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Dianne Copper Mine

Dianne Recommencement Project

Preliminary Consequence Category Assessment

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1 Introduction

Capital Consulting Engineers has been engaged by Projectick Pty Ltd (Projectick) on behalf of Mineral Projects Pty Ltd to carry out a Preliminary Consequence Category Assessment (CCA) of the designed water storage structures at the Dianne Copper Mine site (the Mine).

The purpose of this report is to support an amendment to EA EPML00881213 necessary to recommence mining activities at the site. It contains an evaluation of the hazards and consequences categories for each of the structures listed below

- Process Water Dam
- Process Ponds (consisting of Raffinate Pond, Intermediate Liquor Storage and Pregnant Liquor Storage)
- Overflow Dam 01
- Overflow Dam 02
- Sediment Dam 01
- Sediment Dam 02
- Sediment Dam 03
- Clean Water Dam 01
- Clean Water Dam 02
- Clean Water Dam 03
- Release Dam
- Raw Water Dam 1

in accordance with the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933 Version 5.03).*

2 Definitions

The following definitions have been taken from the Queensland Government Environmental Services Regulator's Guideline for dam activities that are obliged to adhere to regulatory EA approval conditions.

"**Consequence**: in relation to a structure as defined, means the potential for environmental harm resulting from the collapse or failure of the structure to perform its primary purpose of containing, diverting, or controlling flowable substances."

***"Consequence category**: means a category, either low, significant, or high, into which a dam is assessed as a result of the application of tables and other criteria in the Manual1 for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)."*

[1] *Manual for assessing consequence categories and hydraulic performance of structures (*ESR/2016/1933 • Version 5.03 *Effective: 23 FEB 2024)*

***"Dam**:* means a land-based structure or a void that contains, diverts, or controls flowable substances, and includes any substances that are thereby contained, diverted, or controlled by that land-based structure or void and associated works."

"Contaminated: Means the substance has come into contact with a contaminant. A contaminant can be:

a) a gas, liquid or solid; or
b) an odour; or
c) an organism (whether alive or dead), including a virus; or
d) energy, including noise, heat, radioactivity, and electromagnetic radiation; or
e) a combination of contaminants.**"**

In this document the term "contaminated" refers to mine-affected or worked water that has been tested and found to exceed the water quality parameters as defined within the EA trigger limits for release. Notwithstanding this, a dam containing hazardous waste need not be declared as being of "Significant" or "High" Consequence Category unless it has been so defined using the Manual.

***"Designer**:* for the purposes of a regulated dam, means the certifier of the design plan for the regulated dam."

***"Levee**:* means an embankment that only provides for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from releases from other works, during the progress of those stormwater or flood flows or those releases; and does not store any significant volume of water or flowable substances at any other times."

***"Manual**:* means the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933) published by the administering authority, as amended from time to time."

"Mine Affected Water:

a) means the following types of water:
i) pit water, tailings dam water, processing plant water;
ii) water contaminated by a mining activity which would have been an environmentally relevant activity under Schedule 2 of the Environmental Protection Regulation 2008 if it had not formed part of the mining activity;
iii) rainfall runoff which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated, excluding rainfall runoff discharging through release points associated with erosion and sediment control structures that have been installed in accordance with the standards and requirements of an Erosion and Sediment Control Plan to manage such runoff, provided that this water has not been mixed with pit water, tailings dam water, processing plant water or workshop water;
iv) groundwater which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated;

v) groundwater from the Mine's dewatering activities
vi) a mix of mine affected water noted under any of paragraphs i) to v), and other water.

b) does not include surface water runoff which, to the extent that it has been in contact with areas disturbed by mining activities that have not yet been completely rehabilitated, has only been in contact with:

i) land that has been rehabilitated to a stable landform and either capped or revegetated in accordance with the acceptance criteria set out in the environmental authority but only still awaiting maintenance and monitoring of the rehabilitation over a specified period to demonstrate rehabilitation success, or
ii) land that has partially been rehabilitated and monitoring demonstrates the relevant part of the landform with which the water has been in contact does not cause environmental harm to waters or groundwater, for example:
1 areas that are being capped and have monitoring data demonstrating hazardous material adequately contained with the site;
2 evidence provided through monitoring that the relevant surface water would have met the water quality parameters for mine affected water release limits in this environmental authority, if those parameters had been applicable to the surface water runoff, or
*iii) both.***"**

"Regulated Structure means any structure in the significant or high consequence category as assessed using the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/193315) published by the administering authority. A regulated structure does not include:

- *a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container;*
- *a sump or earthen Pit used to store residual drilling material and drilling fluid only for the duration of drilling and well completion activities;*
- *a flare pit.***"**

"Structure**: means dam or levee."**

3 Background

The Dianne Copper Mine (DCM) is an historic copper mine which is currently in care and maintenance. The mine is in the Cape York Peninsula, Queensland, approximately 160km northwest of Cairns and 100km southwest of Cooktown

Mining operations were undertaken at the DCM primarily between 1979 and 1982, with both open cut and open stope underground mining techniques adopted during this time. The DCM has remained in care and maintenance since 1982 when a global decrease in copper prices led to the cessation of mining operations.

The DCM comprises mining leases (ML) ML 2810, ML 2811, ML 2831, ML 2832, ML 2833 and ML 2834 under the environmental authority (EA EPML00881213). The total disturbance footprint of the DCM encompasses approximately 14.4 ha across all mining leases and includes an open cut void and portal, mine water management dams, raw water dams, access roads and waste rock dumps. Rehabilitation efforts to date have largely focussed on water management, in particular, the construction and maintenance of infrastructure to isolate the Overburden Stockpiles from overland flow and managing mine-affected water.

Mineral Projects Australia Pty Ltd (Mineral Projects), the current Operator and 49% owner of the DCM, has undertaken further exploration at the DCM site since 2020 and is now proposing to recommence mining of the ore body as well as on-site extraction of copper using a heap leach, solvent extraction and electrowinning process (the Project).

4 Project Overview

Figure 5-1 shows the key project features, and the following is an overview of the project parameters and features:

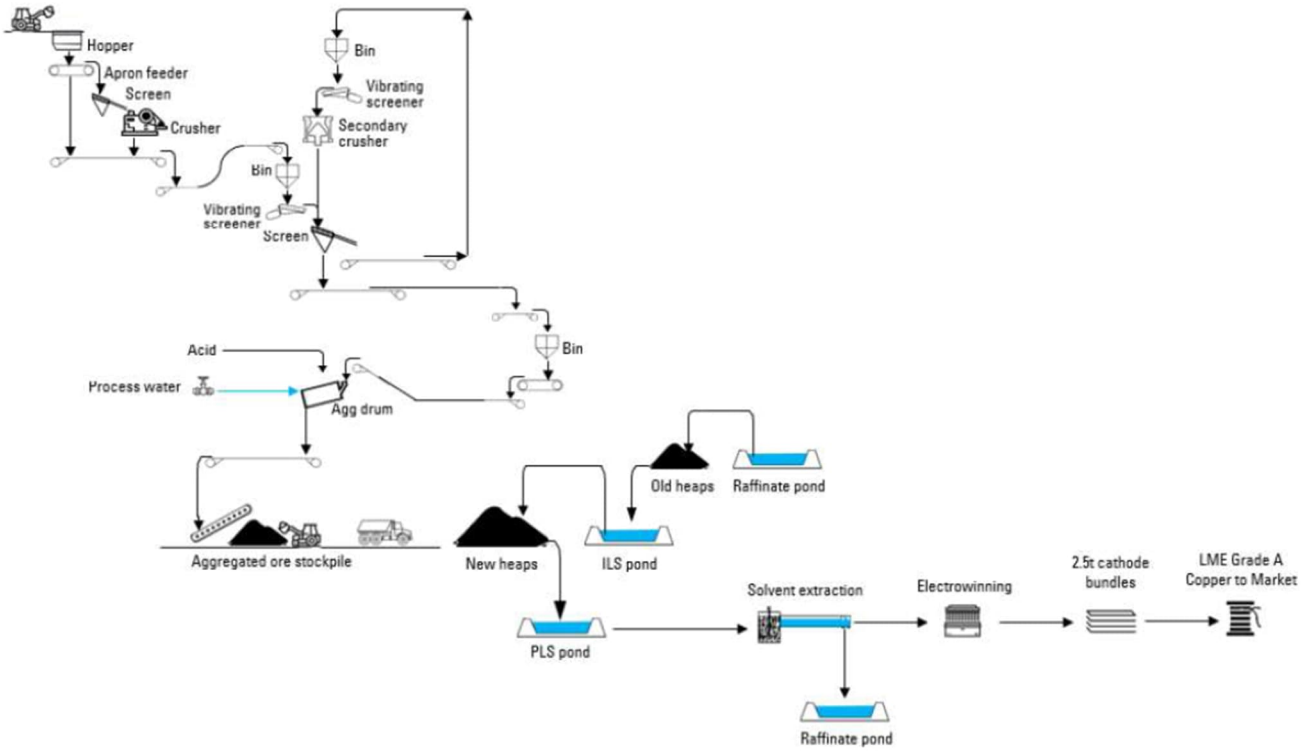
The Dianne Recommencement Project (the project) involves the recommencement of mining and associated activities at the Dianne Copper Mine. The project will include:

- *Mining approximately 1.6 Mt of copper ore as a single pit with an approx. depth of 124 m using conventional excavator and truck load and haul methods. A throughput of up to 900,000 tonne per annum of ore will be mined with a target recovery rate of 85%. Note the pit will be located over the old open cut pit and portal.*
- *Processing ore via crushing, screening, agglomeration and stacking circuits on up to six heap leach pads. Ore will be crushed and stacked on a specially prepared and lined heap leach pad area with overall approximate dimensions of 300 meters (m) length by 100 meters width. Stockpiles on the pads will be to a height of approximately up to 6 m. No tailings dam is required on site, and spent ore will be stockpiled, reprofiled and rehabilitated in a manner that is consistent with the existing approved PRCP.*
- *Reprocessing the existing Overburden Stockpile. Existing waste rock will either be reprocessed or treated as required and used in the construction of the heap leach pads.*
- *Mine infrastructure upgrades and construction including:*
    - *Run of mine laydown area*

- *Access roads to site from Whites Creek Road*
- *Temporary accommodation camp and associated sewage treatment plant*
- *Water management infrastructure including additional remediation and upgrading of the existing Settling Dam (to be renamed the Release Dam)*
- *Workshop facility*
- *Site office*
- *Temporary fuel storage in fully bunded areas*
- *Power infrastructure (solar and diesel combination)*
- *A small landfill for construction and general waste (approximately 2,400 m^2)*
- *Topsoil and subsoil stockpiles*

- *Employment of approximately 35 construction and 40 operation staff. Opportunities will be prioritised for Indigenous people supported by on-the-job training, and employment, with an aim of a minimum 20% FTE Indigenous employment. In addition, local employment opportunities will be made available from the Lakeland, Cooktown, Mareeba and Mossman regions.*
- *Ongoing exploration programs will be aimed at confirming additional mineral resources.*

Figure 4-1: Design Process Flow Diagram *(From WMP)*



The following details the changes that will transition the Mine from the existing care and maintenance situation to the open cut mining and ore processing operation *(Engeny WMP 2024):*

- Infilling of RWD 2 to accommodate the Process Water Dam (PWD) and the first of the six Heap Leach Pads. The PWD will receive transfers of water captured in the Overflow Dams to enable their prompt dewatering.

- Two overflow dams to contain spills from the Heap Leach Pad and process liquor dams during high or prolonged rainfall events.
- An enlarged Release Dam (previously referred to as the Settling Dam) with a remediated embankment to provide additional containment capacity and prevent seepage through the embankment respectively. The Release Dam will be de-silted to remove contamination associated with the sediment from historical operations.
- Decommissioning and removal of the Seepage Collection Well.
- Captured rainfall/runoff and process water reused for dust suppression (process water only to be used for dust suppression within mine water catchments) and other operational needs.
- Water with appropriate water quality may be used in irrigation for rehabilitation areas where required, and to reduce water storage levels prior to wet seasons.

The following are additional water management infrastructure:

- Overflow dams (including the Process Water Dam) designed to contain spills from the from Heap Leach Pad and process liquor storages during storm events up to and including the 1% AEP, 72-hour duration event with a sediment storage zone allowance equal to 5% of the settling zone volume (the relatively small sediment storage zone allowance has been applied because Heap Leach Pad catchment runoff sediment loads are anticipated to be low, and the project duration is short).
- A Sediment Basin Dam to capture dirty water runoff designed to contain runoff from the 5 day, 95th percentile rainfall event with a sediment storage zone allowance equal to 50% of the settling zone volume.
- Several clean water dams to capture runoff from undisturbed catchments. These dams capture runoff that would otherwise drain directly to the Release Dam to assist in reducing the frequency and volume of releases from the Release Dam as well as capturing water to supplement operational water demands.
- Clean water diversion drains designed to be non-scouring and convey peak flows during storm events up to and including the 1% Annual Exceedance Probability (AEP), time of concentration event. The drain along the southeastern edge of the Mine bypasses clean water passed the Release Dam and directly into Gum Creek Tributary.
- Mine water cutoff drains to capture potentially contaminated runoff from operational areas designed to be non-scouring and convey peak flows during storm events up to and including the 1% AEP, time of concentration event.
- Dirty water cutoff drains to capture potentially sediment laden runoff from disturbed catchments designed to be non-scouring and convey peak flows during storm events up to and including the 5% AEP, time of concentration event.

Figure 4-1 and Figure 5-1 present schematic drawing and plan of the proposed DCM water structures respectively. The proposed WMS will continue to be operated with a view to limiting the volume and frequency of mine water discharges to the receiving environment. The current proposed design consists of the key water storages and associated infrastructure described in the following Table 4-1.

Table 4-1: Proposed WMS Components *(Engeny WMP 2024)*

Dam	Proposed Capacity (ML)	Associated Infrastructure	Description
RWD1	312	Transfer pump and pipeline(s)	RWD 1 receives runoff from undisturbed upslope catchments. Subject to available freeboard in RWD 1, any water remaining in RWD 2 prior to decommissioning (refer to Section 4.1) will be transferred from to RWD 1. Water from RWD 1 will supplement operational water demands that cannot be met by runoff from disturbed and mine affected catchments captured in the WMS. RWD1 spills to a Gum Creek Tributary
CWD 1	0.35	-	Receives runoff from undisturbed upslope catchments. Water from CWD 1 will supplement operational water demands that cannot be met by runoff from disturbed and mine affected catchments captured in the WMS. CWD 1 will be dewatered to CWD 3 or RWD 1 (which both spill off-site) prior the onset of high or prolonged rainfall events maximise the storage capacity available to capture runoff that could spill to the Release Dam and contribute to the likelihood of an uncontrolled release from the Release Dam. CWD 1 spills to the Release Dam.
		Dewatering pump and transfer pipeline(s)	Specifications to be determined during detailed design.

Dam	Proposed Capacity (ML)	Associated Infrastructure	Description
CWD 2	7.3	-	Receives runoff from undisturbed upslope catchments. Water from CWD 2 will supplement operational water demands that cannot be met by runoff from disturbed and mine affected catchments captured in the WMS. CWD 2 will be dewatered to CWD 3 or RWD 1 (which both spill off-site) prior the onset of high or prolonged rainfall events to maximise the storage capacity available to capture runoff that could spill to the Release Dam and contribute to the likelihood of an uncontrolled release from the Release Dam. CWD 2 spills to the Sediment Dam.
		Dewatering pump and transfer pipeline(s)	Specifications to be determined during detailed design.
CWD 3	12	-	Receives runoff from undisturbed upslope catchments. Water from CWD 3 will supplement operational water demands that cannot be met by runoff from disturbed and mine affected catchments captured in the WMS.
		Dewatering pump and transfer pipeline(s).	Specifications to be determined during detailed design. CWD 3 spills to the clean water diversion which drains to Release Dam spillway channel and off-site to Gum Creek Tributary.
Sediment Dam	5.7	-	The Sediment Basin Dam receives runoff from both disturbed catchment and undisturbed catchment that cannot be readily diverted around the DCM operational areas. Water from the Sediment Basin Dam will be used as the first priority water source to meet dust suppression demands and second priority water source to supplement other operational water demands that cannot be met by runoff from mine affected catchments captured in the

Dam	Proposed Capacity (ML)	Associated Infrastructure	Description
			WMS. The Sediment Basin Dam spills to the Release Dam.
		Dewatering pump, water cart standpipe and transfer pipeline(s).	Specifications to be determined during detailed design.
Pit Sump	Variable	-	The existing Pit Sump currently contains an estimated 22 ML of water that will be drawn down at a rate to facilitate recommencement of mining. Inflows to the Pit Sump will be limited to runoff from the broader open cut extraction area. The existing Pit Sump water inventory and runoff captured in the Pit Sump will be used to meet ore processing water demands. Presently the Pit Sump spills to the Release Dam, however, as extractive activities progress, the Pit Sump will surcharge to the broader Pit shell which will have increased in capacity to over 2,200 ML over the period of mining. Water balance modelling indicates that spills from the Pit Sump to the Release Dam will not occur for all modelled historic climate scenarios when the Pit shell volume expands to approximately 75 ML.
		Dewatering pump and transfer pipeline(s).	Specifications to be determined during detailed design.
Release Dam (Mine Affected)	47	-	The Release Dam receives inflows from: ◗ the Overburden Stockpile runoff ◗ runoff from disturbed areas downslope of the Pit ◗ runoff from upslope undisturbed catchments ◗ Pit spills

Dam	Proposed Capacity (ML)	Associated Infrastructure	Description
			◗ Sediment Dam spills ◗ Transfers from the clean water dams (CWD 1, CWD 2 and CWD 3) and RWD1 (for dilution to meet the release WQOs) Runoff captured in the Release Dam will be used to meet ore processing water demands. The Release Dam inventory will be maintained is low as possible by transferring water to the PWD when the PWD has capacity. Controlled releases to Gum Creek Tributary will occur via RP1 to manage surplus water contained within the DCM WMS prior to forecast rainfall or during rainfall that is considered likely to exceed the WMS containment capacity in accordance with the EA conditions (refer to Table 2.1 and Table 3.4). Should the quality of water contained in the Release Dam not meet the release WQOs and forecast rainfall is considered likely to exceed the WMS containment capacity, the Release Dam will be dewatered to the Pit. Uncontrolled releases from the Release Dam drain to Gum Creek Tributary via RP1. A “Farmbot” level sensor detects when a spill from the Release Dam occurs.
		Dewatering pump and transfer pipeline(s).	Specifications to be determined during detailed design.
		Farmbot Controller and Sensors.	The Farmbot controller is solar powered with battery backup and provides alerts to DCM personnel via the internet including alerts for Release Dam spills.

Dam	Proposed Capacity (ML)	Associated Infrastructure	Description
		Spillway Channel Flow Gauge	The Spillway Channel is equipped with a level sensor that records the depth of flow. Flow depth is converted to a volumetric flow rate based on a flow rating curve developed using hydraulic modelling techniques for the Spillway Channel.
PWD (Process Water)	42.5	Location of this dam may change during the detailed design	The Process Water Dam (PWD) receives water transfers from the Overflow Dams, direct rainfall and runoff from its limited catchment. Water from the PWD is used as the first priority to supply Leach Pad operational demands. The PWD would spill to the Sediment Dam (highly unlikely) but would normally share capacity with the Overflow Dams.
		Dewatering pump and transfer pipeline(s).	Specifications to be determined during detailed design.
Agglomeration Sump (Mine Affected)	0.75	-	Inflows to the agglomeration sump is from agglomeration catchment runoff. Water captured in the Agglomeration Sump is transferred to the PWD.
		Dewatering pump and transfer pipeline(s).	Specifications to be determined during detailed design.

5 Purpose and Scope of this Report

This Preliminary Consequence Category Assessment (CCA) report has been prepared for *Mineral Projects* to support its proposed amendment to EA EPML00881213 (the EA) and in compliance with the Manual for assessing consequence categories and hydraulic performance of structures. Preparation of water management plans for mining activities guideline (Department of Environment and Heritage Protection, 2012) (the Guideline).

A Water Management Plan (WMP) has been prepared for the project by Engeny Australia Pty Ltd (Engeny) – see "Dianne Copper Mine Water Management Plan NC1017_001-PLN-001-2' dated 22 July 2024. The dam, drainage and earthworks layouts have been slightly modified since the preparation of the WMP. CCE has reviewed the WMP and in our opinion these slight modifications will not materially affect the water management outcomes described in the WMP.

This CCA refers significantly to the Water Management Plan (WMP) as well as other reference documents:

- To understand issues relevant to the importation, generation, use, and management of water at the DCM in order to minimise the quantity of water that is contaminated and released by and from the site.
- Water management systems to be implemented at the DCM, including erosion and sediment control measures.
- To identify environmental values of the receiving waters that may be impacted.
- To identify the actual and potential risks of harm to natural water flows; the actual and potential risk of environmental harm posed by water contaminated by the mining activities; and for defined management actions that effectively minimise these risks.
- For a summarised site water balance.
- For results of the monitoring of surface and ground water quality, water levels in bores.
- Details of the roles and responsibilities for water management at the DCM.

Figure 5-1: Catchment Plan

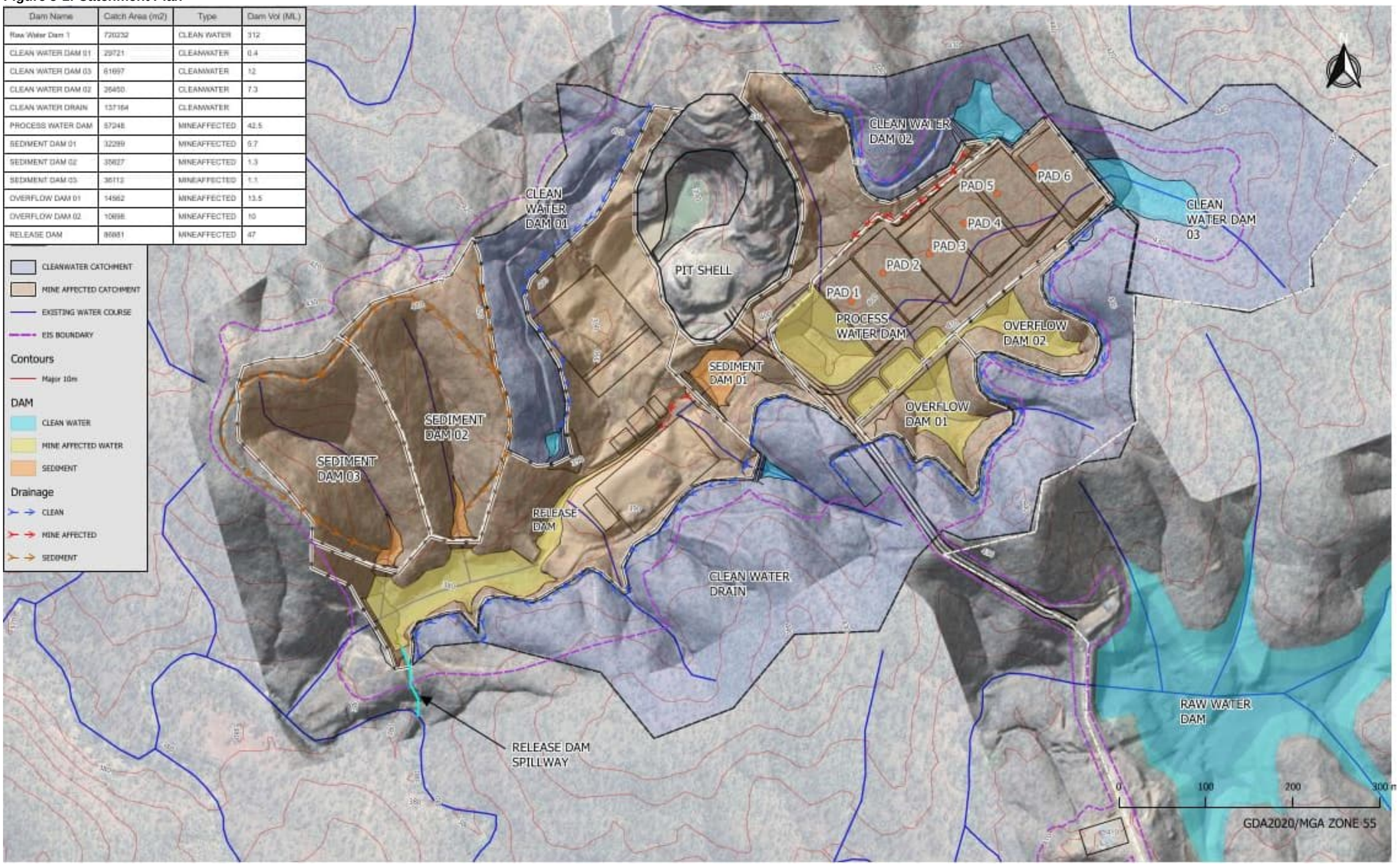


Figure 5-2: Monitoring Sites & Release Point

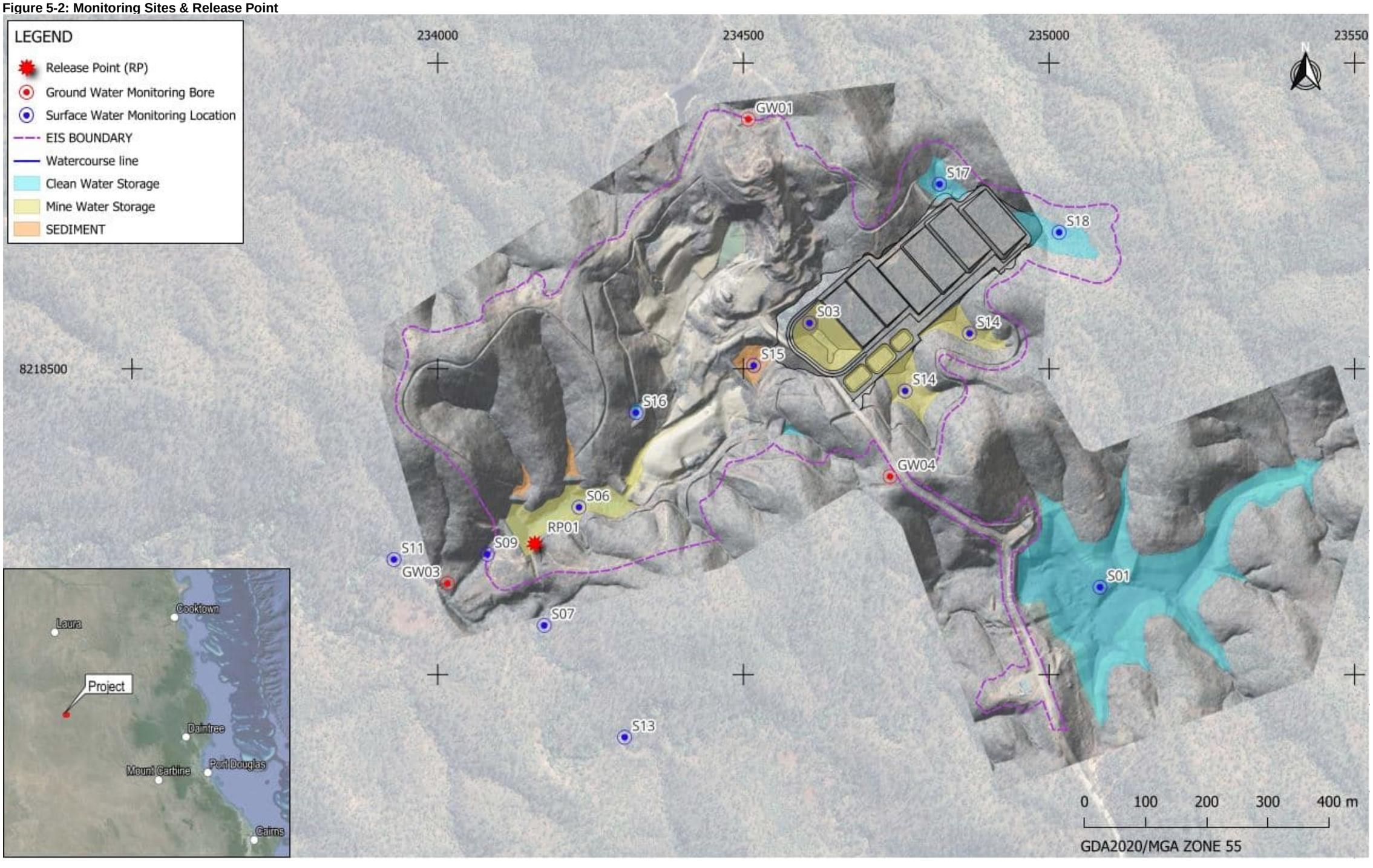
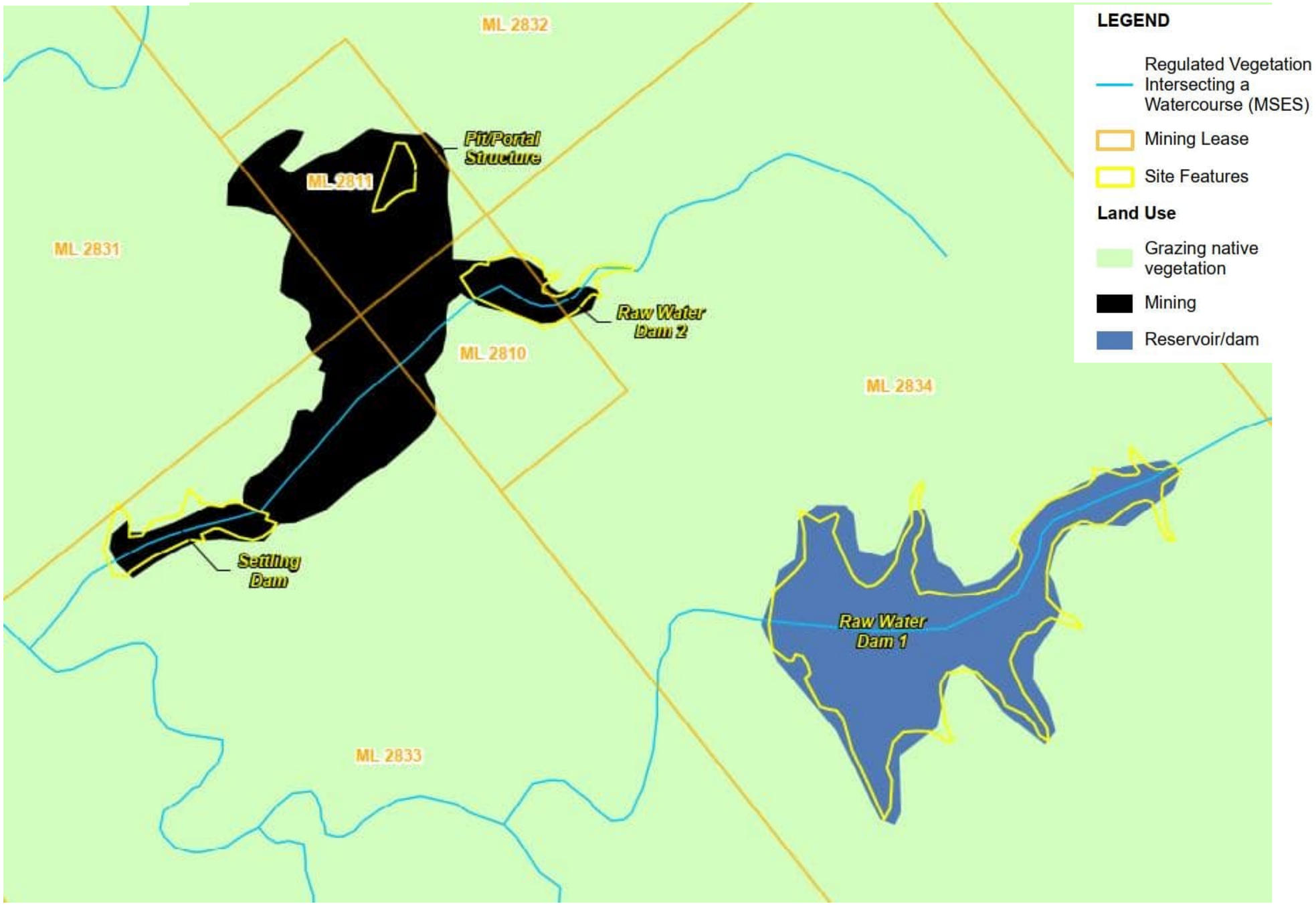


Figure 5-3: Land use (*SLR*)



6 Consequence Category Assessment

The following section discusses the Assessment Criteria from an overall site perspective. Each individual structure is assessed in detail separately to assign a risk. Most of the structures are new, with the exception of the Raw Water Dam 1 near the Mine Camp, and the Release Dam, which is to be raised, and the wall sealed with a GCL liner.

6.1 Assessment Criteria

According to the "*Manual for assessing consequence categories and Hydraulic Performance of Structure"* the existing CDA must be assessed for the following failure scenarios to reflect the new lift in the structure.

- Failure to Contain – Seepage
- Failure to Contain – Overtopping
- Dam Break

Figure 5-1 shows the individual structures to be constructed:

1- Process Water Dam
2- Process Ponds (PLS, ILS & Raffinate)
3- Overflow Dams 01 & 02
4- Sediment Dams 01, 02, & 03
5- Clean Water Cutoff Drains 1 & 2
6- Clean Water Dams 01, 02, & 03
7- Release Dam

Several of the structures function as a collective, including the Process Ponds (ILS, PLS & Raffinate Ponds) and the Overflow Dams (sitting in adjoining valleys), however, all have been summarised separately in order to provide a table of parameters that pertain to each separate structure. Clean Water Dams and cutoff drains are included in separate tables without the assessment under the requirements of the Manual. Sediment dams have been included in the assessment until it is confirmed whether these will contain Mine Affected Water or not.

Upon completion of an assessment, a structure will be allocated a consequence category for the scenarios identified under section 2.1.2 of the Manual. These consequence categories will be determined by applying Table 6-4 and assessing each failure event scenario.

For the above process structures, the "Failure to Contain—Seepage" criterion is assessed as "Low." The Appendices describe individual structures in more detail under individual tables.

To complete the assessment, it is necessary to discuss surface water quality, groundwater quality and water table, and geology (lithology, aquifers, recharge mechanism).

6.2 Surface Water Quality

The mine site is extensively disturbed having been run previously as a mine. Surface water quality is monitored in the Release Dam (S6), the Seepage Collection Well (S9), at Release Point 1 (RP1), the Pit (S4), the Raw Water Dam 1 at the Mine Camp (S1) and the Raw Water Dam 2 (where the Process Water Dam will be located) (S3). The locations of these monitoring and release points are portrayed on Figure 5-2. Table 6.1 Shows historic water quality included as reference estimates.

Table 6-1: Site Water Quality Summary *(Engeny WMP 2024)*

Location	Comments
S1 (Raw Water Dam 1)	Raw Water Dam 1 (S1) receives runoff from undisturbed catchments only and water quality results are typical of the water quality results recorded in the Gum Creek tributary upstream of RP1. Six exceedances of the copper Water Quality Objectives (WQO) and three exceedances of the zinc WQO from a total of 10 monitoring events were recorded at S1 which further supports the understanding that concentrations of some metals are elevated in broader (undisturbed) catchment runoff.
S3 (Raw Water Dam 2)	Raw Water Dam 2 (S3) currently receives runoff from undisturbed catchments only and water quality results are typical of the water quality results recorded in the Gum creek tributary upstream of RP1. Two exceedances of the Aluminium WQO, 10 exceedances of the Copper WQO and two exceedances of the Zinc WQO from a total of 10 monitoring events were recorded at S3 which further supports the understanding that concentrations of some metals are elevated in broader catchment runoff. An HDPE-lined Process Water Dam will be constructed where RWD2 is currently located, and clean water from further upstream in the catchment will be diverted around the area.
S4 (Pit)	Of the three water quality results available for the Pit (S4), all results exceeded the release Water Quality Objectives (WQO) for EC, cadmium, copper and zinc. However, unlike the water contained in the Release Dam (S6) (refer to discussion of S6 water quality data below), pH results were slightly above neutral and within the WQO range for pH, there were no exceedances of the aluminium WQO, and the metals concentrations were generally lower. The Pit will form part of the new mining operation for the Project.
S6 (Release Dam, previously referred to as the “Settling Dam”)	The Release Dam currently receives runoff from the Overburden Stockpile and disturbed areas across the site. Spills from the Pit and Raw Water Dam 2 also drain to the Release Dam however these are diverted around disturbed areas. S6 pH is typically low with only three of the 14 monitoring results being within the EA WQO range. All 14 EC results were above the WQO. Several exceedances of metal/metalloid release WQOs were recorded including aluminium (six of 14 results), cadmium (11 of 14 results), copper (all 14 results) and zinc (all 14 results) which is not unexpected given the waste rock materials within the Release Dam catchment. While waste rock

Location	Comments
	characterisation data was not available, it is understood that the waste rock and open cut excavation has been a historical source of acid mine drainage. TSS concentrations at S6 were low with a maximum result of 29 mg/L, however, higher TSS concentrations are likely to be recorded soon after high or prolonged rainfall events. The Release Dam will be rebuilt (including increased capacity and embankment remediation), desilted, the remediated capacity of the Release Dam will be increased, and the embankment will be remediated (to prevent seepage outflows) as part of the recommencement of operations at DCM. Contaminated sediment will be stored in a discrete compartment within the new waste rock dump.
S9 (Seepage Collection Well)	The Seepage Collection Well collects seepage through the Release Dam wall and as such, water captured at S9 is typical in terms of water quality characteristics of that at S6. All water captured in the Seepage Collection Well is currently returned to the Release Dam. The Release Dam embankment will be remediated to prevent seepage outflows to the Seepage Collection Well as part of the recommencement of operations at DCM.

Mining has the potential to have similar impacts on the receiving surface water environment as the existing care and maintenance operation. However, the pollutants that might be present in releases will include chemicals used for ore processing (e.g., sulfuric acid, and solvent). A catastrophic failure of a process liquid storage, drain, or pipe will be caught in the Release Dam, where it can be dealt with under best practice ongoing water management.

The catchment for the Release Dam includes a Rock Waste Dump within which will be placed a self-contained “cell” lined with a GCL liner that will contain the Mine’s general waste. This cell will be located where leachate can be collected in a small, lined sump for testing prior to release into the Release Dam.

The Water Management Plan provides details of the proposed upgraded WMS and its predicted performance.

6.3 Geology

The following is taken from the PCRP Report: *The Dianne Copper Mine is located within the Hodgkinson Province, consisting of elongated and deformed sedimentary deposits. The area has small, stratiform lenses of massive and layered pyrite-chalcopyrite-sphalerite.*

1:100,000 scale government mapping (Queensland Globe, 2021) shows the site comprises rhythmically interbedded fine to medium-grained arenite and mudstone (locally phyletic); minor conglomerate, minor chert and meta basalt; and rare limestone.

There are currently additional exploration works being undertaken which will further inform the geology of the site and will be used to update future revisions of this plan.

The 3 monitoring borehole logs bored in June 2022 show sandstone in numerous forms; from weathered fine grade up to 16m depth, siltstone, siltstone quartz, fractured sandstone, pyrite, all the way down to 80m depth. Water was struck at 48m, 63m, and 78m depth, rising up to 33m depth.

6.4 Ground Water

The QGlobe spatial data indicates 23 registered bores within 30km radius of DCM (*Water Management Plan – Engeny),* of which at least one is used for homestead water supply. Four of the bores have yields of 1 to 6l/s. Water monitoring bore records of borehole water depths indicate the water table is 25 to 29.3mbgl (metres below ground level). No registered groundwater boreholes exist within the bounds of the mining leases, or within a 10km radius.

The primary aquifer is within the fractured rock with recharge occurring vertically through fractures, veins, and dykes and, as such, groundwater quantity and quality is influenced by rainfall, soil characteristics and vegetative cover *(C&R Consulting, 2021C*).

The WMP indicates that there is currently no evidence of impact on groundwater down-gradient of DCM and provides groundwater quality results in Table 3.8 of that report.

The DCM Progressive Rehabilitation & Closure Plan PRCP_V3 (*2022)* reports that a groundwater monitoring programme commenced in 2022 with the drilling of 3 monitoring bores on the Mine (refer to Figure 5-2):

- DCM_GW01 located north and upstream of all mining activities – total depth of 86.5m, targeted Hodgkinson Formation – Fault.
- DCM_GW03 located downstream of mining activities including mine water management structures – total depth of 58 m, targeted Hodgkinson Formation – Fracture.
- DCM_GW04 located east and upstream of all mining activities – total depth of 83 m, targeted Hodgkinson Formation – Fracture.

Table 6-2: Monitoring Bore Details

Borehole ID	Casing RL (mAHD)	Depth to Bottom (m)	Water Depth (mbgl)	Ground Water RL (mAHD)
DC_GW01	423.1	86.5	32	391.1
DC_GW03	383.3	58	43	340.3
DC_GW04	421.7	83	33	388.7

6.5 Receiving Water

Water released from the DCM site drains to a tributary of Gum Creek. The WMP reports that due to the historically disturbed nature of the catchment, Gum Creek is considered to be moderately to highly disturbed, which influences the upstream and downstream water quality relative to the DCM site. Further, the highly mineralised geology of the catchment contributes to the elevated concentrations of some metals in surface water. Water quality of Gum Creek is monitored at 4 locations – S7 and S13 upstream of the tributary confluence, and S11 and S13 downstream of the confluence.

Release point RPI (Figure 5-2) remains located on the spillway of the dam now referred to as Release Dam 1 and conditions of release are shown in Table C1 of the EA.

Table 6-3: Schedule C - Table 1 (Release Point Location)

Release Point	Description of Release	Description of Source	Description of Receiving Waters	Co-ordinates GDA94 MGA Zone 55		Monitoring Frequency
				Easting	Northing	
RPI	Release Dam - formally "Settling Dam" Spillway	Drainage from mine catchment exiting via Settling Dam spillway	Drainage line originating at Raw Water Dam 1, passing the confluence of the Settling Dam spillway drainage line and reporting to Gum Creek	234159	8218214	For all parameters, 1 sample must be taken within 12 hours of a release event commencing and for events with duration of greater than 24 hours, samples must be taken daily for 1 week and once a week thereafter until the event

According to the WMP, releases will only occur during rainfall events affecting the broader catchment that will see flows in Gum Creek Tributary and the downstream Gum Creek, which will see estimated dilution ratios of 5:1. The remediation works, and the removal and reuse of the existing waste rock dump will likely improve the water quality in the dam and at the release point.

"Mineral Projects has installed flow gauging on the Release Dam spillway channel and at monitoring point S11 in the Gum Creek Tributary to provide an improved understanding of the dilution ratios during discrete off-site release events as well identify flow conditions in Gum Creek Tributary that would enable controlled releases from the DCM WMS in accordance with EA conditions." *(WMP 2023).*

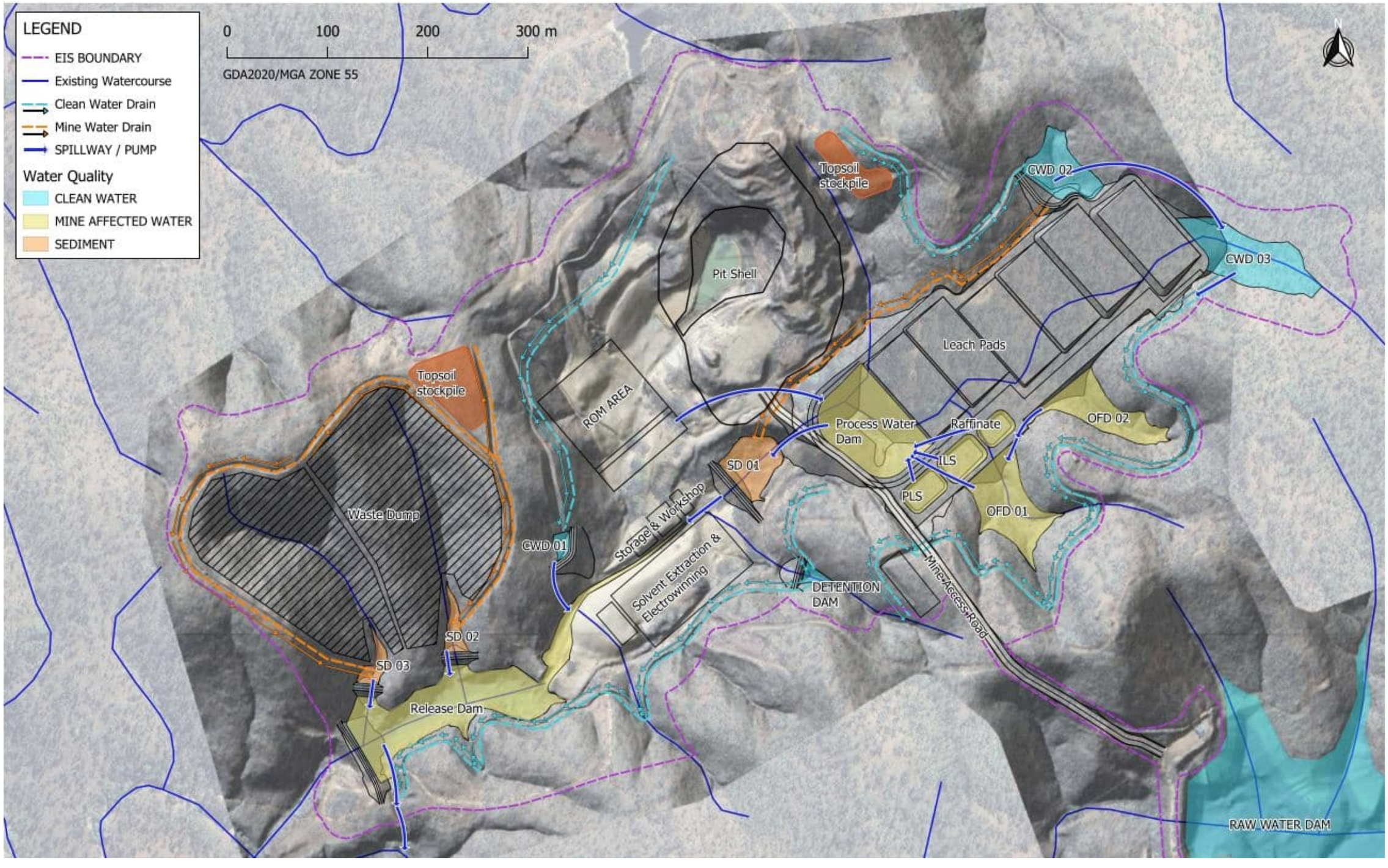
The WMP predicts that under operational scenarios, releases will occur in 15% of the 123 modelled climate scenarios, with a maximum modelled release over the 3-year operational life of the Mine of 45ML. The significant reduction in release volume and frequency will improve the Gum Creek Tributary water quality.

Table 6-4: Consequence Category Assessment CRITERIA (from The Manual)

Environmental Harm	High	Significant	Low
Harm to Humans	Location such that people are routinely present in the failure path and if present loss of life to greater than 10 people is expected. Note: The requirement to consider the location of people in the failure path is only relevant to the 'dam break' scenario	Location such that people are routinely present in the failure path and if present loss of life to 1 person or greater but less than 10 people is expected. Note: The requirement to consider the location of people in the failure path is only relevant to the 'dam break' scenario.	Location such that people are not routinely present in the failure path and loss of life is not expected. Note: The requirement to consider the location of people in the failure path is only relevant to the 'dam break' scenario.
	Location such that contamination of waters (surface and/or groundwater) used for human consumption could result in the health of 20 or more people being affected.	Location such that contamination of waters (surface and/or groundwater) used for human consumption could result in the health of 10 or more people but less than 20 people being affected.	Location such that contamination of waters (surface and/or groundwater) used for human consumption could result in the health of less than 10 people being affected.
General Environmental harm	Location such that: a) Contaminants may be released to areas of MNES, MSES or HEV waters that are not already authorised to be disturbed to at least the same extent under other conditions of this authority subject to any applicable offset commitment (Significant Values); and b) Adverse effects on Significant Values are likely; and c) The adverse effects are likely to cause at least one of the following: i) loss or damage or remedial costs greater than $50,000,000; or ii) ii) remediation of damage is likely to take 3 years or more; or iii) iii) permanent alteration to existing ecosystems; or iv) iv) the area of damage (including downstream effects) is likely to be at least 5km^2.	Location such that contaminants may be released so that adverse effects (that are not already authorised to be disturbed to at least the same extent under other conditions of the authority subject to any applicable offset commitment) either: a) Would be likely to be caused to Significant Values but those adverse effects would not be likely to meet the thresholds for the High consequence category and instead would be likely to cause at least one of the following: i) loss or damage or remedial costs greater than $10,000,000 but less than $50,000,000; or ii) remediation of damage is likely to take more than 6 months but less than 3 years; or iii) significant alteration to existing ecosystems; or iv)the area of damage (including downstream effects) is likely to be at least 1km^2 but less than 5km^2. or b) Would be likely to be caused to environmental values classed as slightly or moderately disturbed waters, wetland of general ecological significance, riverine areas, springs or lakes and associated flora and fauna (Moderate Values), and the adverse effects are likely to cause at least one of the following: i) loss or damage or remedial costs greater than $20,000,000; or ii) remediation of damage is likely to take more than 1 year; or iii) significant alteration to existing ecosystems; or iv) the area of damage (including downstream effects) is likely to be at least 2km^2	Location such that either: a) Contaminants are unlikely to be released to areas of Significant Values or Moderate Values; or b) Contaminants are likely to be released to those areas but would be unlikely to meet any of the minimum thresholds specified for the Significant Consequence Category for adverse effects.
General Economic loss or property damage	Location such that harm (other than a different category of harm as specified above) to third party assets in the failure path would be expected to require $10 million or greater in rehabilitation, compensation, repair, or rectification costs.	Location such that harm (other than a different category of harm as specified above) to third party assets in the failure path would be expected to require $1 million and greater but less than $10 million in rehabilitation, compensation, repair, or rectification costs.	Location such that harm (other than a different category of harm as specified above) to third party assets in the failure path would be expected to require less than $1 million in rehabilitation, compensation, repair, or rectification costs.

Figure 6-1: State-Mapped Regional Ecosystems

Figure 6-2: Layout showing Spill/Pump Direction



6.6 Failure to Contain – Seepage

Structures containing process water will be lined with an HDPE liner system to prevent the process water from coming into contact with the subgrade. Structures to be lined include:

- Process Ponds (PLS, ILS and Raffinate);
- Process (leach) Pads;
- Overflow Ponds;
- Process Water Dam (PWD); and
- Agglomeration Pad (near ROM Stockpile).

The underlying geology indicates sandstone in various forms to a depth of the base of the monitoring bores, 86m. Aquifers were intersected at 3 levels, with the water rising up to 30mbgl.

The primary aquifer is within the fractured rock with recharge occurring vertically through fractures, veins, and dykes and, as such, groundwater quantity and quality is influenced by rainfall, soil characteristics and vegetative cover *(C&R Consulting, 2021C*).

The WMP indicates that there is currently no evidence thus far of impact on groundwater down-gradient of DCM and provides groundwater quality results in Table 3.8 of that report.

Refer to Appendix A for the detailed assessments for each structure.

6.7 Failure to Contain – Overtopping

Two primary modes of failure to contain mine-affected water that have been considered are; overflow failure during a flood event, and management system failure.

It is noted that no identifiable surface water within the immediate reach of interest is used for human consumption.

There are two potential paths leading to an overflow event:

1. *Management system*: If the overtopping of the CDA is due to management system failure, the critical consequence will be during times of no flow in surrounding creeks to dilute the concentration of the mine affected water. This mode of failure is most likely to occur overnight when there is a lack of visibility, and it is more difficult to identify uncontrolled discharges early. If the nominal process flow rate between the process ponds and the electrowinning plant 10l/s (36m^3/hr), and a 12-hour flow period between 1800hrs and 0600 hrs, a total discharge volume of 0.43ML may spill in the event of a burst pipe outside of the lined process area and this water would flow straight into the Release Dam with its volume of 19ML.

2. *Flood Event*: In the leach process area there is a catchment area of 5.8ha that is distributed between the Process Water Dam and the two Overflow Dams, a combined volume of 66ML. A 10%AEP, 72hr rain event would deposit 240mm onto the catchment causing 13.9ML of water to be added to the dams. This provides an estimate of a heavy, sustained event that would test the ability of pumps that would be required to shift water around the three ponds. This volume equates to ±2m of water level rise in the Process Water Dam (13.9ML/6,724m^2=2.1m), which would be left as an informal DSA on the 1st of November each year and maintained through the wet season. The Mine would be incentivised not to release water from the PWD downstream or to the Mine Pit for two reasons:
    a. Mine affected water would be release into the dams downstream reducing water quality in the Release Dam; and
    b. Releasing water would result in a loss of copper bearing solution.

6.8 Dam Break

A cascade failure of dams causing the Release Dam to fail would result in a rapid release of up to 60ML of water, which would travel between 2 and 8km down Gum Creek, which is 14.6km from the Palmer River. No workers or general populace are permanently located downstream of the Mine and no loss of life is expected for a dam break of the Release Dam.

Water quality in the Release Dam will likely exceed the REMP trigger levels, however there are no areas of significant or Moderate Value along the creek for the impact distance and it is not expected that there will not be permanent or lasting effects on vegetation. Remediation costs are unlikely to meet the minimum threshold specifies for The Significant Consequence Category.

Dam-specific assessments are provided in Appendix A of this document, the results of which are summarised in Table below

- The Release Dam is an existing dam so will not be assessed for seepage as the amendment came into place after the dam was completed.
- The Process Ponds and the Process Water Dam will be HDPE lined to prevent the process water from coming into contact with the subgrade.
- There is a monitoring well (S9) immediately downstream of the Release Dam wall that is equipped with a pump to extract any seepage from beneath the wall and return it to the dam.

Table 6-5: Consequence Category Summary

Structures	Consequence Category		
	Seepage	Failure to Contain	Dam Break
Process Ponds	Low	Low	Low
Process Water Dam	Low	Low	Low
Overflow Ponds	Low	Low	Low
Settling Dams	Low	Low	Low
Mine Pit	N/A	Low	Low
Release Dam	N/A	Low	Low
Clean Water Dams	N/A	N/A	N/A

7 Conclusion

This assessment report has presented information on the proposed Mine development, the individual dams and they roles in the process, the underlying geology, surface runoff, receiving environment, monitoring bores and sample points. Appended to the report are preliminary design drawings with sufficient detail to allow confidence in the assessment and to provide a level of assurance that the detailed design and constructed mine will not vary significantly that it might affect the outcome of the assessment.

Appendix A provides a detailed summary of each structure and the details of the assessment as per the criteria listed in Table 6-4 as repeated from the Manual. Table 6-5 provides a summary of the findings of the Assessment.

8 Certification

8.1 Name of Registered Professional Engineer providing certification

Alan Malcolm Liddle

8.2 Address of Registered Professional Engineer providing certification

16 Bimbil Avenue Mount Colah NSW 2079

8.3 Statement of relevant experience

I hereby state that I am a Registered Professional Engineer of Queensland and meet the requirements of the definition of 'suitably qualified and experienced person'.
I have 36 years of experience in the Civil Engineering design industry and at least 10 years related to dams, sediment dams, co-disposal dams, lined ponds, mostly in the mining industry, at least ten years in Queensland with DESI related work.

8.4 Statement of certification

All relevant material relied upon by me, including subsidiary certifications of specialist components, where required by the environmental authority, is provided in the documents listed below:

- Environmental Authority EPML00881213 issued on 31/07/2023.
- Manual for Assessing Consequence Categories and Hydraulic Performance of Structures Version 5.03 – Effective Date: 23 Feb 2024
- Design Drawings J022.200.00-DWG-001.01 to J022.230.80-DWG-003-01 by Capital Consulting Engineers.

I hereby certify that this Consequence Category Assessment report entitled: Dianne Copper Mine Regulated Structures Preliminary Consequence Category Assessment, provides an assessment of the consequence category of the dam/structure/facility in accordance with the Manual published by the administering authority;
All information regarding limitations, restrictions or exclusions that apply to this certification are listed below: Dianne Copper Mine: Process Ponds, Process Water Dam, Overflow Dams 1 & 2, Sediment Dams 1, 2 & 3, Raw Water Dam 1 and the Release Dam
I, **Alan Malcolm Liddle**, declare that the information provided as part of this certification is true to the best of my knowledge. I acknowledge that it is an offence under section 480 of the *Environmental Protection Act 1994* to give the administering authority a document containing information that I know is false, misleading, or incomplete in a material particular.

Signed: Alan Liddle

RPEQ Number: 10563
15/02/2025

Appendix A

Individual CCA Assessments

Worksheet Title	**Dianne Copper Mine - Process Water Dam CCA**
R2247-AIC-CI-RP-300	**Revision** **A**
Water Storage Name	**Process Water Dam**

Overview

Functional Description	This dam is the primary raw water catchment and storage dam for the Mine.
Catchment Description	Catchment is undisturbe bushland
Outlet Description	A piped culvert spillway with an emergency overflow

Specifications

Item	Units	Value	Note
Easting (GDA2020)	m	234,950.0	
Northing (GDA2020)	m	8,218,160	
Catchment Area	ha	72	
Spillway (or Breakout Level)	mAHD	402	
Volume at Spillway	ML	312	
Wetted Area at Spillway	ha	0.6724	
Crest Level (mAHD)	mAHD	402.5	
Spills flows to:		Gum Creek Tributary	
Spill Diluting Catchment	ha	N/A	
Embankment Height	m	11.0	
Dam Break Volume	ML	3300.00	
Dam Break Flows to:		Gum Creek Tributary	S1
DSA Compliance Level	mRL	NA	S2
MRL Compliance Level	mRL	NA	

Expected Water quality in storage

Sample	Units	Receiving Waters Trigger (EA, Table 3)	Expected (S3) *(SLR CCA)*	Note
pH	-	6 - 8	6.7-7.5	
Electrical Conductivity	µS/cm	125	73	
Sulphate	mg/L	770	0.1	
Fluoride by ISE	mg/L	2	0.05	
Aluminium	mg/L	0.055	0.024	
Arsenic	mg/L	0.013	0.0015	
Boron	mg/L	0.37		
Cadmium	mg/L	0.0002	0.00005	
Chromium	mg/L	0.001	0.0005	
Copper	mg/L	0.0014	0.005	
Lead	mg/L	0.0034	0.005	
Manganese	mg/L	1.9	0.0025	
Mercury	mg/L	0.00006	0.000025	
Nickel	mg/L	0.011	0.002	
Selenium (Total)	mg/L	0.005		
Silver	mg/L	0.000053		
Zinc	mg/L	0.0083	0.03	
Cobalt	mg/L			
Iron	mg/L			
Potassium	mg/L			
Magnesium	mg/L			
Phosphorus	mg/L			
Sulphur	mg/L			
Silicon	mg/L			
Titanium	mg/L			
Calcium	mg/L			

Notes

S1	Dam Break will release to the Gum Creek Tributary affecting approximately 12km to the Gum Creek confluence
S2	There is no requirements to provide DSA as the water is not contaminated.
S3	These values have been taken from historical records taken from the previous CCA by SLR Consulting.
Q1	

Consequence Category Assessment

Item		Potential Impact	Item Rating	Criteria Rating
Failure to Contain - Seepage	**Harm to Human**	> The location is such that contamination of groundwater used for human consumption could result in the health of less than 10 people being affected: There are no nearby groundwater bores in use for human consumption.	Low	Low
	General Environmental Harm	> Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	Low	
	General Economic Loss or Property Damage	> Location such that harm to third party assets in the failure path would be expected to require less than $1 million in rehabilitation, compensation, repair or rectification costs. The Dam has located in the middle of mining area.	Low	
Failure to Contain - Overtopping	**Harm to Human**	> Location such that contamination of surface waters used for human consumption could result in the health of less than 10 people.	Low	Low
	General Environmental Harm	> In case the dam overtopped due to the Flood or Management failure, the spill will reach to the downstream dam (Sediment Dam 1) and will contain within this dam.	Low	
	General Economic Loss or Property Damage	> No identifiable third party assets likely to be affected by an overtopping event. > Compensation not expected to exceed $1 million.	Low	
Dam Break	**Harm to Human**	> The Population at Risk (PAR) is not routinely present in the failure path, and loss of life is not expected. > In the unlikely event of a sunny-day failure, the released water will be captured by the downstream Sediment Dam 1 and Release Dam. According to Table 5 of the Guidelines for Failure Impact Assessment of Water Dams, the failure impact zone distance for a 27.36 ML dam break is estimated to be 0.6 km. There is no evidence of inhabitants within this zone.	Low	Low
	General Environmental Harm	> Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	Low	
	General Economic Loss or Property Damage	> No third party assets have been noted downstream of this dam. The Process Water dam has been located in the middle of the Dianne Mining area.	Low	

DSA Design Standard	N/A
ESS/MRL Design Standard	N/A
Spillway Design Standard	1%AEP

Regulated Status	Non - Regulated
Consequence Category	Low

Worksheet Title	**Dianne Copper Mine - Process Ponds CCA**
R2247-AIC-CI-RP-307	**Revision** **A**
Water Storage Name	**Process Ponds Raffinate, ILS and PLS**

Overview

Functional Description	The process ponds comprise a set of 3 HDPE lined ponds that sit at the lower end of 6 process (leach) pads. The Pregnant Liquor Storage (PLS), Intermediate Liquor Storage (ILS), and Raffinate Pond collect leachate from the individual pads that are heaped with agglomerated ore and sprayed with a sulphuric acid solution that percolates through the ore. The pads are HDPE lined such that when the leachate reaches the base of the heap it drains to the lower edge of the pad and into either the PLS pond or the ILS pond. These ponds are fed from pipes that drain the leachate off the pads, so the rate of flow reaching the ponds is regulated by the rate being sprayed onto the heaps of ore. In a rain event the rate of flow will increase and the flow into the ponds is limited by the diameter of the pipes draining off the pads. Excess flow from the rain is captured by additional spillway pipes that drain the additional (diluted) water off the pads and into the HDPE lined Overflow Ponds and Process Water Dam. In this manner the concentrate in the process ponds is maintained and the dilute liquor is temporarily stored in the overflow dams ready for recirculation through the heaped leach pads after the storm event.
Catchment Description	The catchment for each pond varies depending on how many pads are draining into which pond. The flow rate will depend on the rate being sprayed onto the heaped leach pads.
Outlet Description	Process Liquor is pumped to the Electrowinning plant from the PLS Pond, is return-pumped from the Electrowinning Plant to the Raffinate Pond, and is pumped onto the leach pads from the PLS, ILS and Rafinate Ponds.

Specifications

Item	Units	Value			Note
		RAFFINATE	ILS	PLS	
Easting (GDA2020)	m	234,629.0			
Northing (GDA2020)	m	8,218,569			
Catchment Area	ha				
Spillway (or Breakout Level)	mAHD	408.7	407.5	407.5	
Volume at Spillway	ML	0.75	1.7	1.5	
Wetted Area at Spillway	ha	0.07	0.13	0.11	
Crest Level (mAHD)	mAHD	410.3	409.1	408	
Spills flows to:		Process Water Dam			
Spill Diluting Catchment	ha	-	-	-	
Embankment Height	m	2.8	3.1	2.0	
Dam Break Volume	ML	0.75	1.70	1.50	
Dam Break Flows to:		Process Water Dam			
DSA Compliance Level	mRL	NA			S2
MRL Compliance Level	mRL	NA			

Expected Water quality in storage

Sample	Units	Receiving Waters Trigger (EA, Table 3)	Expected (S3)	Note
pH	-	6 - 8		
Electrical Conductivity	µS/cm	125		
Sulphate	mg/L	770		
Fluoride by ISE	mg/L	2		
Aluminium	mg/L	0.055	309	
Arsenic	mg/L	0.013		
Boron	mg/L	0.37		
Cadmium	mg/L	0.0002		
Chromium	mg/L	0.001	0	
Copper	mg/L	0.0014	5187	
Lead	mg/L	0.0034		
Manganese	mg/L	1.9	26	
Mercury	mg/L	0.00006		
Nickel	mg/L	0.011		
Selenium (Total)	mg/L	0.005		
Silver	mg/L	0.000053	186	
Zinc	mg/L	0.0083	105	
Cobalt	mg/L		3	
Iron	mg/L		1384	
Potassium	mg/L		48	
Magnesium	mg/L		156	
Phosphorus	mg/L		14	
Sulphur	mg/L		4231	
Silicon	mg/L		186	
Titanium	mg/L		1	
Calcium	mg/L		181	

Notes

S1	Dam Break will release to the Process Water Dam
S2	There is no requirements to provide DSA
S3	These values are taken from a PLS sample for a similar facility *(Spreadsheet B2402 SOW#1 OXIDE BR1 FLL.xlsx)*
Q1	

Consequence Category Assessment

Item		Potential Impact	Item Rating	Criteria Rating
Failure to Contain - Seepage	**Harm to Human**	> The location is such that contamination of groundwater used for human consumption could result in the health of less than 10 people being affected: There are no nearby groundwater bores in use for human consumption.	Low	Low
	General Environmental Harm	> Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	Low	
	General Economic Loss or Property Damage	> Location such that harm to third party assets in the failure path would be expected to require less than $1 million in rehabilitation, compensation, repair or rectification costs. The Dam has located in the middle of mining area.	Low	
Failure to Contain - Overtopping	**Harm to Human**	> Location such that contamination of surface waters used for human consumption could result in the health of less than 10 people.	Low	Low
	General Environmental Harm	> In case the dam overtopped due to the Flood or Management failure, the spill will reach to the downstream dam (Process Water Dam) and will contain within this dam.	Low	
	General Economic Loss or Property Damage	> No identifiable third party assets likely to be affected by an overtopping event. > Compensation not expected to exceed $1 million.	Low	
Dam Break	**Harm to Human**	> The Population at Risk (PAR) is not routinely present in the failure path, and loss of life is not expected. > In the unlikely event of a sunny-day failure, the released water will be captured by the Process Water Dam	Low	Low
	General Environmental Harm	> Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	Low	
	General Economic Loss or Property Damage	> No third party assets have been noted downstream of this dam. The Process Water dam has been located in the middle of the Dianne Mining area.	Low	

DSA Design Standard	N/A
ESS/MRL Design Standard	N/A
Spillway Design Standard	1%AEP

Regulated Status	Non - Regulated
Consequence Category	Low

Worksheet Title	**Dianne Copper Mine - Overflow Dam 1 CCA**
R2247-AIC-CI-RP-301	**Revision A**
Water Storage Name	**Overflow Dam 01**

Overview

Functional Description	Structure acts as a buffer storage for mine-affected water off the leach pads during rain events to prevent the dilution of liquid product in the ILS, PLS and Raffinate Ponds. The liquid product in this dam will be more dilute than the liquid in the 3 process ponds (PLS, ILS & Raffinate) due to the rainfall on the pads being redirected therein. As with the pads, process ponds and overflow dams, this dam will be lined with an HDPE membrane, to avoid contact with the underlying subgrade and seepage to aquifers.
Catchment Description	A small catchment area of 1.1 ha from the leach pads will contribute runoff to this dam, the proposed Clean Water drain will deflect clean water from the south from entering the dam, effectively reducing the catchment size.
Outlet Description	A spillway pipe will decant from this dam into Process Water Dam via an HDPE decant pipe. This dam 1 will pump into Overflow Dam 2.

Specifications

Item	Units	Value	Note
Easting (GDA2020)	m	234,775	
Northing (GDA2020)	m	8,218,533	
Catchment Area	ha	1.1	
Spillway (or Breakout Level)	mAHD	407	
Volume at Spillway	ML	13.5	
Wetted Area at Spillway	ha	0.48	
Crest Level (mAHD)	mAHD	408	
Spills flows to:		Process Water Dam	
Spill Diluting Catchment	ha	-	
Embankment Height	m	7.5	
Dam Break Volume	ML	0	S1
Dam Break Flows to:		-	
DSA Compliance Level	mRL	NA	S2
MRL Compliance Level	mRL	NA	

Expected Water quality in storage

Sample	Units	Receiving Waters Trigger (EA, Table 3)	Expected (S3)	Note
pH	-	6 - 8		
Electrical Conductivity	µS/cm	125		
Sulphate	mg/L	770		
Fluoride by ISE	mg/L	2		
Aluminium	mg/L	0.055	309	
Arsenic	mg/L	0.013		
Boron	mg/L	0.37		
Cadmium	mg/L	0.0002		
Chromium	mg/L	0.001	0	
Copper	mg/L	0.0014	5187	
Lead	mg/L	0.0034		
Manganese	mg/L	1.9	26	
Mercury	mg/L	0.00006		
Nickel	mg/L	0.011		
Selenium (Total)	mg/L	0.005		
Silver	mg/L	0.000053	186	
Zinc	mg/L	0.0083	105	
Cobalt	mg/L		3	
Iron	mg/L		1384	
Potassium	mg/L		48	
Magnesium	mg/L		156	
Phosphorus	mg/L		14	
Sulphur	mg/L		4231	
Silicon	mg/L		186	
Titanium	mg/L		1	
Calcium	mg/L		181	

Notes

S1	The 50m-wide Leachate Pad serves as a "Dam Wall", making a dam break unlikely
S2	There is no requirement for a DSA, however, it is recommended that Mine lower the water level 600mm below the spillway level prior the start of wet season (1st November) for 10%AEP - 72hr rainfall event (240mm)
S3	These values are taken from a PLS sample for a similar facility *(Spreadsheet B2402 SOW#1 OXIDE BR1 FLL.xlsx)* This dam is likely to exhibit water quality results values better than the PLS sample as this dam will be fed from overflow from the leachate pads during rainfall events. These figures will be updated after the plant commences operation.
Q1	

Consequence Category Assessment

Item		Potential Impact	Item Rating	Criteria Rating
Failure to Contain - Seepage	**Harm to Human**	> The location is such that contamination of groundwater used for human consumption could result in the health of less than 10 people being affected (There are No groundwater bores in use for human consumption).	Low	Low
	General Environmental Harm	> Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	low	
	General Economic Loss or Property Damage	> Location such that harm to third party assets in the failure path would be expected to require less than $1 million in rehabilitation, compensation, repair or rectification costs. The Dam has located in the middle of mining area.	Low	
Failure to Contain - Overtopping	**Harm to Human**	> Location such that contamination of surface waters used for human consumption could result in the health of less than 10 people.	Low	Low
	General Environmental Harm	> In case the dam overtopped due to the Flood or Management failure, the spill will reach to the Process Dam and will contain within this dam. > Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	Low	
	General Economic Loss or Property Damage	> No identifiable third party assets likely to be affected by an overtopping event. > Compensation not expected to exceed $1 million.	Low	
Dam Break	**Harm to Human**	N/A	Low	Low
	General Environmental Harm	N/A	Low	
	General Economic Loss or Property Damage	N/A	Low	

DSA Design Standard	N/A
ESS/MRL Design Standard	N/A
Spillway Design Standard	1%AEP

Regulated Status	Non - Regulated
Consequence Category	Low

Worksheet Title	**Dianne Copper Mine - Overflow Dam 2 CCA**
R2247-AIC-CI-RP-302	**Revision A**
Water Storage Name	**Overflow Dam 02**

Overview

Functional Description	Structure acts as a buffer storage for mine-affected water off the leach pads during rain events to prevent the dilution of liquid product in the ILS, PLS and Raffinate Ponds. The liquid product in this dam will be more dilute than the liquid in the 3 process ponds (PLS, ILS & Raffinate) due to the rainfall on the pads being redirected therein. As with the pads, process ponds and overflow dams, this dam will be lined with an HDPE membrane, to avoid contact with the underlying subgrade and seepage to aquifers.
Catchment Description	A small catchment area of 0.9 ha from the leach pads will contribute runoff to this dam; the proposed Clean Water drain will deflect clean water from the south from entering the dam, effectively reducing the catchment size.
Outlet Description	A spillway pipe will decant from this dam into Overflow Dam 1, either with a pipe or a rock lined spillway.

Specifications

Item	Units	Value	Note
Easting (GDA2020)	m	234,809	
Northing (GDA2020)	m	8,218,576	
Catchment Area	ha	0.9	
Spillway (or Breakout Level)	mAHD	410	
Volume at Spillway	ML	10	
Wetted Area at Spillway	ha	0.37	
Crest Level (mAHD)	mAHD	411	
Spills flows to:		Overflow Dam 01	
Spill Diluting Catchment	ha	-	
Embankment Height	m	12.5	
Dam Break Volume	ML	NA	S1
Dam Break Flows to:		Overflow Dam 01	
DSA Compliance Level	mRL	NA	S2
MRL Compliance Level	mRL	NA	

Expected Water quality in storage

Sample	Units	Receiving Waters Trigger (EA Table 3)	Expected (S3)	Note
pH	-	6 - 8		
Electrical Conductivity	µS/cm	125		
Sulphate	mg/L	770		
Fluoride by ISE	mg/L	2		
Aluminium	mg/L	0.055	309	
Arsenic	mg/L	0.013		
Boron	mg/L	0.37		
Cadmium	mg/L	0.0002		
Chromium	mg/L	0.001	0	
Copper	mg/L	0.0014	5187	
Lead	mg/L	0.0034		
Manganese	mg/L	1.9	26	
Mercury	mg/L	0.00006		
Nickel	mg/L	0.011		
Selenium (Total)	mg/L	0.005		
Silver	mg/L	0.000053	186	
Zinc	mg/L	0.0083	105	
Cobalt	mg/L		3	
Iron	mg/L		1384	
Potassium	mg/L		48	
Magnesium	mg/L		156	
Phosphorus	mg/L		14	
Sulphur	mg/L		4231	
Silicon	mg/L		186	
Titanium	mg/L		1	
Calcium	mg/L		181	

Notes

S1	The 50m-wide Leachate Pad serves as a "Dam Wall", making a dam break unlikely
S2	There is no requirement for a DSA, however, it is recommended that Mine lower the water level 500mm below the spillway level prior the start of wet season (1st November) for 10%AEP - 72hr rainfall event (240mm)
S3	These values are taken from a PLS sample for a similar facility *(Spreadsheet B2402 SOW#1 OXIDE BR1 FLL.xlsx)* This dam is likely to exhibit water quality results values better than the PLS sample as this dam will be fed from overflow from the leachate pads during rainfall events. These figures will be updated after the plant commences operation.
Q1	

Consequence Category Assessment

Item		Potential Impact	Item Rating	Criteria Rating
Failure to Contain - Seepage	**Harm to Human**	> The location is such that contamination of groundwater used for human consumption could result in the health of less than 10 people being affected (There are No groundwater bores in use for human consumption).	Low	Low
	General Environmental Harm	> Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	low	
	General Economic Loss or Property Damage	> Location such that harm to third party assets in the failure path would be expected to require less than $1 million in rehabilitation, compensation, repair or rectification costs. The Dam has located in the middle of mining area.	Low	
Failure to Contain - Overtopping	**Harm to Human**	> Location such that contamination of surface waters used for human consumption could result in the health of less than 10 people.	Low	Low
	General Environmental Harm	> In case the dam overtopped due to the Flood or Management failure, the spill will reach to Overflow Dam 1 and will contain within this dam. > Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	Low	
	General Economic Loss or Property Damage	> No identifiable third party assets likely to be affected by an overtopping event. > Compensation not expected to exceed $1 million.	Low	
Dam Break	**Harm to Human**	N/A	Low	Low
	General Environmental Harm	N/A	Low	
	General Economic Loss or Property Damage	N/A	Low	

DSA Design Standard	N/A
ESS/MRL Design Standard	N/A
Spillway Design Standard	1%AEP

Regulated Status	Non - Regulated
Consequence Category	Low

Worksheet Title	**Dianne Copper Mine - Sediment Dam 1 CCA**
R2247-AIC-CI-RP-303	**Revision A**
Water Storage Name	**Sediment Dam 01**

Overview

Functional Description	Sediment Dam 1 captures Mine Affected runoff from the PWD, Mine Access Road and the area surrounding the Leachate Pad. This dam has been designed to contain the 5-day, 95th percentile rainfall event with a sediment storage zone allowance equal to 50% of the settling zone volume. The dam is expected to require periodic desilting, with silt being disposed of in the waste dump to the southeast corner of the Mine Lease.
Catchment Description	The catchment to this dam is PWD, Mine Access Road and the area surrounding the Leachate Pad
Outlet Description	The dam will comprise an earth embankment with a rock lined spillway on the northern end of the wall, directing flow into the Release Dam.

Specifications

Item	Units	Value	Note
Easting (GDA2020)	m	234,547	
Northing (GDA2020)	m	8,218,520	
Catchment Area	ha	3.02	
Spillway (or Breakout Level)	mAHD	391	
Volume at Spillway	ML	5.7	
Wetted Area at Spillway	ha	0.26	
Crest Level (mAHD)	mAHD	392	
Spills flows to:		Release dam	
Spill Diluting Catchment	ha	-	
Embankment Height	m	5.2	
Dam Break Volume	ML	5.7	
Dam Break Flows to:		Release dam	S1
DSA Compliance Level	mRL	NA	S2
MRL Compliance Level	mRL	NA	

Expected Water quality in storage

Sample	Units	Receiving Waters Trigger (EA, Table 3)	Expected (S3)	Note
pH	-	6 - 8	7	
Electrical Conductivity	µS/cm	125	60	
Sulphate	mg/L	770	0.4	
Fluoride by ISE	mg/L	2	0.05	
Aluminium	mg/L	0.055	0.02	
Arsenic	mg/L	0.013	0.0015	
Boron	mg/L	0.37	0.02	
Cadmium	mg/L	0.0002	0.00005	
Chromium	mg/L	0.001	0.0005	
Copper	mg/L	0.0014	0.01	
Lead	mg/L	0.0034	0.0005	
Manganese	mg/L	1.9	0.0025	
Mercury	mg/L	0.00006	0.000025	
Nickel	mg/L	0.011	0.001	
Selenium (Total)	mg/L	0.005	0.001	
Silver	mg/L	0.000053	0.00005	
Zinc	mg/L	0.0083	0.01	
Cobalt	mg/L			
Iron	mg/L			
Potassium	mg/L			
Magnesium	mg/L			
Phosphorus	mg/L			
Sulphur	mg/L			
Silicon	mg/L			
Titanium	mg/L			
Calcium	mg/L			

Notes

S1	Dam Break will release to Release Dam
S2	There is no requirements to provide DSA, however, it is recommended that Mine lower the water level 0.65m below the spillway level prior the start of wet season (1st November) for 10%AEP - 1hr rainfall event (54mm)
S3	- The water quality in this dam will echo the catchment, being not mine-affected, but potentially carrying a sediment load from the access road and part of the quarry area. - Water quality results for the sediment dams have been taken from historical values for the two raw water dams on site and the values from - In the unlikely event of a spill from the Process Water Dam, water can be held and tested prior to release into the Release Dam. - Sediment removed from dam will be disposed of in the Mine Waste Dump.
Q1	

Consequence Category Assessment

Item		Potential Impact	Item Rating	Criteria Rating
Failure to Contain - Seepage	**Harm to Human**	> The location is such that contamination of groundwater used for human consumption could result in the health of less than 10 people being affected (There are No groundwater bores in use for human consumption).	Low	Low
	General Environmental Harm	> Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	low	
	General Economic Loss or Property Damage	> Location such that harm to third party assets in the failure path would be expected to require less than $1 million in rehabilitation, compensation, repair or rectification costs. The Dam has located in the middle of mining area.	Low	
Failure to Contain - Overtopping	**Harm to Human**	> Location such that contamination of surface waters used for human consumption could result in the health of less than 10 people.	Low	Low
	General Environmental Harm	> In case the dam overtopped due to the Flood or Management failure, the spill will reach to the downstream dam (Release Dam) and will contain within this dam.	Low	
	General Economic Loss or Property Damage	> No identifiable third party assets likely to be affected by an overtopping event. > Compensation not expected to exceed $1 million.	Low	
Dam Break	**Harm to Human**	> The Population at Risk (PAR) is not routinely present in the failure path, and loss of life is not expected. > In the unlikely event of a sunny-day failure, the released water will be captured by Release Dam. According to Table 5 of the Guidelines for Failure Impact Assessment of Water Dams, the failure impact zone distance for a 5.7 ML dam break is estimated to be ~70m that is not even will reach to Release Dam.	Low	Low
	General Environmental Harm	> Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	Low	
	General Economic Loss or Property Damage	> No third party assets have been noted downstream of this dam. The Sediment Dam 1 has been located in the middle of the Dianne Mining area.	Low	

DSA Design Standard	N/A
ESS/MRL Design Standard	N/A
Spillway Design Standard	1%AEP

Regulated Status	Non - Regulated
Consequence Category	Low

Worksheet Title	**Dianne Copper Mine - Sediment Dam 2 CCA**
R2247-AIC-CI-RP-304	**Revision A**
Water Storage Name	**Sediment Dam 02**

Overview

Functional Description	Sediment Dam 2 captures Mine Affected runoff from the Mine Waste Dump via the eastern catchment drain. This dam has been designed to contain the 5-day, 95th percentile rainfall event with a sediment storage zone allowance equal to 50% of the settling zone volume. The dam is expected to require periodic desilting, with silt being disposed of in the Mine Waste Dump to the southeast corner of the Mine Lease.
Catchment Description	Mine Affected runoff from the Mine Waste Dump via the eastern catchment drain
Outlet Description	The dam will comprise an earth embankment with a rock lined spillway on the northern end of the wall, directing flow into the Release Dam.

Specifications

Item	Units	Value	Note
Easting (GDA2020)	m	234,206	
Northing (GDA2020)	m	8,218,318	
Catchment Area	ha	3.6	
Spillway (or Breakout Level)	mAHD	387	
Volume at Spillway	ML	1.3	
Wetted Area at Spillway	ha	0.08	
Crest Level (mAHD)	mAHD	388	
Spills flows to:		Release Dam	
Spill Diluting Catchment	ha	-	
Embankment Height	m	4.59	
Dam Break Volume	ML	1.3	
Dam Break Flows to:		Release Dam	S1
DSA Compliance Level	mRL	NA	
MRL Compliance Level	mRL	NA	

Expected Water quality in storage

Sample	Units	Receiving Waters Trigger (EA, Table 3)	Expected (S2)	Note
pH	-	6 - 8	7	
Electrical Conductivity	µS/cm	125	60	
Sulphate	mg/L	770	0.4	
Fluoride by ISE	mg/L	2	0.05	
Aluminium	mg/L	0.055	0.02	
Arsenic	mg/L	0.013	0.0015	
Boron	mg/L	0.37	0.02	
Cadmium	mg/L	0.0002	0.00005	
Chromium	mg/L	0.001	0.0005	
Copper	mg/L	0.0014	0.01	
Lead	mg/L	0.0034	0.0005	
Manganese	mg/L	1.9	0.0025	
Mercury	mg/L	0.00006	0.000025	
Nickel	mg/L	0.011	0.001	
Selenium (Total)	mg/L	0.005	0.001	
Silver	mg/L	0.000053	0.00005	
Zinc	mg/L	0.0083	0.01	
Cobalt	mg/L			
Iron	mg/L			
Potassium	mg/L			
Magnesium	mg/L			
Phosphorus	mg/L			
Sulphur	mg/L			
Silicon	mg/L			
Titanium	mg/L			
Calcium	mg/L			

Notes

S1	Dam Break will flow to the Release Dam
S2	There is no requirements to provide DSA, however, it is recommended that Mine lower the water level 0.65m below the spillway level prior the start of wet season (1st November) for 10%AEP - 1hr rainfall event (54mm)
S3	- The water quality in this dam will echo the catchment, being not mine-affected, but potentially carrying a sediment load from the access road and part of the quarry area. - Water quality results for the sediment dams have been taken from historical values for the raw water dams on site. - In the unlikely event of a spill from the Process Water Dam, water can be held and tested prior to release into the Release Dam. - Sediment removed from dam will be disposed of in the Mine Waste Dump.
Q1	

Consequence Category Assessment

Item		Potential Impact	Item Rating	Criteria Rating
Failure to Contain - Seepage	**Harm to Human**	> The location is such that contamination of groundwater used for human consumption could result in the health of less than 10 people being affected (There are No groundwater bores in use for human consumption).	Low	Low
	General Environmental Harm	> Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	low	
	General Economic Loss or Property Damage	> Location such that harm to third party assets in the failure path would be expected to require less than $1 million in rehabilitation, compensation, repair or rectification costs. The Dam has located in the middle of mining area.	Low	
Failure to Contain - Overtopping	**Harm to Human**	> Location such that contamination of surface waters used for human consumption could result in the health of less than 10 people.	Low	Low
	General Environmental Harm	> In case the dam overtopped due to the Flood or Management failure, the spill will reach to the downstream dam (Release Dam) and will contain within this dam.	Low	
	General Economic Loss or Property Damage	> No identifiable third party assets likely to be affected by an overtopping event. > Compensation not expected to exceed $1 million.	Low	
Dam Break	**Harm to Human**	> The Population at Risk (PAR) is not routinely present in the failure path, and loss of life is not expected. > In the unlikely event of a sunny-day failure, the released water will be captured by Release Dam.	Low	Low
	General Environmental Harm	> Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	Low	
	General Economic Loss or Property Damage	> No third party assets have been noted downstream of this dam. The Sediment Dam 1 has been located in the middle of the Dianne Mining area.	Low	

DSA Design Standard	N/A
ESS/MRL Design Standard	N/A
Spillway Design Standard	1%AEP

Regulated Status	Non - Regulated
Consequence Category	Low

Worksheet Title	**Dianne Copper Mine - Sediment Dam 3 CCA**
R2247-AIC-CI-RP-305	**Revision A**
Water Storage Name	**Sediment Dam 03**

Overview

Functional Description	Sediment Dam 2 captures Mine Affected runoff from the Mine Waste Dump via the western catchment drain. This dam has been designed to contain the 5-day, 95th percentile rainfall event with a sediment storage zone allowance equal to 50% of the settling zone volume. The dam is expected to require periodic desilting, with silt being disposed of in the Mine Waste Dump to the southeast corner of the Mine Lease.
Catchment Description	Mine Affected runoff from the Mine Waste Dump via the western catchment drain
Outlet Description	The dam wall consists of an embankment with a spillway that directs flow into the Release Dam.

Specifications

Item	Units	Value	Note
Easting (GDA2020)	m	234,146.78	
Northing (GDA2020)	m	8,218,285.93	
Catchment Area	ha	4.5	
Spillway (or Breakout Level)	mAHD	387	
Volume at Spillway	ML	1.1	
Wetted Area at Spillway	ha	0.07	
Crest Level (mAHD)	mAHD	388	
Spills flows to:		Release Dam	
Spill Diluting Catchment	ha	-	
Embankment Height	m	7.2	
Dam Break Volume	ML	1.1	
Dam Break Flows to:		Release Dam	S1
DSA Compliance Level	mRL	NA	
MRL Compliance Level	mRL	NA	

Expected Water quality in storage

Sample	Units	Receiving Waters Trigger (EA, Table 3)	Expected (S2)	Note
pH	-	6 - 8	7	
Electrical Conductivity	µS/cm	125	60	
Sulphate	mg/L	770	0.4	
Fluoride by ISE	mg/L	2	0.05	
Aluminium	mg/L	0.055	0.02	
Arsenic	mg/L	0.013	0.0015	
Boron	mg/L	0.37	0.02	
Cadmium	mg/L	0.0002	0.00005	
Chromium	mg/L	0.001	0.0005	
Copper	mg/L	0.0014	0.01	
Lead	mg/L	0.0034	0.0005	
Manganese	mg/L	1.9	0.0025	
Mercury	mg/L	0.00006	0.000025	
Nickel	mg/L	0.011	0.001	
Selenium (Total)	mg/L	0.005	0.001	
Silver	mg/L	0.000053	0.00005	
Zinc	mg/L	0.0083	0.01	
Cobalt	mg/L			
Iron	mg/L			
Potassium	mg/L			
Magnesium	mg/L			
Phosphorus	mg/L			
Sulphur	mg/L			
Silicon	mg/L			
Titanium	mg/L			
Calcium	mg/L			

Notes

S1	Dam Break will flow to the Release Dam
S2	There is no requirements to provide DSA, however, it is recommended that Mine lower the water level 0.65m below the spillway level prior the start of wet season (1st November) for 20%AEP - 1hr rainfall event (54mm)
S3	- The water quality in this dam will echo the catchment, being not mine-affected, but potentially carrying a sediment load from the access road and part of the quarry area. - Water quality results for the sediment dams have been taken from historical values for the raw water dams on site. - In the unlikely event of a spill from the Process Water Dam, water can be held and tested prior to release into the Release Dam. - Sediment removed from dam will be disposed of in the Mine Waste Dump.
Q1	

Consequence Category Assessment

Item		Potential Impact	Item Rating	Criteria Rating
Failure to Contain - Seepage	**Harm to Human**	> The location is such that contamination of groundwater used for human consumption could result in the health of less than 10 people being affected (There are No groundwater bores in use for human consumption).	Low	Low
	General Environmental Harm	> Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	low	
	General Economic Loss or Property Damage	> Location such that harm to third party assets in the failure path would be expected to require less than $1 million in rehabilitation, compensation, repair or rectification costs. The Dam has located in the middle of mining area.	Low	
Failure to Contain - Overtopping	**Harm to Human**	> Location such that contamination of surface waters used for human consumption could result in the health of less than 10 people.	Low	Low
	General Environmental Harm	> In case the dam overtopped due to the Flood or Management failure, the spill will reach to the downstream dam (Release Dam) and will contain within this dam.	Low	
	General Economic Loss or Property Damage	> No identifiable third party assets likely to be affected by an overtopping event. > Compensation not expected to exceed $1 million.	Low	
Dam Break	**Harm to Human**	> The Population at Risk (PAR) is not routinely present in the failure path, and loss of life is not expected. > In the unlikely event of a sunny-day failure, the released water will be captured by Release Dam.	Low	Low
	General Environmental Harm	> Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	Low	
	General Economic Loss or Property Damage	> No third party assets have been noted downstream of this dam. The Sediment Dam 1 has been located in the middle of the Dianne Mining area.	Low	

DSA Design Standard	N/A
ESS/MRL Design Standard	N/A
Spillway Design Standard	1%AEP

Regulated Status	Non - Regulated
Consequence Category	Low

Worksheet Title	**Dianne Copper Mine - RAW Water Dam 1**
R2247-AIC-CI-RP-307	**Revision A**
Water Storage Name	**Raw Water Dam 1**

Overview

Functional Description	Sediment Dam 2 captures Mine Affected runoff from the Mine Waste Dump via the western catchment drain. This dam has been designed to contain the 5-day, 95th percentile rainfall event with a sediment storage zone allowance equal to 50% of the settling zone volume. The dam is expected to require periodic desilting, with silt being disposed of in the Mine Waste Dump to the southeast corner of the Mine Lease.
Catchment Description	Mine Affected runoff from the Mine Waste Dump via the western catchment drain
Outlet Description	The dam wall consists of an embankment with a spillway that directs flow into the Release Dam.

Specifications

Item	Units	Value	Note
Easting (GDA2020)	m	234,146.78	
Northing (GDA2020)	m	8,218,285.93	
Catchment Area	ha	4.5	
Spillway (or Breakout Level)	mAHD	387	
Volume at Spillway	ML	1.1	
Wetted Area at Spillway	ha	0.07	
Crest Level (mAHD)	mAHD	388	
Spills flows to:		Release Dam	
Spill Diluting Catchment	ha	-	
Embankment Height	m	7.2	
Dam Break Volume	ML	1.1	
Dam Break Flows to:		Release Dam	S1
DSA Compliance Level	mRL	NA	
MRL Compliance Level	mRL	NA	

Expected Water quality in storage

Sample	Units	Receiving Waters Trigger (EA, Table 3)	Expected (S2)	Note
pH	-	6 - 8	7	
Electrical Conductivity	µS/cm	125	60	
Sulphate	mg/L	770	0.4	
Fluoride by ISE	mg/L	2	0.05	
Aluminium	mg/L	0.055	0.02	
Arsenic	mg/L	0.013	0.0015	
Boron	mg/L	0.37	0.02	
Cadmium	mg/L	0.0002	0.00005	
Chromium	mg/L	0.001	0.0005	
Copper	mg/L	0.0014	0.01	
Lead	mg/L	0.0034	0.0005	
Manganese	mg/L	1.9	0.0025	
Mercury	mg/L	0.00006	0.000025	
Nickel	mg/L	0.011	0.001	
Selenium (Total)	mg/L	0.005	0.001	
Silver	mg/L	0.000053	0.00005	
Zinc	mg/L	0.0083	0.01	
Cobalt	mg/L			
Iron	mg/L			
Potassium	mg/L			
Magnesium	mg/L			
Phosphorus	mg/L			
Sulphur	mg/L			
Silicon	mg/L			
Titanium	mg/L			
Calcium	mg/L			

Notes

S1	Dam Break will flow to the Release Dam
S2	There is no requirements to provide DSA, however, it is recommended that Mine lower the water level 0.65m below the spillway level prior the start of wet season (1st November) for 20%AEP - 1hr rainfall event (54mm)
S3	- The water quality in this dam will echo the catchment, being not mine-affected. - Water quality results for this dam has been taken from historical values for the raw water dams on site.
Q1	

Consequence Category Assessment

Item		Potential Impact	Item Rating	Criteria Rating
Failure to Contain - Seepage	**Harm to Human**	> The location is such that contamination of groundwater used for human consumption could result in the health of less than 10 people being affected (There are No groundwater bores in use for human consumption).	Low	Low
	General Environmental Harm	> Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	low	
	General Economic Loss or Property Damage	> Location such that harm to third party assets in the failure path would be expected to require less than $1 million in rehabilitation, compensation, repair or rectification costs. The Dam has located in the middle of mining area.	Low	
Failure to Contain - Overtopping	**Harm to Human**	> Location such that contamination of surface waters used for human consumption could result in the health of less than 10 people.	Low	Low
	General Environmental Harm	> In case the dam overtopped due to the Flood or Management failure, the spill will reach to the downstream dam (Release Dam) and will contain within this dam.	Low	
	General Economic Loss or Property Damage	> No identifiable third party assets likely to be affected by an overtopping event. > Compensation not expected to exceed $1 million.	Low	
Dam Break	**Harm to Human**	> The Population at Risk (PAR) is not routinely present in the failure path, and loss of life is not expected. > In the unlikely event of a sunny-day failure, the released water will be captured by Release Dam.	Low	Low
	General Environmental Harm	> Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	Low	
	General Economic Loss or Property Damage	> No third party assets have been noted downstream of this dam. The Sediment Dam 1 has been located in the middle of the Dianne Mining area.	Low	

DSA Design Standard	N/A
ESS/MRL Design Standard	N/A
Spillway Design Standard	1%AEP

Regulated Status	Non - Regulated
Consequence Category	Low

Worksheet Title	**Dianne Copper Mine - Release Dam CCA**
R2247-AIC-CI-RP-306	**Revision A**
Water Storage Name	**Release Dam**

Overview

Functional Description	Formally known as the "Settling Dam", the enlarged Release Dam will comprise a raised embankment to provide additional containment capacity and to reduce seepage through the wall. This dam is located at the outfall of the Mine Lease.
Catchment Description	This dam will receive releases from all other dams within the mine lease as well as runoff from disturbed areas around the ROM and the Workshops & Electro-winning & Solvent Extraction Plant. Undisturbed land along the southeastern edge of the mine has been bypassed by a clean water drain that will carry runoff for the full length of the mine, to just downstream of the Release Dam spillway. The total catchment upstream is 18.7ha, however most of this area is captured by other dams that do not normally spill to the Release Dam.
Outlet Description	The dam wall comprises an existing earth embankment, raised by 2m with earth and a Geocomposite Clay Liner to reduce seepage. The existing earth spillway channel incorporate a raised reinforced blockwork spillway to raise the stored water level.

Specifications

Item	Units	Value	Note
Easting (GDA2020)	m	234,809.18	
Northing (GDA2020)	m	8,218,575.95	
Catchment Area	ha	8.46	S1
Spillway (or Breakout Level)	mAHD	386	
Volume at Spillway	ML	47	
Wetted Area at Spillway	ha	1.45	
Crest Level (mAHD)	mAHD	387	
Spills flows to:		Gum Creek Tributary	
Spill Diluting Catchment	ha	-	
Embankment Height	m	10	
Dam Break Volume	ML	40	S2
Dam Break Flows to:		Gum Creek Tributary	S3
DSA Compliance Level	mRL	NA	S4
MRL Compliance Level	mRL	NA	

Expected Water quality in storage

Sample	Units	Receiving Waters Trigger (EA Table 3)	Historical Values Monitor Point S6 16.03.20 (Refer to note S5 below)	15.10.20	25.03.21	Note
pH	-	6 - 8	6.4	4.8	5.4	
Electrical Conductivity	µS/cm	125	130	390	250	
Sulphate	mg/L	770	39	160	110	
Fluoride by ISE	mg/L	2	0.05	0.1	0.05	
Aluminium	mg/L	0.055	0.26	1.1	0.87	
Arsenic	mg/L	0.013	0.0015	0.0015	0.0015	
Boron	mg/L	0.37	0.0025	0.018	0.011	
Cadmium	mg/L	0.0002	0.0023	0.0075	0.0061	
Chromium	mg/L	0.001	0.0005	0.0005	0.0005	
Copper	mg/L	0.0014	1.2	6.6	5	
Lead	mg/L	0.0034	0.0005	0.0005	0.001	
Manganese	mg/L	1.9	0.24	1	0.5	
Mercury	mg/L	0.00006	0.000025	0.000025	0.000025	
Nickel	mg/L	0.011	0.005	0.017	0.014	
Selenium (Total)	mg/L	0.005	0.001	0.005	0.004	
Silver	mg/L	0.000053	0.00005	0.00005	0.00005	
Zinc	mg/L	0.0083	0.43	1.3	1.1	
Cobalt	mg/L					
Iron	mg/L					
Potassium	mg/L					
Magnesium	mg/L					
Phosphorus	mg/L					
Sulphur	mg/L					
Silicon	mg/L					
Titanium	mg/L					
Calcium	mg/L					

Notes

S1	The catchment of this dam includes all the catchments from Sediment dams 1, 2 and 3 (total of 18.7ha). A storm event greater than 1-year AEP for 5 hours would yield 57mm of rain
S2	The total flow volume for a Dam breach cascade event that include all the upstream dams would be 57.3ML
S3	Dam Break will release to Gum Creek Tributary extending between 1.4 and 5km from the dam
S4	Although, there is no requirements to provide DSA, however it's recommended that Mine lower the water level 600mm below the spillway level prior the start of wet season (1st November) for 50%AEP - 3hr rainfall event (55mm) immunity
S5	- These values are taken from historical water quality results for the "Settling Dam", which was the previous name for what is now the Release Dam. - Total values for the metals are much the same, indicating that the bulk of the metal in the water is disolved. - Although *possible* , it is *unlikely* that this dam would be subjected to spillage from the process ponds given the large amount of storage space available and the limited catchment feeding the process ponds. - The only other potential source of contamination is from the ROM area where ore is crushed and screened and precoated with sulphuric acid in a trommel mixer before being placed in a 100m^3 bin ready for trucking up to the leachate pads. The 400m^2 agglomerator area will drain to a small lined sump to collect the process-affected rainfall runoff, which will then be pumped to the process ponds. - Water quality figures will be updated continuously once the plant is operational.

Consequence Category Assessment

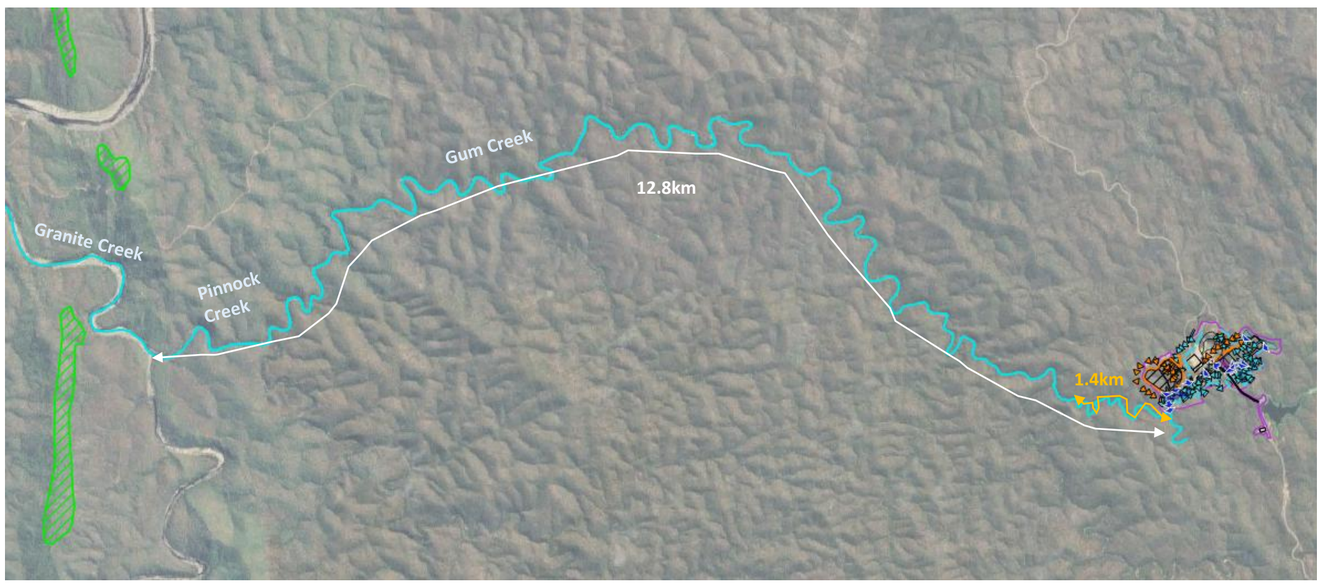
Item		Potential Impact	Item Rating			Criteria Rating
Failure to Contain - Seepage	**Harm to Human**	> The location is such that contamination of groundwater used for human consumption could result in the health of less than 10 people being affected (There are No groundwater bores in use for human consumption).	Low			Low
	General Environmental Harm	> Location such that Contaminants are unlikely to be released to areas of Significant Values or Moderate Values.	low			
	General Economic Loss or Property Damage	> Location such that harm to third party assets in the failure path would be expected to require less than $1 million in rehabilitation, compensation, repair or rectification costs. The Dam has located in the middle of mining area.	Low			
Failure to Contain - Overtopping	**Harm to Human**	> Location such that contamination of surface waters used for human consumption could result in the health of less than 10 people.	Low			Low
	General Environmental Harm	> In case the dam overtopped due to the Flood or Management failure, the spill will reach to the downstream dam (Release Dam) and will contain within this dam.	Low			
	General Economic Loss or Property Damage	> No identifiable third party assets likely to be affected by an overtopping event. > Compensation not expected to exceed $1 million.	Low			
Dam Break	**Harm to Human**	> The Population at Risk (PAR) is not routinely present in the failure path, and loss of life is not expected.	Low			Low
	General Environmental Harm	> In the unlikely event of a sunny-day failure, the released water will be captured by the downstream Sediment Dam 1 and Release Dam. According to Table 5 of the Guidelines for Failure Impact Assessment of Water Dams, the failure impact zone distance for a 47 ML dam break is estimated to be 1.4 km. > In case of Cascade failure of the upstream dams the total Dam breach volume would be 57.3 ML including the following dams: Process Water Dam Sediment Dam 1, 2 and 3 Clean Water Dam 1 The Failure impact zone distance would reach to 1.4km downstream of the dam, which there is no MSES in this area.	Low			
	General Economic Loss or Property Damage	> No third party assets have been noted downstream of this dam. The Sediment Dam 1 has been located in the middle of the Dianne Mining area.	Low			

DSA Design Standard	N/A
ESS/MRL Design Standard	N/A
Spillway Design Standard	1%AEP

Regulated Status				Non - Regulated
Consequence Category				Low

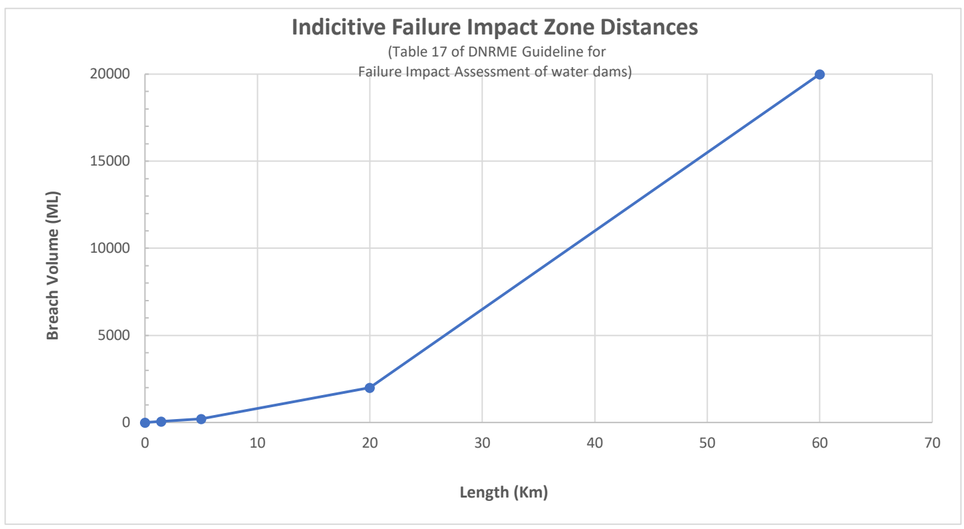
	Dam breach volume	
	KM	ML
	0	0
1432.5	1.4	57.3
	5	200
	20	2000
	60	20000

To determine the extent of the dam breach, this CCA report references Table 17 from the Guidelines for Failure Impact Assessment of Water Dams, which provides an indicative total impact distance. The following graph represents Table 17, where the Y-axis indicates the breach volume in megalitres, and the X-axis represents the indicative failure impact zone distance.



Guideline
https://www.resources.qld.gov.au/__data/assets/pdf_file/0005/78836/guidelines-failure-impact-assessment.pdf

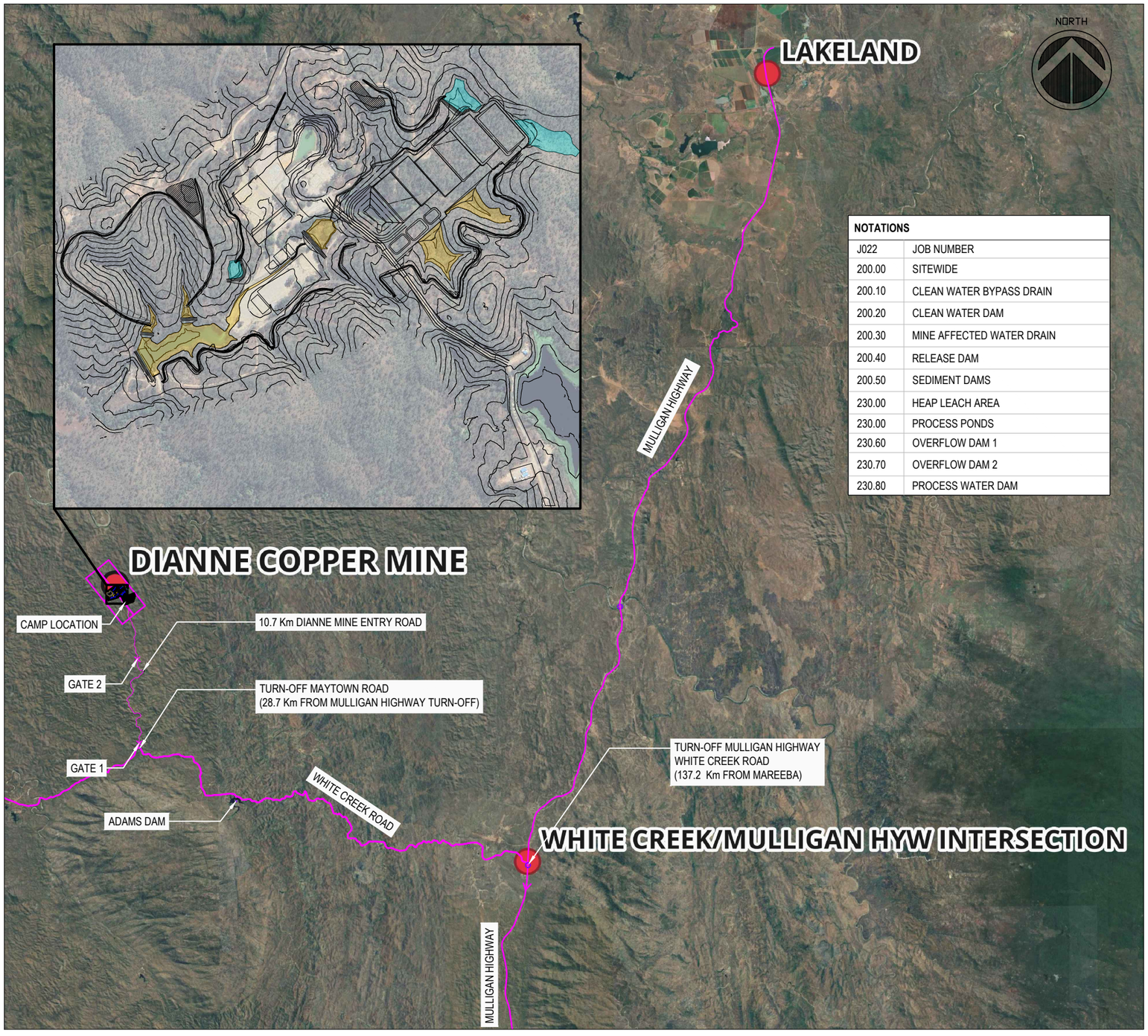
In the unlikely event of a cascade failure involving the release dam and all upstream dams, the breach extent would reach 1.4 km. However, the environmental impact would not meet the criteria for classification as "High" or "Significant."



Appendix B

Design Drawings

SHEET NO.	DRAWING NO.	DRAWING DESCRIPTION	REV.NO.
1	J022.200.00-DWG-001	Cover Sheet Locality & Drawing Index	C
2	J022.200.00-DWG-002	General Arrangement Plan	D
3	J022.200.00-DWG-003	Stormwater Management - Layout Plan	B
4	J022.200.00-DWG-004	Stormwater Management - Catchment Areas	B
5	J022.200.00-DWG-005	Stormwater Management - Water Monitoring Locations	A
6	J022.230.00-DWG-001	Heap Leach & Process Area - Layout Plan	A
7	J022.230.00-DWG-002	Heap Leach Pads - Typical Sections & Details	A
8	J022.230.80-DWG-001	Process Water Dam - Plan & Longsection	B
9	J022.230.80-DWG-002	Process Water Dam - Detail Cross Sections	B
10	J022.230.80-DWG-003	Process Water Dam - Typical Sections & Details	A
11	J022.200.40-DWG-001	Release Dam - Plan & Longsection	C
12	J022.200.40-DWG-002	Release Dam - Detail Cross Sections	A
13	J022.200.40-DWG-003	Release Dam - Typical Sections & Details	A
14	J022.230.60-DWG-001	Overflow Dam 01 - Plan & Longsection	B
15	J022.230.60-DWG-002	Overflow Dam 01 - Detail Cross Sections	B
16	J022.230.70-DWG-001	Overflow Dam 02 - Plan & Longsection	B
17	J022.230.70-DWG-002	Overflow Dam 02 - Detail Cross Sections	B
18	J022.230.00-DWG-007	Overflow Dams - Typical Sections & Details	A
19	J022.200.51-DWG-001	Sediment Dam 01 - Plan & Longsection	B
20	J022.200.51-DWG-002	Sediment Dam 01 - Detail Cross Sections	A
21	J022.200.52-DWG-001	Sediment Dam 02 - Plan & Longsection	B
22	J022.200.52-DWG-002	Sediment Dam 02 - Detail Cross Sections	A
23	J022.200.53.-DWG-001	Sediment Dam 03 - Plan & Longsection	B
24	J022.200.53.-DWG-002	Sediment Dam 03 - Detail Cross Sections	A
25	J022.200.50-DWG-001	Sediment & Clean Water Dam - Typical Sections & Details	B
26	J022.200.21-DWG-001	Clean Water Dam 01 - Plan & Longsection	C
27	J022.200.21-DWG-002	Clean Water Dam 01 - Detail Cross Sections	B
28	J022.200.22-DWG-001	Clean Water Dam 02 - Plan & Longsection	C
29	J022.200.22-DWG-002	Clean Water Dam 02 - Detail Cross Sections	B
30	J022.200.23-DWG-001	Clean Water Dam 03 - Plan & Longsection	B
31	J022.200.23-DWG-002	Clean Water Dam 03 - Detail Cross Sections	B
32	J022.200.11-DWG-001	Clean Water Drain 01 - Plan & Longsection	C
33	J022.200.11-DWG-002	Clean Water Drain 01 - Detail Cross Sections	A
34	J022.200.12-DWG-001	Clean Water Drain 02 - Plan & Longsection	C
35	J022.200.12-DWG-002	Clean Water Drain 02 - Detail Cross Sections	A
36	J022.200.13-DWG-001	Clean Water Drain 03 - Plan & Longsection	C
37	J022.200.13-DWG-002	Clean Water Drain 03 - Detail Cross Sections	A
38	J022.200.10-DWG-001	Clean & Mine Affected Water Drain - Typical Sections & Details	B
39	J022.200.31-DWG-001	Mine Affected Water Drain 01 - Plan & Longsection	B
40	J022.200.31-DWG-002	Mine Affected Water Drain 01 - Detail Cross Sections	A
41	J022.200.32-DWG-001	Mine Affected Water Drain 02 - Plan & Longsection	B
42	J022.200.32-DWG-002	Mine Affected Water Drain 02 - Detail Cross Sections	A
43	J022.200.33-DWG-001	Mine Affected Water Drain 03 - Plan & Longsection	B
44	J022.200.33-DWG-002	Mine Affected Water Drain 03 - Detail Cross Sections	A
45	J022.200.34-DWG-001	Mine Affected Water Drain 04 - Plan & Longsection	B
46	J022.200.34-DWG-002	Mine Affected Water Drain 04 - Detail Cross Sections	A
47	J022.200.35-DWG-001	Mine Affected Water Drain 05 - Plan & Longsection	B
48	J022.200.35-DWG-002	Mine Affected Water Drain 05 - Detail Cross Sections	A



NOTATIONS	
J022	JOB NUMBER
200.00	SITEWIDE
200.10	CLEAN WATER BYPASS DRAIN
200.20	CLEAN WATER DAM
200.30	MINE AFFECTED WATER DRAIN
200.40	RELEASE DAM
200.50	SEDIMENT DAMS
230.00	HEAP LEACH AREA
230.00	PROCESS PONDS
230.60	OVERFLOW DAM 1
230.70	OVERFLOW DAM 2
230.80	PROCESS WATER DAM

LOCALITY PLAN
1:250000

REVISION:	BY:	DATE:	DESCRIPTION:	APPROVED BY:
A	MP	14/02/2025	INITIAL CONCEPT	AL /RMc
B	MP	14/02/2025	CCE AMENDMENTS ADDED	AL /RMc
C	MP	14/02/2025	CCE AMENDMENTS ADDED	AL /RMc

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PROJECT NAME:

DIANNE COPPER MINE

DRAWING TITLE: COVER SHEET LOCALITY AND DRAWING INDEX

SCALE: AS SHOWN	SHEET SIZE: A3	DRAWING NO. : J022.200.00-DWG-001	REVISION NO. : C	SHEET NO. 1

DIANNE PROJECT SITE LAYOUT - PLAN VIEW

1:5000

FOR INFORMATION

REVISION:	BY:	DATE:	DESCRIPTION:	APPROVED BY:
A	PL	08/06/2023	FOR INTERNAL REVIEW	AML
B	PL	09/06/2023	GENERATOR ADDED	AML
C	PL	16/06/2023	CLIENT FEEDBACK AMENDMENTS	AML
D	PL	24/01/2025	CLIENT DESIGN STRINGS ADDED	AML

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PROJECT NAME:

DIANNE COPPER MINE

DRAWING TITLE: GENERAL ARRANGEMENT PLAN

0 50 100 150 200m

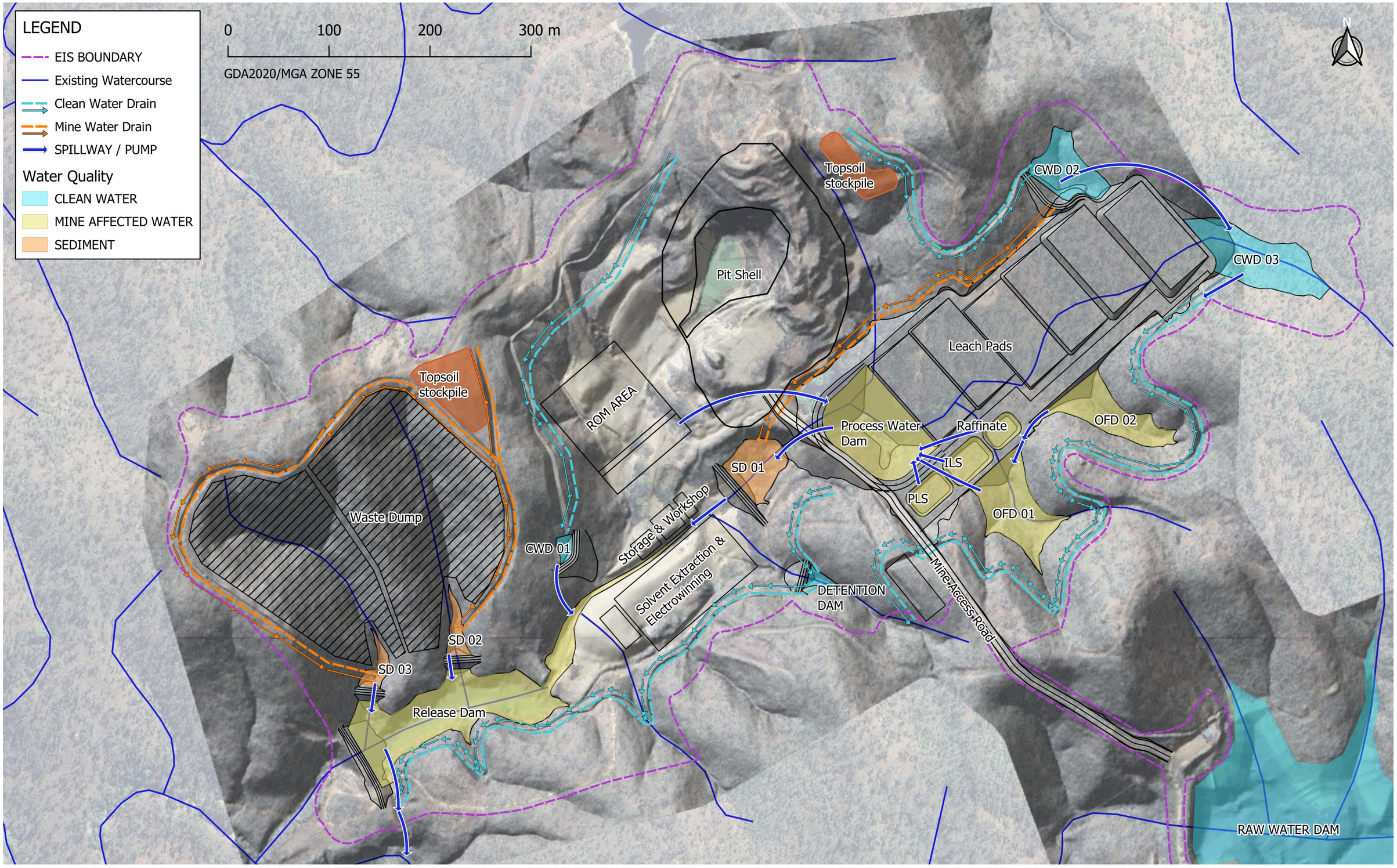
1:5000

Note: Ensure the scale used aligns with drawing requirements

SHEET SIZE: A3

DRAWING NO. : J022.200.00-DWG-002

REVISION NO. : D



REVISION:	BY:	DATE:	DESCRIPTION:	APPROVED BY:
A	TK	14/02/2025	FOR INTERNAL REVIEW	AML

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PROJECT NAME:

DIANNE COPPER MINE

DRAWING TITLE: STORMWATER MANAGEMENT LAYOUT PLAN

SHEET SIZE: A3

DRAWING NO: J022.200.00-DWG-003

DRAWING NO: R2247-PRO-CI-DW-103

REVISION NO: B

NOTE: Ensure the scale used aligns with drawing requirements

Dam Name	Catch Area (m2)	Type	Dam Vol (ML)
Raw Water Dam 1	720232	CLEAN WATER	312
CLEAN WATER DAM 01	29721	CLEANWATER	0.4
CLEAN WATER DAM 03	61697	CLEANWATER	12
CLEAN WATER DAM 02	26450	CLEANWATER	7.3
CLEAN WATER DRAIN	137164	CLEANWATER	
PROCESS WATER DAM	57248	MINEAFFECTED	42.5
SEDIMENT DAM 01	32289	MINEAFFECTED	5.7
SEDIMENT DAM 02	35827	MINEAFFECTED	1.3
SEDIMENT DAM 03	36112	MINEAFFECTED	1.1
OVERFLOW DAM 01	14562	MINEAFFECTED	13.5
OVERFLOW DAM 02	10698	MINEAFFECTED	10
RELEASE DAM	86881	MINEAFFECTED	47

CLEANWATER CATCHMENT

MINE AFFECTED CATCHMENT

EXISTING WATER COURSE

EIS BOUNDARY

Contours

Major 10m

DAM

CLEAN WATER

MINE AFFECTED WATER

SEDIMENT

Drainage

CLEAN

MINE AFFECTED

SEDIMENT

CLEAN WATER DAM 01

CLEAN WATER DAM 02

CLEAN WATER DAM 03

PIT SHELL

PAD 1

PAD 2

PAD 3

PAD 4

PAD 5

PAD 6

PROCESS WATER DAM

OVERFLOW DAM 01

OVERFLOW DAM 02

SEDIMENT DAM 01

SEDIMENT DAM 02

SEDIMENT DAM 03

RELEASE DAM

CLEAN WATER DRAIN

RELEASE DAM SPILLWAY

RAW WATER DAM

N

0 100 200 300 m

GDA2020/MGA ZONE 55

REVISION:	BY:	DATE:	DESCRIPTION:	APPROVED BY:
A	TK	14/02/2025	FOR INTERNAL REVIEW	AML

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PROJECT NAME:

DIANNE COPPER MINE

DRAWING TITLE: STORMWATER MANAGEMENT - CATCHMENT AREAS

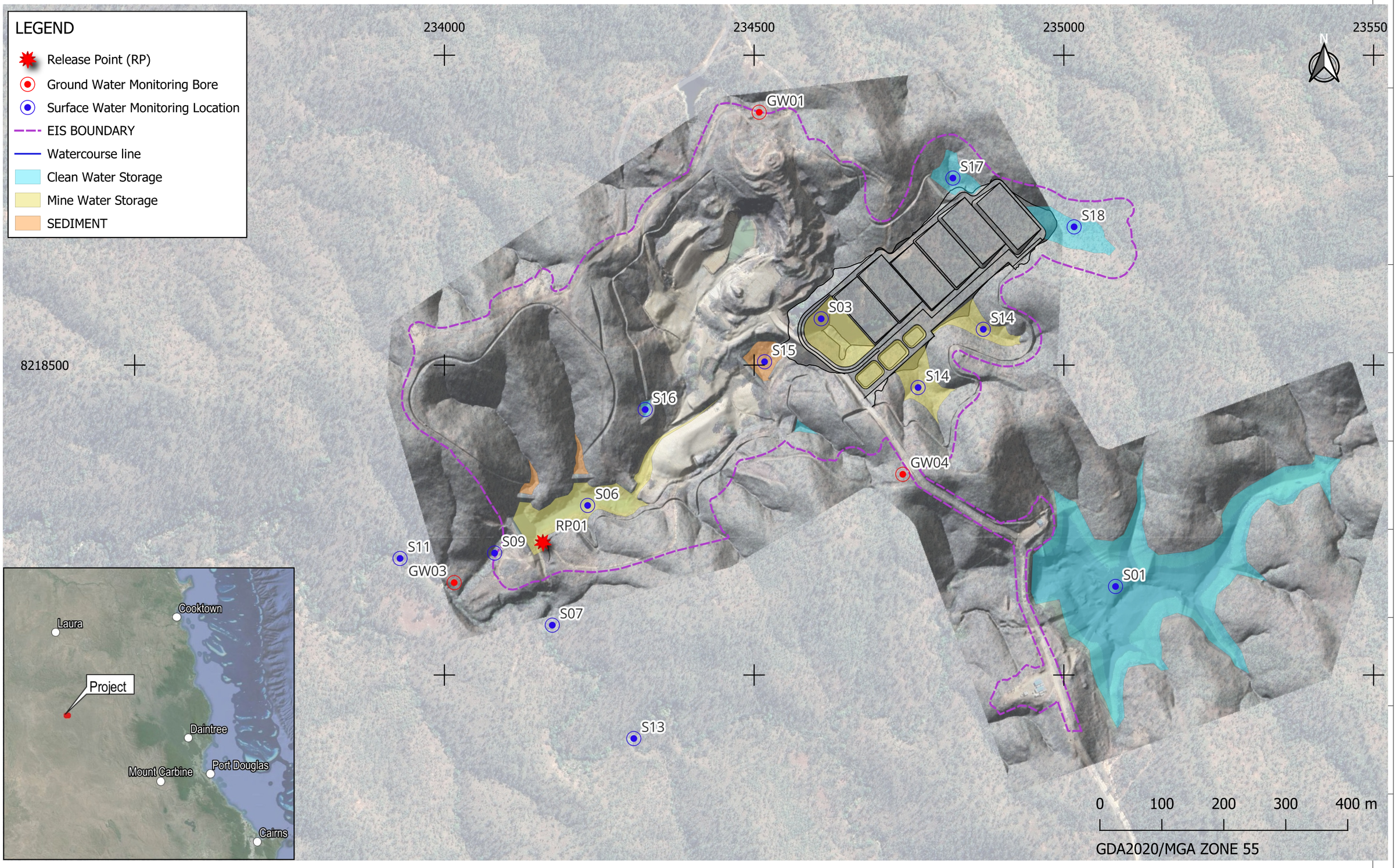
SHEET SIZE: A3

DRAWING NO: J022.200.00-DWG-004

DRAWING NO: R2247-PRO-CI-DW-104

REVISION NO: B

NOTE: Ensure the scale used aligns with drawing requirements



REVISION:	BY:	DATE:	DESCRIPTION:	APPROVED BY:
A	TK	14/02/2025	FOR INTERNAL REVIEW	AML

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PROJECT NAME:

DIANNE COPPER MINE

DRAWING TITLE: STORMWATER MANAGEMENT - WATER MONITORING LOCATIONS

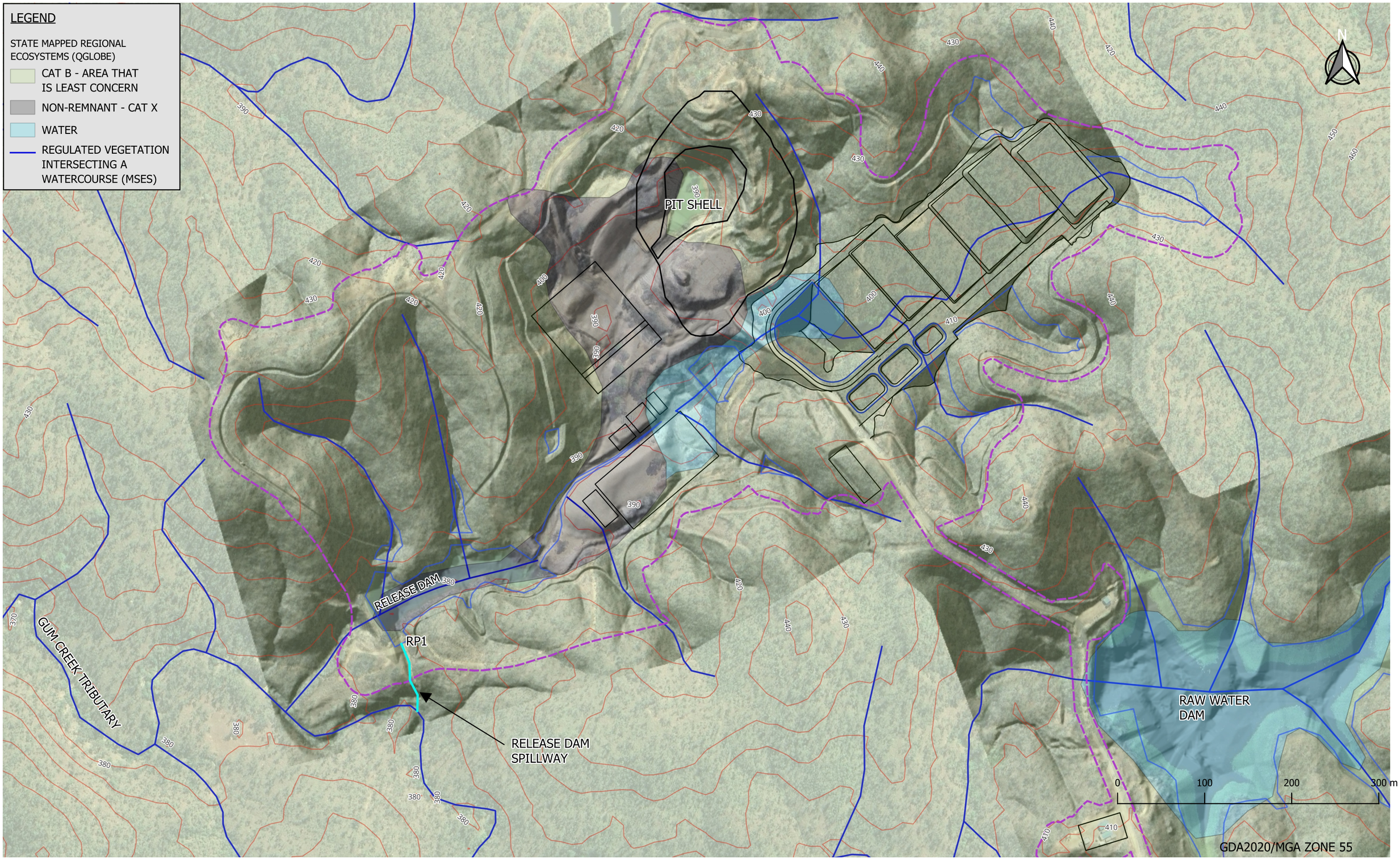
SHEET SIZE: A3

DRAWING NO: J022.200.00-DWG-005

REVISION NO: A

CCE REF DRAWING NO: R2247-PRO-CI-DW-104

NOTE: Ensure the scale used aligns with drawing requirements



REVISION:	BY:	DATE:	DESCRIPTION:	APPROVED BY:
A	TK	14/02/2025	FOR INTERNAL REVIEW	AML

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PROJECT NAME:

DIANNE COPPER MINE

DRAWING TITLE: STATE MAPPED REGIONAL ECOSYSTEMS

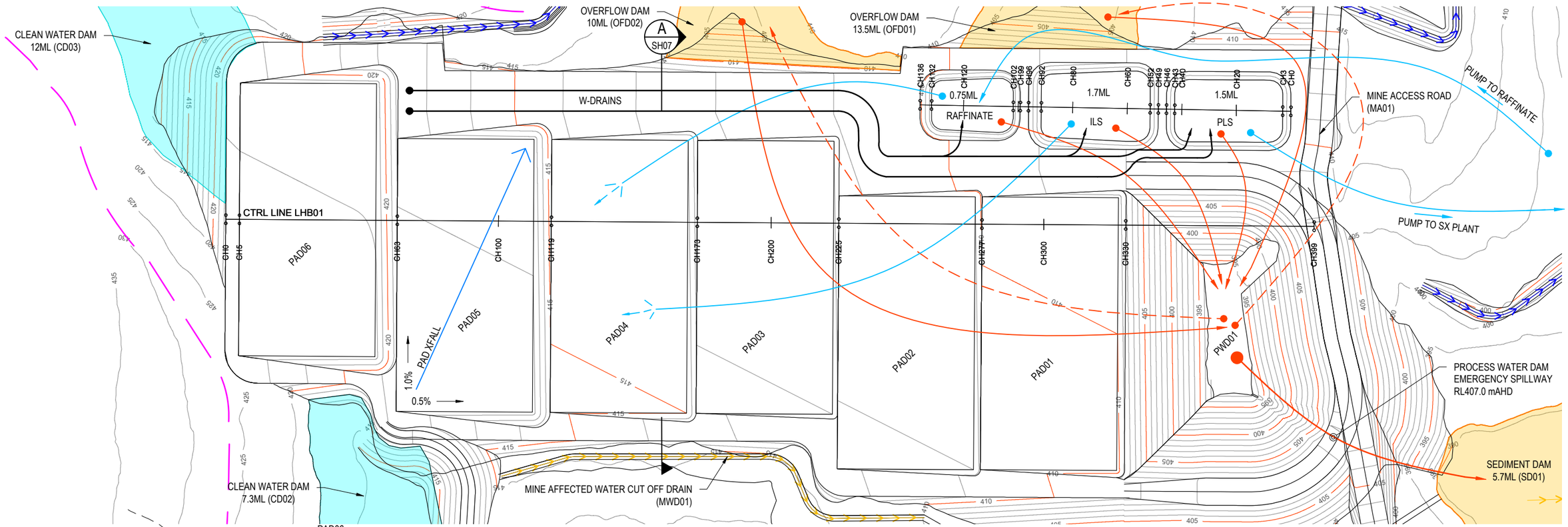
SHEET SIZE: A3

DRAWING NO: J022.200.00-DWG-006

DRAWING NO: R2247-PRO-CI-DW-106

REVISION NO: B

NOTE: Ensure the scale used aligns with drawing requirements



CTRL LINE LHB01 DEPTH FROM LEACH PAD BASE (m)	0.00		-1.35		-3.04		-0.69		-2.11		-0.18		-0.99		-0.04		-0.49		-0.00		-0.59		-1.08		-0.60		-1.25		6.79		6.42		0.20
EXISTING SURFACE LEVEL	417.03		413.14		409.59		410.22		406.28		400.87		402.09		400.51		404.05		400.69		394.58		394.78		394.52		394.54		394.69		399.76		406.47
CUT/FILL DEPTH TO EXISTING SURFACE (m)	5.27		7.66		9.40		7.08		9.47		13.47		11.32		11.99		7.88		10.65		16.05		15.13		14.62		13.82		13.51		8.44		1.73
DESIGN LEVEL CONTROL LINE LHB01	422.30		420.80		418.99		417.30		415.75		414.34		413.41		412.50		411.92		411.34		410.63		409.92		409.14		408.36						408.0
CHAINAGE	0	25		50		75		100		125		150		175		200		225		250		275		300		325		350		375		399

PROCESS FLOW KEY

- OVERFLOW SPILLWAY
- OVERFLOW PUMP TO OFD DAMS
- LEACH PROCESS PUMPING
- W-DRAINS

CLIENT
Review / Approval

APPROVED ☐

APPROVED as Noted Amend and Proceed ☐

NOT APPROVED Amend and Resubmit ☐

Signed: _____ Dated: _____

NOT FOR CONSTRUCTION

FOR INFORMATION

LONGITUDINAL SECTION - LHB01 LEACH HEAP BUILD BASE

Horizontal scale 1:1500
Vertical scale 1:750

REVISION:	BY:	DATE:	DESCRIPTION:	APPROVED BY:
A	PL	30/01/2025	FOR INTERNAL REVIEW	AML
B	TK	20/02/2025	FOR CLIENT REVIEW	AML

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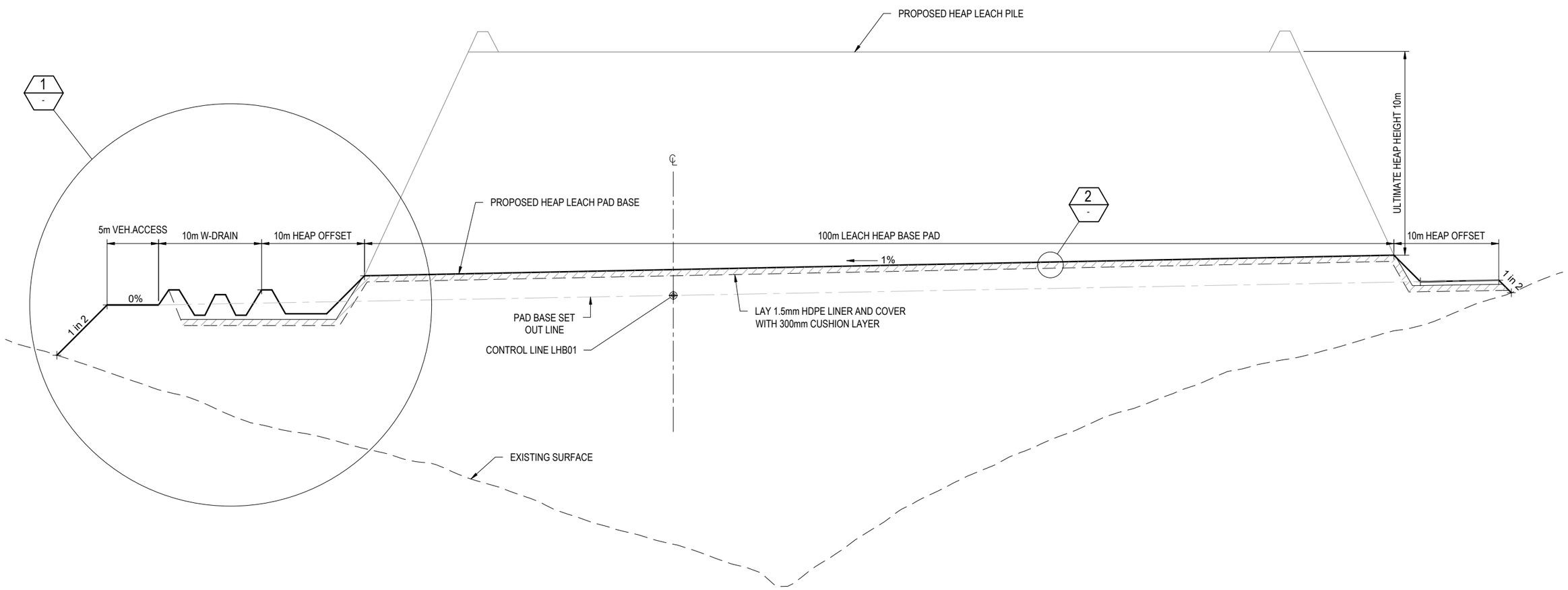
PROJECT NAME:

DIANNE COPPER MINE

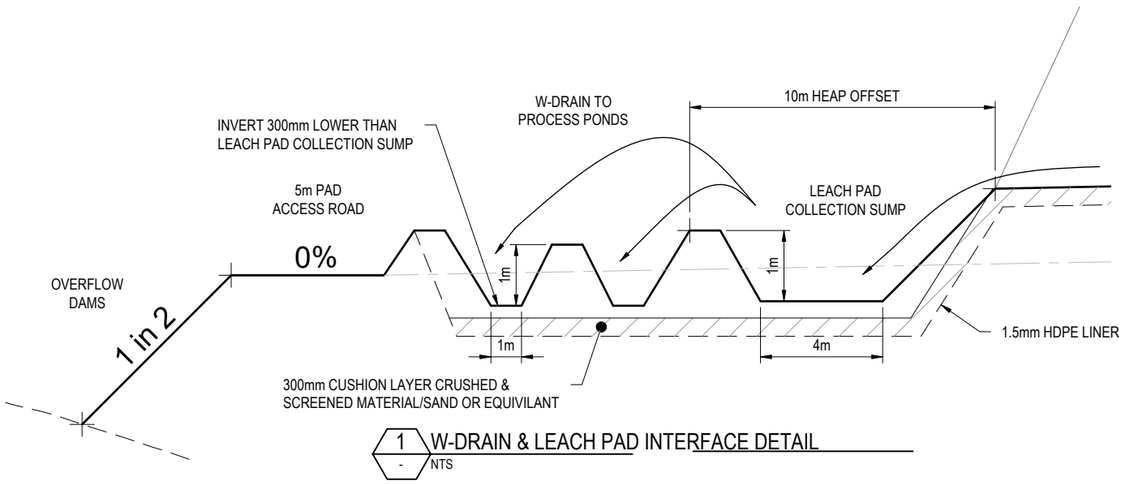
DRAWING TITLE: HEAP LEACH & PROCESS AREA - LAYOUT PLAN & LONGSECTION

N.T.S	SHEET SIZE: A3	DRAWING NO. : J022.230.00-DWG-001	REVISION NO. : B
		CCE DRAWING REF. : R2247-PRO-DW-CI-200	

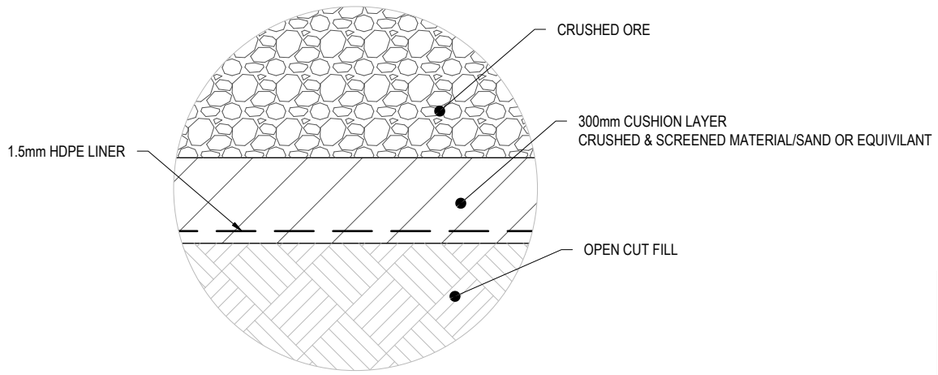
Note: Ensure the scale used aligns with drawing requirements



A SH06 TYPICAL SECTION - LEACH HEAP PADS
VERTICAL EXAGERATION x2



1 - NTS W-DRAIN & LEACH PAD INTERFACE DETAIL



2 - NTS HEAP LEACH PAD CUSHION LAYER DETAIL

CLIENT
Review / Approval

APPROVED ☐

APPROVED as Noted Amend and Proceed ☐

NOT APPROVED Amend as Noted and Resubmit ☐

Signed: _____ Dated: _____

NOT FOR CONSTRUCTION

FOR INFORMATION

REVISION:	BY:	DATE:	DESCRIPTION:	APPROVED BY:
A	TK	30/01/2025	FOR INTERNAL REVIEW	AML

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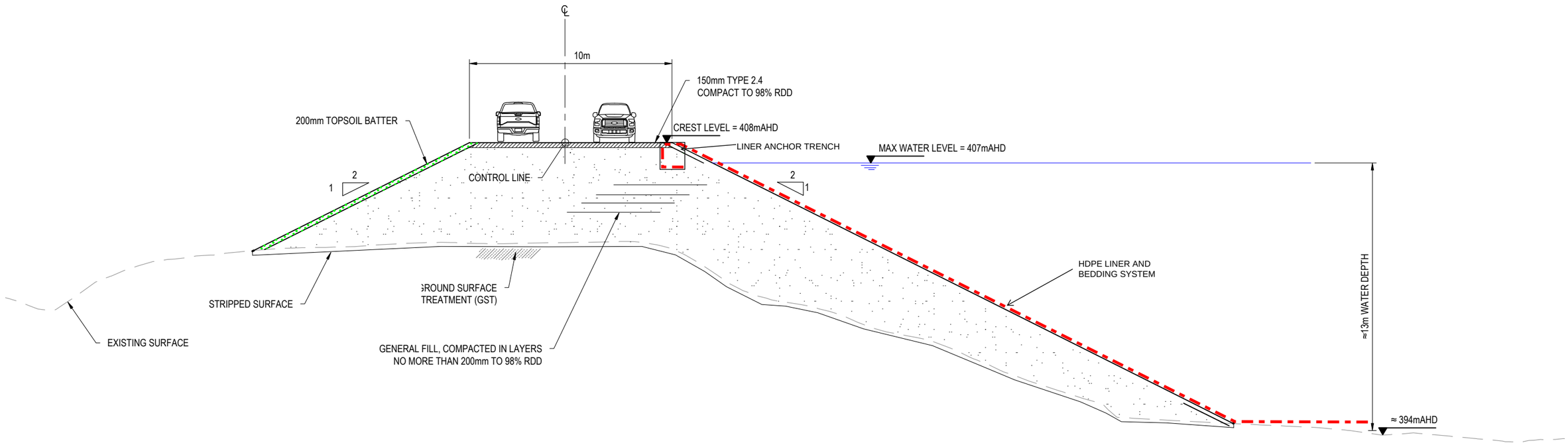
PROJECT NAME:

DIANNE COPPER MINE

DRAWING TITLE: HEAP LEACH PADS - TYPICAL SECTIONS & DETAILS

N.T.S	SHEET SIZE: A3	DRAWING NO. : J022.230.00-DWG-002 CCE DRAWING REF. : R2247-PRO-DW-CI-210	REVISION NO. : A

Note: Ensure the scale used aligns with drawing requirements



B / XX - TYPICAL CROSS SECTION - PROCESS WATER DAM

REVISION:	BY:	DATE:	DESCRIPTION:	APPROVED BY:
A	TK	12/02/2025	FOR INTERNAL REVIEW	AML

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PROJECT NAME:

DIANNE COPPER MINE

DRAWING TITLE: PROCESS WATER DAM_TYPICAL SECTIONS & DETAIL

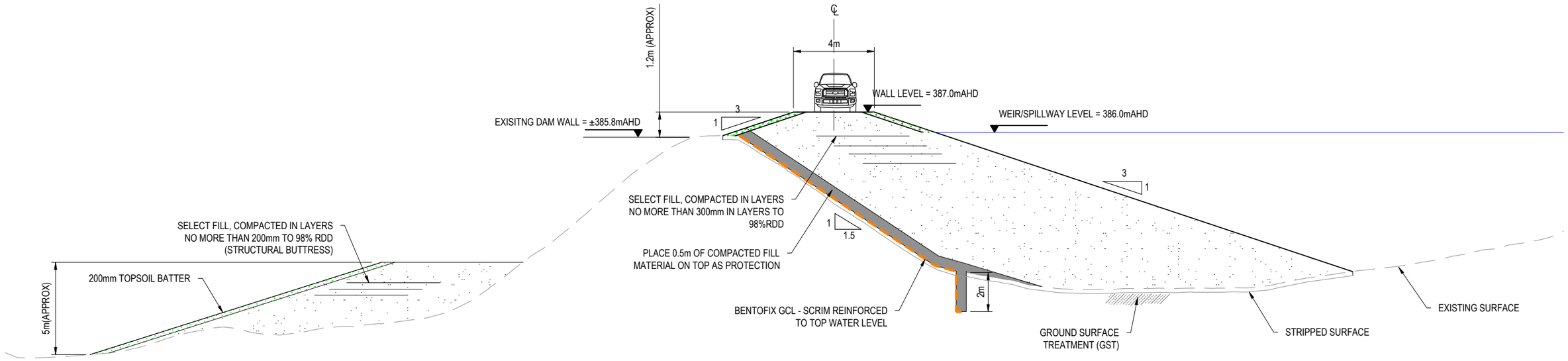
0 1 2 3 4m
1:100

Note: Ensure the scale used aligns with drawing requirements

SHEET SIZE: A3

DRAWING NO. : J022.230.80 - DWG - 003

REVISION NO. : A



A / XX TYPICAL CROSS SECTION - RELEASE DAM
SHOWING SEEPAGE REPAIR AND WALL RAISE

REVISION:	BY:	DATE:	DESCRIPTION:	APPROVED BY:
A	TK	12/02/2025	FOR INTERNAL REVIEW	AML

REVOLVER RESOURCES

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PROJECT NAME:

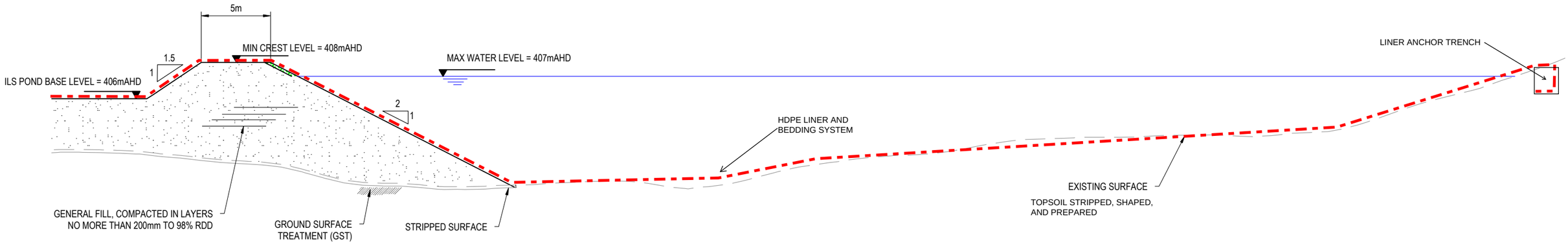
DIANNE COPPER MINE

DRAWING TITLE: RELEASE DAM_TYPICAL SECTIONS & DETAIL

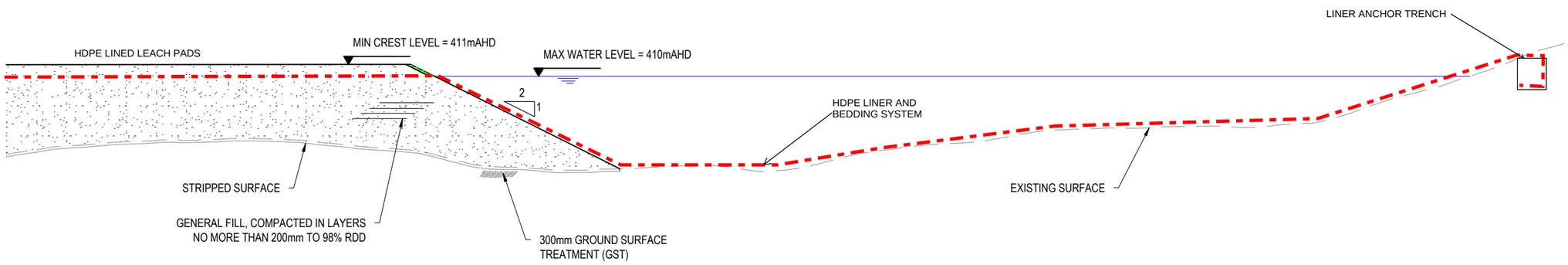
0 1 2 3 4m
1:100

SHEET SIZE: A3 | DRAWING NO. : J022.200.40-DWG-003 | REVISION NO. : A

Note: Ensure the scale used aligns with drawing requirements



C XX - TYPICAL CROSS SECTION - OVERFLOW DAM 01



D XX - TYPICAL CROSS SECTION - OVERFLOW DAM 02

REVISION:	BY:	DATE:	DESCRIPTION:	APPROVED BY:
A	TK	12/02/2025	FOR INTERNAL REVIEW	AML

REVOLVER RESOURCES

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PROJECT NAME:

DIANNE COPPER MINE

DRAWING TITLE: OVERFLOW DAM_TYPICAL SECTIONS & DETAIL

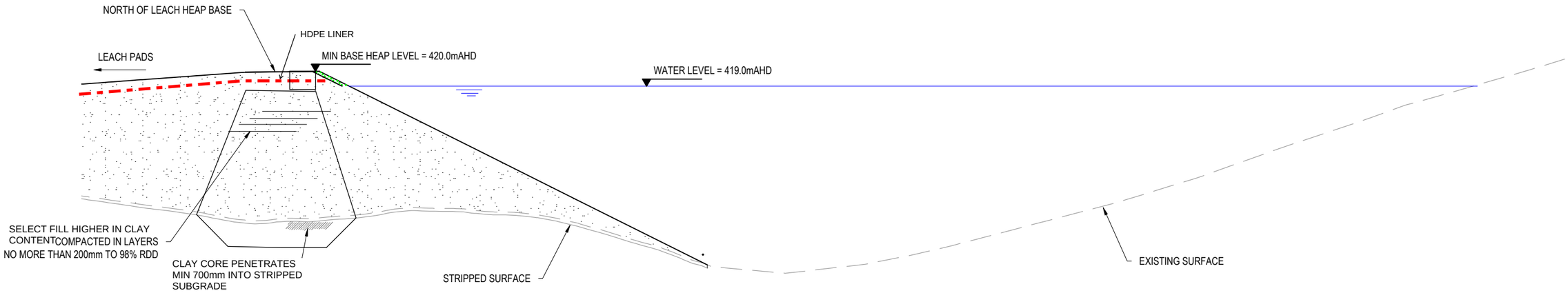
0 1 2 3 4m
1:100

SHEET SIZE: A3

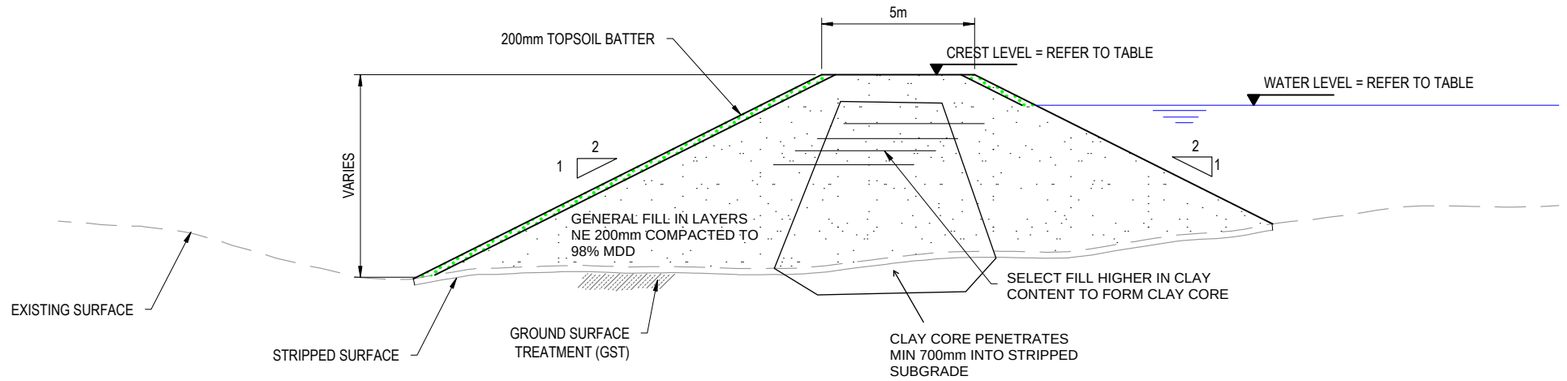
DRAWING NO. : J022.230.00-DWG-007

REVISION NO. : A

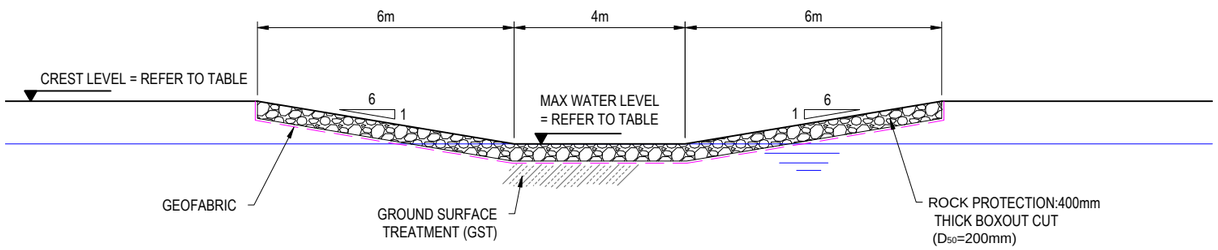
Note: Ensure the scale used aligns with drawing requirements



E XX - TYPICAL CROSS SECTION - CLEAN WATER DAM 03



TYPICAL DAM WALL SECTION FOR SEDIMENT DAM 01,02,03 & CLEAN WATER DAM 01,02



TYPICAL SPILLWAY TOP SECTION

NAME	MIN EMBANK RL (m)	MAX WATER RL (m)
CLEAN WATER DAM 01	400	399
CLEAN WATER DAM 02	419	418
CLEAN WATER DAM 03	420	419
SEDIMENT DAM 01	392	391
SEDIMENT DAM 02	388	387
SEDIMENT DAM 03	388	387
PROCESS WATER DAM	408	407
RELEASE DAM	387	386

DAM EMBANKMENT & WATER LEVEL TABLE

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PROJECT NAME:

DIANNE COPPER MINE

DRAWING TITLE: DRAWING TITLE: SEDIMENT & CLEAN WATER DAM_TYPICAL SECTIONS & DETAIL

0 1 2 3 4m

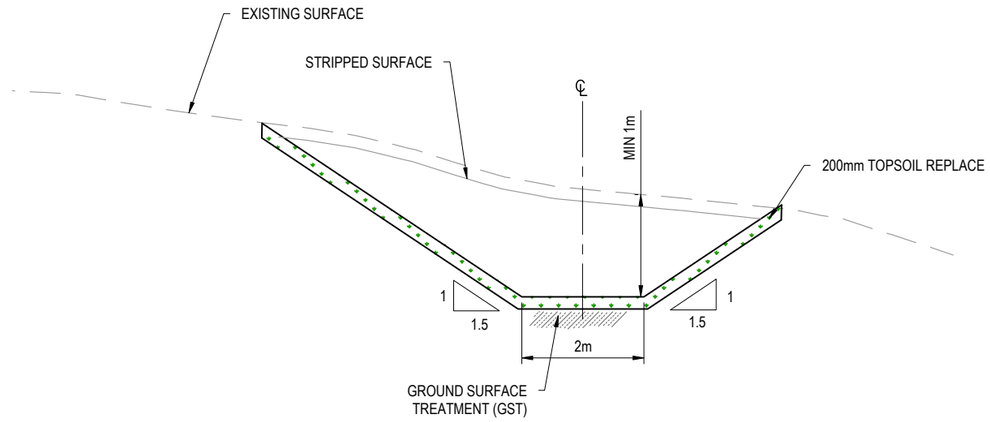
1:100

Note: Ensure the scale used aligns with drawing requirements

SHEET SIZE: A3

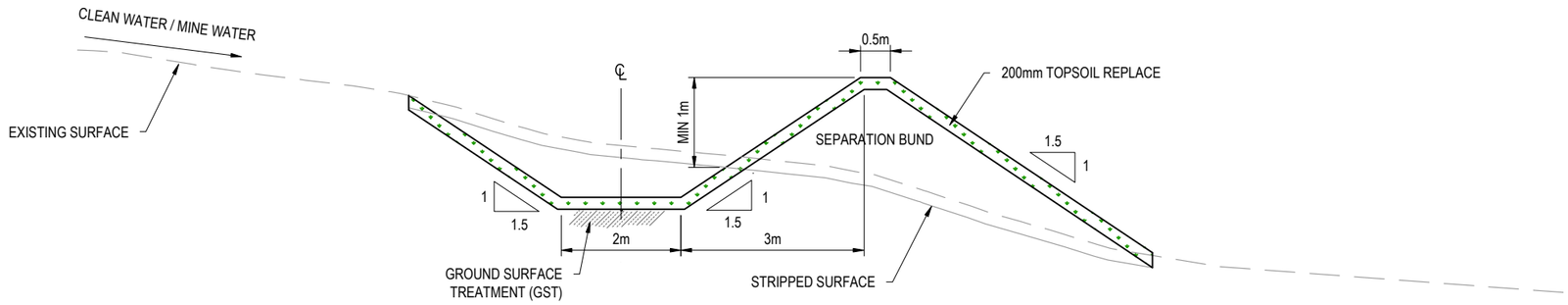
DRAWING NO. : J022.200.50-DWG-001

REVISION NO. : A



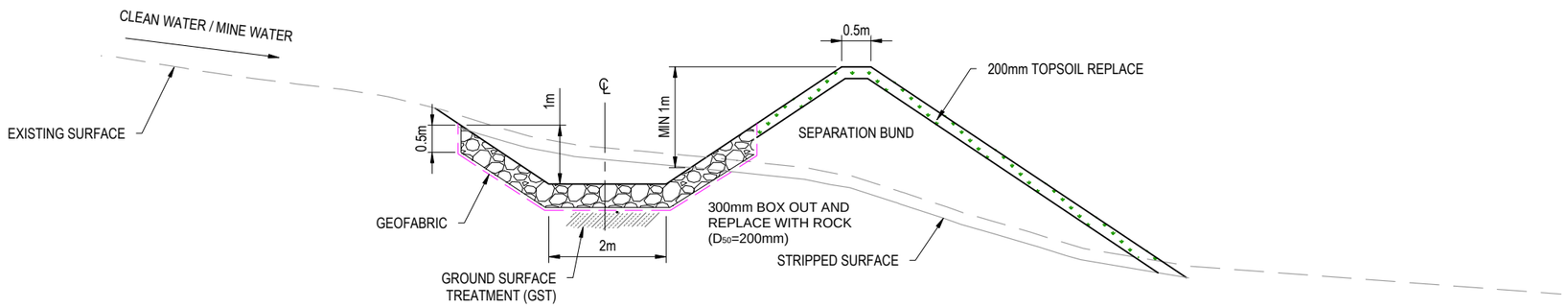
X / XX TYPICAL CROSS SECTION - DRAINAGE NO BUND

NO BUND REQUIRED DRAINAGE INVERT >1m BELOW EXISTING SURFACE



X / XX TYPICAL CROSS SECTION - DRAINAGE WITH BUND

PLACE BUND ON DOWNSLOPE IF INVERT <1m BELOW EXISTING SURFACE



X / XX TYPICAL CROSS SECTION - DRAINAGE ROCK PROTECTION

PLACE ROCK PROTECTION WHERE SLOPE IS GREATER THAN 10%

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PROJECT NAME:

DIANNE COPPER MINE

DRAWING TITLE: CLEAN WATER & MINE AFFECTED WATER DRAIN TYPICAL SECTIONS & DETAILS

0 1 2 3 4m
1:100

SHEET SIZE: A3 | DRAWING NO. : J022.200.10-DWG-001 | REVISION NO. : A

Note: Ensure the scale used aligns with drawing requirements