treatment Injury, Restricted Work Injury	Low environmental impact Rapid cleanup by site staff and/or contractors Impact confined to area currently impacted by operations	Small numbers of sporadic complaints. Local media enquiries	Possible fraud implications. Technical/legal compliance issue which may attract a low level administrative response from regulator. Incident requires reporting in routine reports (e.g. monthly)	> $ 50,000
3	Moderate	Schedule slips one month	Single Lost Time Injury	Moderate environmental impact Cleanup by site staff and/or contractors Impact confined within lease boundary	Serious rate of complaints, repeated complaints from the same area (clustering). Increased local media interest	Breach of regulation with possible prosecution and penalties. Continuing occurrences of minor breaches. Incident requires immediate (< 48 hours) notification	> $ 500,000
4	Major	Schedule slips three months	Multiple Lost Time Injuries, Admission to intensive care unit or equivalent. Serious, chronic, long term effects	Major environmental impact Considerable cleanup effort required using site and external resources Impact may extend beyond lease boundary.	Increasing rate of complaints, repeated complaints from the same area (clustering). Increased local/ national media interest	May involve fraud. Major breach of regulation resulting in investigation by regulator. Prosecution, penalties or other action likely	> $ 5,000,000
5	Catastrophic	Schedule slips one year	Fatality or permanent disability	Severe environmental impact Local species destruction and likely long recovery period. Extensive cleanup involving external resources. Impact on a regional scale.	High level of concern or interest from local community. National and/or international media interest	Serious breach of regulation resulting in investigation by regulator. Operation suspended, licenses revoked	> $ 50,000,000

Table 2 - Likelihood Descriptions

Likelihood Level	Description	Frequency
5	Certain	The event will occur / occurs daily
4	Likely	The event is expected to occur / occurs weekly / monthly
3	Possible	The event will occur under some circumstances / occurs annually
2	Unlikely	The event has occurred elsewhere / occurs every 10 years
1	Rare	The event may occur in exceptional circumstances. / The event has rarely occurred in the industry

	Consequence				
	1	2	3	4	5
Likelihood	**Insignificant**	**Minor**	**Moderate**	**Major**	**Catastrophic**
Almost Certain	H	H	E	E	E
Likely	M	H	H	E	E
Possible	L	M	H	E	E
Unlikely	L	L	M	H	H
Rare	L	L	M	M	H

Risk Level	Risk Class	Response
Extreme	1	Significantly exceed acceptance threshold. Cease activity or task; detailed research and planning required.
High	2	Exceed acceptance threshold. Senior management attention; immediate corrective and preventative action required.
Moderate	3	On acceptance threshold. Management responsibility assigned; corrective and preventative action plan developed.
Low	4	Below acceptance threshold. Manage by routine procedures.

APPENDIX 15.3

HAZARD REGISTER

HAZID	
Qualitative Risk Assessment Workbook	
Date of Review:	21/Oct/25

Minor Moderate Major Catastrophic | Likely Possible Unlikely Rare | High Moderate Low | No

Minor Moderate Major Catastrophic | Likely Possible Unlikely Rare

Scenario						Control Measures in place with current design	Consequence	Likelihood	Level of Risk	Accept Risk?	Proposed New Control Measures	Consequence (Residual)	Likelihood (Residual)	Level of Residual Risk	Responsibility Client or Lycopodium	Due Date
No.	Area	Hazard Category	Issue	Cause	Impact						Description					
1.00	**Overall Site**															
1.10	***Facility Locations***															
1.11	Operations	Health & Safety	1.7km to ROM Pad: Proximity of communities to mining operation	Noise and dust during operation	Noise affecting sleep Dust affecting health	Under consideration in ESIA.	Minor	Rare	L	Yes					Client	
1.12	Operations	Health & Safety, Financial	Bushfire during dry seasons	Community and naturally caused bushfires	Equipment damage	Cleared fire break, fire water system, fire emergency response team.	Minor	Rare	L	No	Consider protection of overland pipelines and assets outside process plant.	Minor	Rare	L	Lycopodium	
1.13	Operations	Environmental	Sediment Control	Run off from tailing dam and process plant area run off and from overland pipeline corridors.	Environmental damage	Lined Event Pond, bunded areas around environmental hazardous materials. Storm water catchment area, KP stormwater catchment facility.	Minor	Unlikely	L	No	Consider design for run off from pipeline corridor.	Minor	Rare	L	Lycopodium	
1.14	Operations	Environmental	Acid Mine drainage.	Mineralogy.	Environmental damage	Waste dump and Low grade stockpile. (test work shows waste is non acid forming)	Minor	Rare	L	Yes						
1.15	Operations	Environmental	International Cyanide Management Code (ICMC) compliance for tailings	Loss of containment of tailings pipeline with residual cyanide in tailings	Environmental damage, Non compliance	Inclusion of cyanide detox facility for tails treatment	Moderate	Unlikely	L	No	Consider lined trench or double containment between plant and TSF embankment. Consider leak Detection on pipeline.	Minor	Rare	L	Lycopodium	
1.20	***Traffic & Vehicle Movements***															
1.21	Operations	Health & Safety	Light vehicles entering mining service area	Collision heavy to light vehicles	Injury and damage	Light vehicle separated by berms and fences Traffic management plan.	Catastrophic	Rare	H	No	Further consideration in detail design phase in conjuction with selected mining contractor to prevent LV access into HV trafficked areas.	Catastrophic	Rare	H	Client	
1.22	Operations	Health & Safety	Pedestrian access to plant	Collision - vehicle to person	Injury - Fatality	Designated walkways Speed limits Bus from camp to plant Traffic management plan	Catastrophic	Unlikely	H	No	Carpark should be on same side of the road as walkway to plant. Walkway should not cross road Clarify during future design	Major	Rare	M	Lycopodium	
1.23	Operations / Construction	Health & Safety	Unsafe vehicles making deliveries to site	Contractors or deliveries using unsafe vehicles or loading practices	Unsafe vehicles on site Accidents, breakdowns	Inspection of vehicles entering site	Catastrophic	Unlikely	H	No	Pre-qualifying logistics contractors Designated personnel to unload Regional delivery standard procedure Designated parking area for delivery vehicles	Major	Rare	M	Client	
1.24	Operations / Construction	Health & Safety	Accidents, fatigue and security while commuting to site	Site is 11 hours drive from Abidjan	Vehicle accidents	Satellite tracking of vehicles on route. Planning to use air transport where practical Ongoing vehicle improvements Safety and security personnel Driver training	Catastrophic	Unlikely	H	Yes	Build airstrip: 1hr drive from alternative airstrip. 30min from Doropo airstrip. Use charter flight for commutes.	Catastrophic	Rare	H	Client	
1.30	***Dust and Noise***															
1.31	Operations	Health & Safety	Dust from stockpile	Dusty ore and winds	Health issues from long term exposure.	Prevailing winds blow away from plant. Dust sprays on stockpile discharge and dump pocket.	Moderate	Rare	M	Yes						
1.32	Operations	Health & Safety	Dust in the reclaim tunnel.	Dusty ore	Health issues from long term exposure.	Dust Scrubber, and sprays at apron feeder discharge point.	Moderate	Rare	M	Yes						
1.40	***Drainage***															
1.41	Operations	Health & Safety	Stormwater drains/trenches can be deep	Exposed drains	Personnel falling into drains	Designated walkways do not present a risk Barriers to be installed where drains are close to walkways	Moderate	Unlikely	M	Yes						
1.42	Operations	Natural & Environmental Hazard	Contaminated surface water	Process spillage overflows bunds	Environmental contamination	Bunds and drains lead to event pond	Minor	Rare	L	Yes						
1.50	***Site General***															
1.51	Operations	Health & Safety	Food poisoning	Inadequate food hygiene	Illness, Lost production	Use reputable camp caterer and regular checks	Minor	Possible	M	Yes						
1.52	Operations	Created / Man-made	Fitness for work	Unauthorised drug or alcohol consumption Mental health issues	Accidents Injury Damage	SOP Regular random testing Medical centre on site	Moderate	Unlikely	M	Yes						
1.53	Operations	Created / Man-made	Unauthorised access to site	Desirable items on site	Theft Injury	Card access control Security patrols Perimeter fencing Plant fencing	Minor	Possible	M	Yes						
1.54	Operations	Maintenance	Exposure to Nucleonics / radiation gauges	Need for service	Injury	Vendor enclosures SOPs Designated Radiation Safety Officer	Minor	Unlikely	L	Yes						
1.55	Operations	Health & Safety	Loss of operation staff	Pandemic	Loss of production Lockdowns	Vaccinations Site health procedures	Major	Rare	M	Yes						
2.00	**Processing Plant**															
2.10	***General Maintenance and Live Works***															
2.11	Maintenance	Health & Safety	Working on live equipment	Troubleshooting, adjusting and testing Completing unfamiliar work Interlock testing E.g. Tracking conveyor belts	Injury from entanglement	Guards and procedures designed to Australian standards Remote greasing points provided	Major	Rare	M	Yes						
2.12	Maintenance and construction	Health & Safety	Working at heights	Range of elevated activities	Injury from falling	Elevated work platforms Scaffolding Procedures Anchor points Construction sequencing to minimise work at height	Major	Rare	M	Yes						
2.13	Maintenance	Health & Safety	Working at heights	Cranes and lifting	Falling objects Damage to structures Injury to personnel	Overload limit switches Procedures Barricades Supervision and sentries	Major	Rare	M	Yes						
2.14	Operations	Health & Safety	Falling objects	Objects falling off conveyors	Injury to personnel	Designated passing points / cross unders Designing to MBOD Conveyor pass under shedders	Moderate	Unlikely	M	No	Review and consider dedicated underpasses at critical areas	Moderate	Rare	M	Lycopodium	
2.15	Operations	Health & Safety	Location of storage for tools, and spill kits.- e.g. Spile bars, hydroblaster.	Lack of appropriate storage facilities leads to tools stored in travel ways.	Slip trips and Falls	Nil	Moderate	Likely	H	No	Consider tool storage in detailed design.	Moderate	Unlikely	M	Lycopodium	

Date of Review:	21/Oct/25	

Scenario						Control Measures in place with current design	Consequence	Likelihood	Level of Risk	Accept Risk?	Proposed New Control Measures	Consequence (Residual)	Likelihood (Residual)	Level of Residual Risk	Responsibility Client or Lycopodium	Due Date
No.	Area	Hazard Category	Issue	Cause	Impact						Description					
2.20	***Feed Preparation & Handling***															
2.21	Operations	Health & Safety	Hazards around primary crusher station	Material ejection from jaw crusher	Potential injury and damage	Sized by static grizzly, 3 sided guarding around jaw Crusher, PPE, restricted access.	Major	Rare	M	Yes						
2.22	Operations	Health & Safety	Hazards through ROM Bin Tip	3 Tip locations could have potential for multiple mining vehicles at one time.	Injury, equipment damage	Procedure for vehicle access to tip, Berms for vehicle guidance, personnel access restrictions. Sequencing / radio call.	Moderate	Possible	H	No	Further investigation into tipping arrangement and ROM pad management by mining contractor	Moderate	Unlikely	M	Client	
2.23	Operations	Health & Safety	Lime addition to feed conveyor	Use of quick lime powder and wind blowing dust around	Injury	Nil	Moderate	Likely	H	No	Consider need for covering the conveyor downstream of lime addition, skirts and covers.	Moderate	Rare	M	Lycopodium	
2.24	Operations	Maintenance	Lime silo - access to rotary valve.	Access platform is at inconvenient height for valve maintenance.	Poor Ergonomics	Nil	Minor	Likely	H	No	Consider further options to improve valve access in detailed design.	Minor	Unlikely	L	Lycopodium	
2.25	Operations	Fire and explosion	Stored lubes	Hot work Spills	Damage	Procedures Housekeeping Containment	Minor	Unlikely	L	Yes						
2.26	Operations	Fire and explosion	Conveyors	Friction of conveyor belt rubbing on structure or stuck idler	Fire of conveyor	Inspections, Procedures, Fire extinguishers	Moderate	Unlikely	M	Yes						
2.27	Operations	Fire and explosion	Conveyors	Hot work causing fire	Fire of conveyor	Hot work procedures	Moderate	Unlikely	M	Yes						
2.28	Operations	Fire and explosion	Arc flashing	Dust Build-up on powerlines, transformers, electrical equipment, followed by wet weather	Fire and flashover Power loss	Correct IP rating Electrical protection isolation of flashover fault Lightning study conducted Dust proof enclosures or dust filters / dust screens	Moderate	Possible	H	No	Maintenance strategy and cleaning regime	Moderate	Unlikely	M	Client	
2.29	Operations	Process	Blockage in chutes	Tramp metal, trash in ore,	Lost production	Belt magnet to remove metal Blockage clearing procedures Confined space procedures Rip detection Blocked chute switches Conveyor can restart from blocked condition	Insignificant	Possible	L	Yes						
2.30	Operations	Process	Blockage in chutes and vibrating grizzly feeder.	Sticky ore, particularly oxide/transition during wet season in first year	Lost production	Ore characteristic testwork in progress. Chute design. SOP	Moderate	Possible	H	No	Review primary crushing design options and material handling testwork results	Moderate	Unlikely	M	Lycopodium	
											Investigate oxide and transition ore properties on site during wet season	Moderate	Unlikely	M	Client	
2.31	Maintenance	Health & Safety	Conveyors not positively isolated to remove blockages in chutes	Difficult to isolate	Potential injury from falling material held up in chutes	Procedures, chute design Isolation points Electrical isolations and lockouts Conveyor holdbacks and brakes on elevating conveyors Blocked chute detection and level detection	Moderate	Unlikely	M	Yes						
2.32	Operations	Health & Safety	Rocks rolling down stockpile	Segregation on stockpile and dozer operation	Injury	Berm or head wall above all tunnel entrance areas Stockpile management Berm inspections Design of tunnel Level transmitter on stockpile Review footprint of stockpile to ensure rocks cannot reach reclaim tunnel Height of wall above tunnel entrance Barriers/catching fences	Major	Rare	M	Yes						
2.33	Maintenance	Health & Safety	Working at heights on screen deck to replace panels results in fall	Wear of screen panels	Injury	Procedures Design of tie off points.	Moderate	Unlikely	M	Yes						
2.34	Operations	Fire and explosion	HV Isolator Switchgear	Flashover	Potential fatality	Equipment fully arc contained Remote switching and procedures Appropriate PPE Isolation Procedure Competent operators / training Environment controls - humidity and dust Warning signs and labels	Catastrophic	Unlikely	H	No	Limit access to HV equipment	Major	Unlikely	H	Client	
2.35	Operations	Process	Large lumps reclaimed from stockpile	Loader reclaims stockpile base with large lumps	Blockages of feeders and transfer chutes	Ensure top surface pavement of stockpile pad is constructed with grade controlled material to be within ore size specifications Construction methodology Differently coloured laterite material used for top layer	Insignificant	Possible	L	Yes						
2.40	***Milling & Classification***															
2.41	Operations	Health & Safety	Mill ball charging	Balls drop from kibble	Injury to personnel	Exclusion zone Caged lifting area Balls are metered into kibble	Minor	Unlikely	L	Yes						
2.42	Operations	Health & Safety	Transferring balls from drums to indexer	Delivered in drums Manual handling	Injury to personnel Hot work risk or use of hydraulic shears to open drums	Procedures	Moderate	Possible	H	No	Investigate bulk delivery in sea containers to reduce frequency of ball transport	Moderate	Unlikely	M	Lycopodium	
2.43	Operations	Environmental	Sump water spilling to environment	Splashing from monitor cannons	Carry over to environment	Procedures	Insignificant	Possible	L	Yes						
2.44	Maintenance	Health & Safety	Ball Mill relining	Personnel in mill during bolt removal	Injury to personnel	Procedures	Moderate	Unlikely	M	Yes						
2.45	Operations	Health & Safety	Person struck by dump valve discharge	Cyclone feed line dump valves open automatically	Person is struck by slurry discharge, injury	Nil	Minor	Possible	M	No	Consider safe discharge point during detailed piping design	Minor	Unlikely	L	Lycopodium	
2.46	Operations	Health & Safety	Grating becoming corroded needing replacement	Water vapour and rusting	Injury	Inspections	Minor	Unlikely	L	Yes						
2.47	Operations	Fire and explosion	Fire in mill lube system	Hot work	Damage Lost production	SOP	Major	Rare	M	Yes	Consider sprinklers system	Moderate	Rare	M	Client	

Date of Review:	21/Oct/25

Scenario						Control Measures in place with current design	Consequence	Likelihood	Level of Risk	Accept Risk?	Proposed New Control Measures	Consequence (Residual)	Likelihood (Residual)	Level of Residual Risk	Responsibility Client or Lycopodium	Due Date
No.	Area	Hazard Category	Issue	Cause	Impact						Description					
2.50	***CIL***															
2.51	Operations	Health & Safety	HCN Gas above tanks	Low pH in slurry - failure of pH control High CN concentration in tanks	Injury	Auto pH control with lime addition to mill and CIL feed box pH monitoring and alarm HCN Monitors and personal monitors	Moderate	Rare	M	Yes						
2.52	Maintenance	Health & Safety	Fall into tank	Need to access fasteners to remove intertank screen for maintenance	Injury	Procedures, Life rings. Handrails where appropriate.	Moderate	Rare	M	Yes						
2.53	Operations	Health & Safety	Cyanide Liquid spray.	Dosing Cyanide into CIL tanks with leak.	Injury	Labelling Piping, Safety showers top of tank.	Moderate	Rare	M	Yes						
2.60	***Elution & Gold Room***															
2.61	Operations	Financial	Diesel spillage into elution bund	Leaking pipe, overfilling of tank	Contamination of carbon in bund, Loss of carbon together with any adsorbed gold	Contained in bund	Insignificant	Unlikely	L	Yes						
2.62	Operations	Health & Safety	Splash/leak of hot water	Poor quality or failing gasket	Scalds	Engineering controls Access controls	Moderate	Rare	M	Yes						
2.63	Operations	Health & Safety	High ambient temperatures in gold room	Smelting	Heat exhaustion	Ventilation and fume extraction, Induction Furnace selected.	Minor	Unlikely	L	Yes						
2.64	Operations	Carbon regeneration	Radiant heat exposure	Hot surfaces	Burns	Signage, lagging, insulation	Minor	Unlikely	L	Yes						
2.65	Operations	Health & Safety	Electrowinning gas emissions.	Electrowinning reaction.	Injury	Ventilation and fume extraction.	Minor	Unlikely	L	Yes						
2.66	Operations	Fire and explosion	Elution Heater fire	Leaking oil or diesel fuel	Burns and damage	Automated shutoff valve on diesel	Major	Rare	M	Yes						
2.67	Operations	Health & Safety	Hot Surfaces in the Elution circuit	Personnel touching hot surfaces	Burns	Standard Design for personnel protection and thermal insulation	Minor	Unlikely	L	Yes						
2.70	***Security Hazards***															
2.71	Operations	Financial	Violent robbery	Theft	Loss of product Injury	Concrete lower walls for gold room CCTV Security Fencing	Moderate	Unlikely	M	Yes						
2.80	***Reagents***															
2.81	Operations	Health & Safety	Slippery floors due to spilled floc	Spillage	Injury slips and falls	Housekeeping Serrated grating	Moderate	Possible	H	No	Consider elevated grating walkway to access equipment Consider hand railing around reagent bunds	Moderate	Unlikely	M	Lycopodium	
2.82	Operations	Health & Safety	Incompatible reagents handling and storage	Incompatible reagents located adjacent to each other, with leaks or spillage	Release of dangerous gasses	The design will be in accordance with applicable Australian Standards, Codes and Regulations, IEC standards and, in their absence, will be based on Lycopodium standards and proven practices	Major	Rare	M	No	Ensure couplings for offloading reagents are disparate	Major	Rare	M	Lycopodium	
3.00	**Services**															
3.10	***Common Services***															
3.11	Air Receivers	Health & Safety	Uncontrolled discharge	Misuse of compressed air	Single LTI	Procedures and education	Moderate	Unlikely	M	Yes						
3.12	Water Ponds	Health & Safety	Slippery slope on liner	Personnel entry into pond	Injury	Ropes and lifebuoys	Moderate	Unlikely	M	Yes						
3.13	Oxygen Plant	Health & Safety	Noise within oxygen plant building	Free discharge of PSA plant exhaust	Hearing loss	Nil	Major	Possible	E	No	Discuss noise attenuation with Vendor include silencer	Minor	Unlikely	L	Lycopodium	
3.14	Oxygen Plant	Fire and explosion	Combustion of Zeolite	Moisture addition, failure of inlet filters and inadequate maintenance	Fire and damage	Nil	Moderate	Rare	M	Yes						
3.15	Oxygen Plant	Fire and explosion	Combustion of Hydrocarbon saturated clothing	Exposure to high purity oxygen.	Injury	Procedures, boxes around meters Limit exposure, manufacturer's recommendations	Moderate	Unlikely	M	Yes						
3.16	Safety Showers	Health & Safety	Proxy for emergency incident notification	Injury to personnel working independently	Delay in emergency response	Nil	Moderate	Unlikely	M	No	Consider flow switches on all safety showers	Moderate	Rare	M	Lycopodium	
3.20	***Vehicles in Plant***															
3.21	Operations	Health & Safety	Vehicles in plant	Refer 1.22 above			Major	Unlikely	H	No	Review vehicles access in design review	Moderate	Unlikely	M	Lycopodium	
4.00	**Tailings Disposal & Storage (By Others)**															
4.10	***Access***															
4.11	Operations	Health & Safety	Vehicles entering tailings pond	Insufficient berm to prevent vehicle access	Damage to tailings pond lining Injury, fatality	Procedures	Catastrophic	Unlikely	H	No	Review pipeline berms, vehicle barriers by TSF designer.	Catastrophic	Rare	H	Client	
4.12	Operations	Health & Safety	Unauthorised personnel entry	Community members & wild life entering pond	Injury and need to remove fauna from TSF.	SOP	Major	Unlikely	H	No	Use Non-slip liner around edges by TSF Designer	Major	Rare	M	Client	
4.13	Operations	Health & Safety	Exposure to bodies of water e.g. Ponds	Slips, trips and falls working adjacent to bodies of water	Injury / Fatality	Procedures, Rope net, Life rings. Handrails where appropriate.	Catastrophic	Rare	H	No	Use Non-slip liner around edges if installed. Consider further measures in detail design	Major	Rare	M	Lycopodium	
5.00	**Fuel Storage**															
5.10	***Plant Supply***															
5.11	Operations	Environmental	Pumping of diesel - leaks and spills	Leakage of diesel pipelines	Environmental issues spilled diesel	Double walled pipes	Minor	Unlikely	L	Yes						
6.00	**Administration & Plant Buildings**															
6.10	***Analytical Labs***															
6.11	Operations	Health & Safety	Sewage Treatment Plant affected by toxic chemicals	Laboratory disposing of chemicals into sewer	STP inoperative for several weeks	Procedures	Major	Unlikely	H	No	Ensure lab bench drains discharge to tailings, not sewer	Minor	Unlikely	L	Lycopodium	
6.12	Operations	Health & Safety	Dust exposure during sample preparation	Inadequate dust control	Injury	Vendor Package	Moderate	Unlikely	M	Yes						
6.13	Operations	Health & Safety	Poor layout of metallurgy lab	Dust and Noise	Injury, Equipment damage, Chronic Health (silicosis, hearing loss).	Procedures	Moderate	Unlikely	M	No	Review layout of Met Lab during detailed design	Minor	Unlikely	L	Lycopodium	
7.00	**Construction Facilities**															
7.10	***Scaffolding and formwork***															
7.11	Construction	Health & Safety	Concrete at heights and temporary structures requiring certification	Construction of temporary structures not to design	Injury damage and fatalities	Use of appropriate materials and standards for temporary structures Exclusion zones Inspections and certifications	Catastrophic	Unlikely	H	No	Develop management plans for construction and HSE. Ensure construction contractors are experienced with good HSE track record.	Catastrophic	Rare	H	Lycopodium	

Date of Review:	21/Oct/25

Scenario						Control Measures in place with current design	Consequence	Likelihood	Level of Risk	Accept Risk?	Proposed New Control Measures	Consequence (Residual)	Likelihood (Residual)	Level of Residual Risk	Responsibility Client or Lycopodium	Due Date
No.	Area	Hazard Category	Issue	Cause	Impact						Description					
7.20	***Laydown Areas***															
7.21	Construction	Health & Safety	Difficulties transporting equipment from laydown yards to point of use	Bulky or awkward loads	Accidents	Procedures	Catastrophic	Unlikely	H	No	Consider Laydown design	Major	Rare	M	Lycopodium	
7.22	Construction	Fire and explosion	Flammable materials stored against outer fence	Bushfires	Damage	Fire breaks Control illegal burning Procedures for storage of flammable materials	Minor	Possible	M	Yes						
7.30	***Unloading & Handling***															
7.31	Construction	Health & Safety	Unsafe vehicles making deliveries to site	See 1.23 above												
7.40	***Access / Traffic Control***															
7.41	Construction	Health & Safety	Project Deliveries through communities	Congestion of roads through local villages	Delays in critical deliveries Disruption to communities Traffic accident	Use experienced logistics contractor	Catastrophic	Possible	E	No	Continue discussions with logistics contractors	Catastrophic	Rare	H	Client	
7.50	***Drainage / Run-off Control***															
7.51	Construction	Financial	Suitability of roads during heavy rain downpours	Poor quality roads	Damage to equipment	Contributions to regional road authorities	Minor	Possible	M	Yes						
7.60	***Electrical***															
7.61	Construction	Health & Safety	Arc Flash	Electrical fault	Serious Injury	Signage PPE Procedures for HV switching Mechanical interlocks Access control to switch rooms	Major	Rare	M	Yes						
7.70	***Severe Weather***															
7.71	Construction	Schedule	Lightning affecting construction	Lightning during construction	Work stops during lightning storm events	Procedures Lighting notification system	Minor	Possible	M	Yes						
7.80	***Security Hazards***															
7.81	Construction	Financial	Theft issues	Loss or damage to materials	Loss	Security fencing Security contractor	Minor	Possible	M	Yes						
8.00	**Community Relations**															
8.10	***Water Supply***															
8.11	Construction	Health & Safety	Sewage treatment contamination	See 7.11 above												
8.20	***Community Disruptions***															
8.21	Construction	Schedule	Early earthworks activities disrupting communities	Resettlement is delayed	Interaction between communities and contractors	Community engagement team Procedures and guidelines Security protocols	Minor	Possible	M	Yes						
8.22	Operations	Environmental	Waste Management, Process Plant and camp (Not sewage)	Inappropriate disposal of waste	Environmental contamination	Incinerator for toxic waste	Moderate	Possible	H	No	Review current practices at nearby operations and consult environmental department (ESIA)	Moderate	Unlikely	M	Client	
9.00	**Power Supply & Distribution**															
9.10	***Lightning Protection***															
9.11	Operations	Natural	Lightning strike	Thunderstorm activity	Injury	SOP, earthing facilities.	Major	Rare	M	Yes						
9.12	Operations	Natural	Severe Wind	Thunderstorm activity	Injury	SOP Storm locks on cranes	Major	Rare	M	Yes						
9.20	***Emergency Power***															
9.21	Operations	Man-made	Grid power								To be considered in detailed design					
9.22	Operations	Man-made	Standalone power station								To be considered in detailed design					

APPENDIX 16.1

BASIS OF SCHEDULE

Resolute Mining Limited

Doropo Gold Project DFS

Basis of Schedule

2326-GSCH-001

November 2025

REV NO.	DATE	DESCRIPTION OF REVISION	BY	DESIGN APPROVED	PROJECT APPROVED	CLIENT APPROVED
A		ISSUED FOR REVIEW				

This document is the property of Lycopodium. It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium.

Doropo Gold Project DFS

Basis of Schedule

2326-GSCH-001

Table of Contents

Page

1.0 INTRODUCTION **1**

2.0 PURPOSE **1**

3.0 SCHEDULE DEVELOPMENT **1**
- 3.1 Summary 1
- 3.2 DFS Schedule Summary and Key Milestones 2
- 3.3 Scope of Facilities Included 4
- 3.4 Scope of Facilities Excluded 6
- 3.5 Schedule Phases 6
- 3.6 Development of Schedule Logic & Durations 8
- 3.7 Activity Coding 9
- 3.8 Calendars 9

4.0 KEY SCHEDULE ASSUMPTIONS **10**
- 4.1 Assumptions / Qualifications 10
- 4.2 Exclusions – By Others 11

5.0 CRITICAL PATH **12**

6.0 RESOURCING **13**

TABLES
- Table 3.1 DFS Key Milestones Dates 2
- Table 3.2 Activity Coding 9
- Table 4.1 Critical Packages 11

FIGURES
- Figure 3.1 Summary Schedule 2

APPENDICES
- Appendix A Schedule Summary
- Appendix B Detailed Schedule
- Appendix C Critical Activities

1.0 INTRODUCTION

Lycopodium Minerals Pty Ltd ('Lycopodium') has been engaged by Resolute Mining Limited ('Resolute') to supply professional services for the Definitive Feasibility Study ('DFS') for the Doropo Gold Project ('the Project') I Cote D'Ivoire.

The DFS will leverage the PFS deliverables undertaken by Lycopodium in 2023 noting that the DFS did not materially change the flowsheet, process plant layout and mechanical equipment list.

2.0 PURPOSE

This document intends to describe the parameters for the development of the DFS Schedule, identifying Lycopodium's scope of work and the timing required to support project targets and interfaces for key elements of the Doropo Gold Project. It is to be used to support the timing of detailed design, project execution strategy and overall project duration.

The Basis of Schedule is a life cycle document, where changes to the basis will be documented throughout the life of the Project and issued in revision-controlled format. The frequency of update is usually dependent on the Project circumstances, the number of changes or updates and the effects of change to the plan. A determination of frequency will be established at a later time with project agreement on whether the schedule should be reforecast or re-baselined based on the changes incurred during the life of the Project.

The purpose of this Basis of Schedule document is to outline:

- Project schedule objectives.
- Planning basis and associated assumptions.
- Constraints considered for planning.
- Identify key project and interface milestones.

3.0 SCHEDULE DEVELOPMENT

3.1 Summary

The DFS schedule was developed to align with project priorities and the Project's critical path. It establishes key target dates and interfaces, follows a logical sequence and identifies all major activities and resource requirements.

Schedule durations are deterministic, and time provision for schedule uncertainty and risk event modelling using probabilistic range analysis techniques has not been built into the schedule duration (therefore the schedule excludes schedule contingency).

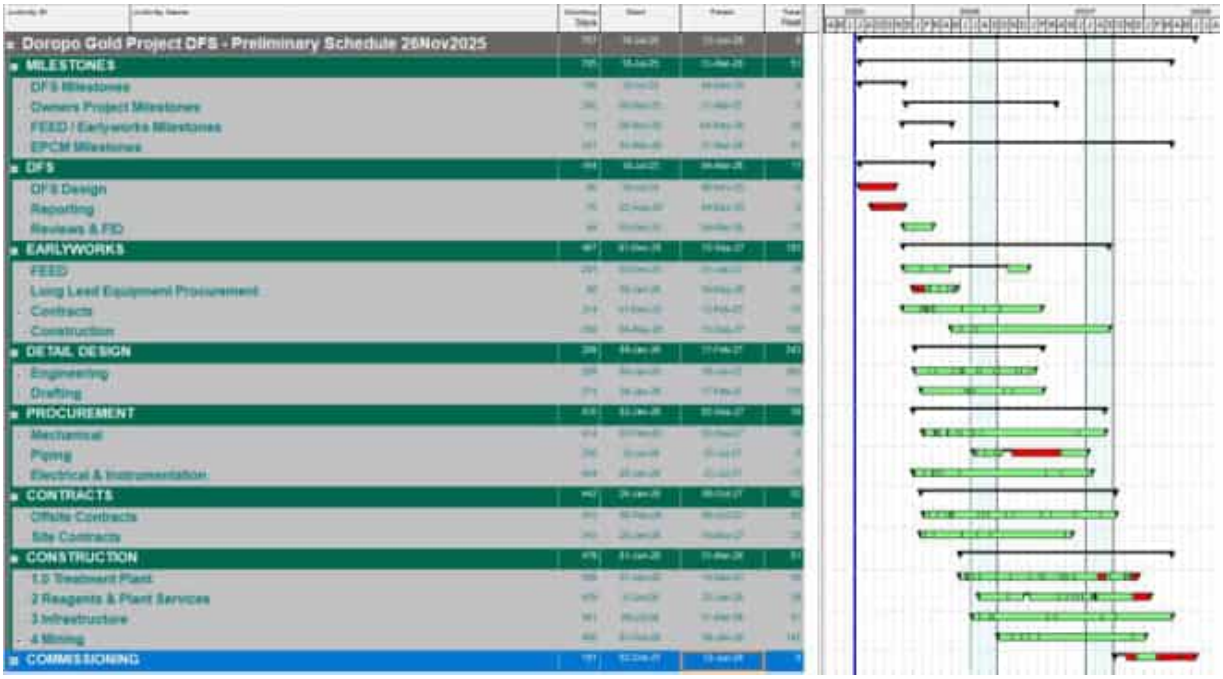
Primavera P6 software is the software implemented for all planning and scheduling for the Project.

The DFS Schedule key milestone dates are summarised in Table 3.1, with additional milestone detail provided in the Appendices.

3.2 DFS Schedule Summary and Key Milestones

Progress against agreed milestones, key dates, and roll-up of the schedule will form the executive-level reporting of the Study status.

Figure 3.1 Summary Schedule



The key milestone dates critical to the timely completion of the project are listed below.

Table 3.1 DFS Key Milestones Dates

Activity ID	Key Milestone	Date
DFS Milestones		
2326-DFS-MS-0010	DFS Commence	18-Jul-25*
2326-DFS-MS-2000	DFS Estimate & Report Issued for Review	20-Nov-25
2326-DFS-MS-2005	DFS Report Issued Final	4-Dec-25
Owners Project Milestones		
2326-DFS-MS-1220	Exploitation Permit	09-Dec-25
2326-DFS-MS-1240	ESIA Government Approval	11-Dec-25
2326-DFS-MS-1001	Board Approval & FID	31-Dec-25
2326-DFS-MS-0100	Works Approval Granted (Earlyworks Construction Commencement)	4-May-26
2326-DFS-CN-2760	Commence Site Access Road & Drainage Works	30-Jul-26

Activity ID	Key Milestone	Date
2326-DFS-MS-2010	Tailings Storage Facility (TSF) - Construction Commencement	1-Oct-26
2326-DFS-MS-2290	Water Storage Dam / Water Harvest Dam - Bulk Earthworks Commencement	5-Oct-26
2326-DFS-MS-2270	Permit to Import Nuclear Sources Granted	31-Mar-27
FEED / Earlyworks Milestones		
2326-DFS-MS-2220	Geotech Investigation Results Issued for Design	28-Nov-25
2326-DFS-MS-1210	Preliminary Bulk Earthworks Design & MTO IFT	16-Jan-26
2326-DFS-MS-1170	Project Schedule Baseline IFR	27-Feb-26
2326-DFS-MS-1180	Mill RFA Issued	13-Mar-26
2326-DFS-MS-2230	Construction Water Available for Earlyworks Construction	27-Apr-26
2326-DFS-MS-2240	Accommodation Available for Earlyworks Construction	27-Apr-26
2326-DFS-MS-1040	Commence Site Earlyworks Construction	4-May-26
EPCM Milestones		
2326-DFS-MS-1000	EPCM Award	5-Mar-26
2326-DFS-MS-1010	EPCM Kick off	12-Mar-26
2326-DFS-MS-1020	Award Mill Supply Contract	2-Apr-26
2326-DFS-MS-1200	Bulk Earthworks RFA Issued	17-Apr-26
2326-DFS-MS-1030	Award Bulk Earthworks	8-May-26
2326-DFS-MS-2250	Commence Plant Site Bulk Earthworks (Breaking Ground)	01-Jun-26
2326-DFS-MS-1160	Accommodation Available for Concrete Contractor Establishment & Critical Activities (By Owner)	22-Jun-26
2326-DFS-MS-1070	Commence Process Plant Concrete Works	31-Jul-26
2326-DFS-MS-1080	Village Rooms Available to Mobilise SMP Contractor	24-Sep-26
2326-DFS-MS-2260	Detailed Design Complete	17-Feb-27
2326-DFS-MS-1090	Water Supply Available	14-Mar-27
2326-DFS-MS-1110	Permanent Village Completion (350 Rooms)	15-Sep-27
2326-DFS-MS-2300	Overhead Powerline & Switchyard Commissioned (by Owner)	2-Oct-27
2326-DFS-MS-1130	Commence Commissioning	8-Nov-27
2326-DFS-MS-2210	Mining Facilities Construction Completion	6-Jan-28
2326-DFS-MS-1140	First Ore into Plant	12-Feb-28
2326-DFS-MS-1150	First Gold Pour	25-Mar-28
2326-DFS-MS-2110	NPI Construction Completion	31-Mar-28

3.3 Scope of Facilities Included

The scope of facilities included in the DFS is summarised as follows:

Process Plant

- ROM Pad
- Static Grizzly, ROM bin, primary crushing and conveying
- Crushed ore storage
- SABC comminution circuit and classification
- Gravity concentration, intensive leaching and electrowinning of gravity concentrate
- Pre-leach thickening
- Leaching and adsorption
- Acid wash, elution and carbon regeneration
- Gold room and electrowinning
- SO2/Air cyanide destruction facility
- Tailings pumping

Process Plant Infrastructure

- High and low voltage (HV and LV) power distribution systems within the process plant
- Control and electrical room(s) within the process plant
- Potable water system
- Process water system
- Raw water storage and distribution system
- Sewage systems
- CIL and Cyanide destruction oxygen plants and plant air services
- Reagent supply, storage and distribution facilities
- Plant fuel storage

- Fencing and security
- Internal process plant roads

Non Process Related Infrastructure

- Administration building.
- Warehouse including office and ablution
- Guardhouse building
- First aid clinic and emergency response building
- Security, gatehouse and change room building
- Plant workshop, including office and ablution
- Plant Production office
- Laboratory and sample preparation store. Civil design and installation only – overall design and building provided by Managed Contractor
- Plant and administration mess (2 off)
- Plant ablution block
- Reagent storage sheds
- Main LV and HV Switchrooms
- Reagents Switchroom
- Crushing Switchroom
- Control room
- Titration laboratory
- Pumping and Pipeline from WHD to WSD

3.4 Scope of Facilities Excluded

All facilities not specifically included in Section 3.4 above are excluded from Lycopodium's scope. The following are exclusions from the Lycopodium's responsibility, but indicative timings using owner's scope detail (interfacing activities) are provided for schedule completeness.

- Tailings Storage Facility (TSF)
- Water Harvesting Dam (WHD) and Water Storage Dam (WSD)
- Airstrip
- Power line, switch yard and substation
- Village and security camps
- Power Station (Owner Operator or BOO)
- Heavy vehicle workshop
- Mine shift change building
- Heavy vehicle washdown facility
- Mine administration office
- LV workshop
- Mine mess
- Fuel Bay

3.5 Schedule Phases

The schedule is structured to align with the Project lifecycle stages / phases and forms the structure for P6 WBS. The following sets out the deliverables and drivers considered at each phase of the Project:

Earlyworks

An Earlyworks program was developed to support critical activities that were required to start prior to Project Final Investment Decision (FID).

- Front End Engineering Design (FEED) – Finalisation of overall site layout, process design, preliminary bulk earthworks design, equipment specifications and work scope preparation for critical packages. Lycopodium has allowed an initial design review to be undertaken with Resolute at nominal 30% (preliminary) stage, following the freezing of the Process Flow Diagrams (PFDs) and the finalisation of the overall site layout/ Mill Specifications/ Process Design Criteria (PDC).

- Procurement activities for critical /long lead equipment
- Construction Camp and Operations Village Construction

Detailed Design

- Engineering and design deliverables – plans, flow sheets, equipment lists, MTOs, specs, data sheets, 3D modelling (plant and bulk earthworks) and drawings (including P&IDs) etc. have been incorporated and logically linked.
- Lycopodium has allowed for design reviews to be undertaken with Resolute at nominal 60% (detailed) and 90% (final) stages of engineering completion.
- Hazard and Operability (HAZOP) reviews will be undertaken by Lycopodium (including representatives from Resolute and other specialist consultants as appropriate) when P&IDs are available and sufficiently mature.

Procurement & Contracts

- The standard Lycopodium Procurement & Contracts processes, including preparation, issue for tender, tender period, technical / commercial evaluations, clarifications, approval and award, formed the initial structure.
- Procurement of vendor data critical to the efficient completion of engineering and design has been incorporated.
- Detailing of steelwork and platework and procurement of materials have been identified and allowed for.
- Supply, manufacturing and transport activities have been summarised in this phase within their respective packages.

Construction

- Construction activities in the schedule align with Lycopodium norms for installation sequences and methodologies. A standard construction sequence at a facility/discipline level has been applied, with overlapping of works for facility or area where required.
- The constructability sequence of individual facilities and the overall scope will be further developed in the FEED phase.

Commissioning

- All stages of commissioning have been identified at summary level and logically linked in the schedule. The commissioning schedule will be further developed and refined in the FEED and Execution Phase of the project.

3.6 Development of Schedule Logic & Durations

Activity durations have been established from various sources, reviewed by members of the project team and benchmarked against previous projects with similar quantities and throughput in similar regions.

Constraints

The schedule contains limited date constraints. They have only been used where suitable relationship logic could not be applied or for special circumstances.

Relationship Lag

Generally, lag has been kept to a minimum. Lag has been used in some instances to achieve the following goals:

- Reflect the period of time when a vendor will submit critical vendor data for design (8 weeks).
- Reflect the period where a discipline is reliant on another to progress.
- Relationship lag in the schedule will be mostly applied to Finish-Finish (FF) and Start-Start (SS) relationships. Finish-Start (FS) with negative lag will be used only when there are no other relationship options.

Engineering and Procurement

Engineering and design deliverables have been detailed by major facility and discipline. Logic has been developed to incorporate vendor data (captured as predecessors to modelling) and required availability of drawing deliverables for procurement, manufacture and construction.

Technical packages / specifications have been planned to start once the PDC and PFDs have been finalised/frozen to progress design.

Tendering and the Placement of POs

The standard total duration for the placement of commitments with vendors have been based on a one week period for ITT preparation, four weeks for tendering, four weeks for adjudication and RFA and two weeks thereafter for client approval and award of purchase order.

Manufacture and Supply

Procurement and manufacturing lead times have been based on BQRs and indicative market lead times for similar equipment purchased for recent projects. Fabrication durations have been benchmarked from previous projects and will be further refined in the FEED Phase using project estimated quantities.

Transport

Transport durations have been maintained at a minimum of 12 weeks. These will be refined as the point of origin for each package is identified and shipping lead times are confirmed.

Construction & Commissioning

Overall durations for construction activities have been based on actuals from similar projects and have also been reviewed/agreed by internal Company peers and members of the Project/Management team.

The schedule allows for 5 months for the mechanical install of SAG & Ball Mill, based on representative installation schedules presented by the manufacturer.

Construction durations will be further refined in the FEED Phase using project resourcing and estimated quantities.

From the completion of the First Ore into the Plant milestone, the schedule allows for 6 weeks of ore commissioning to achieve First Gold.

3.7 Activity Coding

The Project schedule contains the following activity coding breakdown:

Table 3.2 Activity Coding

Activity Codes
Scope Responsibility
Project Phase
Phase
Main Area
Plant Area
Facility
Discipline
Contract Packages

3.8 Calendars

Engineering and Procurement

- Offsite – engineering and procurement is based on an 8-hour day, 40 hours (5 days) per week. No work is performed on public holidays or the 2 week period between Christmas and New Year (closed from 24th December to the 4th of January).

Manufacture & Supply

- Offsite – A standard five day per week 40-hour calendar is applied to the manufacture and supply portion of the schedule.

Delivery

- Delivery to site has been based on a seven-day calendar.

Construction

- Onsite the Calander applied to Lycopodium and construction contractors is a 65 hour working week (10 hours – Monday to Saturday, 5 hours – Sunday).

Commissioning

- Commissioning is based on a 65 hour working week calendar (10 hours – Monday to Saturday, 5 hours – Sunday) prior to process commissioning. Process commissioning and ramp up activities are assumed to be working seven days per week, 24 hours per day to support operations.

4.0 KEY SCHEDULE ASSUMPTIONS

The key assumptions, dates and timing selected for the schedule development are set out below.

4.1 Assumptions / Qualifications

General

- The schedule assumes full award of EPCM occurs on the 5th March 2026 and project kick-off is one week later.
- A non-working period between Christmas (24 December) and New Year (3 January) has been assigned. It is also assumed vendors and suppliers will be closed for the same period.
- There are no constraints on the availability of third-party resources.
- Wet season has been assumed to occur in the months of July, August & September, however no specific schedule allowances have been made for heavy rain and extreme weather.
- Preliminary Owners enabling activities for access roads, Bulk Earthworks, mine development and other infrastructure have been developed and integrated to provide indicative timing. These will be further reviewed and fine-tuned as the Project progresses.

Manufacture and Supply

- Early engagement for critical packages is required prior to full award to support detailed design and execution of the schedule. These packages include the following:

Table 4.1 Critical Packages

5001 Ball & SAG Mills
5000 Jaw Crusher
5005 Vibrating Grizzly Screens
5006 Thickeners
5010 Apron Feeders
5011 Cyclones
1100 Bulk Earthworks (Plant / Infrastructure)
Overhead Powerline & Swtichyard (Design & Construct)

- Delivery of all goods has assumed a 12-week duration.
- Off-shore fabrication of steelwork and platework has been assumed.

Construction and Commissioning

- No contingency allowance made for "known-unknown" risks.
- No restrictions on the availability of accommodation provided during construction.
- Owner's Project and Site establishment tasks are to be completed such that construction by appointed contractors can commence as per the dates contained in the PMS.
- It is assumed that all construction works will be carried out by competent contractors using suitable sized equipment in good working condition.
- It is assumed the approval of Lycopodium personnel work permits/visas will happen without delay. It is assumed Contractors will self-manage work permitting/visas to complete their mobilisation in compliance with their respective contracts.
- Prior to a contractor mobilising to site, time has been allowed for inductions, medicals and any other paperwork required to be in place prior to travelling to site.

4.2 Exclusions – By Others

The timing and accuracy of the following schedule tasks are outside the Lycopodium scope of control for the study and were defined by others:

- Permitting and approvals.
- Supply, transport, construction and commissioning activities.
- Camp accommodation, operations village and facilities.
- Other project infrastructure (site access road, water storage dam, water harvest dam, airstrip, power plant).
- Mine development, waste dumps, hauls roads etc. and supporting mine infrastructure (MSA and ANFO facilities).
- TSF construction.

5.0 CRITICAL PATH

Primary critical path activities in the schedule are typically defined as activities with zero float and form part of the longest float path.

The primary critical path (longest path) includes the following activities:

- Earlyworks Kick off (5-Dec-2025)
- Freezing of the flowsheets, finalisation of the PDC and Mill specifications
- Tender and award of the ball and SAG mills
- Manufacture of the ball and SAG mills (52-60 weeks)
- Delivery of critical mill components to commence installation
- Installation of the ball and SAG Mills (5 months)
- Grinding area electrical installation.
- Process Plant pre and wet commissioning.
- Process ore commissioning.
- Performance testing and ramp up.

More detail on the primary critical path and identification of near critical path activities is provided in Appendix C.

Some Earlyworks/Procurement/Contracts/Detailed Design activities have been set with an "as late as possible". This uses up available float and positions activities out to the latest date required to be completed to support the critical path.

6.0 RESOURCING

Direct resource hours and key quantities from the Capital Cost Estimate (CCE) will be loaded into the schedule during the FEED Phase.

APPENDIX A

SCHEDULE SUMMARY

APPENDIX B

DETAILED SCHEDULE

APPENDIX C

CRITICAL ACTIVITIES

APPENDIX 16.2

SCHEDULE SUMMARY

Lycopodium

PROJECT: Doropo Gold Project - DFS

Schedule Version: DFS - Preliminary Implementation Schedule

Resolute

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
Doropo Gold Project DFS - Preliminary Schedule 26Nov2025		757	18-Jul-25	12-Jun-28	0
MILESTONES		705	18-Jul-25	31-Mar-28	51
DFS Milestones		100	18-Jul-25	04-Dec-25	0
2326-DFS-MS-0010	DFS Commence	0	18-Jul-25*		0
2326-DFS-MS-2000	DFS Estimate & Report Issued for Review	0		20-Nov-25	0
2326-DFS-MS-2005	DFS Report Issued Final	0		04-Dec-25	0
Owners Project Milestones		342	09-Dec-25	31-Mar-27	6
2326-DFS-MS-1220	Exploitation Permit	0	09-Dec-25*		0
2326-DFS-MS-1240	ESIA Government Approval	0	11-Dec-25*		15
2326-DFS-MS-1001	Board Approval & FID	0		31-Dec-25*	0
2326-DFS-MS-0100	Works Approval Granted (Earlyworks Construction Commencement)	0	04-May-26		30
2326-DFS-CN-2760	Commence Site Access Road & Drainage Works	0	30-Jul-26		28
2326-DFS-MS-2010	Tailings Storage Facility (TSF) - Construction Commencement	0	01-Oct-26		28
2326-DFS-MS-2290	Water Storage Dam / Water Harvest Dam - Bulk Earthworks Commencement	0	05-Oct-26		49
2326-DFS-MS-2270	Permit to Import Nuclear Sources Granted	0	31-Mar-27		6
FEED / Earlyworks Milestones		111	28-Nov-25	04-May-26	40
2326-DFS-MS-2220	Geotech Investigation Results Issued for Design	0	28-Nov-25		10
2326-DFS-MS-1210	Preliminary Bulk Earthworks Design & MTO IFT	0	16-Jan-26		86
2326-DFS-MS-1170	Project Schedule Baseline IFR	0	27-Feb-26		74
2326-DFS-MS-1180	Mill RFA Issued	0	13-Mar-26		0
2326-DFS-MS-2230	Construction Water Available for Earlyworks Construction	0	27-Apr-26		40
2326-DFS-MS-2240	Accommodation Available for Earlyworks Construction	0	27-Apr-26		40
2326-DFS-MS-1040	Commence Site Earlyworks Construction	0	04-May-26		52
EPCM Milestones		541	05-Mar-26	31-Mar-28	51
2326-DFS-MS-1000	EPCM Award	0	05-Mar-26		17
2326-DFS-MS-1010	EPCM Kick off	0	12-Mar-26		17
2326-DFS-MS-1020	Award Mill Supply Contract	0		02-Apr-26	0
2326-DFS-MS-1200	Bulk Earthworks RFA Issued	0		17-Apr-26	10
2326-DFS-MS-1030	Award Bulk Earthworks	0		08-May-26	10
2326-DFS-MS-2250	Commence Plant Site Bulk Earthworks (Breaking Ground)	0	01-Jun-26		13
2326-DFS-MS-1160	Accommodation Available for Concrete Contractor Establishment & Critical Activities (By Owner)	0	22-Jun-26		13
2326-DFS-MS-1070	Commence Process Plant Concrete Works	0	31-Jul-26		13
2326-DFS-MS-1080	Village Rooms Available to Mobilise SMP Contractor	0	24-Sep-26		46
2326-DFS-MS-2260	Detailed Design Complete	0		17-Feb-27	188
2326-DFS-MS-1090	Water Supply Available	0	14-Mar-27		48
2326-DFS-MS-1110	Permanent Village Completion (350 Rooms)	0		15-Sep-27	50
2326-DFS-MS-2300	Overhead Powerline & Switchyard Commissioned (by Owner)	0	02-Oct-27		34
2326-DFS-MS-1130	Commence Commissioning	0	08-Nov-27		0
2326-DFS-MS-2210	Mining Facilities Construction Completion	0		06-Jan-28	70
2326-DFS-MS-1140	First Ore into Plant	0		12-Feb-28	38
2326-DFS-MS-1150	First Gold Pour	0		25-Mar-28	79
2326-DFS-MS-2110	NPI Construction Completion	0		31-Mar-28	68
DFS		164	18-Jul-25	04-Mar-26	17
DFS Design		80	18-Jul-25	06-Nov-25	0
Reporting		75	22-Aug-25	04-Dec-25	0

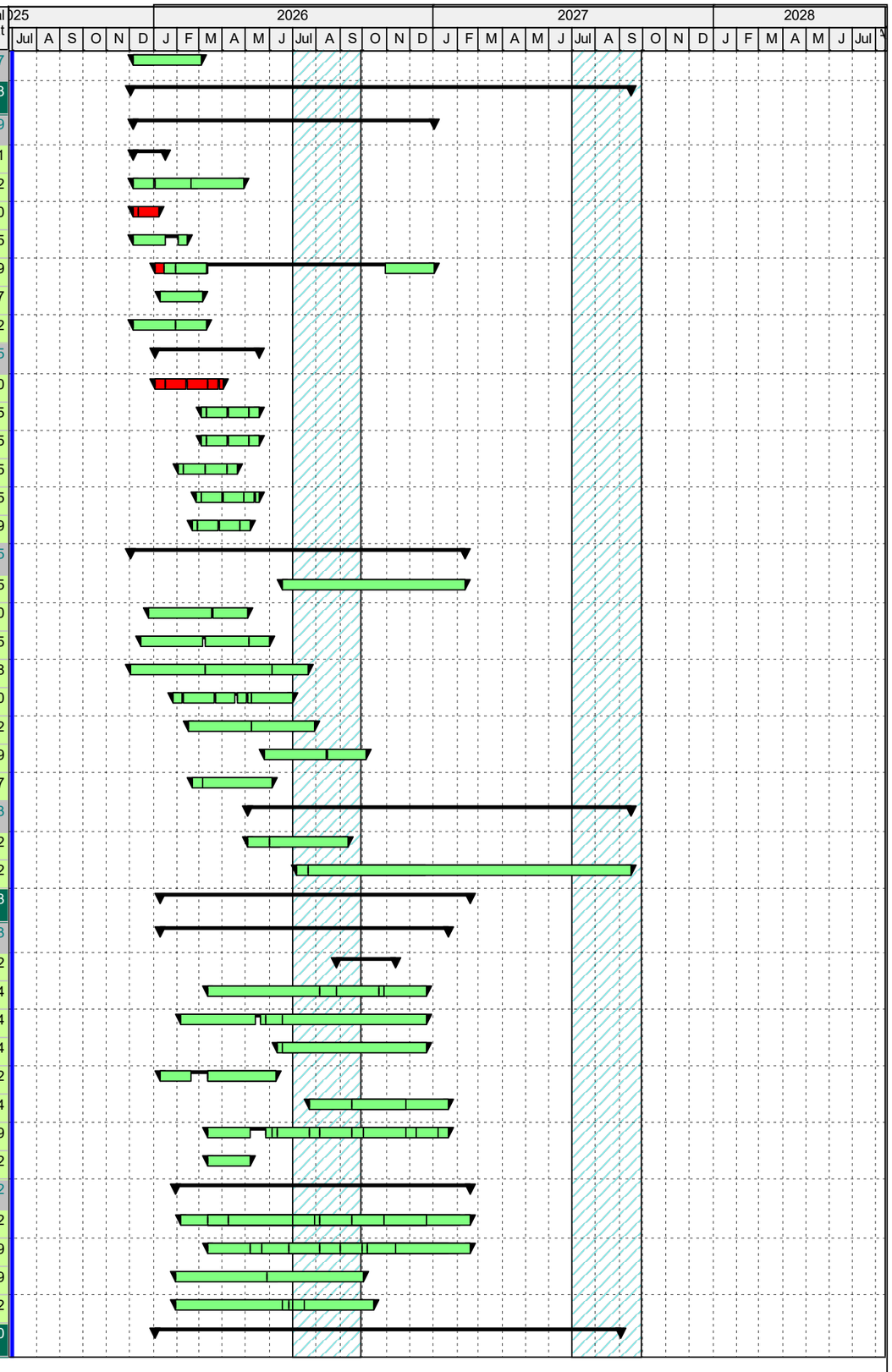


Summary | Milestone | Remaining Work | Critical Remaining Work | Actual Work | Actual Level of Effort | Remaining Level of... | % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
	Reviews & FID	64	05-Dec-25	04-Mar-26	17
	EARLYWORKS	467	01-Dec-25	15-Sep-27	193
	FEED	281	05-Dec-25	01-Jan-27	39
	Milestones	30	05-Dec-25	16-Jan-26	51
	General	104	05-Dec-25	29-Apr-26	32
	Process	25	05-Dec-25	08-Jan-26	0
	Civil	51	05-Dec-25	13-Feb-26	25
	SMP	261	02-Jan-26	01-Jan-27	39
	E&I	40	09-Jan-26	05-Mar-26	27
	Architectural	69	05-Dec-25	11-Mar-26	52
	Long Lead Equipment Procurement	98	02-Jan-26	19-May-26	35
	5001 Ball & SAG Mills	65	02-Jan-26	02-Apr-26	0
	5000 Jaw Crusher	55	04-Mar-26	19-May-26	35
	5005 Vibrating Grizzly Screens	55	04-Mar-26	19-May-26	35
	5006 Thickeners	55	02-Feb-26	20-Apr-26	35
	5010 Apron Feeders	60	25-Feb-26	19-May-26	35
	5011 Cyclones	55	20-Feb-26	07-May-26	9
	Contracts	314	01-Dec-25	12-Feb-27	75
	Mining	172	17-Jun-26	12-Feb-27	75
	Bulk Earthworks (Construction Camp & Permanent Village)	92	25-Dec-25	03-May-26	40
	Earlyworks Construction Camp Install	121	15-Dec-25	01-Jun-26	35
	Permanent Village - Supply & Install	166	01-Dec-25	21-Jul-26	38
	Bulk Earthworks (Plant / Infrastructure)	114	26-Jan-26	02-Jul-26	10
	Bulk Earthworks (Access Roads)	118	16-Feb-26	29-Jul-26	22
	Bulk Earthworks (Water Storage Dam / Water Harvest Dam)	95	25-May-26	04-Oct-26	39
	Overhead Powerline & Switchyard	75	20-Feb-26	04-Jun-26	27
	Construction	358	04-May-26	15-Sep-27	193
	Construction Camp	113	04-May-26	11-Sep-26	42
	Permanent Village	391	06-Jul-26	15-Sep-27	242
	DETAIL DESIGN	289	09-Jan-26	17-Feb-27	343
	Engineering	269	09-Jan-26	20-Jan-27	363
	General	56	27-Aug-26	13-Nov-26	412
	Process	205	12-Mar-26	23-Dec-26	34
	Civil	229	05-Feb-26	23-Dec-26	34
	Structural	140	11-Jun-26	23-Dec-26	34
	Mechanical	109	09-Jan-26	10-Jun-26	32
	Piping	130	23-Jul-26	20-Jan-27	34
	Electrical / Instrumentation	225	12-Mar-26	20-Jan-27	69
	Architectural	40	12-Mar-26	06-May-26	52
	Drafting	274	30-Jan-26	17-Feb-27	112
	1 Treatment Plant	270	05-Feb-26	17-Feb-27	112
	2 Reagents & Plant Services	245	12-Mar-26	17-Feb-27	69
	3 Infrastructure	175	30-Jan-26	01-Oct-26	59
	4 Mining	184	30-Jan-26	14-Oct-26	52
	PROCUREMENT	435	02-Jan-26	02-Sep-27	30

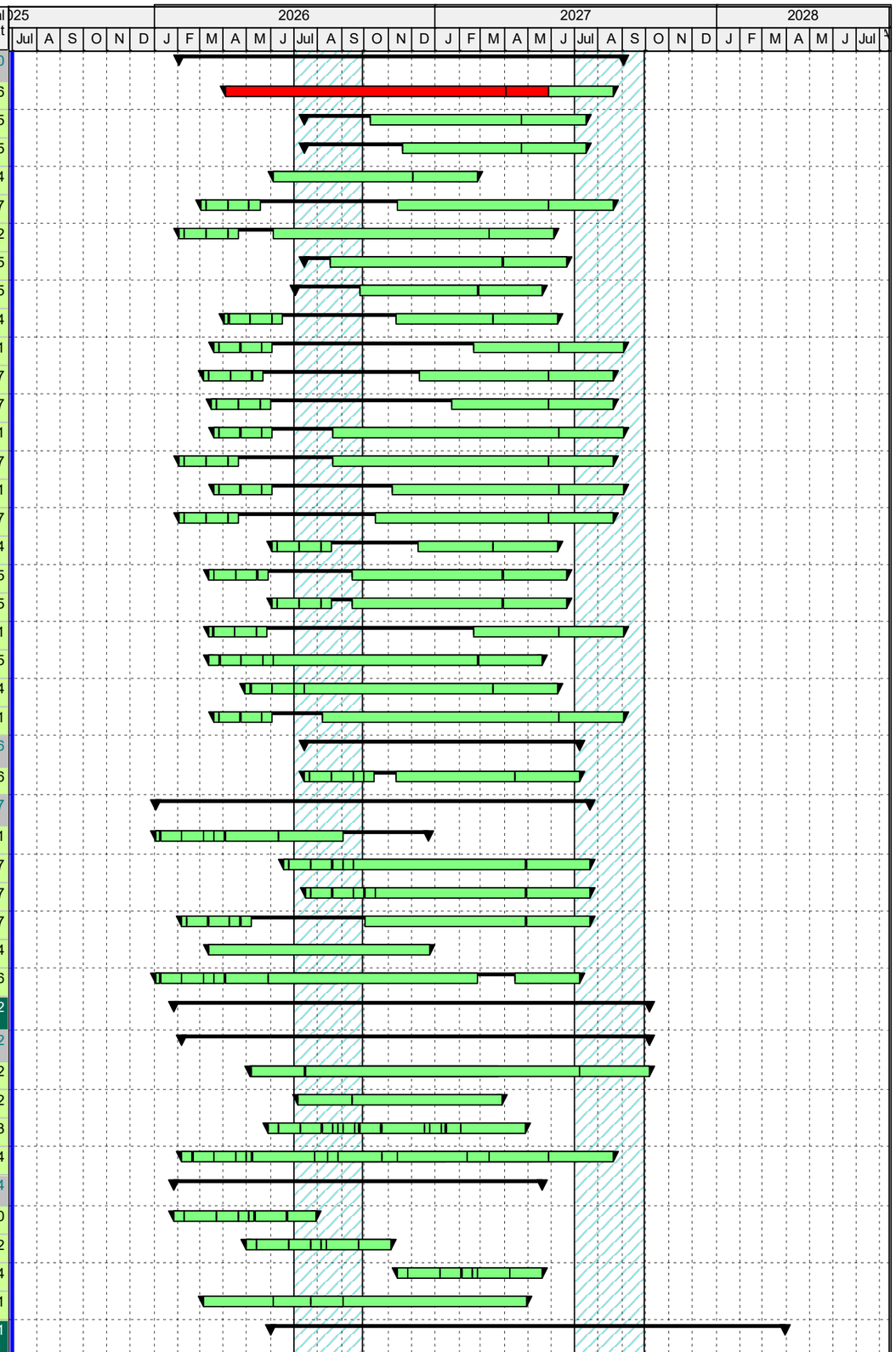


Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
Mechanical		414	02-Feb-26	02-Sep-27	30
5001	Ball & SAG Mills	360	03-Apr-26	19-Aug-27	16
5000	Jaw Crusher	262	14-Jul-26	15-Jul-27	65
5005	Vibrating Grizzly Screens	262	14-Jul-26	15-Jul-27	65
5006	Thickeners	190	04-Jun-26	24-Feb-27	114
5007	Slurry Pumps	384	02-Mar-26	19-Aug-27	17
5008	Agitators	349	02-Feb-26	03-Jun-27	72
5010	Apron Feeders	244	14-Jul-26	21-Jun-27	75
5011	Cyclones	230	02-Jul-26	20-May-27	65
5016	Blowers	311	01-Apr-26	09-Jun-27	64
5017	Carbon Regen Kiln	381	19-Mar-26	02-Sep-27	11
5019	Gravity Concentrator	380	06-Mar-26	19-Aug-27	17
5020	ILR	374	16-Mar-26	19-Aug-27	17
5021	Electrowinning Cells	381	19-Mar-26	02-Sep-27	11
5027	Intertank Screens	404	02-Feb-26	19-Aug-27	17
5028	Strip Solution Heater	381	19-Mar-26	02-Sep-27	11
5030	Vibrating Wet Screens	404	02-Feb-26	19-Aug-27	17
5033	Compressed Air System	265	03-Jun-26	09-Jun-27	64
5043	Belt Feeder	332	13-Mar-26	21-Jun-27	75
5057	Lime Systems	274	03-Jun-26	21-Jun-27	75
5061	Cooling Towers	386	12-Mar-26	02-Sep-27	11
5065	Mill Liner Handler	310	13-Mar-26	20-May-27	25
5076	VPSA Oxygen Plant	290	29-Apr-26	09-Jun-27	64
5077	Acid Wash & Elution Column	381	19-Mar-26	02-Sep-27	11
Piping		255	15-Jul-26	07-Jul-27	6
600x	Piping Bulks	255	15-Jul-26	07-Jul-27	6
Electrical & Instrumentation		404	02-Jan-26	21-Jul-27	17
7001	Electrical Bulks	254	02-Jan-26	23-Dec-26	141
7002	LV MCCs	285	18-Jun-26	21-Jul-27	17
7005	Transformers	265	16-Jul-26	21-Jul-27	17
7008	VSDs	380	05-Feb-26	21-Jul-27	17
7016	Overhead Lines	207	12-Mar-26	25-Dec-26	94
7045	Nucleonic Density Meters	394	02-Jan-26	07-Jul-27	6
CONTRACTS		442	26-Jan-26	06-Oct-27	52
Offsite Contracts		433	06-Feb-26	06-Oct-27	52
1800	Pre-Fab Buildings	371	05-May-26	06-Oct-27	52
1810	Steel Framed Buildings	190	07-Jul-26	29-Mar-27	52
3000	Structural Steel Fabrication	238	29-May-26	27-Apr-27	73
4000	Shop Fabricated Platework & Tanks	400	06-Feb-26	19-Aug-27	14
Site Contracts		343	26-Jan-26	19-May-27	34
1200	Concrete Works	134	26-Jan-26	30-Jul-26	10
1501	SMP	135	30-Apr-26	04-Nov-26	42
1700	EIC	135	12-Nov-26	19-May-27	34
	Overhead Powerline (OHPL) & Switchyard	301	06-Mar-26	30-Apr-27	31
CONSTRUCTION		479	01-Jun-26	31-Mar-28	51

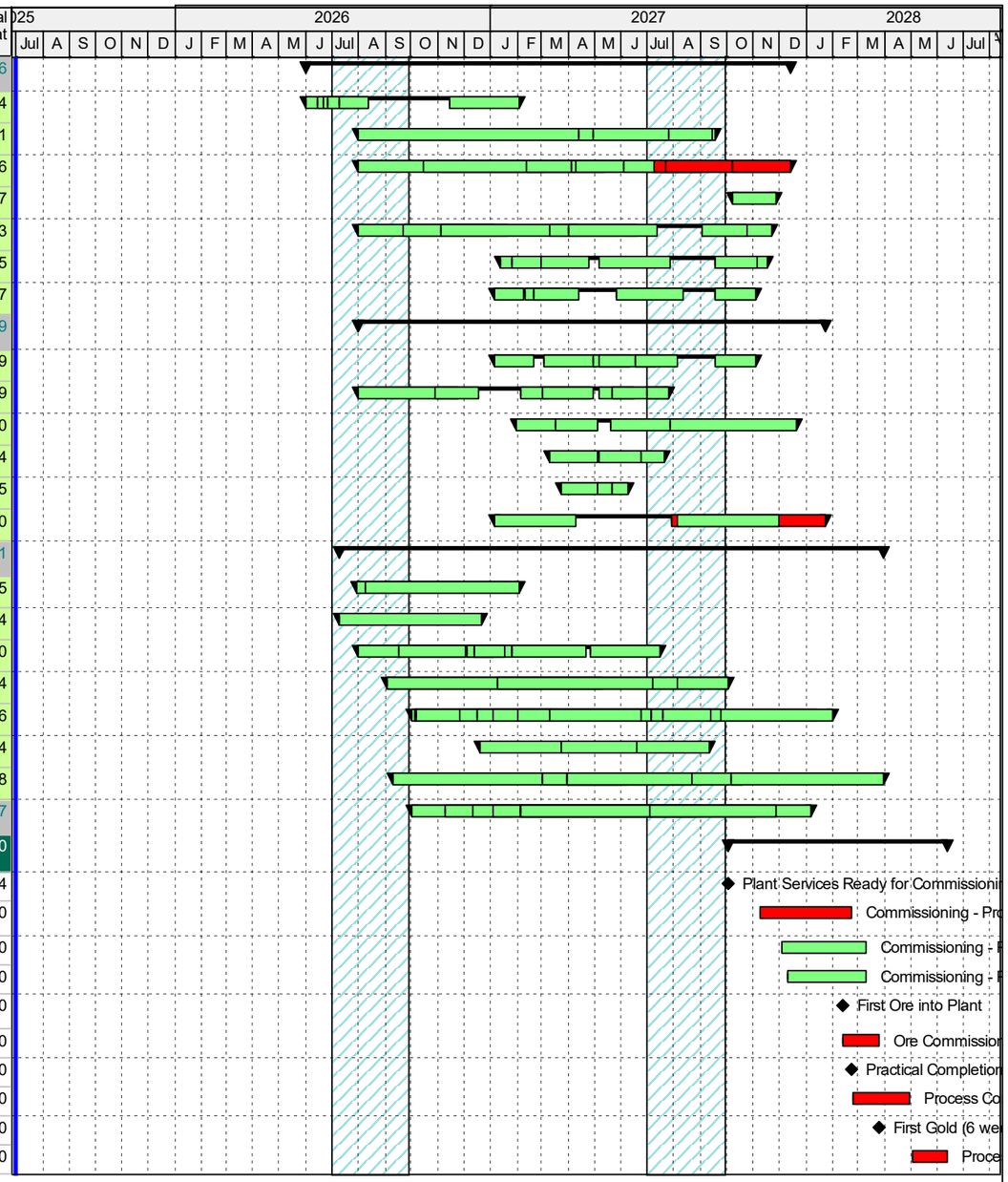


Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
1.0 Treatment Plant		508	01-Jun-26	14-Dec-27	56
1.1 Treatment Plant - General		220	01-Jun-26	03-Feb-27	254
1.2 Feed Preparation		370	31-Jul-26	17-Sep-27	131
1.3 Milling		452	31-Jul-26	14-Dec-27	56
1.4 Trash Removal & Thickening		48	07-Oct-27	27-Nov-27	17
1.6 Leaching		430	31-Jul-26	21-Nov-27	23
1.7 Elution & Gold Room		284	12-Jan-27	17-Nov-27	15
1.8 Tails Handling		278	05-Jan-27	04-Nov-27	27
2 Reagents & Plant Services		479	31-Jul-26	23-Jan-28	29
2.1 Reagents		278	05-Jan-27	04-Nov-27	39
2.2 Water Services		320	31-Jul-26	25-Jul-27	79
2.3 Plant Services		298	31-Jan-27	20-Dec-27	50
2.4 Air Services		119	11-Mar-27	20-Jul-27	84
2.5 Fuels		68	24-Mar-27	08-Jun-27	165
2.6 Electrical Services		343	05-Jan-27	23-Jan-28	0
3 Infrastructure		451	09-Jul-26	31-Mar-28	51
3.1 Infrastructure - General		165	30-Jul-26	03-Feb-27	135
3.2 Environmental		153	09-Jul-26	21-Dec-26	114
3.3 Water & Sewerage		312	31-Jul-26	16-Jul-27	100
3.4 Power Supply		352	03-Sep-26	02-Oct-27	34
3.5 Tailings Dam & Water Storage Dam		348	01-Oct-26	31-Jan-28	56
3.6 Buildings - Admin & Security		231	20-Dec-26	10-Sep-27	104
3.7 Buildings - Plant		504	10-Sep-26	31-Mar-28	68
4 Mining		405	01-Oct-26	06-Jan-28	147
COMMISSIONING		181	02-Oct-27	12-Jun-28	0
2326-DFS-CM-1080	Plant Services Ready for Commissioning (Air/Water/Power)	0		02-Oct-27	34
2326-DFS-CM-1000	Commissioning - Process Plant C1	90	08-Nov-27	23-Feb-28	0
2326-DFS-CM-1030	Commissioning - Process Plant C2	80	04-Dec-27	10-Mar-28	10
2326-DFS-CM-1040	Commissioning - Process Plant C3	75	10-Dec-27	10-Mar-28	10
2326-DFS-CM-1070	First Ore into Plant	0		12-Feb-28	0
2326-DFS-CM-1090	Ore Commissioning (6 weeks)	42	12-Feb-28	25-Mar-28	0
2326-DFS-CM-1060	Practical Completion	0		23-Feb-28	0
2326-DFS-CM-1010	Process Commissioning - Process Plant C4	66	23-Feb-28	29-Apr-28	0
2326-DFS-CM-1020	First Gold (6 weeks after First Ore into Plant)	0		25-Mar-28	0
2326-DFS-CM-1050	Process Plant Performance Testing C5	40	03-May-28	12-Jun-28	0



Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

APPENDIX 16.3

DETAILED SCHEDULE

Lycopodium

PROJECT: Doropo Gold Project - DFS

Schedule Version: DFS - Preliminary Implementation Schedule

Resolute

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
Doropo Gold Project DFS - Preliminary Schedule 26Nov2025		757	18-Jul-25	12-Jun-28	0
MILESTONES		705	18-Jul-25	31-Mar-28	51
DFS Milestones		100	18-Jul-25	04-Dec-25	0
2326-DFS-MS-0010	DFS Commence	0	18-Jul-25*		0
2326-DFS-MS-2000	DFS Estimate & Report Issued for Review	0		20-Nov-25	0
2326-DFS-MS-2005	DFS Report Issued Final	0		04-Dec-25	0
Owners Project Milestones		342	09-Dec-25	31-Mar-27	6
2326-DFS-MS-1220	Exploitation Permit	0	09-Dec-25*		0
2326-DFS-MS-1240	ESIA Government Approval	0	11-Dec-25*		15
2326-DFS-MS-1001	Board Approval & FID	0		31-Dec-25*	0
2326-DFS-MS-0100	Works Approval Granted (Earlyworks Construction Commencement)	0	04-May-26		30
2326-DFS-CN-2760	Commence Site Access Road & Drainage Works	0	30-Jul-26		28
2326-DFS-MS-2010	Tailings Storage Facility (TSF) - Construction Commencement	0	01-Oct-26		28
2326-DFS-MS-2290	Water Storage Dam / Water Harvest Dam - Bulk Earthworks Commencement	0	05-Oct-26		49
2326-DFS-MS-2270	Permit to Import Nuclear Sources Granted	0	31-Mar-27		6
FEED / Earlyworks Milestones		111	28-Nov-25	04-May-26	40
2326-DFS-MS-2220	Geotech Investigation Results Issued for Design	0	28-Nov-25		10
2326-DFS-MS-1210	Preliminary Bulk Earthworks Design & MTO IFT	0	16-Jan-26		86
2326-DFS-MS-1170	Project Schedule Baseline IFR	0	27-Feb-26		74
2326-DFS-MS-1180	Mill RFA Issued	0	13-Mar-26		0
2326-DFS-MS-2230	Construction Water Available for Earlyworks Construction	0	27-Apr-26		40
2326-DFS-MS-2240	Accommodation Available for Earlyworks Construction	0	27-Apr-26		40
2326-DFS-MS-1040	Commence Site Earlyworks Construction	0	04-May-26		52
EPCM Milestones		541	05-Mar-26	31-Mar-28	51
2326-DFS-MS-1000	EPCM Award	0	05-Mar-26		17
2326-DFS-MS-1010	EPCM Kick off	0	12-Mar-26		17
2326-DFS-MS-1020	Award Mill Supply Contract	0		02-Apr-26	0
2326-DFS-MS-1200	Bulk Earthworks RFA Issued	0		17-Apr-26	10
2326-DFS-MS-1030	Award Bulk Earthworks	0		08-May-26	10
2326-DFS-MS-2250	Commence Plant Site Bulk Earthworks (Breaking Ground)	0	01-Jun-26		13
2326-DFS-MS-1160	Accommodation Available for Concrete Contractor Establishment & Critical Activities (By Owner)	0	22-Jun-26		13
2326-DFS-MS-1070	Commence Process Plant Concrete Works	0	31-Jul-26		13
2326-DFS-MS-1080	Village Rooms Available to Mobilise SMP Contractor	0	24-Sep-26		46
2326-DFS-MS-2260	Detailed Design Complete	0		17-Feb-27	188
2326-DFS-MS-1090	Water Supply Available	0	14-Mar-27		48
2326-DFS-MS-1110	Permanent Village Completion (350 Rooms)	0		15-Sep-27	50
2326-DFS-MS-2300	Overhead Powerline & Switchyard Commissioned (by Owner)	0	02-Oct-27		34
2326-DFS-MS-1130	Commence Commissioning	0	08-Nov-27		0
2326-DFS-MS-2210	Mining Facilities Construction Completion	0		06-Jan-28	70
2326-DFS-MS-1140	First Ore into Plant	0		12-Feb-28	38
2326-DFS-MS-1150	First Gold Pour	0		25-Mar-28	79
2326-DFS-MS-2110	NPI Construction Completion	0		31-Mar-28	68
DFS		164	18-Jul-25	04-Mar-26	17
DFS Design		80	18-Jul-25	06-Nov-25	0
2326-DFS-EN-1270	DFS Testwork & Design	80	18-Jul-25	06-Nov-25	0

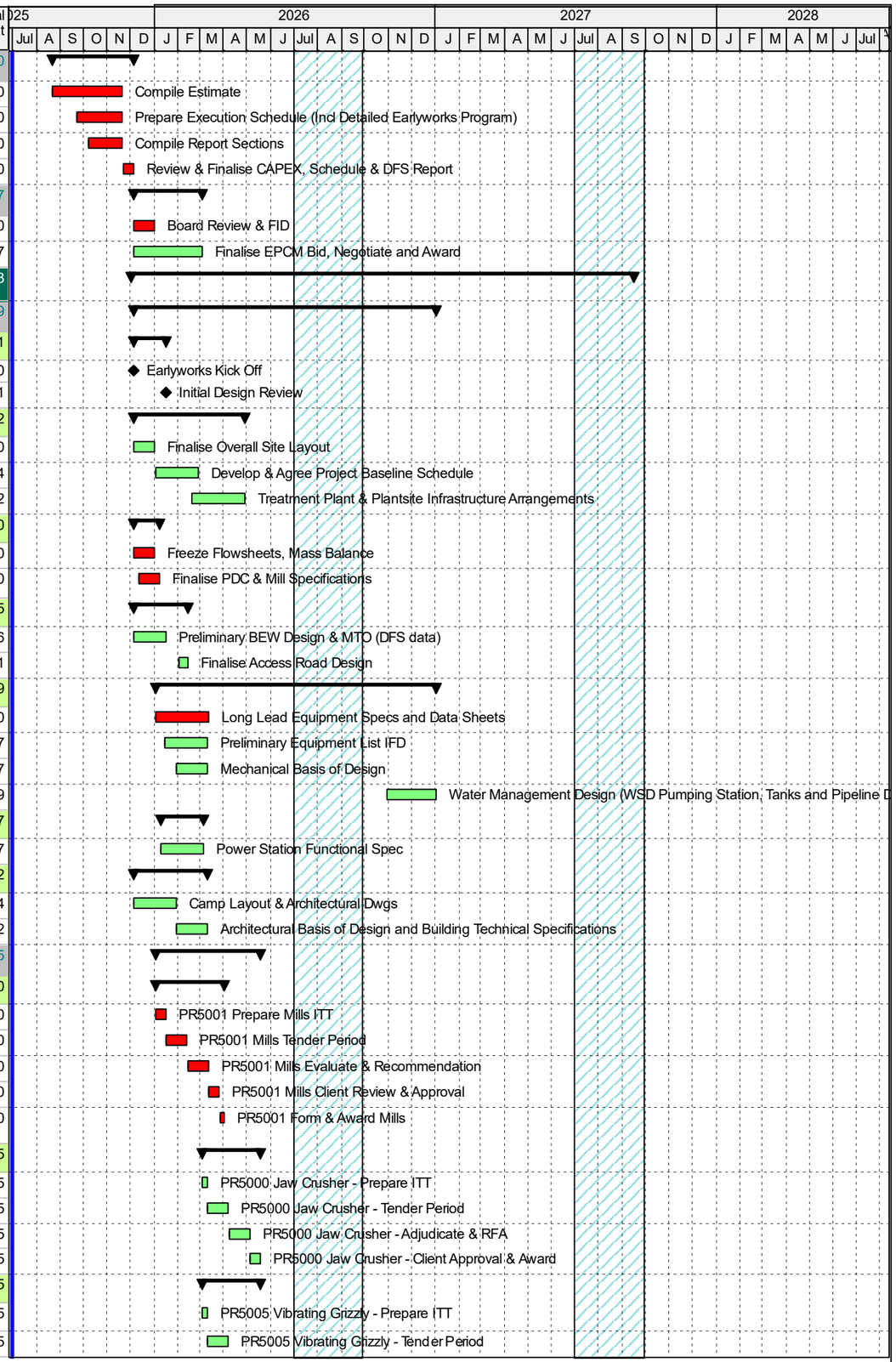


Summary | Milestone | Remaining Work | Critical Remaining Work | Actual Work | Actual Level of Effort | Remaining Level of... | % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
Reporting		75	22-Aug-25	04-Dec-25	0
2326-DFS-DR-1530	Compile Estimate	65	22-Aug-25	20-Nov-25	0
2326-DFS-DR-1580	Prepare Execution Schedule (Incl Detailed Earlyworks Program)	43	23-Sep-25	20-Nov-25	0
2326-DFS-DR-1570	Compile Report Sections	32	07-Oct-25	20-Nov-25	0
2326-DFS-DR-1590	Review & Finalise CAPEX, Schedule & DFS Report	10	21-Nov-25	04-Dec-25	0
Reviews & FID		64	05-Dec-25	04-Mar-26	17
2326-DFS-EN-1300	Board Review & FID	19	05-Dec-25	31-Dec-25	0
2326-DFS-EN-1310	Finalise EPCM Bid, Negotiate and Award	64	05-Dec-25	04-Mar-26	17
EARLYWORKS		467	01-Dec-25	15-Sep-27	193
FEED		281	05-Dec-25	01-Jan-27	39
Milestones		30	05-Dec-25	16-Jan-26	51
2326-DFS-EN-3020	Earlyworks Kick Off	0	05-Dec-25		0
2326-DFS-EN-3030	Initial Design Review	0	16-Jan-26		51
General		104	05-Dec-25	29-Apr-26	32
2326-DFS-EN-1000	Finalise Overall Site Layout	20	05-Dec-25	01-Jan-26	10
2326-DFS-EN-1320	Develop & Agree Project Baseline Schedule	40	02-Jan-26	26-Feb-26	74
2326-DFS-DR-1000	Treatment Plant & Plantsite Infrastructure Arrangements	50	19-Feb-26	29-Apr-26	32
Process		25	05-Dec-25	08-Jan-26	0
2326-DFS-EN-1010	Freeze Flowsheets, Mass Balance	20	05-Dec-25	01-Jan-26	0
2326-DFS-EN-1020	Finalise PDC & Mill Specifications	20	12-Dec-25	08-Jan-26	0
Civil		51	05-Dec-25	13-Feb-26	25
2326-DFS-EN-1110	Preliminary BEW Design & MTO (DFS data)	30	05-Dec-25	15-Jan-26	46
2326-DFS-EN-3010	Finalise Access Road Design	10	02-Feb-26	13-Feb-26	21
SMP		261	02-Jan-26	01-Jan-27	39
2326-DFS-EN-1070	Long Lead Equipment Specs and Data Sheets	50	02-Jan-26	12-Mar-26	0
2326-DFS-EN-1040	Preliminary Equipment List IFD	40	15-Jan-26	11-Mar-26	17
2326-DFS-EN-1030	Mechanical Basis of Design	30	29-Jan-26	11-Mar-26	17
2326-DFS-DR-2090	Water Management Design (WSD Pumping Station, Tanks and Pipeline Design, Turrets)	46	30-Oct-26	01-Jan-27	39
E&I		40	09-Jan-26	05-Mar-26	27
2326-DFS-EN-3000	Power Station Functional Spec	40	09-Jan-26	05-Mar-26	27
Architectural		69	05-Dec-25	11-Mar-26	52
2326-DFS-EN-1100	Camp Layout & Architectural Dwgs	40	05-Dec-25	29-Jan-26	44
2326-DFS-EN-1130	Architectural Basis of Design and Building Technical Specifications	30	29-Jan-26	11-Mar-26	52
Long Lead Equipment Procurement		98	02-Jan-26	19-May-26	35
5001 Ball & SAG Mills		65	02-Jan-26	02-Apr-26	0
2326-DFS-PR-1000	PR5001 Prepare Mills ITT	10	02-Jan-26	15-Jan-26	0
2326-DFS-PR-1010	PR5001 Mills Tender Period	20	16-Jan-26	12-Feb-26	0
2326-DFS-PR-1040	PR5001 Mills Evaluate & Recommendation	20	13-Feb-26	12-Mar-26	0
2326-DFS-PR-1060	PR5001 Mills Client Review & Approval	10	13-Mar-26	26-Mar-26	0
2326-DFS-PR-1090	PR5001 Form & Award Mills	5	27-Mar-26	02-Apr-26	0
5000 Jaw Crusher		55	04-Mar-26	19-May-26	35
2326-DFS-PR-1510	PR5000 Jaw Crusher - Prepare ITT	5	04-Mar-26	10-Mar-26	35
2326-DFS-PR-1620	PR5000 Jaw Crusher - Tender Period	20	11-Mar-26	07-Apr-26	35
2326-DFS-PR-1950	PR5000 Jaw Crusher - Adjudicate & RFA	20	08-Apr-26	05-May-26	35
2326-DFS-PR-2080	PR5000 Jaw Crusher - Client Approval & Award	10	06-May-26	19-May-26	35
5005 Vibrating Grizzly Screens		55	04-Mar-26	19-May-26	35
2326-DFS-PR-1190	PR5005 Vibrating Grizzly - Prepare ITT	5	04-Mar-26	10-Mar-26	35
2326-DFS-PR-1290	PR5005 Vibrating Grizzly - Tender Period	20	11-Mar-26	07-Apr-26	35

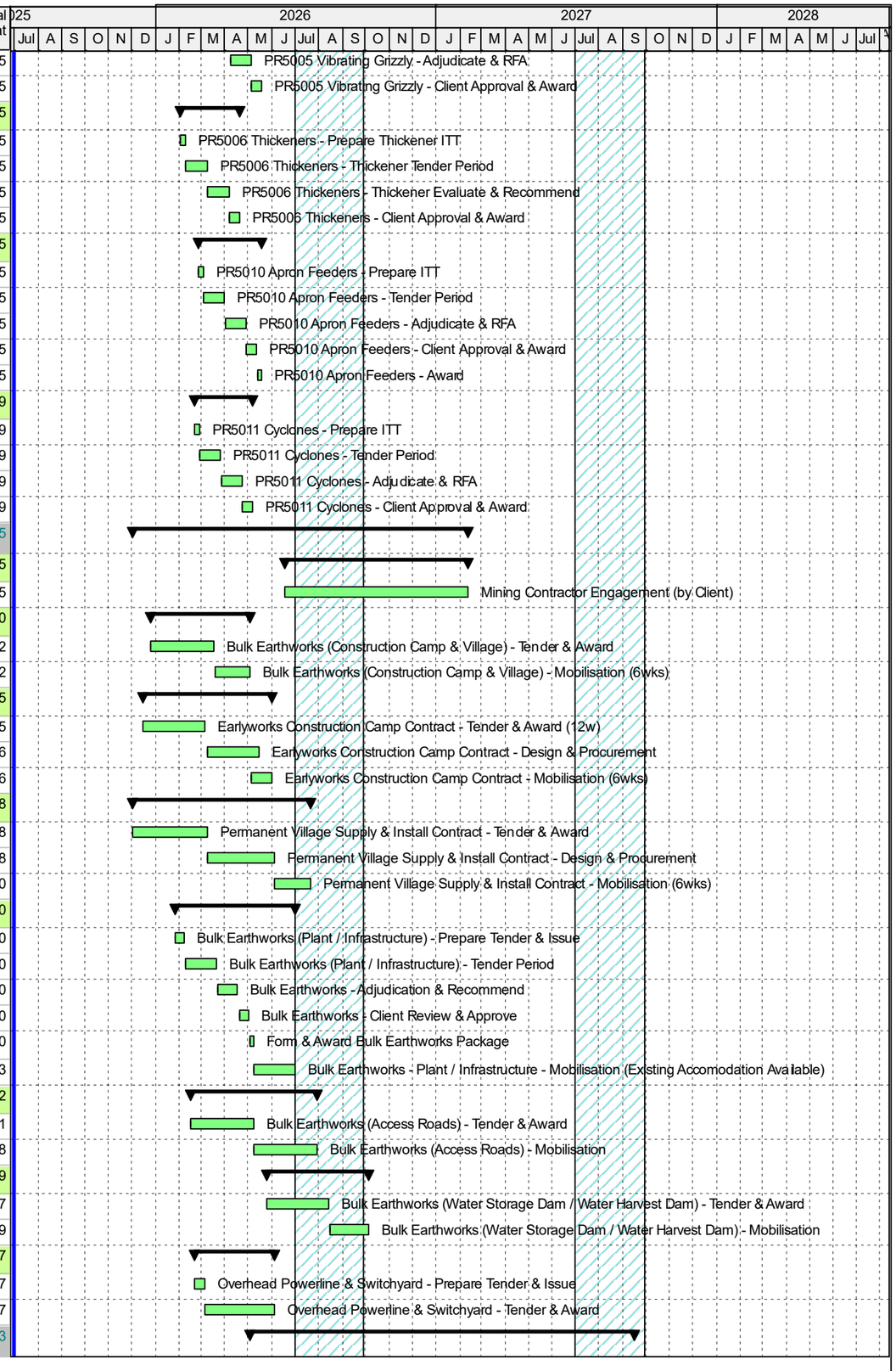


Summary · Milestone · Remaining Work · Critical Remaining Work · Actual Work · Actual Level of Effort · Remaining Level of... · % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-PR-1460	PR5005 Vibrating Grizzly - Adjudicate & RFA	20	08-Apr-26	05-May-26	35
2326-DFS-PR-1610	PR5005 Vibrating Grizzly - Client Approval & Award	10	06-May-26	19-May-26	35
5006 Thickeners		55	02-Feb-26	20-Apr-26	35
2326-DFS-PR-1330	PR5006 Thickeners - Prepare Thickener ITT	5	02-Feb-26	09-Feb-26	35
2326-DFS-PR-1430	PR5006 Thickeners - Thickener Tender Period	20	09-Feb-26	09-Mar-26	35
2326-DFS-PR-1630	PR5006 Thickeners - Thickener Evaluate & Recommend	20	09-Mar-26	06-Apr-26	35
2326-DFS-PR-1940	PR5006 Thickeners - Client Approval & Award	10	06-Apr-26	20-Apr-26	35
5010 Apron Feeders		60	25-Feb-26	19-May-26	35
2326-DFS-PR-1070	PR5010 Apron Feeders - Prepare ITT	5	25-Feb-26	03-Mar-26	35
2326-DFS-PR-1150	PR5010 Apron Feeders - Tender Period	20	04-Mar-26	31-Mar-26	35
2326-DFS-PR-1340	PR5010 Apron Feeders - Adjudicate & RFA	20	01-Apr-26	28-Apr-26	35
2326-DFS-PR-1500	PR5010 Apron Feeders - Client Approval & Award	10	29-Apr-26	12-May-26	35
2326-DFS-PR-1700	PR5010 Apron Feeders - Award	5	13-May-26	19-May-26	35
5011 Cyclones		55	20-Feb-26	07-May-26	9
2326-DFS-PR-1140	PR5011 Cyclones - Prepare ITT	5	20-Feb-26	26-Feb-26	9
2326-DFS-PR-1260	PR5011 Cyclones - Tender Period	20	27-Feb-26	26-Mar-26	9
2326-DFS-PR-1420	PR5011 Cyclones - Adjudicate & RFA	20	27-Mar-26	23-Apr-26	9
2326-DFS-PR-1590	PR5011 Cyclones - Client Approval & Award	10	24-Apr-26	07-May-26	9
Contracts		314	01-Dec-25	12-Feb-27	75
Mining		172	17-Jun-26	12-Feb-27	75
2326-DFS-CT-1980	Mining Contractor Engagement (by Client)	172	17-Jun-26*	12-Feb-27	75
Bulk Earthworks (Construction Camp & Permanent Village)		92	25-Dec-25	03-May-26	40
2326-DFS-CN-2580	Bulk Earthworks (Construction Camp & Village) - Tender & Award	60	25-Dec-25	18-Mar-26	42
2326-DFS-CN-2590	Bulk Earthworks (Construction Camp & Village) - Mobilisation (6wks)	39	19-Mar-26	03-May-26	52
Earlyworks Construction Camp Install		121	15-Dec-25	01-Jun-26	35
2326-DFS-CN-2600	Earlyworks Construction Camp Contract - Tender & Award (12w)	60	15-Dec-25*	06-Mar-26	35
2326-DFS-CN-2710	Earlyworks Construction Camp Contract - Design & Procurement	50	09-Mar-26	15-May-26	46
2326-DFS-CN-2610	Earlyworks Construction Camp Contract - Mobilisation (6wks)	26	05-May-26	01-Jun-26	46
Permanent Village - Supply & Install		166	01-Dec-25	21-Jul-26	38
2326-DFS-CN-2670	Permanent Village Supply & Install Contract - Tender & Award	70	01-Dec-25*	09-Mar-26	38
2326-DFS-CN-2690	Permanent Village Supply & Install Contract - Design & Procurement	63	09-Mar-26	04-Jun-26	38
2326-DFS-CN-2680	Permanent Village Supply & Install Contract - Mobilisation (6wks)	44	05-Jun-26	21-Jul-26	50
Bulk Earthworks (Plant / Infrastructure)		114	26-Jan-26	02-Jul-26	10
2326-DFS-CT-1020	Bulk Earthworks (Plant / Infrastructure) - Prepare Tender & Issue	10	26-Jan-26	06-Feb-26	10
2326-DFS-CT-1040	Bulk Earthworks (Plant / Infrastructure) - Tender Period	30	09-Feb-26	20-Mar-26	10
2326-DFS-CT-1140	Bulk Earthworks - Adjudication & Recommend	20	23-Mar-26	17-Apr-26	10
2326-DFS-CT-1190	Bulk Earthworks - Client Review & Approve	10	20-Apr-26	01-May-26	10
2326-DFS-CT-1220	Form & Award Bulk Earthworks Package	5	04-May-26	08-May-26	10
2326-DFS-CT-1280	Bulk Earthworks - Plant / Infrastructure - Mobilisation (Existing Accomodation Available)	51	09-May-26	02-Jul-26	13
Bulk Earthworks (Access Roads)		118	16-Feb-26	29-Jul-26	22
2326-DFS-CN-2720	Bulk Earthworks (Access Roads) - Tender & Award	60	16-Feb-26	08-May-26	21
2326-DFS-CN-2730	Bulk Earthworks (Access Roads) - Mobilisation	76	09-May-26	29-Jul-26	28
Bulk Earthworks (Water Storage Dam / Water Harvest Dam)		95	25-May-26	04-Oct-26	39
2326-DFS-CN-2740	Bulk Earthworks (Water Storage Dam / Water Harvest Dam) - Tender & Award	60	25-May-26	14-Aug-26	37
2326-DFS-CN-2750	Bulk Earthworks (Water Storage Dam / Water Harvest Dam) - Mobilisation	47	15-Aug-26	04-Oct-26	49
Overhead Powerline & Switchyard		75	20-Feb-26	04-Jun-26	27
2326-DFS-CT-1060	Overhead Powerline & Switchyard - Prepare Tender & Issue	10	20-Feb-26	05-Mar-26	27
2326-DFS-CT-1100	Overhead Powerline & Switchyard - Tender & Award	65	06-Mar-26	04-Jun-26	27
Construction		358	04-May-26	15-Sep-27	193

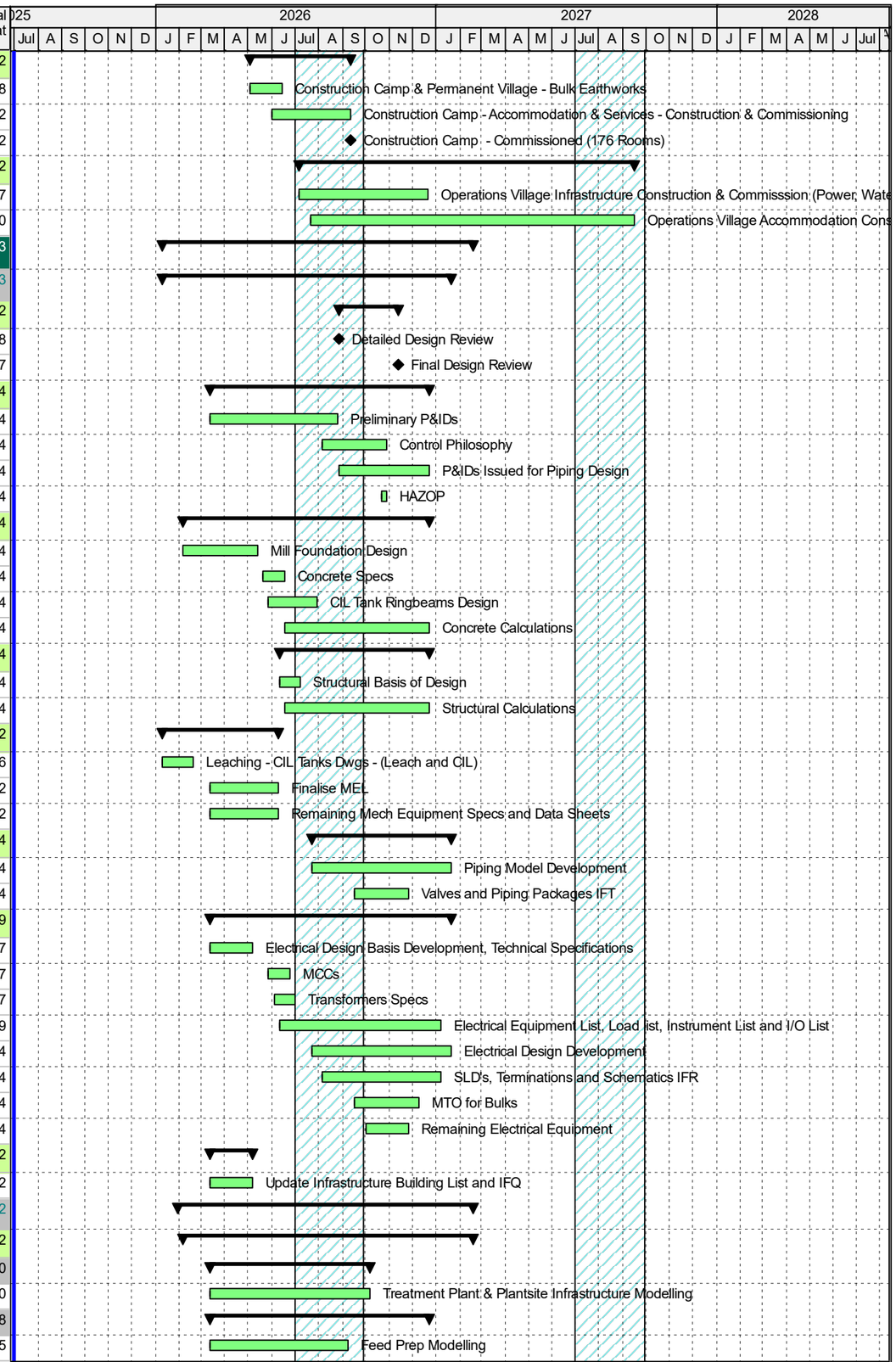


Summary | Critical Remaining Work | Remaining Level of...
Milestone | Actual Work | % Complete
Remaining Work | Actual Level of Effort

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
Construction Camp		113	04-May-26	11-Sep-26	42
2326-DFS-CN-2210	Construction Camp & Permanent Village - Bulk Earthworks	37	04-May-26	15-Jun-26	48
2326-DFS-CN-2240	Construction Camp - Accommodation & Services - Construction & Commissioning	88	02-Jun-26	11-Sep-26	42
2326-DFS-CN-2280	Construction Camp - Commissioned (176 Rooms)	0		11-Sep-26	42
Permanent Village		391	06-Jul-26	15-Sep-27	242
2326-DFS-CN-2700	Operations Village Infrastructure Construction & Commisssion (Power, Water, Sewage & Village Facilities)	156	06-Jul-26	21-Dec-26	477
2326-DFS-CN-1180	Operations Village Accommodation Construction & Commissioning (350 Rooms)	376	22-Jul-26	15-Sep-27	50
DETAIL DESIGN		289	09-Jan-26	17-Feb-27	343
Engineering		269	09-Jan-26	20-Jan-27	363
General		56	27-Aug-26	13-Nov-26	412
2326-DFS-EN-3040	Detailed Design Review	0	27-Aug-26		468
2326-DFS-EN-3050	Final Design Review	0	13-Nov-26		257
Process		205	12-Mar-26	23-Dec-26	34
2326-DFS-EN-1050	Preliminary P&IDs	120	12-Mar-26	26-Aug-26	34
2326-DFS-EN-1120	Control Philosophy	60	06-Aug-26	28-Oct-26	44
2326-DFS-EN-1200	P&IDs Issued for Piping Design	85	27-Aug-26	23-Dec-26	34
2326-DFS-EN-1190	HAZOP	5	22-Oct-26	28-Oct-26	44
Civil		229	05-Feb-26	23-Dec-26	34
2326-DFS-DR-1550	Mill Foundation Design	70	05-Feb-26	14-May-26	14
2326-DFS-DR-1600	Concrete Specs	20	21-May-26	17-Jun-26	34
2326-DFS-DR-1540	CIL Tank Ringbeams Design	46	28-May-26	30-Jul-26	34
2326-DFS-DR-1620	Concrete Calculations	135	18-Jun-26	23-Dec-26	34
Structural		140	11-Jun-26	23-Dec-26	34
2326-DFS-DR-1610	Structural Basis of Design	20	11-Jun-26	08-Jul-26	154
2326-DFS-DR-1630	Structural Calculations	135	18-Jun-26	23-Dec-26	34
Mechanical		109	09-Jan-26	10-Jun-26	32
2326-DFS-DR-1090	Leaching - CIL Tanks Dwgs - (Leach and CIL)	30	09-Jan-26	19-Feb-26	66
2326-DFS-EN-1060	Finalise MEL	65	12-Mar-26	10-Jun-26	32
2326-DFS-EN-1150	Remaining Mech Equipment Specs and Data Sheets	65	12-Mar-26	10-Jun-26	32
Piping		130	23-Jul-26	20-Jan-27	34
2326-DFS-EN-1260	Piping Model Development	130	23-Jul-26	20-Jan-27	34
2326-DFS-EN-1250	Valves and Piping Packages IFT	50	17-Sep-26	25-Nov-26	34
Electrical / Instrumentation		225	12-Mar-26	20-Jan-27	69
2326-DFS-EN-1080	Electrical Design Basis Development, Technical Specifications	40	12-Mar-26	06-May-26	17
2326-DFS-EN-1180	MCCs	20	28-May-26	24-Jun-26	17
2326-DFS-EN-1210	Transformers Specs	20	04-Jun-26	01-Jul-26	17
2326-DFS-EN-1240	Electrical Equipment List, Load list, Instrument List and I/O List	150	11-Jun-26	06-Jan-27	79
2326-DFS-EN-1170	Electrical Design Development	130	23-Jul-26	20-Jan-27	34
2326-DFS-EN-1140	SLD's, Terminations and Schematics IFR	110	06-Aug-26	06-Jan-27	44
2326-DFS-EN-1220	MTO for Bulks	60	17-Sep-26	09-Dec-26	34
2326-DFS-EN-1230	Remaining Electrical Equipment	40	01-Oct-26	25-Nov-26	34
Architectural		40	12-Mar-26	06-May-26	52
2326-DFS-EN-1160	Update Infrastructure Building List and IFQ	40	12-Mar-26	06-May-26	52
Drafting		274	30-Jan-26	17-Feb-27	112
1 Treatment Plant		270	05-Feb-26	17-Feb-27	112
1.1 Treatment Plant - General		150	12-Mar-26	07-Oct-26	30
2326-DFS-DR-1010	Treatment Plant & Plantsite Infrastructure Modelling	150	12-Mar-26	07-Oct-26	30
1.2 Feed Preparation		205	12-Mar-26	23-Dec-26	88
2326-DFS-DR-1020	Feed Prep Modelling	129	12-Mar-26	08-Sep-26	35

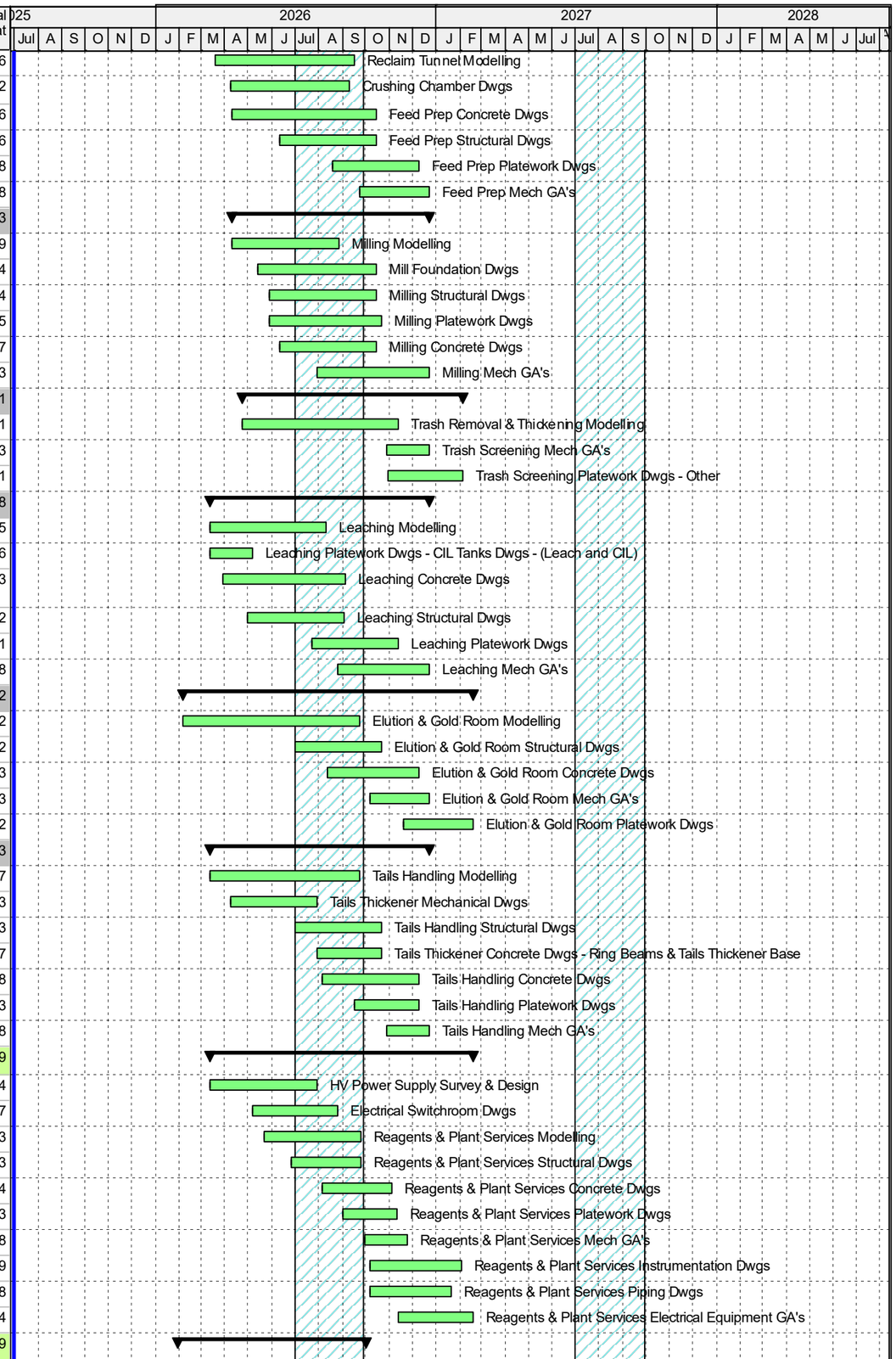


Summary | Milestone | Remaining Work | Critical Remaining Work | Actual Work | Actual Level of Effort | Remaining Level of... | % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-DR-1080	Reclaim Tunnel Modelling	130	20-Mar-26	17-Sep-26	56
2326-DFS-DR-1140	Crushing Chamber Dwgs	110	09-Apr-26	09-Sep-26	82
2326-DFS-DR-1150	Feed Prep Concrete Dwgs	135	10-Apr-26	15-Oct-26	56
2326-DFS-DR-1230	Feed Prep Structural Dwgs	90	12-Jun-26	15-Oct-26	56
2326-DFS-DR-1330	Feed Prep Platework Dwgs	80	19-Aug-26	09-Dec-26	88
2326-DFS-DR-1380	Feed Prep Mech GA's	65	23-Sep-26	23-Dec-26	88
1.3 Milling		184	10-Apr-26	23-Dec-26	23
2326-DFS-DR-1030	Milling Modelling	100	10-Apr-26	27-Aug-26	9
2326-DFS-DR-1110	Mill Foundation Dwgs	110	14-May-26	15-Oct-26	14
2326-DFS-DR-1190	Milling Structural Dwgs	100	28-May-26	15-Oct-26	14
2326-DFS-DR-1220	Milling Platework Dwgs	105	29-May-26	22-Oct-26	65
2326-DFS-DR-1200	Milling Concrete Dwgs	90	11-Jun-26	15-Oct-26	57
2326-DFS-DR-1320	Milling Mech GA's	105	29-Jul-26	23-Dec-26	23
1.4 Trash Removal & Thickening		205	24-Apr-26	04-Feb-27	11
2326-DFS-DR-1120	Trash Removal & Thickening Modelling	145	24-Apr-26	12-Nov-26	11
2326-DFS-DR-1410	Trash Screening Mech GA's	40	28-Oct-26	23-Dec-26	23
2326-DFS-DR-1370	Trash Screening Platework Dwgs - Other	70	30-Oct-26	04-Feb-27	11
1.6 Leaching		205	12-Mar-26	23-Dec-26	88
2326-DFS-DR-1040	Leaching Modelling	108	12-Mar-26	10-Aug-26	35
2326-DFS-DR-1560	Leaching Platework Dwgs - CIL Tanks Dwgs - (Leach and CIL)	40	13-Mar-26	07-May-26	66
2326-DFS-DR-1160	Leaching Concrete Dwgs	115	30-Mar-26	04-Sep-26	83
2326-DFS-DR-1260	Leaching Structural Dwgs	90	30-Apr-26	02-Sep-26	32
2326-DFS-DR-1290	Leaching Platework Dwgs	80	24-Jul-26	12-Nov-26	11
2326-DFS-DR-1360	Leaching Mech GA's	85	26-Aug-26	23-Dec-26	88
1.7 Elution & Gold Room		270	05-Feb-26	17-Feb-27	32
2326-DFS-DR-1130	Elution & Gold Room Modelling	165	05-Feb-26	23-Sep-26	82
2326-DFS-DR-1400	Elution & Gold Room Structural Dwgs	80	02-Jul-26	21-Oct-26	82
2326-DFS-DR-1250	Elution & Gold Room Concrete Dwgs	85	12-Aug-26	09-Dec-26	53
2326-DFS-DR-1420	Elution & Gold Room Mech GA's	55	07-Oct-26	23-Dec-26	53
2326-DFS-DR-1470	Elution & Gold Room Platework Dwgs	65	19-Nov-26	17-Feb-27	32
1.8 Tails Handling		205	12-Mar-26	23-Dec-26	153
2326-DFS-DR-1100	Tails Handling Modelling	140	12-Mar-26	23-Sep-26	47
2326-DFS-DR-1180	Tails Thickener Mechanical Dwgs	80	09-Apr-26	29-Jul-26	103
2326-DFS-DR-1310	Tails Handling Structural Dwgs	80	02-Jul-26	21-Oct-26	73
2326-DFS-DR-1390	Tails Thickener Concrete Dwgs - Ring Beams & Tails Thickener Base	60	30-Jul-26	21-Oct-26	197
2326-DFS-DR-1270	Tails Handling Concrete Dwgs	90	05-Aug-26	09-Dec-26	88
2326-DFS-DR-1440	Tails Handling Platework Dwgs	60	16-Sep-26	09-Dec-26	73
2326-DFS-DR-1490	Tails Handling Mech GA's	40	28-Oct-26	23-Dec-26	88
2 Reagents & Plant Services		245	12-Mar-26	17-Feb-27	69
2326-DFS-DR-1070	HV Power Supply Survey & Design	100	12-Mar-26	29-Jul-26	94
2326-DFS-DR-1240	Electrical Switchroom Dwgs	80	07-May-26	26-Aug-26	17
2326-DFS-DR-1170	Reagents & Plant Services Modelling	90	22-May-26	24-Sep-26	43
2326-DFS-DR-1430	Reagents & Plant Services Structural Dwgs	65	26-Jun-26	24-Sep-26	83
2326-DFS-DR-1450	Reagents & Plant Services Concrete Dwgs	65	06-Aug-26	04-Nov-26	94
2326-DFS-DR-1460	Reagents & Plant Services Platework Dwgs	50	02-Sep-26	11-Nov-26	93
2326-DFS-DR-1520	Reagents & Plant Services Mech GA's	40	30-Sep-26	25-Nov-26	108
2326-DFS-DR-1500	Reagents & Plant Services Instrumentation Dwgs	86	07-Oct-26	03-Feb-27	79
2326-DFS-DR-1480	Reagents & Plant Services Piping Dwgs	75	07-Oct-26	20-Jan-27	88
2326-DFS-DR-1510	Reagents & Plant Services Electrical Equipment GA's	70	12-Nov-26	17-Feb-27	34
3 Infrastructure		175	30-Jan-26	01-Oct-26	59

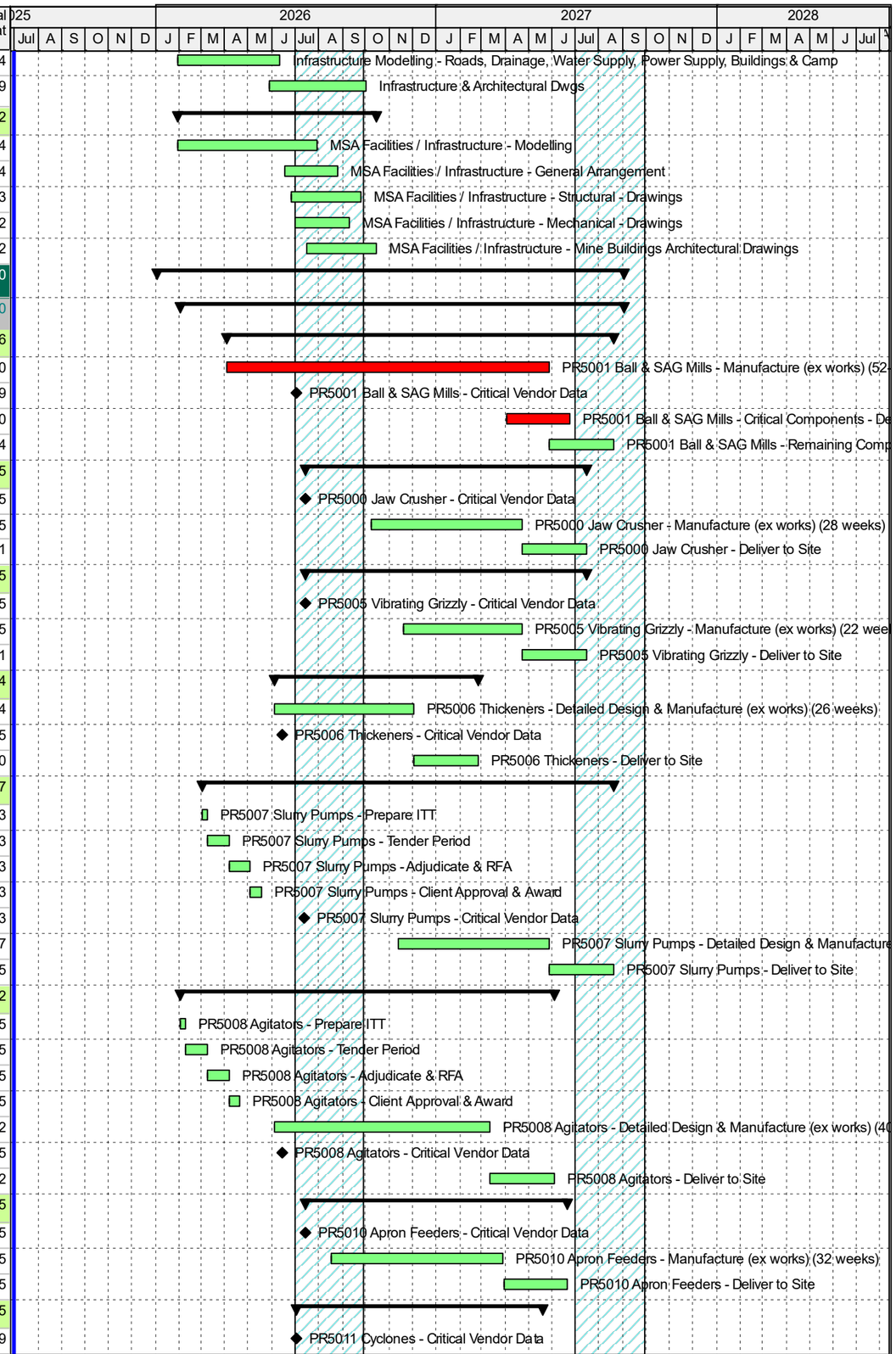


Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-DR-1050	Infrastructure Modelling - Roads, Drainage, Water Supply, Power Supply, Buildings & Camp	95	30-Jan-26	11-Jun-26	44
2326-DFS-DR-1210	Infrastructure & Architectural Dwgs	90	29-May-26	01-Oct-26	59
4 Mining		184	30-Jan-26	14-Oct-26	52
2326-DFS-DR-1060	MSA Facilities / Infrastructure - Modelling	129	30-Jan-26	29-Jul-26	44
2326-DFS-DR-1280	MSA Facilities / Infrastructure - General Arrangement	50	18-Jun-26	26-Aug-26	44
2326-DFS-DR-1300	MSA Facilities / Infrastructure - Structural - Drawings	65	26-Jun-26	24-Sep-26	43
2326-DFS-DR-1340	MSA Facilities / Infrastructure - Mechanical - Drawings	50	02-Jul-26	09-Sep-26	52
2326-DFS-DR-1350	MSA Facilities / Infrastructure - Mine Buildings Architectural Drawings	65	16-Jul-26	14-Oct-26	52
PROCUREMENT		435	02-Jan-26	02-Sep-27	30
Mechanical		414	02-Feb-26	02-Sep-27	30
5001 Ball & SAG Mills		360	03-Apr-26	19-Aug-27	16
2326-DFS-PR-1310	PR5001 Ball & SAG Mills - Manufacture (ex works) (52-60 weeks)	300	03-Apr-26	27-May-27	0
2326-DFS-PR-1740	PR5001 Ball & SAG Mills - Critical Vendor Data	0		02-Jul-26	9
2326-DFS-PR-2710	PR5001 Ball & SAG Mills - Critical Components - Deliver to Site	84	02-Apr-27	24-Jun-27	0
2326-DFS-PR-2740	PR5001 Ball & SAG Mills - Remaining Components - Deliver to Site	84	28-May-27	19-Aug-27	24
5000 Jaw Crusher		262	14-Jul-26	15-Jul-27	65
2326-DFS-PR-2280	PR5000 Jaw Crusher - Critical Vendor Data	0		14-Jul-26	35
2326-DFS-PR-2190	PR5000 Jaw Crusher - Manufacture (ex works) (28 weeks)	140	08-Oct-26	22-Apr-27	65
2326-DFS-PR-2630	PR5000 Jaw Crusher - Deliver to Site	84	22-Apr-27	15-Jul-27	91
5005 Vibrating Grizzly Screens		262	14-Jul-26	15-Jul-27	65
2326-DFS-PR-2060	PR5005 Vibrating Grizzly - Critical Vendor Data	0		14-Jul-26	35
2326-DFS-PR-1840	PR5005 Vibrating Grizzly - Manufacture (ex works) (22 weeks)	110	19-Nov-26	22-Apr-27	65
2326-DFS-PR-2470	PR5005 Vibrating Grizzly - Deliver to Site	84	22-Apr-27	15-Jul-27	91
5006 Thickeners		190	04-Jun-26	24-Feb-27	114
2326-DFS-PR-2200	PR5006 Thickeners - Detailed Design & Manufacture (ex works) (26 weeks)	130	04-Jun-26	02-Dec-26	114
2326-DFS-PR-2180	PR5006 Thickeners - Critical Vendor Data	0		15-Jun-26	35
2326-DFS-PR-2640	PR5006 Thickeners - Deliver to Site	84	03-Dec-26	24-Feb-27	160
5007 Slurry Pumps		384	02-Mar-26	19-Aug-27	17
2326-DFS-PR-1530	PR5007 Slurry Pumps - Prepare ITT	5	02-Mar-26	09-Mar-26	23
2326-DFS-PR-1670	PR5007 Slurry Pumps - Tender Period	20	09-Mar-26	06-Apr-26	23
2326-DFS-PR-1970	PR5007 Slurry Pumps - Adjudicate & RFA	20	06-Apr-26	04-May-26	23
2326-DFS-PR-2070	PR5007 Slurry Pumps - Client Approval & Award	10	04-May-26	18-May-26	23
2326-DFS-PR-2260	PR5007 Slurry Pumps - Critical Vendor Data	0		13-Jul-26	23
2326-DFS-PR-2220	PR5007 Slurry Pumps - Detailed Design & Manufacture (ex works) (28 weeks)	140	13-Nov-26	27-May-27	17
2326-DFS-PR-2660	PR5007 Slurry Pumps - Deliver to Site	84	28-May-27	19-Aug-27	25
5008 Agitators		349	02-Feb-26	03-Jun-27	72
2326-DFS-PR-1130	PR5008 Agitators - Prepare ITT	5	02-Feb-26	09-Feb-26	35
2326-DFS-PR-1250	PR5008 Agitators - Tender Period	20	09-Feb-26	09-Mar-26	35
2326-DFS-PR-1410	PR5008 Agitators - Adjudicate & RFA	20	09-Mar-26	06-Apr-26	35
2326-DFS-PR-1600	PR5008 Agitators - Client Approval & Award	10	06-Apr-26	20-Apr-26	35
2326-DFS-PR-1790	PR5008 Agitators - Detailed Design & Manufacture (ex works) (40 weeks)	200	05-Jun-26	11-Mar-27	72
2326-DFS-PR-1900	PR5008 Agitators - Critical Vendor Data	0		15-Jun-26	35
2326-DFS-PR-2680	PR5008 Agitators - Deliver to Site	84	12-Mar-27	03-Jun-27	102
5010 Apron Feeders		244	14-Jul-26	21-Jun-27	75
2326-DFS-PR-2010	PR5010 Apron Feeders - Critical Vendor Data	0		14-Jul-26	35
2326-DFS-PR-1810	PR5010 Apron Feeders - Manufacture (ex works) (32 weeks)	160	18-Aug-26	29-Mar-27	75
2326-DFS-PR-2620	PR5010 Apron Feeders - Deliver to Site	84	30-Mar-27	21-Jun-27	105
5011 Cyclones		230	02-Jul-26	20-May-27	65
2326-DFS-PR-1910	PR5011 Cyclones - Critical Vendor Data	0		02-Jul-26	9

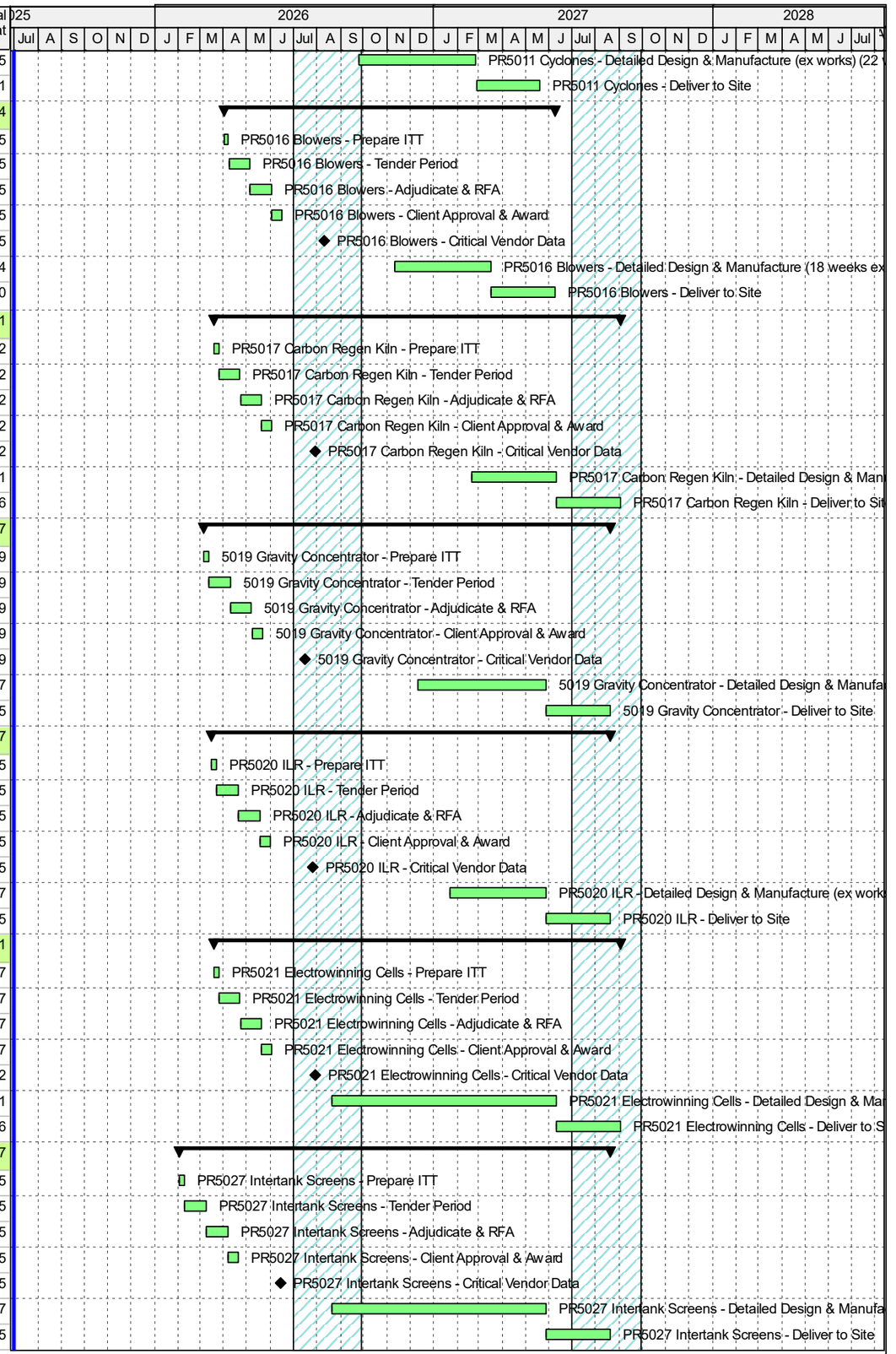


Summary | Milestone | Remaining Work | Critical Remaining Work | Actual Work | Actual Level of Effort | Remaining Level of... | % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-PR-1800	PR5011 Cyclones - Detailed Design & Manufacture (ex works) (22 weeks)	110	25-Sep-26	25-Feb-27	65
2326-DFS-PR-2460	PR5011 Cyclones - Deliver to Site	84	26-Feb-27	20-May-27	91
5016 Blowers		311	01-Apr-26	09-Jun-27	64
2326-DFS-PR-2130	PR5016 Blowers - Prepare ITT	5	01-Apr-26	07-Apr-26	35
2326-DFS-PR-2170	PR5016 Blowers - Tender Period	20	08-Apr-26	05-May-26	35
2326-DFS-PR-2310	PR5016 Blowers - Adjudicate & RFA	20	06-May-26	02-Jun-26	35
2326-DFS-PR-2800	PR5016 Blowers - Client Approval & Award	10	03-Jun-26	16-Jun-26	35
2326-DFS-PR-2410	PR5016 Blowers - Critical Vendor Data	0		11-Aug-26	35
2326-DFS-PR-2370	PR5016 Blowers - Detailed Design & Manufacture (18 weeks ex works)	90	11-Nov-26	17-Mar-27	64
2326-DFS-PR-2580	PR5016 Blowers - Deliver to Site	84	17-Mar-27	09-Jun-27	90
5017 Carbon Regen Kiln		381	19-Mar-26	02-Sep-27	11
2326-DFS-PR-1100	PR5017 Carbon Regen Kiln - Prepare ITT	5	19-Mar-26	25-Mar-26	82
2326-DFS-PR-1220	PR5017 Carbon Regen Kiln - Tender Period	20	26-Mar-26	22-Apr-26	82
2326-DFS-PR-1380	PR5017 Carbon Regen Kiln - Adjudicate & RFA	20	23-Apr-26	20-May-26	82
2326-DFS-PR-1580	PR5017 Carbon Regen Kiln - Client Approval & Award	10	21-May-26	03-Jun-26	82
2326-DFS-PR-1870	PR5017 Carbon Regen Kiln - Critical Vendor Data	0		29-Jul-26	82
2326-DFS-PR-1760	PR5017 Carbon Regen Kiln - Detailed Design & Manufacture (ex works) (16 weeks)	80	19-Feb-27	10-Jun-27	11
2326-DFS-PR-2430	PR5017 Carbon Regen Kiln - Deliver to Site	84	11-Jun-27	02-Sep-27	16
5019 Gravity Concentrator		380	06-Mar-26	19-Aug-27	17
2326-DFS-PR-1120	5019 Gravity Concentrator - Prepare ITT	5	06-Mar-26	12-Mar-26	9
2326-DFS-PR-1240	5019 Gravity Concentrator - Tender Period	20	13-Mar-26	09-Apr-26	9
2326-DFS-PR-1400	5019 Gravity Concentrator - Adjudicate & RFA	20	10-Apr-26	07-May-26	9
2326-DFS-PR-1570	5019 Gravity Concentrator - Client Approval & Award	10	08-May-26	21-May-26	9
2326-DFS-PR-1890	5019 Gravity Concentrator - Critical Vendor Data	0		16-Jul-26	9
2326-DFS-PR-1780	5019 Gravity Concentrator - Detailed Design & Manufacture (ex works) (24 weeks)	120	11-Dec-26	27-May-27	17
2326-DFS-PR-2480	5019 Gravity Concentrator - Deliver to Site	84	28-May-27	19-Aug-27	25
5020 ILR		374	16-Mar-26	19-Aug-27	17
2326-DFS-PR-1110	PR5020 ILR - Prepare ITT	5	16-Mar-26	23-Mar-26	35
2326-DFS-PR-1230	PR5020 ILR - Tender Period	20	23-Mar-26	20-Apr-26	35
2326-DFS-PR-1390	PR5020 ILR - Adjudicate & RFA	20	20-Apr-26	18-May-26	35
2326-DFS-PR-1560	PR5020 ILR - Client Approval & Award	10	18-May-26	01-Jun-26	35
2326-DFS-PR-1880	PR5020 ILR - Critical Vendor Data	0		27-Jul-26	35
2326-DFS-PR-1770	PR5020 ILR - Detailed Design & Manufacture (ex works) (18 weeks)	90	22-Jan-27	27-May-27	17
2326-DFS-PR-2440	PR5020 ILR - Deliver to Site	84	28-May-27	19-Aug-27	25
5021 Electrowinning Cells		381	19-Mar-26	02-Sep-27	11
2326-DFS-PR-2810	PR5021 Electrowinning Cells - Prepare ITT	5	19-Mar-26	25-Mar-26	67
2326-DFS-PR-2820	PR5021 Electrowinning Cells - Tender Period	20	26-Mar-26	22-Apr-26	67
2326-DFS-PR-2830	PR5021 Electrowinning Cells - Adjudicate & RFA	20	23-Apr-26	20-May-26	67
2326-DFS-PR-2840	PR5021 Electrowinning Cells - Client Approval & Award	10	21-May-26	03-Jun-26	67
2326-DFS-PR-2850	PR5021 Electrowinning Cells - Critical Vendor Data	0		29-Jul-26	82
2326-DFS-PR-2860	PR5021 Electrowinning Cells - Detailed Design & Manufacture (ex works) (42 weeks)	210	21-Aug-26	10-Jun-27	11
2326-DFS-PR-2870	PR5021 Electrowinning Cells - Deliver to Site	84	11-Jun-27	02-Sep-27	16
5027 Intertank Screens		404	02-Feb-26	19-Aug-27	17
2326-DFS-PR-1080	PR5027 Intertank Screens - Prepare ITT	5	02-Feb-26	09-Feb-26	35
2326-DFS-PR-1160	PR5027 Intertank Screens - Tender Period	20	09-Feb-26	09-Mar-26	35
2326-DFS-PR-1350	PR5027 Intertank Screens - Adjudicate & RFA	20	09-Mar-26	06-Apr-26	35
2326-DFS-PR-1490	PR5027 Intertank Screens - Client Approval & Award	10	06-Apr-26	20-Apr-26	35
2326-DFS-PR-1860	PR5027 Intertank Screens - Critical Vendor Data	0		15-Jun-26	35
2326-DFS-PR-1730	PR5027 Intertank Screens - Detailed Design & Manufacture (ex works) (40wks)	200	21-Aug-26	27-May-27	17
2326-DFS-PR-2690	PR5027 Intertank Screens - Deliver to Site	84	28-May-27	19-Aug-27	25

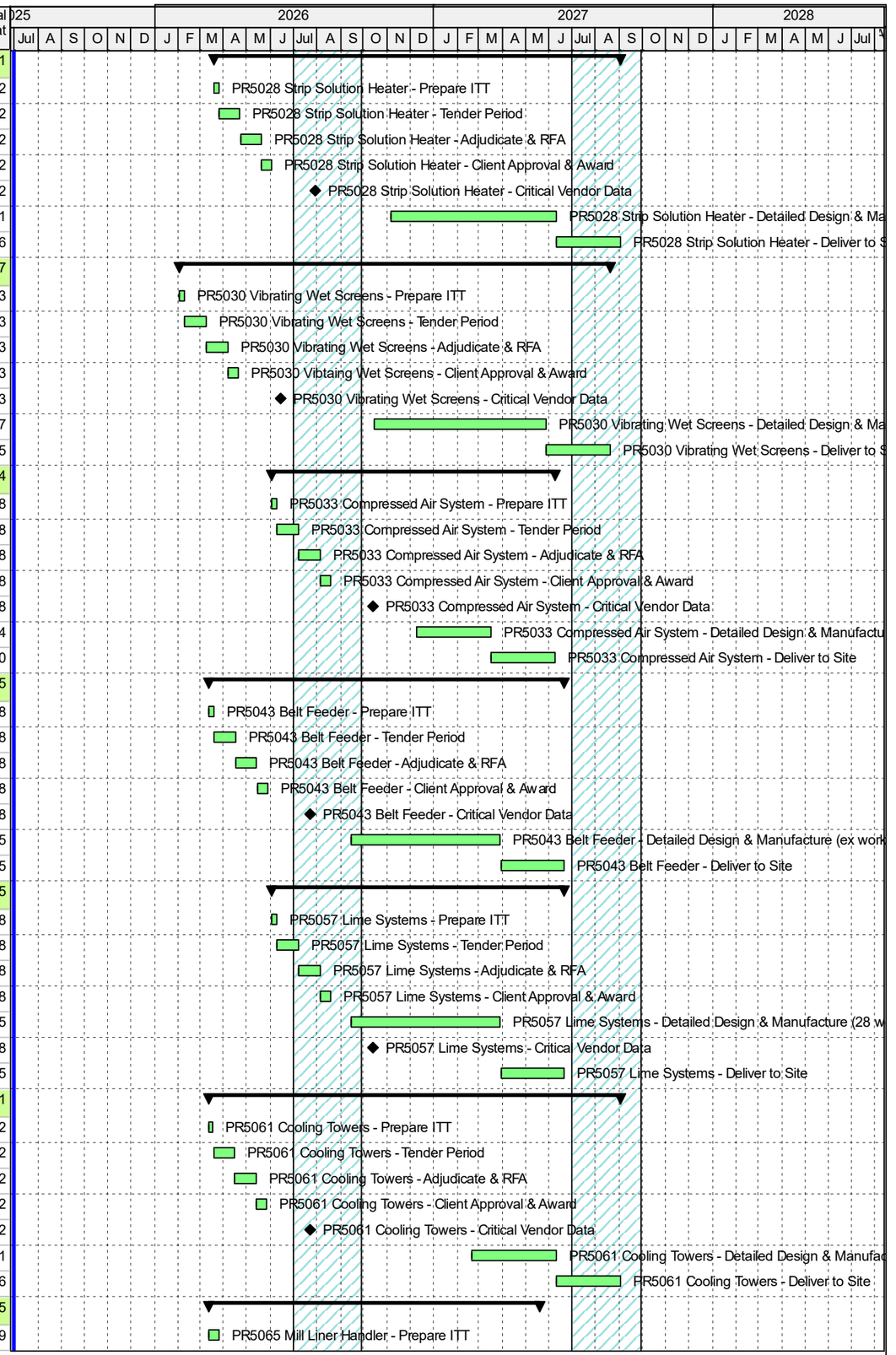


Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
5028 Strip Solution Heater		381	19-Mar-26	02-Sep-27	11
2326-DFS-PR-2110	PR5028 Strip Solution Heater - Prepare ITT	5	19-Mar-26	25-Mar-26	82
2326-DFS-PR-2150	PR5028 Strip Solution Heater - Tender Period	20	26-Mar-26	22-Apr-26	82
2326-DFS-PR-2290	PR5028 Strip Solution Heater - Adjudicate & RFA	20	23-Apr-26	20-May-26	82
2326-DFS-PR-2350	PR5028 Strip Solution Heater - Client Approval & Award	10	21-May-26	03-Jun-26	82
2326-DFS-PR-2390	PR5028 Strip Solution Heater - Critical Vendor Data	0		29-Jul-26	82
2326-DFS-PR-2380	PR5028 Strip Solution Heater - Detailed Design & Manufacture (ex works) (31 weeks)	155	06-Nov-26	10-Jun-27	11
2326-DFS-PR-2700	PR5028 Strip Solution Heater - Deliver to Site	84	11-Jun-27	02-Sep-27	16
5030 Vibrating Wet Screens		404	02-Feb-26	19-Aug-27	17
2326-DFS-PR-1170	PR5030 Vibrating Wet Screens - Prepare ITT	5	02-Feb-26	09-Feb-26	23
2326-DFS-PR-1270	PR5030 Vibrating Wet Screens - Tender Period	20	09-Feb-26	09-Mar-26	23
2326-DFS-PR-1440	PR5030 Vibrating Wet Screens - Adjudicate & RFA	20	09-Mar-26	06-Apr-26	23
2326-DFS-PR-1550	PR5030 Vibtaing Wet Screens - Client Approval & Award	10	06-Apr-26	20-Apr-26	23
2326-DFS-PR-2050	PR5030 Vibrating Wet Screens - Critical Vendor Data	0		15-Jun-26	23
2326-DFS-PR-1830	PR5030 Vibrating Wet Screens - Detailed Design & Manufacture (ex works) (32 weeks)	160	16-Oct-26	27-May-27	17
2326-DFS-PR-2550	PR5030 Vibrating Wet Screens - Deliver to Site	84	28-May-27	19-Aug-27	25
5033 Compressed Air System		265	03-Jun-26	09-Jun-27	64
2326-DFS-PR-2120	PR5033 Compressed Air System - Prepare ITT	5	03-Jun-26	10-Jun-26	88
2326-DFS-PR-2160	PR5033 Compressed Air System - Tender Period	20	10-Jun-26	08-Jul-26	88
2326-DFS-PR-2300	PR5033 Compressed Air System - Adjudicate & RFA	20	08-Jul-26	05-Aug-26	88
2326-DFS-PR-2790	PR5033 Compressed Air System - Client Approval & Award	10	05-Aug-26	19-Aug-26	88
2326-DFS-PR-2400	PR5033 Compressed Air System - Critical Vendor Data	0		14-Oct-26	88
2326-DFS-PR-2360	PR5033 Compressed Air System - Detailed Design & Manufacture (14 weeks ex works)	70	09-Dec-26	17-Mar-27	64
2326-DFS-PR-2530	PR5033 Compressed Air System - Deliver to Site	84	17-Mar-27	09-Jun-27	90
5043 Belt Feeder		332	13-Mar-26	21-Jun-27	75
2326-DFS-PR-1180	PR5043 Belt Feeder - Prepare ITT	5	13-Mar-26	19-Mar-26	48
2326-DFS-PR-1280	PR5043 Belt Feeder - Tender Period	20	20-Mar-26	16-Apr-26	48
2326-DFS-PR-1450	PR5043 Belt Feeder - Adjudicate & RFA	20	17-Apr-26	14-May-26	48
2326-DFS-PR-2780	PR5043 Belt Feeder - Client Approval & Award	10	15-May-26	28-May-26	48
2326-DFS-PR-1920	PR5043 Belt Feeder - Critical Vendor Data	0		23-Jul-26	48
2326-DFS-PR-1650	PR5043 Belt Feeder - Detailed Design & Manufacture (ex works)	140	15-Sep-26	29-Mar-27	75
2326-DFS-PR-2510	PR5043 Belt Feeder - Deliver to Site	84	30-Mar-27	21-Jun-27	105
5057 Lime Systems		274	03-Jun-26	21-Jun-27	75
2326-DFS-PR-1520	PR5057 Lime Systems - Prepare ITT	5	03-Jun-26	10-Jun-26	88
2326-DFS-PR-1660	PR5057 Lime Systems - Tender Period	20	10-Jun-26	08-Jul-26	88
2326-DFS-PR-1960	PR5057 Lime Systems - Adjudicate & RFA	20	08-Jul-26	05-Aug-26	88
2326-DFS-PR-2770	PR5057 Lime Systems - Client Approval & Award	10	05-Aug-26	19-Aug-26	88
2326-DFS-PR-2090	PR5057 Lime Systems - Detailed Design & Manufacture (28 weeks ex works)	140	15-Sep-26	29-Mar-27	75
2326-DFS-PR-2250	PR5057 Lime Systems - Critical Vendor Data	0		14-Oct-26	88
2326-DFS-PR-2590	PR5057 Lime Systems - Deliver to Site	84	30-Mar-27	21-Jun-27	105
5061 Cooling Towers		386	12-Mar-26	02-Sep-27	11
2326-DFS-PR-1540	PR5061 Cooling Towers - Prepare ITT	5	12-Mar-26	18-Mar-26	32
2326-DFS-PR-1690	PR5061 Cooling Towers - Tender Period	20	19-Mar-26	15-Apr-26	32
2326-DFS-PR-1980	PR5061 Cooling Towers - Adjudicate & RFA	20	16-Apr-26	13-May-26	32
2326-DFS-PR-2100	PR5061 Cooling Towers - Client Approval & Award	10	14-May-26	27-May-26	32
2326-DFS-PR-2270	PR5061 Cooling Towers - Critical Vendor Data	0		22-Jul-26	32
2326-DFS-PR-2230	PR5061 Cooling Towers - Detailed Design & Manufacture (ex works) (16 weeks)	80	19-Feb-27	10-Jun-27	11
2326-DFS-PR-2490	PR5061 Cooling Towers - Deliver to Site	84	11-Jun-27	02-Sep-27	16
5065 Mill Liner Handler		310	13-Mar-26	20-May-27	25
2326-DFS-PR-1360	PR5065 Mill Liner Handler - Prepare ITT	10	13-Mar-26	26-Mar-26	9

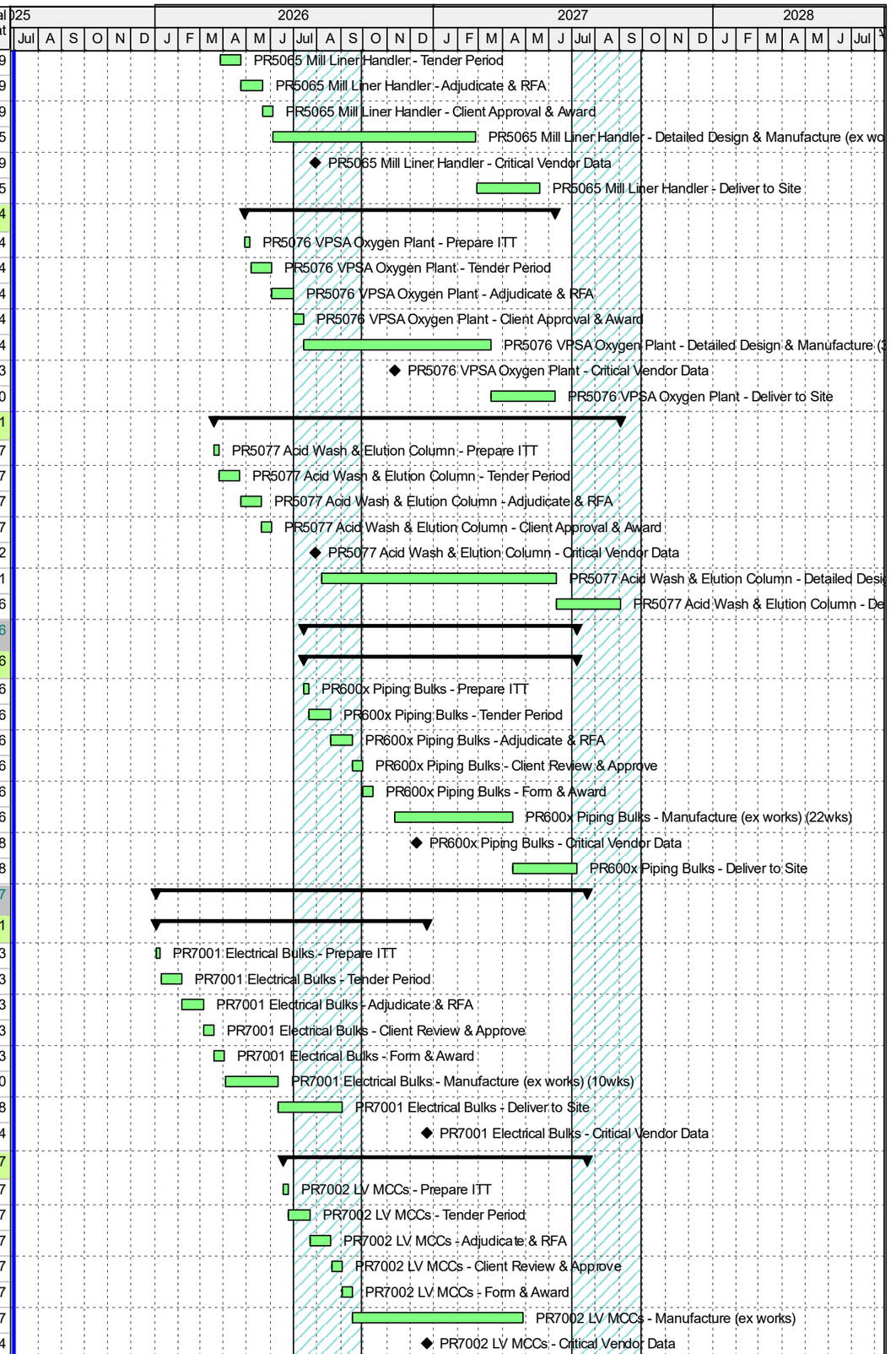


Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-PR-1480	PR5065 Mill Liner Handler - Tender Period	20	27-Mar-26	23-Apr-26	9
2326-DFS-PR-1750	PR5065 Mill Liner Handler - Adjudicate & RFA	20	24-Apr-26	21-May-26	9
2326-DFS-PR-2000	PR5065 Mill Liner Handler - Client Approval & Award	10	22-May-26	04-Jun-26	9
2326-DFS-PR-2040	PR5065 Mill Liner Handler - Detailed Design & Manufacture (ex works) (38 weeks)	190	05-Jun-26	25-Feb-27	25
2326-DFS-PR-2320	PR5065 Mill Liner Handler - Critical Vendor Data	0		30-Jul-26	9
2326-DFS-PR-2730	PR5065 Mill Liner Handler - Deliver to Site	84	26-Feb-27	20-May-27	35
5076 VPSA Oxygen Plant		290	29-Apr-26	09-Jun-27	64
2326-DFS-PR-1200	PR5076 VPSA Oxygen Plant - Prepare ITT	5	29-Apr-26	06-May-26	64
2326-DFS-PR-1300	PR5076 VPSA Oxygen Plant - Tender Period	20	06-May-26	03-Jun-26	64
2326-DFS-PR-1470	PR5076 VPSA Oxygen Plant - Adjudicate & RFA	20	03-Jun-26	01-Jul-26	64
2326-DFS-PR-1680	PR5076 VPSA Oxygen Plant - Client Approval & Award	10	01-Jul-26	15-Jul-26	64
2326-DFS-PR-1850	PR5076 VPSA Oxygen Plant - Detailed Design & Manufacture (35 weeks ex works)	175	15-Jul-26	17-Mar-27	64
2326-DFS-PR-1930	PR5076 VPSA Oxygen Plant - Critical Vendor Data	0		11-Nov-26	23
2326-DFS-PR-2600	PR5076 VPSA Oxygen Plant - Deliver to Site	84	17-Mar-27	09-Jun-27	90
5077 Acid Wash & Elution Column		381	19-Mar-26	02-Sep-27	11
2326-DFS-PR-1020	PR5077 Acid Wash & Elution Column - Prepare ITT	5	19-Mar-26	25-Mar-26	57
2326-DFS-PR-1030	PR5077 Acid Wash & Elution Column - Tender Period	20	26-Mar-26	22-Apr-26	57
2326-DFS-PR-1050	PR5077 Acid Wash & Elution Column - Adjudicate & RFA	20	23-Apr-26	20-May-26	57
2326-DFS-PR-1210	PR5077 Acid Wash & Elution Column - Client Approval & Award	10	21-May-26	03-Jun-26	57
2326-DFS-PR-1370	PR5077 Acid Wash & Elution Column - Critical Vendor Data	0		29-Jul-26	82
2326-DFS-PR-1320	PR5077 Acid Wash & Elution Column - Detailed Design & Manufacture (44 weeks ex works)	220	07-Aug-26	10-Jun-27	11
2326-DFS-PR-2610	PR5077 Acid Wash & Elution Column - Deliver to Site	84	11-Jun-27	02-Sep-27	16
Piping		255	15-Jul-26	07-Jul-27	6
600x Piping Bulks		255	15-Jul-26	07-Jul-27	6
2326-DFS-PR-3040	PR600x Piping Bulks - Prepare ITT	5	15-Jul-26	22-Jul-26	26
2326-DFS-PR-3050	PR600x Piping Bulks - Tender Period	20	22-Jul-26	19-Aug-26	26
2326-DFS-PR-3060	PR600x Piping Bulks - Adjudicate & RFA	20	19-Aug-26	16-Sep-26	26
2326-DFS-PR-3070	PR600x Piping Bulks - Client Review & Approve	10	16-Sep-26	30-Sep-26	26
2326-DFS-PR-3080	PR600x Piping Bulks - Form & Award	10	30-Sep-26	14-Oct-26	26
2326-DFS-PR-3090	PR600x Piping Bulks - Manufacture (ex works) (22wks)	110	11-Nov-26	14-Apr-27	6
2326-DFS-PR-3100	PR600x Piping Bulks - Critical Vendor Data	0		09-Dec-26	88
2326-DFS-PR-3110	PR600x Piping Bulks - Deliver to Site	84	14-Apr-27	07-Jul-27	8
Electrical & Instrumentation		404	02-Jan-26	21-Jul-27	17
7001 Electrical Bulks		254	02-Jan-26	23-Dec-26	141
2326-DFS-PR-2960	PR7001 Electrical Bulks - Prepare ITT	5	02-Jan-26	08-Jan-26	183
2326-DFS-PR-2970	PR7001 Electrical Bulks - Tender Period	20	09-Jan-26	05-Feb-26	183
2326-DFS-PR-2980	PR7001 Electrical Bulks - Adjudicate & RFA	20	06-Feb-26	05-Mar-26	183
2326-DFS-PR-2990	PR7001 Electrical Bulks - Client Review & Approve	10	06-Mar-26	19-Mar-26	183
2326-DFS-PR-3000	PR7001 Electrical Bulks - Form & Award	10	20-Mar-26	02-Apr-26	183
2326-DFS-PR-3010	PR7001 Electrical Bulks - Manufacture (ex works) (10wks)	50	03-Apr-26	11-Jun-26	220
2326-DFS-PR-3030	PR7001 Electrical Bulks - Deliver to Site	84	12-Jun-26	03-Sep-26	308
2326-DFS-PR-3020	PR7001 Electrical Bulks - Critical Vendor Data	0		23-Dec-26	34
7002 LV MCCs		285	18-Jun-26	21-Jul-27	17
2326-DFS-PR-2420	PR7002 LV MCCs - Prepare ITT	5	18-Jun-26	24-Jun-26	17
2326-DFS-PR-2450	PR7002 LV MCCs - Tender Period	20	25-Jun-26	22-Jul-26	17
2326-DFS-PR-2500	PR7002 LV MCCs - Adjudicate & RFA	20	23-Jul-26	19-Aug-26	17
2326-DFS-PR-2520	PR7002 LV MCCs - Client Review & Approve	10	20-Aug-26	02-Sep-26	17
2326-DFS-PR-2540	PR7002 LV MCCs - Form & Award	10	03-Sep-26	16-Sep-26	17
2326-DFS-PR-2570	PR7002 LV MCCs - Manufacture (ex works)	160	17-Sep-26	28-Apr-27	17
2326-DFS-PR-2670	PR7002 LV MCCs - Critical Vendor Data	0		23-Dec-26	34

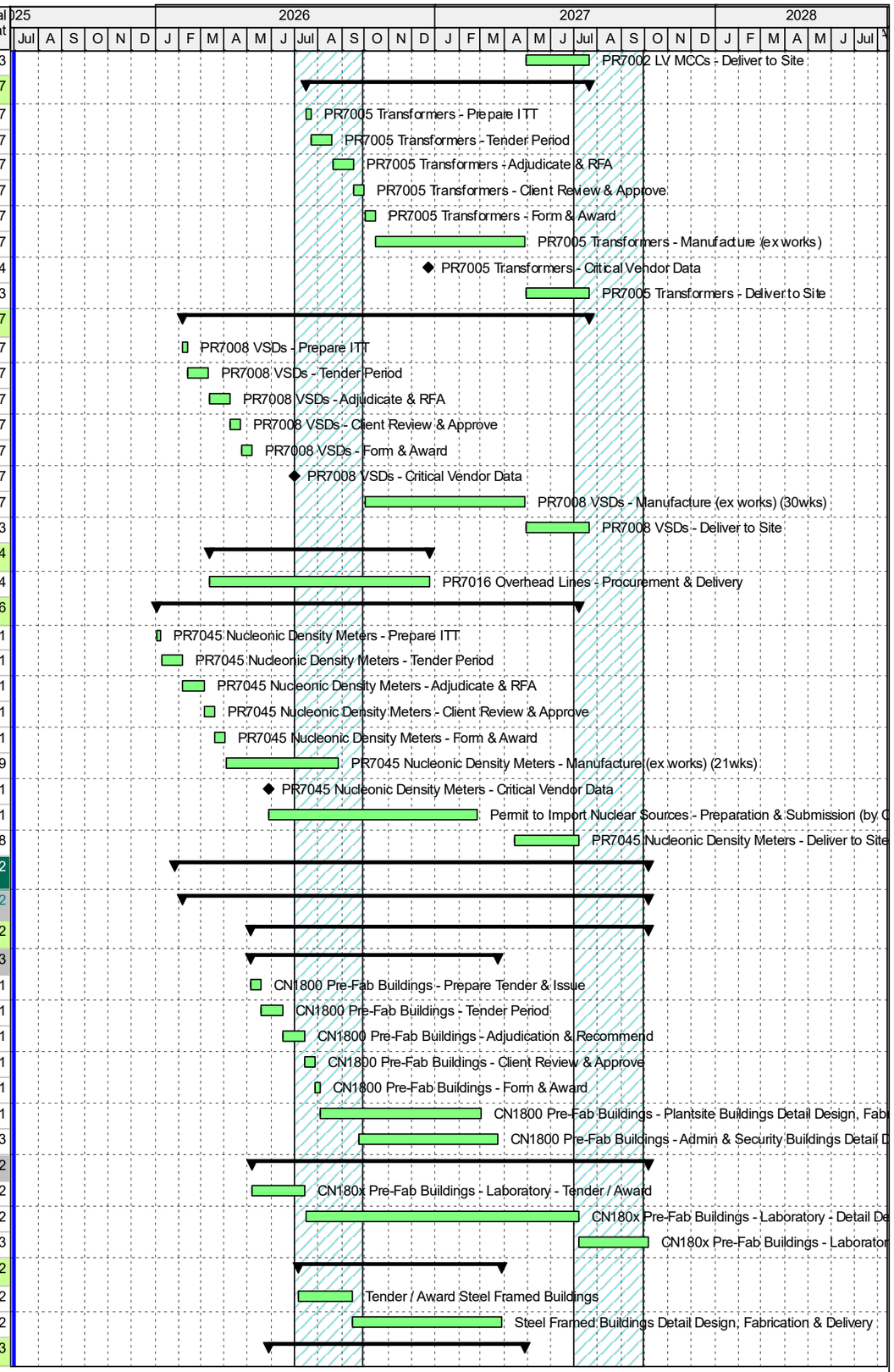


Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-PR-2720	PR7002 LV MCCs - Deliver to Site	84	29-Apr-27	21-Jul-27	23
7005 Transformers		265	16-Jul-26	21-Jul-27	17
2326-DFS-PR-1710	PR7005 Transformers - Prepare ITT	5	16-Jul-26	22-Jul-26	17
2326-DFS-PR-1820	PR7005 Transformers - Tender Period	20	23-Jul-26	19-Aug-26	17
2326-DFS-PR-2020	PR7005 Transformers - Adjudicate & RFA	20	20-Aug-26	16-Sep-26	17
2326-DFS-PR-2750	PR7005 Transformers - Client Review & Approve	10	17-Sep-26	30-Sep-26	17
2326-DFS-PR-2760	PR7005 Transformers - Form & Award	10	01-Oct-26	14-Oct-26	17
2326-DFS-PR-2210	PR7005 Transformers - Manufacture (ex works)	140	15-Oct-26	28-Apr-27	17
2326-DFS-PR-2330	PR7005 Transformers - Critical Vendor Data	0		23-Dec-26	34
2326-DFS-PR-2650	PR7005 Transformers - Deliver to Site	84	29-Apr-27	21-Jul-27	23
7008 VSDs		380	05-Feb-26	21-Jul-27	17
2326-DFS-PR-2880	PR7008 VSDs - Prepare ITT	5	05-Feb-26	11-Feb-26	17
2326-DFS-PR-2890	PR7008 VSDs - Tender Period	20	12-Feb-26	11-Mar-26	17
2326-DFS-PR-2900	PR7008 VSDs - Adjudicate & RFA	20	12-Mar-26	08-Apr-26	17
2326-DFS-PR-2910	PR7008 VSDs - Client Review & Approve	10	09-Apr-26	22-Apr-26	17
2326-DFS-PR-2920	PR7008 VSDs - Form & Award	10	23-Apr-26	06-May-26	17
2326-DFS-PR-2940	PR7008 VSDs - Critical Vendor Data	0		01-Jul-26	17
2326-DFS-PR-2930	PR7008 VSDs - Manufacture (ex works) (30wks)	150	01-Oct-26	28-Apr-27	17
2326-DFS-PR-2950	PR7008 VSDs - Deliver to Site	84	29-Apr-27	21-Jul-27	23
7016 Overhead Lines		207	12-Mar-26	25-Dec-26	94
2326-DFS-PR-2030	PR7016 Overhead Lines - Procurement & Delivery	207	12-Mar-26	25-Dec-26	94
7045 Nucleonic Density Meters		394	02-Jan-26	07-Jul-27	6
2326-DFS-PR-3120	PR7045 Nucleonic Density Meters - Prepare ITT	5	02-Jan-26	08-Jan-26	31
2326-DFS-PR-3130	PR7045 Nucleonic Density Meters - Tender Period	20	09-Jan-26	05-Feb-26	31
2326-DFS-PR-3140	PR7045 Nucleonic Density Meters - Adjudicate & RFA	20	06-Feb-26	05-Mar-26	31
2326-DFS-PR-3150	PR7045 Nucleonic Density Meters - Client Review & Approve	10	06-Mar-26	19-Mar-26	31
2326-DFS-PR-3160	PR7045 Nucleonic Density Meters - Form & Award	10	20-Mar-26	02-Apr-26	31
2326-DFS-PR-3170	PR7045 Nucleonic Density Meters - Manufacture (ex works) (21wks)	105	03-Apr-26	27-Aug-26	169
2326-DFS-PR-3180	PR7045 Nucleonic Density Meters - Critical Vendor Data	0		28-May-26	31
2326-DFS-EN-3060	Permit to Import Nuclear Sources - Preparation & Submission (by Client)	194	29-May-26	24-Feb-27	31
2326-DFS-PR-3190	PR7045 Nucleonic Density Meters - Deliver to Site	84	14-Apr-27	07-Jul-27	8
CONTRACTS		442	26-Jan-26	06-Oct-27	52
Offsite Contracts		433	06-Feb-26	06-Oct-27	52
1800 Pre-Fab Buildings		371	05-May-26	06-Oct-27	52
Buildings (NPI)		231	05-May-26	23-Mar-27	83
2326-DFS-CT-1070	CN1800 Pre-Fab Buildings - Prepare Tender & Issue	10	05-May-26	19-May-26	71
2326-DFS-CT-1120	CN1800 Pre-Fab Buildings - Tender Period	20	19-May-26	16-Jun-26	71
2326-DFS-CT-1180	CN1800 Pre-Fab Buildings - Adjudication & Recommend	20	16-Jun-26	14-Jul-26	71
2326-DFS-CT-1230	CN1800 Pre-Fab Buildings - Client Review & Approve	10	14-Jul-26	28-Jul-26	71
2326-DFS-CT-1290	CN1800 Pre-Fab Buildings - Form & Award	5	28-Jul-26	04-Aug-26	71
2326-DFS-CT-1610	CN1800 Pre-Fab Buildings - Plantsite Buildings Detail Design, Fabrication & Delivery	150	04-Aug-26	02-Mar-27	71
2326-DFS-CT-1680	CN1800 Pre-Fab Buildings - Admin & Security Buildings Detail Design, Fabrication & Delivery	130	23-Sep-26	23-Mar-27	83
180x Laboratory Building (Pre-Fabricated)		369	07-May-26	06-Oct-27	52
2326-DFS-CT-1270	CN180x Pre-Fab Buildings - Laboratory - Tender / Award	50	07-May-26	15-Jul-26	52
2326-DFS-CT-1440	CN180x Pre-Fab Buildings - Laboratory - Detail Design & Fabrication (51wks)	255	16-Jul-26	07-Jul-27	52
2326-DFS-CT-1820	CN180x Pre-Fab Buildings - Laboratory - Delivery	90	08-Jul-27	06-Oct-27	73
1810 Steel Framed Buildings		190	07-Jul-26	29-Mar-27	52
2326-DFS-CT-1510	Tender / Award Steel Framed Buildings	50	07-Jul-26	14-Sep-26	52
2326-DFS-CT-1660	Steel Framed Buildings Detail Design, Fabrication & Delivery	140	15-Sep-26	29-Mar-27	52
3000 Structural Steel Fabrication		238	29-May-26	27-Apr-27	73

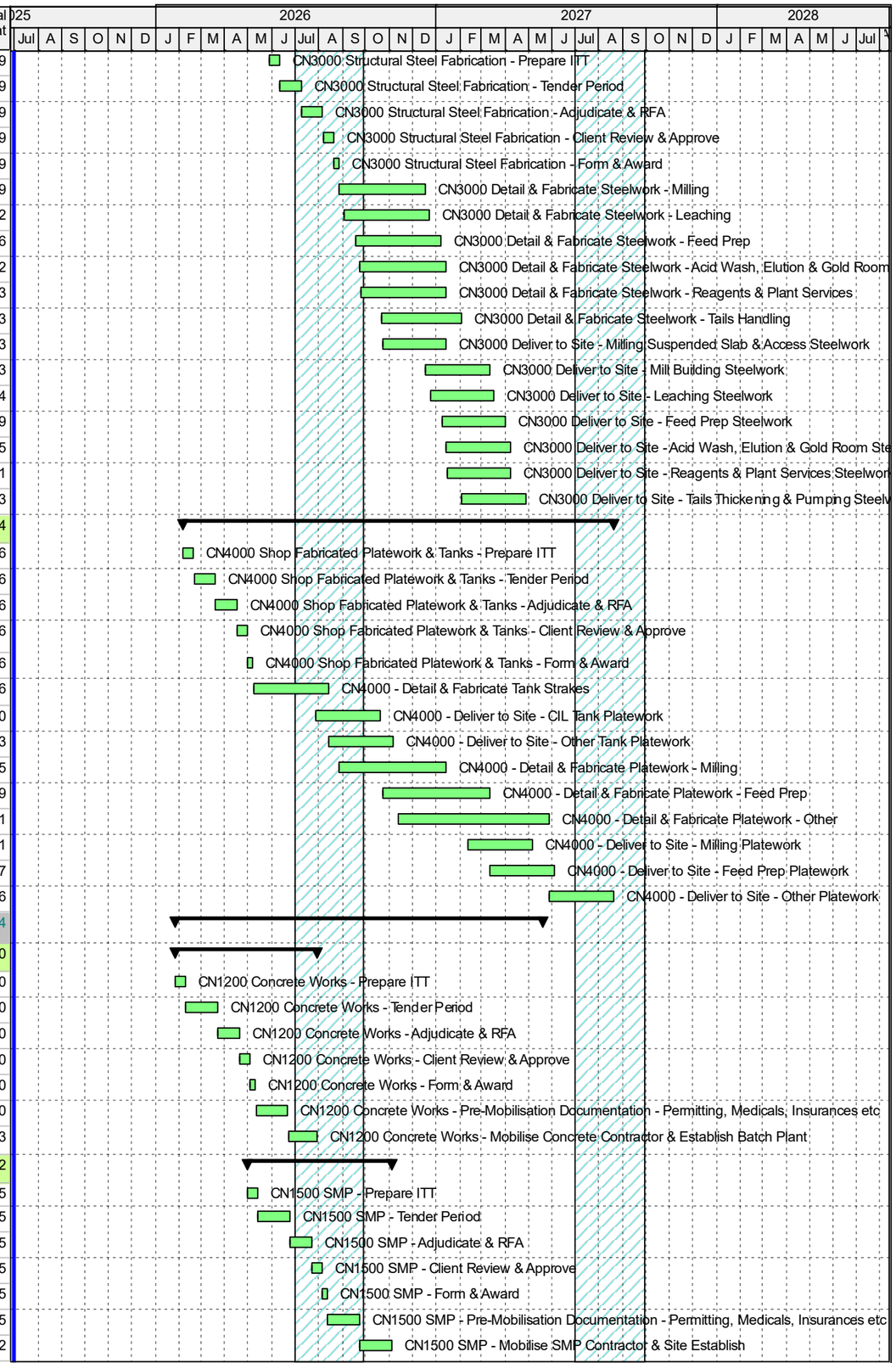


Summary | Milestone | Remaining Work | Critical Remaining Work | Actual Work | Actual Level of Effort | Remaining Level of... | % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-CT-1200	CN3000 Structural Steel Fabrication - Prepare ITT	10	29-May-26	11-Jun-26	9
2326-DFS-CT-1240	CN3000 Structural Steel Fabrication - Tender Period	20	12-Jun-26	09-Jul-26	9
2326-DFS-CT-1350	CN3000 Structural Steel Fabrication - Adjudicate & RFA	20	10-Jul-26	06-Aug-26	9
2326-DFS-CT-1390	CN3000 Structural Steel Fabrication - Client Review & Approve	10	07-Aug-26	20-Aug-26	9
2326-DFS-CT-1410	CN3000 Structural Steel Fabrication - Form & Award	5	21-Aug-26	27-Aug-26	9
2326-DFS-CT-1540	CN3000 Detail & Fabricate Steelwork - Milling	80	28-Aug-26	17-Dec-26	9
2326-DFS-CT-1600	CN3000 Detail & Fabricate Steelwork - Leaching	80	03-Sep-26	23-Dec-26	32
2326-DFS-CT-1590	CN3000 Detail & Fabricate Steelwork - Feed Prep	80	18-Sep-26	07-Jan-27	56
2326-DFS-CT-1730	CN3000 Detail & Fabricate Steelwork - Acid Wash, Elution & Gold Room	80	24-Sep-26	13-Jan-27	82
2326-DFS-CT-1630	CN3000 Detail & Fabricate Steelwork - Reagents & Plant Services	80	25-Sep-26	14-Jan-27	43
2326-DFS-CT-1670	CN3000 Detail & Fabricate Steelwork - Tails Handling	74	22-Oct-26	02-Feb-27	73
2326-DFS-CT-1770	CN3000 Deliver to Site - Milling Suspended Slab & Access Steelwork	84	23-Oct-26	14-Jan-27	13
2326-DFS-CT-1970	CN3000 Deliver to Site - Mill Building Steelwork	84	18-Dec-26	11-Mar-27	113
2326-DFS-CT-1840	CN3000 Deliver to Site - Leaching Steelwork	84	24-Dec-26	17-Mar-27	44
2326-DFS-CT-1830	CN3000 Deliver to Site - Feed Prep Steelwork	84	08-Jan-27	01-Apr-27	79
2326-DFS-CT-1930	CN3000 Deliver to Site - Acid Wash, Elution & Gold Room Steelwork	84	14-Jan-27	07-Apr-27	115
2326-DFS-CT-1850	CN3000 Deliver to Site - Reagents & Plant Services Steelwork	84	15-Jan-27	08-Apr-27	61
2326-DFS-CT-1870	CN3000 Deliver to Site - Tails Thickening & Pumping Steelwork	84	03-Feb-27	27-Apr-27	103
4000 Shop Fabricated Platework & Tanks		400	06-Feb-26	19-Aug-27	14
2326-DFS-CT-1250	CN4000 Shop Fabricated Platework & Tanks - Prepare ITT	10	06-Feb-26	19-Feb-26	66
2326-DFS-CT-1310	CN4000 Shop Fabricated Platework & Tanks - Tender Period	20	20-Feb-26	19-Mar-26	66
2326-DFS-CT-1370	CN4000 Shop Fabricated Platework & Tanks - Adjudicate & RFA	20	20-Mar-26	16-Apr-26	66
2326-DFS-CT-1430	CN4000 Shop Fabricated Platework & Tanks - Client Review & Approve	10	17-Apr-26	30-Apr-26	66
2326-DFS-CT-1470	CN4000 Shop Fabricated Platework & Tanks - Form & Award	5	01-May-26	07-May-26	66
2326-DFS-CT-1480	CN4000 - Detail & Fabricate Tank Strakes	70	08-May-26	13-Aug-26	66
2326-DFS-CT-1700	CN4000 - Deliver to Site - CIL Tank Platework	84	29-Jul-26	20-Oct-26	60
2326-DFS-CT-1720	CN4000 - Deliver to Site - Other Tank Platework	84	14-Aug-26	05-Nov-26	123
2326-DFS-CT-1640	CN4000 - Detail & Fabricate Platework - Milling	100	28-Aug-26	14-Jan-27	65
2326-DFS-CT-1690	CN4000 - Detail & Fabricate Platework - Feed Prep	100	23-Oct-26	12-Mar-27	69
2326-DFS-CT-1750	CN4000 - Detail & Fabricate Platework - Other	140	13-Nov-26	27-May-27	11
2326-DFS-CT-1890	CN4000 - Deliver to Site - Milling Platework	84	12-Feb-27	06-May-27	91
2326-DFS-CT-1900	CN4000 - Deliver to Site - Feed Prep Platework	84	12-Mar-27	04-Jun-27	97
2326-DFS-CT-1940	CN4000 - Deliver to Site - Other Platework	84	28-May-27	19-Aug-27	16
Site Contracts		343	26-Jan-26	19-May-27	34
1200 Concrete Works		134	26-Jan-26	30-Jul-26	10
2326-DFS-CT-1300	CN1200 Concrete Works - Prepare ITT	10	26-Jan-26	09-Feb-26	10
2326-DFS-CT-1360	CN1200 Concrete Works - Tender Period	30	09-Feb-26	23-Mar-26	10
2326-DFS-CT-1420	CN1200 Concrete Works - Adjudicate & RFA	20	23-Mar-26	20-Apr-26	10
2326-DFS-CT-1490	CN1200 Concrete Works - Client Review & Approve	10	20-Apr-26	04-May-26	10
2326-DFS-CT-1500	CN1200 Concrete Works - Form & Award	5	04-May-26	11-May-26	10
2326-DFS-CT-1520	CN1200 Concrete Works - Pre-Mobilisation Documentation - Permitting, Medicals, Insurances etc	30	11-May-26	22-Jun-26	10
2326-DFS-CT-1580	CN1200 Concrete Works - Mobilise Concrete Contractor & Establish Batch Plant	36	22-Jun-26	30-Jul-26	13
1501 SMP		135	30-Apr-26	04-Nov-26	42
2326-DFS-CT-1560	CN1500 SMP - Prepare ITT	10	30-Apr-26	13-May-26	35
2326-DFS-CT-1570	CN1500 SMP - Tender Period	30	14-May-26	24-Jun-26	35
2326-DFS-CT-1650	CN1500 SMP - Adjudicate & RFA	20	25-Jun-26	22-Jul-26	35
2326-DFS-CT-1710	CN1500 SMP - Client Review & Approve	10	23-Jul-26	05-Aug-26	35
2326-DFS-CT-1740	CN1500 SMP - Form & Award	5	06-Aug-26	12-Aug-26	35
2326-DFS-CT-1760	CN1500 SMP - Pre-Mobilisation Documentation - Permitting, Medicals, Insurances etc	30	13-Aug-26	23-Sep-26	35
2326-DFS-CT-1810	CN1500 SMP - Mobilise SMP Contractor & Site Establish	36	24-Sep-26	04-Nov-26	42

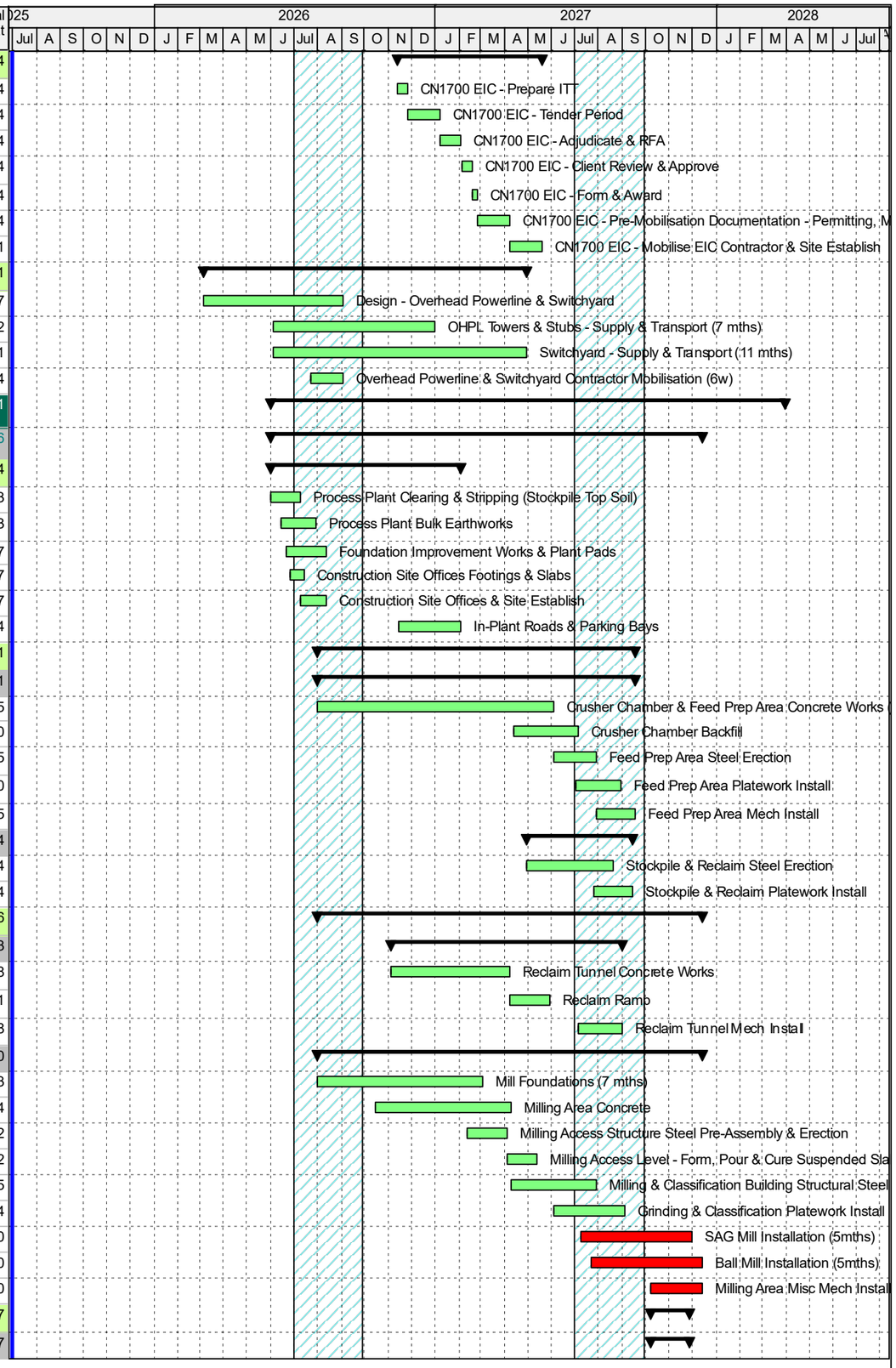


Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
1700 EIC		135	12-Nov-26	19-May-27	34
2326-DFS-CT-1780	CN1700 EIC - Prepare ITT	10	12-Nov-26	25-Nov-26	34
2326-DFS-CT-1800	CN1700 EIC - Tender Period	30	26-Nov-26	06-Jan-27	34
2326-DFS-CT-1860	CN1700 EIC - Adjudicate & RFA	20	07-Jan-27	03-Feb-27	34
2326-DFS-CT-1880	CN1700 EIC - Client Review & Approve	10	04-Feb-27	17-Feb-27	34
2326-DFS-CT-1910	CN1700 EIC - Form & Award	5	18-Feb-27	24-Feb-27	34
2326-DFS-CT-1920	CN1700 EIC - Pre-Mobilisation Documentation - Permitting, Medicals, Insurances etc	30	25-Feb-27	07-Apr-27	34
2326-DFS-CT-1960	CN1700 EIC - Mobilise EIC Contractor & Site Establish	36	08-Apr-27	19-May-27	41
Overhead Powerline (OHPL) & Switchyard		301	06-Mar-26	30-Apr-27	31
2326-DFS-CT-1320	Design - Overhead Powerline & Switchyard	129	06-Mar-26	02-Sep-26	27
2326-DFS-CT-1400	OHPL Towers & Stubs - Supply & Transport (7 mths)	151	04-Jun-26	31-Dec-26	32
2326-DFS-CT-1450	Switchyard - Supply & Transport (11 mths)	237	04-Jun-26	30-Apr-27	31
2326-DFS-CT-1950	Overhead Powerline & Switchyard Contractor Mobilisation (6w)	39	23-Jul-26	02-Sep-26	34
CONSTRUCTION		479	01-Jun-26	31-Mar-28	51
1.0 Treatment Plant		508	01-Jun-26	14-Dec-27	56
1.1 Treatment Plant - General		220	01-Jun-26	03-Feb-27	254
2326-DFS-CN-1020	Process Plant Clearing & Stripping (Stockpile Top Soil)	36	01-Jun-26	09-Jul-26	13
2326-DFS-CN-1090	Process Plant Bulk Earthworks	43	15-Jun-26	30-Jul-26	13
2326-DFS-CN-1190	Foundation Improvement Works & Plant Pads	48	22-Jun-26	12-Aug-26	77
2326-DFS-CN-1080	Construction Site Offices Footings & Slabs	18	26-Jun-26	15-Jul-26	77
2326-DFS-CN-1120	Construction Site Offices & Site Establish	32	09-Jul-26	12-Aug-26	77
2326-DFS-CN-1330	In-Plant Roads & Parking Bays	65	14-Nov-26	03-Feb-27	254
1.2 Feed Preparation		370	31-Jul-26	17-Sep-27	131
1.2.1 Primary Crushing		370	31-Jul-26	17-Sep-27	131
2326-DFS-CN-1300	Crusher Chamber & Feed Prep Area Concrete Works (10mths ~ based on 2400m3)	271	31-Jul-26	03-Jun-27	85
2326-DFS-CN-1430	Crusher Chamber Backfill	78	13-Apr-27	05-Jul-27	200
2326-DFS-CN-1690	Feed Prep Area Steel Erection	52	03-Jun-27	29-Jul-27	85
2326-DFS-CN-1800	Feed Prep Area Platework Install	55	02-Jul-27	30-Aug-27	90
2326-DFS-CN-1790	Feed Prep Area Mech Install	47	29-Jul-27	17-Sep-27	85
1.2.5 Stockpiling		128	30-Apr-27	14-Sep-27	74
2326-DFS-CN-1550	Stockpile & Reclaim Steel Erection	104	30-Apr-27	19-Aug-27	74
2326-DFS-CN-1930	Stockpile & Reclaim Platework Install	47	26-Jul-27	14-Sep-27	74
1.3 Milling		452	31-Jul-26	14-Dec-27	56
1.3.1 Reclaim		265	05-Nov-26	01-Sep-27	153
2326-DFS-CN-1390	Reclaim Tunnel Concrete Works	129	05-Nov-26	08-Apr-27	138
2326-DFS-CN-1910	Reclaim Ramp	48	08-Apr-27	29-May-27	241
2326-DFS-CN-1900	Reclaim Tunnel Mech Install	54	06-Jul-27	01-Sep-27	98
1.3.2 Grinding		452	31-Jul-26	14-Dec-27	0
2326-DFS-CN-1250	Mill Foundations (7 mths)	190	31-Jul-26	04-Mar-27	13
2326-DFS-CN-1380	Milling Area Concrete	148	15-Oct-26	09-Apr-27	64
2326-DFS-CN-1480	Milling Access Structure Steel Pre-Assembly & Erection	45	12-Feb-27	05-Apr-27	12
2326-DFS-CN-1720	Milling Access Level - Form, Pour & Cure Suspended Slab	36	05-Apr-27	13-May-27	12
2326-DFS-CN-1730	Milling & Classification Building Structural Steel Pre-Assembly & Erection	103	09-Apr-27	29-Jul-27	105
2326-DFS-CN-1920	Grinding & Classification Platework Install	86	04-Jun-27	04-Sep-27	84
2326-DFS-CN-1890	SAG Mill Installation (5mths)	136	09-Jul-27	01-Dec-27	0
2326-DFS-CN-1950	Ball Mill Installation (5mths)	136	22-Jul-27	14-Dec-27	0
2326-DFS-CN-2030	Milling Area Misc Mech Install	64	07-Oct-27	14-Dec-27	0
1.4 Trash Removal & Thickening		48	07-Oct-27	27-Nov-27	17
1.4.1 Trash Screening		48	07-Oct-27	27-Nov-27	17

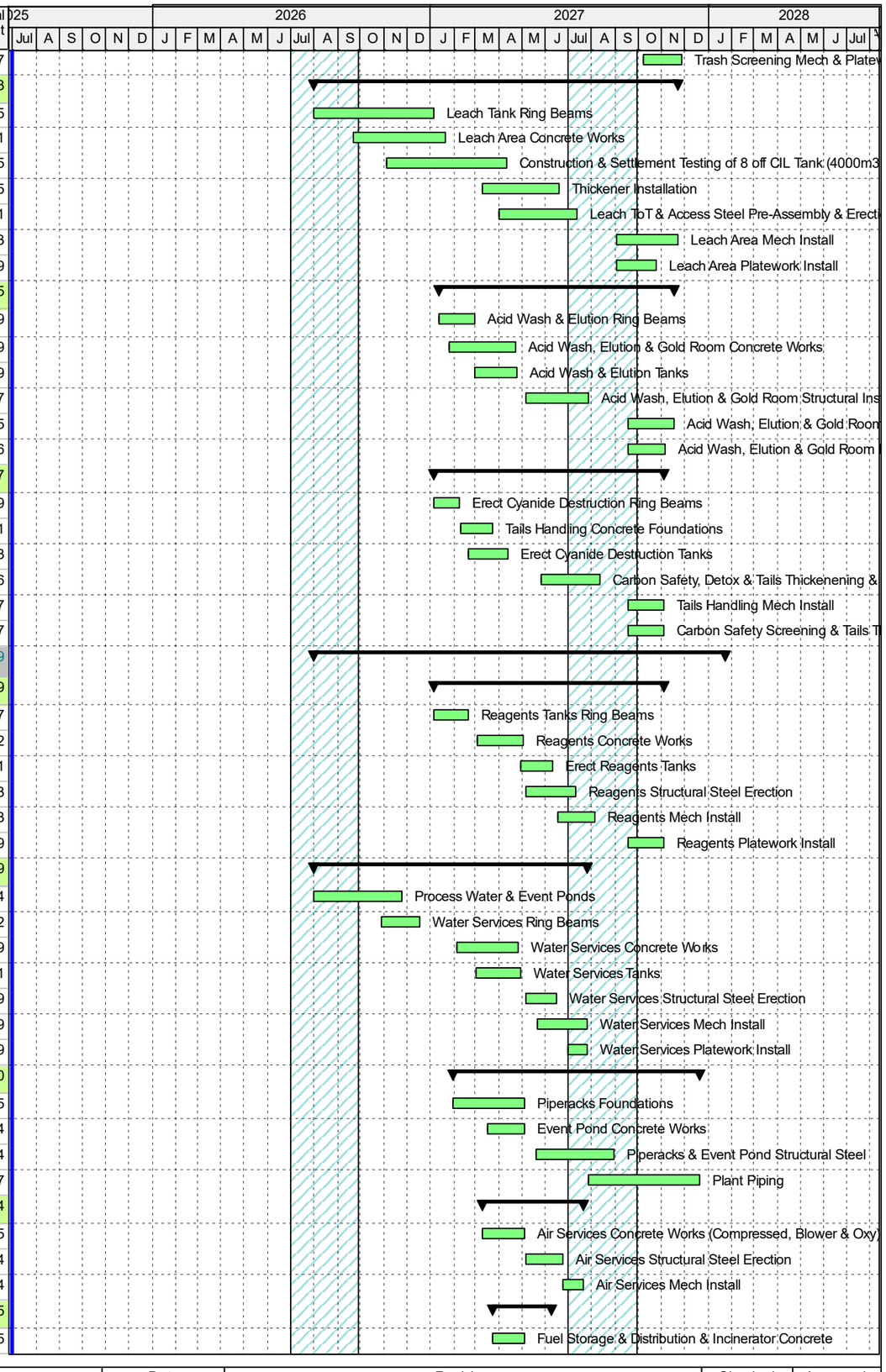


Summary | Milestone | Remaining Work | Critical Remaining Work | Actual Work | Actual Level of Effort | Remaining Level of... | % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-CN-2100	Trash Screening Mech & Platework Install	48	07-Oct-27	27-Nov-27	17
1.6 Leaching		430	31-Jul-26	21-Nov-27	23
2326-DFS-CN-1260	Leach Tank Ring Beams	136	31-Jul-26	05-Jan-27	45
2326-DFS-CN-1320	Leach Area Concrete Works	103	21-Sep-26	21-Jan-27	101
2326-DFS-CN-1370	Construction & Settlement Testing of 8 off CIL Tank (4000m3 each) (19wks)	132	05-Nov-26	11-Apr-27	45
2326-DFS-CN-1760	Thickener Installation	90	11-Mar-27	19-Jun-27	145
2326-DFS-CN-1850	Leach ToT & Access Steel Pre-Assembly & Erection	96	01-Apr-27	13-Jul-27	41
2326-DFS-CN-2040	Leach Area Mech Install	74	03-Sep-27	21-Nov-27	23
2326-DFS-CN-2110	Leach Area Platework Install	48	03-Sep-27	24-Oct-27	29
1.7 Elution & Gold Room		284	12-Jan-27	17-Nov-27	15
2326-DFS-CN-1400	Acid Wash & Elution Ring Beams	44	12-Jan-27	28-Feb-27	149
2326-DFS-CN-1450	Acid Wash, Elution & Gold Room Concrete Works	77	25-Jan-27	22-Apr-27	149
2326-DFS-CN-1630	Acid Wash & Elution Tanks	48	01-Mar-27	24-Apr-27	149
2326-DFS-CN-1820	Acid Wash, Elution & Gold Room Structural Install	77	06-May-27	27-Jul-27	107
2326-DFS-CN-2000	Acid Wash, Elution & Gold Room Mech Install	57	17-Sep-27	17-Nov-27	15
2326-DFS-CN-2050	Acid Wash, Elution & Gold Room Platework Install	46	17-Sep-27	05-Nov-27	26
1.8 Tails Handling		278	05-Jan-27	04-Nov-27	27
2326-DFS-CN-1350	Erect Cyanide Destruction Ring Beams	32	05-Jan-27	08-Feb-27	149
2326-DFS-CN-1410	Tails Handling Concrete Foundations	40	09-Feb-27	23-Mar-27	151
2326-DFS-CN-1650	Erect Cyanide Destruction Tanks	44	20-Feb-27	12-Apr-27	173
2326-DFS-CN-1870	Carbon Safety, Detox & Tails Thickenening & Pumping Steelwork	72	26-May-27	11-Aug-27	96
2326-DFS-CN-2080	Tails Handling Mech Install	45	17-Sep-27	04-Nov-27	27
2326-DFS-CN-2090	Carbon Safety Screening & Tails Thickening Platework Install	45	17-Sep-27	04-Nov-27	27
2 Reagents & Plant Services		479	31-Jul-26	23-Jan-28	29
2.1 Reagents		278	05-Jan-27	04-Nov-27	39
2326-DFS-CN-1470	Reagents Tanks Ring Beams	43	05-Jan-27	20-Feb-27	157
2326-DFS-CN-1640	Reagents Concrete Works	52	04-Mar-27	02-May-27	162
2326-DFS-CN-1860	Erect Reagents Tanks	38	30-Apr-27	10-Jun-27	131
2326-DFS-CN-1880	Reagents Structural Steel Erection	60	07-May-27	10-Jul-27	123
2326-DFS-CN-2060	Reagents Mech Install	45	18-Jun-27	05-Aug-27	123
2326-DFS-CN-2150	Reagents Platework Install	45	17-Sep-27	04-Nov-27	39
2.2 Water Services		320	31-Jul-26	25-Jul-27	79
2326-DFS-CN-1290	Process Water & Event Ponds	108	31-Jul-26	24-Nov-26	134
2326-DFS-CN-1360	Water Services Ring Beams	47	29-Oct-26	18-Dec-26	112
2326-DFS-CN-1460	Water Services Concrete Works	72	04-Feb-27	26-Apr-27	79
2326-DFS-CN-1560	Water Services Tanks	52	02-Mar-27	30-Apr-27	131
2326-DFS-CN-1810	Water Services Structural Steel Erection	38	07-May-27	16-Jun-27	79
2326-DFS-CN-2010	Water Services Mech Install	60	22-May-27	25-Jul-27	79
2326-DFS-CN-2140	Water Services Platework Install	24	30-Jun-27	25-Jul-27	79
2.3 Plant Services		298	31-Jan-27	20-Dec-27	50
2326-DFS-CN-1570	Piperacks Foundations	84	31-Jan-27	05-May-27	85
2326-DFS-CN-1980	Event Pond Concrete Works	43	16-Mar-27	05-May-27	264
2326-DFS-CN-1780	Piperacks & Event Pond Structural Steel	95	20-May-27	30-Aug-27	44
2326-DFS-CN-1610	Plant Piping	136	28-Jul-27	20-Dec-27	7
2.4 Air Services		119	11-Mar-27	20-Jul-27	84
2326-DFS-CN-1750	Air Services Concrete Works (Compressed, Blower & Oxy)	48	11-Mar-27	05-May-27	85
2326-DFS-CN-1990	Air Services Structural Steel Erection	44	07-May-27	23-Jun-27	84
2326-DFS-CN-2170	Air Services Mech Install	25	23-Jun-27	20-Jul-27	84
2.5 Fuels		68	24-Mar-27	08-Jun-27	165
2326-DFS-CN-1970	Fuel Storage & Distribution & Incinerator Concrete	36	24-Mar-27	05-May-27	165

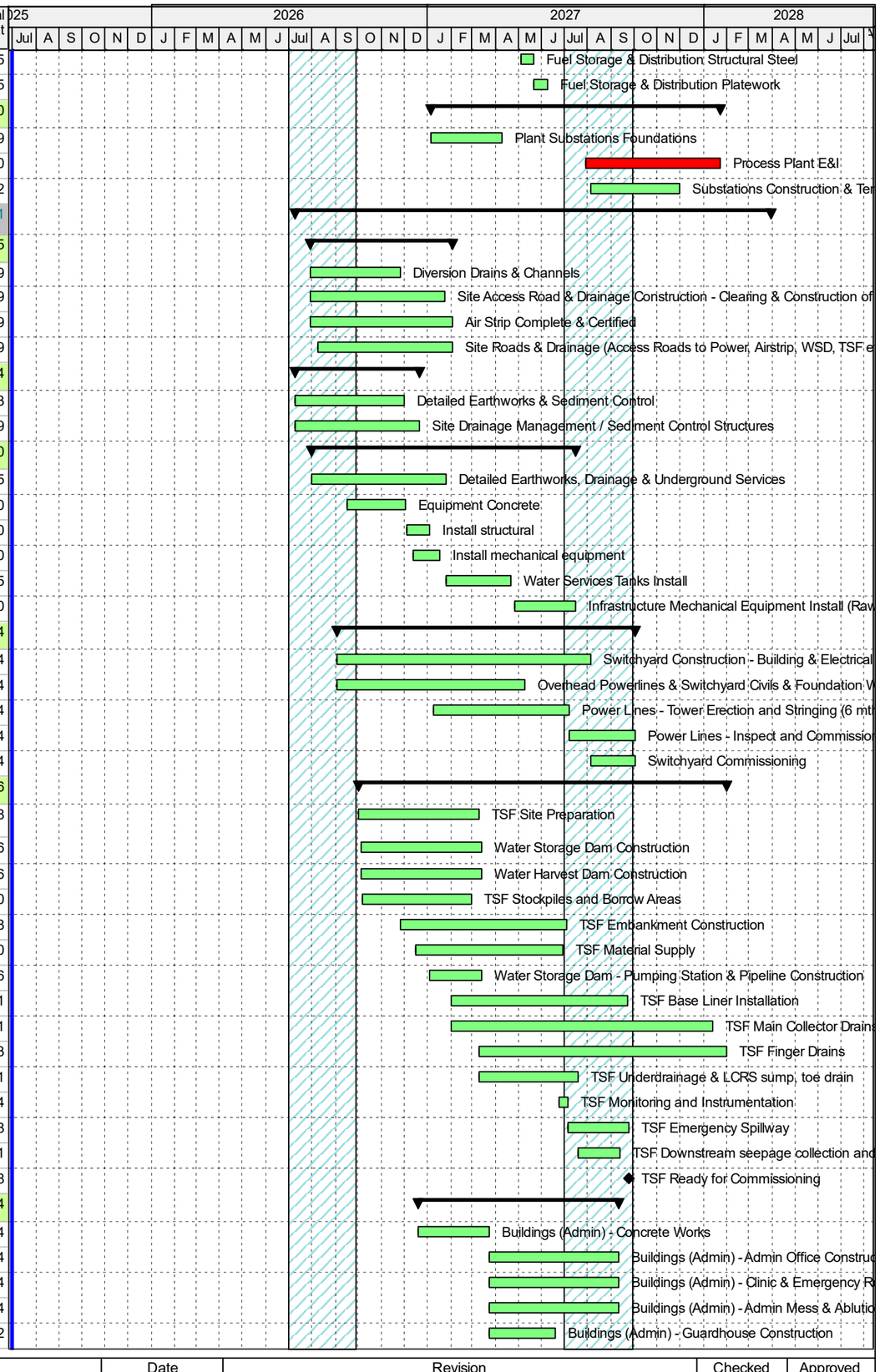


Summary | Milestone | Remaining Work | Critical Remaining Work | Actual Work | Actual Level of Effort | Remaining Level of... | % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-CN-2120	Fuel Storage & Distribution Structural Steel	16	05-May-27	22-May-27	165
2326-DFS-CN-2130	Fuel Storage & Distribution Platework	16	22-May-27	08-Jun-27	165
2.6 Electrical Services		343	05-Jan-27	23-Jan-28	0
2326-DFS-CN-1710	Plant Substations Foundations	84	05-Jan-27	09-Apr-27	179
2326-DFS-CN-1740	Process Plant E&I	155	30-Jul-27	23-Jan-28	0
2326-DFS-CN-1940	Substations Construction & Terminations	110	05-Aug-27	30-Nov-27	22
3 Infrastructure		451	09-Jul-26	31-Mar-28	51
3.1 Infrastructure - General		165	30-Jul-26	03-Feb-27	135
2326-DFS-CN-1150	Diversion Drains & Channels	111	30-Jul-26	26-Nov-26	189
2326-DFS-CN-1030	Site Access Road & Drainage Construction - Clearing & Construction of Sub-Base & Base Course	155	30-Jul-26	24-Jan-27	109
2326-DFS-CN-2300	Air Strip Complete & Certified	165	30-Jul-26	03-Feb-27	79
2326-DFS-CN-1110	Site Roads & Drainage (Access Roads to Power, Airstrip, WSD, TSF etc..)	155	09-Aug-26	03-Feb-27	79
3.2 Environmental		153	09-Jul-26	21-Dec-26	114
2326-DFS-CN-1170	Detailed Earthworks & Sediment Control	134	09-Jul-26	30-Nov-26	133
2326-DFS-CN-1140	Site Drainage Management / Sediment Control Structures	153	09-Jul-26	21-Dec-26	109
3.3 Water & Sewerage		312	31-Jul-26	16-Jul-27	100
2326-DFS-CN-1210	Detailed Earthworks, Drainage & Underground Services	155	31-Jul-26	25-Jan-27	105
2326-DFS-CN-1620	Equipment Concrete	72	17-Sep-26	03-Dec-26	100
2326-DFS-CN-2020	Install structural	18	04-Dec-26	04-Jan-27	100
2326-DFS-CN-2070	Install mechanical equipment	22	12-Dec-26	16-Jan-27	100
2326-DFS-CN-1830	Water Services Tanks Install	76	25-Jan-27	21-Apr-27	105
2326-DFS-CN-2160	Infrastructure Mechanical Equipment Install (Raw, Fire, Potable, Sewage, Buildings)	76	26-Apr-27	16-Jul-27	100
3.4 Power Supply		352	03-Sep-26	02-Oct-27	34
2326-DFS-CN-1660	Switchyard Construction - Building & Electrical	298	03-Sep-26	05-Aug-27	34
2326-DFS-CN-2780	Overhead Powerlines & Switchyard Civils & Foundation Works	217	03-Sep-26	10-May-27	34
2326-DFS-CN-1540	Power Lines - Tower Erection and Stringing (6 mths)	163	09-Jan-27	07-Jul-27	34
2326-DFS-CN-2770	Power Lines - Inspect and Commission	81	07-Jul-27	02-Oct-27	34
2326-DFS-CN-2380	Switchyard Commissioning	54	05-Aug-27	02-Oct-27	34
3.5 Tailings Dam & Water Storage Dam		348	01-Oct-26	31-Jan-28	56
2326-DFS-CN-1200	TSF Site Preparation	137	01-Oct-26	09-Mar-27	28
2326-DFS-CN-2330	Water Storage Dam Construction	129	05-Oct-26	13-Mar-27	46
2326-DFS-CN-2340	Water Harvest Dam Construction	129	05-Oct-26	13-Mar-27	46
2326-DFS-CN-1240	TSF Stockpiles and Borrow Areas	124	07-Oct-26	28-Feb-27	110
2326-DFS-CN-1310	TSF Embankment Construction	190	26-Nov-26	04-Jul-27	28
2326-DFS-CN-2015	TSF Material Supply	167	16-Dec-26	28-Jun-27	110
2326-DFS-CN-2620	Water Storage Dam - Pumping Station & Pipeline Construction	60	04-Jan-27	13-Mar-27	46
2326-DFS-CN-1520	TSF Base Liner Installation	214	01-Feb-27	22-Sep-27	31
2326-DFS-CN-1700	TSF Main Collector Drains & Channels	308	01-Feb-27	12-Jan-28	31
2326-DFS-CN-1500	TSF Finger Drains	292	10-Mar-27	31-Jan-28	73
2326-DFS-CN-1580	TSF Underdrainage & LCRS sump, toe drain	119	10-Mar-27	19-Jul-27	31
2326-DFS-CN-1770	TSF Monitoring and Instrumentation	11	23-Jun-27	05-Jul-27	104
2326-DFS-CN-1340	TSF Emergency Spillway	77	05-Jul-27	24-Sep-27	28
2326-DFS-CN-1840	TSF Downstream seepage collection and outlet channel	52	20-Jul-27	13-Sep-27	31
2326-DFS-CN-1845	TSF Ready for Commissioning	0		24-Sep-27	28
3.6 Buildings - Admin & Security		231	20-Dec-26	10-Sep-27	104
2326-DFS-CN-2420	Buildings (Admin) - Concrete Works	76	20-Dec-26	23-Mar-27	104
2326-DFS-CN-1670	Buildings (Admin) - Admin Office Construction	155	24-Mar-27	10-Sep-27	104
2326-DFS-CN-2390	Buildings (Admin) - Clinic & Emergency Response Construction	155	24-Mar-27	10-Sep-27	104
2326-DFS-CN-2400	Buildings (Admin) - Admin Mess & Ablutions Construction	155	24-Mar-27	10-Sep-27	104
2326-DFS-CN-2410	Buildings (Admin) - Guardhouse Construction	77	24-Mar-27	18-Jun-27	182

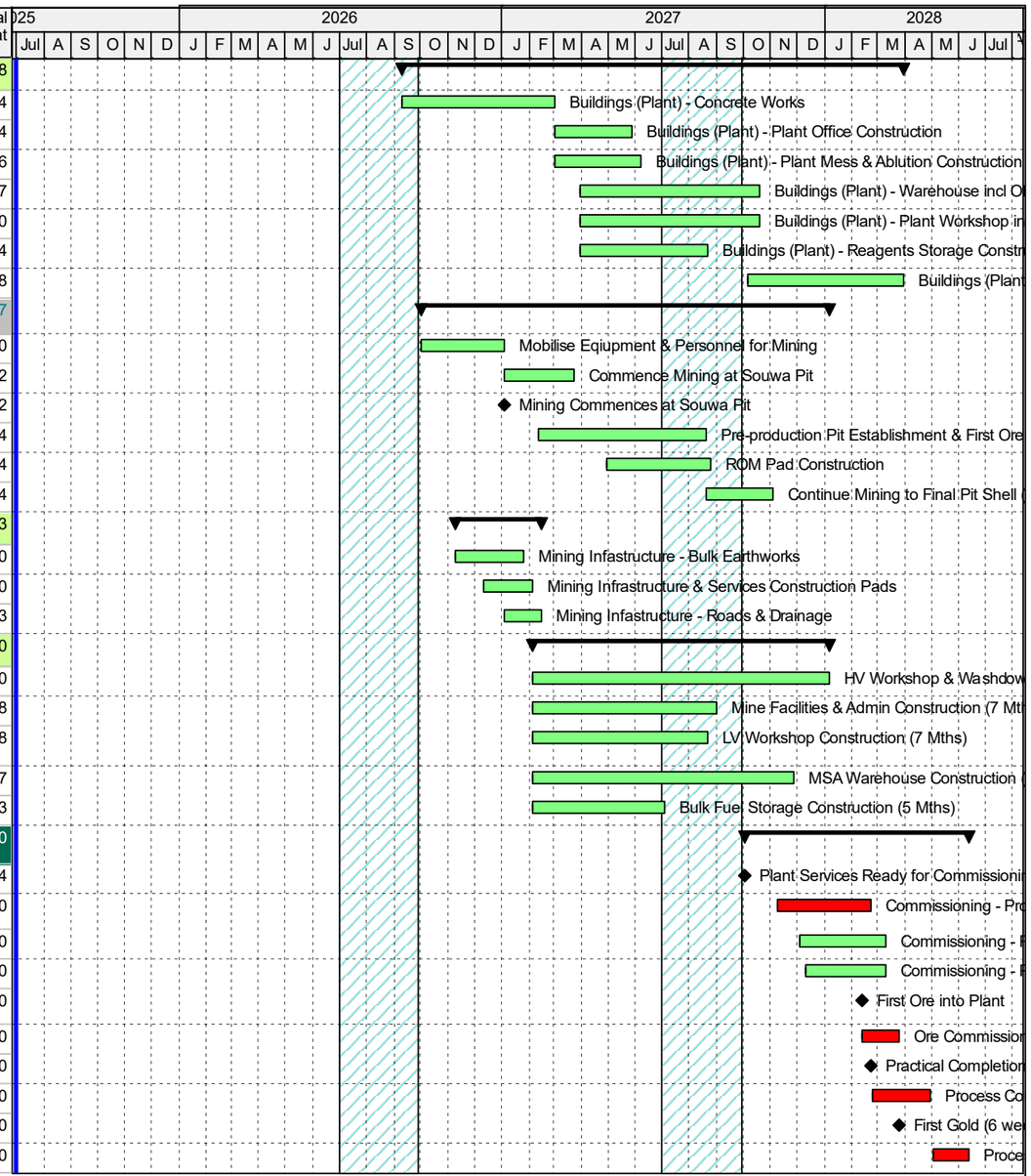


Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
3.7 Buildings - Plant		504	10-Sep-26	31-Mar-28	68
2326-DFS-CN-1280	Buildings (Plant) - Concrete Works	150	10-Sep-26	02-Mar-27	104
2326-DFS-CN-2440	Buildings (Plant) - Plant Office Construction	77	02-Mar-27	28-May-27	344
2326-DFS-CN-2450	Buildings (Plant) - Plant Mess & Ablution Construction	86	02-Mar-27	06-Jun-27	336
2326-DFS-CN-1680	Buildings (Plant) - Warehouse incl Office & Ablution Construction (7mth)	190	30-Mar-27	20-Oct-27	67
2326-DFS-CN-2430	Buildings (Plant) - Plant Workshop incl Office & Ablution Construction (7mth)	190	30-Mar-27	20-Oct-27	210
2326-DFS-CN-2460	Buildings (Plant) - Reagents Storage Construction (5mth)	136	30-Mar-27	22-Aug-27	264
2326-DFS-CN-1490	Buildings (Plant) - Laboratory Construction & Fitout	155	06-Oct-27	31-Mar-28	68
4 Mining		405	01-Oct-26	06-Jan-28	147
2326-DFS-CN-2470	Mobilise Eqiupment & Personnel for Mining	78	01-Oct-26*	04-Jan-27	70
2326-DFS-CN-2480	Commence Mining at Souwa Pit	73	04-Jan-27	23-Mar-27	402
2326-DFS-CN-2490	Mining Commences at Souwa Pit	0	04-Jan-27		402
2326-DFS-CN-1530	Pre-production Pit Establishment & First Ore Delivery	172	12-Feb-27	20-Aug-27	94
2326-DFS-CN-1440	ROM Pad Construction	110	29-Apr-27	25-Aug-27	184
2326-DFS-CN-2190	Continue Mining to Final Pit Shell (Ramp up & Stockpile)	71	20-Aug-27	04-Nov-27	94
4.1 Mining-General		80	10-Nov-26	15-Feb-27	263
2326-DFS-CN-2550	Mining Infastructure - Bulk Earthworks	60	10-Nov-26	25-Jan-27	70
2326-DFS-CN-2560	Mining Infrastructure & Services Construction Pads	40	12-Dec-26	04-Feb-27	70
2326-DFS-CN-2570	Mining Infastructure - Roads & Drainage	40	04-Jan-27	15-Feb-27	263
4.5 Mining Facilities		298	05-Feb-27	06-Jan-28	70
2326-DFS-CN-2500	HV Workshop & Washdown Construction (11 Mths)	298	05-Feb-27	06-Jan-28	70
2326-DFS-CN-2510	Mine Facilities & Admin Construction (7 Mths)	190	05-Feb-27	01-Sep-27	178
2326-DFS-CN-2520	LV Workshop Construction (7 Mths)	181	05-Feb-27	22-Aug-27	188
2326-DFS-CN-2530	MSA Warehouse Construction (10 Mths)	271	05-Feb-27	27-Nov-27	97
2326-DFS-CN-2540	Bulk Fuel Storage Construction (5 Mths)	136	05-Feb-27	04-Jul-27	233
COMMISSIONING		181	02-Oct-27	12-Jun-28	0
2326-DFS-CM-1080	Plant Services Ready for Commissioning (Air/Water/Power)	0		02-Oct-27	34
2326-DFS-CM-1000	Commissioning - Process Plant C1	90	08-Nov-27	23-Feb-28	0
2326-DFS-CM-1030	Commissioning - Process Plant C2	80	04-Dec-27	10-Mar-28	10
2326-DFS-CM-1040	Commissioning - Process Plant C3	75	10-Dec-27	10-Mar-28	10
2326-DFS-CM-1070	First Ore into Plant	0		12-Feb-28	0
2326-DFS-CM-1090	Ore Commissioning (6 weeks)	42	12-Feb-28	25-Mar-28	0
2326-DFS-CM-1060	Practical Completion	0		23-Feb-28	0
2326-DFS-CM-1010	Process Commissioning - Process Plant C4	66	23-Feb-28	29-Apr-28	0
2326-DFS-CM-1020	First Gold (6 weeks after First Ore into Plant)	0		25-Mar-28	0
2326-DFS-CM-1050	Process Plant Performance Testing C5	40	03-May-28	12-Jun-28	0



Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

APPENDIX 16.4

CRITICAL ACTIVITIES

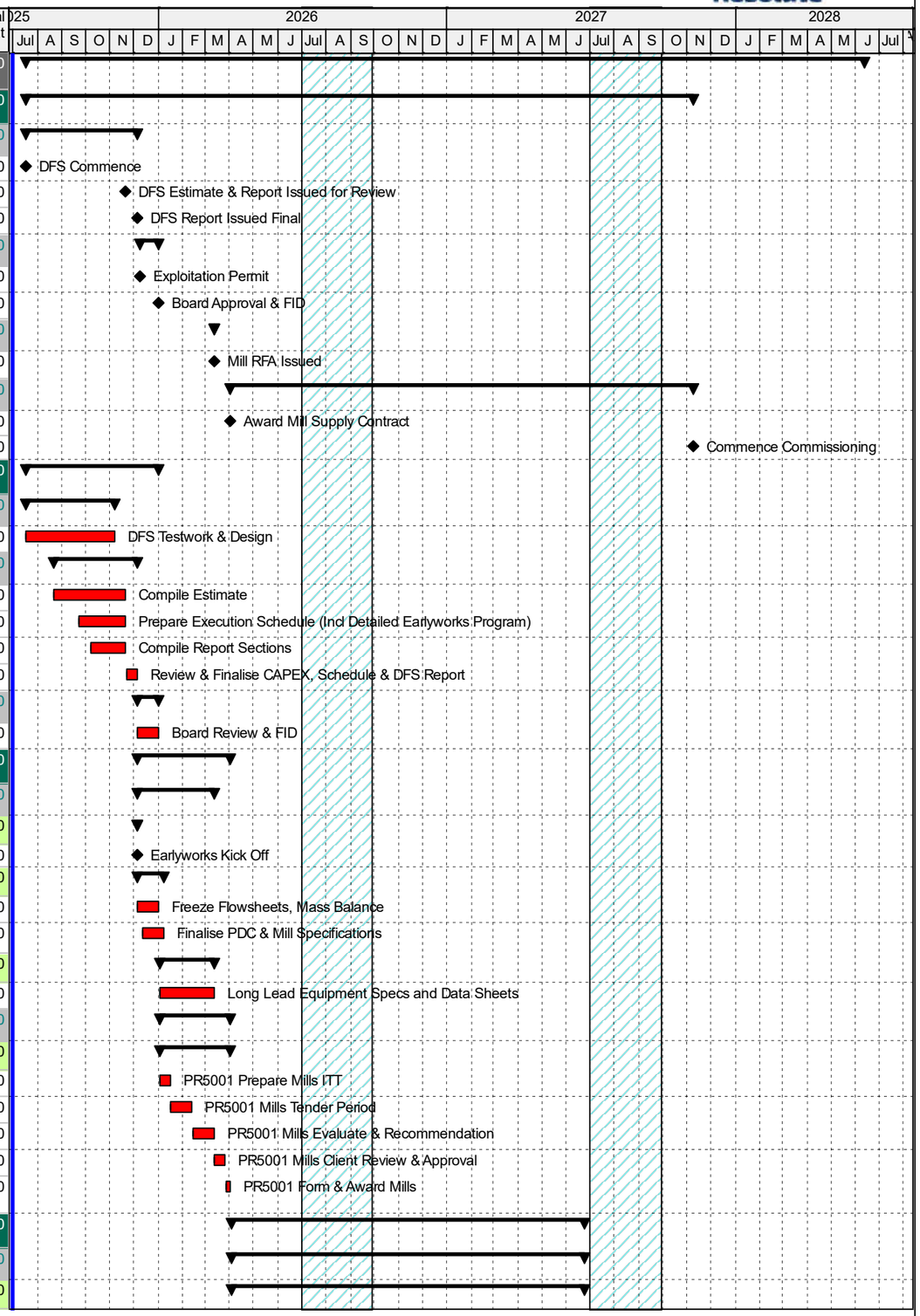
Lycopodium

PROJECT: Doropo Gold Project - DFS

Schedule Version: DFS - Preliminary Implementation Schedule

Resolute

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
Doropo Gold Project DFS - Preliminary Schedule 26Nov2025		757	18-Jul-25	12-Jun-28	0
MILESTONES		602	18-Jul-25	08-Nov-27	0
DFS Milestones		100	18-Jul-25	04-Dec-25	0
2326-DFS-MS-0010	DFS Commence	0	18-Jul-25*		0
2326-DFS-MS-2000	DFS Estimate & Report Issued for Review	0		20-Nov-25	0
2326-DFS-MS-2005	DFS Report Issued Final	0		04-Dec-25	0
Owners Project Milestones		17	09-Dec-25	31-Dec-25	0
2326-DFS-MS-1220	Exploitation Permit	0	09-Dec-25*		0
2326-DFS-MS-1001	Board Approval & FID	0		31-Dec-25*	0
FEED / Earlyworks Milestones		0	13-Mar-26	13-Mar-26	0
2326-DFS-MS-1180	Mill RFA Issued	0	13-Mar-26		0
EPCM Milestones		417	02-Apr-26	08-Nov-27	0
2326-DFS-MS-1020	Award Mill Supply Contract	0		02-Apr-26	0
2326-DFS-MS-1130	Commence Commissioning	0	08-Nov-27		0
DFS		119	18-Jul-25	31-Dec-25	0
DFS Design		80	18-Jul-25	06-Nov-25	0
2326-DFS-EN-1270	DFS Testwork & Design	80	18-Jul-25	06-Nov-25	0
Reporting		75	22-Aug-25	04-Dec-25	0
2326-DFS-DR-1530	Compile Estimate	65	22-Aug-25	20-Nov-25	0
2326-DFS-DR-1580	Prepare Execution Schedule (Incl Detailed Earlyworks Program)	43	23-Sep-25	20-Nov-25	0
2326-DFS-DR-1570	Compile Report Sections	32	07-Oct-25	20-Nov-25	0
2326-DFS-DR-1590	Review & Finalise CAPEX, Schedule & DFS Report	10	21-Nov-25	04-Dec-25	0
Reviews & FID		19	05-Dec-25	31-Dec-25	0
2326-DFS-EN-1300	Board Review & FID	19	05-Dec-25	31-Dec-25	0
EARLYWORKS		85	05-Dec-25	02-Apr-26	0
FEED		70	05-Dec-25	12-Mar-26	0
Milestones		0	05-Dec-25	05-Dec-25	0
2326-DFS-EN-3020	Earlyworks Kick Off	0	05-Dec-25		0
Process		25	05-Dec-25	08-Jan-26	0
2326-DFS-EN-1010	Freeze Flowsheets, Mass Balance	20	05-Dec-25	01-Jan-26	0
2326-DFS-EN-1020	Finalise PDC & Mill Specifications	20	12-Dec-25	08-Jan-26	0
SMP		50	02-Jan-26	12-Mar-26	0
2326-DFS-EN-1070	Long Lead Equipment Specs and Data Sheets	50	02-Jan-26	12-Mar-26	0
Long Lead Equipment Procurement		65	02-Jan-26	02-Apr-26	0
5001 Ball & SAG Mills		65	02-Jan-26	02-Apr-26	0
2326-DFS-PR-1000	PR5001 Prepare Mills ITT	10	02-Jan-26	15-Jan-26	0
2326-DFS-PR-1010	PR5001 Mills Tender Period	20	16-Jan-26	12-Feb-26	0
2326-DFS-PR-1040	PR5001 Mills Evaluate & Recommendation	20	13-Feb-26	12-Mar-26	0
2326-DFS-PR-1060	PR5001 Mills Client Review & Approval	10	13-Mar-26	26-Mar-26	0
2326-DFS-PR-1090	PR5001 Form & Award Mills	5	27-Mar-26	02-Apr-26	0
PROCUREMENT		320	03-Apr-26	24-Jun-27	0
Mechanical		320	03-Apr-26	24-Jun-27	0
5001 Ball & SAG Mills		320	03-Apr-26	24-Jun-27	0

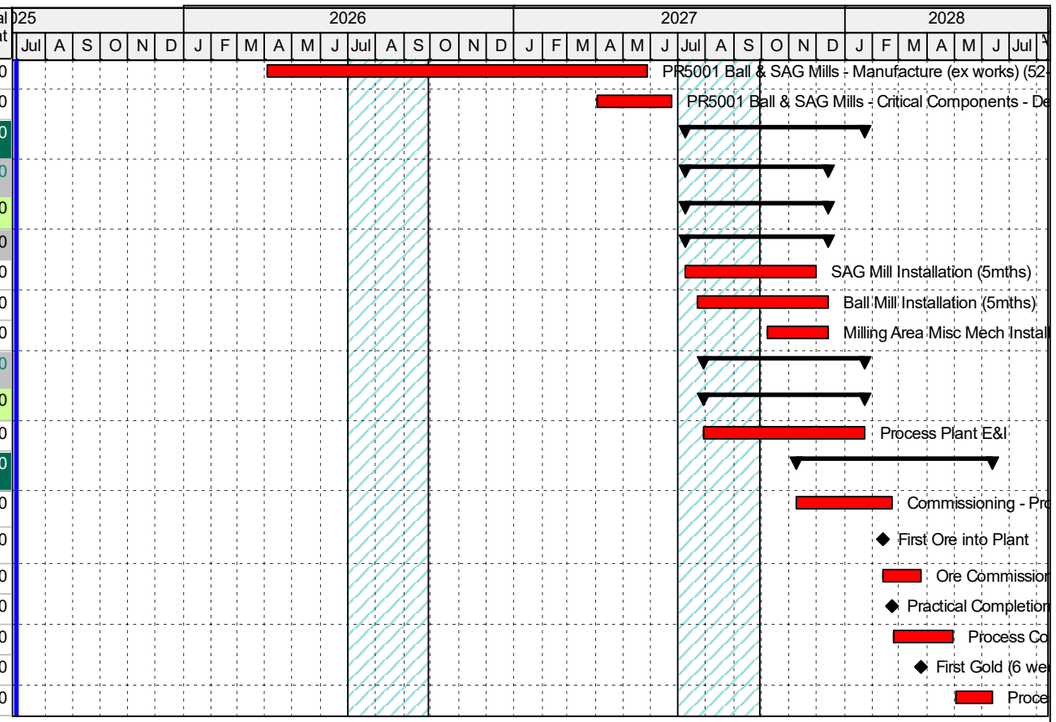


Summary | Milestone | Remaining Work | Critical Remaining Work | Actual Work | Actual Level of Effort | Remaining Level of... | % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: Critical.
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-PR-1310	PR5001 Ball & SAG Mills - Manufacture (ex works) (52-60 weeks)	300	03-Apr-26	27-May-27	0
2326-DFS-PR-2710	PR5001 Ball & SAG Mills - Critical Components - Deliver to Site	84	02-Apr-27	24-Jun-27	0
CONSTRUCTION		175	09-Jul-27	23-Jan-28	0
1.0 Treatment Plant		148	09-Jul-27	14-Dec-27	0
1.3 Milling		148	09-Jul-27	14-Dec-27	0
1.3.2 Grinding		148	09-Jul-27	14-Dec-27	0
2326-DFS-CN-1890	SAG Mill Installation (5mths)	136	09-Jul-27	01-Dec-27	0
2326-DFS-CN-1950	Ball Mill Installation (5mths)	136	22-Jul-27	14-Dec-27	0
2326-DFS-CN-2030	Milling Area Misc Mech Install	64	07-Oct-27	14-Dec-27	0
2 Reagents & Plant Services		155	30-Jul-27	23-Jan-28	0
2.6 Electrical Services		155	30-Jul-27	23-Jan-28	0
2326-DFS-CN-1740	Process Plant E&I	155	30-Jul-27	23-Jan-28	0
COMMISSIONING		155	08-Nov-27	12-Jun-28	0
2326-DFS-CM-1000	Commissioning - Process Plant C1	90	08-Nov-27	23-Feb-28	0
2326-DFS-CM-1070	First Ore into Plant	0		12-Feb-28	0
2326-DFS-CM-1090	Ore Commissioning (6 weeks)	42	12-Feb-28	25-Mar-28	0
2326-DFS-CM-1060	Practical Completion	0		23-Feb-28	0
2326-DFS-CM-1010	Process Commissioning - Process Plant C4	66	23-Feb-28	29-Apr-28	0
2326-DFS-CM-1020	First Gold (6 weeks after First Ore into Plant)	0		25-Mar-28	0
2326-DFS-CM-1050	Process Plant Performance Testing C5	40	03-May-28	12-Jun-28	0



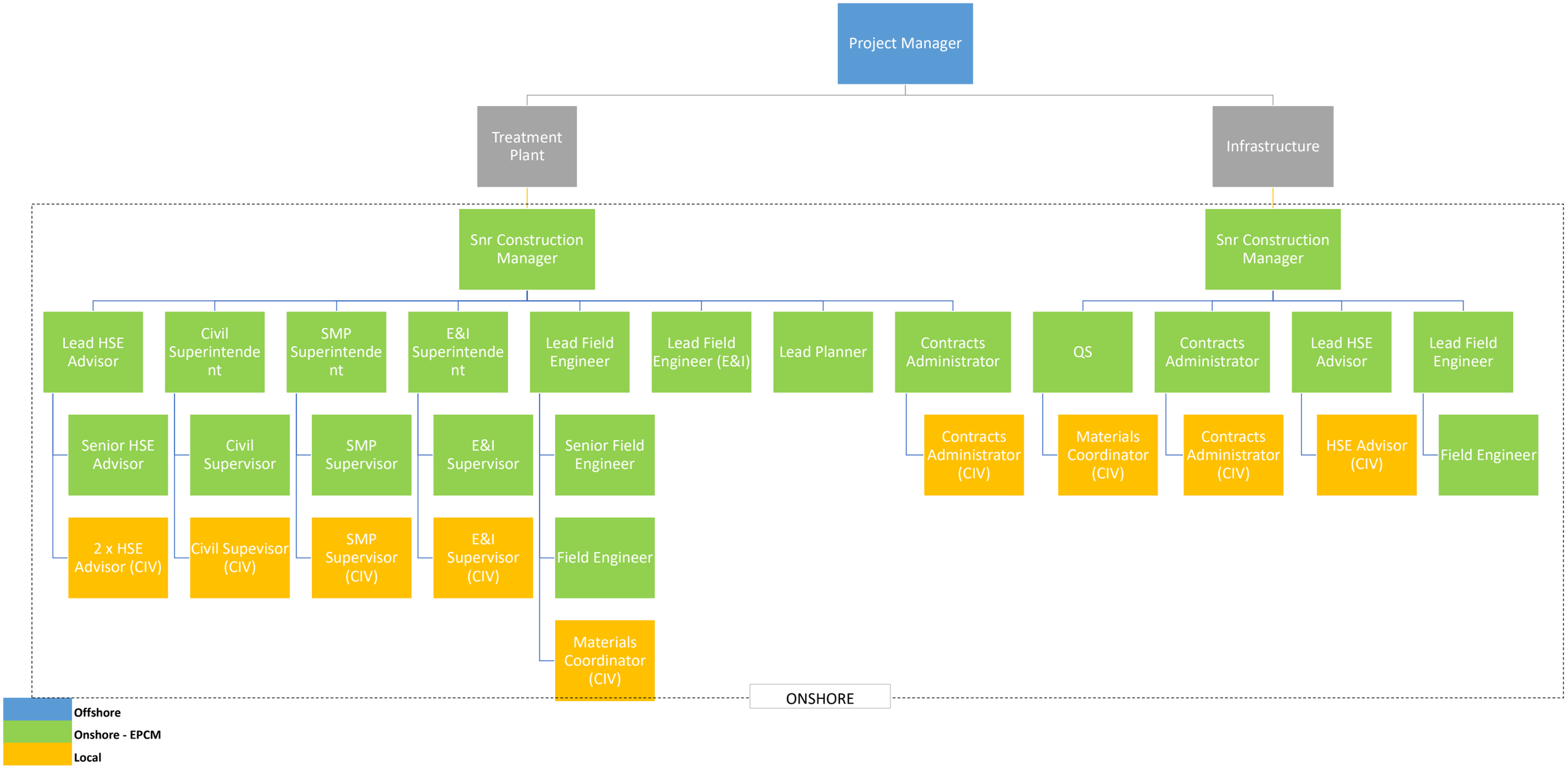
Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

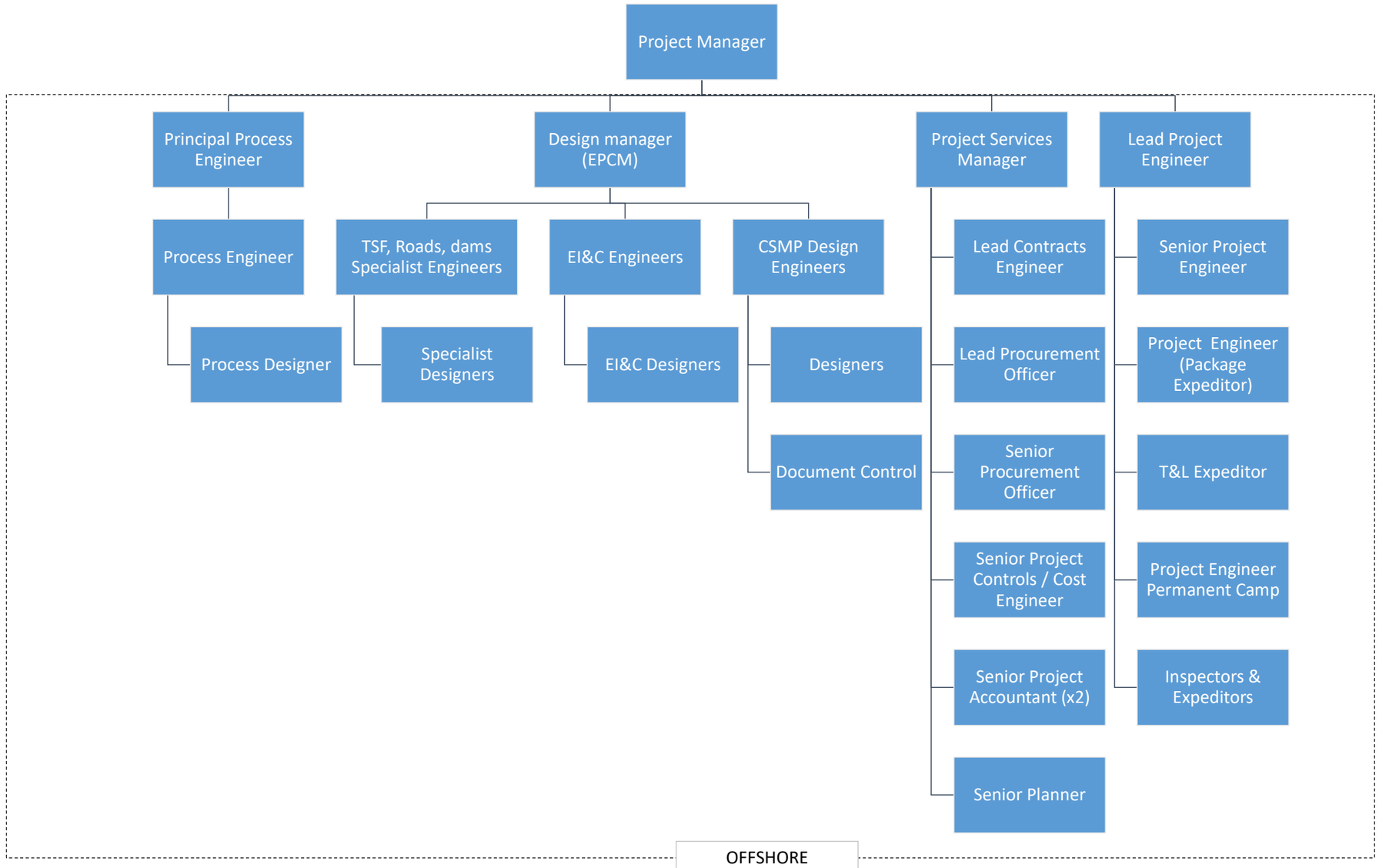
Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: Critical.
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

APPENDIX 16.5

DOROPO EPCM ORGANISATION CHART


Project Manager
Treatment Plant
Infrastructure
Snr Construction Manager
Snr Construction Manager
Lead HSE Advisor
Civil Superintendent
SMP Superintendent
E&I Superintendent
Lead Field Engineer
Lead Field Engineer (E&I)
Lead Planner
Contracts Administrator
QS
Contracts Administrator
Lead HSE Advisor
Lead Field Engineer
Senior HSE Advisor
Civil Supervisor
SMP Supervisor
E&I Supervisor
Senior Field Engineer
Contracts Administrator (CIV)
Materials Coordinator (CIV)
Contracts Administrator (CIV)
HSE Advisor (CIV)
Field Engineer
2 x HSE Advisor (CIV)
Civil Supevisor (CIV)
SMP Supervisor (CIV)
E&I Supervisor (CIV)
Field Engineer
Materials Coordinator (CIV)
ONSHORE
Offshore
Onshore - EPCM
Local



Offshore
Onshore - EPCM
Local

APPENDIX 16.6

DOROPO PROJECT EXECUTION PLAN

Resolute Mining Limited

Doropo Gold Project

Project Execution Plan

2326-GPLN-001

December 2025

REV NO.	DATE	DESCRIPTION OF REVISION	BY	DESIGN APPROVED	PROJECT APPROVED	CLIENT APPROVED
B	09.12.25	ISSUED FOR REVIEW			Alwyn Scholtz	
A	05.12.25	ISSUED FOR REVIEW		DH	AS	

This document is the property of Lycopodium. It must not be copied or reproduced in any way or transmitted on to any third party without written authority from Lycopodium.

Doropo Gold Project

Project Execution Plan

2326-GPLN-001

Table of Contents

			Page
1.0	**INTRODUCTION**		**1**
	1.1	Project Location	1
	1.2	Execution Strategy	2
	1.3	Project Objectives	3
	1.4	Performance Indicators	3
2.0	**PROJECT SCOPE**		**4**
	2.1	Scope of Work	4
	2.2	EPCM Controlled Scope	4
		2.2.1 Scope of Facilities	4
	2.3	Resolute Controlled Scope	5
	2.4	EPCM Scope of Services	7
	2.5	Work Breakdown Structure	9
3.0	**PROJECT ORGANISATION AND RESPONSIBILITIES**		**10**
	3.1	Organisational Structure	10
	3.2	Project Team	10
		3.2.1 EPCM Project Management Organisation	10
		3.2.2 Key Roles	10
4.0	**COMMUNICATION MANAGEMENT**		**16**
	4.1	General	16
	4.2	Meetings	16
	4.3	Project Correspondence	17
	4.4	Project Reporting	17
	4.5	Document Management	18
	4.6	Resolute Approvals	18
	4.7	Authorities	18
5.0	**ENGINEERING AND DESIGN**		**18**
	5.1	General	18
	5.2	Objectives	19
	5.3	Engineering Organisation Structure	19
	5.4	Design Inputs	19
		5.4.1 Scope of Work and Battery Limits	19
		5.4.2 Area Designations	20
		5.4.3 Standards and Codes	20
	5.5	Detailed Design Process	20
	5.6	Early Works FEED	20
	5.7	Design Deliverable Approvals	21
		5.7.1 Design Change Management	21
		5.7.2 Technical Queries	21
		5.7.3 Tenders	21

Table of Contents

			Page
	5.7.4	Vendor Data	21
	5.7.5	Document Control	22
5.8	Design Reviews		22
5.9	Construction and Commissioning Support		23
	5.9.1	Supply, Fabrication and Construction	23
	5.9.2	Site Engineering Team	23
	5.9.3	Pre-operation Testing and Commissioning	23
6.0	**CONTRACTS AND PROCUREMENT**		**24**
6.1	Philosophy and Approach		24
6.2	Types of Contracts		24
6.3	Contracting and Procurement Team		26
6.4	Accountabilities		26
6.5	Manufacturing, Fabrication and Inspection		26
6.6	Expediting and Logistics		27
6.7	Site Contract Administration		27
7.0	**TRANSPORT AND LOGISTICS**		**28**
7.1	General		28
7.2	Import Licenses / Permits / Insurance		29
7.3	Tracking of Cargo		29
7.4	Cost Reporting		29
7.5	Documentation		29
8.0	**PROJECT CONTROLS**		**30**
8.1	Purpose of the Project Controls Plan		30
8.2	Scope of the Project Controls Plan		30
8.3	Primary Controls Primary Deliverables		31
8.4	Planning and Scheduling		32
	8.4.1	Schedule Development	32
	8.4.2	Critical Path	33
	8.4.3	Project Milestones	33
	8.4.4	Performance Indicators	35
	8.4.5	Schedule Updates / Reporting	35
	8.4.6	Accommodation Manning	35
8.5	Cost Control		35
8.6	Change Management		36
	8.6.1	Types of Change	36
8.7	Accountabilities		37
9.0	**HEALTH AND SAFETY**		**38**
9.1	Health and Safety System Elements		39
9.2	HSE Management Plan		39
	9.2.1	Contractors' HSE Plans	40

Table of Contents

			Page
	9.3	Contractor Management	42
	9.4	Emergency Response Management	42
10.0	**ENVIRONMENT**		**42**
	10.1	General	42
	10.2	Environmental Management	43
		10.2.1 Contractor-Specific Environmental Management Plans	43
	10.3	Community Relations Management	44
11.0	**QUALITY ASSURANCE / QUALITY CONTROL**		**44**
	11.1	Quality System	44
	11.2	Project Quality Plan	44
	11.3	Objectives	45
	11.4	Quality Management Plan Ownership	45
	11.5	Organisation and Responsibilities	45
		11.5.1 Project Management	45
		11.5.2 Engineering	46
		11.5.3 Procurement, Contracts and expediting	46
	11.6	Vendor / Contractor Audits	46
	11.7	Materials Control	47
	11.8	Vendor / Contractor ITPs	47
	11.9	Vendor / Contractor Reporting	47
	11.10	Non-Conformance Control	48
	11.11	Project Inductions	48
	11.12	Construction QA/QC	48
12.0	**RISK AND OPPORTUNITY MANAGEMENT**		**48**
	12.1	Introduction	48
	12.2	Risk Workshops and Registers	49
	12.3	Opportunities	49
13.0	**CONSTRUCTION PLAN**		**50**
	13.1	Overview	50
	13.2	Critical Issues	50
	13.3	Construction Organisation and Responsibilities	51
		13.3.1 General	51
		13.3.2 Roles and Responsibilities	51
		13.3.3 Project Inductions	52
		13.3.4 Plans and Procedures	52
		13.3.5 Construction Schedule	52
		13.3.6 Interface Management	52
		13.3.7 Community and Employee Relations	53
		13.3.8 Working Hours	53
	13.4	Plant Construction	53

Table of Contents

			Page
	13.5	Constructability	56
	13.6	Site Materials Management	56
	13.7	Coordination and Communication	57
		13.7.1 Reporting Requirements	57
		13.7.2 Site Photographs	57
		13.7.3 Construction Team Meetings	57
	13.8	Critical Issues	58
	13.9	Health, Safety and Environment	58
	13.10	Field Engineering	59
	13.11	Site Quality	59
	13.12	Construction Close Out	59
	13.13	Community and Industrial Relations	60
		13.13.1 Employee Plan	60
		13.13.2 Working Hours	60
		13.13.3 Employment Guidelines	60
14.0	**COMMISSIONING AND HANDOVER**		**61**
	14.1	Objective	61
	14.2	Phases of Commissioning	61
	14.3	Implementation	62
15.0	**PROJECT CLOSE OUT**		**62**
	15.1	General and Project Archiving	62
	15.2	Strategy	62
	15.3	Handover Certificate	63
	15.4	As-Built Documentation	63
	15.5	Close Out Report	63

TABLES

Table 2.1	Battery Limit	9
Table 5.1	Design Reviews	22
Table 6.1	Contracting Plan	24
Table 8.1	Project Milestone Dates	33

FIGURES

Figure 1.1	Project Location	1
Figure 8.1	PCN Flowchart	37
Figure 9.1	H&S Management Strategy / Plan Hierarchy	40

Table of Contents

Page

APPENDICES

Appendix A Flowsheets and General Arrangements
Appendix B Work Breakdown Structure
Appendix C Organisation Chart
Appendix D Project Schedule
Appendix E Project Schedule – Critical Path

DISCLAIMER

This plan has been prepared for Resolute Mining Limited by Lycopodium Minerals Pty Ltd (Lycopodium) as an independent consultant and is based in part on information furnished by Resolute Mining Limited and in part on information not within the control of either Resolute Mining Limited or Lycopodium. While it is believed that the information, conclusions and recommendations will be reliable under the conditions and subject to the limitations set forward herein, Lycopodium does not guarantee their accuracy. The use of this plan and the information contained herein shall be at the user's sole risk, regardless of any fault or negligence of Lycopodium.

LIST OF ABBREVIATIONS IN THIS DOCUMENT

Resolute Mining Limited	Resolute
Engineering, Procurement and Construction Management	EPCM
Doropo Gold Project	the Project
Carbon in Leach	CIL
Definitive Feasibility Study	DFS
Hazard and Operability (studies)	HAZOP
Health Safety and Environmental	HSE
Human Resources	HR
High Voltage	HV
Inspection and Test Plan	ITP
Industrial Relations	IR
Lost Time Injury Frequency Rate	LTIFR
Materials Data Report	MDR
Million tonnes per annum	Mtpa
Mine Services Area	MSA
Motor Control Centre	MCC
Piping and Instrumentation Diagram	P&ID
Process Flow Diagram	PFD
Project Change Notification	PCN
Project Execution Plan	PEP
Project Manager	PM
Project Master Schedule	PMS
Project Quality Management Plan	QMP

Quality Assurance	QA
Quality Control	QC
Quality Document Management System	QDMS
Required At Site (date)	RAS
Recommendation for Award	RFA
Risk Management Plan	RMP
Run of Mine	ROM
Scope of Work	SOW
Tailings Storage Facility	TSF
Work Breakdown Structure	WBS
Workplace Risk Assessment Controls	WRAC

1.0 INTRODUCTION

This Project Execution Plan (PEP) outlines the project execution strategy and the proposed overall management methodology for the development of the EPCM scope of work for the Doropo Gold Project (the Project), including engineering, procurement, construction management, commissioning and handover to Resolute Mining Limited.

The Project comprises a series of open pit mines, a conventional gold processing plant and associated supporting infrastructure. Ore from multiple deposits within the Doropo permit block will be mined and processed through a central plant. The process plant design was updated as part of this DFS to an increased capacity of 4.9 Mt/a for fresh ores, producing gold doré over an expected mine life of approximately 10 years. The plant design and production schedule have been refined as part of this DFS to reflect Resolute's development strategy, cost structure and implementation framework.

1.1 Project Location

The Doropo Project is located in north-eastern Côte d'Ivoire, in the Bounkani region, 480 km north of the capital Abidjan and 50 km north of the city of Bouna. The block of permits lies between the border with Burkina Faso and the Comoe National Park (Figure 1.1).

The Mineral Resource area, which fits in a 30 km radius, is centred on about UTM 482,450 mE and 1,074,951 mN, otherwise Latitude 9°43'28'' N and Longitude 3°9'36'' W.

Figure 1.1 Project Location



The Project area is accessible by a national sealed road called the A1 which crosses through the centre of the Project. The A1 is a major road that links Abidjan and Ouagadougou, the capitals of and Côte d'Ivoire and Burkina Faso, respectively. Doropo prefecture is 76 km (about 1.5 hours' drive) from Bouna, the Capital of the Bounkani Region. It is also 240 km (about 3.5 hours' drive) from Bondoukou, the capital of District and 645 km (about 10 to 11 hours' drive) from Abidjan, the economic capital. A dense network of small dirt / sandy roads allows easy access to all parts of the Project, even during the wet season. The sandy nature of the soil allows a rapid drainage of the water on the access roads generally.

1.2 Execution Strategy

At a high level, there are two teams responsible for project execution being:

- Resolute Mining Limited (Resolute) – the Owner's team.
- The EPCM team.

In general, the proposed execution strategy for the EPCM scope of works for the Project is based on the provision of:

- Front End Engineering Design (FEED) services to lock in the key design parameters for the Project, whilst progressing detailed engineering, design, and Project planning prior to entering the full Project execution phase.
- Offshore engineering, procurement and project management services to finalise the detailed engineering and design, undertake procurement / contracting / expediting of equipment, materials and labour, and plan / finalise the approach for the development of the facilities within Offshore and Onshore scope of works for the Project.
- Onshore field engineering, construction management and commissioning services for the facilities within Onshore scope of works for the Project.

Contract packages include bulk earthworks, concrete works, field erected tankage, camp buildings, structural, mechanical and piping (SMP), electrical and instrumentation (E&I), overland piping, overhead power lines, power station, and fuel depots.

Specialist consultants will be contracted to Resolute to address specific elements of the Project outside the core competency of the EPCM and Resolute, including mining, geotechnical, the tailings storage facility (TSF), site water management, including the water harvest and storage dams, and the accommodation village.

This PEP includes strategies for all aspects of project management and control across all the functions and phases. Where a detailed plan is developed, this PEP only gives the high-level philosophies and reference should be made to the appropriate Project Plan.

1.3 Project Objectives

The key objective during the Project's execution phase is to deliver an operational treatment plant on time and on budget with no major HSE incidents, achieving the required availability, reliability and metallurgical performance as detailed in the Process Design Criteria (PDC).

Specifically, the Project will aim to achieve:

- Health and Safety – Design for a safe construction, commissioning and operating environment. Attain zero harm incidents during construction.
- Environment – Comply with all Project permit requirements. Be environmentally and socially responsible. Have no serious environmental incidents.
- Community – Maintain good community relations. Maximise utilisation of locally available resources and involvement of the local community. Leave a positive legacy.
- Capital Cost – Target to achieve the lowest cost outcome without compromising quality and schedule. Complete the Project within the Project control budget.
- Quality – Design the Project to be fit for purpose, easy to maintain, operator friendly and safe.
- Schedule – Attain mechanical completion within the baseline schedule milestones. To meet start-up requirements and meet ramp-up targets.

1.4 Performance Indicators

Progress against key objectives will be measured on a continuous basis.

Specific measures that will be monitored on an ongoing basis through the Project and reported monthly will be as follows:

- Lead indicators such as toolbox meetings, inductions, training and the like against agreed targets.
- Lost Time Injury Frequency Rate (LTIFR).
- All Injury Frequency Rate (AIFR).
- Days of deviation from the schedule.
- Forecast cost compared with approved budget.
- Number and value of trends generated / resolved / outstanding.
- Construction Performance Indicators, i.e. concrete poured (m^3), erected tonnes of steel, etc.

2.0 PROJECT SCOPE

2.1 Scope of Work

The Scope of Facilities applicable to the Project are as outlined in the following:

- Plant Overview Block Flow Diagram 2326-110-FF-001_C (Appendix A)
- Site and Treatment Plant General Arrangement Drawing 2326-110-GD-004_A (Appendix A)

The scope of the Project involves:

- Development of a gold mine and related mine infrastructure.
- A 4.9 Mtpa process plant, related plant infrastructure and buildings.
- Resettlement accommodation (If required) and access tracks / roads.
- Early development of the site access road.
- Construction sand and aggregates.
- Upgrading existing camp facilities (accommodation only).
- Mining contractor establishment / works, including drainage excavation / construction (excavated material to be transported and used for TSF embankment construction).
- Construction water sources, including the establishment of wells and/or water storage facilities such as turkey's nest's or bladder.

As detailed in the following sections, the responsibility for executing and delivering the various scope elements is divided between EPCM and Resolute.

The Project flow diagrams and general arrangements are provided in Appendix A.

2.2 EPCM Controlled Scope

2.2.1 Scope of Facilities

EPCM controlled scope includes the following:

- Primary crushing
- Grinding area, including the ball mill.
- Tails pumping.

- Leaching area including eight CIL tanks.
- Elution / electrowinning area.
- Refining area (goldroom).

In addition to the processing units above, the following support facilities are included:

- Reagents area.
- Water services and pipe racks.
- Event pond.
- Air services.
- Electrical services, including HV/LV substations and HV/LV power distribution.
- Plant area buildings including the office, mess, gate house, ablutions, safety building, bus shelter, warehouse, workshop, reagents storage and lime storage shed.
- Plant perimeter security fencing and lighting.
- Management of early development of the site access road.
- TSF and water harvest and storage dams piping, pumps, etc.

2.3 Resolute Controlled Scope

Resolute will be responsible for overall management of the Project and all activities not specifically delegated to the Engineer. Resolute may engage others to undertake these activities on their behalf.

Specific buildings, facilities and works that Resolute will assume responsibility for include:

- Resettlement accommodation (If required) and access tracks / roads.
- Construction sand and aggregates.
- Construction camp and accommodation camp incl facilities (Resolute Managed Contractor to design, documentation, procurement, transport, installation, and commissioning of a fully functional and complete village).
- Mining contractor establishment / works, including drainage excavation / construction (excavated material to be transported and used for TSF embankment construction).
- Construction water sources, including the establishment of wells and/or water storage facilities such as turkey's nest's or bladder.

The scope of services being managed by Resolute will be inclusive of the following:

- Obtaining government approvals.
- Obtaining building permits.
- Obtaining import and duty exemptions.
- Approval of purchase orders and contracts prepared by the Engineer on behalf of Resolute.
- Payment of Project direct and indirect costs.
- Site survey.
- Topographical surveys.
- Management of the Engineer.
- Assist the Engineer with the planning and implementation of the Project.
- Provision of first fill, opening stocks and consumables, spare parts, office equipment, office furniture, mobile equipment, tools and equipment, warehouse shelving, and pallet racks.
- Appointment and management of other specialist consultants.
- All activities related to mine design and development including mine pits, haul roads, waste dump and ROM pad development.
- All activities related to mine operations including loading and hauling of ore.
- Provision and training of the geology, mining, plant operations and maintenance workforce and the administration team to operate the plant and facilities pre and post commissioning.
- Provision of camp management and catering services.
- Provision of security services.
- Project Insurances.
- Community relations.

2.4 EPCM Scope of Services

The EPCM scope of services, at a high level, comprises the following:

- Management of all health and safety matters relating to all aspects of the scope of work on the Project. Identifying health and safety concerns and incidents and reporting to Resolute accordingly.
- Project management, including management of cost, time, quality, changes, communications, design, procurement, manufacturing / fabrication and inspection, expediting and logistics and offshore support activities for construction and commissioning.
- Cost control includes maintaining a cost control system, which includes budgets, commitments, estimates to complete, cost projections and change management.
- Project accounting includes reviewing and approving vendors, fabricators, manufacturers' and contractors' invoices.
- Planning and scheduling including a Level 3 baseline schedule, actual dates, times to complete, projected end dates and planned versus actual S-curves.
- Quality assurance / quality control covering the design, procurement, manufacturing / fabrication, and construction phases of the Project.
- Process and Engineering design, hazard studies, drafting, equipment specifications and work scope preparation.
- Staged engineering, design and progress reviews.
- Procurement services for purchase orders and contracts for acquisitions including tender preparation based on agreed terms and conditions, tender evaluation and recommendation, contract preparation and award, and contract administration. EPCM standard terms and conditions will be used for the majority of procurement and contracts, unless otherwise agreed with Resolute.
- Expediting and logistics utilising the services of the Project transport and logistics contractor, including transportation, storage and inventory control as required.
- Activities to be performed outside Côte d'Ivoire to support construction, HSE, HR / IR management, inspection, testing, and commissioning.
- Project handover includes close-out of all contracts and purchase orders, close-out report, and select 'as built' drawings. Deliverables Responsibility Matrix

Interfaces and Battery Limits during implementation of the Project, critical interfaces will be handled as described:

- Power – Resolute will execute a separate contract to develop the grid connection for the Project. The Engineer will make an allowance for its installation in the plant layout, and review and recommend approval of the power station design. Electrical cabling from the power station to the plant HV switchboard is by the Engineer. Site works for the power station will be monitored by the Engineer.

- Fuel – Resolute will execute a separate contract to supply and install the main fuel storage facility for the Project as a part of the site diesel supply agreement. The Engineer will make allowance for the fuel storage facility in the layout, and review and recommend approval of the design. Site works for the fuel storage facility will be monitored by the Engineer.

- Mining and Mine Services – Resolute will engage a mining contractor to undertake mining activities. Interfacing between the mining contractor, the Engineer, and/or construction contractors will be controlled by Resolute.

- ROM Pad – Design of the interface between the ROM pad and the reclaim area ore feed bin including drainage and compaction requirements of the fill will be the responsibility of the Engineer. Construction will use the mining fleet but the Engineer will retain responsibility for construction management of this work. Design and construction of the remainder of the ROM pad will be the responsibility of Resolute.

- TSF – The Engineer will manage the TSF consultant and the construction contractor responsible for the TSF and the water harvest and storage dams. The Engineer will also interface with the TSF Consultant and contractor on the installation of pumps and the associated pipework to and from these facilities.

- Concrete – For any potential resettlement and early works, Resolute will be responsible for all concrete requirements. After the early works, the Engineer will then be responsible for the concrete contractor. Resolute will be responsible for the supply of sand and aggregate to specification from the quarry and/or borrow pits or elsewhere.

- Community Relations – Resolute will retain responsibility for community relations. Notwithstanding this, the Engineer will work closely with Resolute to ensure coordination and proper communication and follow-up during the construction phase and that the Project leaves a positive legacy.

- Permitting and Approvals – Whilst Resolute will retain responsibility for legislative permitting and approvals, and subsequent reporting, the Engineer will assist in the preparation of necessary applications and supporting documentation for permits and approvals.

- Accommodation and Security – Resolute will retain responsibility for provision of fully catered accommodation for all the site-based personnel. Resolute will be responsible for general site security, notwithstanding that individual construction contractors will be responsible for the security of their own plant and equipment and materials free issued to them during the course of the Project.

The battery limits for the EPCM services are defined in Table 2.1 below.

Table 2.1 Battery Limit

Area	Battery Limit
Plant Feed	Feed bin at ROM pad.
ROM Pad and ROM Pad Earthworks	Excluded. Design for the engineering fill around primary crusher vault included.
Bulk Earthworks	Process plant earthworks design only included
Raw Water Supply	Raw Water Harvest and Storage Dams, including management of the construction of the WHD and WSD, and EPCM responsibility for the pumps and pipelines connecting the WHD and WSD
Reagents	All reagents will be supplied (in bulk) to Site for storage and distribution by Resolute.
Main and alternate 11 kV Power Supply	Outgoing 11 kV terminals at the 66 / 11 kV switchyard
Communications	Network connection and site communications by Resolute
Access Roads Earthworks	Engineer responsible for the management of the construction contractor building the access road
Mine Haul Roads	by Mining Contractor
Product	Vault within goldroom.
Mine Services Area	bulk earthworks and services to fence line included. Development by Mining Contractor
Site IT	Supply and installation and ongoing administration by Resolute

2.5 Work Breakdown Structure

The Project WBS is a hierarchical coded control structure represented by numerical digits derived from the Project scope of work. The WBS to be used for the Project, developed from EPCM's standard WBS and approved by Resolute, is shown in Appendix B.

In order to achieve uniformity, enable meaningful project monitoring and reporting and facilitate communication among Project team members, the same basic structure will be used for all facets of the Project. This includes the definition of work, cost estimates, budget allocation, cost monitoring and control, change management, time estimates, planning and scheduling, resource allocation, productivity, progress measurement and earned value management and the like. The WBS will also facilitate efficient electronic migration of data between cost estimates, cost control budgets, project cost forecasts, project schedules and progress measurement, and the corresponding management reports developed from this data.

3.0 PROJECT ORGANISATION AND RESPONSIBILITIES

3.1 Organisational Structure

A typical organisational chart is provided in Appendix C.

3.2 Project Team

In providing the Services, the EPCM will appoint personnel who are technically competent and suitably experienced in the provision of each aspect of the EPCM Services required to complete the Project within the agreed technical, cost, time, quality and safety targets.

EPCM's Project team's key personnel have specific responsibilities as described below.

3.2.1 EPCM Project Management Organisation

Overall responsibility for health and safety, schedule, budget, and quality within the boundaries of the EPCM contract will rest with EPCM Project Manager. The EPCM Project Manager will be supported by Corporate Management and the Project Sponsor.

The Design Manager, Principal Process Engineer, Lead Project Engineer, Project Services Manager, Senior Construction Manager and Commissioning Manager will report to EPCM's Project Manager. These individuals will be appointed to manage the complete delivery of the EPCM-controlled Scope of Work.

3.2.2 Key Roles

Project Sponsor

The Project Sponsor will provide guidance to the Project team on key issues and decisions as they arise. The Project Sponsor will also attend a monthly sponsor's meeting with the Project Manager and nominated senior managers from Resolute, where overall Project performance will be the focus.

The Project Sponsor will be responsible for:

- Liaising with Resolute's senior managers to ensure the EPCM team is meeting their requirements under the EPCM Contract and taking action as required to rectify any areas of concern.
- Overview of the Project to ensure the work is delivered to a high standard and in accordance with stated aims, principles and values.
- Looking to improve the organisation and seek out best practices continuously.
- Compliance with all risk management issues.

Project Manager (or Delegate)

The EPCM Project Manager (PM) will be responsible for the delivery of the Project and will report to the Resolute Project Manager.

The PM will be responsible for:

- Aligning the quality of the output of the allocated Project team with the needs of the Project, EPCM and Resolute to meet regulatory requirements.
- Liaising with Resolute to maintain a clear understanding of their Project objectives.
- Maintaining and, where necessary, developing the management and technical competence of the Project team to achieve the requirements of the Project objectives.
- Undertaking the initial safety in design reviews and incorporating the outcomes into engineering and design.
- Developing risk management strategies and project-specific plans to reduce potential project risks.
- Elimination of or minimisation, so far as is reasonably practicable, of health and safety risks and hazards throughout the duration of the Project.
- Developing and maintaining project work procedures, plans, protocols and the like to enable the Project Team to work efficiently and maintain a consistent approach and a high standard of work.
- Demonstrating behaviour and practices in accordance with EPCM HSE systems and policies, values, and expectations.
- Achieving overall schedule, budget and target deliverables to a high standard.
- Responding immediately to change via the change management procedure.
- Conducting the Project in a manner that prioritises health, safety, environment and community.
- Establishing reasonable procedures and plans and revising them as required, achieving Project objectives.
- Managing the compilation and submission of Project reporting.
- Communicating with the Resolute Project Manager on matters that may affect Project goals.
- Assisting in the recruitment of Project personnel.

Design Manager (Offshore)

The Design Manager reports to the Project Manager and is responsible for:

- Being the focal point for Resolute's technical representative.
- The consistent delivery of engineering standards, processes, systems and procedures across the Project, on budget and on schedule.
- The project manager provides engineering support and signs off on all engineering deliverables.
- Planning and implementation of design meetings and design reviews.
- Monitoring the design team's conformance to the engineering plan's requirements.
- Carrying out design and drafting in accordance with the Project schedule and meeting key dates.
- Liaising with the Procurement and Contracts Leads for the technical evaluation of tenders.

Principal Process Engineer (Offshore)

The Principal Process Engineer reports to the Project Manager and is responsible for:

- The development of the overall mass and energy balances, process flow sheets, process control philosophy and input to equipment data sheets.
- Ensuring that the basis of the process design is defined, any further test work conducted by Resolute is incorporated into the process design package. All equipment specifications are reviewed for process compliance before equipment purchase.
- Input to the Commissioning Plan.

Lead Discipline Engineers (Offshore)

Lead Discipline Engineers report to the Design Manager for all Project-related matters and will be responsible for ensuring that the design follows the latest statutory requirements, design guidelines and bases.

Other responsibilities include:

- Attendance at design meeting reviews and hazard assessments.
- Managing the design progress.
- Maintaining the detailed design costs within the approved budget.

- The Lead Discipline Engineers will be responsible for their areas and will deliver as a minimum:
  - Design bases.
  - Detailed design calculations.
  - Equipment lists.
  - Detailed design drawings.
  - Review inter-discipline interfaces and vendor packages.
  - Technical evaluations of procurement tender packages.

Lead Project Engineer (Offshore)

The Lead Project Engineer reports to the Project Manager and supports the Project Manager in any aspects of the project requiring attention.

The Lead Project Engineer will be responsible for:

- Preparation of reports for the Project Manager to review.
- Implementing Change Management procedures.
- Analysis of schedule and cost forecasting updates.
- Preparation of scope of work for procurement and contract packages.
- Covering the Project Manager functions when the Project Manager is absent from the Project.

Procurement and Contracts Leads (Offshore)

The Procurement and Contracts Lead reports to the Project Manager and is responsible for:

- Prequalification of tenderers.
- Managing the tender process from compiling tender documents to recommendations for award.
- Managing the monitoring, forecasting and reporting of procurement and contract services concerning schedule and budget.
- Awarding the purchase orders and ensuring the adequate execution of the documentation.
- Issuing any change orders and or variations as approved.

- Maintaining procurement registers, forecasting and tracking supplier and contractor variations.
- Managing and coordinating expediting, inspection and logistic activities for the Project.
- Administration of the contracts, including progress claim and variation management.

Senior Construction Manager (Onshore)

The Senior Construction Manager will report to the Project Manager and be responsible for implementing the Construction Management Plan, all construction activities, and providing leadership and support to the construction team.

Specific responsibilities of the Senior Construction Manager are:

- Liaising with Resolute's construction representative and providing briefings and assistance as required.
- Determining the form of organisation required to carry out the work in conjunction with the Project Manager.
- Assisting in the choice of personnel to be assigned to the construction management team.
- Implementing the Construction Management Plan.
- Proactively promoting the implementation of the PEP and HSE plans.
- Undertaking risk assessments of all work-related tasks performed by EPCM personnel, contractors and visitors, and any residual risks identified are managed through EPCM's risk management strategies.
- Managing the active engagement of all construction personnel in implementing the project HSE management plan.
- Establishing a culture of safe behaviour through leadership and example.
- Timely preparation and issuing of reports to the Project team in accordance with procedures, including daily site diaries by all site staff.
- Reviewing and analysing cost reports, schedules and other progress and status reports and taking corrective action where necessary to mitigate budget and schedule impacts as appropriate.
- Ensuring actions and commitments are within Project authority levels.
- Approving activities such as quality control, construction techniques, construction sequencing, site purchasing, job site training, field engineering, contractor / subcontractor organisation

and supervision, material handling / warehousing, testing and pre-commissioning to ensure required quality outcomes are achieved.

- Organising and chairing (or delegating where appropriate) weekly site meetings with each onsite contractor / subcontractor and ensuring that the contractor / subcontractor also carries out this action with their applicable subcontractors. The agenda will include safety and environmental issues, progress against schedule, resources employed, planned activities, materials and technical data availability, technical / commercial issues, deliveries, warehousing, administration matters and interfaces with other contractors / subcontractors.

Lead HSE Advisor (Onshore)

Reports to the Senior Construction Manager - the Lead HSE Advisor is responsible for preparing and implementing the HSE Plan, loss prevention issues, all site safety-related activities, ensuring contractors are complying with the site safety, health and environmental requirements within the project scope area and providing support to the site health and safety, environmental and CR / IR personnel.

Contracts Administrator (Onshore)

Reports to the Senior Construction Manager – the Contracts Administrator will administer site contracts awarded by the Project Office. The function encompasses all contractual activities of the contract, from the award of the contract to contract completion and final acceptance of the works. The function also includes local procurement and the management of materials, delivery to site, inspection, storage and issue to contractors and supervising the contracts administration, procurement and materials management teams.

Commissioning Manager (Onshore)

Reporting to the Project Manager with functional reporting to the Senior Construction Manager, the Commissioning Manager is responsible for:

- The timely and efficient planning and execution of all commissioning activities.
- Liaising with the Design Manager and Principal Process Engineer to ensure that commissioning plans are fully developed and scheduled.
- Managing and controlling the commissioning focus and activities of the process commissioning team, subcontractors and vendors.
- Managing resources that will provide support for punch-listing and post-commissioning modifications as required.
- Liaising with the Resolute's Project Manager with regard to commissioning progress and issues.
- Coordinating resources to ensure compliance with established procedures and the commissioning schedule.

- The contractors and vendors are responsible for the successful performance of the plant or equipment as per their contractual obligations, with the Commissioning Manager accepting sign-off that the plant meets their specified requirements.
- Safe completion of all phases of commissioning.

4.0 COMMUNICATION MANAGEMENT

4.1 General

Effective, efficient and timely communication between the entire Project team is essential to successfully completing the Project. Recognising its importance, the EPCM will:

- Identify and define the roles of persons involved in the Project.
- Include a communications matrix which maps communication requirements.
- Implement a Project Approvals / Authority Level matrix map.
- Create a Project team directory to provide contact information for all stakeholders based onsite and in the Home office directly involved in the Project.
- Create a Project filing list.

4.2 Meetings

Meetings will be held for various purposes, with various outside organisations in some cases, and will be attended by Project personnel at different levels within the Project team.

The EPCM will chair meetings with Resolute.

The minutes will be prepared by the EPCM and contain the following details as a minimum:

- Action, if any, is to be taken by designated parties as a direct result of an item under discussion.
- Name of the person who is responsible for taking the action.
- Agreed timing of actions.
- Comment or consensus on whether the item will likely lead to a trend or change in cost or schedule.

Minutes will be issued to the Resolute's nominated representative for review and acceptance. The minute taker will prepare and log the minutes. Minutes of meetings will be numbered consecutively for ease of reference. Minutes will be distributed and registered for outgoing correspondence. The original will be filed with an attached email copy, where minutes are distributed by email.

Any informal meetings between EPCM and Resolute that result in a decision that impacts the delivery of the Project must be recorded via technical queries and signed off.

Commissioning meetings and other necessary meetings will be identified in the Commissioning Plan, which will be developed in the future.

In addition to these meetings, the Senior Construction Manager will ensure that specific meetings with contractors and the workforce onsite are held during the construction phase.

4.3 Project Correspondence

All EPCM correspondence to Resolute pertaining to the services will be by letter or email. Correspondence will be addressed to the Resolute Project Manager and signed or sent by the EPCM Project Manager or nominee.

All design deliverables will be issued under transmittal via Document Control using standard procedures. Any other exceptions will be separately identified by the EPCM Design Manager and/or Project Manager.

All internal communication shall be filed electronically in the project correspondence directory. It is the responsibility of the sender to file the correspondence.

4.4 Project Reporting

A Project Monthly Report will be issued detailing the activities and status of EPCM controlled Scope of Works for the Project. This report will detail all works completed to the last reporting day of the month and will be provided to Resolute within 10 working days from the last calendar day of the preceding month.

The monthly report will cover the following:

- Health and safety management.
- Environment.
- Community relations.
- Human resources.
- Engineering and drafting.
- Contracts and procurement.
- Project Progress.
- Quality assurance / quality control.
- Construction.

- Commissioning.
- Variations and Technical Queries.
- Costs.
- Risks and Concerns.

4.5 Document Management

The EPCM will provide document control for Project requirements with transfer of controlled documents between EPCM, Resolute, and vendors / contractors / other third parties.

4.6 Resolute Approvals

In addition to the standard approvals required, approval will be sought from Resolute for the following:

- Design consultant awards in excess of Resolute specified values.
- Publicity releases of any kind associated with the Project.
- Changing of key personnel.
- Changes to the scope of work via the approved change management procedure.
- Changes to the scope of services.
- Changes to deliverables.

4.7 Authorities

An authority matrix will be developed and prepared for the project execution phase. This will describe the documents and deliverables requiring approvals and nominate the approver for each type of document.

5.0 ENGINEERING AND DESIGN

5.1 General

As part of the design scope, an Engineering Plan will be prepared to define the principles and execution guidelines to be adopted by the design team during the detailed design phase of the Project. The Engineering Plan will also identify the various engineering deliverables required for procurement and construction contract tendering, construction activities, plant commissioning, Project close-out and handover stages.

The Engineering Plan will be the principal document containing EPCM's major design activities. It will outline the philosophy of how key activities will be implemented, the key aspects of each activity and the associated procedures that will be followed to ensure successful outcomes.

5.2 Objectives

The objectives of the Engineering Plan are to:

- Define the engineering organisational structure.
- Nominate key engineering personnel.
- Define roles and responsibilities.
- Outline key work processes required to complete the design and identify procedures and documentation.
- Incorporate the intent of applicable Resolute specifications into the Engineering Plan and associated procedures.
- Identify the performance measures that will be used to monitor the completion of all tasks and activities to gauge the design's success.

5.3 Engineering Organisation Structure

The engineering organisation is structured on a disciplined approach, managed by Principal / Lead Engineers who report to the Design Manager. The Design Manager will report to the Project Manager.

5.4 Design Inputs

5.4.1 Scope of Work and Battery Limits

The Definitive Feasibility Study (DFS) will serve as the starting reference for design. This body of work provides Project background and initial design documentation.

The latest updates during the DFS phase shall serve as a starting reference for detailed design. These documents include:

- Process Design Criteria.
- Process Flow Sheets.
- Overall Site Layout Drawing
- Treatment Plant Layout.

- Facility General Arrangements.
- Mechanical Equipment List.
- Selected Standard Specifications.
- Selected Design Bases.
- Reference will also be made to the Environmental Impact Statement and any addendums.

5.4.2 Area Designations

Area designations will be in accordance with the agreed work breakdown structure (WBS).

5.4.3 Standards and Codes

The Project will be designed in accordance with Australian Standards or other International Standards.

5.5 Detailed Design Process

The majority of design outputs are produced during the detailed design process. These include equipment specifications, datasheets, drawings and purchase requisitions. Support documentation includes lists, material take-offs, calculations, check prints, vendor data and field installation checklists for construction and commissioning.

The Engineering Plan will detail the specific design, design review, verification and checking procedures to ensure successful outcomes.

5.6 Early Works FEED

Engineering and design will kick-off with an Early Works phase which will commence with a review and update of key process design documentation produced for the DFS. Key engineering, procurement and site establishment activities to be progressed will include:

- Review and update of process design criteria and flowsheets as required.
- Review and update of mechanical equipment list.
- Preparation of long lead equipment technical specifications / datasheets.
- Preparation of design drawings for bulk earthworks, upfront civils, temporary facilities and permanent accommodation camp.
- Tender, evaluate and prepare recommendations for award for long lead equipment packages.
- Finalise the site and plant layouts and general arrangements.

- Technical Queries and formal memorandums will be used to document decisions taken that deviate from the DFS.

5.7 Design Deliverable Approvals

Key design and drafting documents will require formal approval by Resolute's project team, as detailed in Table 5.1.

The Resolute nominated representative will work together with the EPCM Design Manager during design development to ensure formal approval times for engineering deliverables are minimised.

5.7.1 Design Change Management

It is critical that key design deliverables are fixed and were required Resolute to sign off. Where the change is required, the below process is strictly adhered to.

The EPCM Design Manager and discipline engineers will advise the EPCM Project Manager of design developments and/or scope changes immediately as they arise in accordance with the Design Change procedure and Trend Notification procedure. This will require the preparation of an Engineering Change Request (ECR) to enable a trend to be submitted to the Project Manager or, where applicable, Resolute for approval of the change.

5.7.2 Technical Queries

The design team will raise technical queries in accordance with the Technical Queries procedure.

5.7.3 Tenders

The preparation of equipment specifications, scopes of work, data sheets, etc. will be coordinated by the EPCM.

Engineers involved in evaluating tenders will ensure all tenders receive consistent treatment and are presented in a consistent format. On completion of the evaluation process, the document will be approved by the Design Manager and Project Manager and then forwarded to the Project Services Group for inclusion in the 'Recommendation for Award' (RFA) and 'Authority to Commit' (ATC) documentation.

5.7.4 Vendor Data

An integral part of the design process involves reviewing and accepting vendor data from successful tenderers (vendors), design contractors, and other outside parties. The desired outcome from this process is certified vendor data that can be incorporated into the design with complete certainty.

The Design Manager will nominate the distribution matrix for the design phase in accordance with the Vendor Data procedure.

Document Control will manage the flow of information (i.e. receipt, registration, circulation for review, receipt, and return to Vendor).

5.7.5 Document Control

The control of technical documents and drawings (i.e. registration, storage, issue and tracking) for the Project will be in accordance with the Document Control procedures.

All technical documents and drawings prepared as deliverables on the Project will be issued through Document Control. Document Control will maintain wet signature originals and electronic files for every revision to provide a comprehensive audit trail. A revision is not formal unless the document / drawing has been signed off and issued to Document Control.

Wet signature originals issued to Document Control with a completed Document Control Instruction Sheet is the trigger for Document Control to enter the electronic files in the database, register the documents, carry out any issue instructions and file the hard copy original.

Once they have achieved a particular status, i.e. Approved for Use, Approved for Construction, all changes to documents and drawings will be identified.

5.8 Design Reviews

Design reviews, including risk assessment, will be conducted in conjunction with Resolute as agreed.

Staged progress reviews will be undertaken generally in line with the below.

Table 5.1 Design Reviews

Review	Description	Type
Preliminary	Prior to any detail drafting or engineering commencing and based on the early Navisworks model.	Prior to commencing detailed design activities
Basic	Following modelling and layout of major equipment items, using vendor supplied information, and preliminary modelling of concrete and structural steel elements, prior to the commencement of detail modelling and the development of paper space drawings.	Generally, prior to commencement of paper space detail drawings
Intermediate and HAZOP	Following development of essentially complete P&IDs and lists, modelling of major pipe and cable ladder runs with advanced modelling of concrete and structural steel elements. HAZOP to be performed using the traditional 'What-If' approach. Development of paper space drawings for concrete, structure and mechanicals commenced.	Generally, prior to IFT drawing issue
Final	Following the completion of modelling of concrete, structure, mechanical / plate work, piping and electrical elements. Paper space drawings for concrete, structure and mechanicals issued for tender.	Generally, prior to IFC drawing issue

5.9 Construction and Commissioning Support

5.9.1 Supply, Fabrication and Construction

Design input into the supply, fabrication and construction processes is normally limited to review of Inspection and Test Plans (ITPs), answering Technical Queries (TQs) and the provision of information to clarify the intent of drawings and specifications. These activities will be performed in accordance with Technical Queries procedure and Document Control (for Vendor Data) procedure.

5.9.2 Site Engineering Team

A Site Engineer will be mobilised to support construction activities. The objectives of the Engineer will be to:

- Provide a site based, design capacity for 'minor' design deviations and assist with identification of non-conforming product, review proposed remedial actions, and assist with disposition of non-conforming product including approval of concessions, waivers and releases.
- Provide prompt follow-up and resolution of technical queries that have been referred to the design office.
- Assist with construction verification.
- Ensure site generated as built changes to the plant are documented by the responsible party and communicated to the home design office.
- Generating, updating and obtaining final approval for all construction and mechanical completion punchlists and inspection and test records.

5.9.3 Pre-operation Testing and Commissioning

Commissioning activities will be divided into Pre-Operational Testing and Process Commissioning. Pre-operational testing refers to those activities up to and including wet commissioning, to then handover to Resolute to complete the Process (Ore) commissioning.

In general, the main objectives of the engineering commissioning team will be to:

- provide prompt follow-up and resolution of technical queries
- provide a re-design capability as required
- assist with pre-commissioning and wet commissioning activities
- assist with plant performance testing to validate critical aspects of the plant design
- document as-commissioned changes to the plant.

6.0 CONTRACTS AND PROCUREMENT

6.1 Philosophy and Approach

Packages will be competitively tendered to achieve competitive pricing, an effective negotiating position, and ultimately provide value for money for Resolute. Packages will only be sole-sourced if agreed to by Resolute.

Equipment suppliers will be selected based on their previous history and availability to perform the work. Contractors for site works will be selected based on their safety record, IR record, previous experience with similar projects, cost, schedule, availability and capability to perform the work.

Contractors for site works will be required to have a registered in country entity and will be selected on the basis of their safety record, their IR record, previous experience with similar type projects, cost, schedule, availability and their capability to perform the work.

Local Ivorian contractors and suppliers will be encouraged to tender for Project works and contracts will be awarded based on their ability to meet the required conditions. It is planned that direct negotiations will be undertaken with smaller local business groups for specific contract packages to encourage local sourcing of project requirements.

6.2 Types of Contracts

Contracts will be based on an agreed set of terms and conditions prepared for purchase orders and site-based contracts with approved specific templates and will include one of the following options for types of contracts.

- Lump Sum.
- Fixed Price Schedule of Rates.
- Build-own-operate (BOO).

A listing of the anticipated packages for the project and associated contract types is provided in Table 6.1.

Table 6.1 Contracting Plan

Contract Package	Description	Quantity	Contract Type
Services			
Survey Services	Site construction survey.	1	Fixed priced schedule of rates
Transport and Logistics Services	Sea and road transport of goods to Site	1	Fixed priced schedule of rates
Vendor Representatives	Site attendance for major equipment	<12	Fixed priced schedule of rates

Contract Package	Description	Quantity	Contract Type
Purchase Orders			
Structural Steelwork Fabrication	Structural Steelwork	1	Fixed priced schedule of rates
Platework Fabrication	Platework (bins, chutes etc.)	1	Fixed priced schedule of rates
Platework Fabrication	Tank Platework Fabrication	1	Fixed priced schedule of rates
Equipment and Materials	Various	>80	Lump Sum
Site Works			
Camp Buildings and Infrastructure	Supply and Installation of Prefabricated camp buildings	1	Lump Sum with fixed price schedule of rates for electrical and piping installation
Earthworks and Roadworks	Bulk earthworks, roads including main access road, detailed earthworks except for concrete works	1	Fixed priced schedule of rates
Tailings Storage Facility + Water Harvest and Storage Dams	Bulk earthworks, roads and detailed earthworks and linings.	1	Fixed priced schedule of rates
Fencing	Fencing Installation	1	Fixed priced schedule of rates
Plant Buildings	Steel Framed Buildings Installation	1	Fixed priced schedule of rates
Plant Buildings	Modular Buildings (Supply and Install)	1	Fixed priced schedule of rates
Mill	SAG & Ball Mill Installation Specialists	1	Fixed priced schedule of rates
Mill	SAG & Ball Mill Installation Local Support	1	Fixed priced schedule of rates
Concrete Works	Concrete supply and installation	1	Fixed priced schedule of rates
Heavy Lift Crane Hire	Heavy lift crane to support contractors	1	Fixed priced schedule of rates
Structural, Mechanical and Piping Installation	Structural/Mechanical/Piping Installation. Include Overland piping and tankage	2	Lump Sum with fixed price schedule of rates for structural and piping installation
Tankage	Part of SMP	0	
Electrical, Instrumentation and Controls	Electrical / Instrumentation – supply of bulk materials and installation at the plant	1	Lump Sum with fixed price schedule of rates for cable, tray and instruments installation
HV Grid Connection	Power and Solar Specialist	1	EPC (TBC)
Fuel Depot	Fuel Specialist	1	BOO (TBC)

6.3 Contracting and Procurement Team

The contracting and procurement function will be performed in accordance with the approved project procedures.

The Contracts and Procurement Team will comprise:

- Project / Package Engineers.
- Contracts Engineers.
- Procurement Officers.
- Other Contracts and Procurement personnel.

The Contracts and Procurement Team will be responsible for ensuring all contract documentation, development and administration processes are undertaken in accordance with the contract's requirements.

6.4 Accountabilities

Across the Project, EPCM and Resolute have joint approval and procedural responsibilities. Those items requiring approval from both parties within the contract and procurement area are identified as follows:

- Tenders bidder list.
- Recommendations for award.
- Change to terms and conditions.
- Approval of inspection test plans (ITP).
- Purchase order documents.
- Revisions to purchase orders.

6.5 Manufacturing, Fabrication and Inspection

EPCM will review purchase orders and contracts for QA/QC and inspection requirements and liaise with suppliers and contractors to ensure that the QA/QC requirements are fully understood. Where applicable, EPCM will:

- Obtain, review, and approve copies of proposed quality control documentation and records, including materials certification, certificates, drawing and document control procedures, traceability, dimensional checking procedures, ITPs and procedures, and MDRs for all cases.

- Maintain files of all correspondence and documents relating to inspection activities.
- Perform and witness all inspections as agreed on the approved ITP and ensure that ITPs are signed off by all parties as and when required. Offshore inspectors will be outsourced to a third-party inspection agency as part of the capital budget's direct direction.

6.6 Expediting and Logistics

In the management of expediting and logistics, EPCM will:

- Appoint a dedicated site-based materials team representative for the Project.
- Develop and maintain an expediting and logistics status report detailing the delivery status of all purchase orders and contract or subcontract commitments, including a breakdown by item where various delivery dates are applicable under the same purchase order or subcontract. The expediting and logistics status report will cover the location and status of each item.
- Liaise regularly with contractors to monitor and verify progress by telephone, fax and personal attendance at work, depending on the package's size and criticality and delivery status, as nominated in the Quality Management Plan and Major Contracts Register therein.
- Expedite all deliverables to be supplied by the vendor or contractor under the terms of the purchase order or contract, including spares lists (commissioning, capital and operating), production schedules, operating and maintenance manuals, as-built vendor drawings and manufacturers' data reports.
- Coordinate and manage third-party expediting (and inspection) consultants if required.
- Expedite all commissioning spare parts.
- Coordinate and manage all logistics tasks, including loading, transportation, unloading and storage.

6.7 Site Contract Administration

Management of the construction contractors onsite shall be the responsibility of the Senior Construction Manager. The contracts administrator will administer the contracts in accordance with the contract administration procedure.

The Senior Construction Manager and Contract Administrator shall be responsible for the direct liaison onsite with construction contractors and all site-related contract administration functions, including:

- Kick-off meetings.
- Coordination meetings.
- Progress measurement.

- Issue of site instructions.
- Verification of progress and variation claims.

Any material deviations from the baseline schedule / cost will be run up the management line.

7.0 TRANSPORT AND LOGISTICS

7.1 General

Transport and logistics are a significant component of the Project given the remote nature of the site. Goods will be containerised and transported by liner services to Abidjan in Côte d'Ivoire. The port will be reviewed on an ongoing basis to avoid congestion and delays.

A Project Transport and Logistics Contractor will be engaged to manage all transport for the Project from ex-works, road and sea freight and to clear customs at the port and organise transport to site via nominated transport contractors.

A detailed Route survey will be undertaken by the Transport and Logistics Contractor to identify any hazards between the ports and site, and to provide maximum dimensions and weight of cargo that can be delivered to site from both ports mentioned above.

With the exception of contractors undertaking site work, all transport and logistics services for the delivery of goods, materials and equipment to the site will be provided by the appointed Project Transport and Logistics Contractor.

The majority of goods will be delivered direct from manufacturer to site to avoid double handling from the suppliers unless it has been reviewed and agreed by Resolute that consolidating freight provides considerable cost or time savings or reduces transport risk significantly. For all offshore freight, the Incoterm F.C.A – Free Carrier – named place (Incoterm 2000) terminology will be used. All goods, equipment and materials will be delivered F.C.A to a nominated consolidation point, nominated deep water port, or the nominated delivery place will be the supplier's premises. Therefore, the supplier will be obligated to load the equipment onto the Purchaser's transport.

The purchase order will specify the packaging and marking requirements for the goods. This will include reference to special packaging requirements such as for overseas freight or delivery of sensitive instruments.

Generally, the supplier will be responsible for adequate packaging consistent with industry best practices, all applicable laws and safety requirements. All packages will be marked with appropriate identifying information.

For equipment that needs to be partly disassembled for transport purposes, e.g. large skids, and then reassembled by others onsite, the supplier will be required to provide clear, complete instructions for reassembly.

7.2 Import Licenses / Permits / Insurance

The following permits and/or licenses will be required from Resolute prior to cargo being shipped to the site:

- Import tax exemption.
- Marine transit insurance policy.
- Insurance risk assessment.
- Import license for communications equipment.
- Import license for nuclear sources (instrumentation).

EPCM and the Project Transport and Logistics Contractor will assist Resolute in obtaining the permits by providing information such as manufacturer's details, models, serial numbers and other information that may be required for specific equipment.

EPCM will liaise with the Project Transport and Logistics Contractor during planning for cargo consignments to provide adequate notice for Resolute to obtain required licenses, permits and any marine survey requirements stipulated by Resolute's Insurer.

7.3 Tracking of Cargo

Any translation of documentation will be undertaken by Resolute as required. All materials will be tracked during shipping using web-based software via the Project's freight forwarder. The freight forwarder's consignment reference will be recorded to facilitate tracking materials during transit. The estimated time of arrival (ETA) of goods and materials will be taken from the freight forwarder's system and recorded to enable reporting of goods and materials progress against the respective RAS dates.

7.4 Cost Reporting

EPCM will maintain a detailed spreadsheet tracking transportation and logistics actual costs versus planned costs. Shipping and transport costs will be tracked against each procurement package and respective budget allowance and forecast monthly to ensure potential over / underruns are monitored and reported in a timely manner.

7.5 Documentation

The transport and logistics controls will be required to substantiate all monthly invoices with proof of charges against separate purchase orders shipped. EPCM will review each invoice against quotes received, quantities transported and contract rates prior to issue to Resolute for review and payment.

8.0 PROJECT CONTROLS

Effective project controls are an essential component to the successful completion of the Project.

Effective project procedures and processes are the basis on which relevant and consistent budget, costs and schedule reporting is provided to the Project team. This provides the tools to efficiently manage the Project at the level of detail necessary to meet Project objectives, i.e. minimise costs, achieve the Project schedule and maintain the Project's quality and safety standards.

Existing EPCM procedures will be implemented to address cost control, planning, progress measurement, project reporting, asset capitalisation and close out.

Upon kick off EPCM will immediately prepare the Project Controls budget and baseline schedule for the Project implementation. This will provide early structure for the effective management of the Project.

8.1 Purpose of the Project Controls Plan

- Establish, monitor and provide status reporting on the Project's objectives, deliverables and strategies. The PCP is an integral component of the overall Project Execution Plan.
- To identify the individual project processes that as a whole, make up the overall project controls management system and processes.
- To explain and provide details of the methodology for software packages and systems used by EPCM for project controls, cost and forecast reporting, change and risk management, progress and schedule.
- To outline the overall strategy for project controls for the duration of the Project.
- To provide a simple, informative view of project controls for all Project personnel.
- To provide a high-level introduction for members of the Project Controls Team, project managers and team leaders for Resolute and EPCM.
- To facilitate the implementation of the EPCM project controls management methodology processes and approach for Project implementation.

8.2 Scope of the Project Controls Plan

The Project Controls System provide a framework of the work processes, workflows and information relating to the standard Project Controls and accounting interface tools, systems and procedures that will be utilised during the execution of the Project.

The Project Controls systems cover the following elements:

- Cost control.

- Financial control.
- Cost forecasting.
- Cash-flow forecasting.
- Planning and scheduling.
- Change management.
- Progress measurement and earned value management.
- Trend management.
- Project reporting.
- Contingency management and reporting.
- Escalation management and reporting.
- Foreign exchange rate impacts.

8.3 Primary Controls Primary Deliverables

The primary deliverables of the Project Controls team are as follows:

- The implementation and management of an effective project control system.
- The efficient management of the project cost and schedule.
- To establish the processes for standard reporting, data collection and information dissemination.
- To establish performance measurement to reflect the reality of the Project status, analysis and help develop mitigation plans if required.
- To produce accurate and timely reports.
- To adopt simple methods of analysis to identify problem areas.
- To implement a Project methodology for reporting solutions and their implication (e.g. trend / scope change analysis).

Project Control reports issued monthly will form part of the Monthly Report and will consist of:

- Project S Curves and Earned Value Management.

- Project Schedule – Baseline Update.
- Forecast Cost Report.
- Cost Reports including Accruals and FX Gain / Loss.
- Cashflow Report.
- Change Register.
- Contracts Register.
- Expediting Register.
- Tender Tracking Register.

8.4 Planning and Scheduling

8.4.1 Schedule Development

A Project Master Schedule will be prepared to incorporate the required timing of all Owners and EPCM scope. The schedule will be prepared to incorporate activities and logic with various levels of detail depending on their intended purpose. The schedule will be developed using critical path network techniques; this will provide the basis for overall control of the Project and establish the framework for developing detailed sub-schedules. The schedule will identify all major activities, define the logic sequence, show interfaces, and establish key target dates and critical paths.

The Project Master Schedule will be reviewed and approved by the Project team and provided to Resolute for approval as the baseline schedule.

Implementation of the approved baseline schedule will provide the Project management team with a basis to measure and report Project progress in a timely and accurate manner. Providing accurate information on a real-time basis allows the Project management team to plan ahead and implement any necessary remedial action for issues before they arise. A full-time planner is included in the resourcing plan for the Project and will be responsible for coordinating regular updates from across the Project scope.

The schedule will be based on the following working hours, approvals and rosters:

- Offsite – engineering and procurement is based on an 8-hour day, 40 hours (5 days) per week. No work is performed on public holidays or the 2 week period between Christmas and New Year (closed from 24 December to 4 January).
- Offsite – manufacturing and supply: A standard five day per week 40-hour calendar is applied to the manufacture and supply portion of the schedule.
- Delivery to site has been based on a seven-day calendar.

- Onsite the Calendar applied to EPCM and construction contractors is a 65 hour working week (10 hours – Monday to Saturday, 5 hours – Sunday).
- Commissioning is based on a 65 hour working week calendar (10 hours – Monday to Saturday, 5 hours – Sunday) prior to process commissioning. Process commissioning and ramp up activities are assumed to be working seven days per week, 24 hours per day to support operations.

8.4.2 Critical Path

The primary critical path (longest path) includes the following activities:

- Early works Kick off (5 December 2025).
- Freezing of the flowsheets, finalisation of the PDC and Mill specifications.
- Tender and award of the ball and SAG mills.
- Manufacture of the ball and SAG mills (52-60 weeks).
- Delivery of critical mill components to commence installation.
- Installation of the ball and SAG Mills (5 months).
- Grinding area electrical installation.
- Process Plant pre and wet commissioning.
- Process ore commissioning.
- Performance testing and ramp up.

A copy of the project Schedule is provided in Appendix D and Critical Path is Provided in Appendix E.

8.4.3 Project Milestones

The key dates critical to the project's timely completion are listed below.

Table 8.1 Project Milestone Dates

Activity ID	Key Milestone	Date
DFS Milestones		
2326-DFS-MS-0010	DFS Commence	18-Jul-25*
2326-DFS-MS-2000	DFS Estimate & Report Issued for Review	20-Nov-25
2326-DFS-MS-2005	DFS Report Issued Final	4-Dec-25

Activity ID	Key Milestone	Date
Owners Project Milestones		
2326-DFS-MS-1220	Exploitation Permit	09-Dec-25
2326-DFS-MS-1001	Board Approval & FID	31-Dec-25
2326-DFS-MS-0100	Early Works Construction Commencement	4-May-26
2326-DFS-CN-2760	Commence Site Access Road & Drainage Works	30-Jul-26
2326-DFS-MS-2010	Tailings Storage Facility (TSF) - Construction Commencement	1-Oct-26
2326-DFS-MS-2290	Water Storage Dam / Water Harvest Dam - Bulk Earthworks Commencement	5-Oct-26
2326-DFS-MS-2270	Permit to Import Nuclear Sources Granted	31-Mar-27
FEED / Early Works Milestones		
2326-DFS-MS-2220	Geotech Investigation Results Issued for Design	28-Nov-25
2326-DFS-MS-1210	Preliminary Bulk Earthworks Design & MTO IFT	16-Jan-26
2326-DFS-MS-1170	Project Schedule Baseline IFR	27-Feb-26
2326-DFS-MS-1180	Mill RFA Issued	13-Mar-26
2326-DFS-MS-2230	Construction Water Available for Early Works Construction	27-Apr-26
2326-DFS-MS-2240	Accommodation Available for Early Works Construction	27-Apr-26
2326-DFS-MS-1040	Commence Site Early Works Construction	4-May-26
EPCM Milestones		
2326-DFS-MS-1000	EPCM Award	5-Mar-26
2326-DFS-MS-1010	EPCM Kick off	12-Mar-26
2326-DFS-MS-1020	Award Mill Supply Contract	2-Apr-26
2326-DFS-MS-1200	Bulk Earthworks RFA Issued	17-Apr-26
2326-DFS-MS-1030	Award Bulk Earthworks	8-May-26
2326-DFS-MS-2250	Commence Plant Site Bulk Earthworks (Breaking Ground)	01-Jun-26
2326-DFS-MS-1160	Accommodation Available for Concrete Contractor Establishment & Critical Activities (By Owner)	22-Jun-26
2326-DFS-MS-1070	Commence Process Plant Concrete Works	31-Jul-26
2326-DFS-MS-1080	Village Rooms Available to Mobilise SMP Contractor	24-Sep-26
2326-DFS-MS-2260	Detailed Design Complete	17-Feb-27
2326-DFS-MS-1090	Water Supply Available	14-Mar-27
2326-DFS-MS-1110	Permanent Village Completion (350 Rooms)	15-Sep-27
2326-DFS-MS-1130	Commence Commissioning	8-Nov-27
2326-DFS-MS-2210	Mining Facilities Construction Completion	6-Jan-28
2326-DFS-MS-1140	First Ore into Plant	12-Feb-28
2326-DFS-MS-1150	First Gold Pour	25-Mar-28
2326-DFS-MS-2110	NPI Construction Completion	31-Mar-28

8.4.4 Performance Indicators

EPCM will follow the detailed work or task schedules as required to determine progress and hence input into the above schedule, including:

- Design deliverables (drawings, specifications, etc.).
- Procurement deliverables (orders placed, contracts).
- Fabrication (tonnes of steel).
- Construction (m^3 of concrete placed, tonnes of steel installed, number of pieces of equipment installed, metres of pipework installed, meters of cable installed, etc.).

8.4.5 Schedule Updates / Reporting

EPCM will monthly maintain and update the Project Master Schedule for the EPCM scope of works and maintain activities and interfaces for the Owner's scope. Resolute will provide updates to activities for the work scopes controlled by Resolute, i.e. approvals, mining, etc. EPCM will maintain the Project Master Schedule and the various contractor sub-schedules.

8.4.6 Accommodation Manning

Excel spreadsheet will forecast monthly accommodation resourcing levels through to commissioning.

8.5 Cost Control

As part of the early activities, Resolute and EPCM will agree on the Project budget, including the budget allocation, and establish the control budget for the Project.

A series of performance indicators have been developed for the Project, which will include:

- Commitments against cost schedule.
- Variations raised and contingency drawdown.
- Update forecast cost following contract award.
- FOREX – tracking of exchange rate impacts.

Recording, reporting and forecasting costs, comparisons of actual costs against the control budget, and highlighting variances will be utilised to control costs during the Project. Costs captured and categorised across the Project WBS keep the project team informed on a timely basis about risks associated with cost and time. The Project WBS is the key to linking all aspects of the Project, so costs are easily traceable.

Where cost variances or trends are identified through the formal change management process, management will investigate options to mitigate their impact by reviewing or revising designs and work methods and/or altering scope.

Prior to the commitment of contracts or purchase orders, an Authority to Commit (ATC) form will be prepared and submitted for approval. This ATC will identify whether the requested commitment is within the scope and budget. A Project Change Notice (PCN) will be prepared for approval if it is not within the scope and/or budget. Any approvals outside of budget will form part of the Estimate at Completion.

In addition, forecasts of expenditure will be regularly reviewed and updated and management alerted to material trends (positive and negative).

Monthly cost reports will be prepared to show the original budget, approved and unapproved changes, revised budget and forecast costs. The report will also include committed and incurred costs and paid expenditures.

This cost report will cover EPCM controlled scope. Resolute will compile the comprehensive cost report.

8.6 Change Management

Changes in Project scope will be strictly controlled. For scope changes (i.e. items not defined within EPCM scope of work within the EPCM Contract) requested by Resolute, the EPCM Project Manager will forward a PCN to Resolute's Project Manager for approval.

The scope change will advise Resolute of any cost and/or schedule impacts on the Project as a result of the change. Resolute's Project Manager will review the PCN and authorise EPCM to proceed with the change, or not, as the case may be. Work covered by individual PCNs will not commence until written approval has been obtained from Resolute.

Scope changes initiated by EPCM will be submitted as a PCN to Resolute's Project Manager. The request will include the technical merit of the proposed change and an assessment of any cost and schedule impact resulting from the change. Resolute's Project Manager will consider the scope change request and authorise the change, or not, as the case may be.

All approved changes in the Project scope will be recorded on a Project Change Register, which will be maintained and updated by EPCM Project Manager and included in the monthly reports.

8.6.1 Types of Change

A scope change is a revision, addition or deletion to the scope of work or services, Project Execution Plan and/or Project Schedule which will require formal approval to change the budget and/or schedule. Scope changes can originate through an engineering change or from the identification of additional scope not contained within the contract scope of work. Scope changes will require the preparation and approval of a PCN.

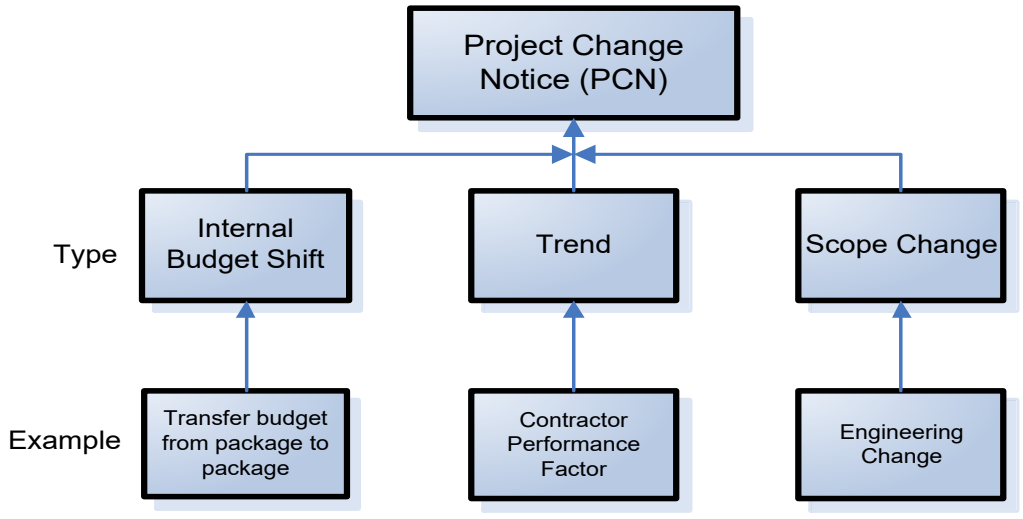
A trend is an event or change that has the potential to impact a project's forecast and/or baseline budget and schedule. When first identified, the full extent of the event or change may not be known in fact, the impact has the potential to fluctuate across the duration of its relevance. Examples of trends are as follows:

- Contractor price fluctuations as consequence of market demand.
- Foreign exchange fluctuations.
- Contractors, suppliers and manufacturers' performance factors.
- Events having a material impact on the cost of raw materials.
- Greater than forecast rise / fall in the cost of living indices.

Trends will require the preparation and approval of a PCN.

Figure 8.1 below provides an overview of the change management approval process.

Figure 8.1 PCN Flowchart



8.7 Accountabilities

Across the Project, EPCM and Resolute have different levels of approval or procedural responsibilities. Those items requiring approval from both parties within the Project controls area are identified as follows:

- Review and approve the baseline budget and baseline schedule.
- A commitment to budget funding (i.e. ATC approval).

- Change management (i.e. approval of scope changes or trends).
- Approval of Resolute Purchase Orders / Contracts.
- Approval of supplier or contractor invoices via the IAF (invoice approval form).
- Approval of Progress Claims (for both Contractors and Milestone-based purchase orders).
- Approval to drawdown or allocate contingency funds.
- Approval to reallocate previously allocated budget funds (i.e. Internal Budget Shift).
- Approval of Site Petty Cash distribution.
- Approval of Contractor Site Instructions.

9.0 HEALTH AND SAFETY

The HSE's mission is to deliver the Project with zero harm to people, property and the environment while ensuring compliance with legislative permitting and approval requirements.

HSE will be integrated into all processes of the project's construction management in its commitment to achieving this HSE goal.

The belief that all injuries are preventable will be communicated to all stakeholders during all phases, particularly the project's construction phase.

A Project Health, Safety and Environment (HSE) Plan will be developed for EPCM scope using EPCM standards HSE systems and procedures.

The remote location of the Project and potentially hazardous driving conditions make in-country travel management a high-priority activity. A Project Personnel Travel Plan will be developed outlining the adopted strategy and specifying inspections, vehicle types, etc. A separate plan dealing only with the travel between the site and Abidjan will also be put in place.

EPCM will align with the construction security and evacuation procedures provided by Resolute's site and in-country requirements. Whilst in-country security and evacuation resources will be provided by Resolute. EPCM corporate protocols in relation to security and crisis management will dovetail with those in place by Resolute with any identified gaps addressed in the plan.

Health, Safety and Environmental management and control are the responsibility of each person involved with the Project. Each individual will be expected to play an integral part in promoting and implementing the Project HSE Plan.

Project HSE's objective is to develop the culture and processes to ensure the safety and health of all employees and contractors. In striving for this objective, the following criteria will apply to this Project:

- No business objective will take priority over health and safety.
- At all times, the safety of all personnel is paramount, be they Project or operations personnel.
- The Project will target zero harm.
- All incidents and injuries will be reported, investigated, and actions are taken to prevent reoccurrence.
- Accountability for providing a safe work environment rests with every employee.
- All individuals have the responsibility and accountability to identify and eliminate or manage hazards / risks associated with their workplace.
- Legal obligations are the minimum requirements of our safety and health standards.
- All employees (including contractors) must be trained and equipped with the skills and facilities to enable an injury-free workplace.
- All employees (including contractors) are to undergo Project specific inductions prepared by EPCM and Resolute as appropriate to their site work requirements.

9.1 Health and Safety System Elements

The Project HSE Plan will define the accountabilities and roles of Resolute, EPCM and contractors.

All contractors engaged in the Project will be made aware of and be required to comply with the Project safety and health policies, rules and procedures as contained within the HSE Plan. Agreement to abide by site rules and HSE procedures will be an essential condition of accepting any tender or award of any contract.

9.2 HSE Management Plan

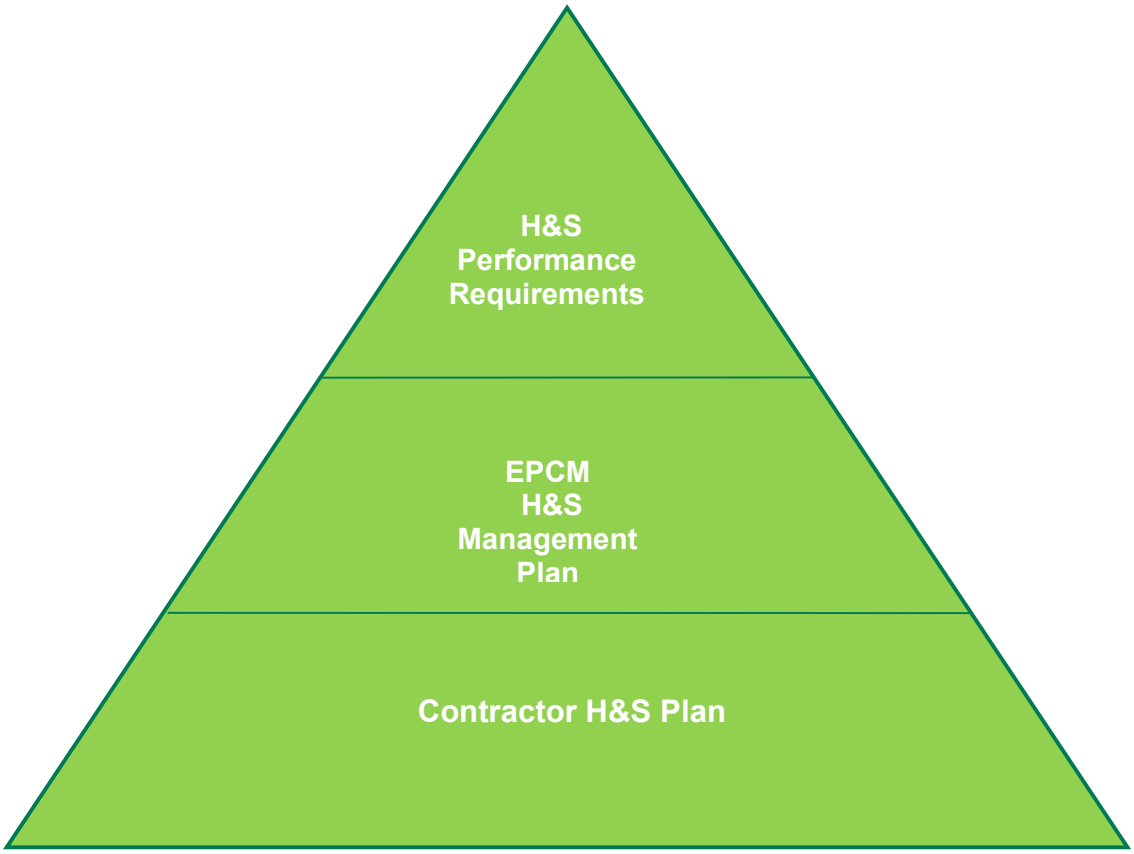
EPCM, in consultation with Resolute, will produce HSE and Security Plans for the Project that takes into consideration the requirements of the construction and commissioning management strategy. The Project HSE and Security Plans will be issued to all tenderers for site work as part of the enquiry document. As part of the plan, each major contractor will be required to supply a qualified safety advisor. After considering contract size and associated risks, waiving this requirement will be at EPCM's discretion.

9.2.1 Contractors' HSE Plans

In addition to the Project HSE Plan, each contractor will be responsible for developing and implementing its own HSE Plan encompassing the requirements of the Project HSE Plan. EPCM will review each contractor's plan to ensure that minimum HSE standards are met. Construction contractors cannot commence work until they have an approved HSE Plan.

The hierarchy for H&S Management Strategy / Plan Hierarchy is provided in Figure 9.1 below.

Figure 9.1 H&S Management Strategy / Plan Hierarchy



The contractor's HSE Plan will ensure that the hazard and controls associated with each major activity, including complex early works, are identified and understood. A detailed risk assessment and ongoing review meetings will take place to ensure enough detail in the project risk register identifying and mitigating risks associated with high-risk construction tasks, controls and monitoring / supervision requirements.

The Project HSE Plan will also describe how potential environmental impacts and legal requirements (including approvals, permits and licences) associated with the project's construction stage are to be identified and controlled so that environmental and heritage impacts are minimised, and compliance with environmental legal requirements is maintained.

The Senior Construction Manager will be responsible for implementing all aspects of the HSE Plan on the site.

The standards to be considered in the plan will include the following:

- Leadership and commitment.
- Safety and health culture.
- Objectives and planning.
- Accountabilities and responsibilities.
- Legal obligations.
- Involvement and communications.
- Risk and hazard management (includes risk reviews and register updates).
- Recruitment and induction.
- Fitness for work (including zero-tolerance drug and alcohol policy).
- Training and competency.
- Contractors and visitors.
- Facilities, plant and equipment.
- Vehicle inspections.
- Health, welfare and occupational hygiene.
- Workplace inspections.
- Informational management and document control.
- Action management.
- Emergency preparedness and response.
- Incident reporting, classification and analysis.
- Injury and illness management.
- Performance measurement and reporting.

- System evaluation and review.

Where a contractor is unable to prepare an HSE Plan, the contractor will be required to formally apply to EPCM Project Manager for permission to operate under the Project HSE Plan. If permission is given, the contractor will be required to conform to all elements of the plan.

EPCM will be responsible for monitoring and auditing contractors onsite to ensure compliance with the Project HSE Plan, their respective HSE Plans, and all other applicable rules and legal obligations. To this end, an audit plan / programme will be developed and initiated for each contractor.

9.3 Contractor Management

The HSE Management Plan and associated documentation (where relevant) will be included in tender documentation to facilitate Project compliance with HSEC requirements.

9.4 Emergency Response Management

EPCM and contractors will adopt the Project-approved Emergency Response Procedures.

EPCM and contractors will ensure that appropriate communication capabilities exist in working areas to facilitate prompt response to any potential emergency, such as injury, fire, explosion, chemical / oil / fuel spill, etc.

10.0 ENVIRONMENT

10.1 General

All aspects of the Project, including management, design and construction, will be required to comply with all Project statutory approvals and management commitment and conditions, relevant legislation in Côte d'Ivoire and the rules, procedures and instructions of Resolute and EPCM.

The Project's environmental and compliance objective will be to develop the culture and processes to ensure that Project complies with all approvals and that each employee and contractor are aware of their obligations and management requirements. In striving for this objective, the following criteria will apply to the Project:

- No business objective will take priority over legal compliance.
- At all times, environmental management and pollution prevention are to be given the highest priority. The Project will target zero externally reportable environmental or non-compliance incidents.
- All environmental incidents and non-compliance with procedures and obligations will be reported, investigated, and actions are taken to prevent reoccurrence.

- Accountability for proactive environmental management and environmental impact minimisation rests with every employee (including those contractors).
- All individuals are accountable for identifying and eliminating or managing hazards / risks associated with their work that could impact the environment.
- Legal obligations are the minimum requirements of our environmental standards and practices.
- All employees (including contractors) are to undergo inductions to ensure they are equipped with the skills and facilities to work in an environmentally friendly way, as appropriate to their site work requirements.

The Project HSE Plan will also describe how potential environmental impacts and legal requirements (including approvals, permits and licences) associated with the project's construction stage are to be identified and controlled so that environmental and heritage impacts are minimised, and compliance with environmental legal requirements is maintained.

The Senior Construction Manager will ensure that all aspects of the HSE Plan are implemented.

10.2 Environmental Management

EPCM will be responsible for managing compliance and environmental aspects for its controlled scope of work.

The HSE Plan and associated documentation specify the actions required to manage the Project's environmental aspects and are required to be followed by all staff and contractors working on the Project.

The HSE Plan will address the following key requirements:

- Project approvals, licenses, permits and relevant legislative requirements.
- Resolute environmental standards.
- Project environmental management strategies.
- Relevant Ivorian standards, codes of practice and guidance notes.

10.2.1 Contractor-Specific Environmental Management Plans

Prior to mobilisation, each contractor will be required to provide an Environmental Management Plan (EMP) as part of its HSE Plan. The contractor must demonstrate its ability to complete the scope of work in an environmentally responsible manner that is consistent with the requirements of the HSE Plan. The HSE lead must approve all contractor HSE Plans prior to mobilisation.

Each contractor's HSE Plan must adequately address the following:

- The contract description includes a summary of the scope of work and any specialist tasks that may require more detailed environmental procedures.
- Contractor personnel structure responsibility and accountabilities.
- Contractor environmental inductions and training, including course content and any specialist training and verification of competency testing.
- Relevant environmental management procedures must be consistent with the project HSE Management Plan.
- Details of demobilisation inspection of lay-down and work areas and any rehabilitation that may be required.

10.3 Community Relations Management

EPCM will work under the Resolute Environment and Community Management Plan and ensure that each contractor is aware of these requirements. The EPCM will not be directly responsible for community engagement or management.

Resolute will develop a Stakeholder Engagement Plan. EPCM will abide by all requirements and ensure that each contractor is aware of these requirements.

Resolute will develop an unskilled labour employment procedure to govern the process for hiring of all unskilled labour from the local communities. EPCM will ensure that each contractor is aware of these requirements.

11.0 QUALITY ASSURANCE / QUALITY CONTROL

11.1 Quality System

EPCM quality system certified will be implemented. All work will be in accordance with established procedures. Contract specific procedures may be developed and utilised where it is identified that additional interface procedures are required.

11.2 Project Quality Plan

A Project Quality Management Plan (QMP) will be prepared for the Project. The plan will cover all work undertaken and all services provided by EPCM and subcontractors for the Project. It covers the provision of EPCM services, including surveillance and management of the subcontractors engaged by EPCM to undertake work on the Project.

The QMP sets out the quality objectives for the Project and provides the framework for the effective quality management and execution of the Project.

The QMP will also include an audit schedule for the Project. The QMP will include details of the audits and technical reviews, inspection and test plans, testing requirements, record keeping, non-conformance reports (NCRs) and corrective actions.

11.3 Objectives

The purpose and objectives of the QMP are to:

- Designate the responsible and accountable EPCM personnel who will implement the project and EPCM corporate personnel with functional responsibility for quality.
- Establish the quality management process for the Project to satisfy all stakeholder requirements.
- Provide and maintain these processes through regular audits and verification that confirm the project team is performing its various tasks per the requirements of the QMP.
- Describe the planning activities for auditing and review of the Project to ensure compliance. This will include implementing a quality audit plan that has been approved by Resolute.
- Provide Resolute with the confidence that services supplied by EPCM will meet contractual obligations with respect to QA/QC.
- Provide a mechanism and environment that encourages continuous improvement, raising concerns, and sharing lessons learnt throughout the Project lifecycle.

11.4 Quality Management Plan Ownership

The QMP will be prepared specifically for the Project and will remain a live document for the entire Project. This means that where there is a significant change in the execution of the Project, the QMP will be revised and reissued. Responsibility to ensure the QMP is maintained lies with EPCM Project Manager.

The distribution of revisions to the QMP will be in accordance with the document distribution list maintained for the Project.

11.5 Organisation and Responsibilities

Key personnel appointed to the Project are indicated in the organisation chart.

11.5.1 Project Management

- Complete the Project in full compliance with the contract to meet schedule, budget and quality requirements.
- Complete the Project within the Project targets according to the EPCM Project Execution Plan.

- Implement a project controls system and services to provide accurate data for cost, schedule and budget control.
- Target zero harm to persons or property or the environment.
- Ensure effective management of change throughout the life of the Project.
- Ensure the quality practices defined in the QMP and associated procedures are adhered to by completing reviews, audits, reporting and inspection activities.
- Ensure sufficient and competent resources are available at all stages of the Project.

11.5.2 Engineering

- Convert design input requirements into successful design outputs.
- Manage internal and vendor documents and data in a controlled manner.
- Meet budgetary and schedule requirements at the deliverable level.
- Design with safety, environmental and operational aspects to leave no negative legacy on the environment, operations workforce or the community.

11.5.3 Procurement, Contracts and expediting

- Implementation of an effective procurement and contracts management system for the Project.
- Implementation of an effective materials management system for the Project.
- Manage all appropriate sub-consultants, vendors, contractors, etc. and their activities, ensuring quality requirements, as specified in purchase orders or contracts, are being met or exceeded (EPCM will conduct sub-consultant, vendor, contractor, etc. inspections in accordance with Resolute's requirements).
- Vendor documents and records are expedited and compiled on an ongoing basis, where possible standardised documentation will be utilised for easier reference in the MDR.
- Ensure goods are transported safely and arrive onsite by the required date.

11.6 Vendor / Contractor Audits

The provision for the right for EPCM to verify status, quality and compliance with the specification will be made in all contract documents and purchase orders. This verification will not absolve the vendor or contractor of the responsibility to provide an acceptable product and will not preclude subsequent rejection, nor will it be used by the vendor or contractor as evidence of effective control of quality.

11.7 Materials Control

Instructions for identifying equipment and material items and the extent of traceability will be identified within the contract or purchase order documentation. These instructions will ensure that the goods / deliverables are specifically identified during all stages of manufacture, delivery and installation.

11.8 Vendor / Contractor ITPs

Vendors and contractors will be required to establish and maintain systems for inspecting and testing their products during manufacture and installation. The method, extent and acceptance criteria will be identified within the contract, purchase order or specification.

ITPs from suppliers and contractors shall be submitted to EPCM to identify relevant surveillance, witness or hold point requirements. Technical review against ITPs is also to be completed by Resolute, as representatives may need to be present at certain FATs.

ITPs submitted by Vendor and Contractor shall include as a minimum:

- Identification of tests / inspections against contract requirements, specifications, drawings and other relevant details.
- Witness and hold points as required by EPCM.
- Witness and hold points as specified by the vendor / contractor and the subcontractor(s).
- Identification of records to be maintained of particular tests, inspections and trials.
- Details of test equipment to be used for specified tests.
- Acceptance criteria.

11.9 Vendor / Contractor Reporting

Where requested, the Vendor / Contractor will be required to provide monthly reports with a section on quality management covering the following:

- Audits undertaken and their results.
- Any non-conformance and remedial action.
- Preventive and corrective actions.
- Sub-vendor inspections.
- Sub-vendor non-conformance and remedial action.

11.10 Non-Conformance Control

Non-conforming goods and services will be identified and documented. The responsible party will affect the rework, re-screening and/or disposal of non-conforming goods per Contractual requirements.

11.11 Project Inductions

EPCM Project Manager is responsible for briefing all necessary Project staff on the requirements of the QMP. The Project Manager may delegate the responsibility for conducting the personnel inductions and briefings.

Sub-consultants, vendors and contractors will be selected based on their Quality Management Plan and whether it conforms to the QA requirements of the Project. Each selected contractor will be briefed on the content of this QMP at the contractor kick-off meeting.

11.12 Construction QA/QC

Contractors will provide Inspection and Test Plans (ITPs) for the work. These will identify hold and witness points for the Contractor and EPCM, as detailed in the Project Quality Plan. ITPs are used to manage QA/QC functions and to communicate quality requirements and responsibilities to the Project team, Contractors and the workforce.

EPCM will perform surveillance of each contractor for:

- Agreement with the contractor on ITPs.
- Planning by EPCM of the required degree of direct participation in the contractor's process through 'hold' and 'witness' points.
- Monitoring of the contractor's agreed quality control activities.

An important aspect of surveillance is that the contractor remains accountable for the quality of his product and maintains the bulk of the quality records. A specific surveillance plan will be established for the Project.

12.0 RISK AND OPPORTUNITY MANAGEMENT

12.1 Introduction

Risk is inherent to all Project functions. Risk is defined as 'the chance of something happening that will impact objectives'. Risk management is defined as 'the culture, process and structures directed towards realising potential opportunities whilst managing adverse effects'.

The management of risk, in conjunction with other Project management functions, is integral to achieving the Project objectives. All managers and staff recognise the capacity to manage risk as a

fundamental and important effect. All staff will be required to participate in risk management, and the approach used to manage risk is fundamental to the Project's success.

Ownership of risks will be assigned to appropriate Project team members, with ongoing review of currency and relevance for each risk event and monitoring of the status of mitigating treatments as the Project progresses.

12.2 Risk Workshops and Registers

The risk register developed during the DFS will be the starting point for the Project implementation phase. A Risk Workshop will be scheduled early in the design phase with key stakeholders and participants from the EPCM and Resolute. A consolidated Risk and Opportunity Register will be developed, complete with issues identified and control measures or corrective actions applied. The register will be regularly reviewed throughout the Project for completion of actions.

Additional mitigation and corrective actions identified during risk assessments will be documented within the risk tool, including the name of the individual to which the action has been assigned and the expected completion date.

A full HAZOP will be undertaken following the drafting of P&IDs and ahead of the completion of detailed design.

Follow-up reviews will be undertaken regularly under various forums, e.g. Project meetings, Operations meetings, HSE Panel / Committee meetings, etc., to review the effectiveness and status of the corrective actions.

12.3 Opportunities

The identification and realisation of opportunities are inherent within the Project team hierarchy and organisation chart, whereby senior management is involved early within the Project to influence the Project's trajectory.

Other processes and mechanisms that act to identify and realise opportunities include:

- Risk and Opportunity workshop.
- Competitive tendering.
- Benchmark against projects of similar design and size, and use readily available examples of deliverables and construction quantities.
- HAZOP.
- Lessons learnt from past projects.
- Experience with the performance of contractors and vendors.

Particular opportunities may warrant more detailed investigations and trade-offs and can justify a Value Engineering Analysis (VEA) to be conducted.

13.0 CONSTRUCTION PLAN

13.1 Overview

The construction methodology proposed for the Project has the following aims:

- To provide a safe working environment.
- To achieve cost and schedule targets.
- To adopt a cost-effective and fit-for-purpose construction approach to contracting and site management based on tried and proven philosophies used on previous projects.
- To allow optimisation in constructability
- To provide a management plan that complies with the requirements of both Resolute and EPCM safety and environmental policies.

13.2 Critical Issues

Critical issues for construction will be:

- Achieving no significant health, safety and community incidents.
- Achieving no significant environmental incidents.
- Maintaining a harmonious relationship with the local community.
- Minimising and managing industrial relations issues, managing interfaces between construction contractors.
- Providing workforce accommodation to meet the construction schedule.
- Managing material and equipment delivery and logistics.
- Engaging a high-quality workforce.
- Confirming contractors have the experience and capability to manage a labour force.
- Achieving the baseline construction schedule.
- Achieving high productivity and progress throughout the construction phase.

- Administering contracts to avoid delays and cost issues.

13.3 Construction Organisation and Responsibilities

13.3.1 General

The site based construction management team will consist of Resolute, EPCM and other personnel as required. The use of Ivorian nationals will be maximised and the number of expatriates will be minimised in line with social responsibilities to the country.

The site team will address all requirements for the management of the construction work and for the support activities including HSE, administration, materials management / transport, contract administration, field engineering, and project controls.

Central to the construction management organisation is the role of Resolute's Construction Manager. Reporting to the Resolute Construction Manager will be the EPCM Senior Construction Manager responsible for the process plant and associated infrastructure scope. In addition to the Senior Construction Manager being supported onsite by various discipline superintendents and supervisors, other construction support personnel will include:

- Lead Field Engineer.
- Lead Electrical Field Engineer.
- Electrical Field Engineers.
- Construction Superintendents and Supervisors.
- Contracts Administrators.
- Materials Controllers.
- Lead HSE Advisor.
- Commissioning Manager.

Shared common resources reporting to both Resolute and EPCM (depending on scope and phase of construction) will include site contracts administrators and material controllers.

13.3.2 Roles and Responsibilities

Each member of the construction management team will be provided with a role description and responsibilities prior to their mobilising to the site. This will be agreed upon between the individual and the Senior Construction Manager. It will be amended during the Project in the event there is a substantial change to the individual's role or responsibilities.

13.3.3 Project Inductions

EPCM Project Manager and Senior Construction Manager will ensure that all members of the construction team are aware of their responsibilities and have the necessary skills to meet these responsibilities. A training matrix will be developed which identifies each member of the construction team and the training that they will be required to undertake.

The Senior Construction Manager is responsible for ensuring that the training requirements identified in the matrix are completed and that the training is in accordance with project requirements

13.3.4 Plans and Procedures

A comprehensive set of plans and procedures will be developed for the Project. The EPCM Project Manager and Senior Construction Manager will ensure that each member of the construction management team is familiar with those documents relating to their particular area of work and has read the following:

- Construction Management Plan (mandatory).
- Health, Safety and Environmental Management Plan (mandatory).
- Security and Evacuation Plan (mandatory).

A register will be prepared listing the procedures and each individual will initial those procedures that have been read.

13.3.5 Construction Schedule

The construction schedule is included in the overall project schedule.

The EPCM Senior Construction Manager, in conjunction with the Project Manager, will develop Monthly Key Target Dates for each area / department and display them in prominent locations throughout the offices.

Site input will be provided by the Senior Construction Manager and Supervisors based on contractor schedules and site progress reporting.

13.3.6 Interface Management

When required, contractor interface meetings will be coordinated by the EPCM Senior Construction Manager or nominee to ensure that each contractor is aware of the activities occurring in the area. These meetings are generally informal, held at the construction location and do not need to be minuted. The Senior Construction Manager or nominee will be responsible for prioritising their area's work.

13.3.7 Community and Employee Relations

It is anticipated that community relations will require a combined effort. The influx of the contractor workforce may affect the local community, with increased patronage of local establishments. In this regard, advice from Resolute's community and employee relations advisors will be required to obtain a full brief of the current mood, complement the established Resolute's management approach, and leave zero legacies.

13.3.8 Working Hours

Resoltue intends to have a happy and harmonious work environment, enabling the Project to attract an experienced and efficient workforce. The Project will be based on working a 65-hour week Monday to Saturday (10-hour days). If it becomes necessary to work additional hours or a night shift, the work cycle will be agreed upon with the contractors prior to work commencing. Particular attention will be paid to fatigue management.

13.4 Plant Construction

Construction of the plant will be completed using contract packages discussed under Contracts and Procurement in Section 6.0.

Earthworks will commence with a focus on the main access road and bulk earthworks for the accommodation camp, process plant, laydown areas and mine services area.

The camp and plant buildings contractor will commence with an initial focus on temporary construction facilities including initial works on main accommodation camp, EPCM construction office and ablutions.

The concrete contractor will set up facilities onsite to bend all reinforcement and batch concrete at rates to supply multiple work fronts.

Concrete works will commence with the Grinding and Primary crushing areas, followed by concrete ring beams in the CIL area.

Large tankage components (shell plate, etc.) will be fabricated off-site and transported to the site for erection and welding or bolting. It is anticipated that major tankage will be field erected by either the 'Jacking' method or 'Canning'. Teams will progress the installation of tanks in the CIL. The Tankage Contractor will be required to have a qualified welding supervisor / inspector as part of its team.

The sequencing of structural erection will be planned to ensure full access for other disciplines. Mechanical and piping installation will be planned similarly.

Electrical installation will be sequenced per MCC supply, with the HV and Grinding MCC a priority.

The scheduled 'power on' date will trigger the plant's start of pre-commissioning activities, which will then lead to pre-commissioning as the operable systems become available.

Wet commissioning will commence once all operable systems have been pre-commissioned.

Site and Construction Contracts Management

The Project construction management team will manage and coordinate all plant site and contractor activities to ensure control over commercial aspects and overall plant site contractor performance in accordance with standard procedures.

Construction Inspection

The onsite inspection services will be carried out by the construction superintendents and supervisors, who will be individually responsible for inspecting the work as it progresses.

Verification and Audit

The construction team will carry out management audits of Project schedules, construction quality, HSE and construction systems and procedures. This will be done on an ongoing basis and will focus on areas of construction management that are considered critical to the project's success.

Temporary Works

Temporary construction facilities including a construction office and ablutions, storage facilities, and yards and laydown areas will be established as part of the initial works managed by the EPCM.

The site construction management team will initially be based in a temporary site office located adjacent to the process plant. The team will move into the main administration office once this building is constructed. Contractors will be required to provide their own offices.

Contractors conducting work in specific areas will be allocated space for the establishment of temporary facilities. The location of these areas will be as close as practicable to the workplace and will contain the contractor supplied site offices / temporary workshop areas and storage areas (equipment and materials).

Specific areas will be identified during the award of each contract, taking into account the size and scope of the contract package and number of personnel. The number of areas established will be minimised to facilitate the provision of services and control traffic into the workplace

Construction Water

Construction water will be drawn from either bores or surface water via a dedicated pipeline. If the drawn construction water quality if not suitable for concrete mixes potable water will be used for the concrete.

The potable water treatment plant will also be installed as early as practical to feed the construction and accommodation camps.

Construction Power

Power for construction will be provided via diesel generators until the permanent power plant is operational. Contractors will be responsible for providing their own construction power, distribution boards, cables and extensions.

Construction Fuel

Resolute will establish a temporary fuel storage facility onsite early in the construction phase.

Contractors will be required to provide fuel consumption forecasts during tender phase. Contractors will be free-issued fuel by Resolute. Contractors will be responsible for managing and updating fuel forecast in line with their tender phase documentation.

Once the permanent fuel storage facility is online, contractors will be able to withdraw from the storage.

Construction Accommodation and Transportation

Resolute will provide accommodation and meals to the site team and senior contractor personnel. Contractors will arrange accommodation off-site for the remainder of their respective workforces and provide transportation to and from the site.

Construction Communications

Resolute will provide all communication facilities, including telephone and internet communications, to the construction office for the site team. Contractors will be responsible for their own communication facilities.

Construction Offices

Contractors will be allocated space to establish their own temporary facilities. It will contain the contractor-supplied site offices / temporary workshop areas and storage areas (equipment and materials).

Specific areas will be identified during each contract's award, considering the contract package's size, scope, and personnel number. The number of areas established will be minimised to facilitate the provision of services and control traffic into the workplace.

Concrete Batch Plant

The concrete contractor will provide its own concrete batch plant. Aggregates and sand will be the responsibility of the concrete contractor however, available sources will be identified / confirmed during the Early Works phase of the Project. Water quality will also be confirmed during the Early Works phase but it is assumed that the raw water will be suitable for use in concrete.

Construction Ablutions

Ablutions for construction will be provided by the contractors and located to service the various areas of construction activity.

13.5 Constructability

During the engineering and design phases of the Project, experienced construction personnel will review designs, drawings and specifications from a constructability standpoint. The primary goal of this review is to ensure that the design is practical in construction terms and makes good economic use of available resources, materials, and equipment.

This will achieve a cost and schedule-effective outcome for the Project and provide an early review of issues relevant to construction safety.

The constructability reviews will address the following issues:

- Skill sets available in-country.
- Contractor availability and resources.
- Minimisation of construction safety risks, particularly work at heights and wet weather conditions.
- Standardisation of materials of construction.
- Focus attention on elements of the design that:
  - may present difficulties to contractors
  - are time-consuming and costly in execution
  - are not in accordance with construction practices, particularly regarding available resources.

13.6 Site Materials Management

All materials management, including receipt and issue of equipment / materials at the site, will be managed by Project Materials Controller, who will manage offloading equipment and a de-stuffing team. This will ensure double handling of goods is kept to a minimum, certification of goods receipt is correct, and damage or short deliveries are reported.

The Project's Site Materials Controller will coordinate the offloading, receipt, inspection and storage of all items onsite.

The Site Materials Controller will validate the goods received with the associated delivery dockets and packing lists and document the goods' receipt with their assigned storage location within the Goods Receival Report.

All materials and equipment will be inspected immediately after delivery and offloading.

The Site Materials Controller or nominee will, as soon as practical open boxes / crates as necessary, and materials will be stored appropriately for preservation which may include warehousing and storage in shipping boxes / crates, yard storage or other as may be applicable.

The Project will be responsible for establishing suitable containerised warehousing and laydown facilities necessary to ensure the ongoing preservation and security of all materials and equipment.

Lay-down, warehouse, and storage locations will be identified and registered such that equipment / material received into these locations will be readily identified when ready for collection.

13.7 Coordination and Communication

13.7.1 Reporting Requirements

Construction reporting requirements shall include as a minimum:

- Weekly Reporting: Report by supervisors identifying subcontractor resources, progress achieved, delays and concerns.
- Monthly Report: Report by the Senior Construction Manager covering all construction activities for the month.
- Reports for insurance and/or back charge notifications / claims for all instances of damage.

13.7.2 Site Photographs

Photographs of the construction work will be taken and shall be used to record progress, significant milestones, and major events for insurance claims, potential contractor claims and QA/QC purposes.

13.7.3 Construction Team Meetings

The Senior Construction Manager shall ensure that the following meetings are held during the construction phase:

- Pre-start Meetings: These should be held first thing in the morning before the contractors commence work and are attended by all supervisory staff and field engineers. The Senior Construction Manager or nominee will chair it. Lasting no more than 15 minutes, its purpose is to keep the participants abreast of all site activities for the day.

- Weekly Team Meeting: These will be attended by the entire construction team. They should last no more than one hour and provide an opportunity for construction team members to raise concerns and be informed on progress.
- HSEC Meeting (First part of the Weekly Team Meeting): These will be chaired by the HSEC officer.

Other meetings may also be required. This could include interface meetings, schedule meetings prior to any heavy lifts or major transport activities, and meetings prior to and during commissioning.

13.8 Critical Issues

Critical issues for construction will be:

- Achieving no significant health, safety and community incidents.
- Achieving no significant environmental incidents.
- Maintaining a harmonious relationship with the local community.
- Minimising and managing industrial relations issues.
- Managing interfaces between construction contractors.
- Providing workforce accommodation to meet the construction schedule.
- Managing material / equipment delivery and logistics.
- Engage a high-quality workforce.
- Meeting Ivorian employment requirements for local and expat labour.
- Confirming contractors have the experience and capability to manage their labour force and perform the required work.
- Achieving the baseline construction schedule.
- Achieving high productivity and progress throughout the construction phase.
- Administering contracts to avoid delays and cost issues.

13.9 Health, Safety and Environment

The Project HSE goals have been defined in the prior sections.

13.10 Field Engineering

EPCM field engineers will provide engineering support to all disciplines onsite and will communicate closely with the design team if required.

EPCM will respond to technical queries raised by contractors and create a register of technical queries, including a technical query number, query date, query, response, response date and estimated cost and time implications.

The field engineers will administer QC onsite for the process plant by controlling QC documentation according to the Engineer's standards and be responsible for all punch listing activities required to close construction and the transition period to commissioning.

13.11 Site Quality

The construction team will be responsible for ensuring that the required level of quality is maintained, including, but not limited to:

- Monitoring and inspecting the construction work for compliance with the defined standards of workmanship and with the contract drawings / specifications and directing the rectification of any non-conforming or substandard work.
- Monitoring all construction verification tests and checks of plant areas or systems from construction to commissioning.
- Keeping records of all site inspections and tests.
- Preparing and issuing punch lists for contractors' works in conjunction with Resolute prior to the contractors' demobilising from the site.
- In conjunction with Resolute, inspecting the works and issuing orders for rectification / modification based on any identified deficiency resulting from implementation of the applicable standards or requirements for the Project.

13.12 Construction Close Out

Demobilisation from the site will be effected following completion of the final construction contracts, hand-over, punchlists and acceptance of Practical Completion certificates. The site team and/or remaining construction contractors will remove any temporary facilities, plant, equipment and surplus materials from the site.

13.13 Community and Industrial Relations

13.13.1 Employee Plan

The EPCM will develop strategies for managing employee relations for the Project in conjunction with Resolute.

Each contractor will be responsible for managing its own personnel and must prepare an Employee Plan for its own work.

Contractors must strive to achieve a harmonious and consistent working relationship with their respective workforce and the following Project industrial relations (IR) objectives:

- Minimise time lost due to industrial disputes.
- Engage local personnel in accordance with agreed targets from Resolute.
- Deliver a stable employee relations environment for all employees.
- Comply with all industrial legalisations.
- Put in place procedures to deal with IR matters promptly.
- Maintain communications with all levels of the workforce.
- Create a work environment that encourages all levels of the workforce to work at their maximum capacity.

The Project must approve plans prior to commencement of work onsite. Each contractor will be required to liaise with EPCM to provide a consistent approach to managing employee relations on the Project.

13.13.2 Working Hours

The Project will be based on working a 10-hour day, 13 days a fortnight. If it becomes necessary to work additional hours, full day Sundays or a night shift, the work cycle will be agreed upon with the contractors prior to work commencing. Particular attention will be paid to fatigue management.

13.13.3 Employment Guidelines

EPCM Site Team

Expatriate and local personnel will be recruited by Resolute or its designated labour broker.

Resolute will provide all onshore transport from airport to hotel(s) and site accommodation camp. The EPCM Engineer will provide their own IT hardware and PPE. Resolute will provide all messing and accommodation free of charge to the construction management team at, hotels or the accommodation camp(s).

Contractors

Expatriate and local contractors' personnel will be recruited and employed by each contractor in accordance with Ivorian regulations and requirements, project-specific requirements and each company's policies and procedures.

14.0 COMMISSIONING AND HANDOVER

14.1 Objective

A commissioning plan for the Project will be developed by the EPCM, based on the following broad structure and phases.

The EPCM will provide commissioning services and facilities to ensure the proper execution of the various commissioning phases and transition the Project into service in a controlled and timely manner to the satisfaction of Resolute. EPCM will engage with Resolute's operational personnel through the commissioning stages to bring the team up to speed as quickly as possible and aid the transition into Operations. Resolute will be responsible for developing and implementing its operational readiness plan. EPCM will supervise initial commissioning runs to prove that the plant performs in accordance with the specified design / performance criteria. It will also provide additional supervision and expertise to rectify all defects and enable the plant to operate at its specified parameters.

14.2 Phases of Commissioning

Generally, the phases of commissioning are as follows:

C1 – Pre-commissioning

Pre-commissioning means performing all testing and inspection for systems and sub-systems and associated equipment and facilities, necessary to confirm that the systems and sub-systems are safe and ready for wet commissioning.

Pre-commissioning commences following system or sub-system construction completion and includes directional motor rotations / run-ins, final couplings and alignments, loop checking via the control system, testing and energisation of power and control systems, field instrument calibrations and adjustments, verification of interlocks / safety devices / alarms, no-load running conveyor alignments, crane testing and first fills of lubricants. Systems and sub-systems are considered mechanically complete following the successful completion of sub-system pre-commissioning activities.

C2 - Wet Commissioning

Wet Commissioning – means the simulation of facilities plant operation (using water where applicable) to test equipment, piping, electrical interlocks, instrumentation and control systems and minor equipment to the maximum extent possible prior to the introduction of ore.

C3 - Process Commissioning

Process Commissioning – means the initial operation of the plant facilities using production materials, which include ore and reagents. Process commissioning commences upon successful completion of wet commissioning.

14.3 Implementation

The EPCM will provide commissioning services and facilities to ensure the proper execution of the various commissioning phases and bring the Project into service in a controlled and timely manner to the satisfaction of Resolute. The EPCM will supervise initial commissioning runs to prove that the plant performs in accordance with the specified design / performance criteria and to provide such additional supervision and expertise as required to rectify any defects and enable the plant to operate at its specified parameters.

15.0 PROJECT CLOSE OUT

15.1 General and Project Archiving

Project close out will be carried out in accordance with the procedures and as detailed within the Project Quality Plan.

15.2 Strategy

At the completion of all construction and commissioning activities, the EPCM will provide the following close out information to Resolute. This information will be formally transmitted to Resolute within a two-month period of the Project completion and handover.

- Assembly of certain as-built drawings.
- Process and instrumentation diagrams.
- Electrical as-built drawings.
- Assembly of commissioning data and records.
- Requirements for the discharge of bank guarantees and warranty administration.
- Quality records.
- Project close out report.

15.3 Handover Certificate

At the appropriate time, EPCM will create and issue for Resolute's sign-off a handover certificate reflecting the fact that the plant and infrastructure are complete, commissioned, fully functional, and ready to operate.

15.4 As-Built Documentation

As built drawings are limited to underground piping, P&IDs, electrical / instrumentation and process controls programming is included in EPCM's scope. No as-built drawings will be prepared for other discipline drawings. Red-lined documentation will be made available to Operations in advance of the back drafted deliverables.

15.5 Close Out Report

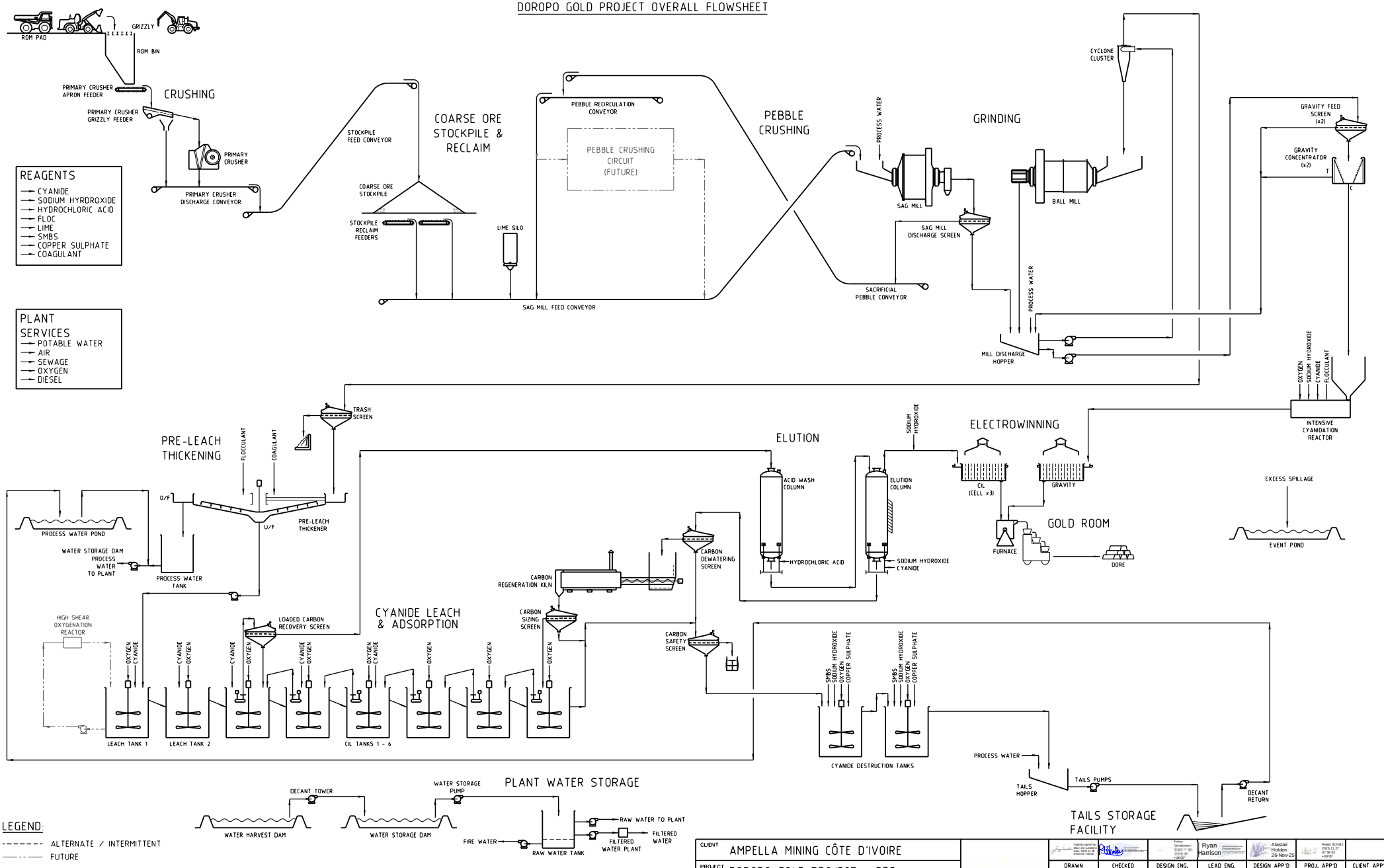
The EPCM will prepare and issue a Project Close Out Report, which will include the following:

- Handover certificate.
- Final cost report and change register
- Planned and actual schedules.
- The procurement report includes a schedule of orders placed, prices, delivery dates / times, and key test results.
- Construction report including photographs.
- Commissioning report.
- Schedule of securities held, warranties, certificates of contractor completion, residual punch lists, ongoing commitments, insurance claims, etc.
- Safety summary.
- Recommendations and lessons learned for future projects.
- Safety in design report.
- Residual risk register.

APPENDIX A

FLOWSHEETS AND GENERAL ARRANGEMENTS

DOROPO GOLD PROJECT OVERALL FLOWSHEET



DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		C	24NOV25	ISSUED FOR STUDY	ML	PW	AG	RH	AH	AS	
		B	10SEP25	ISSUED FOR CLIENT REVIEW	RO	PW	AG	RH	AH	AS	
		A	28AUG25	ISSUED FOR INTERNAL REVIEW	RO	PW	AG	RH	AH	AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DOROPO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 085 880 203
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61 (0) 8 6210 1222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

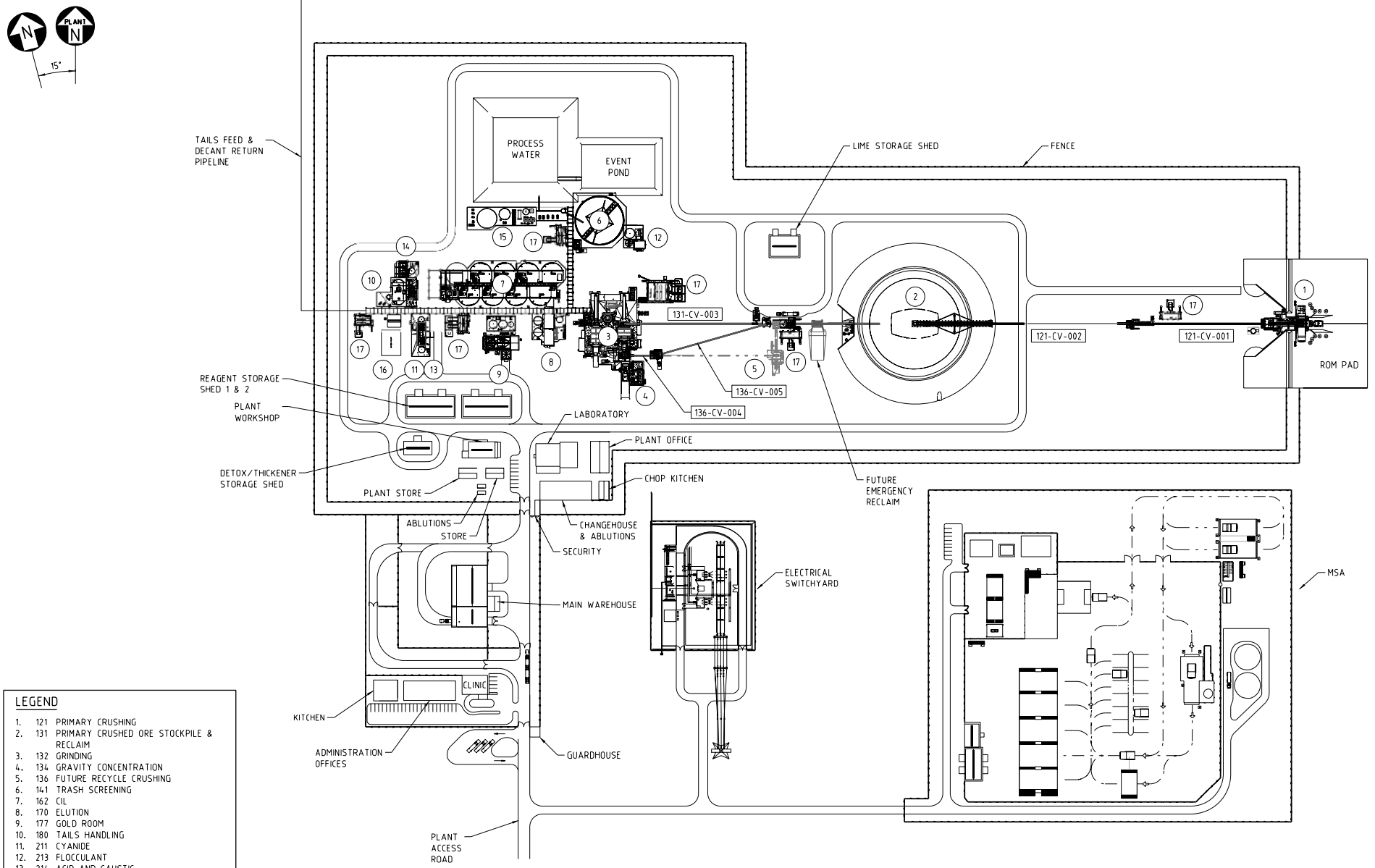
Resolute

DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
			Ryan Harrison	Alastair Holden 26-Nov-25		

DRAWING TITLE: TREATMENT PLANT - GENERAL OVERVIEW PROCESS FLOW DIAGRAM

SCALE	JOB No.	DRG No.	REV.
NTS	2326	110-FF-001	C

DRAWN: ML DATE: 13AUG25



LEGEND

1. 121 PRIMARY CRUSHING
2. 131 PRIMARY CRUSHED ORE STOCKPILE & RECLAIM
3. 132 GRINDING
4. 134 GRAVITY CONCENTRATION
5. 136 FUTURE RECYCLE CRUSHING
6. 141 TRASH SCREENING
7. 162 CIL
8. 170 ELUTION
9. 177 GOLD ROOM
10. 180 TAILS HANDLING
11. 211 CYANIDE
12. 213 FLOCCULANT
13. 214 ACID AND CAUSTIC
14. 216 DETOX REAGENTS
15. 220 WATER SERVICES
16. 240 AIR SERVICES
17. 376 ELECTRICAL SWITCHROOMS

DRG No	REFERENCE DRAWINGS	REV	DATE	DESCRIPTION	DRN	CHK'D	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
		A	25NOV25	ISSUED FOR STUDY	ZCG			AC		AS	

CLIENT: AMPELLA MINING CÔTE D'IVOIRE

PROJECT: DORODO GOLD PROJECT - DFS

Lycopodium

Lycopodium Minerals Pty Ltd ABN: 34 085 880 223
Level 5, 1 Adelaide Terrace, East Perth, Western Australia 6004
T: +61(0) 8 6210 1222 www.lycopodium.com

This drawing and its contents are confidential, are subject to return on demand and may not be copied or disclosed to any third party, or used directly or indirectly for any other purpose than as determined in writing by Lycopodium Minerals Pty Ltd.

Resolute

	DRAWN	CHECKED	DESIGN ENG.	LEAD ENG.	DESIGN APP'D	PROJ. APP'D	CLIENT APP'D
						Alwyn Scholtz	

DRAWING TITLE: TREATMENT PLANT - GENERAL PLANT LAYOUT PLAN

SCALE	JOB No.	DRG No.	REV.
1:1500	2326	110-GD-004	A

DRAWN: ZCG DATE: 24OCT25

APPENDIX B

WORK BREAKDOWN STRUCTURE

Code	Title
0	**Construction Distributables**
0.1	Construction Distributables - Contractors
0.1.1	Earthworks
0.1.2	Concrete
0.1.3	SMP
0.1.4	Incinerator
0.1.5	Site Erected Tankage
0.1.6	Piping - Overland
0.1.7	Electrical & Instrumentation
0.1.8	Buildings
0.1.9	Fencing
0.2	Site Construction Distributables - General
0.2.1	Construction Equipment
0.2.2	Construction Security
0.2.3	General Freight & Transport
0.2.4	Construction Power & Water
0.2.9	Commissioning Assistance
0.3	Site Construction Facilities
0.3.1	Construction Site Preparation / Earthworks
0.3.2	Construction Roads & Drainage
0.3.3	Laydown Areas
0.3.4	Construction Site Offices
0.3.5	Construction Stores
0.3.6	Medical & First Aid
0.3.7	Construction Communications
0.3.8	Construction Furniture & Equipment
0.3.9	Construction Temporary Works
0.4	Site Construction Facilities Other
0.4.1	Contractor Compounds
0.4.2	Aggregate Plant
0.4.3	Concrete Batching Plant
0.4.4	Sand Washing Plant
0.5	Construction Operations
0.5.1	Construction Operating Costs
0.5.2	Construction Fuels & Lubricants
0.5.3	Construction Consumable Supplies
0.5.4	Material Handling & Warehousing
0.5.5	Weather Protection & Cleanup
0.5.6	Waste Management
0.5.7	Repairs & Maintenance
0.5.8	Surveying
0.6	Construction Accommodation
0.6.1	Pioneer Camp
0.6.2	Construction Camp
0.6.3	Camp Operations & Maintenance
0.6.4	Meals During Construction
1	**Treatment Plant Costs**
1.1	Treatment Plant - General
1.1.1	Bulk Site Earthworks
1.1.2	Detailed Site Earthworks
1.1.3	Site Drainage & Culverts
1.1.4	In-plant Roads
1.1.5	Carparks & Hardstand Areas
1.1.6	Site Improvements
1.1.7	Site Security Fencing
1.1.8	Erosion Controls
1.2	Feed Preparation
1.2.1	Primary Crushing
1.2.2	Secondary Crushing
1.2.3	Tertiary Crushing
1.2.4	Dry Screening
1.2.5	Stockpiling
1.3	Milling
1.3.1	Reclaim
1.3.2	Grinding
1.3.3	Classification
1.3.4	Gravity Concentration
1.3.5	Flash Flotation
1.3.6	Recycle Crushing
1.3.7	Emergency Feed Bin
1.4	Trash Removal & Thickening

Code	Title
1.4.1	Trash Screening
1.4.2	Feed Thickening
1.4.3	Water Recycling
1.5	Flotation & Concentrate Handling
1.5.1	Flotation Roughers
1.5.2	Flotation Cleaners
1.5.3	Regrinding
1.5.4	Concentrate Thickening
1.5.5	Concentrate Filtration
1.5.6	Concentrate Storage & Load Out
1.6	Leaching
1.6.1	Pre-Leach
1.6.2	CIL
1.7	Elution & Gold Room
1.7.1	Carbon Recovery
1.7.2	Acid Wash
1.7.3	Elution
1.7.4	Carbon Regeneration
1.7.5	Intense Cyanidation
1.7.6	Electrowinning
1.7.7	Gold Room & Smelting
1.8	Tails Handling
1.8.1	Carbon Safety Screening
1.8.2	Tails Thickening / CCDs
1.8.3	Tails Detoxification
1.8.4	Tails Pumping
2	**Reagents & Plant Services**
2.1	Reagents
2.1.1	Cyanide
2.1.2	Lime
2.1.3	Flocculants
2.1.4	Acid & Caustic
2.1.5	Flotation Reagents
2.1.6	Other Reagents
2.1.7	Reagents General
2.1.8	Reagents Storage
2.2	Water Services
2.2.1	Water Services - General
2.2.2	Raw Water
2.2.3	Process Water
2.2.4	Potable Water
2.2.5	Gland Seal Water
2.2.6	Cooling Water
2.2.7	Treated Water
2.2.8	Fire Water
2.2.9	Sewage
2.3	Plant Services
2.3.1	Piperacks
2.3.2	Water Treatment Plants
2.3.3	Sewage Collection & Treatment
2.3.4	Event Pond
2.3.5	Control Valves
2.4	Air Services
2.4.1	Compressed Air
2.4.2	Blower Air
2.4.3	Oxygen Plant
2.5	Fuels
2.5.1	Fuel Storage & Distribution
2.5.2	Gas Supply & Distribution
2.5.3	Refuelling Bay
2.5.4	Incinerator
2.6	Electrical Services
2.6.1	Electrical Services - General
2.6.2	Plant HV Distribution
2.6.3	Plant Sub Stations
2.6.4	Plant Control System
2.6.5	PLant Security System
2.6.6	Fire Control System
2.6.7	Plant LV Distribution
3	**Infrastructure**

Code	Title
3.1	Infrastructure - General
3.1.1	Public Roads
3.1.2	Sites Roads & Tracks
3.1.3	Carparks & Hardstands
3.1.4	Weighbridge
3.1.5	Site Fencing & Access Control
3.1.6	Communications
3.1.7	Port
3.1.8	Airport
3.1.9	Helipad
3.2	Environmental
3.2.1	Site Drainage Management
3.2.2	Evaporation Ponds
3.2.3	Landscaping & Rehabilitation
3.2.4	Monitoring Equipment
3.2.5	Incinerator
3.2.6	Waste Disposal & Landfill
3.3	Raw Water
3.3.1	Raw Water Supply
3.3.2	Raw Water Storage
3.3.3	Water Treatment & Disposal
3.4	Power Supply
3.4.1	Mains Power
3.4.2	HV Switchyard / Sub Station
3.4.3	SVCs & Power Conditioning
3.4.4	Site Power Distribution
3.4.5	Site Power Station
3.4.6	Emergency / Standby Power
3.5	Tailings Dam & Water Storage Dam
3.5.1	Tailings Dam & Water Storage Dam
3.5.2	Tailings Pipeline
3.5.3	Decant System
3.6	Buildings - Admin & Security
3.6.1	Main Office
3.6.2	Clinic & Emergency Response
3.6.3	Gatehouse & Access Control
3.6.4	Security
3.6.5	Ablutions, Change House, Meals
3.7	Buildings - Plant
3.7.1	Plant Offices
3.7.2	Maintenance / Workshop
3.7.3	Warehouse / Store
3.7.4	Ablutions, Change House, Meals
3.7.5	Control Room
3.7.6	MCC Buildings
3.7.7	Laboratory
3.7.8	Reagent Storage
3.7.9	Buildings - Plant General
3.8	Permanent Accommodation (300 Beds) + (80 Bed Pioneer Camp)
3.8.1	Earthworks, Drainage & Fencing
3.8.2	Potable Water
3.8.3	Fire Water
3.8.4	Sewerage
3.8.5	Power Supply
3.8.6	Accommodation
3.8.7	Wet & Dry Mess
3.8.8	Administration & Services Buildings
3.8.9	Recreational Facilities
3.8.10	Raw Water
3.9	Security (80 Beds)
3.9.1	Earthworks, Drainage & Fencing
3.9.2	Potable Water
3.9.3	Fire Water
3.9.4	Sewerage
3.9.5	Electrical & Communications
3.9.6	Accommodation (80 Beds) Included In 3.8
3.9.7	Wet & Dry Mess
3.9.8	Administration & Services Buildings
3.9.9	Recreational Facilities
3.9.10	Raw Water

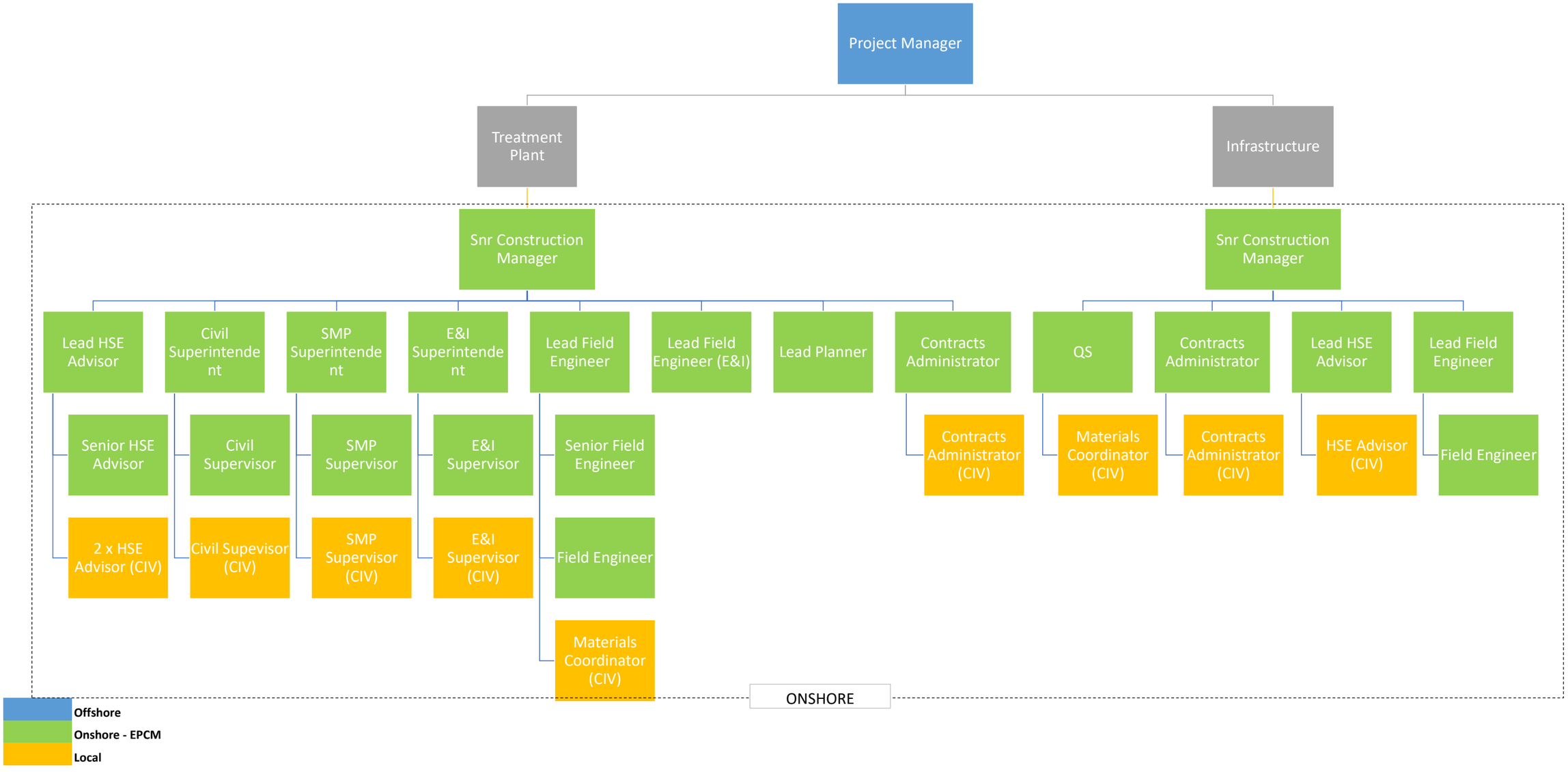
Code	Title
4	**Mining**
4.1	Mining-General
4.1.1	Mining Mobilisation & Establishment
4.1.2	Mining Infrastructure & Services
4.1.3	Survey Equipment
4.1.4	Explosives Supply
4.1.5	Mining Contractor Mob/Demob
4.1.6	Pit Control / Dispatch System
4.1.7	Mine Planning
4.2	Mine Establishment
4.2.1	Haul Roads
4.2.2	Pre Stripping
4.2.3	ROM Pad
4.2.4	Dewatering
4.2.5	Waste Dumps
4.2.6	Settlement Ponds
4.2.7	River / Creek Diversions
4.3	Mining Pre-Production
4.3.1	Mining Pre-production Labour
4.3.2	Mining Pre-production Expenses
4.4	Mining Consultants
4.4.1	Consultant Mining Engineer
4.4.2	Geological
4.4.3	Geotechnical
4.4.4	Hydrology
4.5	Mining Facilities
4.5.1	Mining Facility - General
4.5.2	Mining Administration Building
4.5.3	Mine Workshop
4.5.4	Mine Washdown Facility
4.5.5	Mine Rescue
4.5.6	Core Shed
4.5.7	Bulk Fuel & Lubricant Storage
4.5.8	Ablutions
4.5.9	Laboratory
4.6	Mine Mobile Equipment - HME
4.6.1	Haul Trucks
4.6.2	Dozers
4.6.3	Front End Loaders
4.6.4	Excavators
4.6.5	Graders
4.6.6	Drill Rigs
4.6.7	Fuel Trucks
4.6.8	Water Carts
4.7	Mine Mobile Equipment - LME
4.7.1	Rock Breaker
4.7.2	Lighting Towers
4.7.3	Mobile Pumps
4.7.4	Mobile Compressors
4.7.5	Mobile Welding Machines
4.7.6	Mobile Crane
4.7.7	Light Vehicles
4.7.8	Maintenance Vehicle
5	**Management Costs**
5.1	EPCM - Home Office
5.1.1	Home Office - General
5.1.2	Process / Engineering
5.1.3	Drafting
5.1.4	Projects
5.1.5	Project Services
5.1.6	Project Support
5.1.7	Home Office Expenses
5.1.8	Fees
5.1.9	Hedging
5.2	EPCM - Site
5.2.1	Site - General
5.2.2	Construction Services
5.2.3	Commissioning
5.2.4	Site Related Expenses
5.2.5	In-Country Office Labour

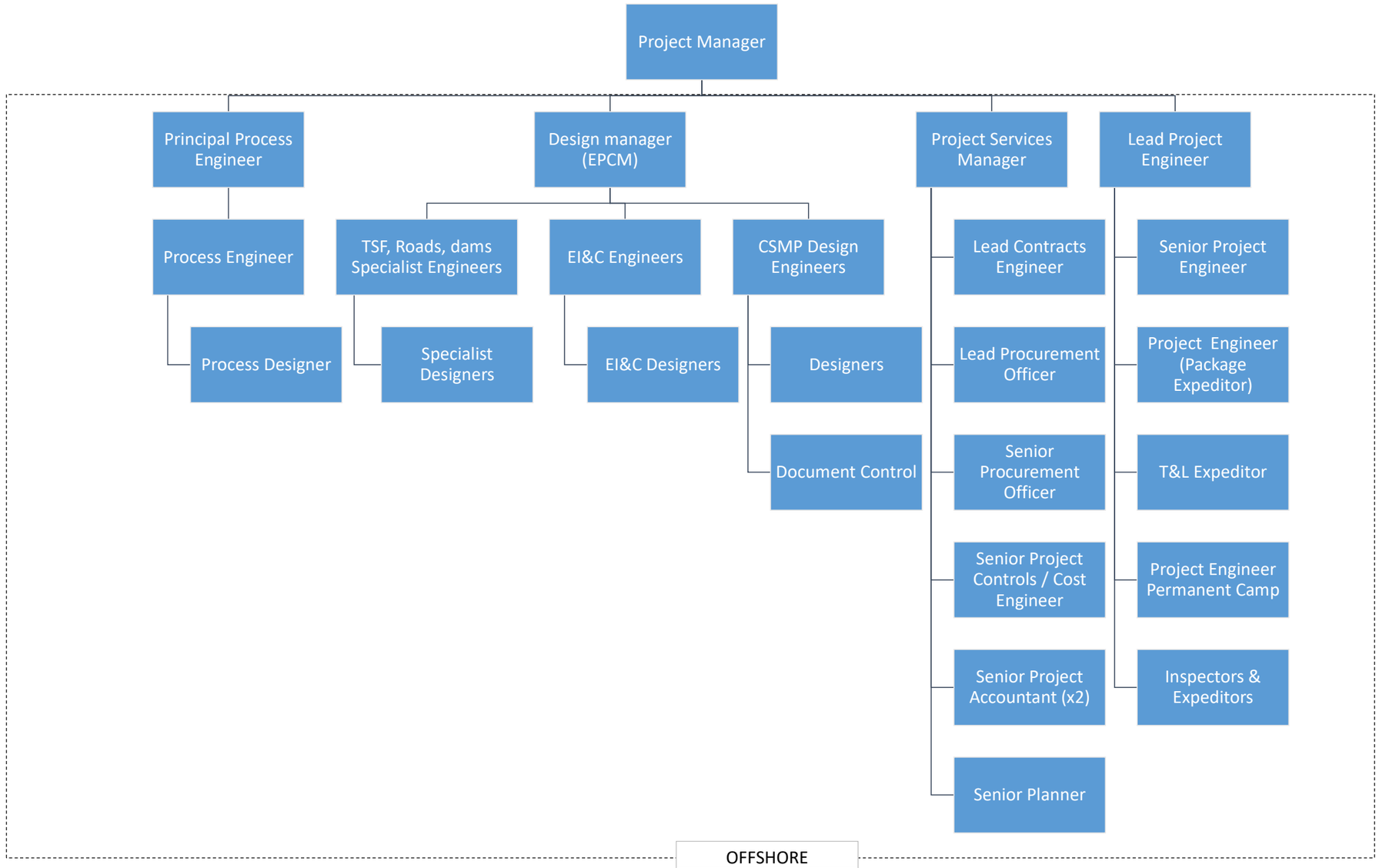
Code	Title
5.2.6	In-Country Office Expenses
5.3	Specialist Consultants - Design
5.3.1	Tailings Dam
5.3.2	Environmental
5.3.3	Geotechnical
5.3.4	Hydrology
5.3.5	Architectural Services
5.3.6	HV Electrical
5.3.7	Power Generation
5.4	Specialist Consultants - Client Scope
5.4.1	Client Scope
5.4.2	Medical
5.4.3	Risk
5.4.4	Insurance
5.4.5	HR / IR
5.4.6	Expediting Services
5.4.7	Testing & Inspection Services
5.5	Vendor Representatives
5.5.1	Vendor Reps
6	**Owners Project Costs**
6.1	Owners Costs - General
6.1.1	Owners Project Mng't Team Labour
6.1.2	Project Insurance
6.1.3	Specialist Consultants
6.1.4	Medical
6.1.5	Project Corporate Cost Allocation
6.1.6	Owners Costs General
6.1.7	Owners Office Costs
6.1.8	Owners IT/Software
6.1.9	HSES
6.2	Plant & Admin Pre-Production
6.2.1	Plant Pre-production Labour
6.2.2	Admin Pre-production Labour and G & A Expenses
6.2.3	Opening Stocks
6.2.4	First Fill Reagents & Consumables
6.2.5	Fuels & Lubricants
6.2.6	Purchased Utilities
6.2.7	Small Tools & Maint Equipment
6.3	Admin Pre-Production Other
6.3.1	Training
6.3.2	Recruiting
6.3.3	Information Technology
6.3.4	Security
6.4	Spare Parts
6.4.1	Commissioning Spares
6.4.2	Spares
6.4.3	Insurance Spares
6.5	Fees / Taxes / Duties
6.5.1	Permits & Approvals
6.5.2	Corporate Overheads
6.5.3	Legal & Accounting Fees
6.5.4	Technology Fees
6.5.5	License Fees
6.5.6	Shipment Inspection Fees
6.5.7	Taxes & Duties
6.6	Community
6.6.1	Crop Compensation
6.6.2	Land Compensation
6.6.3	Land Acquisition
6.6.4	Road Improvements
6.6.5	Housing
6.6.6	Other Community Infrastructure
6.6.7	Community Support
6.6.8	Relocation Costs
6.7	Plant Mobile Equipment
6.7.1	Light Vehicles
6.7.2	Cranes
6.7.3	Forklifts
6.7.4	Front End Loaders
6.7.5	Bobcats

Code	Title
6.7.6	Trucks
6.7.7	Boom & Scissor Lifts
6.7.8	Other Plant Mobile Equipment
7	**Owners Operations Costs**
7.1	Owners Operations Costs-General
7.1.1	Owners Operations Costs-General
7.2	Working Capital
7.2.1	General
7.2.2	Labour
7.2.3	Reagents & Consumables
7.2.4	Expenses
7.2.10	Withholding Taxes
8	**Future Capital**
8.1	Sustaining Capital
8.1.1	Mine
8.1.2	Plant
8.1.3	Other
8.2	Deferred Capital
8.2.1	Mine
8.2.2	Plant
8.2.3	Tailings Dam
8.2.4	Other
9	**Contingency**
9.1	Project Contingency
9.1.1	Construction Indirects
9.1.2	Treatment Plant
9.1.3	Reagents & Plant Services
9.1.4	Infrastructure
9.1.5	Management Costs
9.2	Owners Contingency
9.2.1	Mining
9.2.2	Owner's Project Costs
9.2.3	Owner's Operations Costs
9.2.4	Owner's Reserve
9.3	Escalation
9.3.1	Escalation General

APPENDIX C

ORGANISATION CHART


Project Manager
Treatment Plant
Infrastructure
Snr Construction Manager
Snr Construction Manager
Lead HSE Advisor
Civil Superintendent
SMP Superintendent
E&I Superintendent
Lead Field Engineer
Lead Field Engineer (E&I)
Lead Planner
Contracts Administrator
QS
Contracts Administrator
Lead HSE Advisor
Lead Field Engineer
Senior HSE Advisor
Civil Supervisor
SMP Supervisor
E&I Supervisor
Senior Field Engineer
Contracts Administrator (CIV)
Materials Coordinator (CIV)
Contracts Administrator (CIV)
HSE Advisor (CIV)
Field Engineer
2 x HSE Advisor (CIV)
Civil Supevisor (CIV)
SMP Supervisor (CIV)
E&I Supervisor (CIV)
Field Engineer
Materials Coordinator (CIV)
ONSHORE
Offshore
Onshore - EPCM
Local



Offshore
Onshore - EPCM
Local

APPENDIX D

PROJECT SCHEDULE

Lycopodium

PROJECT: Doropo Gold Project - DFS

Schedule Version: DFS - Preliminary Implementation Schedule

Resolute

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
Doropo Gold Project DFS - Preliminary Schedule 26Nov2025		757	18-Jul-25	12-Jun-28	0
MILESTONES		705	18-Jul-25	31-Mar-28	51
DFS Milestones		100	18-Jul-25	04-Dec-25	0
2326-DFS-MS-0010	DFS Commence	0	18-Jul-25*		0
2326-DFS-MS-2000	DFS Estimate & Report Issued for Review	0		20-Nov-25	0
2326-DFS-MS-2005	DFS Report Issued Final	0		04-Dec-25	0
Owners Project Milestones		342	09-Dec-25	31-Mar-27	6
2326-DFS-MS-1220	Exploitation Permit	0	09-Dec-25*		0
2326-DFS-MS-1240	ESIA Government Approval	0	11-Dec-25*		15
2326-DFS-MS-1001	Board Approval & FID	0		31-Dec-25*	0
2326-DFS-MS-0100	Works Approval Granted (Earlyworks Construction Commencement)	0	04-May-26		30
2326-DFS-CN-2760	Commence Site Access Road & Drainage Works	0	30-Jul-26		28
2326-DFS-MS-2010	Tailings Storage Facility (TSF) - Construction Commencement	0	01-Oct-26		28
2326-DFS-MS-2290	Water Storage Dam / Water Harvest Dam - Bulk Earthworks Commencement	0	05-Oct-26		49
2326-DFS-MS-2270	Permit to Import Nuclear Sources Granted	0	31-Mar-27		6
FEED / Earlyworks Milestones		111	28-Nov-25	04-May-26	40
2326-DFS-MS-2220	Geotech Investigation Results Issued for Design	0	28-Nov-25		10
2326-DFS-MS-1210	Preliminary Bulk Earthworks Design & MTO IFT	0	16-Jan-26		86
2326-DFS-MS-1170	Project Schedule Baseline IFR	0	27-Feb-26		74
2326-DFS-MS-1180	Mill RFA Issued	0	13-Mar-26		0
2326-DFS-MS-2230	Construction Water Available for Earlyworks Construction	0	27-Apr-26		40
2326-DFS-MS-2240	Accommodation Available for Earlyworks Construction	0	27-Apr-26		40
2326-DFS-MS-1040	Commence Site Earlyworks Construction	0	04-May-26		52
EPCM Milestones		541	05-Mar-26	31-Mar-28	51
2326-DFS-MS-1000	EPCM Award	0	05-Mar-26		17
2326-DFS-MS-1010	EPCM Kick off	0	12-Mar-26		17
2326-DFS-MS-1020	Award Mill Supply Contract	0		02-Apr-26	0
2326-DFS-MS-1200	Bulk Earthworks RFA Issued	0		17-Apr-26	10
2326-DFS-MS-1030	Award Bulk Earthworks	0		08-May-26	10
2326-DFS-MS-2250	Commence Plant Site Bulk Earthworks (Breaking Ground)	0	01-Jun-26		13
2326-DFS-MS-1160	Accommodation Available for Concrete Contractor Establishment & Critical Activities (By Owner)	0	22-Jun-26		13
2326-DFS-MS-1070	Commence Process Plant Concrete Works	0	31-Jul-26		13
2326-DFS-MS-1080	Village Rooms Available to Mobilise SMP Contractor	0	24-Sep-26		46
2326-DFS-MS-2260	Detailed Design Complete	0		17-Feb-27	188
2326-DFS-MS-1090	Water Supply Available	0	14-Mar-27		48
2326-DFS-MS-1110	Permanent Village Completion (350 Rooms)	0		15-Sep-27	50
2326-DFS-MS-2300	Overhead Powerline & Switchyard Commissioned (by Owner)	0	02-Oct-27		34
2326-DFS-MS-1130	Commence Commissioning	0	08-Nov-27		0
2326-DFS-MS-2210	Mining Facilities Construction Completion	0		06-Jan-28	70
2326-DFS-MS-1140	First Ore into Plant	0		12-Feb-28	38
2326-DFS-MS-1150	First Gold Pour	0		25-Mar-28	79
2326-DFS-MS-2110	NPI Construction Completion	0		31-Mar-28	68
DFS		164	18-Jul-25	04-Mar-26	17
DFS Design		80	18-Jul-25	06-Nov-25	0
2326-DFS-EN-1270	DFS Testwork & Design	80	18-Jul-25	06-Nov-25	0

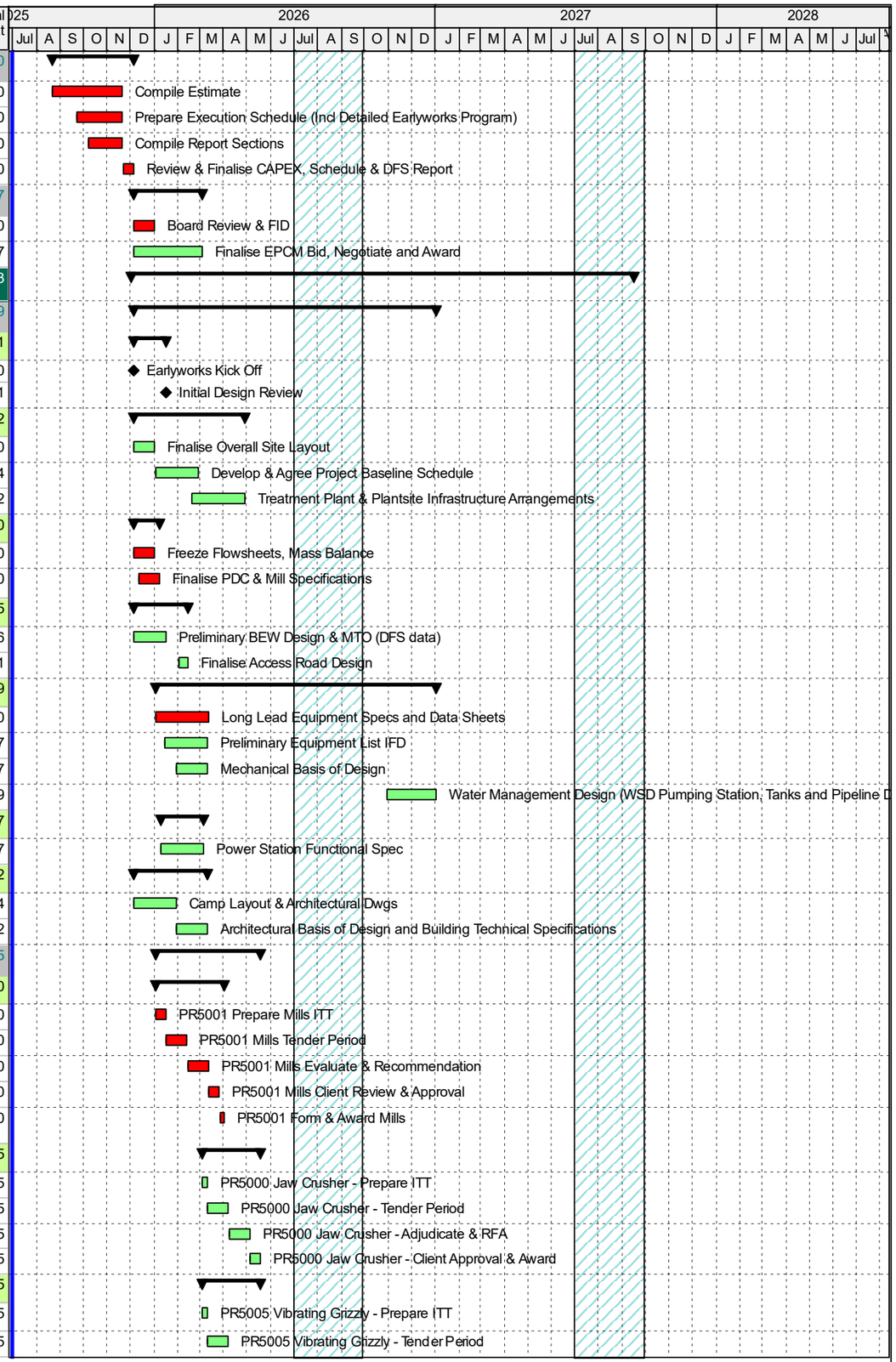


Summary | Milestone | Remaining Work | Critical Remaining Work | Actual Work | Actual Level of Effort | Remaining Level of... | % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
Reporting		75	22-Aug-25	04-Dec-25	0
2326-DFS-DR-1530	Compile Estimate	65	22-Aug-25	20-Nov-25	0
2326-DFS-DR-1580	Prepare Execution Schedule (Incl Detailed Earlyworks Program)	43	23-Sep-25	20-Nov-25	0
2326-DFS-DR-1570	Compile Report Sections	32	07-Oct-25	20-Nov-25	0
2326-DFS-DR-1590	Review & Finalise CAPEX, Schedule & DFS Report	10	21-Nov-25	04-Dec-25	0
Reviews & FID		64	05-Dec-25	04-Mar-26	17
2326-DFS-EN-1300	Board Review & FID	19	05-Dec-25	31-Dec-25	0
2326-DFS-EN-1310	Finalise EPCM Bid, Negotiate and Award	64	05-Dec-25	04-Mar-26	17
EARLYWORKS		467	01-Dec-25	15-Sep-27	193
FEED		281	05-Dec-25	01-Jan-27	39
Milestones		30	05-Dec-25	16-Jan-26	51
2326-DFS-EN-3020	Earlyworks Kick Off	0	05-Dec-25		0
2326-DFS-EN-3030	Initial Design Review	0	16-Jan-26		51
General		104	05-Dec-25	29-Apr-26	32
2326-DFS-EN-1000	Finalise Overall Site Layout	20	05-Dec-25	01-Jan-26	10
2326-DFS-EN-1320	Develop & Agree Project Baseline Schedule	40	02-Jan-26	26-Feb-26	74
2326-DFS-DR-1000	Treatment Plant & Plantsite Infrastructure Arrangements	50	19-Feb-26	29-Apr-26	32
Process		25	05-Dec-25	08-Jan-26	0
2326-DFS-EN-1010	Freeze Flowsheets, Mass Balance	20	05-Dec-25	01-Jan-26	0
2326-DFS-EN-1020	Finalise PDC & Mill Specifications	20	12-Dec-25	08-Jan-26	0
Civil		51	05-Dec-25	13-Feb-26	25
2326-DFS-EN-1110	Preliminary BEW Design & MTO (DFS data)	30	05-Dec-25	15-Jan-26	46
2326-DFS-EN-3010	Finalise Access Road Design	10	02-Feb-26	13-Feb-26	21
SMP		261	02-Jan-26	01-Jan-27	39
2326-DFS-EN-1070	Long Lead Equipment Specs and Data Sheets	50	02-Jan-26	12-Mar-26	0
2326-DFS-EN-1040	Preliminary Equipment List IFD	40	15-Jan-26	11-Mar-26	17
2326-DFS-EN-1030	Mechanical Basis of Design	30	29-Jan-26	11-Mar-26	17
2326-DFS-DR-2090	Water Management Design (WSD Pumping Station, Tanks and Pipeline Design, Turrets)	46	30-Oct-26	01-Jan-27	39
E&I		40	09-Jan-26	05-Mar-26	27
2326-DFS-EN-3000	Power Station Functional Spec	40	09-Jan-26	05-Mar-26	27
Architectural		69	05-Dec-25	11-Mar-26	52
2326-DFS-EN-1100	Camp Layout & Architectural Dwgs	40	05-Dec-25	29-Jan-26	44
2326-DFS-EN-1130	Architectural Basis of Design and Building Technical Specifications	30	29-Jan-26	11-Mar-26	52
Long Lead Equipment Procurement		98	02-Jan-26	19-May-26	35
5001 Ball & SAG Mills		65	02-Jan-26	02-Apr-26	0
2326-DFS-PR-1000	PR5001 Prepare Mills ITT	10	02-Jan-26	15-Jan-26	0
2326-DFS-PR-1010	PR5001 Mills Tender Period	20	16-Jan-26	12-Feb-26	0
2326-DFS-PR-1040	PR5001 Mills Evaluate & Recommendation	20	13-Feb-26	12-Mar-26	0
2326-DFS-PR-1060	PR5001 Mills Client Review & Approval	10	13-Mar-26	26-Mar-26	0
2326-DFS-PR-1090	PR5001 Form & Award Mills	5	27-Mar-26	02-Apr-26	0
5000 Jaw Crusher		55	04-Mar-26	19-May-26	35
2326-DFS-PR-1510	PR5000 Jaw Crusher - Prepare ITT	5	04-Mar-26	10-Mar-26	35
2326-DFS-PR-1620	PR5000 Jaw Crusher - Tender Period	20	11-Mar-26	07-Apr-26	35
2326-DFS-PR-1950	PR5000 Jaw Crusher - Adjudicate & RFA	20	08-Apr-26	05-May-26	35
2326-DFS-PR-2080	PR5000 Jaw Crusher - Client Approval & Award	10	06-May-26	19-May-26	35
5005 Vibrating Grizzly Screens		55	04-Mar-26	19-May-26	35
2326-DFS-PR-1190	PR5005 Vibrating Grizzly - Prepare ITT	5	04-Mar-26	10-Mar-26	35
2326-DFS-PR-1290	PR5005 Vibrating Grizzly - Tender Period	20	11-Mar-26	07-Apr-26	35

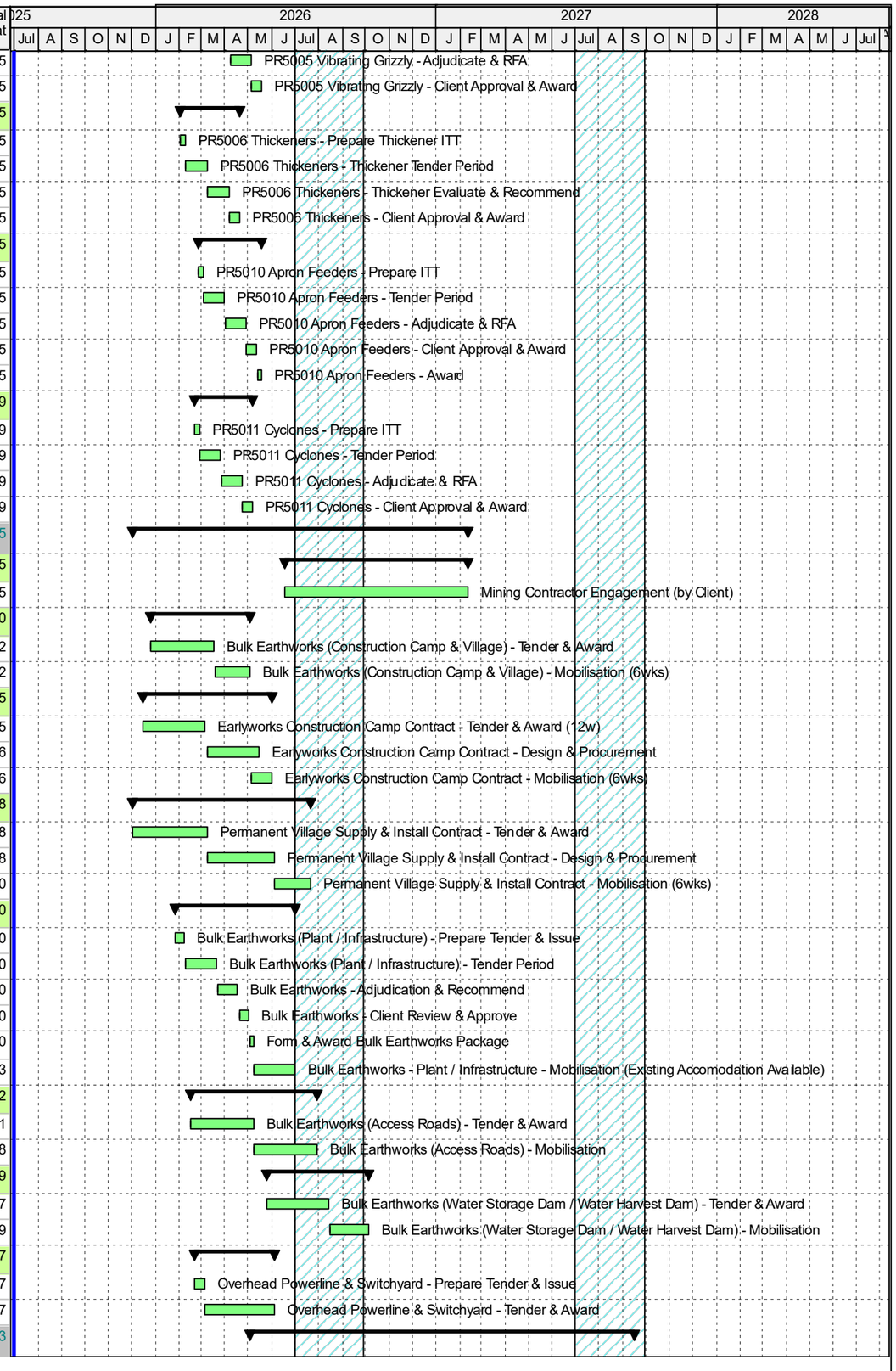


Summary · Milestone · Remaining Work · Critical Remaining Work · Actual Work · Actual Level of Effort · Remaining Level of... · % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-PR-1460	PR5005 Vibrating Grizzly - Adjudicate & RFA	20	08-Apr-26	05-May-26	35
2326-DFS-PR-1610	PR5005 Vibrating Grizzly - Client Approval & Award	10	06-May-26	19-May-26	35
5006 Thickeners		55	02-Feb-26	20-Apr-26	35
2326-DFS-PR-1330	PR5006 Thickeners - Prepare Thickener ITT	5	02-Feb-26	09-Feb-26	35
2326-DFS-PR-1430	PR5006 Thickeners - Thickener Tender Period	20	09-Feb-26	09-Mar-26	35
2326-DFS-PR-1630	PR5006 Thickeners - Thickener Evaluate & Recommend	20	09-Mar-26	06-Apr-26	35
2326-DFS-PR-1940	PR5006 Thickeners - Client Approval & Award	10	06-Apr-26	20-Apr-26	35
5010 Apron Feeders		60	25-Feb-26	19-May-26	35
2326-DFS-PR-1070	PR5010 Apron Feeders - Prepare ITT	5	25-Feb-26	03-Mar-26	35
2326-DFS-PR-1150	PR5010 Apron Feeders - Tender Period	20	04-Mar-26	31-Mar-26	35
2326-DFS-PR-1340	PR5010 Apron Feeders - Adjudicate & RFA	20	01-Apr-26	28-Apr-26	35
2326-DFS-PR-1500	PR5010 Apron Feeders - Client Approval & Award	10	29-Apr-26	12-May-26	35
2326-DFS-PR-1700	PR5010 Apron Feeders - Award	5	13-May-26	19-May-26	35
5011 Cyclones		55	20-Feb-26	07-May-26	9
2326-DFS-PR-1140	PR5011 Cyclones - Prepare ITT	5	20-Feb-26	26-Feb-26	9
2326-DFS-PR-1260	PR5011 Cyclones - Tender Period	20	27-Feb-26	26-Mar-26	9
2326-DFS-PR-1420	PR5011 Cyclones - Adjudicate & RFA	20	27-Mar-26	23-Apr-26	9
2326-DFS-PR-1590	PR5011 Cyclones - Client Approval & Award	10	24-Apr-26	07-May-26	9
Contracts		314	01-Dec-25	12-Feb-27	75
Mining		172	17-Jun-26	12-Feb-27	75
2326-DFS-CT-1980	Mining Contractor Engagement (by Client)	172	17-Jun-26*	12-Feb-27	75
Bulk Earthworks (Construction Camp & Permanent Village)		92	25-Dec-25	03-May-26	40
2326-DFS-CN-2580	Bulk Earthworks (Construction Camp & Village) - Tender & Award	60	25-Dec-25	18-Mar-26	42
2326-DFS-CN-2590	Bulk Earthworks (Construction Camp & Village) - Mobilisation (6wks)	39	19-Mar-26	03-May-26	52
Earlyworks Construction Camp Install		121	15-Dec-25	01-Jun-26	35
2326-DFS-CN-2600	Earlyworks Construction Camp Contract - Tender & Award (12w)	60	15-Dec-25*	06-Mar-26	35
2326-DFS-CN-2710	Earlyworks Construction Camp Contract - Design & Procurement	50	09-Mar-26	15-May-26	46
2326-DFS-CN-2610	Earlyworks Construction Camp Contract - Mobilisation (6wks)	26	05-May-26	01-Jun-26	46
Permanent Village - Supply & Install		166	01-Dec-25	21-Jul-26	38
2326-DFS-CN-2670	Permanent Village Supply & Install Contract - Tender & Award	70	01-Dec-25*	09-Mar-26	38
2326-DFS-CN-2690	Permanent Village Supply & Install Contract - Design & Procurement	63	09-Mar-26	04-Jun-26	38
2326-DFS-CN-2680	Permanent Village Supply & Install Contract - Mobilisation (6wks)	44	05-Jun-26	21-Jul-26	50
Bulk Earthworks (Plant / Infrastructure)		114	26-Jan-26	02-Jul-26	10
2326-DFS-CT-1020	Bulk Earthworks (Plant / Infrastructure) - Prepare Tender & Issue	10	26-Jan-26	06-Feb-26	10
2326-DFS-CT-1040	Bulk Earthworks (Plant / Infrastructure) - Tender Period	30	09-Feb-26	20-Mar-26	10
2326-DFS-CT-1140	Bulk Earthworks - Adjudication & Recommend	20	23-Mar-26	17-Apr-26	10
2326-DFS-CT-1190	Bulk Earthworks - Client Review & Approve	10	20-Apr-26	01-May-26	10
2326-DFS-CT-1220	Form & Award Bulk Earthworks Package	5	04-May-26	08-May-26	10
2326-DFS-CT-1280	Bulk Earthworks - Plant / Infrastructure - Mobilisation (Existing Accomodation Available)	51	09-May-26	02-Jul-26	13
Bulk Earthworks (Access Roads)		118	16-Feb-26	29-Jul-26	22
2326-DFS-CN-2720	Bulk Earthworks (Access Roads) - Tender & Award	60	16-Feb-26	08-May-26	21
2326-DFS-CN-2730	Bulk Earthworks (Access Roads) - Mobilisation	76	09-May-26	29-Jul-26	28
Bulk Earthworks (Water Storage Dam / Water Harvest Dam)		95	25-May-26	04-Oct-26	39
2326-DFS-CN-2740	Bulk Earthworks (Water Storage Dam / Water Harvest Dam) - Tender & Award	60	25-May-26	14-Aug-26	37
2326-DFS-CN-2750	Bulk Earthworks (Water Storage Dam / Water Harvest Dam) - Mobilisation	47	15-Aug-26	04-Oct-26	49
Overhead Powerline & Switchyard		75	20-Feb-26	04-Jun-26	27
2326-DFS-CT-1060	Overhead Powerline & Switchyard - Prepare Tender & Issue	10	20-Feb-26	05-Mar-26	27
2326-DFS-CT-1100	Overhead Powerline & Switchyard - Tender & Award	65	06-Mar-26	04-Jun-26	27
Construction		358	04-May-26	15-Sep-27	193

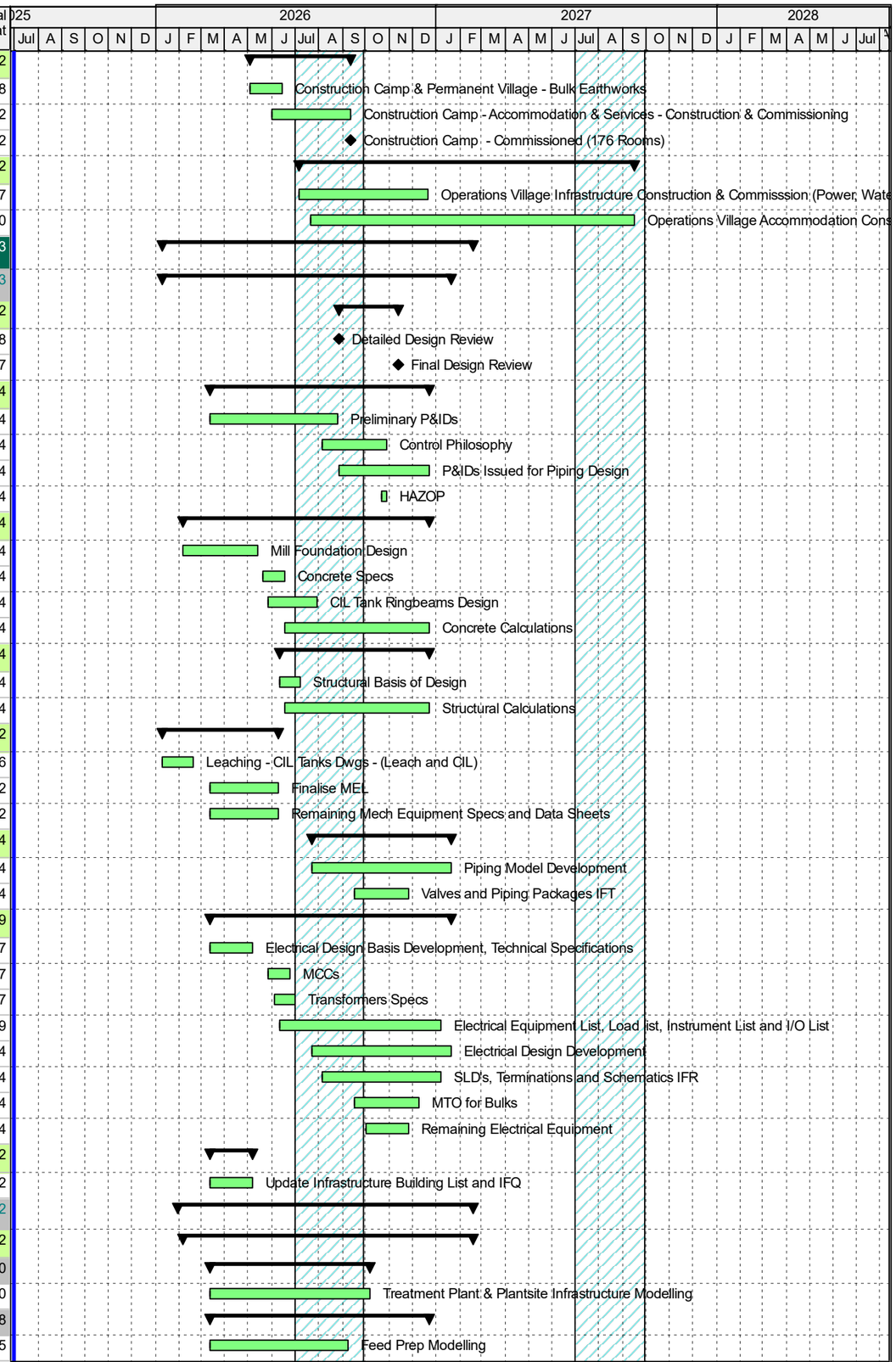


Summary | Critical Remaining Work | Remaining Level of...
Milestone | Actual Work | % Complete
Remaining Work | Actual Level of Effort

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
Construction Camp		113	04-May-26	11-Sep-26	42
2326-DFS-CN-2210	Construction Camp & Permanent Village - Bulk Earthworks	37	04-May-26	15-Jun-26	48
2326-DFS-CN-2240	Construction Camp - Accommodation & Services - Construction & Commissioning	88	02-Jun-26	11-Sep-26	42
2326-DFS-CN-2280	Construction Camp - Commissioned (176 Rooms)	0		11-Sep-26	42
Permanent Village		391	06-Jul-26	15-Sep-27	242
2326-DFS-CN-2700	Operations Village Infrastructure Construction & Commisssion (Power, Water, Sewage & Village Facilities)	156	06-Jul-26	21-Dec-26	477
2326-DFS-CN-1180	Operations Village Accommodation Construction & Commissioning (350 Rooms)	376	22-Jul-26	15-Sep-27	50
DETAIL DESIGN		289	09-Jan-26	17-Feb-27	343
Engineering		269	09-Jan-26	20-Jan-27	363
General		56	27-Aug-26	13-Nov-26	412
2326-DFS-EN-3040	Detailed Design Review	0	27-Aug-26		468
2326-DFS-EN-3050	Final Design Review	0	13-Nov-26		257
Process		205	12-Mar-26	23-Dec-26	34
2326-DFS-EN-1050	Preliminary P&IDs	120	12-Mar-26	26-Aug-26	34
2326-DFS-EN-1120	Control Philosophy	60	06-Aug-26	28-Oct-26	44
2326-DFS-EN-1200	P&IDs Issued for Piping Design	85	27-Aug-26	23-Dec-26	34
2326-DFS-EN-1190	HAZOP	5	22-Oct-26	28-Oct-26	44
Civil		229	05-Feb-26	23-Dec-26	34
2326-DFS-DR-1550	Mill Foundation Design	70	05-Feb-26	14-May-26	14
2326-DFS-DR-1600	Concrete Specs	20	21-May-26	17-Jun-26	34
2326-DFS-DR-1540	CIL Tank Ringbeams Design	46	28-May-26	30-Jul-26	34
2326-DFS-DR-1620	Concrete Calculations	135	18-Jun-26	23-Dec-26	34
Structural		140	11-Jun-26	23-Dec-26	34
2326-DFS-DR-1610	Structural Basis of Design	20	11-Jun-26	08-Jul-26	154
2326-DFS-DR-1630	Structural Calculations	135	18-Jun-26	23-Dec-26	34
Mechanical		109	09-Jan-26	10-Jun-26	32
2326-DFS-DR-1090	Leaching - CIL Tanks Dwgs - (Leach and CIL)	30	09-Jan-26	19-Feb-26	66
2326-DFS-EN-1060	Finalise MEL	65	12-Mar-26	10-Jun-26	32
2326-DFS-EN-1150	Remaining Mech Equipment Specs and Data Sheets	65	12-Mar-26	10-Jun-26	32
Piping		130	23-Jul-26	20-Jan-27	34
2326-DFS-EN-1260	Piping Model Development	130	23-Jul-26	20-Jan-27	34
2326-DFS-EN-1250	Valves and Piping Packages IFT	50	17-Sep-26	25-Nov-26	34
Electrical / Instrumentation		225	12-Mar-26	20-Jan-27	69
2326-DFS-EN-1080	Electrical Design Basis Development, Technical Specifications	40	12-Mar-26	06-May-26	17
2326-DFS-EN-1180	MCCs	20	28-May-26	24-Jun-26	17
2326-DFS-EN-1210	Transformers Specs	20	04-Jun-26	01-Jul-26	17
2326-DFS-EN-1240	Electrical Equipment List, Load list, Instrument List and I/O List	150	11-Jun-26	06-Jan-27	79
2326-DFS-EN-1170	Electrical Design Development	130	23-Jul-26	20-Jan-27	34
2326-DFS-EN-1140	SLD's, Terminations and Schematics IFR	110	06-Aug-26	06-Jan-27	44
2326-DFS-EN-1220	MTO for Bulks	60	17-Sep-26	09-Dec-26	34
2326-DFS-EN-1230	Remaining Electrical Equipment	40	01-Oct-26	25-Nov-26	34
Architectural		40	12-Mar-26	06-May-26	52
2326-DFS-EN-1160	Update Infrastructure Building List and IFQ	40	12-Mar-26	06-May-26	52
Drafting		274	30-Jan-26	17-Feb-27	112
1 Treatment Plant		270	05-Feb-26	17-Feb-27	112
1.1 Treatment Plant - General		150	12-Mar-26	07-Oct-26	30
2326-DFS-DR-1010	Treatment Plant & Plantsite Infrastructure Modelling	150	12-Mar-26	07-Oct-26	30
1.2 Feed Preparation		205	12-Mar-26	23-Dec-26	88
2326-DFS-DR-1020	Feed Prep Modelling	129	12-Mar-26	08-Sep-26	35

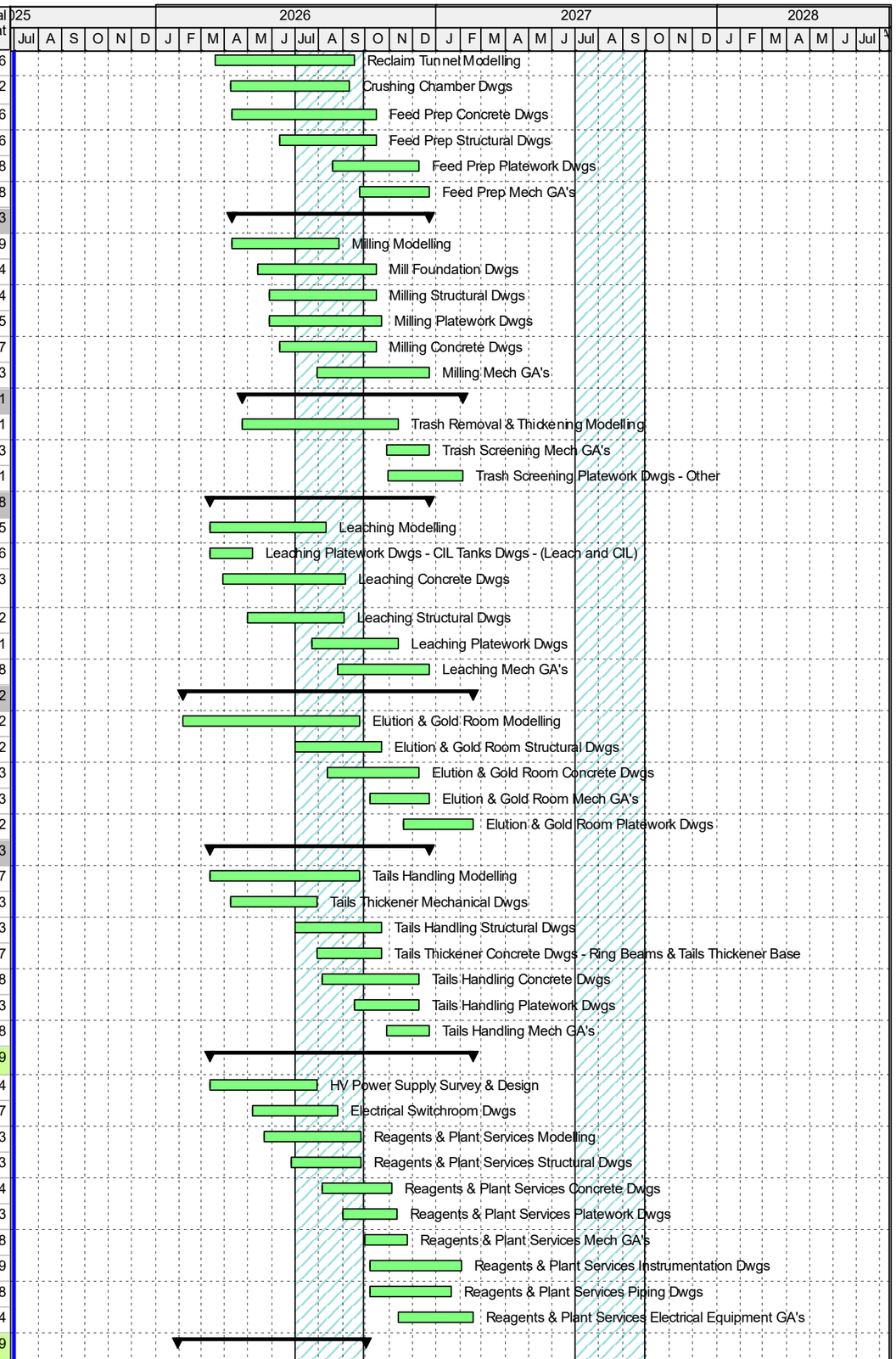


Summary | Milestone | Remaining Work | Critical Remaining Work | Actual Work | Actual Level of Effort | Remaining Level of... | % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-DR-1080	Reclaim Tunnel Modelling	130	20-Mar-26	17-Sep-26	56
2326-DFS-DR-1140	Crushing Chamber Dwgs	110	09-Apr-26	09-Sep-26	82
2326-DFS-DR-1150	Feed Prep Concrete Dwgs	135	10-Apr-26	15-Oct-26	56
2326-DFS-DR-1230	Feed Prep Structural Dwgs	90	12-Jun-26	15-Oct-26	56
2326-DFS-DR-1330	Feed Prep Platework Dwgs	80	19-Aug-26	09-Dec-26	88
2326-DFS-DR-1380	Feed Prep Mech GA's	65	23-Sep-26	23-Dec-26	88
1.3 Milling		184	10-Apr-26	23-Dec-26	23
2326-DFS-DR-1030	Milling Modelling	100	10-Apr-26	27-Aug-26	9
2326-DFS-DR-1110	Mill Foundation Dwgs	110	14-May-26	15-Oct-26	14
2326-DFS-DR-1190	Milling Structural Dwgs	100	28-May-26	15-Oct-26	14
2326-DFS-DR-1220	Milling Platework Dwgs	105	29-May-26	22-Oct-26	65
2326-DFS-DR-1200	Milling Concrete Dwgs	90	11-Jun-26	15-Oct-26	57
2326-DFS-DR-1320	Milling Mech GA's	105	29-Jul-26	23-Dec-26	23
1.4 Trash Removal & Thickening		205	24-Apr-26	04-Feb-27	11
2326-DFS-DR-1120	Trash Removal & Thickening Modelling	145	24-Apr-26	12-Nov-26	11
2326-DFS-DR-1410	Trash Screening Mech GA's	40	28-Oct-26	23-Dec-26	23
2326-DFS-DR-1370	Trash Screening Platework Dwgs - Other	70	30-Oct-26	04-Feb-27	11
1.6 Leaching		205	12-Mar-26	23-Dec-26	88
2326-DFS-DR-1040	Leaching Modelling	108	12-Mar-26	10-Aug-26	35
2326-DFS-DR-1560	Leaching Platework Dwgs - CIL Tanks Dwgs - (Leach and CIL)	40	13-Mar-26	07-May-26	66
2326-DFS-DR-1160	Leaching Concrete Dwgs	115	30-Mar-26	04-Sep-26	83
2326-DFS-DR-1260	Leaching Structural Dwgs	90	30-Apr-26	02-Sep-26	32
2326-DFS-DR-1290	Leaching Platework Dwgs	80	24-Jul-26	12-Nov-26	11
2326-DFS-DR-1360	Leaching Mech GA's	85	26-Aug-26	23-Dec-26	88
1.7 Elution & Gold Room		270	05-Feb-26	17-Feb-27	32
2326-DFS-DR-1130	Elution & Gold Room Modelling	165	05-Feb-26	23-Sep-26	82
2326-DFS-DR-1400	Elution & Gold Room Structural Dwgs	80	02-Jul-26	21-Oct-26	82
2326-DFS-DR-1250	Elution & Gold Room Concrete Dwgs	85	12-Aug-26	09-Dec-26	53
2326-DFS-DR-1420	Elution & Gold Room Mech GA's	55	07-Oct-26	23-Dec-26	53
2326-DFS-DR-1470	Elution & Gold Room Platework Dwgs	65	19-Nov-26	17-Feb-27	32
1.8 Tails Handling		205	12-Mar-26	23-Dec-26	153
2326-DFS-DR-1100	Tails Handling Modelling	140	12-Mar-26	23-Sep-26	47
2326-DFS-DR-1180	Tails Thickener Mechanical Dwgs	80	09-Apr-26	29-Jul-26	103
2326-DFS-DR-1310	Tails Handling Structural Dwgs	80	02-Jul-26	21-Oct-26	73
2326-DFS-DR-1390	Tails Thickener Concrete Dwgs - Ring Beams & Tails Thickener Base	60	30-Jul-26	21-Oct-26	197
2326-DFS-DR-1270	Tails Handling Concrete Dwgs	90	05-Aug-26	09-Dec-26	88
2326-DFS-DR-1440	Tails Handling Platework Dwgs	60	16-Sep-26	09-Dec-26	73
2326-DFS-DR-1490	Tails Handling Mech GA's	40	28-Oct-26	23-Dec-26	88
2 Reagents & Plant Services		245	12-Mar-26	17-Feb-27	69
2326-DFS-DR-1070	HV Power Supply Survey & Design	100	12-Mar-26	29-Jul-26	94
2326-DFS-DR-1240	Electrical Switchroom Dwgs	80	07-May-26	26-Aug-26	17
2326-DFS-DR-1170	Reagents & Plant Services Modelling	90	22-May-26	24-Sep-26	43
2326-DFS-DR-1430	Reagents & Plant Services Structural Dwgs	65	26-Jun-26	24-Sep-26	83
2326-DFS-DR-1450	Reagents & Plant Services Concrete Dwgs	65	06-Aug-26	04-Nov-26	94
2326-DFS-DR-1460	Reagents & Plant Services Platework Dwgs	50	02-Sep-26	11-Nov-26	93
2326-DFS-DR-1520	Reagents & Plant Services Mech GA's	40	30-Sep-26	25-Nov-26	108
2326-DFS-DR-1500	Reagents & Plant Services Instrumentation Dwgs	86	07-Oct-26	03-Feb-27	79
2326-DFS-DR-1480	Reagents & Plant Services Piping Dwgs	75	07-Oct-26	20-Jan-27	88
2326-DFS-DR-1510	Reagents & Plant Services Electrical Equipment GA's	70	12-Nov-26	17-Feb-27	34
3 Infrastructure		175	30-Jan-26	01-Oct-26	59

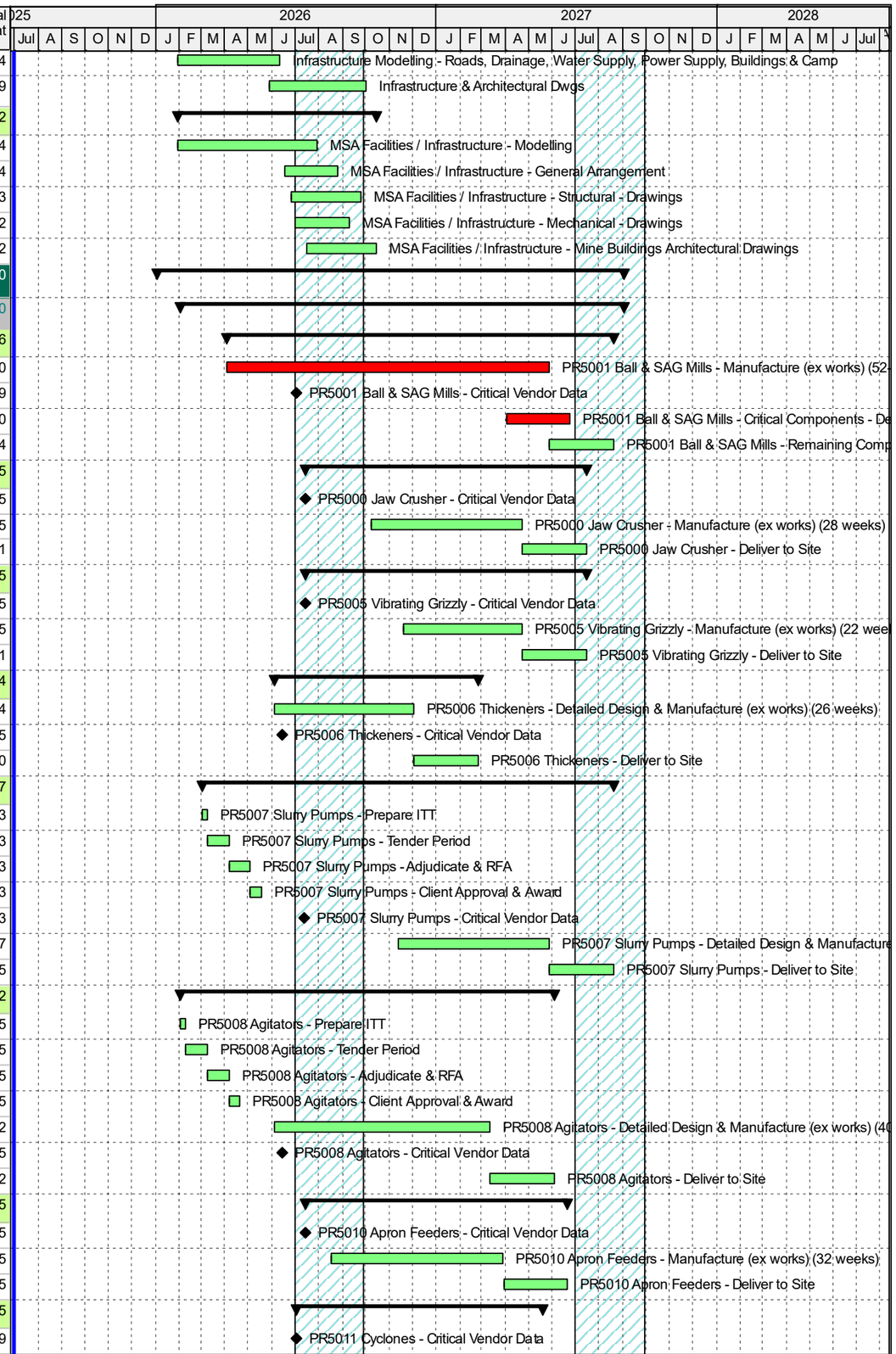


Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-DR-1050	Infrastructure Modelling - Roads, Drainage, Water Supply, Power Supply, Buildings & Camp	95	30-Jan-26	11-Jun-26	44
2326-DFS-DR-1210	Infrastructure & Architectural Dwgs	90	29-May-26	01-Oct-26	59
4 Mining		184	30-Jan-26	14-Oct-26	52
2326-DFS-DR-1060	MSA Facilities / Infrastructure - Modelling	129	30-Jan-26	29-Jul-26	44
2326-DFS-DR-1280	MSA Facilities / Infrastructure - General Arrangement	50	18-Jun-26	26-Aug-26	44
2326-DFS-DR-1300	MSA Facilities / Infrastructure - Structural - Drawings	65	26-Jun-26	24-Sep-26	43
2326-DFS-DR-1340	MSA Facilities / Infrastructure - Mechanical - Drawings	50	02-Jul-26	09-Sep-26	52
2326-DFS-DR-1350	MSA Facilities / Infrastructure - Mine Buildings Architectural Drawings	65	16-Jul-26	14-Oct-26	52
PROCUREMENT		435	02-Jan-26	02-Sep-27	30
Mechanical		414	02-Feb-26	02-Sep-27	30
5001 Ball & SAG Mills		360	03-Apr-26	19-Aug-27	16
2326-DFS-PR-1310	PR5001 Ball & SAG Mills - Manufacture (ex works) (52-60 weeks)	300	03-Apr-26	27-May-27	0
2326-DFS-PR-1740	PR5001 Ball & SAG Mills - Critical Vendor Data	0		02-Jul-26	9
2326-DFS-PR-2710	PR5001 Ball & SAG Mills - Critical Components - Deliver to Site	84	02-Apr-27	24-Jun-27	0
2326-DFS-PR-2740	PR5001 Ball & SAG Mills - Remaining Components - Deliver to Site	84	28-May-27	19-Aug-27	24
5000 Jaw Crusher		262	14-Jul-26	15-Jul-27	65
2326-DFS-PR-2280	PR5000 Jaw Crusher - Critical Vendor Data	0		14-Jul-26	35
2326-DFS-PR-2190	PR5000 Jaw Crusher - Manufacture (ex works) (28 weeks)	140	08-Oct-26	22-Apr-27	65
2326-DFS-PR-2630	PR5000 Jaw Crusher - Deliver to Site	84	22-Apr-27	15-Jul-27	91
5005 Vibrating Grizzly Screens		262	14-Jul-26	15-Jul-27	65
2326-DFS-PR-2060	PR5005 Vibrating Grizzly - Critical Vendor Data	0		14-Jul-26	35
2326-DFS-PR-1840	PR5005 Vibrating Grizzly - Manufacture (ex works) (22 weeks)	110	19-Nov-26	22-Apr-27	65
2326-DFS-PR-2470	PR5005 Vibrating Grizzly - Deliver to Site	84	22-Apr-27	15-Jul-27	91
5006 Thickeners		190	04-Jun-26	24-Feb-27	114
2326-DFS-PR-2200	PR5006 Thickeners - Detailed Design & Manufacture (ex works) (26 weeks)	130	04-Jun-26	02-Dec-26	114
2326-DFS-PR-2180	PR5006 Thickeners - Critical Vendor Data	0		15-Jun-26	35
2326-DFS-PR-2640	PR5006 Thickeners - Deliver to Site	84	03-Dec-26	24-Feb-27	160
5007 Slurry Pumps		384	02-Mar-26	19-Aug-27	17
2326-DFS-PR-1530	PR5007 Slurry Pumps - Prepare ITT	5	02-Mar-26	09-Mar-26	23
2326-DFS-PR-1670	PR5007 Slurry Pumps - Tender Period	20	09-Mar-26	06-Apr-26	23
2326-DFS-PR-1970	PR5007 Slurry Pumps - Adjudicate & RFA	20	06-Apr-26	04-May-26	23
2326-DFS-PR-2070	PR5007 Slurry Pumps - Client Approval & Award	10	04-May-26	18-May-26	23
2326-DFS-PR-2260	PR5007 Slurry Pumps - Critical Vendor Data	0		13-Jul-26	23
2326-DFS-PR-2220	PR5007 Slurry Pumps - Detailed Design & Manufacture (ex works) (28 weeks)	140	13-Nov-26	27-May-27	17
2326-DFS-PR-2660	PR5007 Slurry Pumps - Deliver to Site	84	28-May-27	19-Aug-27	25
5008 Agitators		349	02-Feb-26	03-Jun-27	72
2326-DFS-PR-1130	PR5008 Agitators - Prepare ITT	5	02-Feb-26	09-Feb-26	35
2326-DFS-PR-1250	PR5008 Agitators - Tender Period	20	09-Feb-26	09-Mar-26	35
2326-DFS-PR-1410	PR5008 Agitators - Adjudicate & RFA	20	09-Mar-26	06-Apr-26	35
2326-DFS-PR-1600	PR5008 Agitators - Client Approval & Award	10	06-Apr-26	20-Apr-26	35
2326-DFS-PR-1790	PR5008 Agitators - Detailed Design & Manufacture (ex works) (40 weeks)	200	05-Jun-26	11-Mar-27	72
2326-DFS-PR-1900	PR5008 Agitators - Critical Vendor Data	0		15-Jun-26	35
2326-DFS-PR-2680	PR5008 Agitators - Deliver to Site	84	12-Mar-27	03-Jun-27	102
5010 Apron Feeders		244	14-Jul-26	21-Jun-27	75
2326-DFS-PR-2010	PR5010 Apron Feeders - Critical Vendor Data	0		14-Jul-26	35
2326-DFS-PR-1810	PR5010 Apron Feeders - Manufacture (ex works) (32 weeks)	160	18-Aug-26	29-Mar-27	75
2326-DFS-PR-2620	PR5010 Apron Feeders - Deliver to Site	84	30-Mar-27	21-Jun-27	105
5011 Cyclones		230	02-Jul-26	20-May-27	65
2326-DFS-PR-1910	PR5011 Cyclones - Critical Vendor Data	0		02-Jul-26	9

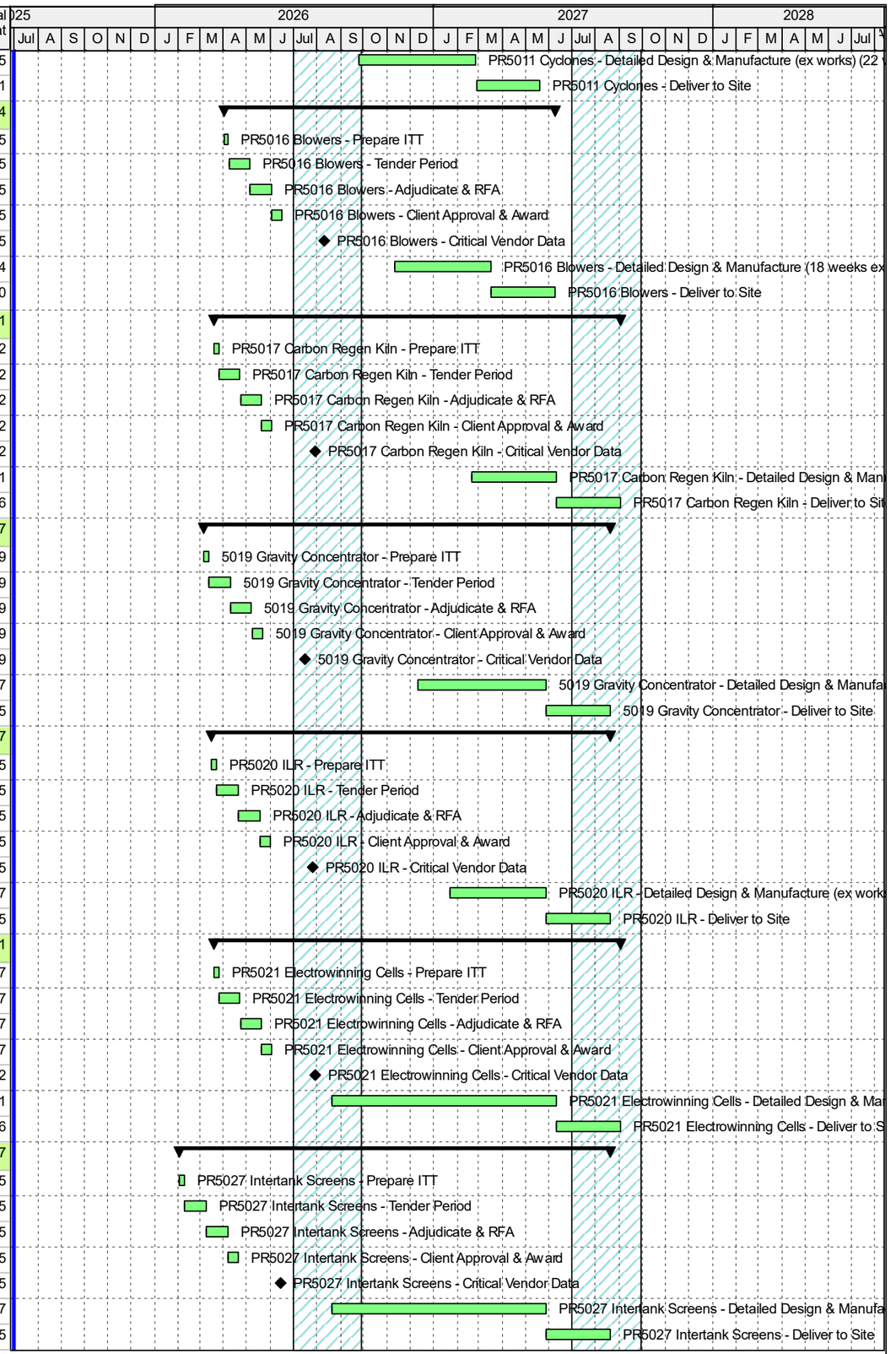


Summary | Milestone | Remaining Work | Critical Remaining Work | Actual Work | Actual Level of Effort | Remaining Level of... | % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-PR-1800	PR5011 Cyclones - Detailed Design & Manufacture (ex works) (22 weeks)	110	25-Sep-26	25-Feb-27	65
2326-DFS-PR-2460	PR5011 Cyclones - Deliver to Site	84	26-Feb-27	20-May-27	91
5016 Blowers		311	01-Apr-26	09-Jun-27	64
2326-DFS-PR-2130	PR5016 Blowers - Prepare ITT	5	01-Apr-26	07-Apr-26	35
2326-DFS-PR-2170	PR5016 Blowers - Tender Period	20	08-Apr-26	05-May-26	35
2326-DFS-PR-2310	PR5016 Blowers - Adjudicate & RFA	20	06-May-26	02-Jun-26	35
2326-DFS-PR-2800	PR5016 Blowers - Client Approval & Award	10	03-Jun-26	16-Jun-26	35
2326-DFS-PR-2410	PR5016 Blowers - Critical Vendor Data	0		11-Aug-26	35
2326-DFS-PR-2370	PR5016 Blowers - Detailed Design & Manufacture (18 weeks ex works)	90	11-Nov-26	17-Mar-27	64
2326-DFS-PR-2580	PR5016 Blowers - Deliver to Site	84	17-Mar-27	09-Jun-27	90
5017 Carbon Regen Kiln		381	19-Mar-26	02-Sep-27	11
2326-DFS-PR-1100	PR5017 Carbon Regen Kiln - Prepare ITT	5	19-Mar-26	25-Mar-26	82
2326-DFS-PR-1220	PR5017 Carbon Regen Kiln - Tender Period	20	26-Mar-26	22-Apr-26	82
2326-DFS-PR-1380	PR5017 Carbon Regen Kiln - Adjudicate & RFA	20	23-Apr-26	20-May-26	82
2326-DFS-PR-1580	PR5017 Carbon Regen Kiln - Client Approval & Award	10	21-May-26	03-Jun-26	82
2326-DFS-PR-1870	PR5017 Carbon Regen Kiln - Critical Vendor Data	0		29-Jul-26	82
2326-DFS-PR-1760	PR5017 Carbon Regen Kiln - Detailed Design & Manufacture (ex works) (16 weeks)	80	19-Feb-27	10-Jun-27	11
2326-DFS-PR-2430	PR5017 Carbon Regen Kiln - Deliver to Site	84	11-Jun-27	02-Sep-27	16
5019 Gravity Concentrator		380	06-Mar-26	19-Aug-27	17
2326-DFS-PR-1120	5019 Gravity Concentrator - Prepare ITT	5	06-Mar-26	12-Mar-26	9
2326-DFS-PR-1240	5019 Gravity Concentrator - Tender Period	20	13-Mar-26	09-Apr-26	9
2326-DFS-PR-1400	5019 Gravity Concentrator - Adjudicate & RFA	20	10-Apr-26	07-May-26	9
2326-DFS-PR-1570	5019 Gravity Concentrator - Client Approval & Award	10	08-May-26	21-May-26	9
2326-DFS-PR-1890	5019 Gravity Concentrator - Critical Vendor Data	0		16-Jul-26	9
2326-DFS-PR-1780	5019 Gravity Concentrator - Detailed Design & Manufacture (ex works) (24 weeks)	120	11-Dec-26	27-May-27	17
2326-DFS-PR-2480	5019 Gravity Concentrator - Deliver to Site	84	28-May-27	19-Aug-27	25
5020 ILR		374	16-Mar-26	19-Aug-27	17
2326-DFS-PR-1110	PR5020 ILR - Prepare ITT	5	16-Mar-26	23-Mar-26	35
2326-DFS-PR-1230	PR5020 ILR - Tender Period	20	23-Mar-26	20-Apr-26	35
2326-DFS-PR-1390	PR5020 ILR - Adjudicate & RFA	20	20-Apr-26	18-May-26	35
2326-DFS-PR-1560	PR5020 ILR - Client Approval & Award	10	18-May-26	01-Jun-26	35
2326-DFS-PR-1880	PR5020 ILR - Critical Vendor Data	0		27-Jul-26	35
2326-DFS-PR-1770	PR5020 ILR - Detailed Design & Manufacture (ex works) (18 weeks)	90	22-Jan-27	27-May-27	17
2326-DFS-PR-2440	PR5020 ILR - Deliver to Site	84	28-May-27	19-Aug-27	25
5021 Electrowinning Cells		381	19-Mar-26	02-Sep-27	11
2326-DFS-PR-2810	PR5021 Electrowinning Cells - Prepare ITT	5	19-Mar-26	25-Mar-26	67
2326-DFS-PR-2820	PR5021 Electrowinning Cells - Tender Period	20	26-Mar-26	22-Apr-26	67
2326-DFS-PR-2830	PR5021 Electrowinning Cells - Adjudicate & RFA	20	23-Apr-26	20-May-26	67
2326-DFS-PR-2840	PR5021 Electrowinning Cells - Client Approval & Award	10	21-May-26	03-Jun-26	67
2326-DFS-PR-2850	PR5021 Electrowinning Cells - Critical Vendor Data	0		29-Jul-26	82
2326-DFS-PR-2860	PR5021 Electrowinning Cells - Detailed Design & Manufacture (ex works) (42 weeks)	210	21-Aug-26	10-Jun-27	11
2326-DFS-PR-2870	PR5021 Electrowinning Cells - Deliver to Site	84	11-Jun-27	02-Sep-27	16
5027 Intertank Screens		404	02-Feb-26	19-Aug-27	17
2326-DFS-PR-1080	PR5027 Intertank Screens - Prepare ITT	5	02-Feb-26	09-Feb-26	35
2326-DFS-PR-1160	PR5027 Intertank Screens - Tender Period	20	09-Feb-26	09-Mar-26	35
2326-DFS-PR-1350	PR5027 Intertank Screens - Adjudicate & RFA	20	09-Mar-26	06-Apr-26	35
2326-DFS-PR-1490	PR5027 Intertank Screens - Client Approval & Award	10	06-Apr-26	20-Apr-26	35
2326-DFS-PR-1860	PR5027 Intertank Screens - Critical Vendor Data	0		15-Jun-26	35
2326-DFS-PR-1730	PR5027 Intertank Screens - Detailed Design & Manufacture (ex works) (40wks)	200	21-Aug-26	27-May-27	17
2326-DFS-PR-2690	PR5027 Intertank Screens - Deliver to Site	84	28-May-27	19-Aug-27	25

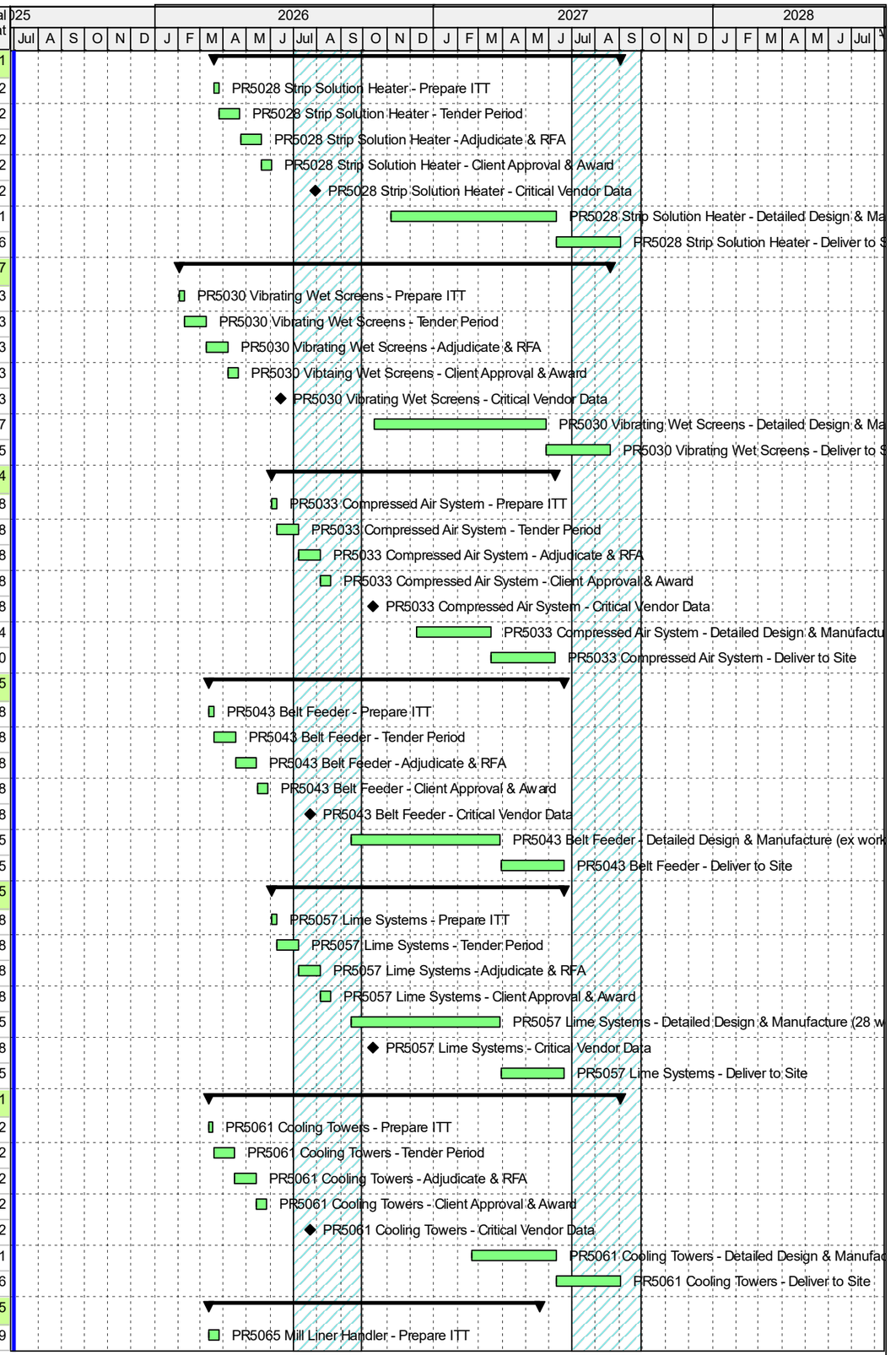


Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
5028 Strip Solution Heater		381	19-Mar-26	02-Sep-27	11
2326-DFS-PR-2110	PR5028 Strip Solution Heater - Prepare ITT	5	19-Mar-26	25-Mar-26	82
2326-DFS-PR-2150	PR5028 Strip Solution Heater - Tender Period	20	26-Mar-26	22-Apr-26	82
2326-DFS-PR-2290	PR5028 Strip Solution Heater - Adjudicate & RFA	20	23-Apr-26	20-May-26	82
2326-DFS-PR-2350	PR5028 Strip Solution Heater - Client Approval & Award	10	21-May-26	03-Jun-26	82
2326-DFS-PR-2390	PR5028 Strip Solution Heater - Critical Vendor Data	0		29-Jul-26	82
2326-DFS-PR-2380	PR5028 Strip Solution Heater - Detailed Design & Manufacture (ex works) (31 weeks)	155	06-Nov-26	10-Jun-27	11
2326-DFS-PR-2700	PR5028 Strip Solution Heater - Deliver to Site	84	11-Jun-27	02-Sep-27	16
5030 Vibrating Wet Screens		404	02-Feb-26	19-Aug-27	17
2326-DFS-PR-1170	PR5030 Vibrating Wet Screens - Prepare ITT	5	02-Feb-26	09-Feb-26	23
2326-DFS-PR-1270	PR5030 Vibrating Wet Screens - Tender Period	20	09-Feb-26	09-Mar-26	23
2326-DFS-PR-1440	PR5030 Vibrating Wet Screens - Adjudicate & RFA	20	09-Mar-26	06-Apr-26	23
2326-DFS-PR-1550	PR5030 Vibtaing Wet Screens - Client Approval & Award	10	06-Apr-26	20-Apr-26	23
2326-DFS-PR-2050	PR5030 Vibrating Wet Screens - Critical Vendor Data	0		15-Jun-26	23
2326-DFS-PR-1830	PR5030 Vibrating Wet Screens - Detailed Design & Manufacture (ex works) (32 weeks)	160	16-Oct-26	27-May-27	17
2326-DFS-PR-2550	PR5030 Vibrating Wet Screens - Deliver to Site	84	28-May-27	19-Aug-27	25
5033 Compressed Air System		265	03-Jun-26	09-Jun-27	64
2326-DFS-PR-2120	PR5033 Compressed Air System - Prepare ITT	5	03-Jun-26	10-Jun-26	88
2326-DFS-PR-2160	PR5033 Compressed Air System - Tender Period	20	10-Jun-26	08-Jul-26	88
2326-DFS-PR-2300	PR5033 Compressed Air System - Adjudicate & RFA	20	08-Jul-26	05-Aug-26	88
2326-DFS-PR-2790	PR5033 Compressed Air System - Client Approval & Award	10	05-Aug-26	19-Aug-26	88
2326-DFS-PR-2400	PR5033 Compressed Air System - Critical Vendor Data	0		14-Oct-26	88
2326-DFS-PR-2360	PR5033 Compressed Air System - Detailed Design & Manufacture (14 weeks ex works)	70	09-Dec-26	17-Mar-27	64
2326-DFS-PR-2530	PR5033 Compressed Air System - Deliver to Site	84	17-Mar-27	09-Jun-27	90
5043 Belt Feeder		332	13-Mar-26	21-Jun-27	75
2326-DFS-PR-1180	PR5043 Belt Feeder - Prepare ITT	5	13-Mar-26	19-Mar-26	48
2326-DFS-PR-1280	PR5043 Belt Feeder - Tender Period	20	20-Mar-26	16-Apr-26	48
2326-DFS-PR-1450	PR5043 Belt Feeder - Adjudicate & RFA	20	17-Apr-26	14-May-26	48
2326-DFS-PR-2780	PR5043 Belt Feeder - Client Approval & Award	10	15-May-26	28-May-26	48
2326-DFS-PR-1920	PR5043 Belt Feeder - Critical Vendor Data	0		23-Jul-26	48
2326-DFS-PR-1650	PR5043 Belt Feeder - Detailed Design & Manufacture (ex works)	140	15-Sep-26	29-Mar-27	75
2326-DFS-PR-2510	PR5043 Belt Feeder - Deliver to Site	84	30-Mar-27	21-Jun-27	105
5057 Lime Systems		274	03-Jun-26	21-Jun-27	75
2326-DFS-PR-1520	PR5057 Lime Systems - Prepare ITT	5	03-Jun-26	10-Jun-26	88
2326-DFS-PR-1660	PR5057 Lime Systems - Tender Period	20	10-Jun-26	08-Jul-26	88
2326-DFS-PR-1960	PR5057 Lime Systems - Adjudicate & RFA	20	08-Jul-26	05-Aug-26	88
2326-DFS-PR-2770	PR5057 Lime Systems - Client Approval & Award	10	05-Aug-26	19-Aug-26	88
2326-DFS-PR-2090	PR5057 Lime Systems - Detailed Design & Manufacture (28 weeks ex works)	140	15-Sep-26	29-Mar-27	75
2326-DFS-PR-2250	PR5057 Lime Systems - Critical Vendor Data	0		14-Oct-26	88
2326-DFS-PR-2590	PR5057 Lime Systems - Deliver to Site	84	30-Mar-27	21-Jun-27	105
5061 Cooling Towers		386	12-Mar-26	02-Sep-27	11
2326-DFS-PR-1540	PR5061 Cooling Towers - Prepare ITT	5	12-Mar-26	18-Mar-26	32
2326-DFS-PR-1690	PR5061 Cooling Towers - Tender Period	20	19-Mar-26	15-Apr-26	32
2326-DFS-PR-1980	PR5061 Cooling Towers - Adjudicate & RFA	20	16-Apr-26	13-May-26	32
2326-DFS-PR-2100	PR5061 Cooling Towers - Client Approval & Award	10	14-May-26	27-May-26	32
2326-DFS-PR-2270	PR5061 Cooling Towers - Critical Vendor Data	0		22-Jul-26	32
2326-DFS-PR-2230	PR5061 Cooling Towers - Detailed Design & Manufacture (ex works) (16 weeks)	80	19-Feb-27	10-Jun-27	11
2326-DFS-PR-2490	PR5061 Cooling Towers - Deliver to Site	84	11-Jun-27	02-Sep-27	16
5065 Mill Liner Handler		310	13-Mar-26	20-May-27	25
2326-DFS-PR-1360	PR5065 Mill Liner Handler - Prepare ITT	10	13-Mar-26	26-Mar-26	9

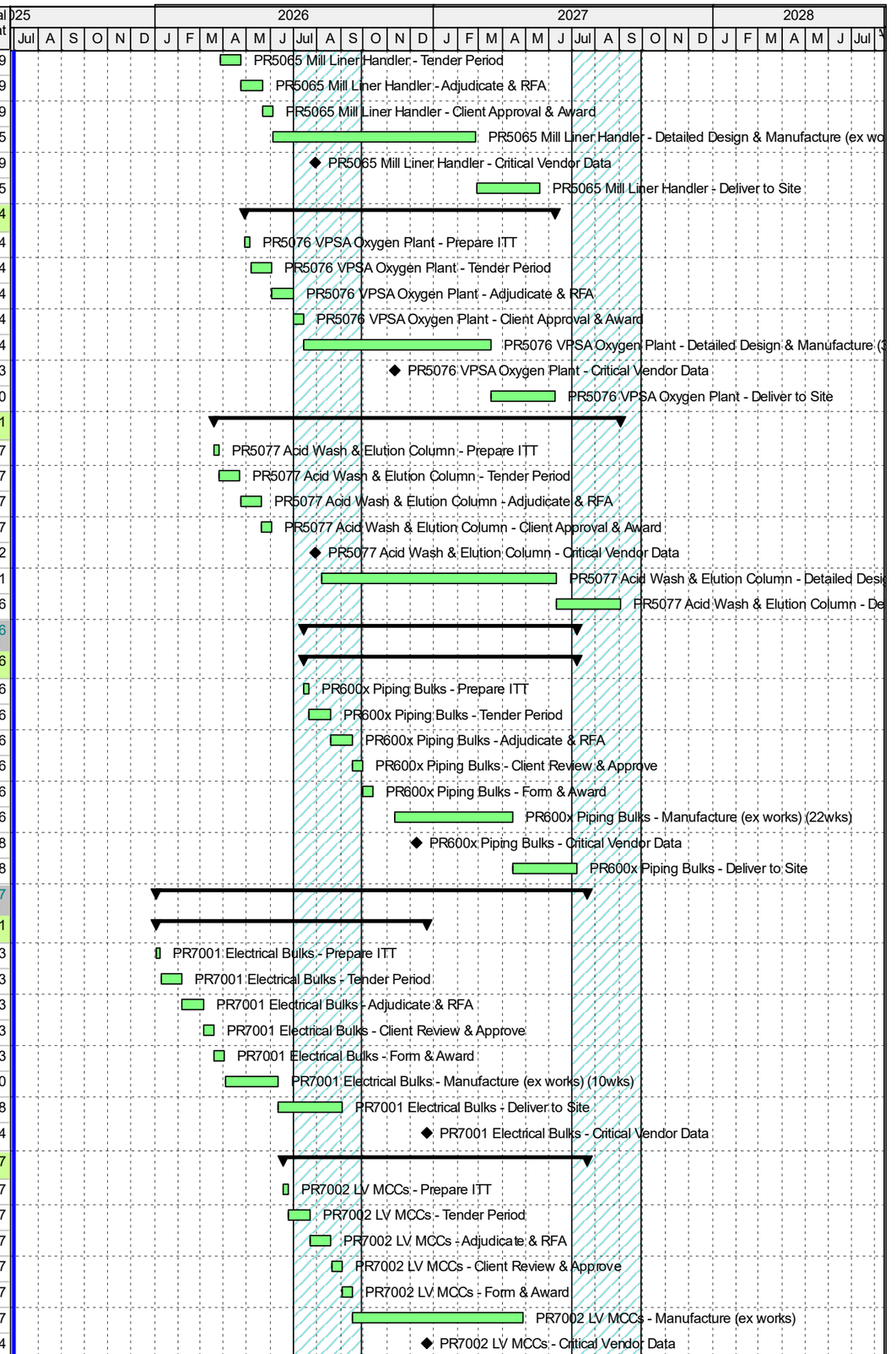


Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-PR-1480	PR5065 Mill Liner Handler - Tender Period	20	27-Mar-26	23-Apr-26	9
2326-DFS-PR-1750	PR5065 Mill Liner Handler - Adjudicate & RFA	20	24-Apr-26	21-May-26	9
2326-DFS-PR-2000	PR5065 Mill Liner Handler - Client Approval & Award	10	22-May-26	04-Jun-26	9
2326-DFS-PR-2040	PR5065 Mill Liner Handler - Detailed Design & Manufacture (ex works) (38 weeks)	190	05-Jun-26	25-Feb-27	25
2326-DFS-PR-2320	PR5065 Mill Liner Handler - Critical Vendor Data	0		30-Jul-26	9
2326-DFS-PR-2730	PR5065 Mill Liner Handler - Deliver to Site	84	26-Feb-27	20-May-27	35
5076 VPSA Oxygen Plant		290	29-Apr-26	09-Jun-27	64
2326-DFS-PR-1200	PR5076 VPSA Oxygen Plant - Prepare ITT	5	29-Apr-26	06-May-26	64
2326-DFS-PR-1300	PR5076 VPSA Oxygen Plant - Tender Period	20	06-May-26	03-Jun-26	64
2326-DFS-PR-1470	PR5076 VPSA Oxygen Plant - Adjudicate & RFA	20	03-Jun-26	01-Jul-26	64
2326-DFS-PR-1680	PR5076 VPSA Oxygen Plant - Client Approval & Award	10	01-Jul-26	15-Jul-26	64
2326-DFS-PR-1850	PR5076 VPSA Oxygen Plant - Detailed Design & Manufacture (35 weeks ex works)	175	15-Jul-26	17-Mar-27	64
2326-DFS-PR-1930	PR5076 VPSA Oxygen Plant - Critical Vendor Data	0		11-Nov-26	23
2326-DFS-PR-2600	PR5076 VPSA Oxygen Plant - Deliver to Site	84	17-Mar-27	09-Jun-27	90
5077 Acid Wash & Elution Column		381	19-Mar-26	02-Sep-27	11
2326-DFS-PR-1020	PR5077 Acid Wash & Elution Column - Prepare ITT	5	19-Mar-26	25-Mar-26	57
2326-DFS-PR-1030	PR5077 Acid Wash & Elution Column - Tender Period	20	26-Mar-26	22-Apr-26	57
2326-DFS-PR-1050	PR5077 Acid Wash & Elution Column - Adjudicate & RFA	20	23-Apr-26	20-May-26	57
2326-DFS-PR-1210	PR5077 Acid Wash & Elution Column - Client Approval & Award	10	21-May-26	03-Jun-26	57
2326-DFS-PR-1370	PR5077 Acid Wash & Elution Column - Critical Vendor Data	0		29-Jul-26	82
2326-DFS-PR-1320	PR5077 Acid Wash & Elution Column - Detailed Design & Manufacture (44 weeks ex works)	220	07-Aug-26	10-Jun-27	11
2326-DFS-PR-2610	PR5077 Acid Wash & Elution Column - Deliver to Site	84	11-Jun-27	02-Sep-27	16
Piping		255	15-Jul-26	07-Jul-27	6
600x Piping Bulks		255	15-Jul-26	07-Jul-27	6
2326-DFS-PR-3040	PR600x Piping Bulks - Prepare ITT	5	15-Jul-26	22-Jul-26	26
2326-DFS-PR-3050	PR600x Piping Bulks - Tender Period	20	22-Jul-26	19-Aug-26	26
2326-DFS-PR-3060	PR600x Piping Bulks - Adjudicate & RFA	20	19-Aug-26	16-Sep-26	26
2326-DFS-PR-3070	PR600x Piping Bulks - Client Review & Approve	10	16-Sep-26	30-Sep-26	26
2326-DFS-PR-3080	PR600x Piping Bulks - Form & Award	10	30-Sep-26	14-Oct-26	26
2326-DFS-PR-3090	PR600x Piping Bulks - Manufacture (ex works) (22wks)	110	11-Nov-26	14-Apr-27	6
2326-DFS-PR-3100	PR600x Piping Bulks - Critical Vendor Data	0		09-Dec-26	88
2326-DFS-PR-3110	PR600x Piping Bulks - Deliver to Site	84	14-Apr-27	07-Jul-27	8
Electrical & Instrumentation		404	02-Jan-26	21-Jul-27	17
7001 Electrical Bulks		254	02-Jan-26	23-Dec-26	141
2326-DFS-PR-2960	PR7001 Electrical Bulks - Prepare ITT	5	02-Jan-26	08-Jan-26	183
2326-DFS-PR-2970	PR7001 Electrical Bulks - Tender Period	20	09-Jan-26	05-Feb-26	183
2326-DFS-PR-2980	PR7001 Electrical Bulks - Adjudicate & RFA	20	06-Feb-26	05-Mar-26	183
2326-DFS-PR-2990	PR7001 Electrical Bulks - Client Review & Approve	10	06-Mar-26	19-Mar-26	183
2326-DFS-PR-3000	PR7001 Electrical Bulks - Form & Award	10	20-Mar-26	02-Apr-26	183
2326-DFS-PR-3010	PR7001 Electrical Bulks - Manufacture (ex works) (10wks)	50	03-Apr-26	11-Jun-26	220
2326-DFS-PR-3030	PR7001 Electrical Bulks - Deliver to Site	84	12-Jun-26	03-Sep-26	308
2326-DFS-PR-3020	PR7001 Electrical Bulks - Critical Vendor Data	0		23-Dec-26	34
7002 LV MCCs		285	18-Jun-26	21-Jul-27	17
2326-DFS-PR-2420	PR7002 LV MCCs - Prepare ITT	5	18-Jun-26	24-Jun-26	17
2326-DFS-PR-2450	PR7002 LV MCCs - Tender Period	20	25-Jun-26	22-Jul-26	17
2326-DFS-PR-2500	PR7002 LV MCCs - Adjudicate & RFA	20	23-Jul-26	19-Aug-26	17
2326-DFS-PR-2520	PR7002 LV MCCs - Client Review & Approve	10	20-Aug-26	02-Sep-26	17
2326-DFS-PR-2540	PR7002 LV MCCs - Form & Award	10	03-Sep-26	16-Sep-26	17
2326-DFS-PR-2570	PR7002 LV MCCs - Manufacture (ex works)	160	17-Sep-26	28-Apr-27	17
2326-DFS-PR-2670	PR7002 LV MCCs - Critical Vendor Data	0		23-Dec-26	34

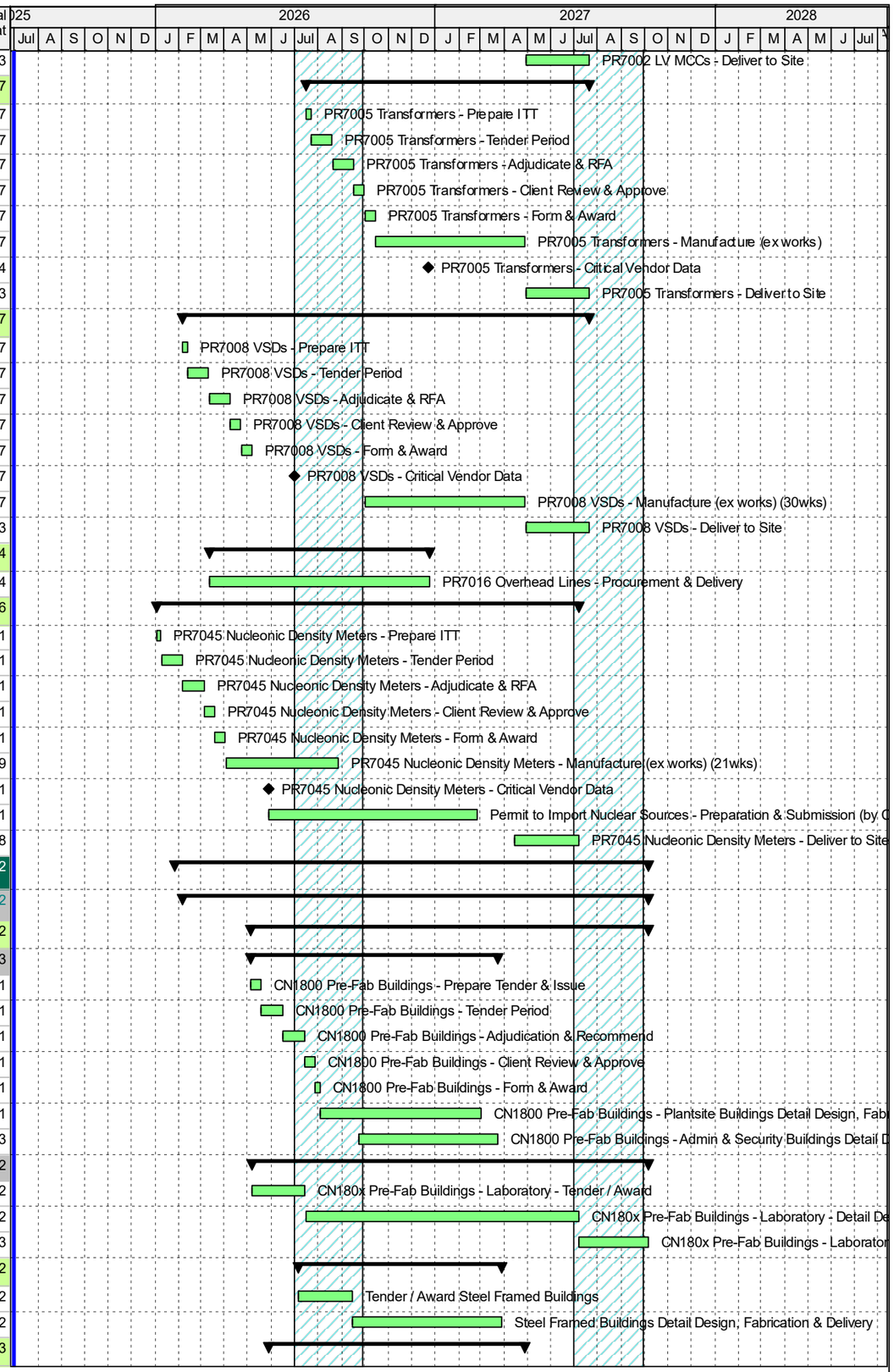


Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-PR-2720	PR7002 LV MCCs - Deliver to Site	84	29-Apr-27	21-Jul-27	23
7005 Transformers		265	16-Jul-26	21-Jul-27	17
2326-DFS-PR-1710	PR7005 Transformers - Prepare ITT	5	16-Jul-26	22-Jul-26	17
2326-DFS-PR-1820	PR7005 Transformers - Tender Period	20	23-Jul-26	19-Aug-26	17
2326-DFS-PR-2020	PR7005 Transformers - Adjudicate & RFA	20	20-Aug-26	16-Sep-26	17
2326-DFS-PR-2750	PR7005 Transformers - Client Review & Approve	10	17-Sep-26	30-Sep-26	17
2326-DFS-PR-2760	PR7005 Transformers - Form & Award	10	01-Oct-26	14-Oct-26	17
2326-DFS-PR-2210	PR7005 Transformers - Manufacture (ex works)	140	15-Oct-26	28-Apr-27	17
2326-DFS-PR-2330	PR7005 Transformers - Critical Vendor Data	0		23-Dec-26	34
2326-DFS-PR-2650	PR7005 Transformers - Deliver to Site	84	29-Apr-27	21-Jul-27	23
7008 VSDs		380	05-Feb-26	21-Jul-27	17
2326-DFS-PR-2880	PR7008 VSDs - Prepare ITT	5	05-Feb-26	11-Feb-26	17
2326-DFS-PR-2890	PR7008 VSDs - Tender Period	20	12-Feb-26	11-Mar-26	17
2326-DFS-PR-2900	PR7008 VSDs - Adjudicate & RFA	20	12-Mar-26	08-Apr-26	17
2326-DFS-PR-2910	PR7008 VSDs - Client Review & Approve	10	09-Apr-26	22-Apr-26	17
2326-DFS-PR-2920	PR7008 VSDs - Form & Award	10	23-Apr-26	06-May-26	17
2326-DFS-PR-2940	PR7008 VSDs - Critical Vendor Data	0		01-Jul-26	17
2326-DFS-PR-2930	PR7008 VSDs - Manufacture (ex works) (30wks)	150	01-Oct-26	28-Apr-27	17
2326-DFS-PR-2950	PR7008 VSDs - Deliver to Site	84	29-Apr-27	21-Jul-27	23
7016 Overhead Lines		207	12-Mar-26	25-Dec-26	94
2326-DFS-PR-2030	PR7016 Overhead Lines - Procurement & Delivery	207	12-Mar-26	25-Dec-26	94
7045 Nucleonic Density Meters		394	02-Jan-26	07-Jul-27	6
2326-DFS-PR-3120	PR7045 Nucleonic Density Meters - Prepare ITT	5	02-Jan-26	08-Jan-26	31
2326-DFS-PR-3130	PR7045 Nucleonic Density Meters - Tender Period	20	09-Jan-26	05-Feb-26	31
2326-DFS-PR-3140	PR7045 Nucleonic Density Meters - Adjudicate & RFA	20	06-Feb-26	05-Mar-26	31
2326-DFS-PR-3150	PR7045 Nucleonic Density Meters - Client Review & Approve	10	06-Mar-26	19-Mar-26	31
2326-DFS-PR-3160	PR7045 Nucleonic Density Meters - Form & Award	10	20-Mar-26	02-Apr-26	31
2326-DFS-PR-3170	PR7045 Nucleonic Density Meters - Manufacture (ex works) (21wks)	105	03-Apr-26	27-Aug-26	169
2326-DFS-PR-3180	PR7045 Nucleonic Density Meters - Critical Vendor Data	0		28-May-26	31
2326-DFS-EN-3060	Permit to Import Nuclear Sources - Preparation & Submission (by Client)	194	29-May-26	24-Feb-27	31
2326-DFS-PR-3190	PR7045 Nucleonic Density Meters - Deliver to Site	84	14-Apr-27	07-Jul-27	8
CONTRACTS		442	26-Jan-26	06-Oct-27	52
Offsite Contracts		433	06-Feb-26	06-Oct-27	52
1800 Pre-Fab Buildings		371	05-May-26	06-Oct-27	52
Buildings (NPI)		231	05-May-26	23-Mar-27	83
2326-DFS-CT-1070	CN1800 Pre-Fab Buildings - Prepare Tender & Issue	10	05-May-26	19-May-26	71
2326-DFS-CT-1120	CN1800 Pre-Fab Buildings - Tender Period	20	19-May-26	16-Jun-26	71
2326-DFS-CT-1180	CN1800 Pre-Fab Buildings - Adjudication & Recommend	20	16-Jun-26	14-Jul-26	71
2326-DFS-CT-1230	CN1800 Pre-Fab Buildings - Client Review & Approve	10	14-Jul-26	28-Jul-26	71
2326-DFS-CT-1290	CN1800 Pre-Fab Buildings - Form & Award	5	28-Jul-26	04-Aug-26	71
2326-DFS-CT-1610	CN1800 Pre-Fab Buildings - Plantsite Buildings Detail Design, Fabrication & Delivery	150	04-Aug-26	02-Mar-27	71
2326-DFS-CT-1680	CN1800 Pre-Fab Buildings - Admin & Security Buildings Detail Design, Fabrication & Delivery	130	23-Sep-26	23-Mar-27	83
180x Laboratory Building (Pre-Fabricated)		369	07-May-26	06-Oct-27	52
2326-DFS-CT-1270	CN180x Pre-Fab Buildings - Laboratory - Tender / Award	50	07-May-26	15-Jul-26	52
2326-DFS-CT-1440	CN180x Pre-Fab Buildings - Laboratory - Detail Design & Fabrication (51wks)	255	16-Jul-26	07-Jul-27	52
2326-DFS-CT-1820	CN180x Pre-Fab Buildings - Laboratory - Delivery	90	08-Jul-27	06-Oct-27	73
1810 Steel Framed Buildings		190	07-Jul-26	29-Mar-27	52
2326-DFS-CT-1510	Tender / Award Steel Framed Buildings	50	07-Jul-26	14-Sep-26	52
2326-DFS-CT-1660	Steel Framed Buildings Detail Design, Fabrication & Delivery	140	15-Sep-26	29-Mar-27	52
3000 Structural Steel Fabrication		238	29-May-26	27-Apr-27	73

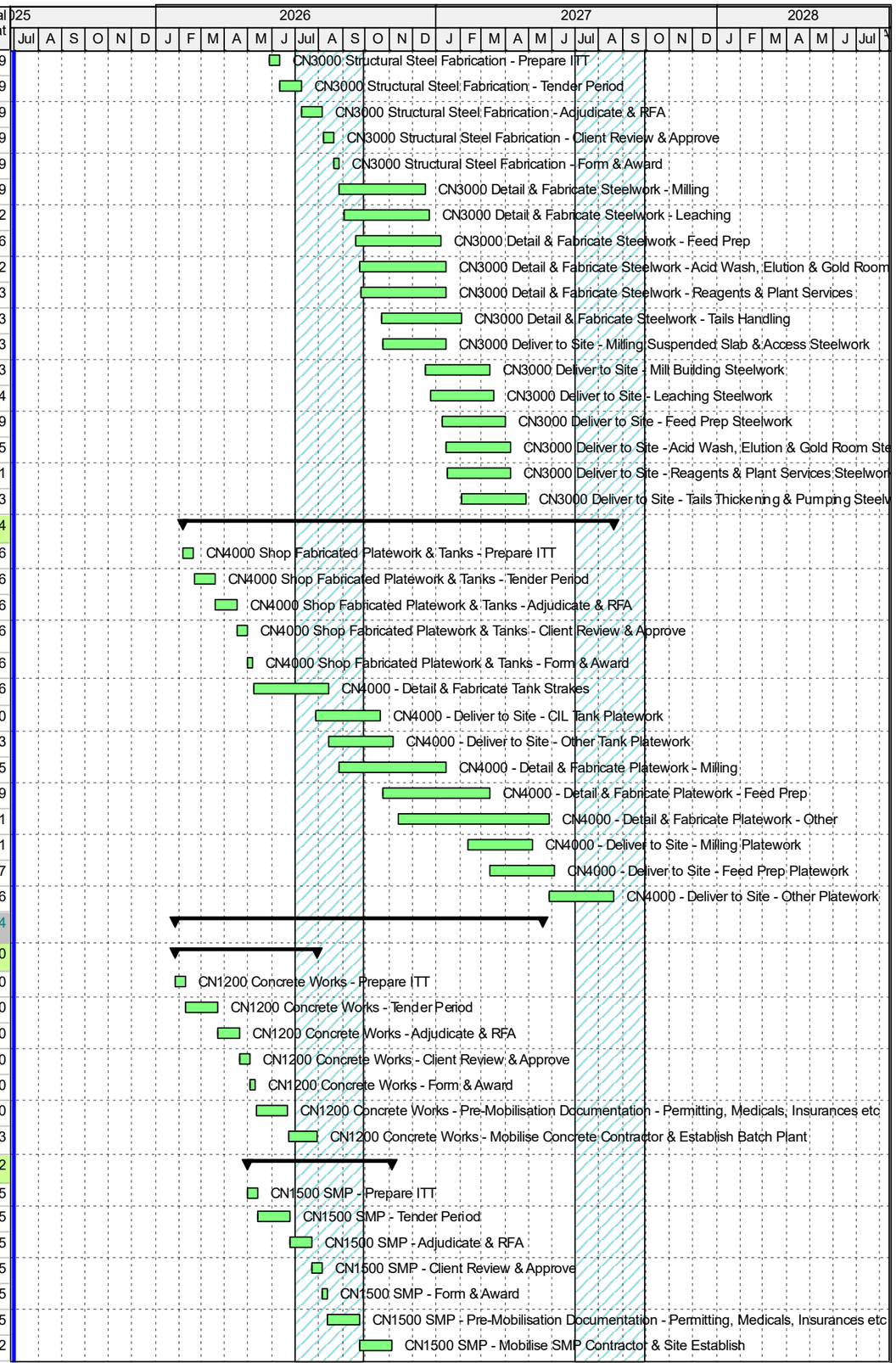


Summary | Milestone | Remaining Work | Critical Remaining Work | Actual Work | Actual Level of Effort | Remaining Level of... | % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-CT-1200	CN3000 Structural Steel Fabrication - Prepare ITT	10	29-May-26	11-Jun-26	9
2326-DFS-CT-1240	CN3000 Structural Steel Fabrication - Tender Period	20	12-Jun-26	09-Jul-26	9
2326-DFS-CT-1350	CN3000 Structural Steel Fabrication - Adjudicate & RFA	20	10-Jul-26	06-Aug-26	9
2326-DFS-CT-1390	CN3000 Structural Steel Fabrication - Client Review & Approve	10	07-Aug-26	20-Aug-26	9
2326-DFS-CT-1410	CN3000 Structural Steel Fabrication - Form & Award	5	21-Aug-26	27-Aug-26	9
2326-DFS-CT-1540	CN3000 Detail & Fabricate Steelwork - Milling	80	28-Aug-26	17-Dec-26	9
2326-DFS-CT-1600	CN3000 Detail & Fabricate Steelwork - Leaching	80	03-Sep-26	23-Dec-26	32
2326-DFS-CT-1590	CN3000 Detail & Fabricate Steelwork - Feed Prep	80	18-Sep-26	07-Jan-27	56
2326-DFS-CT-1730	CN3000 Detail & Fabricate Steelwork - Acid Wash, Elution & Gold Room	80	24-Sep-26	13-Jan-27	82
2326-DFS-CT-1630	CN3000 Detail & Fabricate Steelwork - Reagents & Plant Services	80	25-Sep-26	14-Jan-27	43
2326-DFS-CT-1670	CN3000 Detail & Fabricate Steelwork - Tails Handling	74	22-Oct-26	02-Feb-27	73
2326-DFS-CT-1770	CN3000 Deliver to Site - Milling Suspended Slab & Access Steelwork	84	23-Oct-26	14-Jan-27	13
2326-DFS-CT-1970	CN3000 Deliver to Site - Mill Building Steelwork	84	18-Dec-26	11-Mar-27	113
2326-DFS-CT-1840	CN3000 Deliver to Site - Leaching Steelwork	84	24-Dec-26	17-Mar-27	44
2326-DFS-CT-1830	CN3000 Deliver to Site - Feed Prep Steelwork	84	08-Jan-27	01-Apr-27	79
2326-DFS-CT-1930	CN3000 Deliver to Site - Acid Wash, Elution & Gold Room Steelwork	84	14-Jan-27	07-Apr-27	115
2326-DFS-CT-1850	CN3000 Deliver to Site - Reagents & Plant Services Steelwork	84	15-Jan-27	08-Apr-27	61
2326-DFS-CT-1870	CN3000 Deliver to Site - Tails Thickening & Pumping Steelwork	84	03-Feb-27	27-Apr-27	103
4000 Shop Fabricated Platework & Tanks		400	06-Feb-26	19-Aug-27	14
2326-DFS-CT-1250	CN4000 Shop Fabricated Platework & Tanks - Prepare ITT	10	06-Feb-26	19-Feb-26	66
2326-DFS-CT-1310	CN4000 Shop Fabricated Platework & Tanks - Tender Period	20	20-Feb-26	19-Mar-26	66
2326-DFS-CT-1370	CN4000 Shop Fabricated Platework & Tanks - Adjudicate & RFA	20	20-Mar-26	16-Apr-26	66
2326-DFS-CT-1430	CN4000 Shop Fabricated Platework & Tanks - Client Review & Approve	10	17-Apr-26	30-Apr-26	66
2326-DFS-CT-1470	CN4000 Shop Fabricated Platework & Tanks - Form & Award	5	01-May-26	07-May-26	66
2326-DFS-CT-1480	CN4000 - Detail & Fabricate Tank Strakes	70	08-May-26	13-Aug-26	66
2326-DFS-CT-1700	CN4000 - Deliver to Site - CIL Tank Platework	84	29-Jul-26	20-Oct-26	60
2326-DFS-CT-1720	CN4000 - Deliver to Site - Other Tank Platework	84	14-Aug-26	05-Nov-26	123
2326-DFS-CT-1640	CN4000 - Detail & Fabricate Platework - Milling	100	28-Aug-26	14-Jan-27	65
2326-DFS-CT-1690	CN4000 - Detail & Fabricate Platework - Feed Prep	100	23-Oct-26	12-Mar-27	69
2326-DFS-CT-1750	CN4000 - Detail & Fabricate Platework - Other	140	13-Nov-26	27-May-27	11
2326-DFS-CT-1890	CN4000 - Deliver to Site - Milling Platework	84	12-Feb-27	06-May-27	91
2326-DFS-CT-1900	CN4000 - Deliver to Site - Feed Prep Platework	84	12-Mar-27	04-Jun-27	97
2326-DFS-CT-1940	CN4000 - Deliver to Site - Other Platework	84	28-May-27	19-Aug-27	16
Site Contracts		343	26-Jan-26	19-May-27	34
1200 Concrete Works		134	26-Jan-26	30-Jul-26	10
2326-DFS-CT-1300	CN1200 Concrete Works - Prepare ITT	10	26-Jan-26	09-Feb-26	10
2326-DFS-CT-1360	CN1200 Concrete Works - Tender Period	30	09-Feb-26	23-Mar-26	10
2326-DFS-CT-1420	CN1200 Concrete Works - Adjudicate & RFA	20	23-Mar-26	20-Apr-26	10
2326-DFS-CT-1490	CN1200 Concrete Works - Client Review & Approve	10	20-Apr-26	04-May-26	10
2326-DFS-CT-1500	CN1200 Concrete Works - Form & Award	5	04-May-26	11-May-26	10
2326-DFS-CT-1520	CN1200 Concrete Works - Pre-Mobilisation Documentation - Permitting, Medicals, Insurances etc	30	11-May-26	22-Jun-26	10
2326-DFS-CT-1580	CN1200 Concrete Works - Mobilise Concrete Contractor & Establish Batch Plant	36	22-Jun-26	30-Jul-26	13
1501 SMP		135	30-Apr-26	04-Nov-26	42
2326-DFS-CT-1560	CN1500 SMP - Prepare ITT	10	30-Apr-26	13-May-26	35
2326-DFS-CT-1570	CN1500 SMP - Tender Period	30	14-May-26	24-Jun-26	35
2326-DFS-CT-1650	CN1500 SMP - Adjudicate & RFA	20	25-Jun-26	22-Jul-26	35
2326-DFS-CT-1710	CN1500 SMP - Client Review & Approve	10	23-Jul-26	05-Aug-26	35
2326-DFS-CT-1740	CN1500 SMP - Form & Award	5	06-Aug-26	12-Aug-26	35
2326-DFS-CT-1760	CN1500 SMP - Pre-Mobilisation Documentation - Permitting, Medicals, Insurances etc	30	13-Aug-26	23-Sep-26	35
2326-DFS-CT-1810	CN1500 SMP - Mobilise SMP Contractor & Site Establish	36	24-Sep-26	04-Nov-26	42

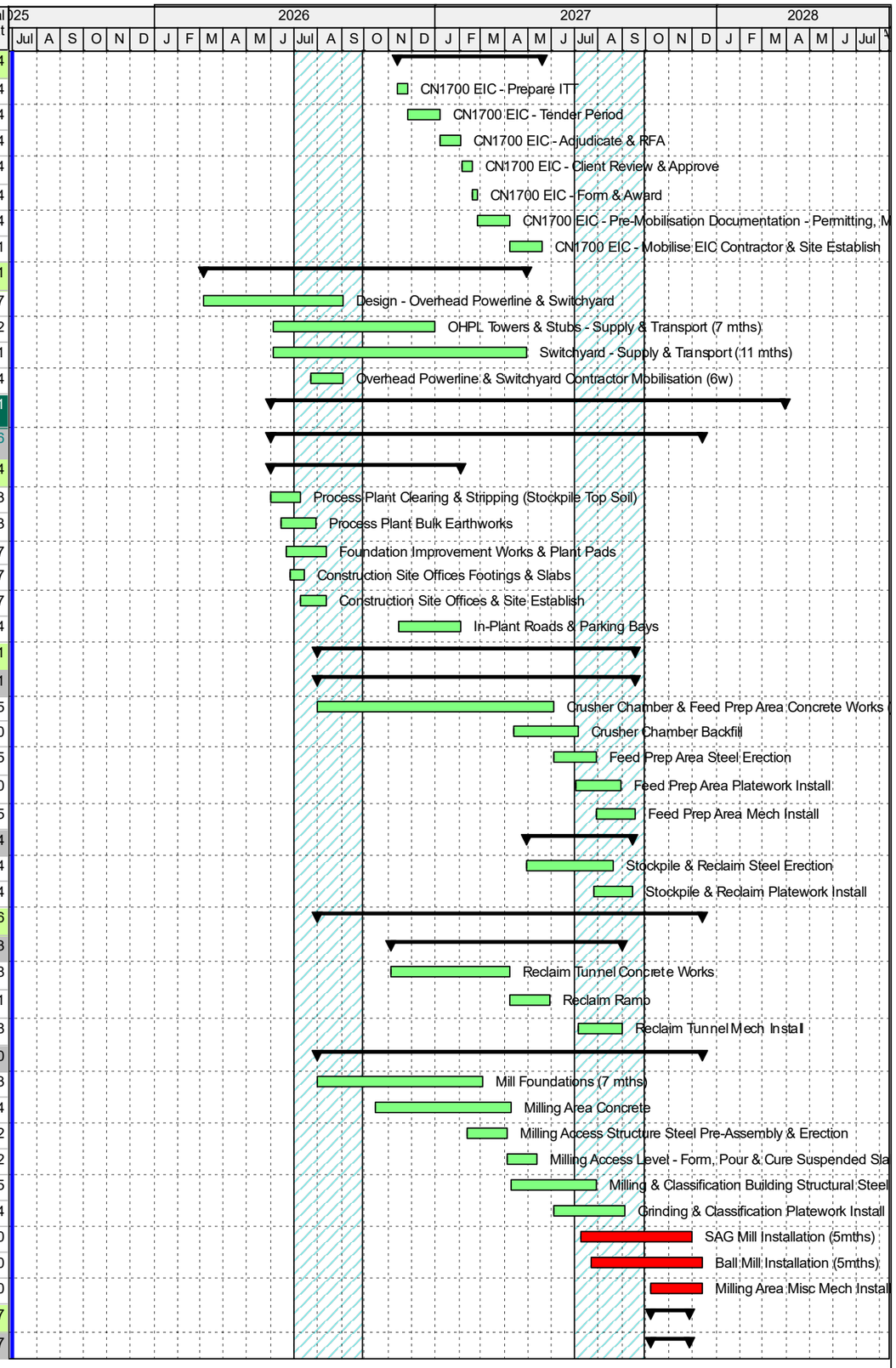


Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
1700 EIC		135	12-Nov-26	19-May-27	34
2326-DFS-CT-1780	CN1700 EIC - Prepare ITT	10	12-Nov-26	25-Nov-26	34
2326-DFS-CT-1800	CN1700 EIC - Tender Period	30	26-Nov-26	06-Jan-27	34
2326-DFS-CT-1860	CN1700 EIC - Adjudicate & RFA	20	07-Jan-27	03-Feb-27	34
2326-DFS-CT-1880	CN1700 EIC - Client Review & Approve	10	04-Feb-27	17-Feb-27	34
2326-DFS-CT-1910	CN1700 EIC - Form & Award	5	18-Feb-27	24-Feb-27	34
2326-DFS-CT-1920	CN1700 EIC - Pre-Mobilisation Documentation - Permitting, Medicals, Insurances etc	30	25-Feb-27	07-Apr-27	34
2326-DFS-CT-1960	CN1700 EIC - Mobilise EIC Contractor & Site Establish	36	08-Apr-27	19-May-27	41
Overhead Powerline (OHPL) & Switchyard		301	06-Mar-26	30-Apr-27	31
2326-DFS-CT-1320	Design - Overhead Powerline & Switchyard	129	06-Mar-26	02-Sep-26	27
2326-DFS-CT-1400	OHPL Towers & Stubs - Supply & Transport (7 mths)	151	04-Jun-26	31-Dec-26	32
2326-DFS-CT-1450	Switchyard - Supply & Transport (11 mths)	237	04-Jun-26	30-Apr-27	31
2326-DFS-CT-1950	Overhead Powerline & Switchyard Contractor Mobilisation (6w)	39	23-Jul-26	02-Sep-26	34
CONSTRUCTION		479	01-Jun-26	31-Mar-28	51
1.0 Treatment Plant		508	01-Jun-26	14-Dec-27	56
1.1 Treatment Plant - General		220	01-Jun-26	03-Feb-27	254
2326-DFS-CN-1020	Process Plant Clearing & Stripping (Stockpile Top Soil)	36	01-Jun-26	09-Jul-26	13
2326-DFS-CN-1090	Process Plant Bulk Earthworks	43	15-Jun-26	30-Jul-26	13
2326-DFS-CN-1190	Foundation Improvement Works & Plant Pads	48	22-Jun-26	12-Aug-26	77
2326-DFS-CN-1080	Construction Site Offices Footings & Slabs	18	26-Jun-26	15-Jul-26	77
2326-DFS-CN-1120	Construction Site Offices & Site Establish	32	09-Jul-26	12-Aug-26	77
2326-DFS-CN-1330	In-Plant Roads & Parking Bays	65	14-Nov-26	03-Feb-27	254
1.2 Feed Preparation		370	31-Jul-26	17-Sep-27	131
1.2.1 Primary Crushing		370	31-Jul-26	17-Sep-27	131
2326-DFS-CN-1300	Crusher Chamber & Feed Prep Area Concrete Works (10mths ~ based on 2400m3)	271	31-Jul-26	03-Jun-27	85
2326-DFS-CN-1430	Crusher Chamber Backfill	78	13-Apr-27	05-Jul-27	200
2326-DFS-CN-1690	Feed Prep Area Steel Erection	52	03-Jun-27	29-Jul-27	85
2326-DFS-CN-1800	Feed Prep Area Platework Install	55	02-Jul-27	30-Aug-27	90
2326-DFS-CN-1790	Feed Prep Area Mech Install	47	29-Jul-27	17-Sep-27	85
1.2.5 Stockpiling		128	30-Apr-27	14-Sep-27	74
2326-DFS-CN-1550	Stockpile & Reclaim Steel Erection	104	30-Apr-27	19-Aug-27	74
2326-DFS-CN-1930	Stockpile & Reclaim Platework Install	47	26-Jul-27	14-Sep-27	74
1.3 Milling		452	31-Jul-26	14-Dec-27	56
1.3.1 Reclaim		265	05-Nov-26	01-Sep-27	153
2326-DFS-CN-1390	Reclaim Tunnel Concrete Works	129	05-Nov-26	08-Apr-27	138
2326-DFS-CN-1910	Reclaim Ramp	48	08-Apr-27	29-May-27	241
2326-DFS-CN-1900	Reclaim Tunnel Mech Install	54	06-Jul-27	01-Sep-27	98
1.3.2 Grinding		452	31-Jul-26	14-Dec-27	0
2326-DFS-CN-1250	Mill Foundations (7 mths)	190	31-Jul-26	04-Mar-27	13
2326-DFS-CN-1380	Milling Area Concrete	148	15-Oct-26	09-Apr-27	64
2326-DFS-CN-1480	Milling Access Structure Steel Pre-Assembly & Erection	45	12-Feb-27	05-Apr-27	12
2326-DFS-CN-1720	Milling Access Level - Form, Pour & Cure Suspended Slab	36	05-Apr-27	13-May-27	12
2326-DFS-CN-1730	Milling & Classification Building Structural Steel Pre-Assembly & Erection	103	09-Apr-27	29-Jul-27	105
2326-DFS-CN-1920	Grinding & Classification Platework Install	86	04-Jun-27	04-Sep-27	84
2326-DFS-CN-1890	SAG Mill Installation (5mths)	136	09-Jul-27	01-Dec-27	0
2326-DFS-CN-1950	Ball Mill Installation (5mths)	136	22-Jul-27	14-Dec-27	0
2326-DFS-CN-2030	Milling Area Misc Mech Install	64	07-Oct-27	14-Dec-27	0
1.4 Trash Removal & Thickening		48	07-Oct-27	27-Nov-27	17
1.4.1 Trash Screening		48	07-Oct-27	27-Nov-27	17

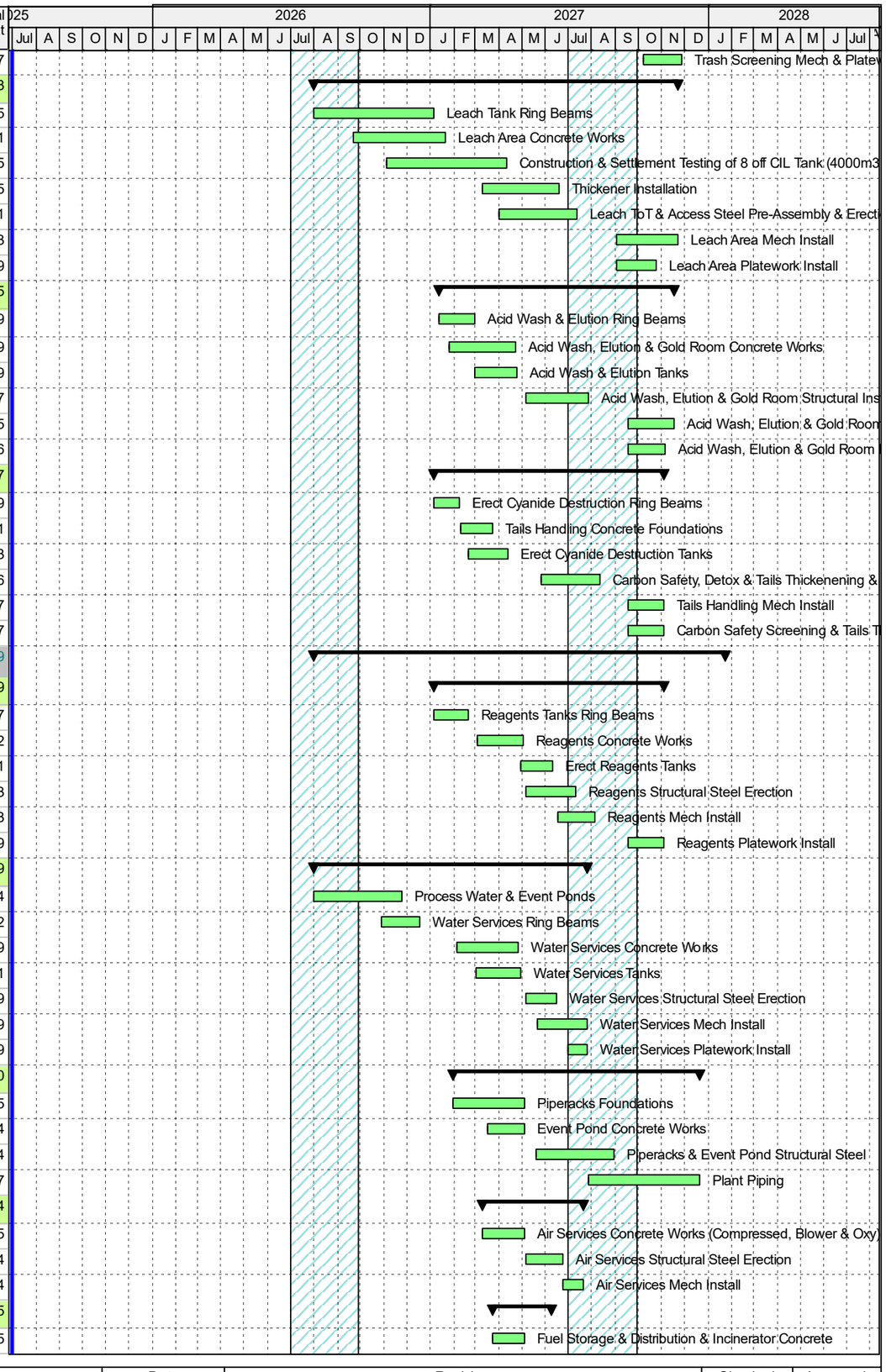


Summary | Milestone | Remaining Work | Critical Remaining Work | Actual Work | Actual Level of Effort | Remaining Level of... | % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-CN-2100	Trash Screening Mech & Platework Install	48	07-Oct-27	27-Nov-27	17
1.6 Leaching		430	31-Jul-26	21-Nov-27	23
2326-DFS-CN-1260	Leach Tank Ring Beams	136	31-Jul-26	05-Jan-27	45
2326-DFS-CN-1320	Leach Area Concrete Works	103	21-Sep-26	21-Jan-27	101
2326-DFS-CN-1370	Construction & Settlement Testing of 8 off CIL Tank (4000m3 each) (19wks)	132	05-Nov-26	11-Apr-27	45
2326-DFS-CN-1760	Thickener Installation	90	11-Mar-27	19-Jun-27	145
2326-DFS-CN-1850	Leach ToT & Access Steel Pre-Assembly & Erection	96	01-Apr-27	13-Jul-27	41
2326-DFS-CN-2040	Leach Area Mech Install	74	03-Sep-27	21-Nov-27	23
2326-DFS-CN-2110	Leach Area Platework Install	48	03-Sep-27	24-Oct-27	29
1.7 Elution & Gold Room		284	12-Jan-27	17-Nov-27	15
2326-DFS-CN-1400	Acid Wash & Elution Ring Beams	44	12-Jan-27	28-Feb-27	149
2326-DFS-CN-1450	Acid Wash, Elution & Gold Room Concrete Works	77	25-Jan-27	22-Apr-27	149
2326-DFS-CN-1630	Acid Wash & Elution Tanks	48	01-Mar-27	24-Apr-27	149
2326-DFS-CN-1820	Acid Wash, Elution & Gold Room Structural Install	77	06-May-27	27-Jul-27	107
2326-DFS-CN-2000	Acid Wash, Elution & Gold Room Mech Install	57	17-Sep-27	17-Nov-27	15
2326-DFS-CN-2050	Acid Wash, Elution & Gold Room Platework Install	46	17-Sep-27	05-Nov-27	26
1.8 Tails Handling		278	05-Jan-27	04-Nov-27	27
2326-DFS-CN-1350	Erect Cyanide Destruction Ring Beams	32	05-Jan-27	08-Feb-27	149
2326-DFS-CN-1410	Tails Handling Concrete Foundations	40	09-Feb-27	23-Mar-27	151
2326-DFS-CN-1650	Erect Cyanide Destruction Tanks	44	20-Feb-27	12-Apr-27	173
2326-DFS-CN-1870	Carbon Safety, Detox & Tails Thickenening & Pumping Steelwork	72	26-May-27	11-Aug-27	96
2326-DFS-CN-2080	Tails Handling Mech Install	45	17-Sep-27	04-Nov-27	27
2326-DFS-CN-2090	Carbon Safety Screening & Tails Thickening Platework Install	45	17-Sep-27	04-Nov-27	27
2 Reagents & Plant Services		479	31-Jul-26	23-Jan-28	29
2.1 Reagents		278	05-Jan-27	04-Nov-27	39
2326-DFS-CN-1470	Reagents Tanks Ring Beams	43	05-Jan-27	20-Feb-27	157
2326-DFS-CN-1640	Reagents Concrete Works	52	04-Mar-27	02-May-27	162
2326-DFS-CN-1860	Erect Reagents Tanks	38	30-Apr-27	10-Jun-27	131
2326-DFS-CN-1880	Reagents Structural Steel Erection	60	07-May-27	10-Jul-27	123
2326-DFS-CN-2060	Reagents Mech Install	45	18-Jun-27	05-Aug-27	123
2326-DFS-CN-2150	Reagents Platework Install	45	17-Sep-27	04-Nov-27	39
2.2 Water Services		320	31-Jul-26	25-Jul-27	79
2326-DFS-CN-1290	Process Water & Event Ponds	108	31-Jul-26	24-Nov-26	134
2326-DFS-CN-1360	Water Services Ring Beams	47	29-Oct-26	18-Dec-26	112
2326-DFS-CN-1460	Water Services Concrete Works	72	04-Feb-27	26-Apr-27	79
2326-DFS-CN-1560	Water Services Tanks	52	02-Mar-27	30-Apr-27	131
2326-DFS-CN-1810	Water Services Structural Steel Erection	38	07-May-27	16-Jun-27	79
2326-DFS-CN-2010	Water Services Mech Install	60	22-May-27	25-Jul-27	79
2326-DFS-CN-2140	Water Services Platework Install	24	30-Jun-27	25-Jul-27	79
2.3 Plant Services		298	31-Jan-27	20-Dec-27	50
2326-DFS-CN-1570	Piperacks Foundations	84	31-Jan-27	05-May-27	85
2326-DFS-CN-1980	Event Pond Concrete Works	43	16-Mar-27	05-May-27	264
2326-DFS-CN-1780	Piperacks & Event Pond Structural Steel	95	20-May-27	30-Aug-27	44
2326-DFS-CN-1610	Plant Piping	136	28-Jul-27	20-Dec-27	7
2.4 Air Services		119	11-Mar-27	20-Jul-27	84
2326-DFS-CN-1750	Air Services Concrete Works (Compressed, Blower & Oxy)	48	11-Mar-27	05-May-27	85
2326-DFS-CN-1990	Air Services Structural Steel Erection	44	07-May-27	23-Jun-27	84
2326-DFS-CN-2170	Air Services Mech Install	25	23-Jun-27	20-Jul-27	84
2.5 Fuels		68	24-Mar-27	08-Jun-27	165
2326-DFS-CN-1970	Fuel Storage & Distribution & Incinerator Concrete	36	24-Mar-27	05-May-27	165

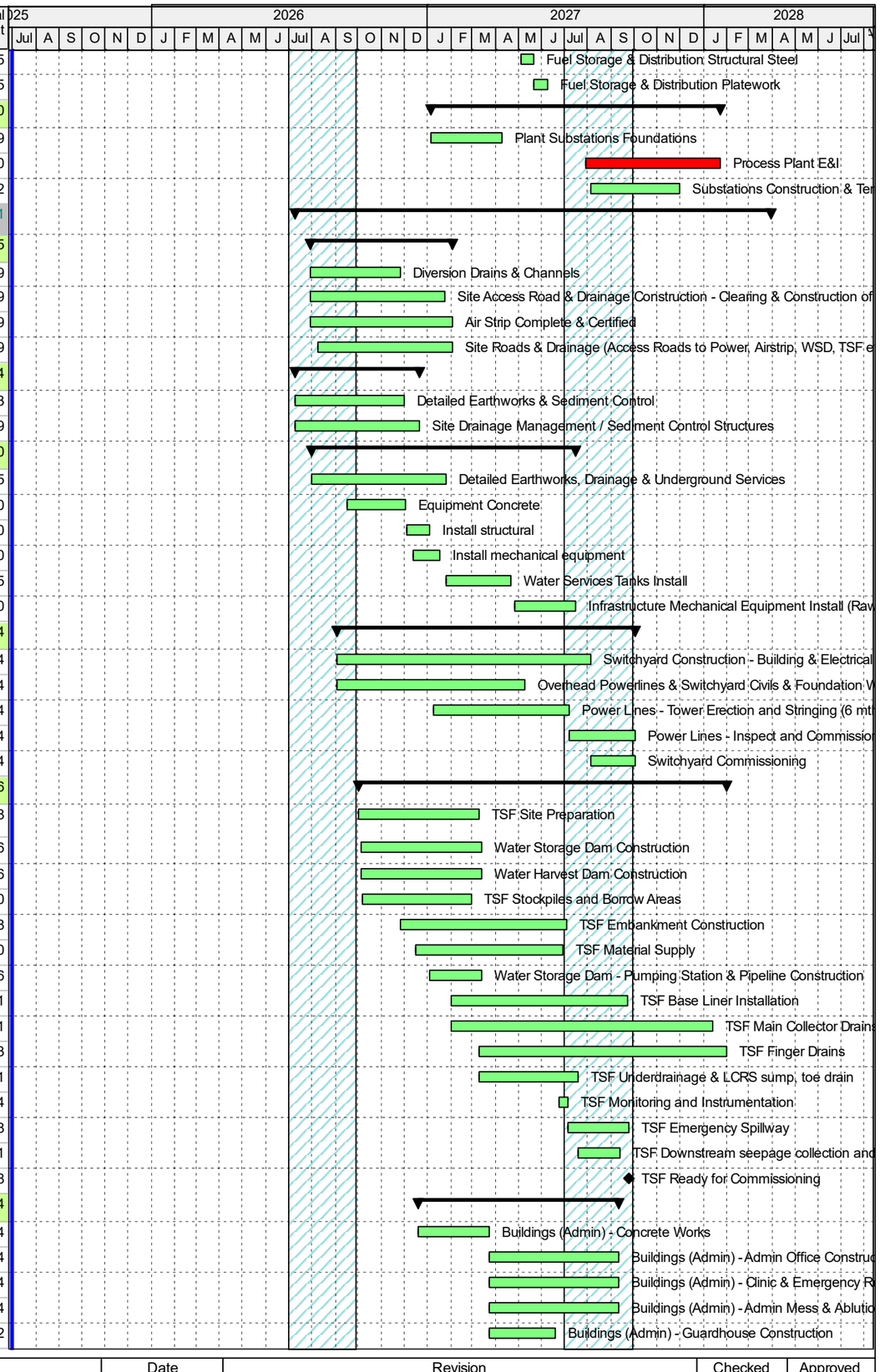


Summary | Milestone | Remaining Work | Critical Remaining Work | Actual Work | Actual Level of Effort | Remaining Level of... | % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-CN-2120	Fuel Storage & Distribution Structural Steel	16	05-May-27	22-May-27	165
2326-DFS-CN-2130	Fuel Storage & Distribution Platework	16	22-May-27	08-Jun-27	165
2.6 Electrical Services		343	05-Jan-27	23-Jan-28	0
2326-DFS-CN-1710	Plant Substations Foundations	84	05-Jan-27	09-Apr-27	179
2326-DFS-CN-1740	Process Plant E&I	155	30-Jul-27	23-Jan-28	0
2326-DFS-CN-1940	Substations Construction & Terminations	110	05-Aug-27	30-Nov-27	22
3 Infrastructure		451	09-Jul-26	31-Mar-28	51
3.1 Infrastructure - General		165	30-Jul-26	03-Feb-27	135
2326-DFS-CN-1150	Diversion Drains & Channels	111	30-Jul-26	26-Nov-26	189
2326-DFS-CN-1030	Site Access Road & Drainage Construction - Clearing & Construction of Sub-Base & Base Course	155	30-Jul-26	24-Jan-27	109
2326-DFS-CN-2300	Air Strip Complete & Certified	165	30-Jul-26	03-Feb-27	79
2326-DFS-CN-1110	Site Roads & Drainage (Access Roads to Power, Airstrip, WSD, TSF etc..)	155	09-Aug-26	03-Feb-27	79
3.2 Environmental		153	09-Jul-26	21-Dec-26	114
2326-DFS-CN-1170	Detailed Earthworks & Sediment Control	134	09-Jul-26	30-Nov-26	133
2326-DFS-CN-1140	Site Drainage Management / Sediment Control Structures	153	09-Jul-26	21-Dec-26	109
3.3 Water & Sewerage		312	31-Jul-26	16-Jul-27	100
2326-DFS-CN-1210	Detailed Earthworks, Drainage & Underground Services	155	31-Jul-26	25-Jan-27	105
2326-DFS-CN-1620	Equipment Concrete	72	17-Sep-26	03-Dec-26	100
2326-DFS-CN-2020	Install structural	18	04-Dec-26	04-Jan-27	100
2326-DFS-CN-2070	Install mechanical equipment	22	12-Dec-26	16-Jan-27	100
2326-DFS-CN-1830	Water Services Tanks Install	76	25-Jan-27	21-Apr-27	105
2326-DFS-CN-2160	Infrastructure Mechanical Equipment Install (Raw, Fire, Potable, Sewage, Buildings)	76	26-Apr-27	16-Jul-27	100
3.4 Power Supply		352	03-Sep-26	02-Oct-27	34
2326-DFS-CN-1660	Switchyard Construction - Building & Electrical	298	03-Sep-26	05-Aug-27	34
2326-DFS-CN-2780	Overhead Powerlines & Switchyard Civils & Foundation Works	217	03-Sep-26	10-May-27	34
2326-DFS-CN-1540	Power Lines - Tower Erection and Stringing (6 mths)	163	09-Jan-27	07-Jul-27	34
2326-DFS-CN-2770	Power Lines - Inspect and Commission	81	07-Jul-27	02-Oct-27	34
2326-DFS-CN-2380	Switchyard Commissioning	54	05-Aug-27	02-Oct-27	34
3.5 Tailings Dam & Water Storage Dam		348	01-Oct-26	31-Jan-28	56
2326-DFS-CN-1200	TSF Site Preparation	137	01-Oct-26	09-Mar-27	28
2326-DFS-CN-2330	Water Storage Dam Construction	129	05-Oct-26	13-Mar-27	46
2326-DFS-CN-2340	Water Harvest Dam Construction	129	05-Oct-26	13-Mar-27	46
2326-DFS-CN-1240	TSF Stockpiles and Borrow Areas	124	07-Oct-26	28-Feb-27	110
2326-DFS-CN-1310	TSF Embankment Construction	190	26-Nov-26	04-Jul-27	28
2326-DFS-CN-2015	TSF Material Supply	167	16-Dec-26	28-Jun-27	110
2326-DFS-CN-2620	Water Storage Dam - Pumping Station & Pipeline Construction	60	04-Jan-27	13-Mar-27	46
2326-DFS-CN-1520	TSF Base Liner Installation	214	01-Feb-27	22-Sep-27	31
2326-DFS-CN-1700	TSF Main Collector Drains & Channels	308	01-Feb-27	12-Jan-28	31
2326-DFS-CN-1500	TSF Finger Drains	292	10-Mar-27	31-Jan-28	73
2326-DFS-CN-1580	TSF Underdrainage & LCRS sump, toe drain	119	10-Mar-27	19-Jul-27	31
2326-DFS-CN-1770	TSF Monitoring and Instrumentation	11	23-Jun-27	05-Jul-27	104
2326-DFS-CN-1340	TSF Emergency Spillway	77	05-Jul-27	24-Sep-27	28
2326-DFS-CN-1840	TSF Downstream seepage collection and outlet channel	52	20-Jul-27	13-Sep-27	31
2326-DFS-CN-1845	TSF Ready for Commissioning	0		24-Sep-27	28
3.6 Buildings - Admin & Security		231	20-Dec-26	10-Sep-27	104
2326-DFS-CN-2420	Buildings (Admin) - Concrete Works	76	20-Dec-26	23-Mar-27	104
2326-DFS-CN-1670	Buildings (Admin) - Admin Office Construction	155	24-Mar-27	10-Sep-27	104
2326-DFS-CN-2390	Buildings (Admin) - Clinic & Emergency Response Construction	155	24-Mar-27	10-Sep-27	104
2326-DFS-CN-2400	Buildings (Admin) - Admin Mess & Ablutions Construction	155	24-Mar-27	10-Sep-27	104
2326-DFS-CN-2410	Buildings (Admin) - Guardhouse Construction	77	24-Mar-27	18-Jun-27	182

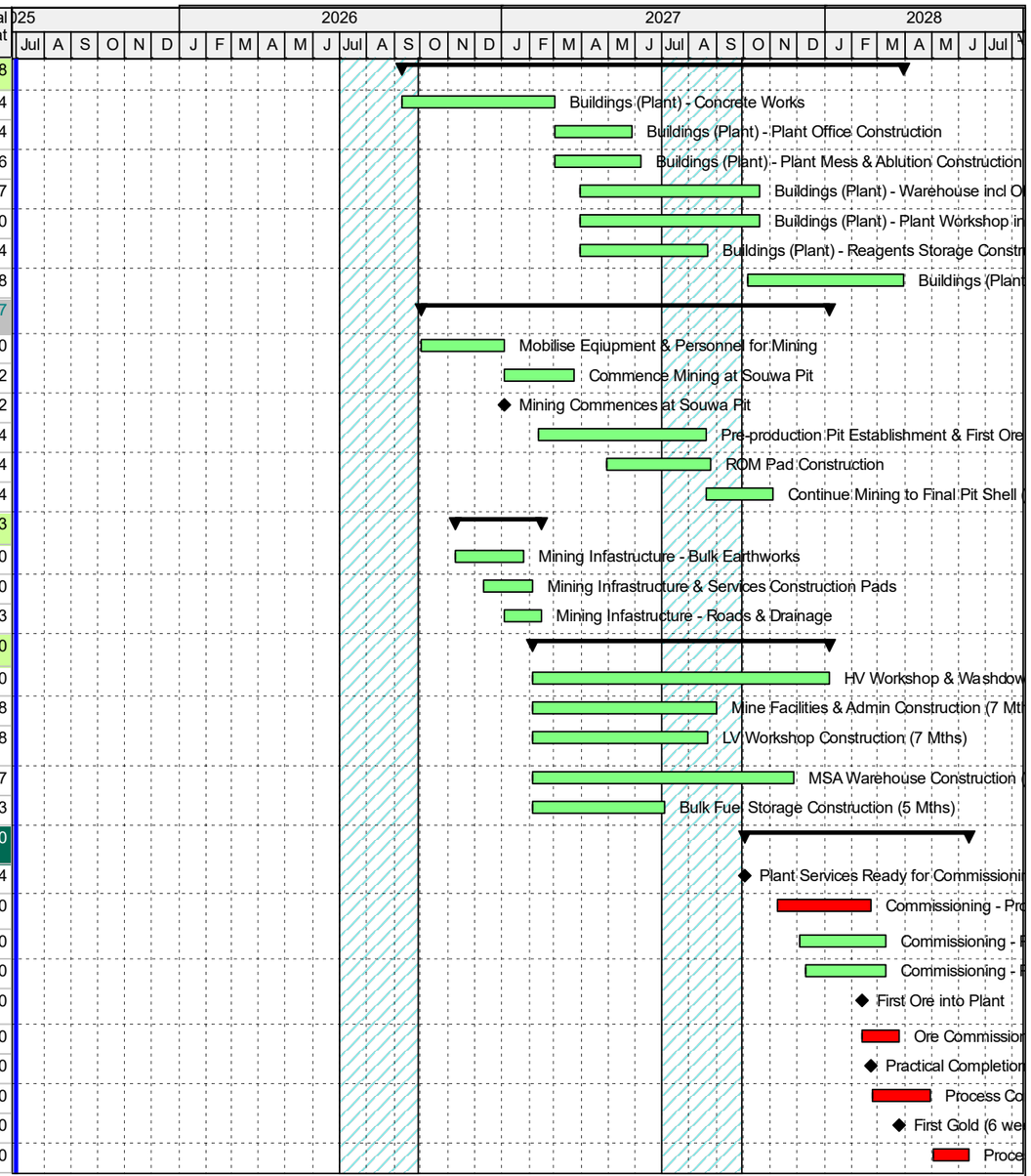


Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
3.7 Buildings - Plant		504	10-Sep-26	31-Mar-28	68
2326-DFS-CN-1280	Buildings (Plant) - Concrete Works	150	10-Sep-26	02-Mar-27	104
2326-DFS-CN-2440	Buildings (Plant) - Plant Office Construction	77	02-Mar-27	28-May-27	344
2326-DFS-CN-2450	Buildings (Plant) - Plant Mess & Ablution Construction	86	02-Mar-27	06-Jun-27	336
2326-DFS-CN-1680	Buildings (Plant) - Warehouse incl Office & Ablution Construction (7mth)	190	30-Mar-27	20-Oct-27	67
2326-DFS-CN-2430	Buildings (Plant) - Plant Workshop incl Office & Ablution Construction (7mth)	190	30-Mar-27	20-Oct-27	210
2326-DFS-CN-2460	Buildings (Plant) - Reagents Storage Construction (5mth)	136	30-Mar-27	22-Aug-27	264
2326-DFS-CN-1490	Buildings (Plant) - Laboratory Construction & Fitout	155	06-Oct-27	31-Mar-28	68
4 Mining		405	01-Oct-26	06-Jan-28	147
2326-DFS-CN-2470	Mobilise Eqiupment & Personnel for Mining	78	01-Oct-26*	04-Jan-27	70
2326-DFS-CN-2480	Commence Mining at Souwa Pit	73	04-Jan-27	23-Mar-27	402
2326-DFS-CN-2490	Mining Commences at Souwa Pit	0	04-Jan-27		402
2326-DFS-CN-1530	Pre-production Pit Establishment & First Ore Delivery	172	12-Feb-27	20-Aug-27	94
2326-DFS-CN-1440	ROM Pad Construction	110	29-Apr-27	25-Aug-27	184
2326-DFS-CN-2190	Continue Mining to Final Pit Shell (Ramp up & Stockpile)	71	20-Aug-27	04-Nov-27	94
4.1 Mining-General		80	10-Nov-26	15-Feb-27	263
2326-DFS-CN-2550	Mining Infastructure - Bulk Earthworks	60	10-Nov-26	25-Jan-27	70
2326-DFS-CN-2560	Mining Infrastructure & Services Construction Pads	40	12-Dec-26	04-Feb-27	70
2326-DFS-CN-2570	Mining Infastructure - Roads & Drainage	40	04-Jan-27	15-Feb-27	263
4.5 Mining Facilities		298	05-Feb-27	06-Jan-28	70
2326-DFS-CN-2500	HV Workshop & Washdown Construction (11 Mths)	298	05-Feb-27	06-Jan-28	70
2326-DFS-CN-2510	Mine Facilities & Admin Construction (7 Mths)	190	05-Feb-27	01-Sep-27	178
2326-DFS-CN-2520	LV Workshop Construction (7 Mths)	181	05-Feb-27	22-Aug-27	188
2326-DFS-CN-2530	MSA Warehouse Construction (10 Mths)	271	05-Feb-27	27-Nov-27	97
2326-DFS-CN-2540	Bulk Fuel Storage Construction (5 Mths)	136	05-Feb-27	04-Jul-27	233
COMMISSIONING		181	02-Oct-27	12-Jun-28	0
2326-DFS-CM-1080	Plant Services Ready for Commissioning (Air/Water/Power)	0		02-Oct-27	34
2326-DFS-CM-1000	Commissioning - Process Plant C1	90	08-Nov-27	23-Feb-28	0
2326-DFS-CM-1030	Commissioning - Process Plant C2	80	04-Dec-27	10-Mar-28	10
2326-DFS-CM-1040	Commissioning - Process Plant C3	75	10-Dec-27	10-Mar-28	10
2326-DFS-CM-1070	First Ore into Plant	0		12-Feb-28	0
2326-DFS-CM-1090	Ore Commissioning (6 weeks)	42	12-Feb-28	25-Mar-28	0
2326-DFS-CM-1060	Practical Completion	0		23-Feb-28	0
2326-DFS-CM-1010	Process Commissioning - Process Plant C4	66	23-Feb-28	29-Apr-28	0
2326-DFS-CM-1020	First Gold (6 weeks after First Ore into Plant)	0		25-Mar-28	0
2326-DFS-CM-1050	Process Plant Performance Testing C5	40	03-May-28	12-Jun-28	0



Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: All Activities
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

APPENDIX E

PROJECT SCHEDULE – CRITICAL PATH

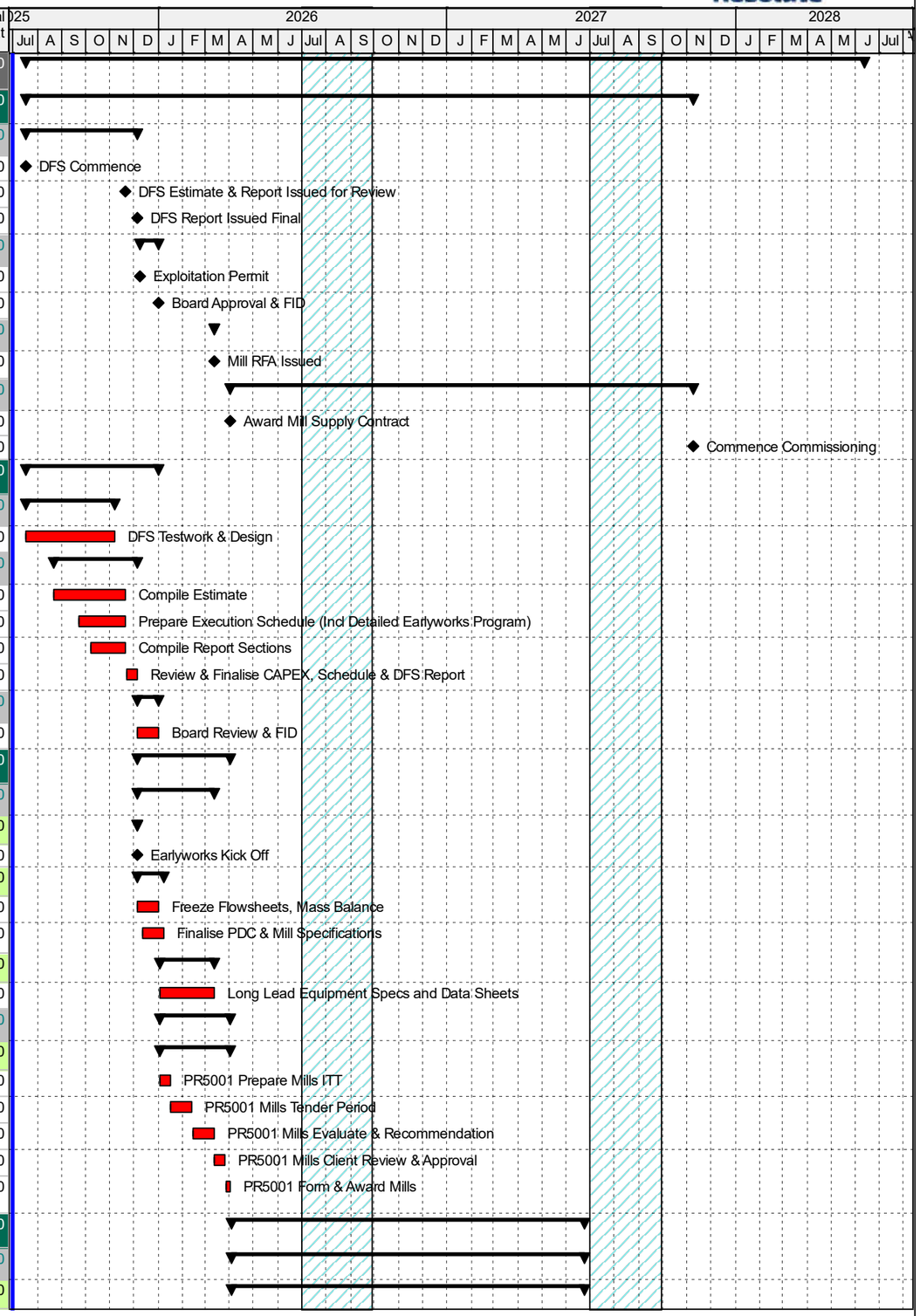
Lycopodium

PROJECT: Doropo Gold Project - DFS

Schedule Version: DFS - Preliminary Implementation Schedule

Resolute

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
Doropo Gold Project DFS - Preliminary Schedule 26Nov2025		757	18-Jul-25	12-Jun-28	0
MILESTONES		602	18-Jul-25	08-Nov-27	0
DFS Milestones		100	18-Jul-25	04-Dec-25	0
2326-DFS-MS-0010	DFS Commence	0	18-Jul-25*		0
2326-DFS-MS-2000	DFS Estimate & Report Issued for Review	0		20-Nov-25	0
2326-DFS-MS-2005	DFS Report Issued Final	0		04-Dec-25	0
Owners Project Milestones		17	09-Dec-25	31-Dec-25	0
2326-DFS-MS-1220	Exploitation Permit	0	09-Dec-25*		0
2326-DFS-MS-1001	Board Approval & FID	0		31-Dec-25*	0
FEED / Earlyworks Milestones		0	13-Mar-26	13-Mar-26	0
2326-DFS-MS-1180	Mill RFA Issued	0	13-Mar-26		0
EPCM Milestones		417	02-Apr-26	08-Nov-27	0
2326-DFS-MS-1020	Award Mill Supply Contract	0		02-Apr-26	0
2326-DFS-MS-1130	Commence Commissioning	0	08-Nov-27		0
DFS		119	18-Jul-25	31-Dec-25	0
DFS Design		80	18-Jul-25	06-Nov-25	0
2326-DFS-EN-1270	DFS Testwork & Design	80	18-Jul-25	06-Nov-25	0
Reporting		75	22-Aug-25	04-Dec-25	0
2326-DFS-DR-1530	Compile Estimate	65	22-Aug-25	20-Nov-25	0
2326-DFS-DR-1580	Prepare Execution Schedule (Incl Detailed Earlyworks Program)	43	23-Sep-25	20-Nov-25	0
2326-DFS-DR-1570	Compile Report Sections	32	07-Oct-25	20-Nov-25	0
2326-DFS-DR-1590	Review & Finalise CAPEX, Schedule & DFS Report	10	21-Nov-25	04-Dec-25	0
Reviews & FID		19	05-Dec-25	31-Dec-25	0
2326-DFS-EN-1300	Board Review & FID	19	05-Dec-25	31-Dec-25	0
EARLYWORKS		85	05-Dec-25	02-Apr-26	0
FEED		70	05-Dec-25	12-Mar-26	0
Milestones		0	05-Dec-25	05-Dec-25	0
2326-DFS-EN-3020	Earlyworks Kick Off	0	05-Dec-25		0
Process		25	05-Dec-25	08-Jan-26	0
2326-DFS-EN-1010	Freeze Flowsheets, Mass Balance	20	05-Dec-25	01-Jan-26	0
2326-DFS-EN-1020	Finalise PDC & Mill Specifications	20	12-Dec-25	08-Jan-26	0
SMP		50	02-Jan-26	12-Mar-26	0
2326-DFS-EN-1070	Long Lead Equipment Specs and Data Sheets	50	02-Jan-26	12-Mar-26	0
Long Lead Equipment Procurement		65	02-Jan-26	02-Apr-26	0
5001 Ball & SAG Mills		65	02-Jan-26	02-Apr-26	0
2326-DFS-PR-1000	PR5001 Prepare Mills ITT	10	02-Jan-26	15-Jan-26	0
2326-DFS-PR-1010	PR5001 Mills Tender Period	20	16-Jan-26	12-Feb-26	0
2326-DFS-PR-1040	PR5001 Mills Evaluate & Recommendation	20	13-Feb-26	12-Mar-26	0
2326-DFS-PR-1060	PR5001 Mills Client Review & Approval	10	13-Mar-26	26-Mar-26	0
2326-DFS-PR-1090	PR5001 Form & Award Mills	5	27-Mar-26	02-Apr-26	0
PROCUREMENT		320	03-Apr-26	24-Jun-27	0
Mechanical		320	03-Apr-26	24-Jun-27	0
5001 Ball & SAG Mills		320	03-Apr-26	24-Jun-27	0

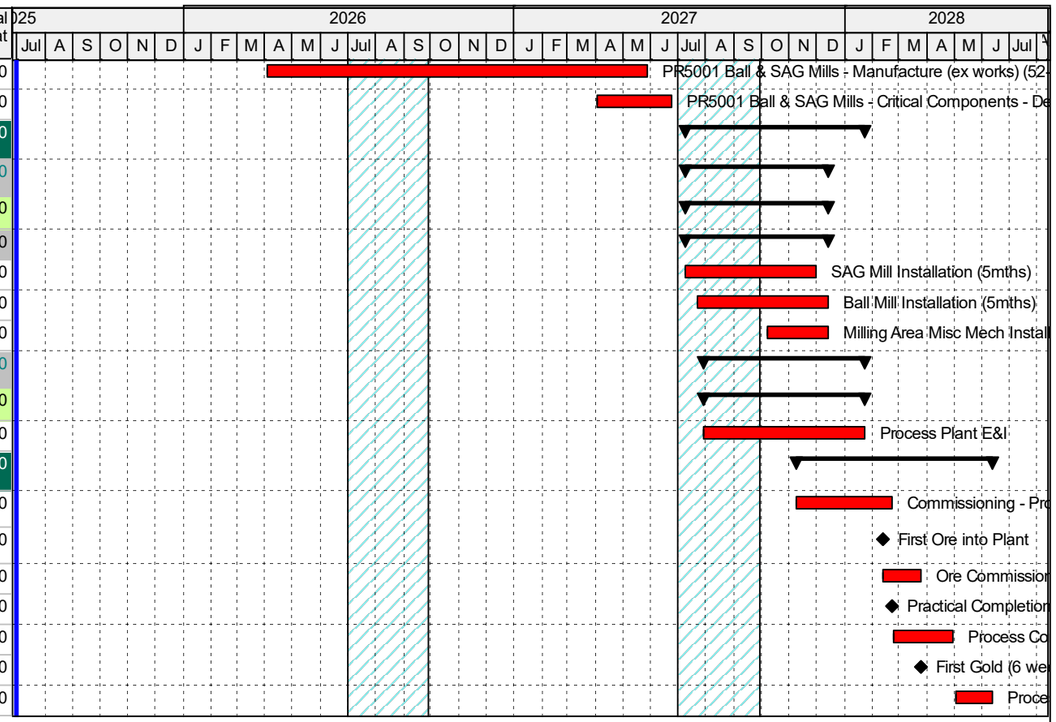


Summary | Milestone | Remaining Work | Critical Remaining Work | Actual Work | Actual Level of Effort | Remaining Level of... | % Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: Critical.
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS

Activity ID	Activity Name	Working Days	Start	Finish	Total Float
2326-DFS-PR-1310	PR5001 Ball & SAG Mills - Manufacture (ex works) (52-60 weeks)	300	03-Apr-26	27-May-27	0
2326-DFS-PR-2710	PR5001 Ball & SAG Mills - Critical Components - Deliver to Site	84	02-Apr-27	24-Jun-27	0
CONSTRUCTION		175	09-Jul-27	23-Jan-28	0
1.0 Treatment Plant		148	09-Jul-27	14-Dec-27	0
1.3 Milling		148	09-Jul-27	14-Dec-27	0
1.3.2 Grinding		148	09-Jul-27	14-Dec-27	0
2326-DFS-CN-1890	SAG Mill Installation (5mths)	136	09-Jul-27	01-Dec-27	0
2326-DFS-CN-1950	Ball Mill Installation (5mths)	136	22-Jul-27	14-Dec-27	0
2326-DFS-CN-2030	Milling Area Misc Mech Install	64	07-Oct-27	14-Dec-27	0
2 Reagents & Plant Services		155	30-Jul-27	23-Jan-28	0
2.6 Electrical Services		155	30-Jul-27	23-Jan-28	0
2326-DFS-CN-1740	Process Plant E&I	155	30-Jul-27	23-Jan-28	0
COMMISSIONING		155	08-Nov-27	12-Jun-28	0
2326-DFS-CM-1000	Commissioning - Process Plant C1	90	08-Nov-27	23-Feb-28	0
2326-DFS-CM-1070	First Ore into Plant	0		12-Feb-28	0
2326-DFS-CM-1090	Ore Commissioning (6 weeks)	42	12-Feb-28	25-Mar-28	0
2326-DFS-CM-1060	Practical Completion	0		23-Feb-28	0
2326-DFS-CM-1010	Process Commissioning - Process Plant C4	66	23-Feb-28	29-Apr-28	0
2326-DFS-CM-1020	First Gold (6 weeks after First Ore into Plant)	0		25-Mar-28	0
2326-DFS-CM-1050	Process Plant Performance Testing C5	40	03-May-28	12-Jun-28	0



Summary
Milestone
Remaining Work
Critical Remaining Work
Actual Work
Actual Level of Effort
Remaining Level of...
% Complete

Project ID: S2326.SSCH.001_WIP
Project Layout: Doropo PFS Schedule Full Print Clean
P6 Filters: TASK filter: Critical.
Data date: 01-Jul-25

Date	Revision	Checked	Approved
27-Nov-25	DFS - Project Implementation Schedule	KS	AS