



Mount Rawdon Operation

Progressive Rehabilitation & Closure Plan

Environmental Authority EPML00712113

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Report Roadmap

This Progressive Rehabilitation and Closure Plan (PRCP) has been developed in accordance with the Queensland Government Department of Environment, Tourism, Science and Innovation (DETSI) Progressive Rehabilitation and Closure Plans (**PRCP**) Guideline (ESR /2019/4964) and the Application Form for Submission of a Progressive Rehabilitation and Closure Plan (ESR/2019/4957).

This document has been structured to align with the requirements of Appendix 1 – PRC Plan Structure of the DES Application Form. Sections 1 to 7 form the ‘Rehabilitation Planning Part’ of the requirements and aims to support and justify the proposed PRCP Schedule. All the information provided in these sections are required under Section 125C (1)(j) of the EP Act. Section 8 of the report contains the PRCP schedule and required reports and plans.

Legislative Requirements

This section of the document provides an overview of overarching Commonwealth and State environmental legislation which has been considered in the preparation of this PRCP. Legislation applicable to the Project has been summarised below in Table 1.

Table 1 Legislative Requirements and Guidelines

Legislation	Overview
Mineral Resources Act 1989 (MR Act)	The <i>Mineral Resources Act 1989</i> (Qld) establishes and regulates the process of obtaining exploration and production permits in relation to coal and other minerals in Queensland. Under section 107 (10) of this act, a mining claim shall only be surrendered once improvement rehabilitation (i.e. the tenement is returned to substantially the same condition it was prior to mining) has been completed and the environmental authority (EA) has been surrendered.
Environmental Protection Act 1994 (EP Act)	The <i>Environmental Protection Act 1994</i> is the mechanism by which the Department of Environment, Tourism, Science and Innovation ensures that the general duty of environmental care is taken by all mines and mine personnel and by which proposed projects licencing and Environmentally Relevant Activities are determined and assessed.
Mineral and Energy Resources (Financial Provisioning) Act 2018 (MERFP Act)	The <i>Mineral and Energy Resources (Financial Provisioning) Act 2018</i> replaces the previous financial assurance regime requirements. The purpose of the MERFP is to decrease the risks to Government on the occasion that an EA holder neglects to meet their environmental and rehabilitation commitments. The MERFP Act also appoints the Queensland Treasury as the regulatory body responsible for managing this new financial provisioning scheme.
Progressive Rehabilitation and Closure Plans Guideline	The Progressive Rehabilitation and Closure Plans Guideline provides information for the applicants to develop a Progressive Rehabilitation and Closure Plan (PRCP) which will act as part of a site-specific EA application for new mining activities. When

	deciding on a PRCP schedule the administering authority must consider this guideline under section 176A of the EP Act.
Rehabilitation Requirements for Mining Resource Activities Guideline	The Rehabilitation Requirement for Mining Resource Activities Guideline was prepared to assist mining companies to plan rehabilitation outcomes and strategies that are acceptable. When deciding on a PRCP schedule the administering authority must consider this guideline under section 176A of the EP Act.
Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)	The <i>Environmental Protection and Biodiversity Conservation Act 1999</i> is the Commonwealth's key piece of environmental legislation regulating Matters of National Environmental Significance (MNES), Commonwealth land, listed marine species and cetaceans, and international trade of wildlife. The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places, defined by the EPBC Act as MNES.

Other Resources

Other resources have been referred to or have assisted with the development of this PRCP. These are listed below:

- Environmental Protection (Rehabilitation Reform) Amendment Regulation 2019
- International Council on Mining & Metals Mining with Principles, Key Performance Indicators: Tool for Closure
- Mined Land Rehabilitation Policy, Department of Environment and Heritage Protection, Queensland Government; and
- North Burnett Regional Council 2014 Planning Scheme.

1 Project Planning

1.1 Project Description

Mount Rawdon Operation (MRO) is a gold mine, owned and operated by Evolution Mining (Evolution). This Progressive Rehabilitation and Closure Plan (PRCP) is developed in accordance with Sections 126C and 126D of the *Environmental Protection Act 1994* and to meet the requirements specified in the Queensland Government's Progressive Rehabilitation and Closure Plans Guideline (ESR2019/4964).

Location

The Mount Rawdon gold deposit is located in South-East Queensland, approximately 80km south-west of the city of Bundaberg, and 300km north-north-west of Brisbane (**Figure 1**). Access to the operational site from Gin Gin on the Bruce Highway is via a sealed road for 52 km south-west to the township of Mount Perry, and then south-east by gazetted road which is sealed for most of its 18 km length.

The deposit lies beneath the southern side of a hill known as Mount Rawdon, located between Mingham Creek and the Perry River which drain to the Burnett River. The Mount Rawdon Operations (**MRO**) Mining Lease area occupies a total area of 2,015.12 ha (**MRO area**) and falls within the North Burnett Regional Council local government area.

MRO was commissioned in January 2001 by Equigold. A merger between Catalpa Resources and Conquest Mining in 2011 saw the emergence of Evolution Mining. MRO is an active open-pit gold mine that utilises conventional open-pit mining methods. The processing plant incorporates primary and secondary crushing, semi-autogenous grinding (SAG) and ball milling, followed by conventional cyanide leaching. The mill throughput is maintained at 3.5 million tonnes per annum of ore with a gold recovery of approximately 90%. The current mine life extends until the end of 2025 and is subject to change depending on mining rates and external factors. See <https://evolutionmining.com.au/mt-rawdon/> for more information.

The operation is currently approved to operate under following permits and licences:

- Environmental Authority EPML00712113
- EPBC 2013/6886.

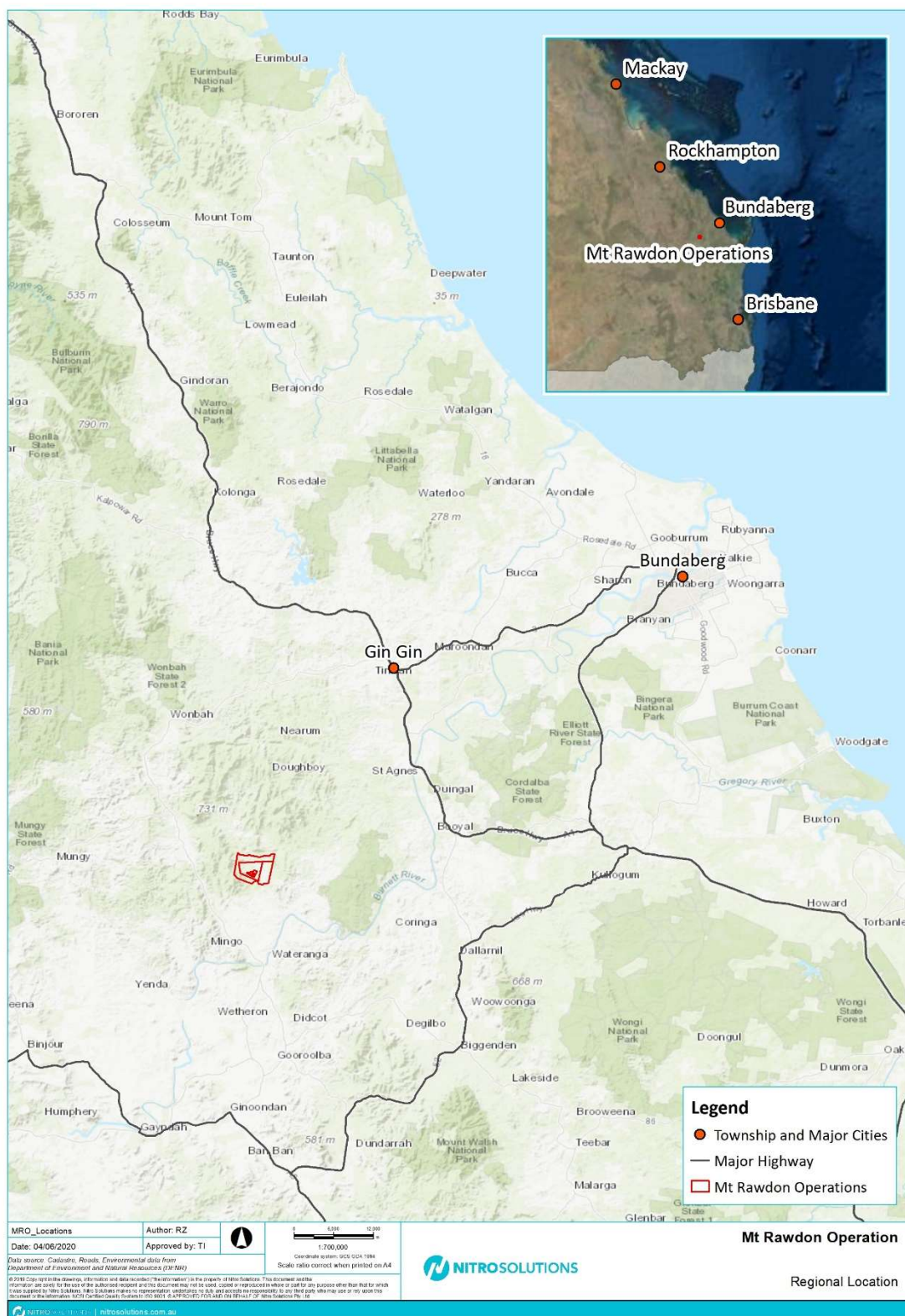


Figure 1: Location of MRO within the Northern Burnett Region

Mining Tenements

MRO is comprised of nine (9) mining leases that total approximately 2,015 ha. The mining tenure at Mount Rawdon overlies land parcels (Lot 3 BN37400 and Lot 2 SP138073), which are owned by Mt Rawdon Operations Pty Ltd (See **Table 2**). The approved mining lease also covers Calliope Cattle Station (Lot 38 BON559).

The MRO and land tenure north of the Burnett River is on land which is the subject of the Port Curtis Coral Coast Native Title Claim. Land tenure south of the Burnett River covers land subject to the Wakka Wakka four (4) Native Title Claim. The current mining leases are defined in **Table 2** and **Figure 2**.

Table 2: MRO Mining leases

Mining Lease	Area (ha)	Cadastre	Activity
ML1206	41.88	Lot 3 BN37400	Open-pit, waste rock storage (North WRD)
ML1210	16.09	Lot 3 BN37400	Open-pit, waste rock storage (North WRD), roads, infrastructure (incl. mineral processing)
ML1259	593.63	Lot 3 BN37400; Lot 2 SP138073; Lot 38 BON559	Open-pit, waste rock storage (West, North and Possible Acid Forming WRD), tailings storage, water management, borrow pit/topsoil storage, roads, infrastructure (incl. magazine, explosives batch plant, offices, workshops, laydown areas, pipelines, powerlines, landfill, waste burning area, ERT training area)
ML1231	8	Lot 3 BN37400	Open-pit, waste rock storage (West WRD), water management, topsoil storage, roads, infrastructure (incl. mineral processing)
ML1203	0.4	Lot 3 BN37400	Open pit
ML1192	1.801	Lot 3 BN37400	Open pit
ML1204	2	Lot 3 BN37400	Open pit
ML50119	485.5	Lot 3 BN37400	Waste rock storage (North WRD), water management, topsoil storage, roads, infrastructure (incl. pipelines, powerlines)
M100059	865.819	Lot 3 BN37400; Lot 2 SP138073; Lot 38 BON559	Open-pit, waste rock storage (West WRD), tailings storage, water management, borrow pit/topsoil storage, roads, infrastructure (incl. laydown areas, pipelines, powerlines)



Figure 2: MRO Mining Lease

Mining Activities

The general layout of the MRO mining, processing and waste disposal activities within the mining leases is displayed in **Figure 3** below. The methodologies and process flows (relevant activities) undertaken at MRO can be seen in **Figure 4** below.

Mining Methods

The mining at MRO involved the extraction from a single open-cut pit using conventional drill and blast/load and haul methodologies are employed across 10 – 15 m benches with a remaining life of mine strip ratio of 2:1. Mining in the open pit was completed in August 2024.

Ore Processing

Mt Rawdon processes ore through the processing plant which consists of a primary and secondary crushing, semi-autogenous grinding (SAG) and ball milling, followed by conventional cyanidation leaching. Gold feed is recovered through a gravity circuit before the flotation circuit. Ore processing is expected to continue until the end of 2025.

Crushing

Run of mine ore is direct dumped or dumped via loader into a primary gyratory crusher. Approximately 70% of this material is passed through a secondary crusher then conveyed to an open conical stockpile.

Milling

Ore is drawn from the bottom of the stockpile by vibratory feeders onto the mill feed conveyor. This feeds a conventional SAG mill/pebble crusher/ball mill circuit with hydro-cyclones classifying the final product. Two (2) Knelson (centrifugal) concentrators are used in conjunction within the grinding circuit to remove coarse gold. The second Knelson concentrator and a 'Consep Acacia' leach reactor were introduced to decrease the reliance on retrieving gold from the cyanide leaching process.

Leaching

The slurry produced from the grinding circuit is passed through six (6) leach tanks which are each equipped with mechanical agitators and intertank screens. Activated carbon is used to adsorb leached gold and silver from the slurry and is moved counter current to the slurry flow until reaching the front of the leaching circuit.

Gold Recovery

Carbon is periodically removed from the leaching circuit and treated in an AARL stripping circuit to remove the adsorbed gold and silver. Electrowinning is used to recover precious metals from strip solution prior to smelting into bars.

Other Facilities

Discharged slurry is pumped to a tailings storage facility which undergoes treatment to recover water is used to supplement the processing plant, along with raw water.

The major reagents used in the gold processing plant include lime, sodium cyanide, steel balls, caustic soda, hydrochloric acid, activated carbon, liquid oxygen and LPG.

Dewatering

Dewatering of the site infrastructure and rehabilitation area features occurs when required. Pit dewatering usually occurs following significant rain events and is generally pumped to West or South Dams. Several pump back bores, interception drains and pump back wells have been installed to assist in dewatering across the site and this is discussed further in **Section 5.1**.

Waste Rock Disposal

As part of the excavation process, all waste material is classified into acid generating categories (non, medium and high). High waste material is placed into the internal structures of the TSF, medium is encapsulated in the North Waste Rock Dump and non-acid forming material is placed in the West Waste Rock Dump or used to construct the Tailings Storage Facility (TSF) buttress embankment. Both dumps have water runoff, seepage and infiltration management systems that are discussed later in **Sections 5.1**.

Mineralised Waste/Low Grade Ore

Ore stockpiling has been implemented at MRO for future processing. Sub-grade (0.2g/t-0.3g/t), Low Grade (0.3g/t-0.5g/t), and “Steel Load” stockpiles have been established on the northern waste rock dump and will be either processed or remain in situ and rehabilitated. The stockpiling strategy enables better control of blending of rock type and grade control for the processing plant.

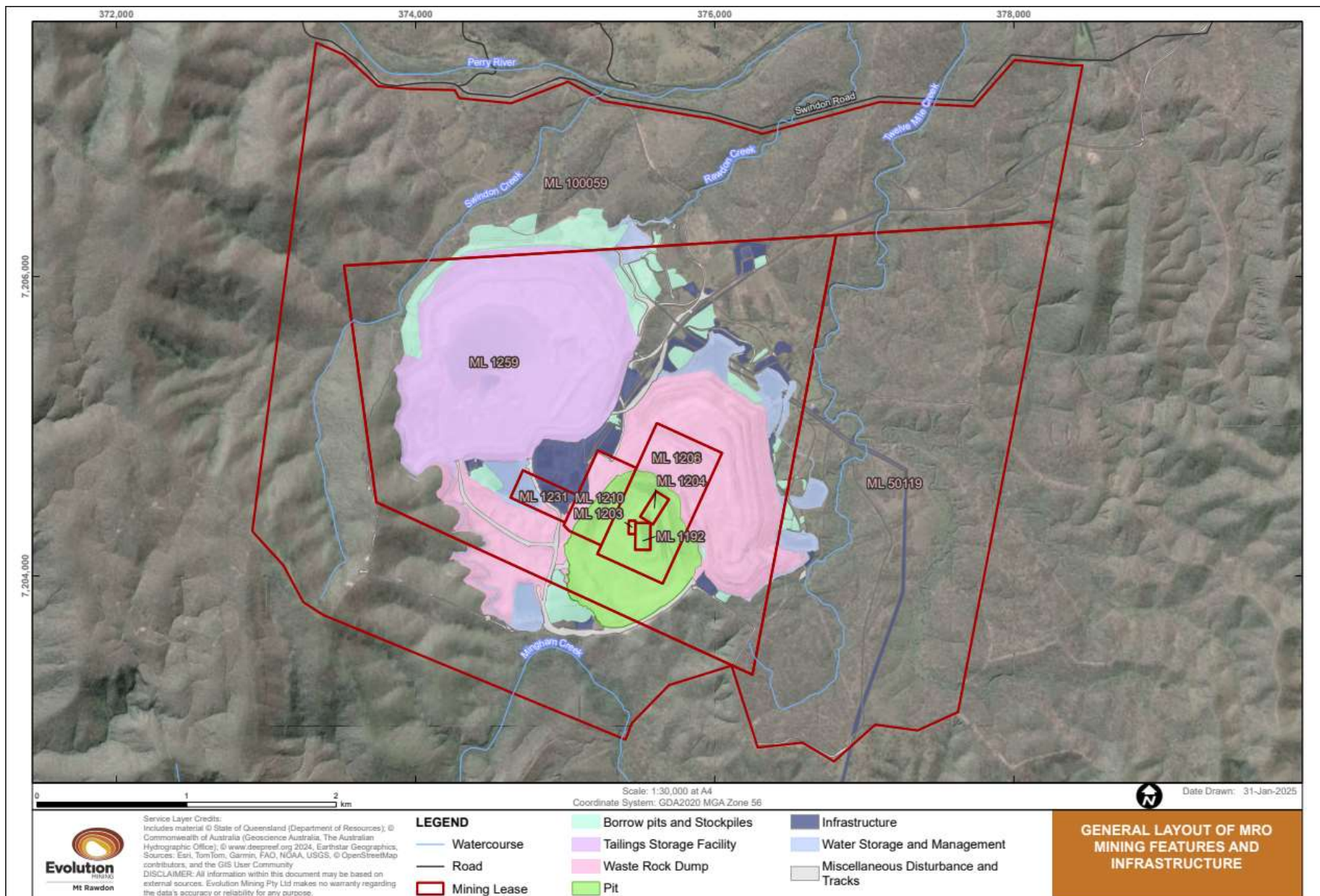


Figure 3: General Layout of MRO Mining Features and Infrastructure

1.2 Baseline Information

Regional Site Topography

MRO is situated within a regional land resources survey area undertaken by the then Queensland Department of Primary Industries, now the Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development. The MRO area falls into the Aranbanga Unit of the regional land system classification. The landform consists of rolling hills to steep hills. **Figure 5** provides a regional topography map.

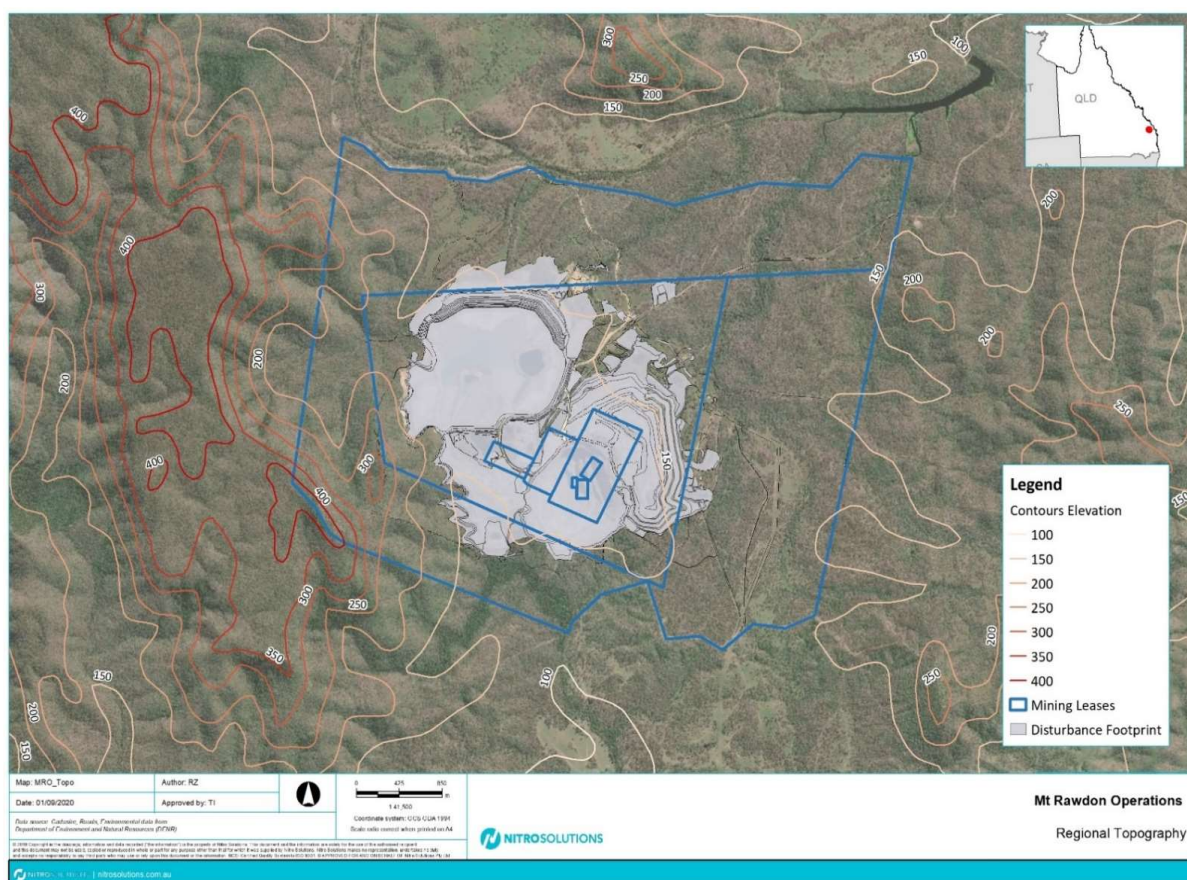


Figure 5: MRO and Regional Topography

Local Site Topography

The mineral deposit is located beneath previously mined Mount Rawdon hill. Weathering has resulted in down-cutting of the surrounding softer materials to gently undulating hills, and alluvial flats have formed by deposition along watercourses. The topography at the site falls away steeply from an elevation of 256 m Australian Height Datum (**AHD**) at the top of Mount Rawdon to undulating hills of about 150 m AHD elevation at its base. The land then slopes gently over three (3) km to alluvial flats along the Perry River where the elevation is approximately 120 m AHD. The drainage direction is predominantly to the north and east. Ephemeral creeks drain the deposit area north into the Perry River, and subsequently into the Burnett River. There is no natural permanent standing water in creeks, although several water holes occur along the Perry River which may contain small amounts of water year-round. Perry River Dam, which was constructed to supply raw water to MRO, contains permanent standing water.

Climate

Mount Rawdon is located within the subtropical region of Queensland, characterised by hot summers and mild winters. The region can experience droughts, floods, heatwaves and frosts. Rainfall in this area typically presents as short, intense rainfall events that occur primarily in the wet season, from November to April. Climatic data has been sourced from the Bureau of Meteorology (**BoM**) weather station Mt Perry The Pines (BoM station number 39070) from May 1887 to December 2024. Data from this station has been used to characterise the climate in the region, as this weather station is the closest to MRO, approximately 16 km north-west of the mining tenement. The data from Mt Perry (2024) is used predominantly in this plan as it is closest station to MRO and has over 100 years of continuous data from 1923-2023 and preference is given to records from an actual rain gauge, above that from an artificial co-ordinate/point dataset, as generated by SILO Long Paddock platform (State of Queensland, 2024a).

Temperature

Maximum average temperatures are approximately 31°C during the summer months (December to February) and 22°C during the winter months (June to August). Minimum average temperatures are approximately 19°C during summer and 7°C during winter. A mean daily minimum and maximum temperature graph for the area is shown in **Table 3** and **Figure 6**.

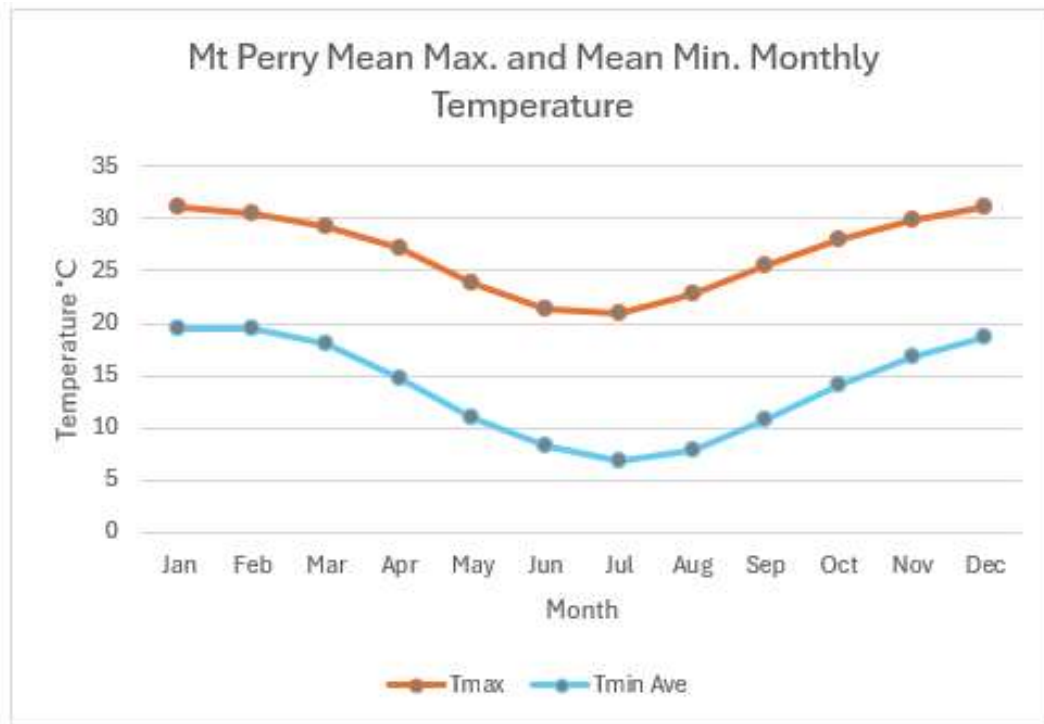


Figure 6: Mt Perry Mean Maximum and Minimum Monthly Temperature (BOM, 2024)

Table 3 :Mt Perry Mean Maximum and Mean Minimum Monthly Temperature (BOM, 2024)

Parameter	Jan	Feb	March	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
Mean Max (°C)	31.1	30.5	29.3	27.2	23.9	21.3	20.9	22.7	25.5	28.0	29.8	31.0	26.8
Mean Min (°C)	19.6	19.4	17.9	14.6	11.0	8.2	6.7	7.8	10.7	14.2	16.7	18.6	13.8

Rainfall

Rainfall averages were reviewed from ‘The Pines’ weather station at Mt Perry (Bureau of Meteorology (BOM) station 39070) from 1890. Annual rainfall is highly variable with the highest annual rainfall recorded was 1,994 mm in 1956 while the lowest annual rainfall was 379mm in 2019. The mean annual rainfall is 928mm. Rainfall is not evenly distributed throughout the year, with most (approximately 70%) of the rain falling in the wet season from November to April. The highest daily rainfall recorded via the Bureau of Meteorology (BOM) was 339mm in January 1890. **Table 4** and **Figure 7** provide a visual representation of average and highest recorded rainfall.

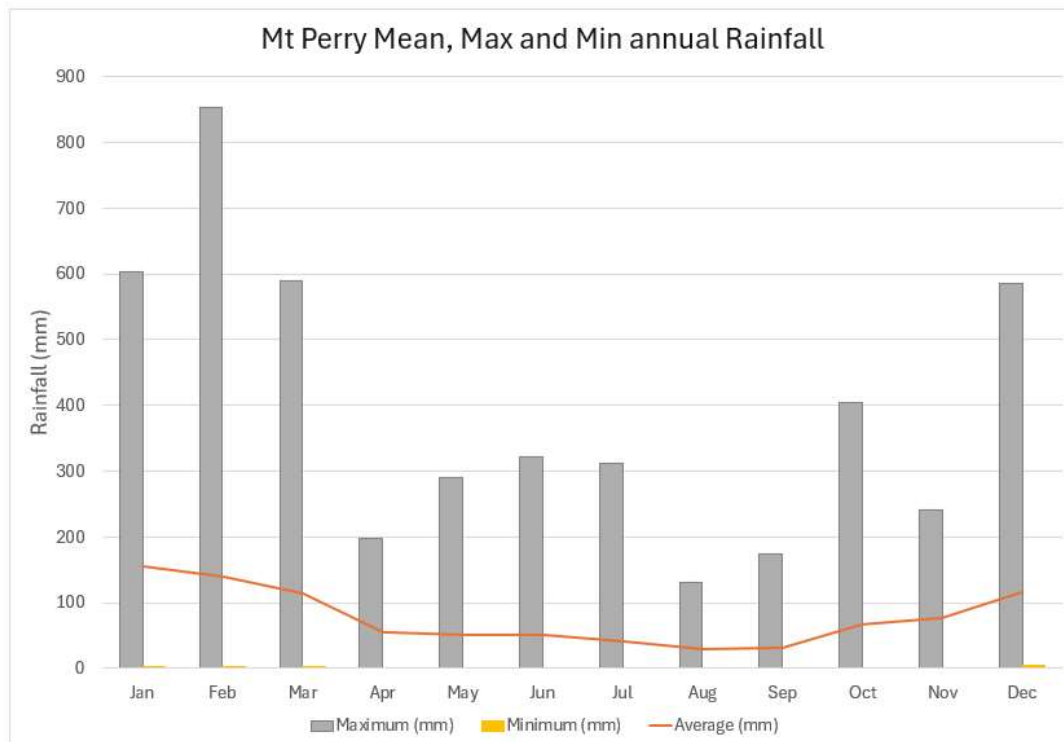


Figure 7: Mt Perry Mean, Maximum and Minimum Recorded Rainfall (BoM, 2024)

Table 4: Mt Perry Mean, Maximum and Minimum Recorded Rainfall (BoM, 2024)

Parameter	Jan	Feb	March	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
Average (mm)	155.3	140.4	113.7	54.6	51.3	50.6	40.8	30.2	31.1	66.6	76.9	116.2	928
Highest (mm)	602.6	853.9	589.1	197.0	290.6	321.1	312.1	130.4	173.8	405.0	241.5	584.8	2,207
Lowest (mm)	0.5	1.3	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	379

Plots of the cumulative deviation from the mean annual rainfall, show that rainfall is variable deviates from the annual average on year-to-year basis, producing extended wetter and drier sequences (**Figure 8**). For the first eight (8) years of operations at MRO, the annual rainfall total was below average as the area experienced a significant and prolonged drought. The next eight (8) years of operation have been significantly wetter, with significant and widespread flooding in the region on two (2) occasions (2010/11 and 2013). Since 2016 MRO has received rainfall below the monthly average. Impacts of climate change are resulting in increased variability of predicted weather patterns and these impacts are considered throughout this document in terms of impacts to rehabilitation.

It is important to note that the maximum yearly rainfall is more than double the average yearly rainfall, indicating that extreme isolated events occur in some years. These events are likely the

product of depressions, cyclonic events, or other extreme meteorological conditions. Rainfall also varies spatially across the local region.

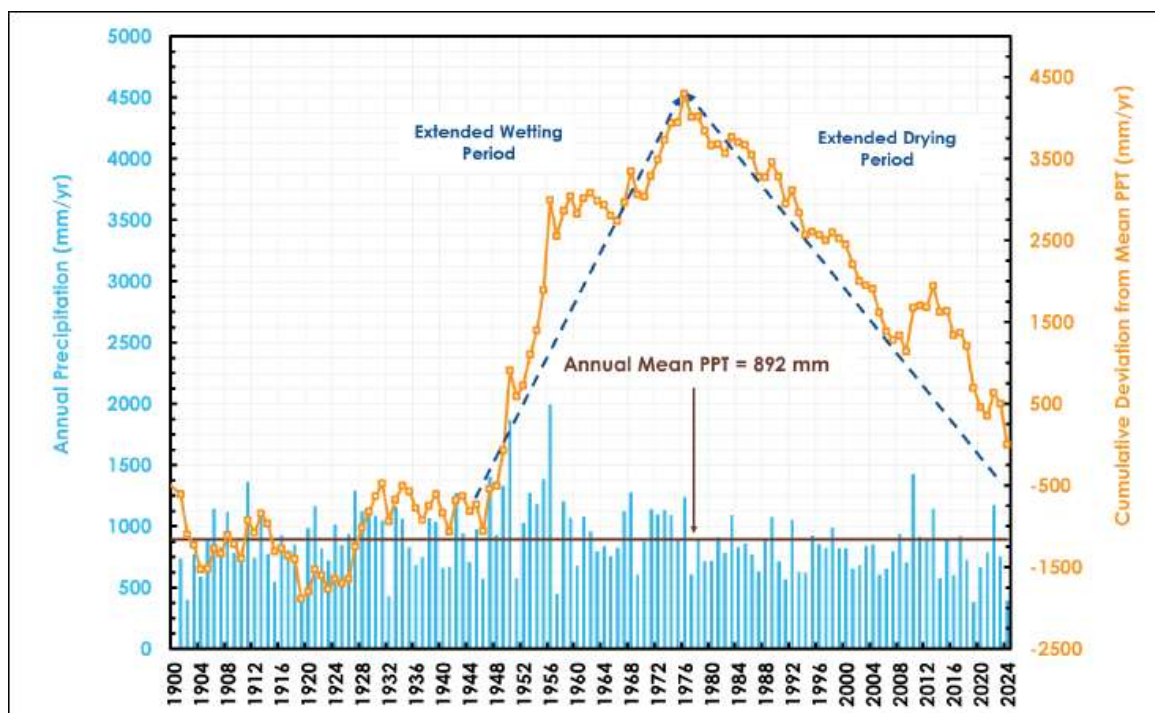


Figure 8 : Annual rainfall and cumulative deviations from average annual rainfall at MRO.

Average annual evaporation is 1,781.2 mm, with significantly higher evaporation during the hotter summer months (**Table 5**). This has been used to estimate evaporation losses from water storages.

Table 5 : Mt Perry Average monthly Evaporation (BoM, 2024)

Parameter	Jan	Feb	March	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
Average (mm)	206.2	166.8	164.3	125.9	96.2	78.1	86.3	114.1	149.4	184.8	196.9	212.4	1,781

Long-Range Climate Predictions

Short term climate predictions indicate an increased variability of impacts across the region that fluctuate according to season. The longer-term predictions for climate variability within the Wide Bay-Burnett Region leading up to 2030 (and beyond) include higher temperatures (0.6°C to 1.3°C above 1896 – 2005), reduced rainfall, increased frequency of hotter days, and fewer frosts (DES, 2019). These projections have been modelled from the Commonwealth Scientific and Industrial (CSIRO) and the BoM data based on ‘high emission’ scenarios.

Geological Setting

Regional Geology

MRO is located on the Maryborough 1:250,000 sheet as part of the Aranbanga Volcanic Group (**AVG**), which unconformably overlies rocks of the Curtis Island Group (CIG) and is intruded by Permo-Triassic

granitoids. The AVG previously referred to as the Aranbanga Beds, lie within the Coastal Block, one of three (3) major stratigraphic blocks recognised in the region. These blocks trend eastward from the Carboniferous Coastal Block to the Late Carboniferous Goodnight Block and the Permian Gympie Block.

Local Geology

The primary geological feature in MRO is the extinct core of a shield volcano flanked by the Aranbanga Andesites to the west and silicified Curtis Island Metasediments to the east (**Figure 9**). The volcano's central core is an intensively fractured, collapse structure of dacite and dacite-rich volcaniclastics (Mine Sequence Volcanics) formed during the late Triassic (235 – 215 Ma) involving phases of tectonic reactivation, and intrusion of magmas through reactivated fractures that formed dacitic, rhyolitic and quartz-feldspar-biotite-porphyry (QFBP) dykes and sills. Trachyandesite and andesite dykes formed during the last phase of brittle fracturing.

- The Mine Sequence Volcanics - a complex of rhyolitic, volcaniclastics and dacite rock units. This formed the original mountain, which has subsequently been mined and is now an open pit mine;
- The Aranbanga Andesites - andesitic lavas, dacitic lavas and volcaniclastics. On the western flank of the TSF the volcaniclastics have been silicified;
- The Curtis Island Metasediments – silicified sedimentary rock that can feature relict bedding planes. The Curtis Island Metasediments occur on the eastern part of the MRO area, and cover the largest area of the MRO area; and
- Trachyte and granodiorite intrusives that penetrate the Curtis Island Metasediments.

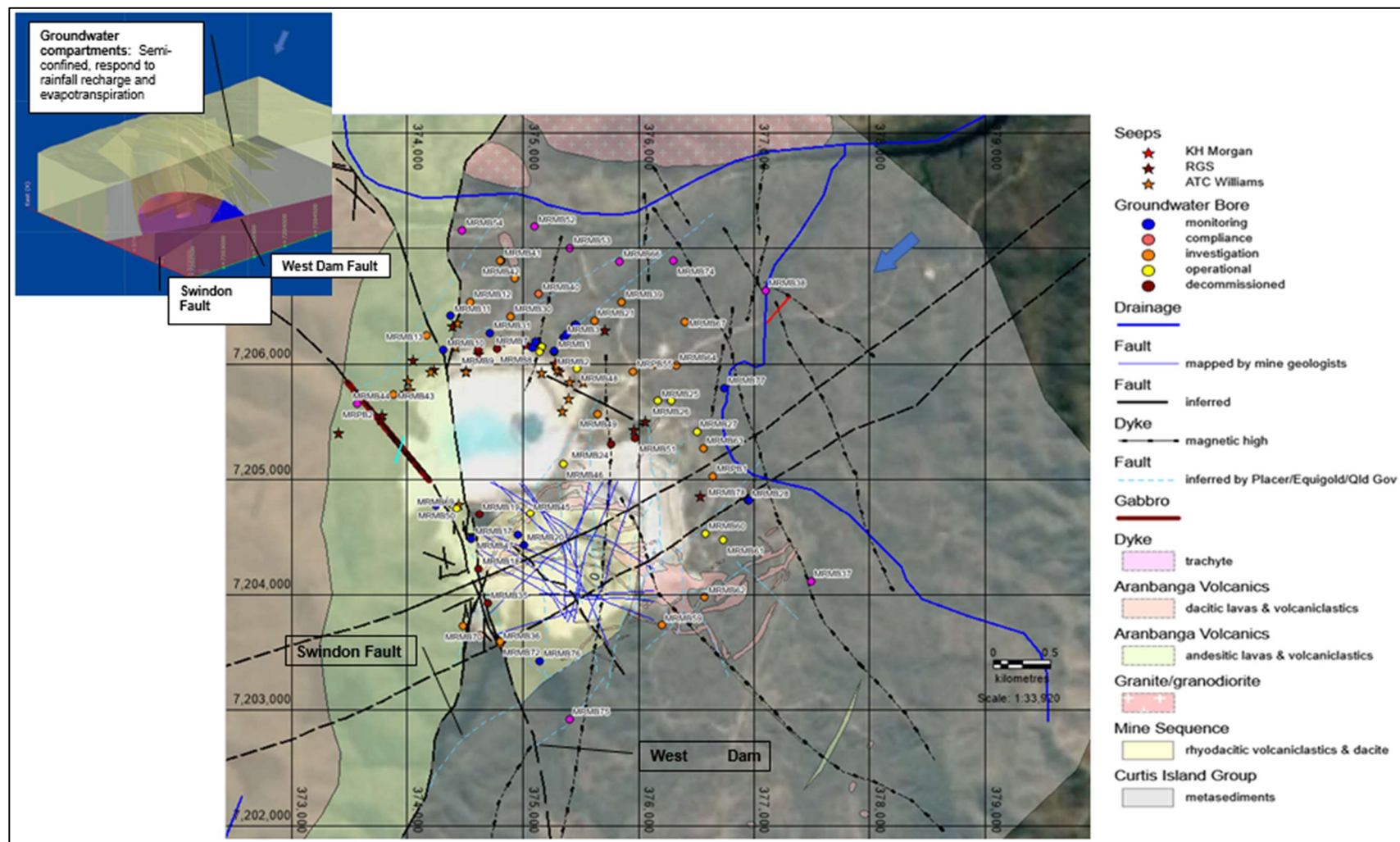


Figure 9: Geological Map

The major faults in the mine lease are:

- North-South structures subparallel to the regional scale Mount Perry Fault that reactivated early basement faults. The North-South set have moisture, but the fault is filled with gouge material and secondary minerals that impede water flows;
- East-North-East structures (Biggenden Set) have moisture and are important for water transfer because adjacent water types (granites and metasediment) with different permeabilities are juxtaposed that may affect the groundwater flow direction, and
- Late brittle faults through which the andesite intruded. The andesite dykes provide hydrogeological barriers, although there may be minor groundwater transmission parallel to the dykes through mm-wide crush zones that are occasionally observed at contacts between the dykes and country rock.

There are also water conducting joints observed in the pit (associated with the Mine Sequence Volcanics). Before mining they were water saturated and became drained when mining opened connections with the pit. Below 90 m RL in the pit there are fewer open joints. The joints respond to intermittent heavy rainfall events, but flow lasts only a few days.

The fault structures play a key role in hydrogeological interactions and the compartmentalisation of groundwater in the fractured rock aquifer:-

Gold associated with pyrite is being mined. The insert in **Figure 9** provides a below-ground view of the mine lease (the blue arrow provides a reference point to the geological map), which shows the fault contacts between the Aranbanga Volcanics and the Curtis Island Metasediments (West Dam Fault), as well as between the Curtis Island Metasediments and the Mine Sequence Volcanics (Swindon Fault). The West Dam Fault is a North-South structure below West Dam and the TSF, which is filled with gouge material and secondary minerals and as such is impermeable to groundwater flow. The insert also shows the presence of fault structures within the Curtis Island Metasediments that contribute to groundwater compartmentalisation.

Evidence of the oxidation of pyrite (which weathers to iron oxides) associated with water conducting joints that have been opened by mining can be seen along the pit wall (**Figure 10**). Further information is provided in **Section 5.5**.



Figure 10: Pyrite weathering to brown iron oxide along the north-western wall of the pit.

Hydrology and Fluvial Networks

Regional Hydrology

MRO is situated in the Lower Burnett sub-catchment of the Burnett Basin catchment as shown in **Figure 11**. The Burnett catchment is the third largest river basin on the east coast of Queensland, with a catchment area of approximately 34,500 km². The lower Burnett sub-catchment comprises an area of 3,874.9 km² which comprises of 5.9% of the Burnett Catchment. Surface runoff from MRO drains into the Burnett River towards the south of the site and into the Perry River towards the north of the site.

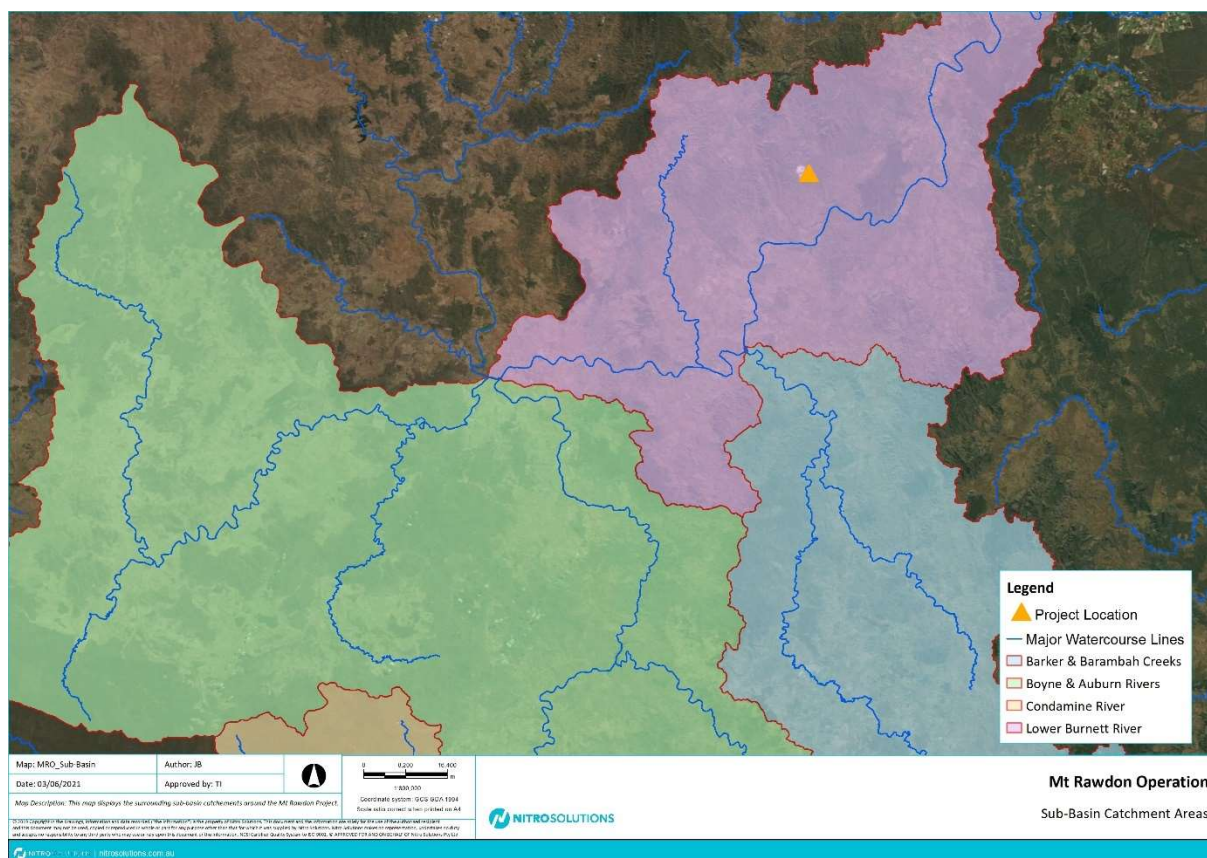


Figure 11: MRO Location to Burnett River Catchment

The Perry River is a tributary of the Burnett River and joins the Burnett River near Morganville, approximately 35km downstream from the site. The catchment area of Perry River at MRO is approximately 156 km².

The Burnett River flows from the Burnett Range to the mouth at Burnett Heads, a total of 420 km. The identified main tributaries of the Burnett River are the northern tributary (Three Moon Creek), the north-western tributary (Nogo River), the south-western tributary (Auburn River), the southern tributaries (Boyne and Stuart Rivers), the south-eastern tributaries (Barker and Barambah Creeks) and the eastern tributary (Perry River).

The mineral deposit lies on a catchment divide with the drainage direction predominantly to the north/east. Ephemeral creeks drain the deposit area north into the Perry River and subsequently into the Burnett River. There are no areas of permanent standing water in the ephemeral creeks. Runoff in creeks is usually of short duration and has high concentrations of suspended sediment, related to the flow intensity and disturbance of catchments by clearing of land for grazing.

Baseline and background water quality of the Perry River was reviewed by Placer Pacific Limited in 1996 and Equigold in 2001. Reports showed that the water quality is considered to be high and containing only very low concentrations of dissolved constituents, with high suspended sediment concentrations during flow events.

Site Drainage

The primary source of surface water on the site is the runoff caused after a rainfall event. Runoff flow paths are as follows:

- Northward surface runoff flows via Rawdon Creek and Twelve Mile Creek into the Perry River, which joins the Burnett River near Morganville 35 km downstream from MRO.

- Southward surface runoff flows into Mingham Creek via unnamed tributaries, into the Burnett River 8 km further south of MRO.

Runoff from MRO occurs rapidly and surface flow is sustained in creeks for several days following rainfall. These creeks are primarily ephemeral and have no areas of standing water. Water in the Perry River is limited to a series of low volume waterholes for a predominant portion of the year.

Designated creeks in mine-affected parts of the lease are:

- Swindon Creek;
- Rawdon Creek;
- Twelve Mile Creek; and
- Mingham Creek.

A network of drainage lines at the site feed these creeks after rainfall. Some drainage lines coincide with inferred fault structures that may provide groundwater flow-paths, this is discussed further in **Section 5**.

Surface runoff sheds rapidly as stormwater, and the ephemeral creeks flow for a few days after rainfall events with standing water remaining in a few isolated, low volume waterholes. These waterholes recharge annually in response to wet season rainfall.

Runoff from MRO can dissolve contaminants while it seeps through the various ore and waste storage landforms on-site or comes in contact with the exposed mineralised zones in the open pit. To prevent contamination of the receiving environments, such mine-affected stormwater is stored in containment structures constructed at MRO. These containment structures include the tailings storage facility (TSF) and seepage interception dams (**Figure 12**).

Existing water uses in the local region (not within the MRO lease) are restricted to livestock and fauna watering from earth dams and the limited waterholes along creeks. Further downstream on the Perry and Burnett Rivers, water is used for irrigation by numerous landholders. **Figure 13** provides a map of identified downstream residences that may utilise the Perry River for irrigation purposes.

Seepage Intervention and Collection – Current Controls

Mine-affected water/Seepage from Waste Rock Dumps

Acid forming waste rock is managed by identifying ranges of PAF material and then encapsulating the material within structures using NAF material (i.e. NAF waste rock on the NWRD and NAF tailings on the TSF).

Four seepage drainage lines exist on the east of the NWRD that carry solutes through the rock pile. These seeps are managed by:

- Four water retention dams (WD1, WD2, WD3, WD4) that intercept stormwater and seepage. Water is transferred to WD1 from WD2, WD3 and WD4, and then returned to the Raw Water Dam for use as process water.
- Seepage interception systems downstream of WD1 and WD2, which drain into dewatering wells that return seepage water to the retention dams.
- Observing and recording groundwater standing water levels and water quality in monitoring bores MRMB25 and MRMB26 (downgradient of WD1) and MRMB27 (downgradient of WD2). Both bores MRMB26 and MRMB27 are equipped to also return intercepted seepage in groundwater to WD1 and WD2 respectively.
- Neutral mine drainage generated in the WRD flows southward into the West Dam. These seeps are contained by the dam.

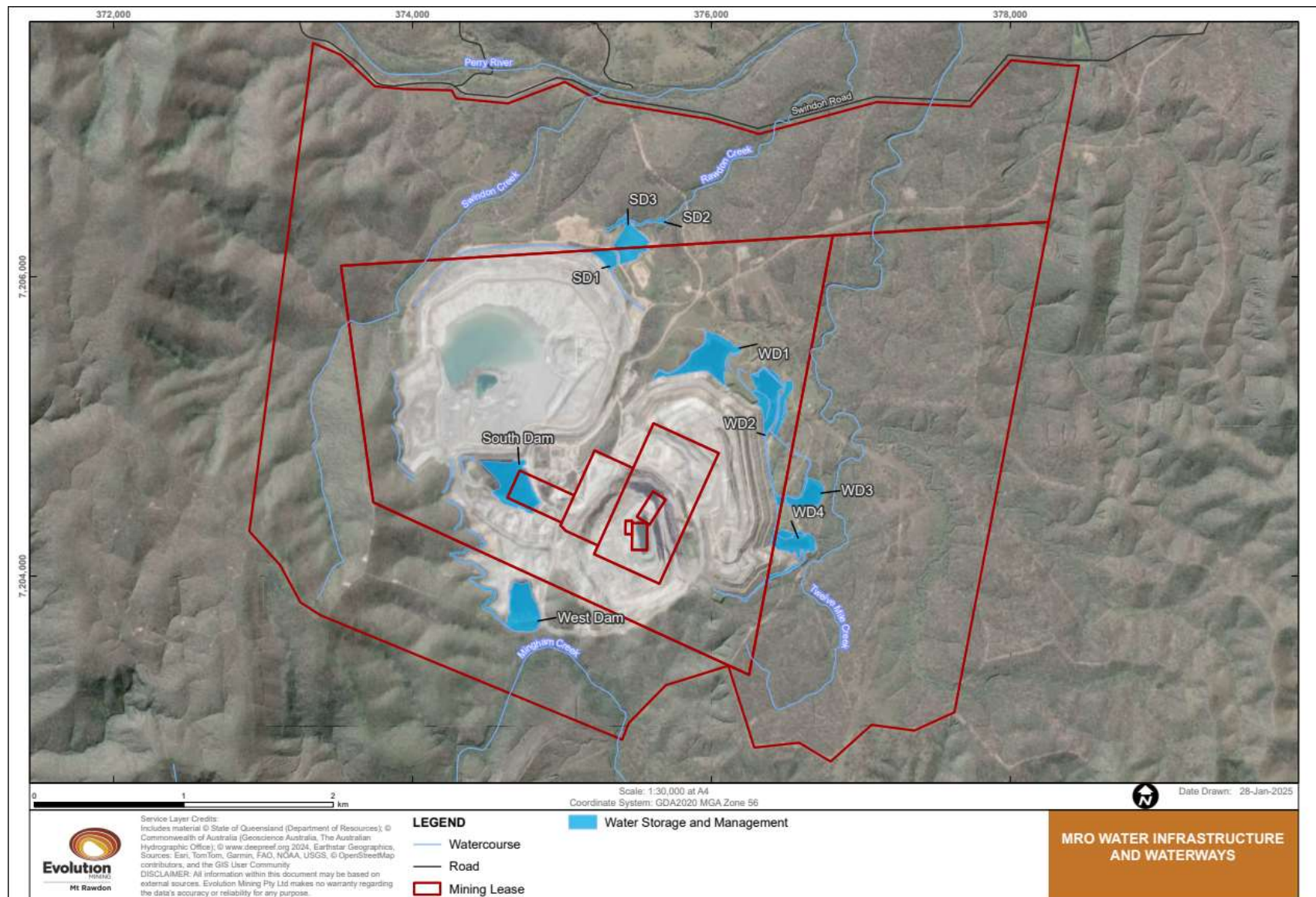


Figure 12: MRO Water Infrastructure and Waterways

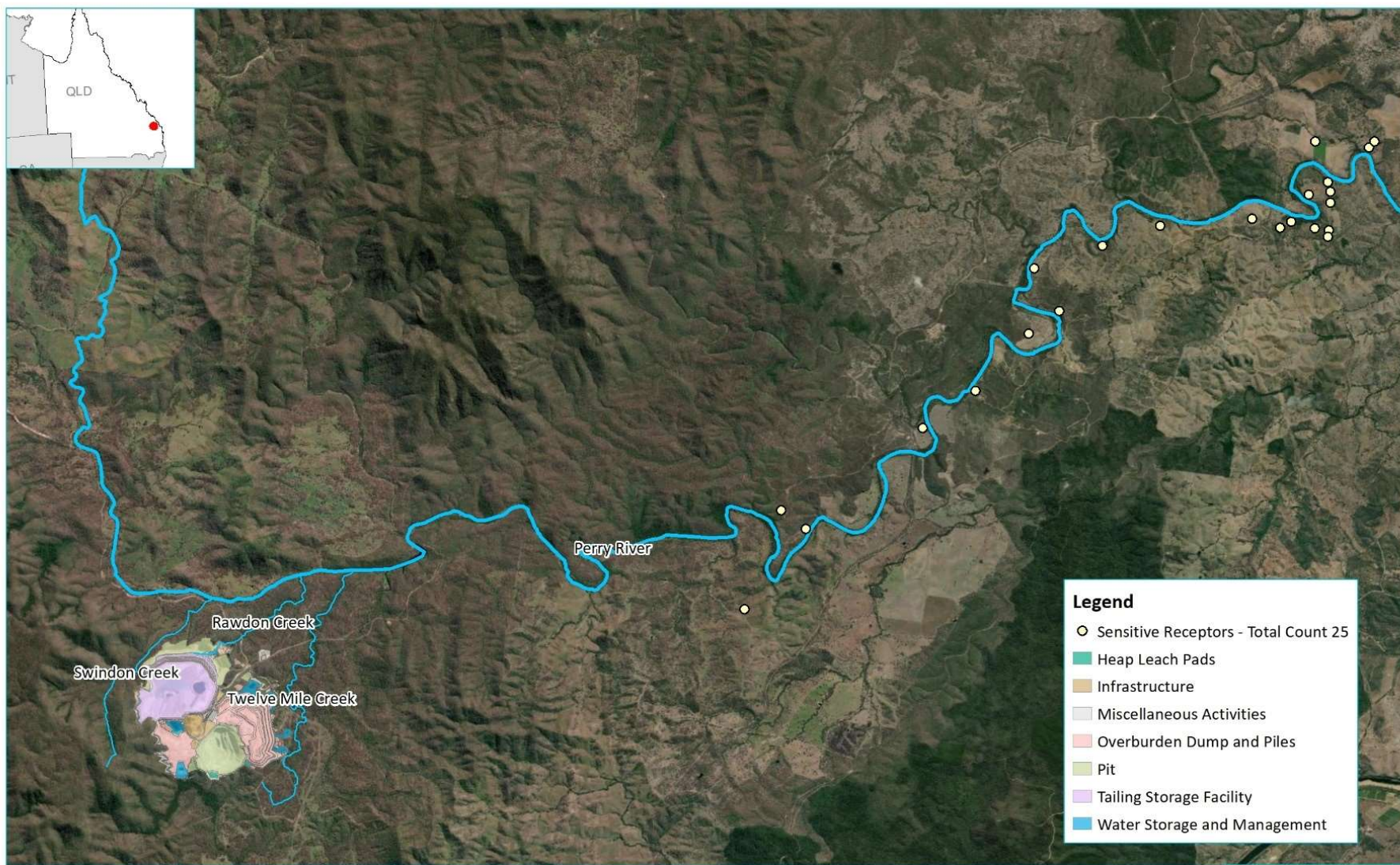


Figure 13 Downstream Riverside Residence Locations

The drainage lines that run downstream from the WRDs have been mitigated by the installation of interception dams which also have sumps installed at WD1, WD2 and West Dam. Pump-back bores have been installed along the flow pathways from Waste Dam 1 and Waste Dam 2 to Twelve Mile Creek.

Control of Seepage from the TSF

For the seepage zone located to the north of the TSF, the Seepage Interception Drain and a reconditioned Toe Interception Drain (that replaced the four pump-back wells and two pump-back bores), currently limit the effect of the pressure from the hydraulic head of the TSF exerts on the downgradient receptors. The intercepted water is then returned to the processing circuit via Sediment Dam 1. The TSF Seepage Interception drain has been observed to lower the effective hydraulic head of seepage from the TSF by between 0.7 and 1.4 m during dry weather. The effect of lowering the effective head by 0.75 m was modelled.

West of the TSF, a seepage drainage line is intercepted and redirected via pump-back bores, wells and a seepage pond. This infrastructure intercepts and redirect shallow seepage back to the Seepage Interception Drain or TSF.

Seepage south and southeast of the TSF is collected by Stans Well, an underdrain which limits the drawdown potential below the eastern wall of the TSF and returns water back to the processing circuit or through to South Dam via a pump and pipe network.

Ongoing Seepage management

Existing mitigation and management of seepage is reviewed annually during Groundwater Management and Monitoring Plan reviews and any further mitigation infrastructure will be put in place as required.

Upon further investigation, the commissioning of sulphate reduction wetlands as a low maintenance and long-term seepage intervention program may also support the closure strategy for MRO.

General contaminant Seepage from Operational Areas

MRO requires management of seepage risk from the land disposal of wastewater generated from sewage systems. This is achieved either by removing wastewater from site or locally treating wastewater and disposing it on land, as approved by the EA.

Hydrocarbons, acids and cyanide are stored and handled in bunded and/or secure areas according to Australian Standards section 5.8 of AS 1940 (2004), section 5.7 of AS 3780 (2008) and section 5.7 of AS4452 (1997). The objective is to contain and manage potential spills so that disposal and treatment does not negatively affect environmental or human health.

Sewage generated in the main administrative offices and the fixed-plant maintenance area is processed by the Wastewater Treatment Plant located adjacent to the main office area, and of removal by truck for off-site disposal. If required, there is also the option of disposal onto a land application area in amounts that can be assimilated by soil and growing plants. This ensures that deep leaching of salts and nutrients does not occur.

If a spill of acid, cyanide or hydrocarbon occurs the Chemical Spills Procedure (MRO ENV PRO 0228), Cyanide Spill Response TARP (MRO_MIL_FOR_0533) or Hydrocarbons – Spill Clean- Up/Disposal Procedure (MRO ENV PRO 0204) are followed. These dedicated procedures contain, report, clean-up and if required rehabilitate the site.

Hydrocarbon spills in operational areas are recorded, and affected soil is excavated or removed and transported to a bioremediation facility (land farm) for aerobic biodegradation of the hydrocarbon.

The landfill area contains mainly inert materials that have been disposed of in a trench, except for a relatively small volume of timber and timber pallets that may putresce.

Hydrogeology

Hydrogeology Groundwater Occurrence

At the MRO scale, groundwater is hosted in fractured rock that has been subjected to varying depths of weathering, with aquifer permeability being a function of the hydraulic conductivities of rock matrices (with weathered, foliated rock being more permeable than unweathered volcanic rock) as well as the density, aperture and connectivity of open fractures and joints within the rock mass. Three (3) types of groundwater storage have been identified in the MRO area:

1. Small pockets of alluvium in stream beds in the lower parts of the mine lease, below the hinge line of the spur-valley topographic profile. These pockets typically dry out each dry season;
2. Isolated deep pockets of soil, weathered rock (saprolite) and oxidation transition zones. Groundwater storage is subject to drainage after rainfall events on elevated sloping land. These storages typically become depleted in the dry season; and
3. Rock fractures with low storage capacity that recharge rapidly from rainfall, but also exhibit large water-level declines from evapotranspiration and downslope drainage. Due to limited volume, these structures are potentially fast response and may show a greater change in the hydraulic head than water stored in saprolite.

The depth to groundwater is shown in **Figure 14**.

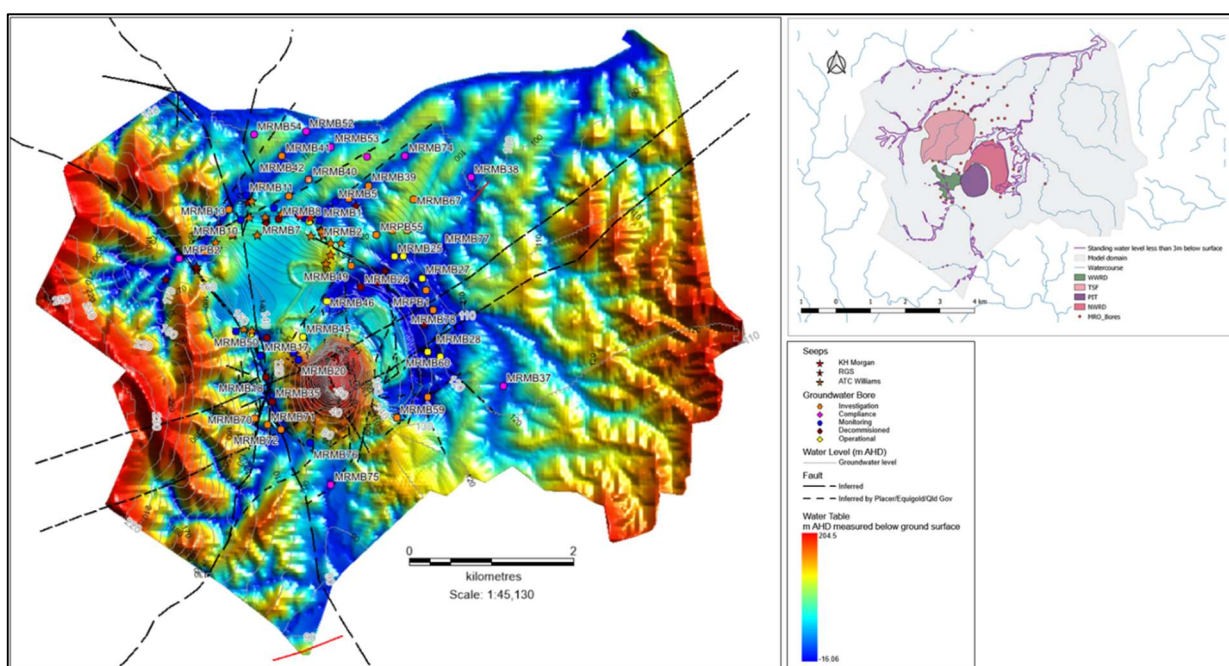


Figure 14: Groundwater Depths

The aquifer permeability at MRO ranges from impervious to semi-pervious rock (Saturated hydraulic conductivities of $4.2\text{E-}3$ to $5.5\text{E-}1$ m/d, Transmissivities of $1.2\text{E-}2$ to $8.4\text{E+}0$ m²/d). In parts of the MRO area, the aquifers are compartmentalized (**Figure 14**) being recharged by rainfall and dewatered by evapotranspiration. Groundwater may be stored in weakly connected pockets in deep fracture zones that extend beyond 80 m deep.

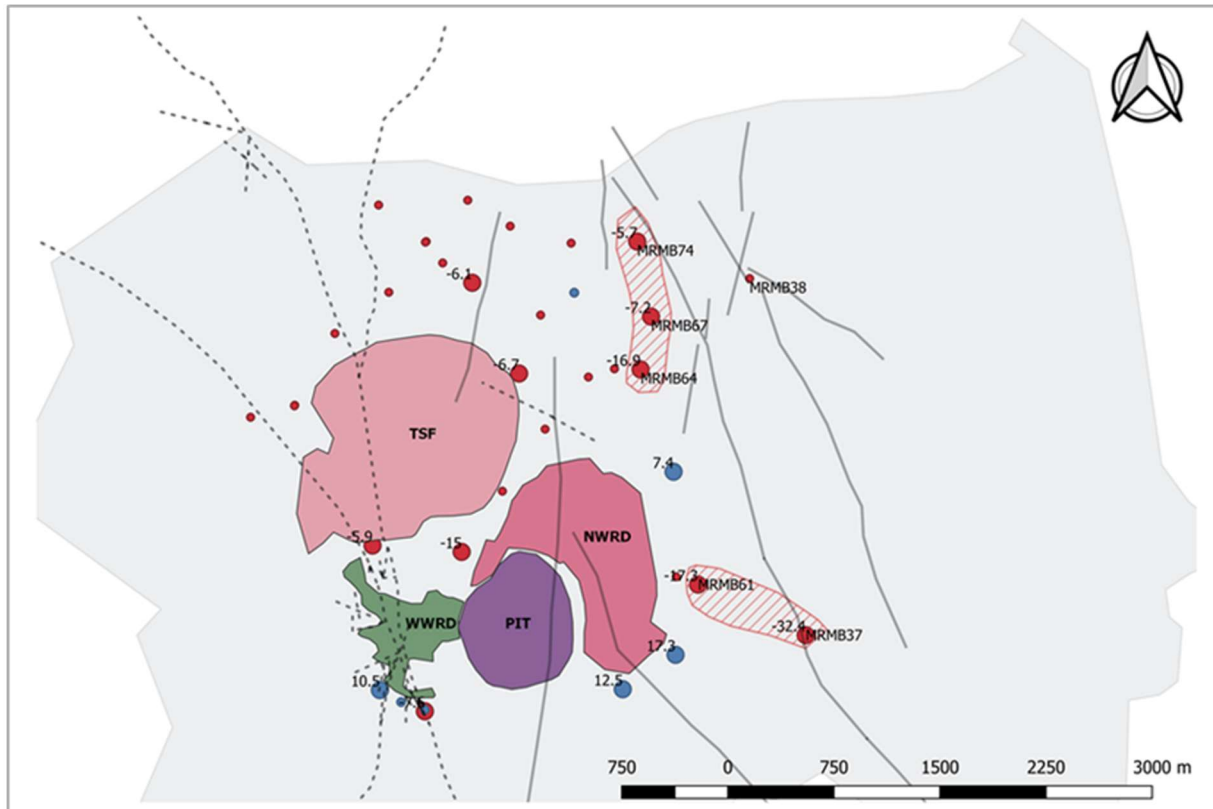


Figure 15: Zones of Compartmentalised Groundwater in the MRO area

Groundwater flow paths at MRO based on the model developed by NRC (2019) are shown in **Figure 17**. The model shows that topographic highs, which include landscape spurs as well as the NWRD and the TSF, are locations of groundwater recharge with groundwater moving downslope and exfiltrating on lower slopes or in creek lines. Intermittent groundwater seeps on lower slopes following high rainfall events have been identified in steep terrain (**Figure 17**). The seeps occur naturally in response to seasonal groundwater following rainfall events when groundwater recharge on upper slopes reports further downslope (**Figure 16**). The model identifies that a fault seal impedes groundwater flow from the TSF into the pit.

It is also noted that there is limited or non-existent connectivity between some groundwater compartments (**Figure 15**). The saprolite and the fractured rock have variable hydraulic conductivities in different parts of the mine lease (the calibrated model parameters assumed different hydraulic conductivities for soil/subsoil of landscape spurs, soil/subsoil of valleys, creek-beds, weathered rock, fractured rock and basement rock. The median hydraulic conductivity measured in saprolite is $3.15\text{E-}1$ m./d., and in fractured rock is $4.36\text{E-}2$ m./d. (NRC,2019).

Figure 17 is an excerpt from the MRO Environmental Evaluation and provides a visual depiction of the conceptual groundwater flow paths.

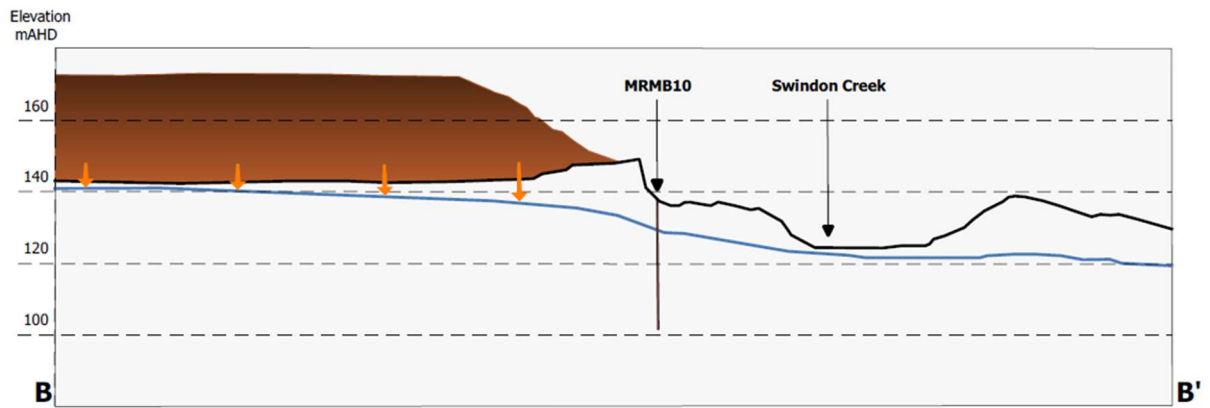


Figure 16: Steady-State Groundwater Model Outputs - hydrostratigraphic cross-section of the Northern Seepage Zone (TSF - Swindon Creek). Source - (NRC, 2019).

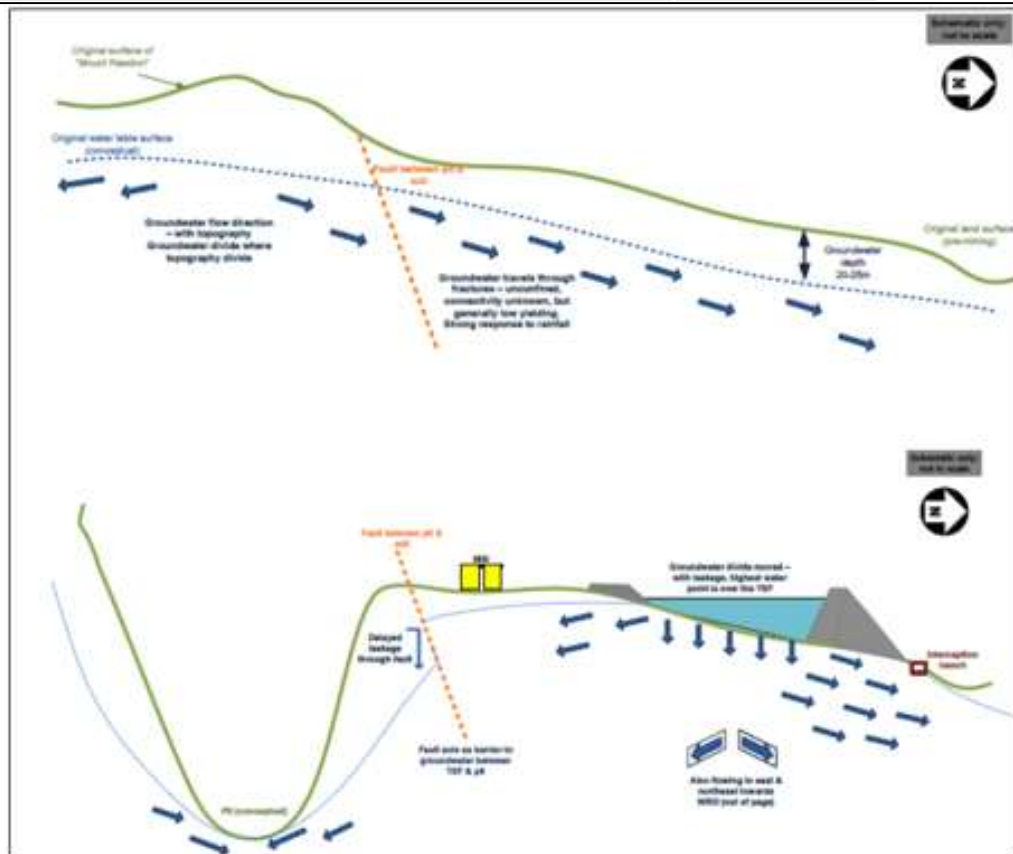
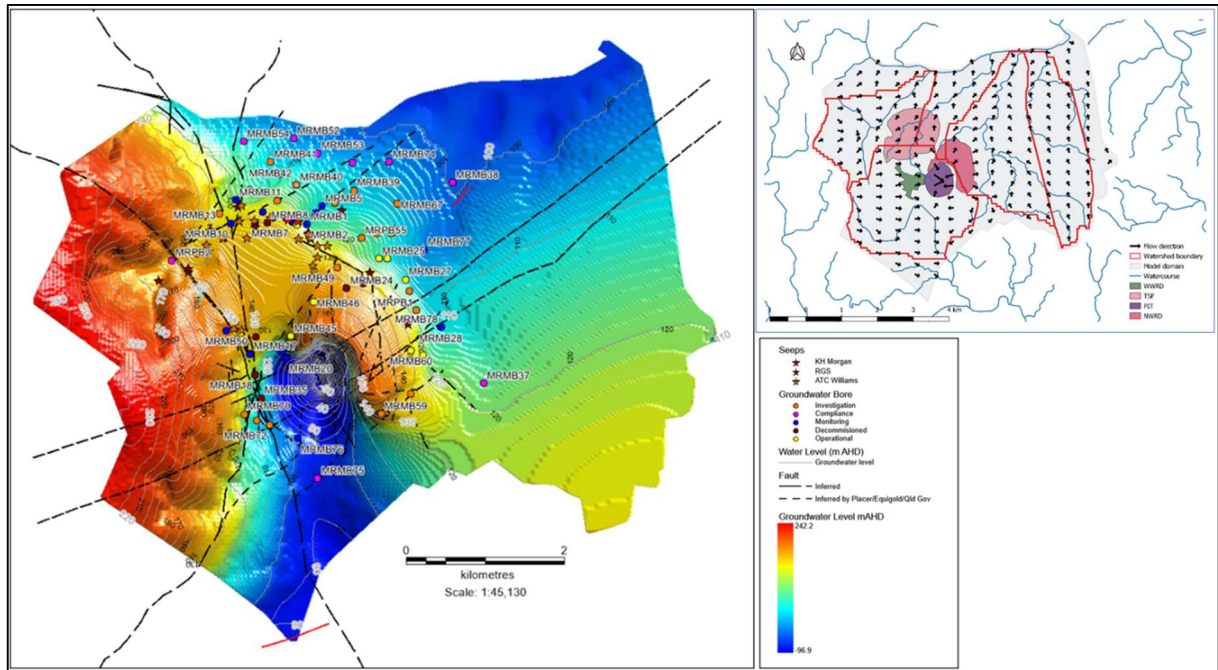


Figure 17: Conceptual Model of Groundwater Flow Paths

Groundwater Quality and Mine Influence

Groundwater is monitored using the established compliance monitoring network of 46 monitoring bores outlined in the MRO EA (**Figure 18**). This includes 21 x operational bores 8 x operational management bores related to seepage management, 16 x monitoring bores for compliance monitoring, and 1 x interpretation bore.

An Environmental Evaluation (**EE**) is a compliance tool under the EP Act that was conducted to better understand the hydrogeological influences on groundwater quality in the aim to condition appropriate compliance trigger limits within the EA. The EE provided three (3) reports on groundwater quality (MRO 2019, MRO 2020a, MRO 2020b) summarising the key parameters of groundwater quality. **Figure 17** indicates the extent of mining influence on groundwater within the mine lease. The term mine-influenced water means that solutes associated with mining activity have been detected in groundwater above threshold values that require investigation and potentially require management action but does not mean that environmental harm has been caused. Ecological monitoring of macroinvertebrates in creeks, and stygofauna in groundwater, have not found ecological impairment resulting from the mining influence.

Areas of groundwater that have been identified as being affected by mining are areas near the TSF and the North WRD. Concentrations of sulfate have been seen to increase near the TSF with conclusions from a 2010 geochemistry report as well as the Environmental Evaluation identifying that sulphide oxidation with the associated neutralisation reaction was the primary mining influence affecting water quality around the waste rock landform.

Groundwater Contaminants

Agriculture

The land that MRO is operated on was previously utilised as a farm, with cattle grazing on the outer areas of the mining lease. As a result, animal waste has been identified as a non-mining source of nitrate contamination.

Northern Resource Consultants (2015) investigated the sources of nitrate in groundwater of the Twelve Mile Creek catchment area using nitrogen isotopes. They concluded that nitrate inputs were in part contributed from animal excreta in the farming landscape. The high-density population of locally present wattles may also potentially contribute to the increased nitrate levels by acting as legumes and fixing nitrogen to the soil profile.

Natural Landscape

Due to the steep-sloped and undulating terrain of the MRO area, seepage occurs naturally and seasonally following significant rainfall events. This is particularly evident on the steeper terrain west of the TSF and South of the West Dam where the recharge on upper slopes reports down gradient to the lower slopes. Hydraulic heads also impose on adjacent groundwater and may draw lateral seepage from connected groundwater. This has also occurred downgradient of the West Dam on the lower slopes where evidence of groundwater seepage was found on the surface which was not linked to rainfall or water directly from the West Dam.

These forms of seeps transport naturally occurring contaminants that contain concentrations of iron to form stable oxide precipitates (goethite). The groundwater drawn to the surface undergoes evaporative processes that leaves behind concentrations of these contaminant materials standing on the surface. These contaminants are then easily transported and/or dispersed by surface water runoff and traces may be found within inception dams or may enter the receiving environment.

Soil Properties

Soil Types

The Australian Soil Classification (ASC) classifies the dominant soils across the site as brown Sodosols with Rudosols to the south, Chromosols to the west and Kandosols to the northeast. **Figure 19** provides a map of soil type distribution at MRO.

Sodosol surface soils are characterised by a shallow sandy loam and sandy clay loam that is poorly structured with slight to moderate alkalinity, low salinity and non-sodic. However, the subsoil is typically poorly structured (sodic) medium to heavy clay, strongly alkaline with increasing salinity with depth. A typical description of brown Sodosols is as follows:

- Poorly structured allowing for erosion, waterlogging and poor plant emergence;
- Increased surface water runoff impact potential (dispersive, sodic); and
- Increased soil erosion potential.

The two (2) distinctive soils group present at MRO (**Figure 19**) comprise:

- Tb88 - Steep hilly to a mountainous country on metasediments: chief soils are hard acidic yellow mottled soils (Dy3.41) with hard acidic red soils (Dr3.41) and (Dr2.41), all often stony. Associated are shallow loams (Um1.42) and (Um2.12) on the steeper slopes; (Dr2.21), (Dy2.21), and (Dy2.23) soils with smaller areas of (Uc1.21 and Uc1.23) on included granites, and (Uf6.41) and (Gn3.11) soils on included basic rocks.
- Tb103 - Low to moderately hilly lands on phyllites and schists; a close pattern of hills with short to moderate slopes: chief soils are gravelly hard acidic yellow mottled soils (Dy3.41) and (Dy2.41) with shallow gravelly loamy soils (Um2.12) and (Um4.1) on crests and upper slopes. Associated are gravelly (Dr3.41) soils. Minor soil occurrences include (Gn3.42)

Further discussion of the implications for rehabilitation can be found in **Section 5**.

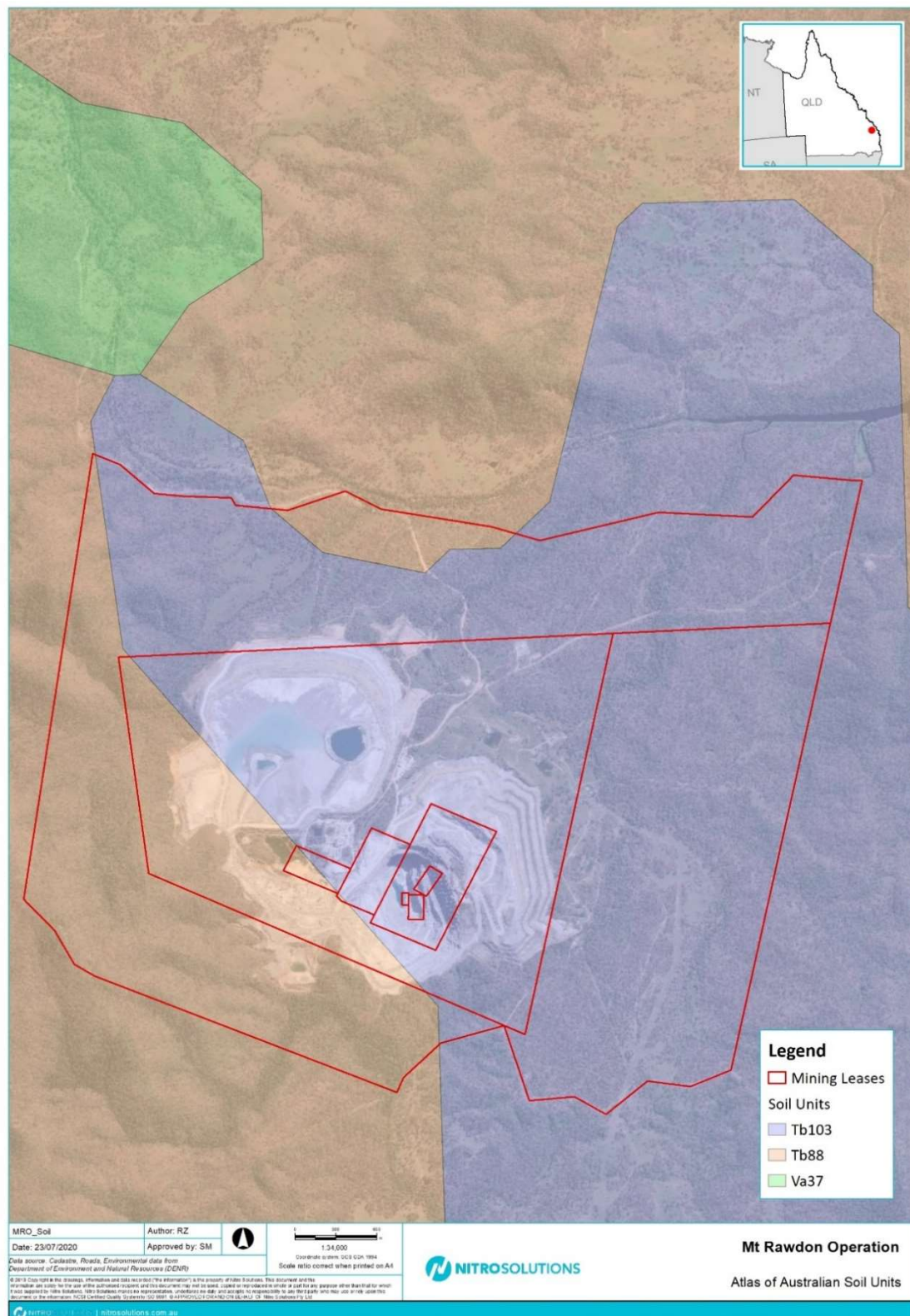


Figure 19: Dominant Soil Types Surrounding Mount Rawdon Operations.

Soil Nutrients

Sodicity

The identification of Sodosols being the primary soil type at MRO has implications for soil sodicity aka limited or poor soil structure and poor water infiltration. Seedling germination and plant germination in these type of soils is problematic as a result.

Additionally, sodic soils with few stabilising agents such as humus, clay or sesquioxide's, in the topsoil will be susceptible to erosion, especially when high in silt and clay content. Soil sodicity leads to reduced air and water permeability and poor soil drainage. Depending on clay percentage within the soil, soil dispersion problems can occur at a higher or lower value than 6%. Clay content at MRO typically ranges from 20-40% however a single test pit did identify 88% in a single location. Consideration for soil quality and specific analysis for nutrient and clay percentage will be undertaken immediately before the rehabilitation works being commenced. Using the broad understanding of sodic soil presence at MRO, it is expected that ameliorates will be utilised to improve soil structure and germination.

Nitrogen

Availability of nitrogen in soil controls plant growth. Most nitrogen in surface soil is immobilised and bound as organic nitrogen associated with humus. The nitrogen available to plants, however, is typically small in soils (compared to demand and store of other forms of nitrogen). Most organic nitrogen held up within the soils of the WRD is within the A1 soil horizon, as this is where plant roots typically extend and where nitrogen is allowed back into the system through decaying animal and plant residues and biological fixation by soil organisms (e.g., fungi and bacteria). A soil's organic nitrogen content usually falls in the range of 0.02 -0.5%. At MRO, soils typically contain 0.033 – 0.12% nitrogen in the surface soils within the normal range. The high naturally occurring levels of nitrogen could be as a result of the prior agricultural land use as identified in **Section 5.3**. Consideration of this naturally occurring level will impact the amount and type of fertiliser used in rehabilitated areas. This is discussed further in **Section 5.3**.

Phosphorus

Phosphorus is essential in the soil for plant and animal growth. Most phosphorous is held within the A1 soil horizons at MRO as this is where the majority of the phosphorous cycle occurs to promote plant growth and it accumulates through the decomposition of plant materials. At MRO, soils typically have low levels of phosphorous, containing 0.006 – 0.019% in the surface soils. Management of these levels will be managed through soil sampling prior to addition of fertilisers and ameliorants. This is discussed further in **Section 5.3**.

Other Nutrients

Several other soil nutrients are also required for plant and animal growth. While these nutrients are essential, a number of them are only required in minute concentrations i.e., cobalt, copper, manganese and zinc. These nutrients can be harmful in large concentrations, especially if they are contained within the most available forms. Manganese concentrations were above the NEPC ecological investigation levels for the soil in several locations, however, remained below National Environment Protection Council (NEPC) health investigation levels.

Two (2) key metals were identified in high levels in the soils at MRO; being Barium and Vanadium.

Barium concentrations within the subsoils (horizon B1 and C1) in two (2) locations exceeded Ecological investigation levels, however, it is expected that, given the depth of the soil depth this metal was encountered, that there will not be any outstanding impacts to plant growth during rehabilitation.

Vanadium has also been found to be present in the surface soils at four (4) locations across MRO. Despite these levels being identified as higher than ecological investigation levels, it is not expected that the presence of the metals will impact rehabilitation growth. As discussed in **Section 5.3**, soil sampling is to occur prior to rehabilitation works and addition of any fertilisers. This will ensure any changes to soil properties will be proactively managed.

Acid Sulfate Soils

Soils at MRO were assessed for pH during the 1996 Land Reclamation study. A summary of results indicated that soils were neutral to slightly acidic (pH 5-7) which is a common expectancy for mineralised soils in humid regions. It was also identified that surface soils were generally more acidic than the subsoils, suggesting that some areas at MRO may experience acid generation when disturbed. The acidic nature of the topsoils may be due to limited neutralising capacity (predominantly quartz sand) and humus.

A Soil and Land Suitability Assessment was conducted in 2013 by Northern Resource Consultants which reviewed the potential probability of acid sulphate soils (ASS) occurring at MRO. The Australian Soil Resource Information System (ASRIS) was used for the desktop review with findings concluding high probability of ASS occurring in a small area of the project (currently the location of the TSF) and no known ASS throughout the remainder of the MRO area (**Figure 20**).

The State Planning Policy for Planning and Managing Development (SPP2/02) refers to the state's interest concerning development in low-lying areas where acid sulphate soils may be impacted. MRO is located within the North Burnett regional council area which is listed in Annex 1. The disturbance at MRO is not included within this category and no assessment is required under the SPP2/02. Acid sulfate soils in Qld are usually associated with the coast. The only reason why the TSF is highlighted as Potential Acid Sulfate Soil is because it contains tailings (which host pyrite). MRO has ensured that the TSF contains enough calcite to neutralise the acidity generated by pyrite oxidation. Capping of the TSF should limit the ingress of oxygenated water into the TSF.

Erosion Rates

Erosion potential was examined during the 2013 Soil and Land Suitability Assessment (Northern Resource Consultants) and based upon the percentage presence of fine sand and silt within the A1 horizon. Overall, the soil present at MRO was determined to exhibit moderate to high erosion potential, typical of sodic soils with poor soil structure. The removal of vegetation during clearing works increases this potential significantly.

Soil Conservation Works

Soil conservation works at MRO involves multiple steps, including a Permit to Disturb process and a Growth Media Management Procedure. The Growth Media Management Procedure provides basic principles for the management of growth media, such as stockpiling of topsoil. Expansion of this procedure to include Quality Assurance (QA) processes for all stages of topsoil handling is incorporated into the rehabilitation milestones (**Section 9.1.3**).

The updated procedure will include the following but is not limited to:

- Quality Assurance processes for stripping and stockpiling of topsoil resources;
- Annual monitoring of topsoil stockpiles; and
- Sampling processes before rehabilitation.

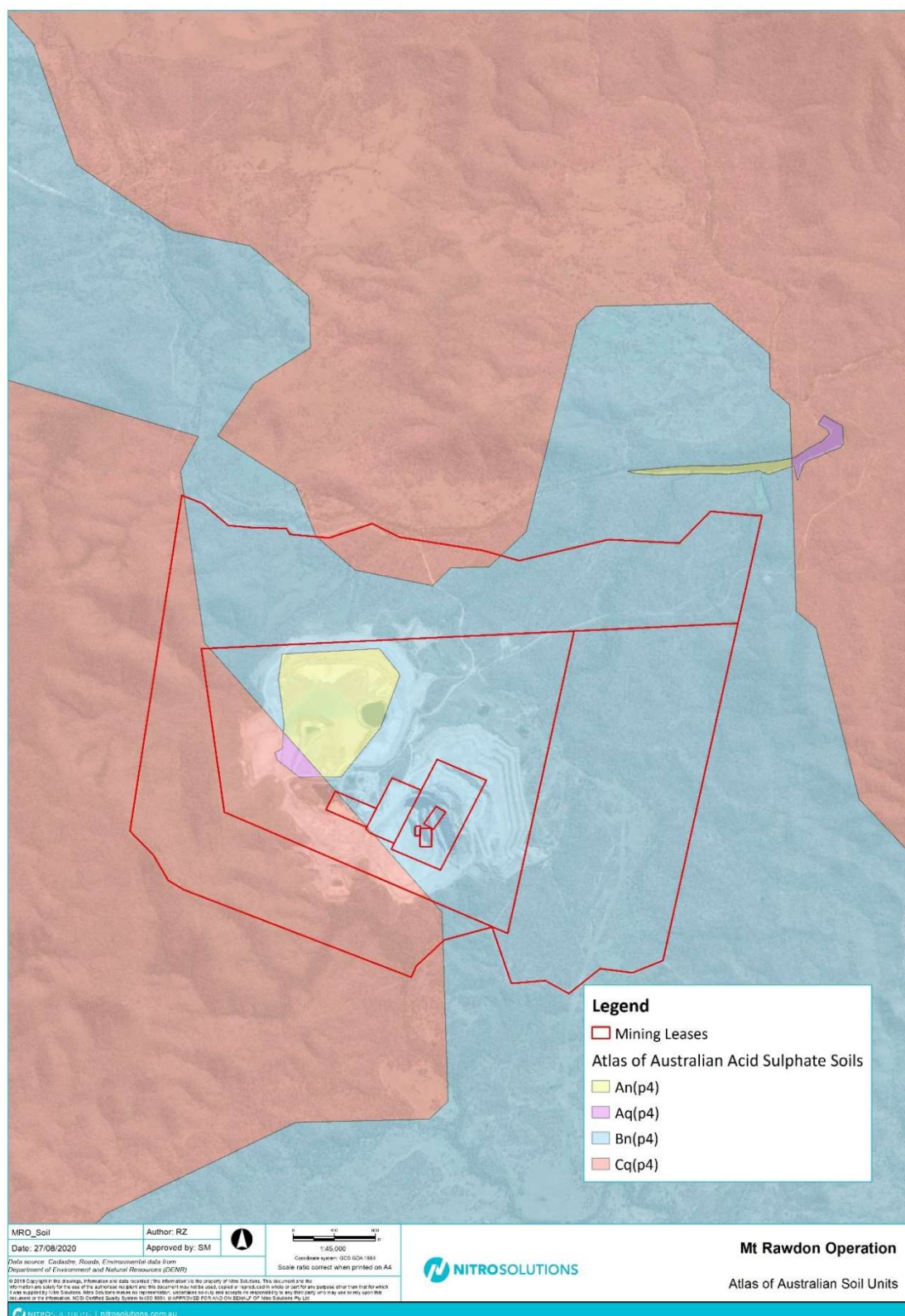


Figure 20: MRO Representation of Acid Sulphate Soils

Land Productivity

Initial assessment of land productivity at MRO (conducted in 1996 by Land Reclamation Services) determined that soils were nutritionally poor with little ability to retain nutrients and had a relatively low water holding capacity, restricting pasture growth.

Land Capability and Productivity

In 1996, Land Reclamation Services were commissioned to conduct a soil and land capability study at MRO.

Field surveys across 41 investigation sites were carried out from 2-6 October 1995 against the Land Capability Classes below in **Table 6**. The majority of land in the disturbance area was classed as land capability 7 and 8, with some marginal areas of class 6. The report identified that the land had previously been cleared and pasture improved with no superior classes of land, prior to any mining disturbance.

Table 6: Land Capability Classes and Descriptions

Capability Class	Description
Class 1	Land suitable for all agricultural and pastoral uses.
Class 2	Land suitable for all agricultural uses but with slight restrictions to use for cultivation in one or more categories.
Class 3	Land suitable for all agricultural uses but with moderate restrictions to use for cultivation in one or more categories.
Class 4	Land primarily suited to pastoral use but which may be safely used for occasional cultivation with careful management.
Class 5	Land that in all other characteristics would be arable but has limitations that, unless removed, make cultivation impractical and/or economic.
Class 6	Land that is not suitable for cultivation but is well suited to pastoral use and on which pasture improvement involving the use of machinery is practicable.
Class 7	Land that is not suitable for cultivation but on which pastoral use is possible only with careful management; pasture improvement involving the use of machinery is not practicable.
Class 8	Land that has such severe limitations that it is unsuited for either cultivation or grazing.

Soils were identified as having poor nutrient levels and relatively water holding capacity, restricting good pasture growth. Soils were also noted to disperse especially in the subsoils.

The identified major limitations to land capability at MRO are:

- Moisture availability;
- Effective soil depth;
- Soil nutrient fertility;
- Topography; and
- Susceptibility to water erosion.

Consideration of these factors has formed the basis of the assessment of land capability with regard to defined Post Mining Land Uses (PMLUs). Further discussion pertaining to PMLUs is provided in **Section 3**.

Strategic Cropping and Priority Agricultural Land

A desktop assessment for land suitability under the relevant *State Planning Policy's (SPP) for Strategic Cropping Land (SCL)* and Good Quality Agricultural Land (GQAL) was conducted in 2013 by Northern Resource Consultants.

The local land use has been previously identified as rainfed broadacre cropping and conservation with no historic cropping within the MRO area. Any underlying tenures at MRO do not fall within the SCL Western Cropping Zone. **Figure 21** provides a map of the closest identified SCL and GQAL to MRO.

Pre-mining Land Uses

The main pre-mining land use of the MRO site was cattle grazing on native and improved pastures (LGL MRO 2010). Swindon Station and surrounding properties have been extensively grazed by sheep since the 1850s and by cattle since the 1880s (Royle, 1980). Aside from some temporary agistment of cattle by others, the property has remained essentially as left.

Adjacent Land Uses

MRO has several adjacent and overlying properties which are primarily for low-intensity grazing purposes and are displayed in **Figure 22** and **Figure 23**.

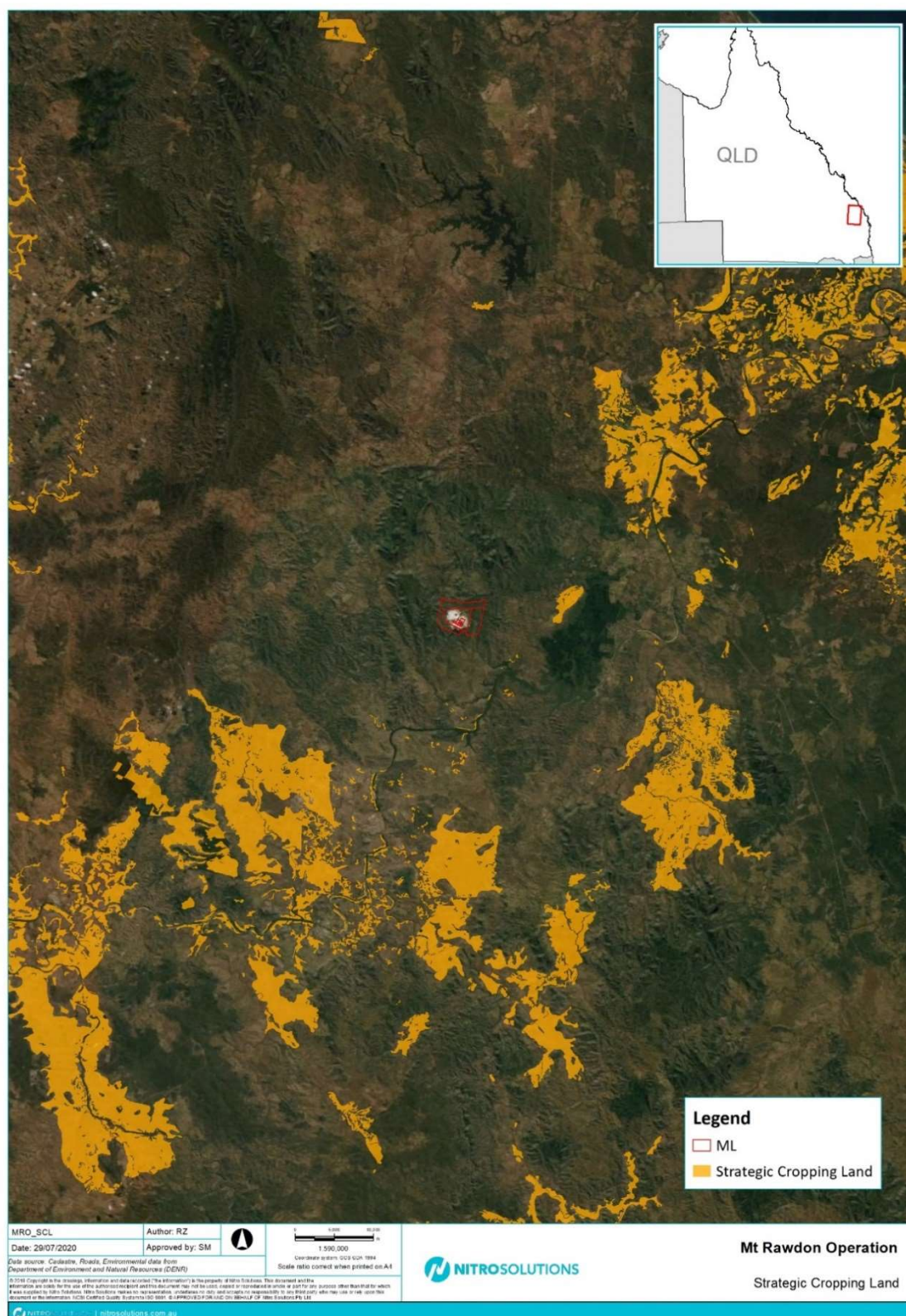


Figure 21: MRO and Strategic Cropping Land

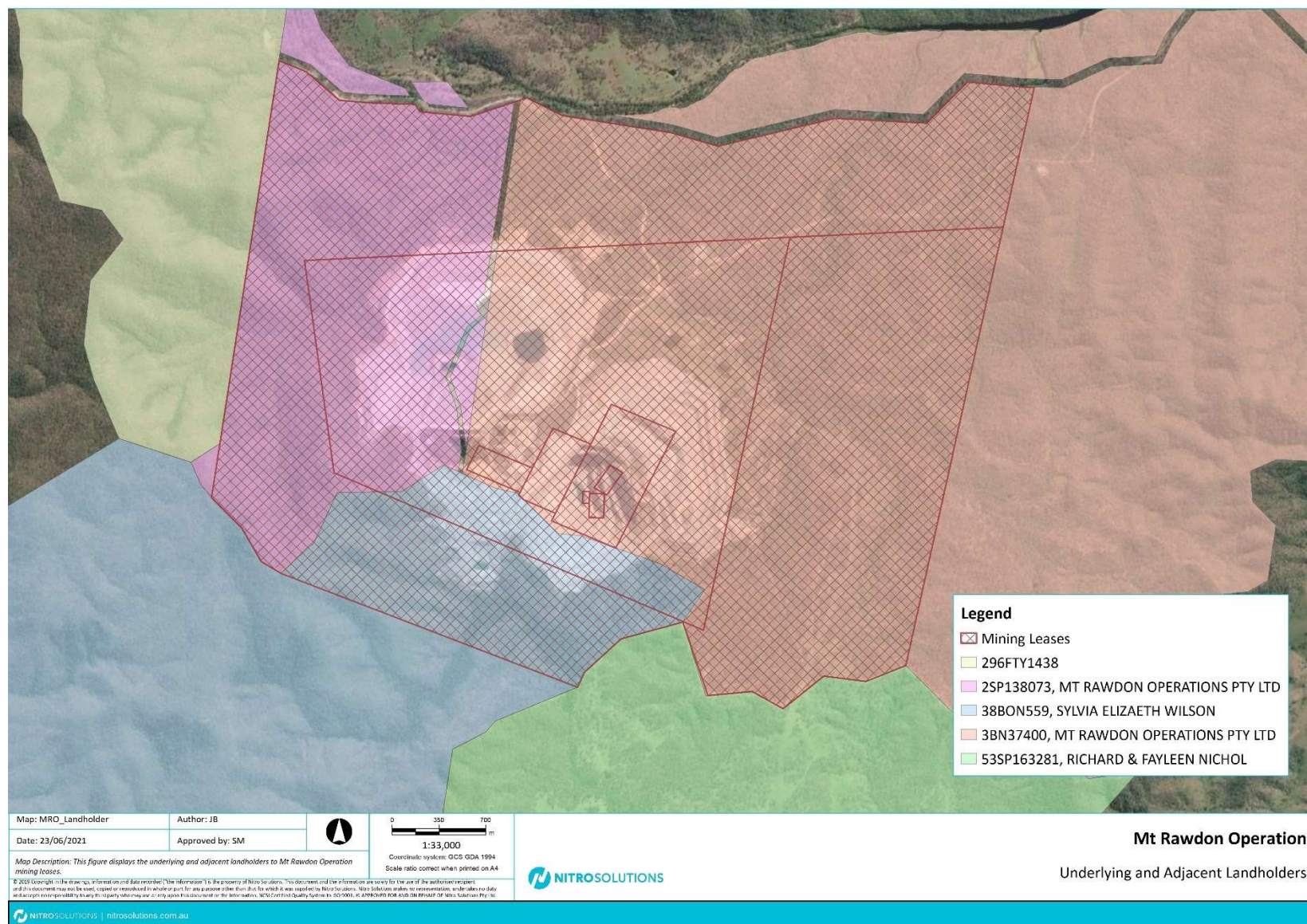


Figure 22: Underlying Landholder Properties



Figure 23: Underlying and Surrounding Land uses

Ecological Data

Threatened Ecological Communities

A Protected Matters Search Tool (PMST) was used to identify if Threatened Ecological Communities (TECs) were occurring within the MRO area. Three (3) TECs were identified using this tool and include:

- Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community;
- Lowland Rainforest of Subtropical Australia; and
- Poplar Box Grassy Woodland on Alluvial Plains.

Listed conservation advice, distributions and known associations with Regional Ecosystems (REs) were used to refine the likelihood of encountering these TECs within the MRO area (**Table 7**).

Table 7: REs Associated with Each Listed TEC

Threatened Ecological Community	Associated Regional Ecosystems
Coastal Swamp Oak (<i>Casuarina glauca</i>) Forest of New South Wales and South East Queensland ecological community	RE 12.1.1 and 12.3.20
Lowland Rainforest of Subtropical Australia	RE 12.3.1, 12.5.13, 12.8.3, 12.8.4, 12.8.13, 12.11.1, 12.11.10, 12.12.1 and 12.12.16
Poplar Box Grassy Woodland on Alluvial Plains	RE 11.3.2, 11.3.17, 11.4.7 11.4.12 and 12.3.10

Based upon the available information and known habitat associations none of these TEC are considered likely to occur within the MRO area.

Regional Ecosystems

The Prescribed Matters Report (NRC, 2018) provided RE's within MRO. According to the DES Regional Ecosystem mapping, several REs occur within the MRO area (see **Figure 24**). These REs are all associated with remnant vegetation however there are also numerous patches of non-remnant vegetation within the MRO area. These REs are outlined in **Table 8** along with their conservation statuses. Most of the vegetation within MRO is mapped as Category B vegetation under the *Vegetation Management Act 1999*, however, there are a few small patches of Category R and Category C also present (**Figure 25**).

Table 8: RE's Mapped Within MRO

Regional Ecosystem	VM Act Status	Biodiversity Conservation Act Status	Short Description	Total Area
RE 12.11.6 / RE 12.11.12 / RE 12.11.8 *(70/15/15)	LC OC OC	NC OC OC	Corymbia citriodora subsp. variegata, Eucalyptus crebra woodland on metamorphics +/- interbedded volcanics Araucarian complex microphyll vine forest on metamorphics +/-	361.31

			interbedded volcanics; usually northern half of bioregion	
			Eucalyptus melanophloia, E. crebra woodland on metamorphics +/- interbedded volcanics	
RE 12.11.6 /	LC	NC	Corymbia citriodora subsp. variegata,	29.33
RE 12.3.7 /	LC	OC	Eucalyptus crebra woodland on	
RE 12.12.5	LC	NC	metamorphics +/- interbedded	
*(70/20/10)			volcanics	
			Eucalyptus tereticornis, Casuarina cunninghamiana subsp.	
			cunninghamiana +/- Melaleuca spp. fringing woodland	
			Corymbia citriodora subsp. variegata, Eucalyptus crebra woodland on Mesozoic to Proterozoic igneous rocks	
RE 12.11.6 /	LC	NC	Corymbia citriodora subsp. variegata,	36.86
RE 12.12.5 /	LC	NC	Eucalyptus crebra woodland on	
RE 12.3.3 /	E	E	metamorphics +/- interbedded	
RE 12.3.7	LC	OC	volcanics	
*(50/25/15/10)			Corymbia citriodora subsp. variegata, Eucalyptus crebra woodland on Mesozoic to Proterozoic igneous rocks	
			Eucalyptus tereticornis woodland on Quaternary alluvium	
			Eucalyptus tereticornis, Casuarina cunninghamiana subsp.	
			cunninghamiana +/- Melaleuca spp. fringing woodland	
RE 12.3.7	LC	OC	Eucalyptus tereticornis, Casuarina cunninghamiana subsp.	42.34
			cunninghamiana +/- Melaleuca spp. fringing woodland	
RE 12.11.12	OC	OC	Araucarian complex microphyll vine forest on metamorphics +/- interbedded volcanics; usually northern half of bioregion	20.14
RE 12.11.6	LC	NC	Corymbia citriodora subsp. variegata, Eucalyptus crebra woodland on metamorphics +/- interbedded volcanics	169.62

RE 12.3.3	E	E	Eucalyptus tereticornis woodland on Quaternary alluvium	1.35
RE 12.12.5	LC	NC	Corymbia citriodora subsp. variegata, Eucalyptus crebra woodland on Mesozoic to Proterozoic igneous rocks	1.60

NC = No Concern at present, LC = Least Concern, OC = Of Concern, E = Endangered

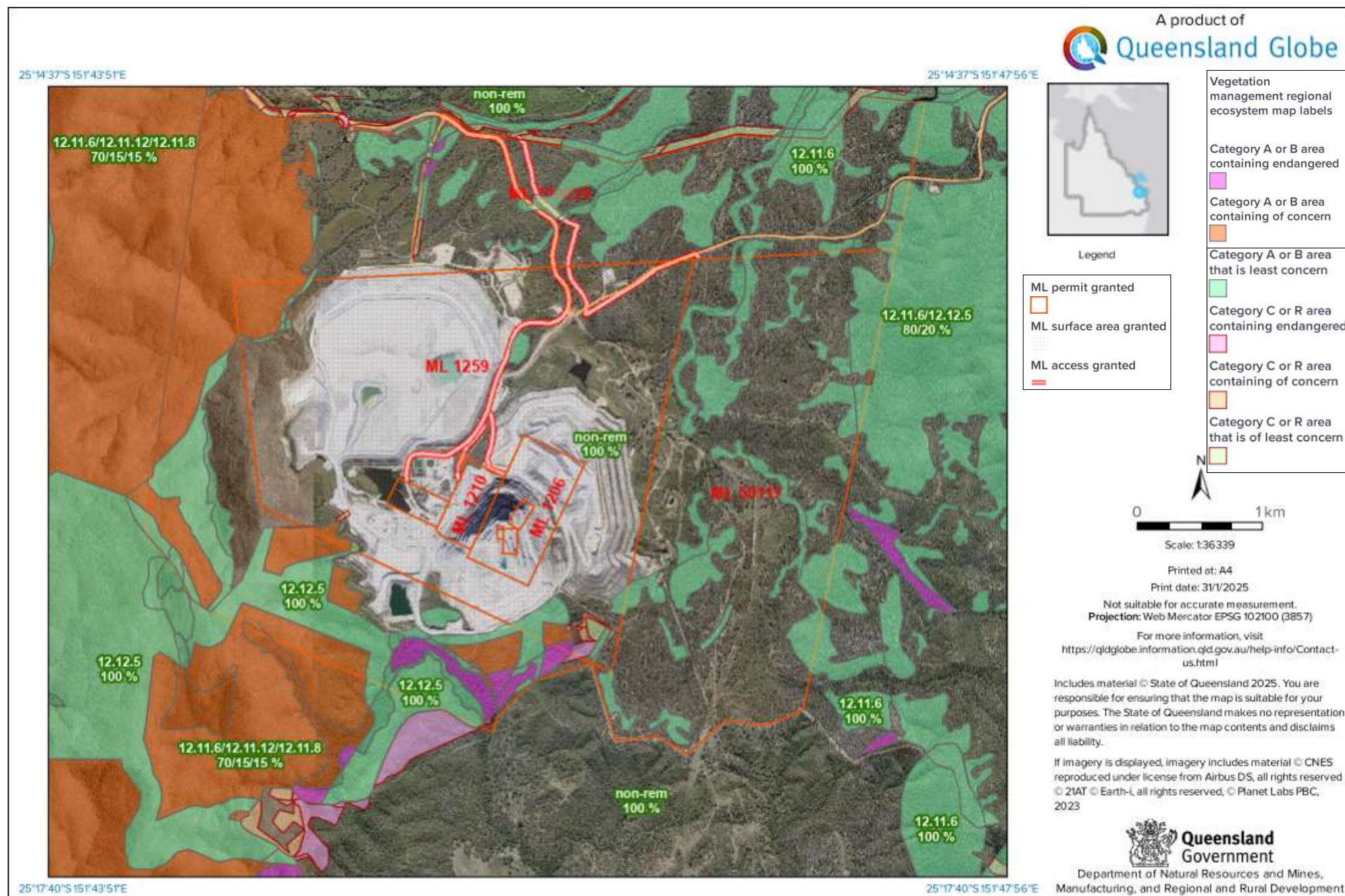


Figure 24: MRO Overlay of Regional Ecosystems

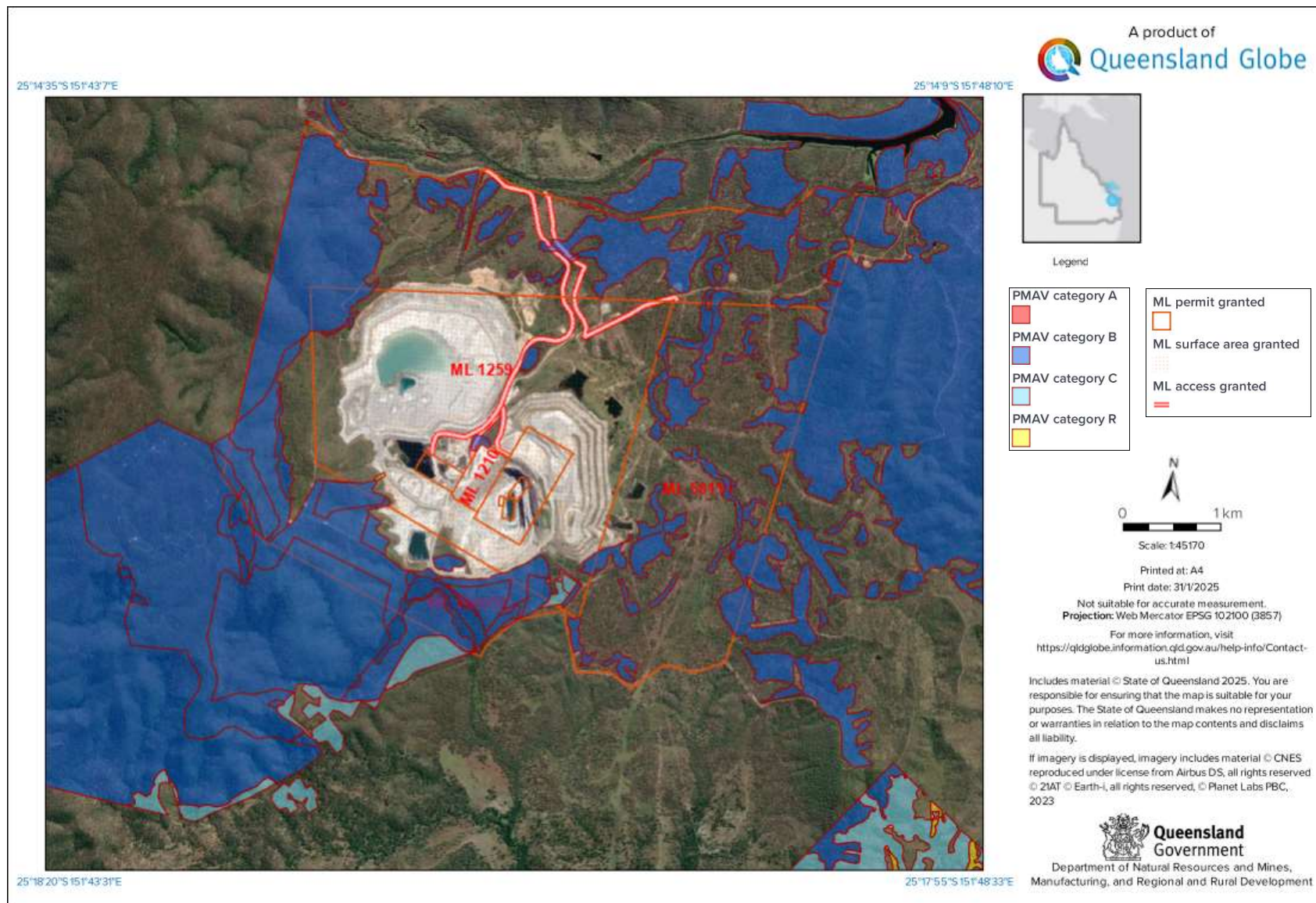


Figure 25: MRO Regulated Vegetation Mapping Overlay

Significant Fauna Species

In addition to historical ecological surveys, a desktop review of significant fauna species was undertaken using the EPBC PMST and the NC Act Wildlife Online search tool to identify fauna species potentially occurring within the MRO area. The PMST search, whilst incorporating known species records, relies upon a modelling program developed using suitable habitat for individual species and is predictive. The Wildlife Online search, on the other hand, is based solely upon known species observations.

Combining these search tools ensures that all State and Commonwealth threatened species within the vicinity of the MRO area have been identified. These searches identified a total of 11 bird species, one fish species, seven mammal species, four (4) reptile species, 20 migratory/marine species and 14 flora species as potentially occurring within the MRO area.

Field surveys were conducted over portions of the MRO area in 1995 and 2013. Most of the species observed during these survey events are considered to be relatively common species in the region and have a relatively high level of tolerance for the disturbance. In 2013, during the most recent study, 29 bird species, 12 mammal species, 9 reptiles and 5 amphibian species were identified within the MRO area. Of these species, only 3 were listed as threatened fauna species and are listed below in **Table 9**. No threatened flora species were identified.

Table 9: Threatened Fauna Species Identified During the 2013 Survey Event

Common Name	Scientific Name	EPBC Status	NC Status
Greater Glider	Petauroides Volans	V	V
Little Pied Bat*	Chalinolobus picatus	-	NT
Rainbow Bee-eater	Merops ornatus	Ma	-

*species has since been de-listed

EPBC Status: V = Vulnerable, Ma = Marine; NC Status: V = Vulnerable, NT = Near Threatened

In addition to these identified species, there are several other species which based upon nearby records and known habitat associations could potentially/likely be present within the MRO area. These species are discussed in greater detail in the following sections.

Greater Glider

Greater gliders are arboreal nocturnal mammals who favour eucalypt forests with a diversity of species due to seasonal variation in their preferred tree species (Department of Climate Change, Energy, the Environment and Water, [DCCEW] 2022a). They are currently listed as Vulnerable under the EPBC and NC Acts. They utilise tree hollows as dens and as such, prefer vegetation along creek lines/watercourses. The Greater Glider was identified during both the 1995 and 2013 surveys undertaken across the MRO area, indicating that a healthy population resides within the MRO area or utilises the area for foraging.

Koala

Koalas are arboreal mammals who inhabit a range of temperate, subtropical and tropical forests, woodland and semi-arid communities typically dominated by Eucalypt species (DCCEW, 2022). This species is listed as Vulnerable under both the EPBC and NC Acts. While this species was not identified during the 2013 field surveys, it was identified during the initial surveys undertaken in 1995. Given the abundance of suitable vegetation communities within the MRO area it is considered probable that this species utilises habitat within the area. The closest record of this species to the MRO area is only 40km to the south.

Little Pied Bat

The Little Pied Bat was previously listed as Near Threatened under the NC Act but has since been de-listed. Little is known about this rare species but they have been observed to roost in dry caves, mine shafts and abandoned houses (Strahan, 2002). Call data collected during the 2013 surveys within the MRO area indicates that this species is present however its distribution across the greater MRO area remains unknown. Given the absence of caves identified within the MRO area, it is conceivable that this species is simply a visitor to the MRO area and does not reside there, however, like many microbat species they may utilise tree hollows as suitable roosting locations.

Northern Quoll

The Northern Quoll (*Dasyurus hallucatus*) is a nocturnal marsupial which occupies a diverse range of habitats across its range including rocky areas, eucalypt forests and woodlands, rainforests, sandy lowlands and beaches, shrublands, grasslands and deserts (DCCEW, 2022c). This species is the smallest of the four (4) quoll species and are omnivorous.

There was a single anecdotal record of this species from May 2012, where an individual was supposedly found injured adjacent to the MRO haul road. In response to this incident, a Northern Quoll Management Plan was developed to investigate the presence of this species further and ensure they are protected. After ten (10) years of data collection (utilising both cage and camera traps) no additional sightings were documented. Based on this information it has been determined that this species is unlikely to be present within the MRO area.

Grey-headed Flying-fox

The Grey-headed Flying-fox occurs in a range of habitats including subtropical and temperate rainforests, dry and wet sclerophyll forests, banksia woodland heaths and melaleuca swamps (Duncan *et al*, 1999). This species is listed as Vulnerable under the EPBC Act. While no individuals were identified during the 2013 field studies, this species was recorded during the 1995 studies done across the MRO area. Based on this information, the available habitat within the MRO area and the fact that the nearest record is approximately 25 km from the MRO area, it remains possible that this species could reside within or forage within the MRO area.

Powerful Owl

While the Powerful Owl was not identified in the desktop searches of this region, it has previously been documented within the MRO area and the closest record is less approximately 10 km away. The Powerful Owl is currently listed as Vulnerable under the NC Act. They primarily occur in tall open forests and woodlands, as well as along sheltered gullies in wet forests with dense understories, especially along watercourses. They will sometimes be found in open areas near forests such as farmland, parks and suburban areas (Birdlife Australia 2025). Given the availability of suitable habitat for this species within the MRO area and nearby records, this species is considered likely to be present within the MRO area.

Squatter Pigeon

The Squatter Pigeon is currently listed as Vulnerable under the EPBC and NC Acts. This species preferred habitat is generally defined as open forests to sparse, open woodlands and scrub that is mostly dominated by *Eucalypts*, *Corymbia*, *Acacia* or *Callitris* species (DCCEW, 2022d). While this species was not observed during the field surveys conducted in 2013, the abundance of suitable habitat for this species within the MRO area indicates that the species is likely to be present. The closest record of this species to the MRO area is only 46 km to the south-west.

Migratory and Marine Species

The desktop searches identified several migratory and marine species as potentially occurring within the MRO area. One of these species, the Rainbow Bee-eater (*Merops ornatus*), was identified during

the 2013 field surveys indicating that suitable foraging habitat is present within the MRO area. Based upon this evidence it is possible that the MRO area is also utilised by other migratory and/or marine species including:

- Black-faced Monarch (*Monarcha melanopsis*)
- Spectacled Monarch (*Monarcha trivirgatus*)
- Satin Flycatcher (*Myiagra cyanoleuca*)
- Rufous Fantail (*Rhipidura rufifrons*); and
- Black-eared Cuckoo (*Chrysococcyx osculans*)

Despite the potential presence of these species within the MRO area, the Project has been considered unlikely to affect any significant habitat for these species.

1.3 Design for Closure

MRO Operations falls under a transitional PRC plan, and it is therefore not a requirement to demonstrate how the existing and approved disturbance has been designed for closure as it is not applicable in accordance with the PRCP Guideline and the EP Act. Additionally, MRO has minimal impacts on the surrounding areas as is situated far from any strategic cropping land (**Figure 21**) and is well outside any floodplain area.

Rehabilitation Planning

Existing Rehabilitation

The extent of current rehabilitation works conducted on MRO has been limited to the NWRD where clay seals have been placed along the Eastern berms (**Figure 26**). These seals have been orientated to guide predicted surface water flows towards the water reticulation system of the WD1 or WD2 water storage facilities and associated infrastructure. Whilst the berms have not been completely rehabilitated to landform design, the clay seals reduce erosion on the NWRD and contribute to the site wide water management strategy by reporting surface water runoff to the feedback systems in place. The installation of the clay seals to the current design began in September 2012 and has continued progressively up to the cessation of mining in the pit is completed. Where they have been placed, the clay seals have become extensively covered with grasses which further reduce potential erosion of the NWRD. As these areas are still under development these areas have not been applied for approval as progressively certified under the EP Act.

Proposed Rehabilitation

As seen in **Figure 26**, rehabilitation is proposed to continue for much of the NWRD until completion of mining in the pit and then processing of the temporary ore stockpiles. The proposed rehabilitation will be a continuation of the installation of clay seals and will also incorporate the dumping of the remaining waste rock to final landform. Further available NAF material from WWRD will be used to encapsulate the PAF material as per the NWRD final landform design. Further detail of final landform design is presented in **Section 5**.

Progressive Rehabilitation

The static operational setting of the MRO site limits the possibility of progressive rehabilitation as all areas are required for operations to continue until closure. Progressive rehabilitation has occurred on the NWRD berms and various smaller areas such as laydowns. MRO will continue with progressive rehabilitation of disturbance areas as they become available such as laydown areas, as well as rehandling and minor reshaping of TSF PAF stockpile, NWRD PAF stockpile, as well as monitoring of rehabilitation trials (TSF cover, and bioreactor/wetland trials).

Relevant Activities

As described above in **Section 1.1** MRO is an open-cut gold mining operation consisting of relevant activities including mining, ore processing, crushing, milling, leaching, gold recovery, waste rock and tailings disposal and storage of bulk chemicals, explosives, reagents, and fuels. The size and predicted duration of the relevant activities are listed below in **Table 10**.

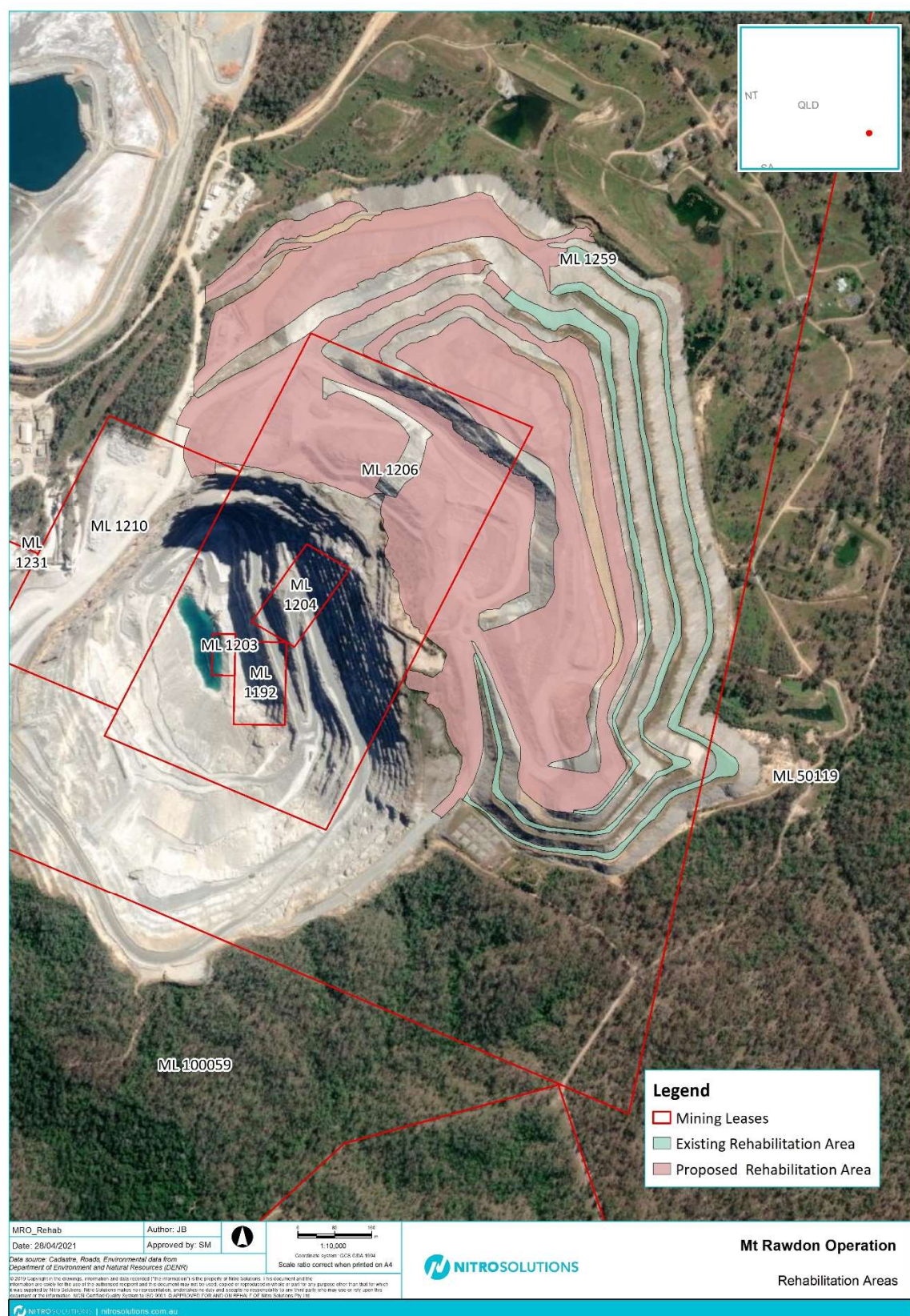


Table 10: Relevant Activities and Progressive Rehabilitation

Relevant activities	Area (ha)	Opportunity for progressive rehabilitation
NWRD & Long-term Ore stockpiles (RA1)	99.83	Utilised to store PAF waste rock from the pit and temporarily store low grade and subgrade ore stockpiles for blending over the LOM. As open pit mining has ceased, the NWRD will remain operational until all PAF waste rock is rehandled, an interim NAF waste rock cover is placed, and processing of stockpiles is completed. As outlined above, progressive rehabilitation has begun on the clay seals on the berms and will continue until closure.
WWRD, Run of Mine (ROM) and supporting drains (RA2)	48.54	The WWRD is used to store NAF from the pit and is then rehandled for construction of the TSF embankment buttress, NWRD outer embankments, and other infrastructure areas as required. Remaining NAF material will be used to rehabilitate remaining domains at closure. The western clean water drains will become redundant at completion of rehabilitation. The Run of Mine (ROM) is used as a temporary ore storage pad. Like the WWRD it is constructed of NAF rock material that will be consumed to rehabilitate remaining domains at closure.
TSF, including seepage interception trenches and seepage ponds (RA3)	203.92	The rehabilitation of the TSF will begin following the final processing of ore and deposition of PAF waste rock and tailings within the TSF. The installation of the cover and capping system will follow as soon as practicable. A period of drying may be required to allow for machinery to safely access the TSF.
Haul Roads and internal access roads (RA4)	16.07	Used for access and haulage, access tracks, roads and haul roads are required for the LOM unless during Stage 5 pit feasibility work, otherwise not required. Progressive rehabilitation will take place on sections of haul roads once large fleet access is no longer required. N.B. Access tracks and roads will remain for future landholder light vehicle access.
Processing Plant, Workshops, other	24.29	Required for the entire LOM as it contains all processing equipment, workshops and supporting infrastructure areas required for operations and post-closure. Upon cessation of ore processing, the processing plant and supporting infrastructure will enter a care and maintenance programme until a decision is made regarding the Mt Rawdon Pumped Hydro Project. Aspects of plant decommissioning, decontamination, asset disposal, removal and land

Infrastructure Management Areas (RA5)		rehabilitated according to designated PMLU. Hardstand and laydown areas may be required for use in rehabilitation works post-closure for storage of equipment and machinery.
Water Management Infrastructure & Dams (RA 6)	34.399	Water dams will remain operational during rehabilitation. The intended final land use for water management infrastructure and dams at MRO is to remain as a water storage for beneficial use such as a stock water supply.
Borrow pits and topsoil/ growth-media stockpiles and other infrastructure areas within grazing land (RA 7)	79.55	The combined topsoil stockpiles and borrow pit areas will be progressively rehabilitated as the material resource is depleted as required for rehabilitation elsewhere onsite. Topsoil stockpiles will be chosen for use in rehabilitation based on their practical proximity to rehabilitation areas and so that progressive rehabilitation across the site can be maximised. This domain includes the topsoil/borrow areas located north of the TSF and north and east of the NWRD, helipad, as well as the Orica yard, landfill, miscellaneous, powerlines, small access roads, and drains areas within grazing land PMLU.
Borrow pits and topsoil/ growth-media stockpiles within open woodland areas (RA 8)	16.42	The combined topsoil stockpiles and borrow pit areas will be progressively rehabilitated as the material resource is depleted as required for rehabilitation elsewhere onsite. Topsoil stockpiles will be chosen for use in rehabilitation based on their practical proximity to rehabilitation areas and so that progressive rehabilitation across the site can be maximised. This domain includes the NAF borrow area identified as West Hill (located directly west of the Pit), the TSF north-west topsoil/borrow pit areas and other topsoil areas <i>not within</i> the grazing PMLU
Total	523.02	

2 Community Consultation

2.1 Stakeholder Consultation Plan

In 2020, a Community Consultation Plan (CCP) was commissioned by Evolution Mining and designed by Coffey Services Australia Pty Ltd (Coffey). The community consultation report is a requirement of this PRCP under the EP Act.

The key objectives of the CCP include:

- A description of key stakeholder groups;
- Detailing the ongoing CCP engagement methodology and objectives for closure;
- Explaining how the CCP meets the requirements of the PRCP legislation;
- Highlighting any interests and potential issues raised through engagement;
- Outlining the stakeholder response to proposed Post Mine Land Uses (PMLUs) and a Non-Use Management Area (NUMA);
- Providing a history and summary of all stakeholder engagement in the form of the Community Consultation Register (CCR); and
- Addresses how grievances, comments and questions will be managed and actioned as required.

Legislative Requirements

A CCP is a requirement for all PRCPs under section 126C of the EP Act. The following guidelines have also been used to guide the planning of this CCP and the relevant outcomes:

- Progressive Rehabilitation and Closure Plans (PRC plans) Guideline (DESI ESR2019/4964 v3.01).
- Public participation concepts developed by the International Association for Public Participation (IAP2, 2018).
- AA1000 Stakeholder Engagement Standard 2015 (Account Ability, 2015).
- International Council on Mining and Metals Closure Maturity Framework (ICMM, 2020).
- International Council on Mining and Metals Integrated Mine Closure: good practice guide (ICMM, 2019).

Stakeholder Groups

In 2020, a Social Impact Assessment (SIA) was developed by Coffey to identify the primary and secondary stakeholders who are impacted by the closure of the Project. Primary stakeholders include those that are directly affected, and secondary stakeholders include all persons and parties that are indirectly impacted by the proposed closure strategy. This process highlights parties of particular concern and vulnerable groups. This process helps mitigate adverse societal impacts and guide the collaborative closure planning towards appropriate outcomes.

The list has been updated to reflect changes since 2020 and is provided below in **Table 11**.

Table 11: Mount Rawdon Operations Stakeholder Groups

Stakeholder Group	Description
Primary Stakeholders	
Landowners and communities	Comprises landowners with property adjoining the current mining lease, and other communities in the vicinity of the mine, such as Mount Perry and Gin Gin.
Employees, contractors and suppliers	Includes employees and contractors currently employed by Mt Rawdon Gold Operations and local businesses and service providers located in surrounding communities and townships.
Traditional Owners	Includes Traditional Owner groups in the area, including the Bailai, Gurang, Gooreng Gooreng, Taribelang Bunda people, represented by the Port Curtis Coral Coast Trust.
Secondary Stakeholders	
State and local government representatives	Local, state and federal government elected representatives, officers from North Burnett and Bundaberg regional councils, and officers from state and federal government agencies.
Representative bodies	Individuals elected to local representative bodies, such as industry groups (e.g., AgForce), business groups (e.g., local Chambers of Commerce) and development organisations (e.g., Regional Development Australia Wide Bay Burnett).
Interest groups	Local groups in the surrounding area with a special interest, such as sports and community clubs and environmental groups (e.g., Burnett Mary Regional Group).
Service providers	Emergency services (e.g., Rural Fire Service) and healthcare and education providers.
Regional community	Residents and local organisations present in the broader regional community, such as Gayndah.

2.2 Stakeholder Engagement

The overarching approach towards stakeholder engagement is guided by the International Association of Public Participation (IAP2) Public Participation Spectrum.

Engagement Objectives

The engagement process is aimed at identifying any concerns that stakeholders may have regarding current closure proposals and providing platforms for appropriate resolution of grievances. Engagement frequency will increase during critical phases of operations and when issues arise that require resolution and/or further consultation.

The CCP objectives related to stakeholder engagement throughout the closure planning process include:

- To ensure that stakeholders and involved parties are regularly updated about mine closure planning;
- To encourage stakeholder input throughout the planning process so that interests of all involved can be expressed and considered when determining the outcomes of the PRCP; and
- To understand general trends and common concerns that may factor into long term management and monitoring of mine closure.

Methodology

Methods of approach has varied according to stakeholder or stakeholder group and has required a mix of methodology to effectively engage with various stakeholders. Tailored communication methods were implemented using language that best translates to each specific stakeholders' background and relative interest. Additional support was given to various stakeholder groups to assist in understanding technical concepts where necessary.

History of Stakeholder Engagement

Stakeholder engagement on mine closure began in July of 2020 and will continue throughout the LOM and during the rehabilitation and closure phase. The ongoing consultation process will be conducted in step with MRO progressive rehabilitation strategies and as operational planning evolves. The engagement of stakeholders has been undertaken in a variety of methods including phone call, one-on-one meetings, , town hall information sessions, MRO Operations site visits, and newsletters.

A history of stakeholder engagement to date can be seen in **Appendices** and **Table 12** below. It should be noted that telephone conversations were the most appropriate and preferred method of contact held during periods of travel restriction imposed throughout Queensland by the COVID-19 pandemic.

Stakeholder Consultation Register

The Stakeholder Consultation Register can be found within the CCP in **Appendices**.

The register provides a complete record of when the consultation occurred, community or groups consulted, how they were consulted, information provided during the consultation, major issues raised, the overall outcomes of the discussions and actions Evolution Mining are committed to as a response. This register will be regularly updated, and records of consultation retained within INX Inform against the relevant stakeholder.

Community Consultation Materials

Table 12: Information Provided to the Community

Stakeholder Group	Information Provided
Primary Stakeholders	
State and local government	Indicative closure timeline; post-mining land uses; current procurement and employment data at MRO. Engagement undertaken as part of SIA; indicative closure timeline; current employment numbers.
Adjoining landowners and local communities	Presentation providing update on current operations and closure planning; post mining land uses. Engagement undertaken as part of SIA; indicative closure timeline; current employment numbers.
Service providers Representative bodies Traditional Owners Local businesses Interest groups	Engagement undertaken as part of SIA; indicative closure timeline; current employment numbers.

2.3 Community Feedback

From a social impact perspective, the SIA 2020 indicated there was a general concern that the closure of MRO would result in a reduction in economic support through sponsorships and donations and a diminished network of community members available to support local events and personally contribute to local businesses.

The most prevalent concern for the community surrounded the overall loss of income and employment for local residents. Concerns were raised regarding the negative impact of the MRO closure on the local economy and there was significant interest in alternative employment opportunities generated by closure planning and through the rehabilitation phases.

There is some community interest in involvement in the rehabilitation phases, but the main interest relates to the potential for poor execution of planned rehabilitation works. Impacts on the environment and subsequent damage to livelihoods (i.e. the local agricultural industry) and economic development and prosperity, was raised as a concern.

The summary of findings from the stakeholder engagement process are listed in **Table 13** below.

Table 13: Stakeholders, Interests and Issues Raised from Stakeholder Engagement (Coffey 2020)

Stakeholder Group	Interests	Potentially relevant issues or concerns
Landowners and communities		
Adjoining landowners	• Management of invasive species. • Effective closure and site rehabilitation. • Compliance with state environmental legislation and regulations. • Post-closure end land uses (e.g., access to additional grazing land if possible).	• Legacy environmental issues due to unsuccessful rehabilitation following mine closure. • Disruptions to stock or farming operations during decommissioning and post-closure. • Impacts on land values.
Local community, i.e., Mount Perry	• Mount Perry town viability, including access to services, property values, population. • Compliance with state and commonwealth environmental legislation and regulations. • Post-closure end land uses.	• Loss of employment and procurement opportunities. • Population decline in Mount Perry and reduced liveability. • Loss of community financial support. • Legacy environmental issues due to unsuccessful rehabilitation following mine closure.
Employees, contractors and suppliers		
Current Mt Rawdon employees and contractors	• Employment and business impacts. • Mine closure timelines. • Closure and site rehabilitation approaches and standards.	• Loss of employment and procurement opportunities. • Opportunity for participation in site rehabilitation.

Stakeholder Group	Interests	Potentially relevant issues or concerns
Local businesses and suppliers	• Viability of other regional towns and businesses that form part of the Mt Rawdon supply chain. • Employment and business impacts. • Mine closure timelines. • Closure and site rehabilitation approaches and standards.	• Loss of employment and procurement opportunities. • Population decline in local area. • Opportunity for participation in site rehabilitation.
Traditional Owners		
Bailai, Gurang, Gooreng Gooreng, Taribelang Bunda people	• Maximising support from Mt Rawdon in the period leading to closure. • Native title and cultural heritage. • Effective closure and site rehabilitation. • Post-closure end land uses.	• Opportunity for participation in site rehabilitation. • Loss of community financial support. • Legacy environmental issues due to unsuccessful rehabilitation following mine closure.
State and local government representatives		
Minister for the Environment and Tourism and Minister for Science and Innovation Minister for Natural Resources and Mines	• Closure and site rehabilitation approaches and standards. • State liabilities. • Industry environmental performance, reputation and support.	• Local stakeholder support for closure approach. • Legacy environmental issues due to unsuccessful rehabilitation following mine closure. • Loss of royalties.
	• Closure and site rehabilitation approaches and standards.	• Local stakeholder support for closure approach.

Stakeholder Group	Interests	Potentially relevant issues or concerns
Department of Environment, Tourism, Science and Innovation Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development Department of State Development, Infrastructure and Planning	- Local stakeholder satisfaction with the closure and rehabilitation process. - Compliance with state environmental legislation and regulations. - Industry and regional development.	- Legacy environmental issues due to unsuccessful rehabilitation following mine closure. - Loss of royalties.
State Member for Callide State Member for Bundaberg State Member for Burnett Federal Member for Flynn Federal Member for Hinkler	- Impact on local jobs and businesses. - Closure and site rehabilitation approaches and standards. - Local stakeholder satisfaction with the closure and rehabilitation process.	- Adequacy of regional infrastructure to support local development (agriculture and tourism) post-closure. - Local stakeholder support for closure approach. - Legacy environmental issues due to unsuccessful rehabilitation following mine closure. - Loss of community financial support.
North Burnett Regional Council	- Mount Perry town viability, including access to services, property values, population. - Viability of other regional towns and businesses that form part of the Mt Rawdon supply chain, such as Gayndah and Eidsvold. - Post-closure end land uses.	- Loss of employment and procurement opportunities. - Population decline in Mount Perry and reduced liveability. - Loss of community financial support. - Local stakeholder support for closure approach.

Stakeholder Group	Interests	Potentially relevant issues or concerns
	Local stakeholder satisfaction with the closure and rehabilitation process.	
Bundaberg Regional Council	Viability of Gin Gin and other regional towns that form part of the Mt Rawdon supply chain.	Loss of employment and procurement opportunities.
Representative Bodies		
Bundaberg Ag-Food and Fibre Alliance	Closure and site rehabilitation approaches and standards.	Legacy environmental issues due to unsuccessful rehabilitation following mine closure.
Bundaberg Regional Irrigators Group	- Management of invasive species. - Industry environmental performance, reputation and support. - Industry and regional development. - Post-closure end land uses.	- Loss of employment and procurement opportunities. - Disruptions to stock or farming operations during decommissioning and post-closure.
Interest Groups		
Burnett Mary Regional Group	Post-closure end land uses.	Legacy environmental issues due to unsuccessful rehabilitation following mine closure.
Burnett Catchment Care Association	Effective closure and site rehabilitation.	Opportunity for participation in site rehabilitation.
Wide Bay Burnett Environment Council	- Closure and site rehabilitation approaches and standards. - Compliance with state environmental legislation and regulations.	Membership decline due to population decline.

Stakeholder Group	Interests	Potentially relevant issues or concerns
Mount Perry Community Development Board Mount Perry Tourist and Historical Society Mount Perry State School and P&C Assoc Mount Perry Show Society Mount Perry Race Club Mount Perry Men's Shed Mount Perry Sport and Rec Centre	• Post-closure end land uses. • Industry and regional development.	• Loss of community financial support. • Volunteer decline due to population decline. • Opportunity for use of decommissioned machinery.
Service Providers		
Service providers	• Mount Perry town viability, including access to services, property values, population. • Viability of other regional towns and businesses that form part of the Mt Rawdon supply chain.	• Loss of community financial support. • Volunteer decline due to population decline. • Reduced demand for services.
Regional Community		
Regional communities, i.e., Gin Gin, Biggenden, Gayndah, Eidsvold and Monto	• Impact on local jobs and businesses. • Viability of other regional towns and businesses that form part of the Mt Rawdon supply chain.	• Loss of employment and procurement opportunities.

2.4 Ongoing Engagement

Ongoing management of stakeholder engagement will be conducted according to the approaches listed in **Table 14** and according to the outline engagement objectives and methodology. Continued stakeholder engagement is a crucial part of collaborative closure planning and reaching appropriate land outcomes that meet the completion criteria of proposed PMLUs.

Table 14: Ongoing Stakeholder Engagement Approaches (Coffey 2020)

Stakeholder Group	Engagement approach
Landowners and communities	
Adjoining landowners	• Inception meeting to present and get feedback on PRC plan, including current closure plans and proposed closure approach. • In person or phone conversations (6 monthly or as required). • Continued town-hall meetings (12 monthly or as required).
Mount Perry community	• Continued town-hall meetings (12 monthly or as required). • Quarterly community newsletter, distributed electronically and mail dropped to all local post office boxes • Phone conversation or in person meetings as required
Employees, contractors and suppliers	
Current Mt Rawdon employees and contractors	• Quarterly presentations delivered to all employees and contractors. • Monthly staff newsletters • Staff emails, pre-start meetings and memos as required
Current Evolution Mining employees	• Evolution Mining intranet portal articles • Evolution Mining Engage platform posts
Local businesses and suppliers	• Continued town hall meetings (12 monthly or as required) • Quarterly community newsletter, distributed electronically and mail dropped to all local post office boxes • Phone conversation or in person meetings as required
Traditional owners	
Bailai, Gurang, Gooreng Gooreng, Taribelang Bunda people	• Inception meeting to present and get feedback on PRC plan, including current closure plans and proposed closure approach. • Add closure as agenda item to regular meetings (12 monthly or as required). • Phone conversations or in person meetings as required

Stakeholder Group	Engagement approach
State and local government representatives	
Minister for the Environment and Tourism and Minister for Science and Innovation Minister for Natural Resources and Mines	• Provide regular updates via departmental representatives • Respond to requests for information as required
Department of Environment, Tourism, Science and Innovation Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development Department of State Development, Infrastructure and Planning	• Routine meetings (12 monthly or as required). • Provide regular updates via email.
State Member for Callide State Member for Bundaberg State Member for Burnett Federal Member for Flynn Federal Member for Hinkler	• Respond to requests for information as required.
North Burnett Regional Council	• Inception meeting to present and get feedback on PRC plan, including current closure plans and proposed closure approach. • Provide regular briefings to Councillors as invited.
Bundaberg Regional Council	• Inception meeting to present and get feedback on PRC plan, including current closure plans and proposed closure approach. • Provide regular briefings to Councillors as invited.
Interest groups	
Burnett Mary Regional Group Burnett Catchment Care Association Wide Bay Burnett Conservation Council	• Keep informed of key milestones through email updates, phone conversations or local media updates. • Respond to queries as they arise.
Mount Perry Community Development Board Mount Perry Tourist and Historical Society	• Ongoing engagement through existing activities (sponsorships and donations program, community engagement events). • Keep informed of key milestones through email updates, phone conversations or local media updates.

Stakeholder Group	Engagement approach
Mount Perry State School P&C Assoc	Respond to queries as they arise.
Mount Perry Show Society	
Mount Perry Race Club	
Mount Perry Men’s Shed	
Mount Perry Sport and Rec Centre	
Service providers	
Service providers	- Continued town-hall meetings (12 monthly or as required). - Keep informed of key milestones through email updates, phone conversations or meetings.
Regional Community	
Regional communities, i.e., Gin Gin, Biggenden, Gayndah, Eidsvold and Monto	Respond to queries as they arise.

Closure Planning and Engagement

The approach to stakeholder engagement during the stages leading up to and beyond closure, are listed in **Table 15**.

Table 15: Closure Planning Phases and Engagement (Coffey 2020)

Planning stage	Engagement Activity	Engagement tools
Operations (5 to 3 years until closure)	- Stakeholders engaged on post-mining land uses, including government representatives, landowners and local community. - Landowners and government representatives are engaged on the development of closure success criteria with documented agreement in place. - Community consultation plan updated annually to identify key affected people for engagement throughout closure process. - Scheduled periodic engagements (at least annual). - Grievances, comment and questions are recorded, managed and actioned as required.	- One-on-one meetings - Community information sessions
Pre-closure (Less than 3 years until closure)	- Final post-mining land uses are further discussed and reconfirmed with stakeholders and related rehabilitation methods align with the post-closure land use. - All employees and contractors have been engaged at the appropriate level of influence. - Key stakeholders (i.e., landowners, Traditional Owners, interest groups) are engaged and involved in the development of post-mining monitoring program. - Where interest exists, partnerships with stakeholders to assist monitoring activity required to achieve the closure objectives. - Scheduled periodic engagements (at least annual). - Grievances, comments and questions are recorded, managed and actioned as required.	- One-on-one meetings - Community information sessions - Community updates - E-mail distribution
Closure execution and post-closure monitoring	- Where interest exists, partnerships with stakeholders for successful delivery of closure plan outcomes. - Agreed engagement process with stakeholders to provide details on progress on closure outcomes and achieving closure criteria. - Grievances, comments and questions are recorded, managed and actioned as required.	- Community information sessions - Community newsletters - One-on-one meetings - Direct communication

Closure Planning Alignment

The proposed PMLUs and NUMA (**Figure 27**) align with stakeholder requests and support the resolution towards the general concerns raised throughout engagement (see **Table 16**).

The purpose of the PMLUs is to support the local and broader community through economic, social, and environmental improvements. Where possible, MRO aims to provide employment opportunities and generate sustainable economic platforms to benefit the region post-closure. As discussed previously, the broader community was primarily concerned with employment loss, loss of financial support/donations from MRO, decline in population and reduction of members within community groups. MRO has prioritised these focal points throughout engagement and has actively investigated closure options.

The residual void is best categorised as a Non-Use Management Area (NUMA) as modelling suggests water quality aligned to Stock Water Guidelines may be difficult to achieve over the very long term (100+ years) and would require the diversion of rainfall runoff from clean water catchments. However the residual void can still act as a water storage with the potential for a beneficial re-use of that water for a period of time which still aligns with the PRCP Guideline categorisation of a NUMA. The categorising of the residual pit void as a NUMA also aligns with the future intent for the void to be repurposed as a lower reservoir as part of the Mt Rawdon pumped hydroelectric system currently under development. The pit void NUMA requires achievement of rehabilitation milestone criteria outlined in the PRCP Schedule and demonstration of safe, stable and non-polluting whilst also providing a streamlined pathway to surrender of the ML and associated EA conditions for this area. An amendment to this plan and associated schedule would be required to allow for the Mt Rawdon Pumped Hydro scheme to progress and has the potential to add employment opportunities for the region, a primary concern for residents. Additionally, further employment opportunities exist in the form of tourism that could be generated post closure.

Another issue raised during community consultation surrounded the execution of rehabilitation and MRO has maintained transparency and involvement with the community throughout the planning process and will continue engagement through multiple forums as outlines in the Community Consultation Plan.

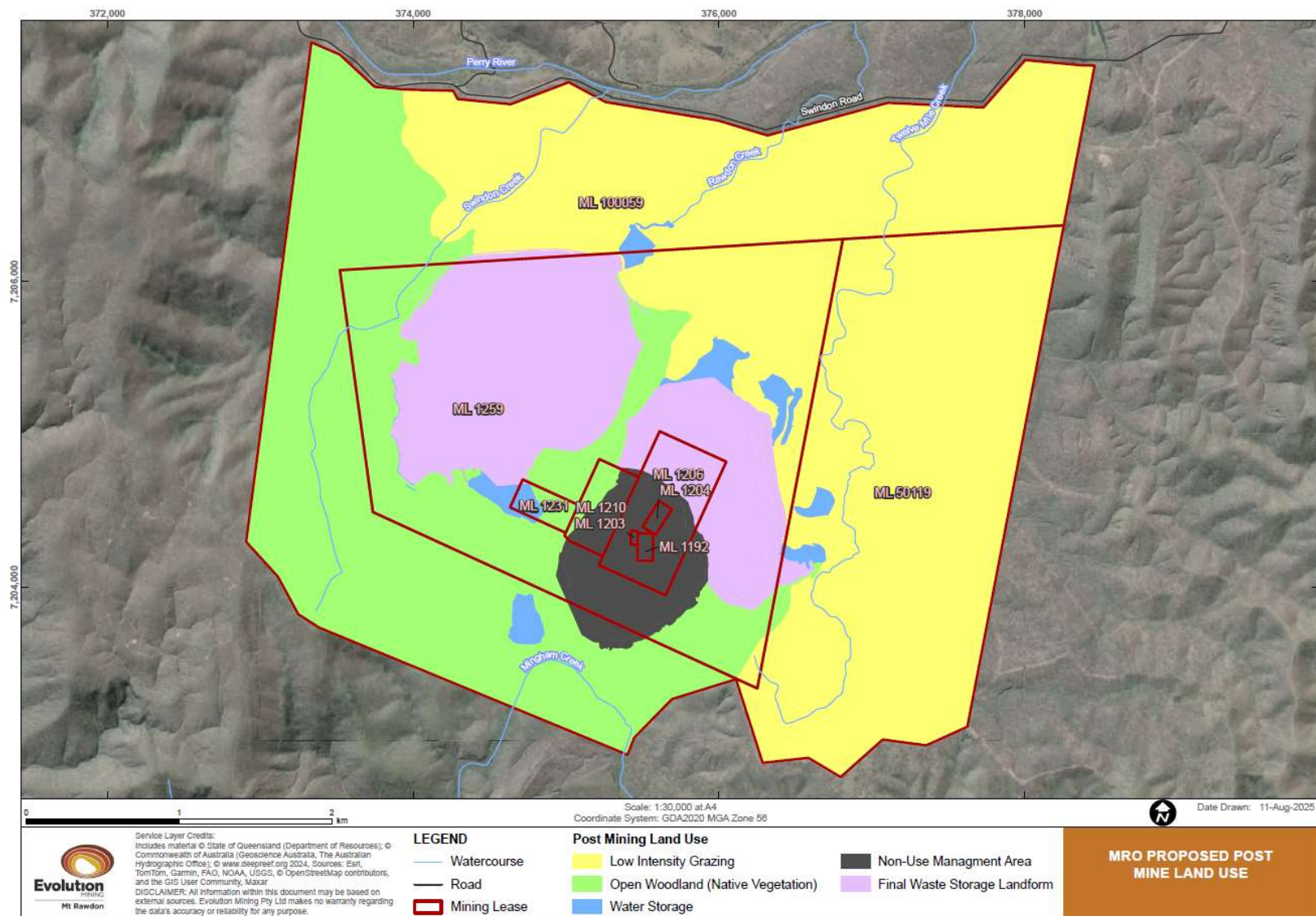


Figure 27 : MRO Proposed Post Mine Land Use

Table 16: Alignment of post mine use features with Stakeholder Requests

Post-Mine Description	Mine closure category	Consistency with CCP
NUMA – Pit Void	NUMA	The intended purpose for the residual pit void post mining has always been to allow water levels to recover over the long term as rainfall and groundwater infiltration occurs (water storage). Community consultation on the residual pit void as a NUMA is consistent with the description of a Water Storage whereby if water quality guidelines are met, water in the void can still be used for various purposes such as stock watering. However it is expected that over the very long term (100+years) the residual void may not support a defined post mine land use and therefore categorising the void as a NUMA is most appropriate. Potential for a pumped hydroelectric system is being actively investigated through a feasibility study. This will carry the added benefit of potential employment opportunities for the region which was a primary concern for residents. Additionally, further opportunities exist in the form of tourism that this project could generate.
Low-intensity grazing	PMLU	The low-intensity grazing landscape aligns with the landholders pre-mining land use and the landholders and the surrounding landscape. The underlying landholders gain economic benefit from the return of improved land and livestock grazing opportunity. Community consultation on the proposed PMLUs for MRO have consistently referenced low intensity grazing and open woodland in keeping with the surrounding landscape and associated land uses.
Open woodland	PMLU	With ongoing support and development of associated community projects listed in the next section, open woodland provides opportunities to the community in the form of sustainable tourism, liveability and employment whilst also restoring ecological values to the area. Community consultation on the proposed PMLUs for MRO have consistently referenced low intensity grazing and open woodland in keeping with the surrounding landscape and associated land uses.
Water Storage (Beneficial Use - Water dams)	PMLU	Providing additional water resources to the underlying landholder for the potential benefit of improving grazing capabilities and the potential value of the land. The water resource also has the potential of providing additional habitat and other ecological values to the area. Community consultation on the proposed PMLUs for MRO have consistently referenced low intensity grazing and open woodland in keeping with the surrounding landscape and associated land uses. Water storage for

Post-Mine Description	Mine closure category	Consistency with CCP
		stock water aligns with these land uses ie. Low intensity grazing.
Final Waste Storage Landform (NWRD & TSF landforms)	PMLU	The intended design of the Northern Waste Rock Dump (NRWD) and Tailings Storage Facility (TSF) was to provide an engineered structure to safely store mine wastes in perpetuity. PMLU of Final Waste Storage Landform aligns with this design intent being robust, engineered landforms. Both landforms will include a vegetated cover to support the store and release cover design and function whilst also provide ecological and aesthetic benefits to the landscape. The PMLU of Final Waste Storage Landform and associated cover design and vegetation proposed aligns with Community consultation completed to date. Embankments have been described as remaining at angle of repose with vegetation establishment on flat sections of these landforms.

Ongoing Commitments

MRO has made commitments to relevant stakeholders to maintain consultation throughout the operational and the closure phases to understand key concerns and impacts to the local and surrounding community. Annual meetings are also held collectively to address concerns, gather perspective, and gain insight into community expectations. This continued and inclusive dialogue with stakeholders allows for the objective review of actions taken and highlights where further attention is required for post closure outcomes.

Through this feedback, MRO has offered support to a wide array of stakeholders through donations, sponsorships and has encouraged groups to work cooperatively with MRO in generating economically sustainable tourism opportunities such as the Mt Perry Summit Walk and Tram restoration projects. The economic impact of closure on the broader community has been flagged as a primary concern and MRO has taken proactive steps by initiating open discussions with sponsorship recipients, discussing future alternatives, and offering support during this transition. Opportunities to maximise employment opportunities through rehabilitation works have been considered throughout closure planning, and has encouraged the discussion of share value programs associated with the PMLUs to generate future economic opportunities in partnership with local environmental groups and Traditional Owner representatives. Examples include the proposal to engage the regional catchment care group and First Nations partners to support ongoing sustainable agriculture and ecological improvement initiatives on the underlying Swindon Station. Opportunities also exist to engage relevant groups on native seed harvesting, nursery establishment and rehabilitation monitoring programs to build capacity in the region and generate employment and business opportunities.

3 Post Mining Land Use

The type and locations of PMLUs for identified rehabilitation areas are described in detail in **Table 17** and in the PRCP schedule. The residual void Non-Use Management Area (NUMA) is described at Section 4 below.

As with most of the North Burnett region prior land use at MRO included grazing lands established in areas where broad scale clearing occurred within a range of native vegetation ecosystem communities. It is proposed that once operations cease, to return mining disturbed lands to low-intensity grazing land where appropriate and to open woodland that is comparable to native vegetation ecosystems surrounding MRO.

The following rehabilitation areas have been identified based on current operations and proposed PMLUs and objectives (see **Table 17** and **Figure 28**).

Table 17: Post-Mine Land Descriptions for MRO Rehabilitation areas

Rehabilitation area (RA)		Rehabilitation area description	Post-Mine Description
1	NWRD – waste rock and long-term ore stockpiles	The Northern Waste Rock Dump (NWRD) is utilised for the disposal of both NAF and PAF waste rock material. The facility covers an area of approximately 99.83 ha. The outer batters will remain at angle of repose as a rock face only.	Final Waste Storage Landform
2	WWRD and ROM (NAF stockpiles and temporary storage location for ore prior to processing)	The Western Waste Rock Dump is utilised for temporary storage of NAF only. The final approved footprint of the facility is 73 ha however the current disturbance footprint is 48.54 ha. The ROM is utilised for temporary storage of ore until processing ceases.	Open woodland
3	TSF, including seepage interception trenches and seepage ponds & diversion drains	The final TSF footprint will cover an area up to 203.92ha.	Final Waste Storage Landform
4	Haul roads and internal access roads	The total disturbed area on site that has been allocated to haul roads, internal access roads, tracks and infrastructure corridors totals approximately 16.07 ha.	Open woodland
5	Processing plant, workshops and infrastructure management areas	Most of the site infrastructure located at MRO is centralised to the processing area of the operation. The total disturbance area calculated for workshops and infrastructure management areas are approximately 24.29 ha	Open woodland
6	Water management infrastructure and	All water management dams covering approximately 34.399 ha.	Water storage

Rehabilitation area (RA)		Rehabilitation area description	Post-Mine Description
	dams (all dams and supporting drains)		
7	Borrow pits and topsoil/ growth media stockpiles and other infrastructure areas within grazing land	Borrow pits and topsoil/growth-media stockpiles on areas adjoining MRO to the north of the TSF and east of the NWRD covering approximately 32.70 ha plus 46.39 ha for other infrastructure areas (helipad, Orica yard, landfill, miscellaneous, powerlines, small access roads, drains) for a total 79.55 ha.	Low intensity grazing
8	Borrow pits and topsoil/ growth media stockpiles within open woodland areas	Borrow pits (including the West Hill NAF rock borrow pit, TSF north-west topsoil/borrow pit areas) and other topsoil/growth-media stockpile areas of land within the main MRO operational mining footprint (not within a grazing PMLU) covering approximately 16.42 ha in total	Open woodland

Low-intensity grazing

The low-intensity grazing PMLU areas within the Project area will be established primarily with native pasture grasses in accordance with the key species identified in **Section 5.6** and **Section 7.1**. These areas will also include patches of sparse to moderately dense native canopy species and shrubs similar to that found in certain open woodland communities neighbouring the mining lease. These communities will provide shade for livestock and to a lesser degree, long term habitat for native fauna species.

Open woodland

The open woodland PMLU areas within the Project area will be established primarily with native vegetation in accordance with the key species identified in **Section 5.6** and **Section 7.1**.

Water Storage

The storage of water within the dams that form part of the site water management infrastructure will serve a stock water PMLU purpose for supplying water to cattle on low-intensity grazing areas.

Final Waste Storage Landform

At closure two Final Waste Storage Landforms (the NWRD and the TSF) will remain as two passive structures that will serve a post closure use of providing long-term storage and containment of mine waste. The landforms are to be geotechnically and erosionally stable, non-polluting, safe and are to sustain an ecological function in the form of a vegetation cover system, that caps the final and uppermost plateau surface of the landform.

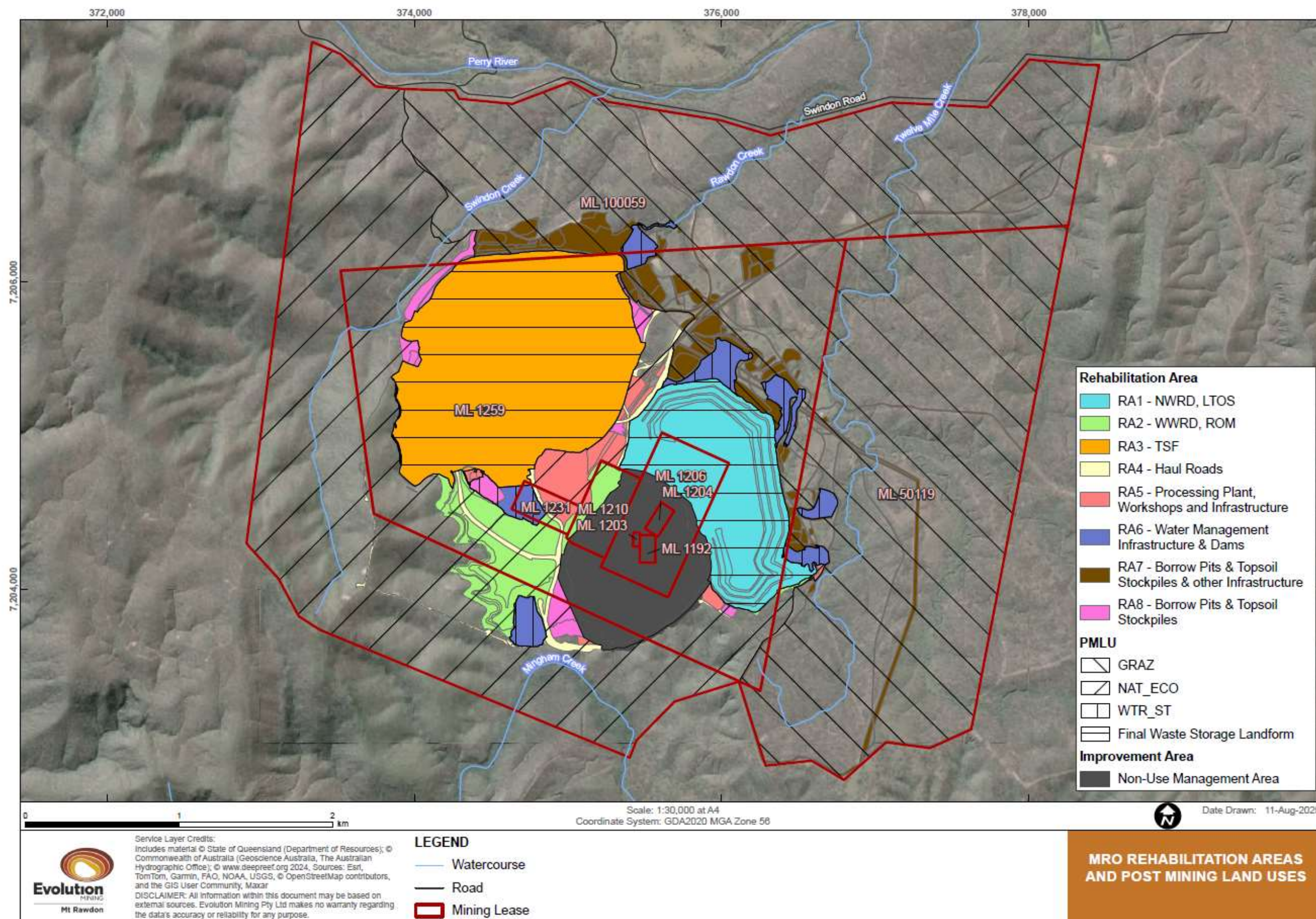


Figure 28: MRO Rehabilitation Areas and Post Mining Land Uses

3.1 Rehabilitation indices

At MRO, satisfactory rehabilitation is mined land in a 'stable condition' (*Environmental Protection Act 1994* (Qld) (EP Act), s111A), that meets or exceeds rehabilitation milestone criteria, is feasible in terms of operational safety, engineering, and cost, and delivers outcomes that meet landholder requirements.

3.1.1 Rehabilitation goals

For a stable condition to exist, rehabilitated land must –

- (a) be safe,
- (b) be structurally stable,
- (c) not cause environmental harm, and
- (d) be able to sustain a Post-mining Land Use (PMLU).

These statutory requirements form rehabilitation goals and are the starting point for developing rehabilitation indices that describe and define satisfactory rehabilitation.

3.1.2 Objectives

Rehabilitation objectives are the endpoints that rehabilitation aims to achieve, and these must:

- Provide a clear description of the proposed rehabilitation outcomes
- Address potential environmental impacts
- Achieve the highest practicable level in the rehabilitation hierarchy
- Identify PMLUs that are acceptable to the community, government, and other stakeholders.

Objectives have been developed that clearly describe desired outcomes within each rehabilitation PMLU (**Table 18**). These objectives are based on the rehabilitation goal. Therefore, the overarching objectives for rehabilitation are to ensure safety hazards are not greater than those that exist in the surrounding landscape, and to establish a stable, non-polluting landscape that maximises potential for sustainable PMLUs.

Table 18: PMLU Rehabilitation Objectives

PMLU	Safe	Structurally stable	No environmental harm	Can sustain a PMLU
Open woodland	Safety hazards in rehabilitation are not significantly different to surrounding unmined landscapes subject to the same land use.	Rehabilitation is geotechnically stable.	Surface water runoff from rehabilitation achieves relevant water quality objectives for receiving surface waters.	Vegetation has similar characteristics to local regional ecosystems.
Water storage		Rehabilitation is erosionally stable.		Water quality is fit for native fauna and grazing stock use.
Low intensity grazing		Drainage from rehabilitation achieves relevant water quality objectives for receiving groundwater.	Land has characteristics that are suitable for sustainable cattle grazing.	
Final waste			Final Landform contains waste and	

storage landform			provides an ecological function.
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3.2 Indicators and criteria

An indicator is something that can be measured and audited according to an established protocol and used to evaluate changes in a system and completion criteria are the standards that are to be met by successful rehabilitation. They will generally be in the form of numerical values that can be verified by measurement of the indicators selected for the rehabilitation objectives. In other words, indicators are 'what' will be measured, and completion criteria are the metric 'benchmarks' for satisfactory rehabilitation.

According to Australian leading practice guidelines (Australian Government 2016), such indices must:

- Be SMART (Specific, Measurable, Achievable, Realistic, Timely).
- Be outcomes-based and linked to the end land use.
- Be flexible to adapt to changing circumstances.
- Evolve as the life of mine progresses.
- Include environmental indicators suitable to demonstrate that rehabilitation is trending positively.
- Undergo periodic review.
- Include a measurement approach that details how the criterion will have been met.

Meaningful indicators have been identified to provide robust and defensible measurements of progress towards rehabilitation objectives. Each indicator has a valid scientific basis and a practical and reliable method of measurement and reveals something important about the rehabilitation.

Every indicator has been allocated a relevant criterion or set of criteria. Importantly, criteria are numeric and will be measured to form a set of statistical metrics for on-going analysis during the period of rehabilitation monitoring and evaluation. A justification of indicators and criteria for each objective follows.

3.3 Open woodland

3.3.1 Land is safe

Human safety at mine sites and other workplaces is largely managed under the *Mining and Quarrying Safety and Health Act 1999*, *Work Health and Safety Act 2011*, and other legislation. Though there are no specific legislative safety requirements for wildlife, it will generally be appropriate to consider both human and fauna safety when designing rehabilitation under environmental legislation. MRO will do this by applying its risk management standards and procedures in the context of the agreed post-mining land uses, e.g. open woodland. Rehabilitation should pose no greater hazards to humans and fauna than those that exist in the surrounding unmined landscape with the same land use (**Table 19**).

Table 19: Open woodland safe criterion

Goal	Objective	Indicator	Criterion
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Safe to humans and wildlife	Safety hazards in rehabilitation are not significantly different to surrounding unmined landscapes subject to the same land use.	Hazard assessment	No significant difference
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3.3.2 Land is structurally stable

Structural or geotechnical stability refers to the stability of a slope against mass failure. Factors of Safety (FoS) against failure are generally defined as the ratio between restoring forces (strength) and disturbing forces (loading) within a slope. When a slope is on the point of failure, the restoring and disturbing forces are equal and the FoS is 1.0.

Department of Mines and Energy (1995) cite conventionally used FoS for temporary and permanent slopes are 1.2 and 1.5, respectively. This is aligned with WADME (1999) who considered the consequence of failure in determining appropriate safety factors (**Table 20**). When the consequence of failure and/or the level of uncertainty are high, designs should be more conservative. This is particularly relevant when considering residual void walls, but FoS also apply to spoil emplacements. For these reasons, the minimum FoS for most rehabilitation should not be less than 1.5 (**Table 21**).

Table 20: Example design criteria for temporary and permanent slopes

Class	Consequence of failure	Design FoS	Examples
1	Not serious	n/a	Working faces.
2	Moderate	≥1.2	Temporary slopes.
3	Serious	≥1.5	Permanent slopes.
4	Very serious	≥2.0	Permanent slopes near public infrastructure.

Sources: (Department of Mines and Energy 1995; WADME 1999).

Erosional stability is different to geotechnical stability but not less important in rehabilitation. A contemporary view is that erosion rates from rehabilitated landforms should be analogous to surrounding unmined areas. This would need to be demonstrated by monitoring of surrounding unmined areas, which is very difficult (impossible) in practice. Drawing on research by others, Grigg *et al.* (2001) conclude the rate of soil loss in Queensland mine rehabilitation should not exceed the rate of soil renewal, which is less than 4 t/ha/y. This rate of soil loss is so small (numerically equivalent to approximately 0.27 mm/ha/y) that it cannot be practically measured in rehabilitation and for that reason cannot be used as a criterion.

So *et al.* (1998) studied erosion at 15 coal mines throughout Queensland and found the potential impact of vegetation on erosion from rehabilitated soils was “enormous”. Under vegetation, infiltration capacities increase greatly, soil structure is improved, and erosion can be greatly reduced. So *et al.* (1998) suggest 30 to 40 % vegetation cover will be required to reduce erosion to acceptable levels.

For sloping coal mine rehabilitation, rates of 50 - 70 % were recommended by Grigg *et al.* (2001). Carroll *et al.* (2001) found rates of erosion from 10 % and 20 % gradient spoil rehabilitation were reduced to <1 t/ha/y with groundcover >50 %. Other research shows that high levels of vegetative cover reduce erosion to minimal levels, even on very steep slopes (Carroll *et al.* 2000; Carroll and Tucker 2000; Loch 2000). A similar trend was observed in erosion trials at the former Kidston gold mine, where runoff and soil loss were reduced as vegetation became more established, though groundcover percentage was not reported (Williams *et al.* 2003). An additional comparison is found

in contemporary reef catchment guidelines for unmined grazing land in Queensland reef catchments that call for 70 % groundcover at the end of the dry season to maintain land in *Good Condition* (Queensland Government 2022). All of this erosion research and each of the suggested groundcover thresholds is relevant to rehabilitation at MRO because the processes that drive soil erosion are the same on all land, regardless of the type of mining or other land uses that have occurred.

The evidence is that groundcover percentage is an appropriate surrogate for soil erosion risk generally, including in rehabilitation at MRO, and that 70 % is a conservative threshold target. For these reasons, rehabilitation must achieve and maintain a groundcover greater than 70 % to adequately mitigate erosion risk and prevent land degradation (Table 21). Note that *groundcover* means anything in contact with the soil surface, e.g. rocks, stones, sticks, leaves, grass, hay, etc.

The presence or absence of erosion gullies in rehabilitation, though an entirely qualitative descriptor, is a long-held rehabilitation completion criterion. NCST (2009) sets out the ‘Australian standard’ methodology for defining, describing, and recording gully erosion. A gully, for example, is an erosion channel of more than 0.3 metre (m) depth. The severity of gully erosion, however, is not defined by increasing depth and such scales should be avoided as completion criteria because they have no credible basis. In accordance with definitions provided in NCST (2009), gully erosion in open woodland PMLU rehabilitation at MRO must be absent, or stabilised, or if active then minor (**Table 21**). There must not be active gully erosion that is “moderate” or “severe”.

Table 21: Open woodland ‘structurally stable’ completion criterion

Goal	Objective	Indicator	Criterion
Structurally stable	Rehabilitation is geotechnically stable.	FoS	≥1.5
	Rehabilitation is erosionally stable.#	Groundcover	>70 %
		Gully erosion	Absent, or Stabilised, or Active and minor

Refer to DETSI PRCP Schedule (2025) Appendix 2: *Erosion Classification framework* for details.

3.3.3 No environmental harm

Surface water runoff from rehabilitation will be non-polluting and not adversely affect environmental values (EVs) and water quality objectives (WQO) for upstream water and groundwater relevant to the Burnett Region (**Table 22**) under the Environmental Protection Policy (DES 2019).

The receiving environment includes ephemeral creeks that drain north to the Perry River, and south to the Burnett River. The relevant EVs include:

1. Aquatic Ecosystems. The applicable guidelines are the current EA requirements, Burnett Mary Region Water Quality Improvement Plan (BMRG, 2015) and ANZG (2018) guidelines for a 95% level of protection.

2. Stock watering. The applicable guidelines are the current EA requirements, Burnett-Mary Region WQIP (BMRG, 2015) and ANZECC & ARMCANZ (2000) guidelines – Livestock drinking water for all surface waters.¹ Cattle access and drink from creeks in the mining lease.
3. Aquaculture and human consumption of aquatic foods. The applicable guidelines are the Burnett-Mary Region WQIP (BMRG, 2015) and ANZG (2018) guidelines. This guideline will be protected with aquatic ecosystem protection.
4. Visual appreciation. The applicable guidelines are the Burnett-Mary Region WQIP (BMRG, 2015) and ANZG (2018) recreational guidelines – Visual use no contact. There has been historic use of the Perry River Weir as a picnic area.
5. Industrial use. Suitability of water supply for industrial use.
6. Human consumption. The applicable guidelines are the Burnett-Mary Region WQIP (BMRG, 2015), DEHP (2009) and the Australian Drinking Water Guidelines (NHMRC, NRMCC 2011).
7. Irrigation and Farm Supply. The applicable guidelines are the Burnett-Mary Region WQIP (BMRG, 2015), DEHP (2009) and ANZECC & ARMCANZ (2000).²
8. Primary and Secondary Recreation. The applicable guidelines are the Burnett-Mary Region WQIP (BMRG, 2015), DEHP (2009) and NHMRC (2008) to manage risk in recreational waters.
9. Cultural and Spiritual Values. The applicable guidelines to protect and restore indigenous and non-indigenous cultural heritage consistent with relevant policies and plans (DEHP, 2009), and agreements including the National Water Initiative (NWI).

Table 22: Open woodland No environmental harm completion criterion

Goal	Objective	Indicator	Criterion
Non-polluting	Surface water runoff from rehabilitation achieves relevant water quality objectives for receiving surface waters.	Water quality analytes and ecological indicators	No significant impact to aquatic ecosystem health
	Drainage from rehabilitation achieves relevant water quality objectives for receiving groundwater.		

3.3.4 Can sustain a PMLU

That open woodland PMLU vegetation has similar characteristics to local regional ecosystems using vegetation metrics derived as follows.

The regional ecosystem (RE) vegetation survey and mapping system is unique to Queensland. It classifies vegetation based on a hierarchy, which is reflected in the three-part code given to each RE. The land is first classified by bioregion, then land zone, and then vegetation type (Neldner *et al.* 2023).

Simple vegetation criteria are proposed that tie open woodland PMLU rehabilitation at MRO to neighbouring REs. The Queensland Herbarium has split the State into 13 bioregions, and MRO lies

¹ In preference to the draft ANZG (2023a) Livestock drinking water guidelines.

² In preference to the draft ANZG (2023b). *Water Quality for Irrigation and General Water Uses: Guidelines*.

within South-East Queensland (bioregion number 12), towards its northern extent. Bioregions are further split into land zones based on surface geology, geomorphology, and landscape characteristics (Wilson and Taylor 2012). In the vicinity of MRO, *Land Zone 11 – metamorphic rocks* forming ranges and hills is dominant. *Land zone 12 – Mesozoic to Proterozoic igneous rocks* forming ranges and hills and *Land Zone 3 – Recent Quaternary alluvial systems* are relatively minor occurrences.

The geology, geomorphology, and landscape characteristics of open woodland PMLU rehabilitation at MRO will be markedly dissimilar to all natural land zones and vegetation types. For that reason, it is not possible to identify a single RE of *best fit* on which to base rehabilitation completion criteria. Rather, criteria have been distilled by statistical analysis of benchmark BioCondition data for relevant land zones and vegetation types in the local area. The BioCondition assessment framework provides a quantitative measure of how well a terrestrial ecosystem is functioning for the maintenance of biodiversity values. It uses a set of weighted assessable biodiversity attributes compared against benchmark values for the same RE community under ‘reference’ (mature, stable-state and least-disturbed) conditions to derive a final overall score that represents a biodiversity condition state (Eyre et al., 2017).

Vegetation surrounding MRO is described as the following compacted REs in order of dominance:

- 12.11.6/12.11.12/12.11.8 – on the land now occupied by MRO and the extensive ranges to the west and northwest.
- 12.11.6/12.12.5/12.3.3 – on the extensive uplands to the south of MRO.
- 12.11.6/12.11.5 - on the hills to the east of MRO.

As open woodland PMLU rehabilitation at MRO will feature elevated landforms with steep outer rock batters and soil cover systems designed to be water shedding, relevant REs for the derivation of completion criteria are (described as per Queensland Herbarium 2023):

- 12.11.5 - *Corymbia citriodora* subsp. *variegata* open forest to woodland, usually including *Eucalyptus siderophloia*/*E. crebra* (sub coastal ranges), *E. propinqua* and *E. acmenoides* or *E. carnea*. Other species that may be present and abundant locally include *Corymbia intermedia*, *C. trachyphloia* subsp. *trachyphloia*, *Eucalyptus tereticornis*, *E. microcorys*, *E. portuensis*, *E. helidonica*, *E. major*, *E. longirostrata*, *E. biturbinata*, *E. moluccana* and *Angophora leiocarpa*. *Lophostemon confertus* often present in gullies and as a sub-canopy or understorey tree. Mixed understorey of grasses, shrubs and ferns.
- 12.11.6 - Open forest to woodland of *Corymbia citriodora* subsp. *variegata* generally with *Eucalyptus crebra*. Other species such as *Eucalyptus exserta*, *E. tereticornis*, *E. moluccana*, *E. melanophloia*, *E. acmenoides*, *Corymbia tessellaris* and *Angophora leiocarpa* may be present in scattered patches or in low densities. Understorey grassy or shrubby.
- 12.11.8 - *Eucalyptus melanophloia* usually with *E. crebra* grassy woodland. Other species such as *Corymbia erythrophloia*, *C. tessellaris*, *C. clarksoniana* may be present in low densities or in patches. Restricted occurrence of *Callitris glaucophylla* south of Gayndah.
- 12.12.5 - Open forest to woodland of *Corymbia citriodora* subsp. *variegata*, usually with *Eucalyptus crebra*. Other species such as *Eucalyptus exserta*, *E. moluccana* present in scattered patches or in low densities. Understorey generally grassy.

BioCondition benchmarks, forming part of a vegetation condition assessment framework, are available for each of these REs (Q Gov 2024) that are relevant to an open woodland PMLU. Straight-forward statistical analysis has been used to derive amalgam criteria for key BioCondition indicators from the relevant REs (**Table 23**). In this analysis, the minimum values represent the amalgam attribute value as the basis to start from.

Table 23: Amalgam technical description of four relevant REs.

RE	Tree species richness	Shrub species richness	Grass species richness	Tree canopy cover (%)	Litter groundcover (%)
12.11.5	7	11	8	60	50
12.11.6	4	6	11	32	45
12.11.8	6	3	6	40	35
12.12.5	5	9	11	41	35
Minimum	4	3	6	32	35
Median	5.5	7.5	9.5	40.5	40
Std. deviation	1.3	3.5	2.4	11.9	7.5
Maximum	7	11	11	60	50

Ecological condition profiles have been developed by the Queensland Herbarium to provide a visual guide for the rapid assessment of ecological condition (QH and DES 2021). They are based on BioCondition benchmarks, where Condition State 1 represents the reference state from which benchmark values are derived (these are the values represented in Table 23). Information provided for Condition States 2 to 4 are relative to the reference state, but it should be noted that values of attributes may vary between states. Ecological condition is affected by the degree of anthropic disturbance, including the presence of weeds, viz.

Condition State 1 – Reference condition, mature and minimal disturbance

Condition State 2 – Mature, some disturbance, e.g. fire, grazing

Condition State 3 – Advanced regrowth or moderate disturbance, e.g. grazing, clearing

Condition State 4 – Cleared, some regrowth or high disturbance, e.g. fire, grazing, weeds

QH and DES (2021) provide condition state descriptions for each of the relevant REs in the vicinity of MRO, including the dominant 12.11.6 (**Table 24**). The planned open woodland PMLU rehabilitation at MRO is aligned with the definition of Class 4, because it is land that was cleared and highly disturbed by mining on which regrowth is planned. Once established it may be considered ‘remnant’, because Neldner *et al.* (2022) state the Queensland Herbarium assesses, and maps woody dominated vegetation as remnant if it meets the definition used in the *Vegetation Management Act 1999*, which is:

vegetation, part of which forms the predominant canopy of the vegetation—

- covering more than 50% of the undisturbed predominant canopy; and
- averaging more than 70% of the vegetation’s undisturbed height; and
- composed of species characteristic of the vegetation’s undisturbed predominant canopy.

Table 24: Condition state for the dominant RE 12.11.6 (QH and DES 2021).

Condition State	Tree species richness	Shrub species richness	Grass species richness	Tree canopy cover (%)	Litter groundcover (%)	Weeds (%)
Class 1	≥4	≥6	≥11	>30	>45	<2
Class 2	2-3	3-5	5-10	20-30	30-45	2-15
Class 3	<2	<3	<5	10-20	10-30	15-25
Class 4	<2	<3	<5	<10	<10	>25

Consistent with the Queensland Herbarium’s approaches to ecological condition classes and mapping of remnant vegetation, proposed rehabilitation completion criteria for open woodland PMLU rehabilitation at MRO are 50 % of the derived amalgam reference condition benchmark values (**Table 25**). Viewed against the reference condition attribute ranges for relevant REs (**Table 23**), proposed

completion criteria set a regionally appropriate benchmark for rehabilitation. Indeed, viewed against condition class attribute values for the dominant RE (**Table 24**), proposed completion criteria set very high benchmarks for rehabilitation, more or less aligned to Class 2. The additional criterion for non-native plant species cover is also numerically equivalent between a Class 2 to Class 3 condition.

Table 25: Open woodland ‘sustainable PMLU’ rehabilitation completion criteria.

Goal	Objective	Indicator	Criteria
Rehabilitation can sustain a PMLU	Vegetation has similar characteristics to local REs	Native species richness:	
		Trees	4
		Shrubs	2
		Grasses (&forbs)	10
		Tree canopy cover (%)	16 ³
		Shrub cover (%)	6
		Native perennial grass cover (%)	12.5
	Topsoil/growth media can support vegetation.	Organic Litter cover (%)	22.5
		Non-native species cover (%)	<25
		Evidence that pH, sodicity and salinity values comply with specified values:	
		Acidity as pH between :	6.0 - 8.5
		Sodicity - as exchangeable sodium percentage (ESP):	≤6%
		Salinity - as saturated extract electrical conductivity (ECe):	<2.0 dS/cm.

Note: Refer to DETSI PRCP Schedule (2025) Appendix 3.1 for BioCondition milestone criteria details.

3.4 Water storage

This PMLU will meet ANZECC & ARMCANZ Livestock Drinking water guidelines (2000) values.⁴ Surface water runoff from rehabilitation to receiving surface waters will meet water quality requirements, as outlined in ANZECC and ARMCANZ (2000). Subsurface drainage from rehabilitation achieves relevant water quality objectives for receiving groundwater.

3.4.1 Land is safe

As per section 1.4.1, both human and fauna safety is considered when designing rehabilitation under environmental legislation. Rehabilitation should pose no greater hazards to humans and fauna than those that exist in the surrounding unmined landscape with the same land use (**Table 26**).

Table 26: Water Storage ‘safe’ completion criterion

Goal	Objective	Indicator	Criterion
Safe to humans and wildlife	Safety hazards in rehabilitation are not significantly different to surrounding unmined landscapes subject to the same land use.	Hazard assessment	No significant difference

³ Based on a class 3 Condition State as it will take time for trees to mature and develop a fuller canopy cover.

⁴ In preference to the draft ANZG (2023a) Livestock drinking water guidelines.

3.4.2 Land is structurally stable

Factors of Safety (FoS) against failure are generally defined as the ratio between restoring forces (strength) and disturbing forces (loading) within a slope. When considering dam walls, the minimum FoS for rehabilitation should not be less than 1.5 (**Table 27**).

In addition to geotechnical stability, rehabilitation is also to be erosionally stable, especially for safety bunds emplaced upon closure. A vegetation cover will be required to reduce erosion to acceptable levels (**Table 27**).

Table 27: Water Storage 'structurally stable' completion criterion

Goal	Objective	Indicator	Criterion
Structurally stable	Rehabilitation is geotechnically stable.	FoS	≥1.5
	Rehabilitation is erosionally stable.	Groundcover	>70 %
		Gully erosion	Absent, or Stabilised, or Active and minor

3.4.3 No environmental harm

Surface water runoff from rehabilitation will be non-polluting and not adversely affect environmental values (EVs) and water quality objectives (WQO) for upstream water and groundwater relevant to the Burnett Region under the Environmental Protection Policy (DES 2019) – see **Table 28**.

In addition the PMLU will meet downstream water quality limits shown in **Table 29**.

Table 28: Water storage - 'No environmental harm' completion criterion

Goal	Objective	Indicator	Criterion
Non-polluting	Surface water runoff from rehabilitation achieves relevant water quality objectives for receiving surface waters.	Water quality analytes and ecological indicators	No significant impact to aquatic ecosystem health
	Drainage from rehabilitation achieves relevant water quality objectives for receiving groundwater.		

Table 29: Surface Water quality limits

Quality characteristic (units)	Perry River	Swindon Creek	12 Mile Creek	Mingham Creek	Rawdon Creek	Comment on limit
pH	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	Site-specific
Electrical Conductivity (µS/cm)	393	270	202	730	382	Site-specific – 95th percentile of upstream data
Total suspended solids (TSS) (mg/L)	65	20	93	11	70	Site-specific – 95th percentile of upstream data
Sulphate (mg/L)	23	23	5	112	25	Site-specific – 95th percentile of upstream data
Arsenic - dissolved (µg/L)	13	13	13	13	13	ANZG 2018
Cadmium - dissolved (µg/L)	0.2	0.2	0.2	0.2	0.2	ANZG 2018
Copper - dissolved (µg/L)	5	5	5	5	5	Site-specific – 95th percentile of upstream data
Zinc - dissolved (µg/L)	23	23	23	23	23	Site-specific – 95th percentile of upstream data
Nitrate (mg/L)	1.2	1.4	0.8	1.4	1.3	Site-specific – 95th percentile of upstream data
Cyanide (as WAD cyanide)	0.007					The International Cyanide Management Code (2009), Section 4.5
Major ions (mg/L) Calcium, chloride, potassium, magnesium, sodium, bicarbonate, carbonate	For interpretation purposes					
Hardness (mg/L)	For interpretation purposes					

Notes:

- All metals and metalloids must be measured as 'dissolved' (from analysis of a field filtered sample) and total (unfiltered).
- *Limits for metals and metalloids apply to dissolved results.*
- ANZG (2018) Aquatic ecosystem protection for moderately disturbed system (95% protection)
- WAD CN is Weak Acid Dissociable Cyanide, measured as an indicator of the bio-available cyanide.
- Rawdon Creek limits derived as 95th percentile of combined site upstream data

3.4.4 Can sustain a PMLU

The water storages are principally to serve as a livestock water source (for beef cattle) and is to meet the water quality objectives as set out in the Stock drinking water guidelines (ANZECC & ARMCANZ 2000).

Table 30: Water storage 'sustainable PMLU' rehabilitation completion criteria.

Goal	Objective	Indicator	Criteria
Rehabilitation can sustain a PMLU	Long-term water quality in the water storage achieves the water quality objectives as measured downstream locations for a minimum of 5 consecutive years.	Water quality analytes	As per analytes listed in the DETSI PRCP Schedule (2025) - Appendix 4: Surface Water Quality Limits.

	Where engineered water storages are to be retained as permanent features (e.g. stock water dams), it must be certified by an AQP that the dams are safe and stable and can be expected to remain safe, stable and functional in the long-term.	Safe, stable and functional in the long term	AQP certification

3.5 Low intensity grazing

“Low intensity grazing” (LIG) as a rehabilitation PMLU at MRO means cattle grazing sown pastures where the combination of stocking rate (the number of livestock per ha) and grazing duration (the time livestock spend grazing rehabilitation) is low (Meat and Livestock Australia 2024). According to Office of the Queensland Mine Rehabilitation Commissioner (2024), Queensland’s well-established Land Suitability Assessment (LSA) approach represents leading practice to support assessment of the suitability of rehabilitated mined land for beef cattle grazing. Whilst the indicators and criteria for safety, stability, and no environmental harm are common to all PMLUs at MRO, the LSA scheme provides the indicator and criterion for LIG as a sustainable PMLU.

3.5.1 Land is safe

As per section 1.4.1, both human and fauna safety is considered when designing rehabilitation under environmental legislation. Rehabilitation should pose no greater hazards to humans and fauna than those that exist in the surrounding unmined landscape with the same land use (**Table 19**).

3.5.2 Land is structurally stable

Factors of Safety (FoS) against failure are generally defined as the ratio between restoring forces (strength) and disturbing forces (loading) within a slope. When considering dam embankment walls, the minimum FoS for rehabilitation should not be less than 1.5 (**Table 27**). Similarly, rehabilitation is also to be erosionally stable, and a vegetation cover for dam embankments will be required to reduce erosion to acceptable levels (**Table 27**).

3.5.3 No environmental harm

Surface water runoff from rehabilitation will be non-polluting and not adversely affect environmental values (EVs) and water quality objectives (WQO) for upstream water and groundwater relevant to the Burnett Region under the Environmental Protection Policy (DES 2019) – see **Table 28**.

In addition, the PMLU will meet livestock drinking objectives in the ANZECC & ARMCANZ Livestock Drinking water guidelines (2000) see **Table 29**.

3.5.4 Can sustain a PMLU

A detailed description of Queensland’s LSA scheme and its application to mined land rehabilitation is provided in Short (2023). Though that technical paper is focused on coal mining in central Queensland, there is potential for it to be applied more broadly, providing unique local environmental factors are taken into consideration (Office of the Queensland Mine Rehabilitation Commissioner 2024). Indeed, the framework in Short (2023) will provide a solid foundation for LSA at MRO, noting that a generic regionally-relevant framework is not provided in the regional suitability frameworks by Queensland Government (2013).

Queensland Government (2015) explains the land suitability scheme. It states that in Queensland, there are five land suitability classes for each specific agricultural land use (**Table 31**). These classes are said to define land in terms of suitability for a particular use which allows optimum, sustainable production with current technology, while minimising degradation to the land. Land is less suitable for a use such as beef cattle grazing as the severity of limitations increase, reflecting:

- Reduced potential for production, and/or
- Increased inputs required to achieve an acceptable level of production, and/or
- Increased inputs required to prepare the land for successful production, and/or
- Increased inputs required to prevent land degradation.

In this stratified classification, the Class 3/Class 4 boundary is the most important threshold, because it separates land that is suitable for a specific land use from land that is not.

Table 31: Land suitability classes for agricultural land evaluation in Queensland

Class	Classification	Limitations	Description
1	Suitable	Negligible	Highly productive land requiring only simple management practices to maintain economic production.
2	Suitable	Minor	Land with limitations that either constrain production or require more than the simple management practices of class 1 land to maintain economic production.
3	Suitable	Moderate	Land with limitations that either further constrain production or require more than those management practices of class 2 land to maintain economic production.
4	Unsuitable	Severe	Currently unsuitable land. The limitations are so severe that the sustainable use of the land in the proposed manner is precluded. In some circumstances, the limitations may be surmountable with changes to knowledge, economics, or technology.
5	Unsuitable	Extreme	Land with extreme limitations that preclude any possibility of successful sustained use of the land in the proposed manner

Source: Queensland Government (2015)

Classes 1, 2, and 3 are considered suitable for a specified agricultural land use because the benefits from using the land (for that particular use) outweigh the inputs required to initiate and maintain production. Class 4 and 5 are unsuitable without further investigation and/or major changes in economics, technologies, or management expertise. Many Class 5 lands have physical characteristics that totally preclude any form of agricultural development (e.g., slope gradients) and land that falls into this category will likely always be unsuitable for agricultural use.

To prevent land degradation by inappropriate use, rehabilitation to be used for LIG will be Class 1, 2 or 3, assessed as suitable for cattle grazing on improved pastures (**Table 32**). This will require assessment of the land use limitations and limitation subclasses prescribed in Short (2023), amended if appropriate to do so in the opinion of an appropriately qualified person, and conducted in accordance with the guidelines for agricultural land evaluation in Queensland (see Queensland Government (2015)).

Table 32: Low-intensity grazing PMLU rehabilitation 'land use' completion criterion

Goal	Objective	Indicator	Criteria
Be able to sustain a PMLU	Land has characteristics that are suitable for	Land suitability assessment according to guidelines by Queensland	Class 1, 2, or 3. AND Assessment of land condition demonstrates a sustainable grazing outcome has been achieved.

	sustainable cattle grazing.	Government (2015).	
		Vegetation is self sustaining	>70 % established and self-sustaining vegetative groundcover of species as listed in Schedule Appendix 1 – Species list and seeding rates. AND Minimum vegetation composition (per hectare (averaged)) of: four species of native '3P' (perennial, productive, and palatable (3P)) native pasture species. Where 3P species are not available, native pasture species appropriate to the area (regional ecosystem) and suitable for the PMLU are acceptable, two native legume species, and 20 % locally suitable native shade tree and shrub cover. inclusion of vegetation stepping stone or ecological corridor traversing the low intensity grazing landscape and connecting with areas of native vegetation.

Rehabilitation for Identified Threatened Fauna Species

Fauna species play an important part in the functioning of healthy native ecosystems and play an equally important role in their development. When it comes to the rehabilitation of disturbed land however, monitoring for the presence of various fauna species is often less common than monitoring of various structural vegetation characteristics. One of the reasons for this is due to the misconception that fauna will return unaided after the establishment of vegetation. This is commonly known as the 'flora equals fauna' paradigm as there is very little imperial evidence to support this trend (Critescu et al., 2012).

In considering this, rehabilitation completion criteria specifically related to the threatened fauna species identified within the MRO area (during the 1995 and 2013 survey events) have not been defined in this management plan. Given that the proposed monitoring period for the rehabilitated areas has been nominally set to 10 years, it is improbable to expect fauna species to reoccupy these areas within that timeframe. All efforts will be made to ensure that PMLUs are progressing towards becoming self-sufficient native ecosystems which will likely provide suitable habitat for fauna species once they have become properly established and mature over time.

The rehabilitation of these areas will aim to restore similar species and vegetation communities to these areas based on those communities present before their disturbance. These areas previously provided suitable habitat for the Greater Glider and Little Pied Bat in the form of suitable hollow-bearing trees. Rehabilitation efforts will aim to ensure that similar species are reintroduced and monitored as part of the completion criteria.

3.6 Final Waste Storage Landform

This PMLU will meet the requirements for safe and stable storage of mine waste within the former NWRD (RA1) and TSF (RA1) landforms.

3.6.1 Land is safe

As per section 1.4.1, both human and fauna safety is considered when designing rehabilitation under environmental legislation. Rehabilitation should pose no greater hazards to humans and fauna than those that exist in the surrounding unmined landscape with the same land use (**Table 26**).

3.6.2 Land is structurally stable

Factors of Safety (FoS) against failure are generally defined as the ratio between restoring forces (strength) and disturbing forces (loading) within a slope. When considering exposed rock slopes, the minimum FoS for rehabilitation should not be less than 1.5 (**Table 27**).

In addition to geotechnical stability, rehabilitation is also to be erosionally stable, especially for safety bunds emplaced upon closure. A vegetation cover will be required to reduce erosion to acceptable levels on revegetated plateau surfaces (**Table 27**).

3.6.3 No environmental harm

Surface water runoff from rehabilitation will be non-polluting and not adversely affect environmental values (EVs) and water quality objectives (WQO) for upstream water and groundwater.

The following criterion apply as per the Schedule:

- Surface water quality results monitored monthly during flow at downstream locations and must not exceed the limits in Schedule Appendix 4 - Surface water quality limits, for a minimum of 5 consecutive years.
- For a minimum of five consecutive years groundwater quality must be monitored quarterly. Groundwater quality results must not exceed the limits in Appendix 7 – Groundwater quality limits, for 3 consecutive results.
- Seepage water within seepage drains and collection ponds from Final Waste Storage Landform (RA3) is non-polluting to the receiving environment.

3.6.4 Can sustain a PMLU

At closure two Final Waste Storage Landforms (the NWRD and the TSF) will remain as two passive structures that will serve a post closure use of providing long-term storage and containment of mine waste. The landforms are to be geotechnically and erosionally stable, non-polluting, safe and are to sustain an ecological function in the form of a vegetation cover system, that caps the final and uppermost plateau surface of the landform.

As the landform covers will comprise novel, man-made engineered pseudo soil layers, they will have physical, structural, microbiological and landscape characteristics markedly different to all natural land zones and vegetation types surrounding MRO - and therefore may likely develop a vegetation ecosystem that is both novel and unique to that cover. For these reasons, it is not possible to identify a single RE of *best fit* on which to base rehabilitation completion criteria, reference is loosely made to local REs in order to derive approximate Biocondition measures specific to achieving surface and stability requirements (Table). The covers must achieve the performance targets of:

- drainage flux <5 % of average annual rainfall,
- native plant species richness and diversity with a shrub species count of ≥ 3 and grasses ≥ 3 ,
- that no ecosystem altering weeds (environmental weeds) or weeds of national significance are greater than a total 5 % of the vegetation cover and naturalised grass species (i.e. *Melinis repens* and *Chloris Gayana*) may be present >5% in total if they are supportive of overall ecosystem function (as confirmed by an AQP).
- maximum vegetation rooting depth does not impact the physical integrity of the cover,

as outlined in the DETSI PRCP Schedule (2025) - Appendix 3.2: Mt Rawdon - BioCondition milestone criteria for mine site rehabilitation – TSF and NWRD.

Table 33: Final Waste Storage Landform (TSF & NWRD) 'sustainable PMLU' rehabilitation completion criteria. ¹

Goal	Objective	Indicator	Criteria (surface condition)	Criteria (stability condition)
Rehabilitation can sustain a PMLU	Vegetation has some similarity in characteristics to local REs	Native species richness:		
		Shrubs	6	6
		Grasses (&forbs)	10	10
		Recruitment of dominant shrub layer species (%)	0	20
		'Canopy' cover (%)	4.4	22
		Native perennial grass cover (%)	12	12
		Organic Litter cover (%)	0	4.5
		Non-native species cover (%)	<25	<25
	Topsoil/growth media can support vegetation.	Evidence that pH, sodicity and salinity values comply with specified values:		
		Acidity as pH between :	6.0 - 8.5	
		Sodicity - as exchangeable sodium percentage (ESP):	≤6%	
		Salinity - as saturated extract electrical conductivity (ECe):	<2.0 dS/cm.	

Notes: ¹Utilising shallow-rooted shrub and ground layer species from RE 12.11.6, supplemented by suitable species from adjacent REs. Note: excludes outer slopes of NWRD and TSF which do not require revegetation.

²Recruitment must be present. Acknowledge that 'canopy species' in this instance will be the shrubs, and canopy cover will be for the dominant shrub layer (derived from benchmarks for tree and shrub cover).

³ Achievement of surface requirement

⁴ Achievement of post-mining land use to a stable condition

3.7 Regulatory Constraints

Effective justification of a PMLU must consider regulatory constraints, including but not limited to local and regional land use plans, Indigenous Land Use Agreements, registered locations of European heritage, and endangered species. Based upon an assessment of these potential regulatory constraints (outlined below) only one, the *North Burnett Planning Scheme*, was identified as having any regulatory pressure across the MRO area.

North Burnett Planning Scheme

The MRO area is located within the *North Burnett Planning Scheme* (NBPS) and is listed as an Extractive Mineral Resource on their Strategic Framework Mapping. In accordance with this mapping, the dominant land uses in the areas surrounding MRO include:

- Rural;
- Nature Conservation or Open Space;
- Extractive Mineral Resource; and
- Waterbody, Waterway or Wetland.

Under the NBPS there is an Extractive industry code to ensure that all extractive industries operate in a way that benefits the local community and in a way that available resources are not overridden by adverse environmental and/or amenity impacts. *Table 9.3.5* of the NBPS goes as far as outlining two (2) Performance Outcomes (POs) which should be taken into consideration when rehabilitating extractive mineral resource areas. These objectives have been listed below in **Table 34**.

Table 34: Rehabilitation Performance Outcomes (POs) Listed in the Northern Burnett Planning Scheme

Performance Outcome	Acceptable Outcomes
PO8 Rehabilitation is carried out in accordance with a management plan providing for:	No specific outcome defined
a) Progressively staged rehabilitation works; b) Appropriate clean-up works (taking particular account of areas of possible soil contamination); c) Agreed landform and soil profiles; d) Suitable revegetation; and e) Establishment phase requirements.	
Rehabilitation allows for suitable use of any water bodies created through the extraction process, having regard to water quality, hydraulic conditions, landform and vegetation.	No specific outcome defined

In accordance with the NBPS, portions of the MRO are also located across areas identified as:

- Electricity Transmission Line Corridors (Infrastructure Overlay); and
- Bushfire Prone Areas – Medium, High and Very High Potential (Natural Hazards Overlay).

Bushfire Prone Area

Whilst there are no specific requirements for the implementation of a Bushfire Management Plan for rehabilitated lands within these Bushfire Prone areas, retaining water infrastructure will provide water resources in the landscape for bushfire management. Relevant bushfire management considerations and climate change impacts are discussed in greater detail in **Section 5.7**.

Cultural Heritage

European Heritage

An archaeological assessment was undertaken to identify any cultural heritage values present within the MRO area (Lilley, 1995a). This study included an investigation of any field archaeological evidence of previous mining operations, archived documentation, and local oral historical knowledge.

It was identified that following the discovery of alluvial gold in 1946, a small-scale mining operation was conducted between 1950 and 1953. Remains of this initial mining operation were discovered at MRO and included a stamping battery in poor condition and dry-stone walling in good condition. Despite this however, these findings rank low in scientific (archaeological), aesthetic, historical and social significance. The place is of local cultural heritage interest and is not considered to be of regional or national significance but may contribute to tourism opportunities for the area.

Aboriginal Significance

The region surrounding the MRO was once inhabited by the Gooreng people. Previous archaeological surveys (Lilley, 1995b) did not locate any sites of significance to contemporary Aboriginal people. A single flaked stone artefact was found at the edge of the tailings dam. The landscape in the MRO area has been substantially modified by clearing for grazing, earlier mining activities and exploration

drilling. The types of rocks occurring in the MRO are unsuitable for stone implements that Aboriginal people utilised. Because of these factors, there is little likelihood of any significant cultural heritage site remaining undetected in the areas proposed for disturbance. A Cultural Heritage Management Agreement (CHMA) has been prepared in consultation with the First Nations Bailai, Gurang, Gooreng Gooreng, Taribelang Bunda People Aboriginal Corporation RNTBC for the CHMA Area. The CHMA was developed to guide how best to manage any MRO impacts on Aboriginal Cultural Heritage in the CHMA Area.

Specific management procedures have been prepared to ensure that all MRO Activities will recognise, protect, and manage Aboriginal Cultural Heritage in compliance with the requirements of the CHMA and the First Nations Bailai, Gurang, Gooreng Gooreng, Taribelang Bunda People.

Based on archaeological research and previous consultancy work the following site types have been identified as potentially occurring throughout the MRO:

- Occupation sites/campsites incorporating stone artefacts as isolates and in low to medium density scatters, particularly in proximity to fresh, permanent or semi-permanent water sources;
- Sources of raw lithic materials such as silcrete, siltstone and chert and associated artefacts relating to utilisation of these resources; and
- Scarred trees and other culturally significant trees (e.g. medicinal/food resources) in areas of remnant vegetation, particularly within riparian corridors;

It is predicted that the site types listed above are the most likely to occur across the MRO, especially artefacts as isolates and scatters of varying densities associated with ridge tops and creeks. Sites such as these reflect the general use of the area by Aboriginal people over time and may represent both transitory and more permanent campsites and activity areas.

A search of the State Aboriginal Cultural Heritage Database and Register did not reveal any recorded sites within the study area. The search results stated that it is probable that the absence of recorded Aboriginal cultural heritage places reflects a lack of previous cultural heritage surveys of the area.

3.8 Assessment

Multiple PMLUs were identified as potentially suitable for potential use at MRO, with each one assessed based on its applicability under the *Progressive Rehabilitation and Closure Plan Guideline* (PRCP Guideline) criteria of ten cost/benefit criteria. These potential PMLUs include:

- Low-intensity grazing;
- Woodland;
- Cropping – designated selection for TSF only;
- Native ecosystem;
- Wetlands – designated selection for water infrastructure only;
- Pasture; and
- Factory/Industrial Zone – workshop area with remaining infrastructure only.

Assessment of each PMLU and its applicability is outlined in **Table 35**. A scoring system was developed based against the cost/benefit criteria outlined in the PRCP Guideline. The sum of all scores across PMLUs was used to compare options. Of the various methods available for assessing different PMLUs (i.e. methodology and milestones), constraints are similar and based upon the long-term goal of a self-sustaining landform.

The assessment scale was based on a rating of 1 to 5; with 1 considered to be inconsistent or unachievable with in relation to the surrounding landscape; and 5 indicating a feasible and applicable outcome based on the surrounding landscape. These scores enabled an equal assessment of all the proposed PMLUs to identify the most acceptable and feasible option.

The results of this assessment identified three (3) potential PMLUs which could be discounted straight away: Cropping and Native Ecosystems (scores of 20 and 32 respectively). Cropping and Pasture as a PMLU, specifically on Tailings Storage Facility (TSF) areas, has been discounted due to the potential chemical limitations of the area. Heavy metals such as cadmium and arsenic can often lead to complications for gold mines as consideration for any surface water and contaminated lands that could contain harmful elements needs to be assessed prior to approving a cropping-based land use. Specific testing of persistent chemicals would be required as part of the *Livestock Production Assurance* (LPA), the *Biosecurity Regulation 2016* and in accordance with the *Australian Pesticides and Veterinary Medicines Authority*. The long-term feasibility of conducting this testing to achieve an approved PMLU was considered restrictive and high risk.

The use of Native Ecosystems as another PMLU was also discounted based primarily on the surrounding land uses. Establishing a fragmented native ecosystem in a grazing landscape was not considered suitable in terms of fauna and flora populations.

As shown in **Table 35**, three (3) potential PMLUs received high scores including: Low intensity grazing, woodlands and wetlands (40, 37 and 37 respectively). Based upon this analysis, a combination of these PMLUs is proposed in designated areas to improve habitat for flora and fauna whilst also remaining consistent with surrounding land uses. It is noted that the use of Wetlands will be restricted to final voids where suitable water storages will be located. The conversion to a wetland would also serve a dual purpose of restoring a native ecosystem and providing water for stock. Further discussion is provided in **Section 5.7** about a current rehabilitation trial of wetland development as a PMLU. Documented success of this trial may enable justification for other water storages to be retained as a wetland. This will evolve once the wetland trial is completed and monitoring is established.

This assessment determined that low intensity grazing and open woodland are the most appropriate PMLUs for the majority of the rehabilitation areas and proposed within the MRO. These proposed PMLUs fit within the 4th level of the rehabilitation hierarchy in comparison to Cropping zones as a PMLU which are considered to fall in the 6th level of the hierarchy.

Retaining partial infrastructure areas for factory/industrial use by future land managers has also been identified as a future option which needs to be considered. Potential contamination resulting from a high level of consistent hydrocarbon use within these areas will, however need to be considered and remediated before handover to land managers can occur.

Table 35: Assessment of PMLU options

Considerations	PMLU Options						
	Low-Intensity Grazing	Woodland	Cropping Zone (TSF only)	Native Ecosystem	Wetlands (water infrastructure only)	Pasture	Factory/ Industrial Zone (Infrastructure)
Physical constraints	4	4	2	4	4	3	3
Chemical constraints	3	4	1	4	3	3	3
Available materials	5	5	1	4	2	2	5
Relative Cost	4	4	1	3	2	1	4
Economic benefits for the community/ landholder	4	2	3	1	1	3	4
Environmental benefits	3	4	1	5	5	1	1
Social value	2	2	4	2	2	3	4
Compatibility with surrounding land uses	5	5	1	2	2	2	1
Prior land use	5	2	1	2	1	1	1
Compatibility with planning instruments under the <i>Planning Act 2016</i>	5	5	5	5	5	5	4
Total Score	40	37	20	32	27	24	30

The following score summary is listed in order of suitability and preference:

1. Low Intensity Grazing = 40
2. Woodland = 37
3. Native Ecosystem = 32
4. Factory Industrial Zone = 30
5. Wetlands = 27
6. Pasture = 24
7. Cropping (TSF) = 20

Whilst the NBPS does not specifically outline acceptable land uses for this region, based upon the available planning scheme mapping of the broader area, these PMLUs are consistent with surrounding land uses. These PMLUs will be developed in accordance with the rehabilitation POs defined in the NBPS and outlined in **Table 34** for extractive mineral resource areas.

These proposed PMLUs were also assessed against the rehabilitation hierarchy of the Rehabilitation requirements for mining resources activities (ESR/2016/1875). The hierarchy provides a scale of decreasing capacity to prevent or minimise environmental harm and includes the following steps:

1. Avoid disturbance that will require rehabilitation;
2. Reinstatement a “natural” ecosystem as similar as possible to the original ecosystem;
3. Develop an alternative outcome with a higher economic value than the previous land use;
4. Reinstatement previous land use (e.g. grazing or cropping);
5. Develop lower value land use; and
6. Leave the site in an unusable condition or with the potential to generate future pollution or adversely affect environmental values.

Post Closure Infrastructure Retention

Compilation of a detailed Closure Asset Register is in progress. Selected infrastructure assets to remain onsite are located on Swindon Station and will align with the underlying post mine land uses of low-intensity grazing, and water storage (i.e. beneficial reuse of water for stock watering).

A deed agreement is in place (see Appendix 9.3) between the miner (MRO) and landholder (MRO) and includes the general infrastructure listed in **Table 36**.

Table 36 : Retained Infrastructure Post Closure

Asset	Units	Supporting PMLU
Access Road and Tracks	18.4ha	Low intensity grazing
Haul Road	2.0ha	Open woodland
Shed (old Orica magazine)	500 m ²	Low intensity grazing
Shed (old SRG/Mobile Maintenance workshop)	280m ²	Low intensity grazing
Shed (old Processing Maintenance workshop)	820m ²	Low intensity grazing
Shed (old stores warehouse)	600m ²	Low intensity grazing
Powerline	13.95ha	Low intensity grazing
Water Storages (WD1,2,3,4, West dam, South dam, SD3)	31.94ha	Water storage (beneficial re-use for stock water)

A map of all proposed retained infrastructure is provided in **Figure 29**.

For non-retained assets, MRO has adopted the following disposal strategies:

- Strategy 1 – Donate
- Strategy 2 – Maximize financial value through resale
- Strategy 3 – Maximize financial value through material recycling (scrap)
- Strategy 4 – Demolish and dispose, with no recovery of asset value

Where assets have been identified for demolition and disposal, a specialist contractor has been engaged to develop a proposal with detailed cost, schedule, method, and work planning – this work is still in progress.

Access Roads and Tracks

Access roads and tracks located on non-mining impacted areas (e.g. Swindon Station) will be retained for future landholder use post mine closure.

Haul Roads

Only rehabilitated site haul roads will be retained. They will be reduced to less than half their width with the wider side rehabilitated and the narrower, remaining side left to facilitate continued light vehicle access.

Permanent Water Management Infrastructure

Infrastructure to supply water to the site including all Raw Water dams and associated pipework will be retained for landholder use post mine closure. Seepage collection drains will be progressively decommissioned prior to closure based on the performance outcomes of TSF and NWRD landform covers in removing seepage. Freshwater diversion drains will be rehabilitated prior to closure.

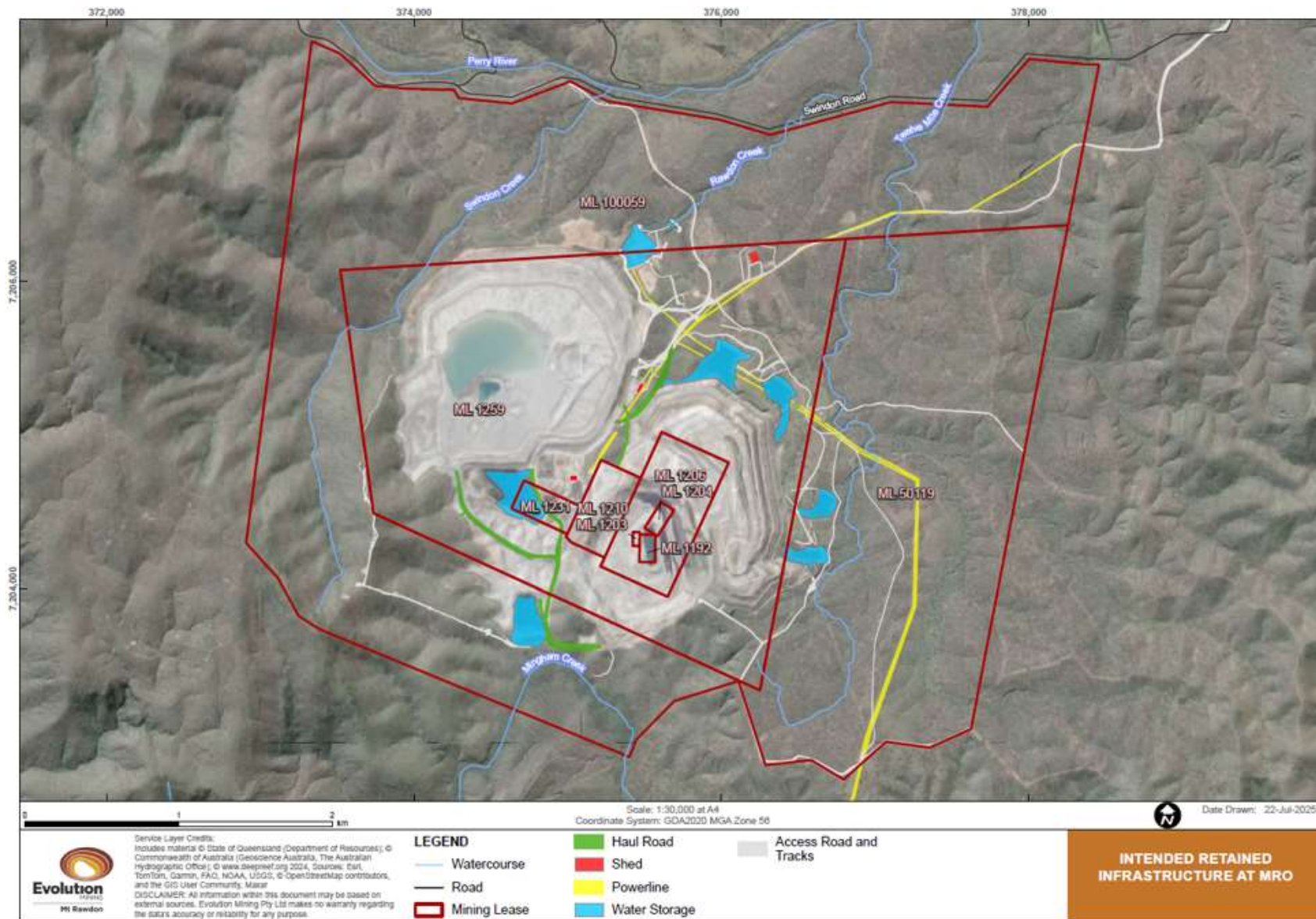


Figure 29: Intended retained infrastructure at MRO

Table 37 provides a summary of all proposed retained water-holding structures and their estimated final capacity based on final disturbance footprints and as constructed designs.

Table 37: Raw Water Dam Retained Volume

Dam	SD3	WD1	WD2	WD3	WD4	South	West	
RL (m AHD)	118.5	126	119.2	125	133.5	146.46	122.5	TOTAL
Area (ha)	3.94	7.03	4.21	2.76	3.03	5.25	5.72	31.94 ha
Max Retained Volume (ML)	74	209.8	101.5	35.8	72.2	559	397.1	1,449.4 ML

Sheds

The following specific sheds located across MRO site will be retained for landholder use post mine closure:

- Shed (old Orica magazine)
- Shed (old SRG/Mobile Maintenance workshop)
- Shed (old Processing Maintenance workshop)
- Shed (old stores warehouse)

Services

The following specific infrastructure to supply power to the site will be retained for landholder use post mine closure:

- Powerlines;
- Substation; and
- Switchyard.

Internal powerlines and pipelines associated with the administration areas, workshops and other infrastructure areas being decommissioned will be dismantled and removed.

Groundwater Bores & Associated Pumping Infrastructure

All groundwater bores will be decommissioned in line with industry practice and any associated pumping infrastructure will be removed.

4 Non-use Management Area

IA 1 – Improvement area 1 (Residual Pit Void)

MRO includes a single, open-cut pit with a surface area of 81.97 ha and a surface level of RL125 m AHD. The final pit void is proposed as a “non-use management area” (NUMA⁵) as it cannot sustain a PMLU in the long term at the completion of all relevant activities. The milestone criteria for the residual pit void is shown in Table 64: Improvement Area milestones, criteria, and monitoring requirements at MRO.

The pit void NUMA will ultimately become a water body in the landscape and if water quality allows could support various applications such as stock watering. However, water quality modelling has indicated that over the very long term, water quality may deteriorate to the point where it cannot meet various guidelines such as those for stock water quality and therefore cannot be considered for a post mine land use as defined under the *Environmental Protection Act 1999*.

As described below, to achieve certain water quality parameters in the pit void the diversion of certain clean water catchment areas may be required adding complexity to the water balance and reducing downstream flows and associated benefits to the environment and potential users. Therefore, it was agreed between DETSI and MRO that the most appropriate classification for the pit void is a NUMA whilst recognising that if water quality is suitable during future periods that this water could be used for various applications if required.

The classification of a NUMA also does not prevent the future conversion of the pit void into a lower reservoir supporting the proposed Mt Rawdon Pump Hydro Project. A future amendment to this PRCP Schedule and the site EA would be required to allow for the MRPH project to proceed and therefore any changes to the pit void because of the proposed configuration of the lower reservoir and other associated changes would be considered during the assessment process for those approvals. The pit void NUMA provides a pathway to surrender of this area should the MRPH project proceed.

Prior to closure, void access would be maintained for void water infrastructure management (e.g. water pipes and pumps). The pit will capture rainfall but will have no external catchment inputs beyond its exclusion bund. The bund will be located around the perimeter of the pit void and will be made safe with the installation of fencing across the pit ramp access to restrict the entry of wildlife, livestock and public access. In addition, the existing pit ramp will be retained for egress should any inadvertent or accidental entry of human or animal occur.

Geotechnical assessments of the highwalls of southern half of the pit by (ITASCA 2023a & 2023b) suggest that placement of a safety bund at a minimum 20m set-back distance from the pit crest for the south, west and east perimeter sectors of the pit aligned with geotechnical analysis. A bund design using competent NAF waste rock with a minimum 1.6m crest height and 4m basal width is proposed. For northernmost sector of the pit a minimum 50m setback for a safety perimeter bund from the excavated pit highwall crest is preferred as this area is less geotechnically stable and aligns with the geotechnical assessment section below. As fault and joint fracturing drives failure at MRO, not weathering, reference to pit bunding guidelines based on weathering profiles (e.g. DME 1997) were not considered appropriate.

⁵ The EP Act 1994, Section 112, defines a non-use management area (NUMA) as “an area of land the subject of a PRC plan that can not be rehabilitated to a stable condition after all relevant activities for the PRC plan carried out on the land have ended.”

The proximity of the safety bund (and any exclusion fencing to exclude pit ramp access) to the highwall crest will be assessed and adjusted if necessary, should ongoing rehabilitation or ancillary earthworks (e.g. borrow pit activities) occur to ensure the long-term function and integrity of the pit exclusion structures.

Final Void Water Balance and Water Quality Assessment

SLR Consulting Australia Pty Ltd (SLR) completed a Post-Closure Hydraulic Assessment of the site (SLR 2025a) that updated and extended existing site water studies and models - in particular the numerical WB/WQ model developed by RGS (2022) for the MRO final void - to understand the water-related risks associated with the long-term post-closure landform. The work incorporated aspects of the final landform, the drainage plan, groundwater interaction, representative climate data and the identification and quantification of the water quality source terms.

SLR (2025a) developed a Water Balance Model (WBM) and a linked Salt Balance Model (SBM) that covered a post closure period of 200 years (starting at the completion of site rehabilitation in 2035) - using Total Dissolved Solids (TDS) and sulfate in the SBM as indicator elements. While not all critical analytes were assessed, this mass balance approach provided an indication of the rate of change of concentration in indicator elements, which is expected to be applicable to other contaminants of concern based on the range of modelled scenarios.⁶

Results of the WBM indicate that the pit water level will likely reach equilibrium within a 400-year time period, which is below the expected long-term local groundwater level, and results in a terminal sink. Sink conditions were expected to persist into the future, taking into account the effects of reduced precipitation and increased evaporation with predicted climate change.⁷ Contaminant solutes present within the void lake are not predicted to enter the surrounding groundwater (SLR 2025b).

The models assumed model starting conditions with the pit void fully dewatered following the completion of site closure activities. Various model scenarios were completed including scenarios which directed additional clean water catchment to the void to improve water quality.

All modelled scenarios demonstrated the void will remain a groundwater sink, and because no overtopping events of the pit void occurred during a 20,000 year WBM simulation, the risk of spilling from the pit was deemed negligible. As the pit is expected to remain a sink, evapo-concentration effects will likely cause the water quality to deteriorate further over time.

For the original modelled scenario which included only 28.6ha of external catchment, this is representative of the agreed approach with DETSI whereby the goal is to minimise any external catchment reporting to the void where possible to encourage pre-mining downstream flows in the landscape. This scenario closely represents what would be expected to be directed to the void within the final abandonment bund offset, noting that the detailed design for the location of the abandonment bund is yet to be completed and therefore pit void modelling would need to be updated in the future. However, it's not expected to result in material changes to overall water levels and quality over the long term. The modelled results indicated that within a 400-year time period the pit water level will likely reach equilibrium ($\pm 45\text{m AHD}$), below the expected long-term local

⁶ This does not account for any secondary chemical processes such as the precipitation of contaminants or any other iterative chemical reactions.

⁷ The Biophysical Modelling Consistent Climate Scenarios (CCS) Tool (State of Queensland, 2024b) was used to obtain daily rainfall sequences accounting for expected climate change.

groundwater levels ($\pm 80\text{m AHD}$), thus resulting in a terminal sink, see Figure 30 : Pit Void Predicted Water Levels – External catchment 28.6ha (SLR 2025).

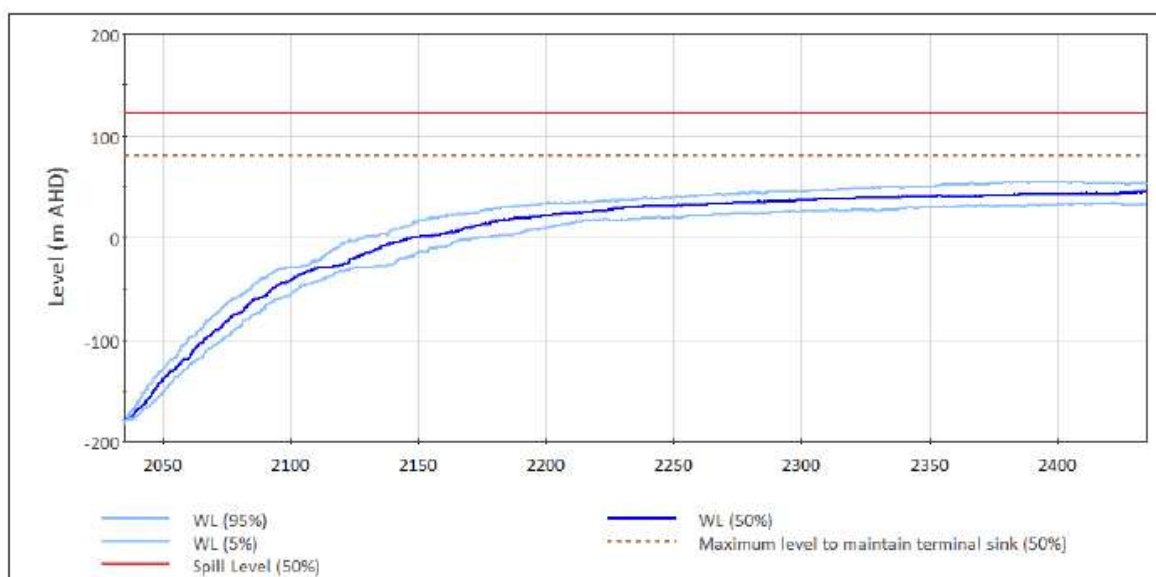


Figure 30 : Pit Void Predicted Water Levels – External catchment 28.6ha (SLR 2025)

Sulfate concentrations within the pit void were predicted to fall within the low to high thresholds for cattle drinking, see Figure 31 : Pit Void Predicted Sulfate Concentration - External catchment 28.6ha (SLR 2025).

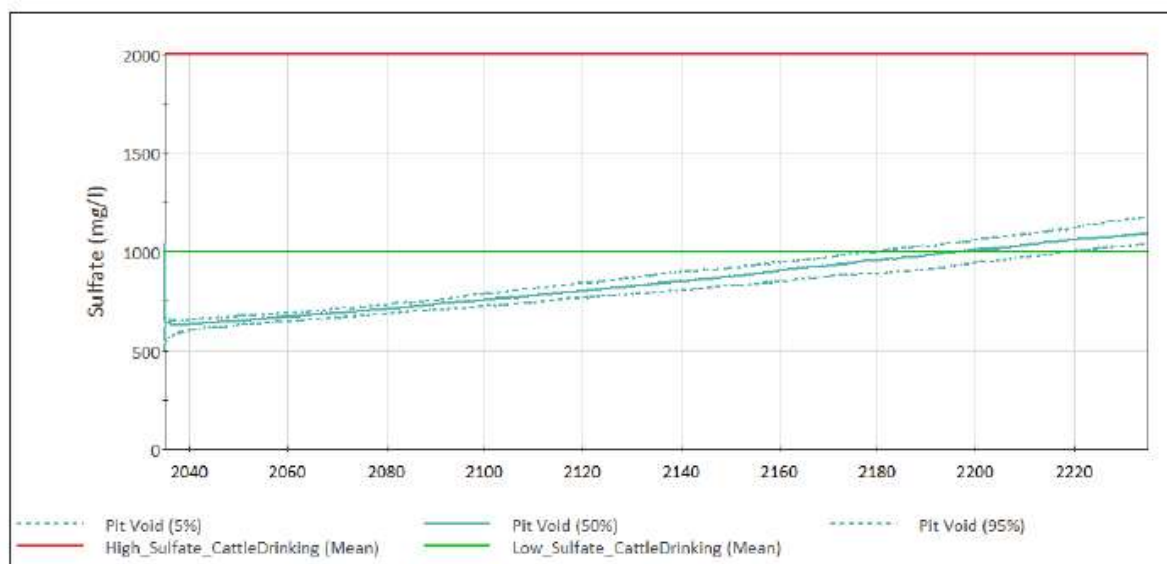


Figure 31 : Pit Void Predicted Sulfate Concentration - External catchment 28.6ha (SLR 2025)

Further modelling scenarios were completed with differing external catchments however only minor improvements to water quality resulted with larger freshwater catchment diversions. While concentrations of TDS and sulfate steadily rise, they are predicted to stay within the ANZECC & ARMCANZ (2000) low risk to high risk category for sulfate and below low risk threshold for salinity (TDS) for cattle drinking purposes over the entire 200-year period (SLR 2025).

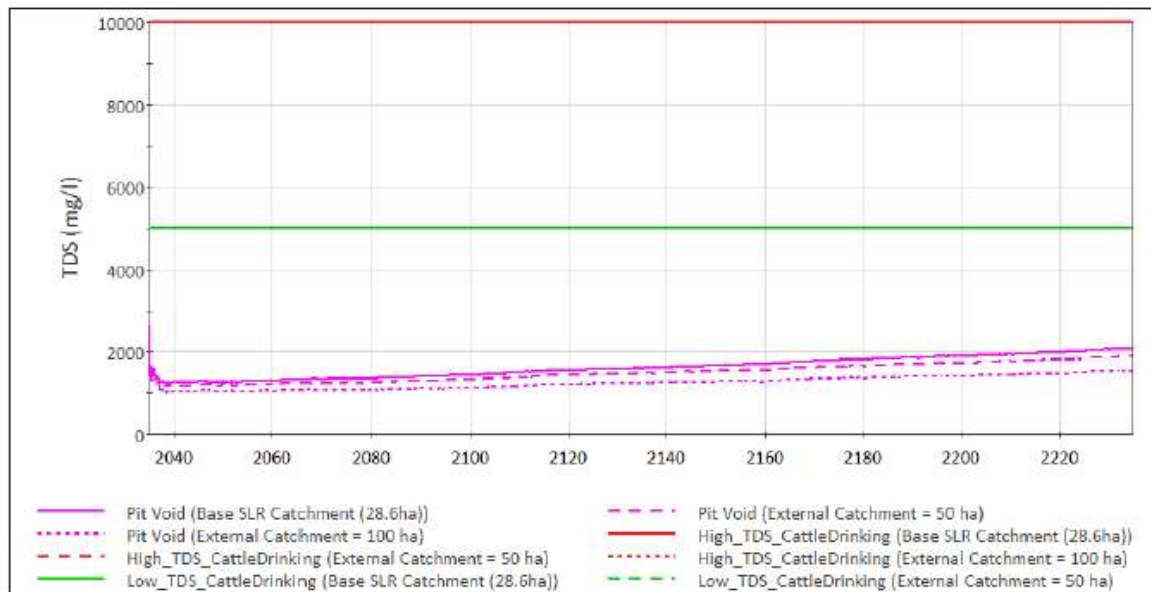


Figure 32 : Pit Void Predicted Salinity (TDS) scenario analysis - (SLR 2025)

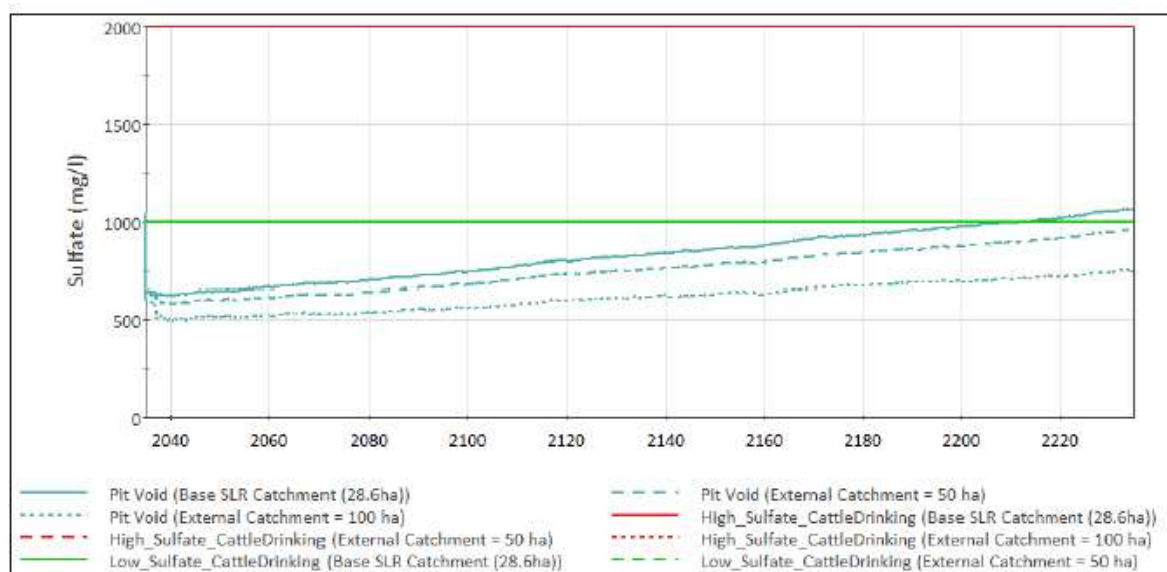


Figure 33 : Pit Void Predicted Sulfate Concentration scenario analysis - (SLR 2025).

A conservative approach was taken by SLR (2025) with respect to predicting the salinity development over time within the void waterbody as full conservation of mass was assumed. Due to the chemical processes transpiring within the waterbodies, a portion of the dissolved salts may precipitate and accumulate on the void floor or walls. Some of these salts may readily re-dissolve in the water during wetter periods, however a portion may also remain insoluble. Thus, any predicted future water quality predictions are deemed highly conservative.

Benchmarking of the SLR model was done by comparing it to the RGS (2022) model “Scenario 1”:

- All runoff and seepage water diverted to the pit during closure. Following closure, the rehabilitated NWRD and TSF runoff water (from cover) to be released to the environment.

When the outcomes from the 2022 RGS study were compared to the current study results significant differences were observed, however consultation between SLR and RGS identified the causes for these and agreed appropriate benchmarks for current modelling to predict pit void water levels, salinity and sulfate.

During the rehabilitation and closure phase both groundwater and surface water balance models will continue to be re-calibrated based on observed conditions to improve forward predictions.

Geotechnical Assessment

Cartledge Mining and Geotechnics (CMG, 2022a) undertook a geotechnical assessment of the MRO Open Pit. Geotechnical stability was assessed for post-closure and long-term stability as indicated by the landform modelling results. For the open pit, the geotechnical stability considered the effects of long-term erosion and weathering of the pit wall and the effects of significant hydrological events.

Deformation and stability analysis conducted by CMG of the final void conditions using provided site-specific rock mass domains. As the site is heavily faulted, failure surfaces are most likely to occur along weaker fault zones. The analysis methods chosen addressed both horizontal and vertical force equilibrium and moment equilibrium so that the calculated failure surfaces resolved well against weak layers and validated the failure surfaces modelled.

Based on their approach, CMG concluded that the geotechnical void analysis for the planned MRO post-closure pit conditions met the post-closure slopes and will exhibit stability characteristics consistent with the planning and design of the post-closure mine void. The mechanisms to achieve acceptable stability were detailed in the report to align with the best available leading practices.

The factor of safety results for the static and dynamic stability scenarios of the Limit Equilibrium analysis showed that a suitable factor of safety was achieved for static conditions. Spencer's results for the dynamic seismic analysis were marginally below the assessment criteria, however, considering the likelihood of the event, this was considered acceptable.

Table 38: Limit Equilibrium Slide3 results under static and dynamic conditions

Model	FoS (Spencer)	FoS (GLE/Morgenstern-Price)
Static Model	2.01	1.99
Dynamic Model (PGA: 0.25g or 1:10000)	1.09	1.10

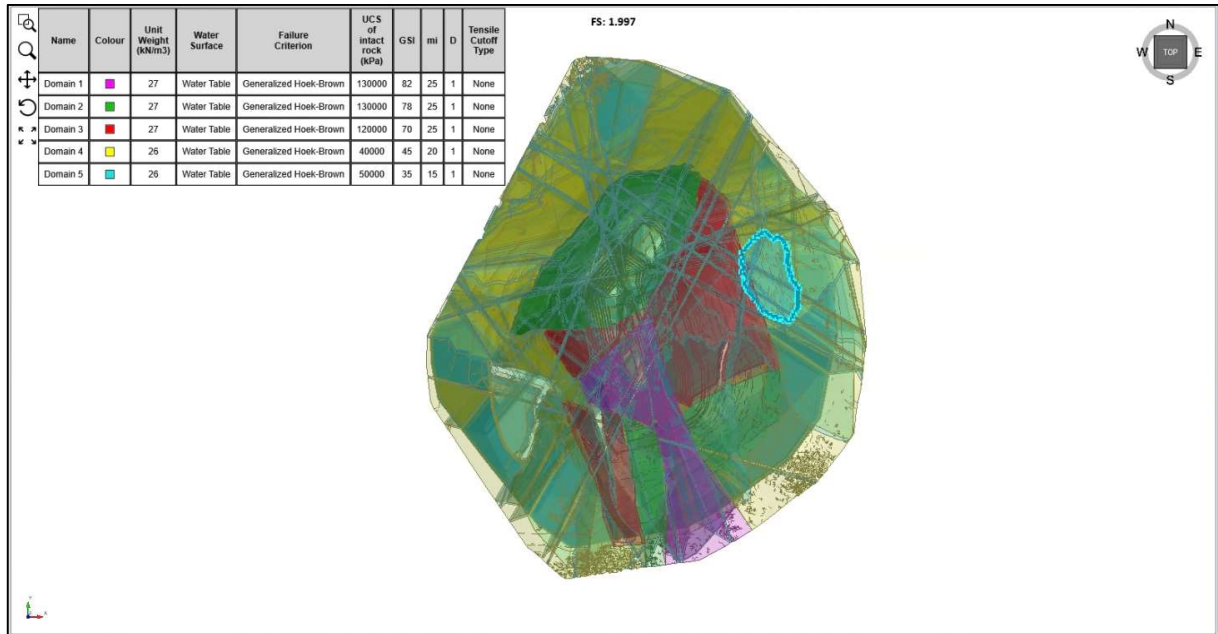


Figure 34: Limit Equilibrium Slide3 results under static conditions (CMG 2022a) (showing global minimum failure surface on the east wall).

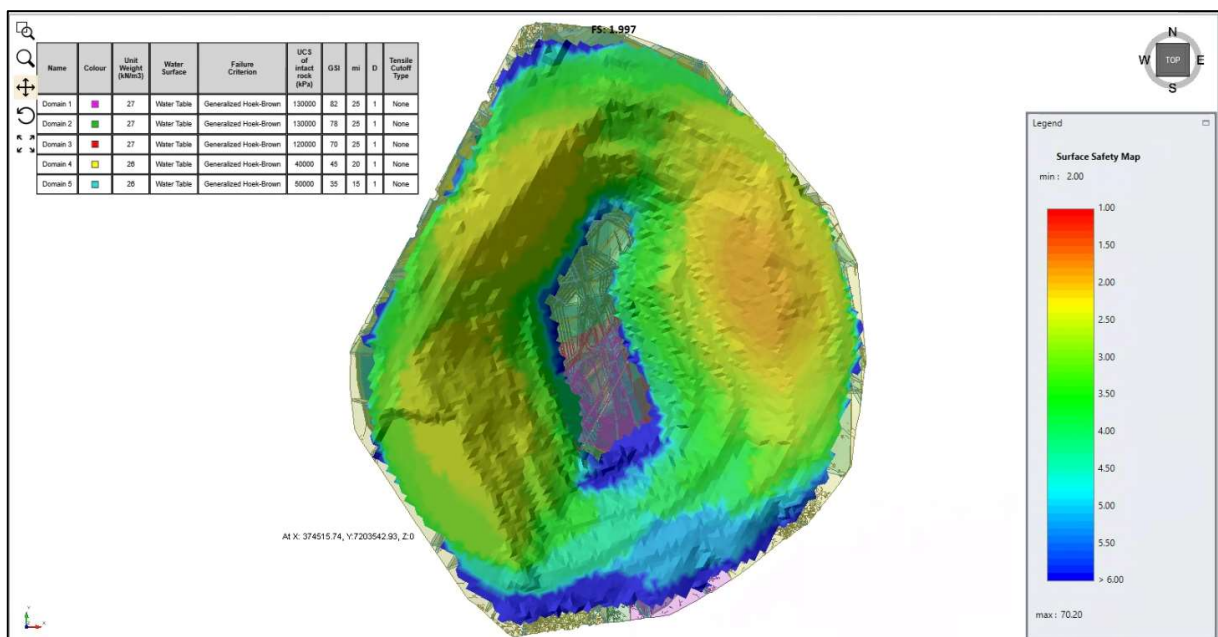


Figure 35: Limit Equilibrium Slide3 Spencer's under static conditions safety map (CMG 2022a).

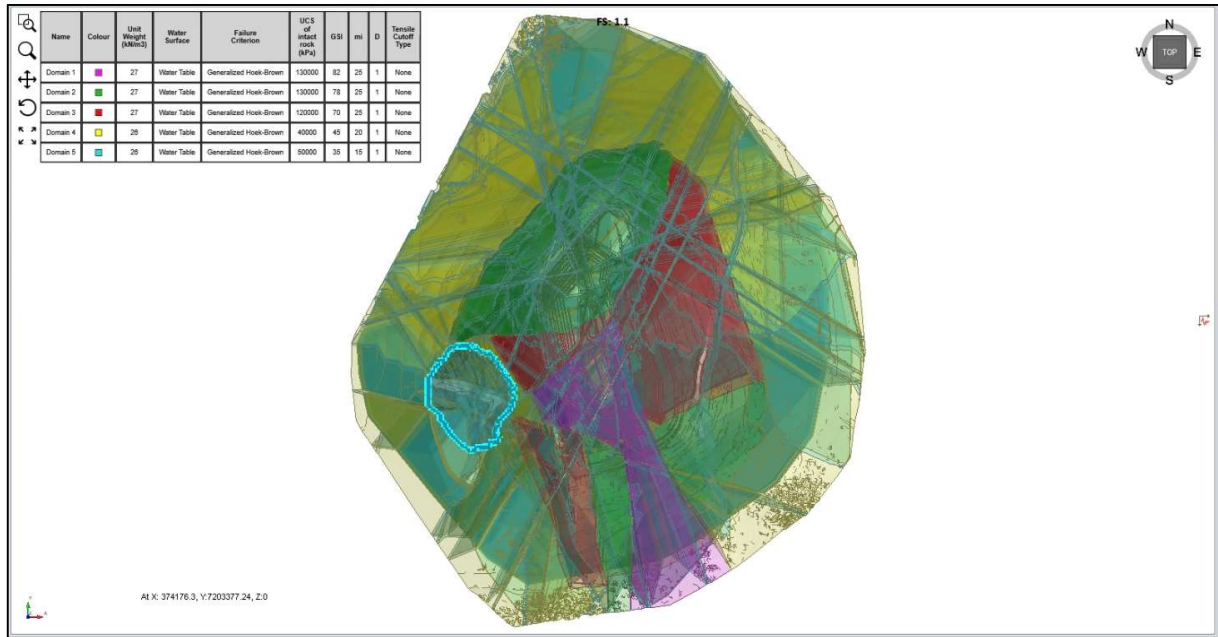


Figure 36: Limit Equilibrium Slide3 results under dynamic seismic conditions (showing global minimum failure surface on the west wall)- (CMG 2022a).

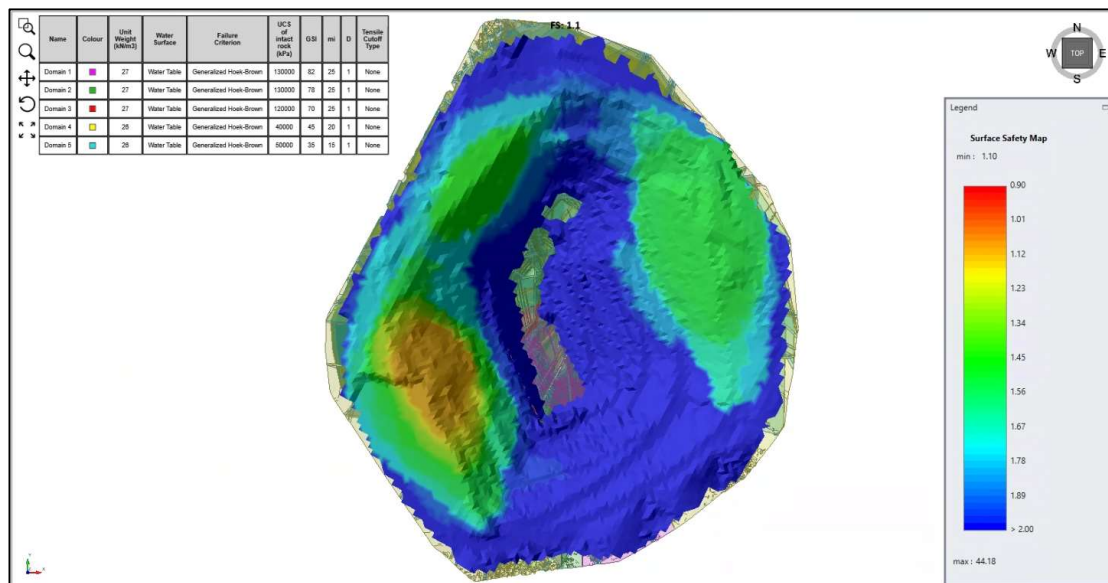


Figure 37: Limit Equilibrium Slide3 results under dynamic seismic conditions safety map (CMG 2022a).

The results of deformation analysis of the pit slope by CMG (2022a) under closure conditions illustrate correlations with Limit Equilibrium (LE) analysis results, with a maximum total displacement of approximately 400 mm (an equivalent strain of 0.23%) recorded more on the west wall and east within range, under static conditions, and 530 mm (an equivalent strain of 0.32%) on the west wall under dynamic conditions, respectively. This displacement will be around areas known to have marginal stability during the operational phase of the mine having caused some instabilities. However, this deformation estimate is not expected to instigate any large-scale failure.

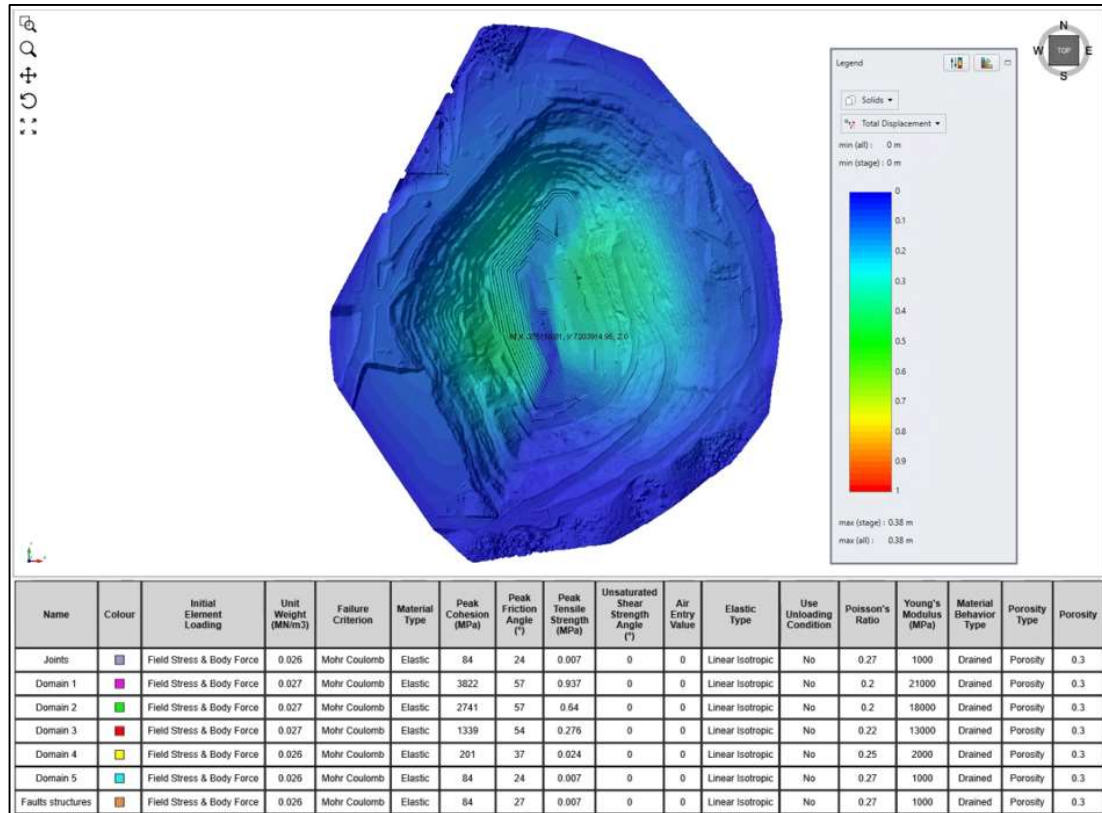


Figure 38: Result showing total displacement of 380 mm at post-closure conditions under static conditions (CMG 2022a).

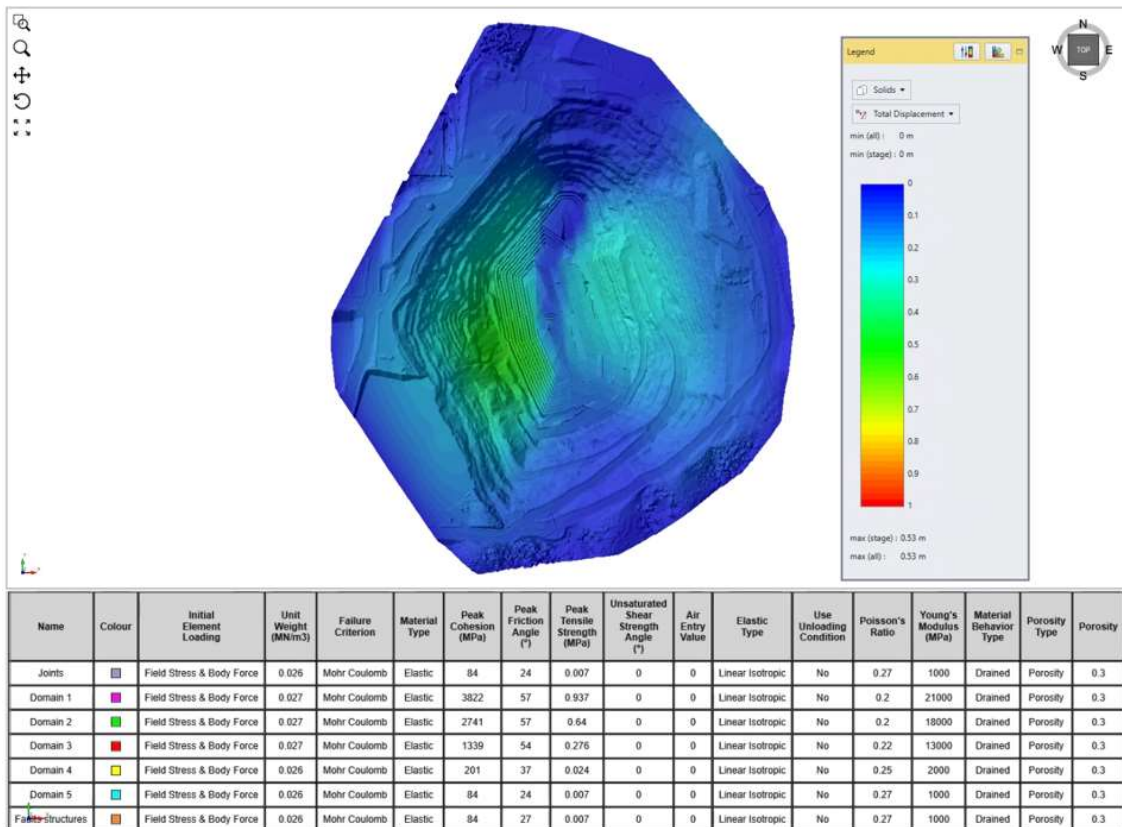


Figure 39: Result showing total displacement of 530 mm at post-closure conditions under dynamic conditions (CMG 2022a).

Geotechnical assessments of the highwalls of southern half of the pit (ITASCA 2023a) indicated that a minimum 20m set-back distance for a safety bund from the pit crest aligned with geotechnical mapping and three-dimensional (3D) analysis that showed a stable (FoS >1.5) pit failure envelope, with cohesive rock properties found 20m beyond the excavated rock face.

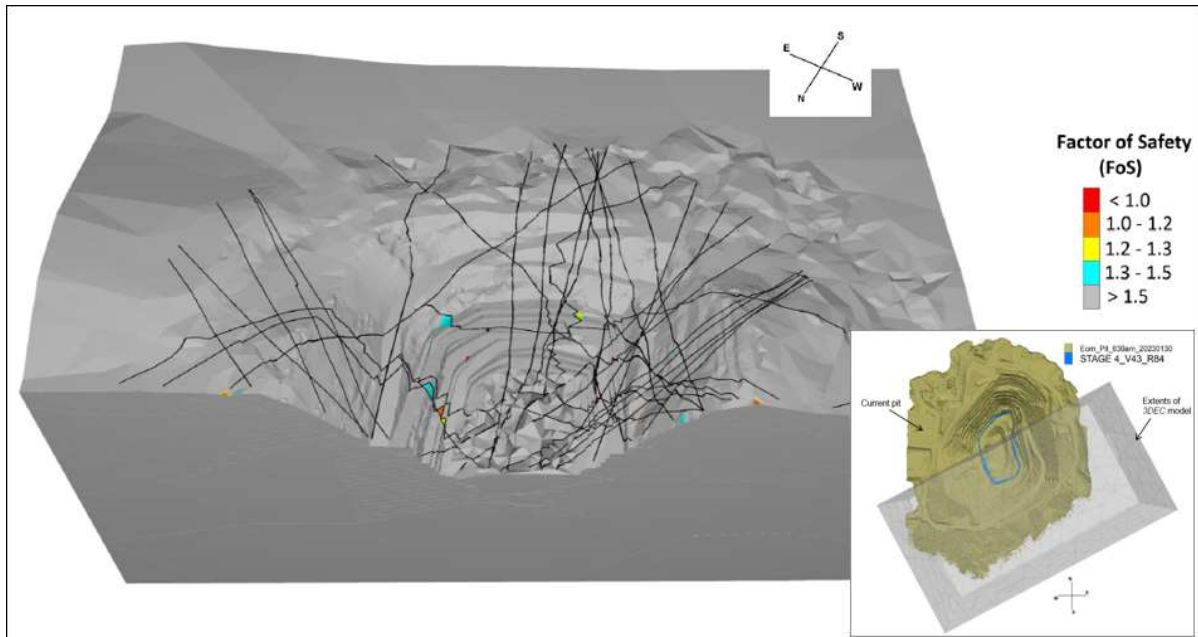


Figure 40 : Modelled Pit failure 3D analysis Factor of Safety (FoS) contours after final pit excavation – southern half of pit (ITASCA 2023a).

Geotechnical modelling and analysis of the highwalls in the northern half of the pit by ITASCA (2023b) showed that the pit failure envelope is stable with FoS is at least 1.5 for the majority of the current slopes. Some localized areas in the lower slope have FoS less than 1.2 but greater than 1.0. Based on these results, the placement of a safety bund around the northernmost sector of the pit will be at minimum 100m setback behind the excavated rockface crest to align with model predictions.

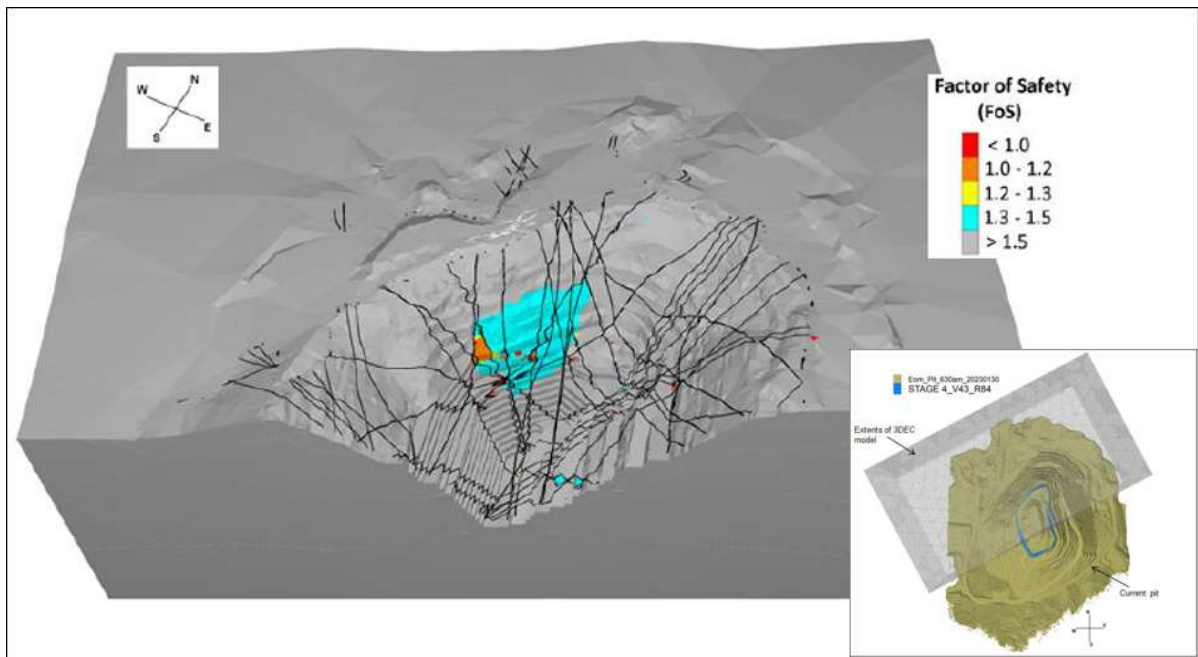


Figure 41 : Modelled Pit failure 3D analysis Factor of Safety (FoS) contours after final pit excavation – northern half of pit (ITASCA 2023b).

5 Rehabilitation Methodology

5.1 Hydrogeology and Surface Water Management

MRO has extensive water management systems in place to account for onsite operational requirements, for monitoring of surface and ground water flows and control mechanisms for contaminant pathways across the site which are discussed in the following sections. In addition to this, in 2022 RGS was commissioned to construct a WB/WQ model for the site and final void at MRO – this has been superseded by the recent study by SLR Australia Consulting P/L (SLR, 2025a). The SLR numerical WB/WQ model was developed for the MRO final void with the following objectives:

- To predict the pit water quality (dissolved concentrations) for a ‘terminal sink’ at closure and understand how the water quality evolves 200 years into the future;
- To understand the demand for water to fill and maintain the pit lake based on an optimised mine closure scenario; and,
- To understand how climate variability may affect the water balance and water quality of the pit lake.

The findings of this assessment are outlined above in section 4, under the Non-use Management Area: IA 1 – Improvement Area 1 (Residual Pit Void).

Historical Contaminant Releases

Since the beginning of operations in 2001, the mining lease has seen several exceedances, seepages, and mine-affected water release events. Overtopping events contributed to these in 2003, 2010, 2012, 2013, and 2022 that affected downstream receiving environments. Tailing seepage also occurred in 2010 and 2012 after clay was removed from the toe of the Northern Wall as part of borrow pit operations.

Various management actions were employed such as modified blasting procedures, better handling of waste and low-grade ore, evaluation of the weathering characteristics of tailings and waste rock, and seepage interception downstream of the TSF and waste rock dumps.

Contaminants of Potential Concern

Potential mine related sources of contamination include seepage from tailings and seepage/runoff from waste rock dumps. MRO extracts gold from pyrite (FeS_2). Heavy metals (As, Cd, Pb, Cu, Zn) are also hosted by sulfides in mineralized zones and are Chemicals of Potential Concern (COPC) that can have an influence on the receiving environment because of mining activity.

Sulfate (SO_4), total cyanide (Tot. CN) and nitrate_N ($\text{NO}_3\text{-N}$) are the best indicators of mining related activity at Mount Rawdon. Because there are satellite ore bodies in the Mine, it is plausible that some high concentrations of SO_4 , As, Cd, Cu, Pb and Zn can be found in groundwater which are expressions of unmined ore bodies or mineralisation haloes. There are other enriched sources of $\text{NO}_3\text{-N}$ in the landscape (wetland processes, nitrogen fixing plants, bushfires), so it is plausible that sources other than explosive residues contribute to high nitrogen concentrations in the receiving environment.

Post-closure hydrology & stormwater management

Groundwater

Potential groundwater contaminant sources at MRO may originate from tailings deposited into the TSF, from stored PAF waste rock in the WRDs and potentially from operational infrastructure areas. SLR Consulting Australia (SLR) was engaged by Evolution Mining to estimate post-closure

groundwater levels and assess potential risks to environmental receptors following closure of the Mount Rawdon Operation (MRO).

SLR (2025b) updated a 3D transient groundwater model developed in 2024 for the Mt Rawdon Pumped Hydro project (MRPH) that required:

- Model validation: This step involves updating climate and site operation data and running model and then comparing the latest measured data to the model outputs
- Development of a post mining predictive model: Update the model to include the post mining landform and post mining/closure infrastructure (including the exclusion of all pumped hydro influences)

The updated predictive model was run to 500 years post mining. Predicted groundwater inflows to the pit informed a Water Balance Model (WBM) for the pit, which predicted water level time series for the pit lake, which was used as a boundary condition (fixed water level) in the groundwater model.

To assess potential contaminant flow pathways, particle tracking post-processing was undertaken by SLR. For this assessment, two scenarios were simulated to visualise the difference between current flow paths (closure conditions) and flow paths once the system reaches equilibrium:

1. Closure conditions and beyond (**Figure 43a**): Particles are released at the end of the closure period (2040) and tracked until the end of simulation (2545)
2. Equilibrium conditions and beyond (**Figure 43b**): Particles are released when the system is near equilibrium (2400) and until the end of simulation (2545)

The depth to groundwater table is located on average 30m below the TSF surface and 70m below the NWRD. Modelled results indicated that groundwater originating from mine infrastructure will travel toward surface drainages, where it may express in areas where the water table is close to or greater than adjacent creek bed - primarily in Twelve Mile Creek (**Figure 42**).

However, the actual risk of contamination to surface waters is very limited, due to the small amount of predicted groundwater baseflow, which is expected to reduce over time. At MRO groundwater baseflow is predicted to be less than 1.3 KL/d at all creek zones after 2035. This is likely to represent less than 1% of the ephemeral surface water flow. As such any contaminant discharging into the creeks should have its concentration reduced by a factor of at least 100 by the time it reached the Perry River.

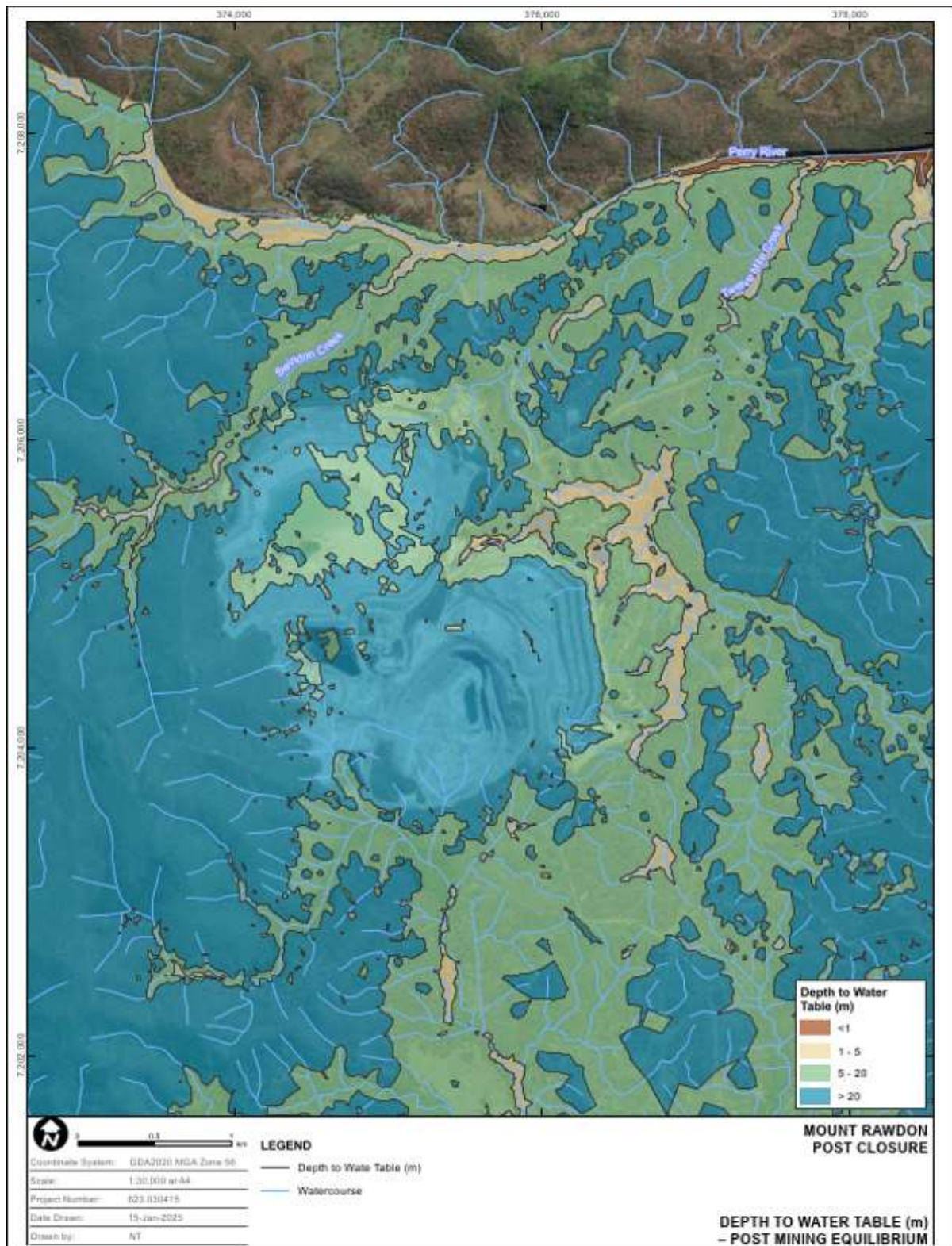


Figure 42 : Depth to Groundwater Table (m) – Post Mining Equilibrium (SLR 2025b)

Results show that following site closure, groundwater levels will decrease around the mine, primarily due to the capping of the NWRD and the ceased operation/capping of the TSF. The pit is predicted to remain a groundwater sink with negligible flux, and as such, contaminant solutes present within the void lake are not predicted to enter the surrounding groundwater for both current and post mining conditions.

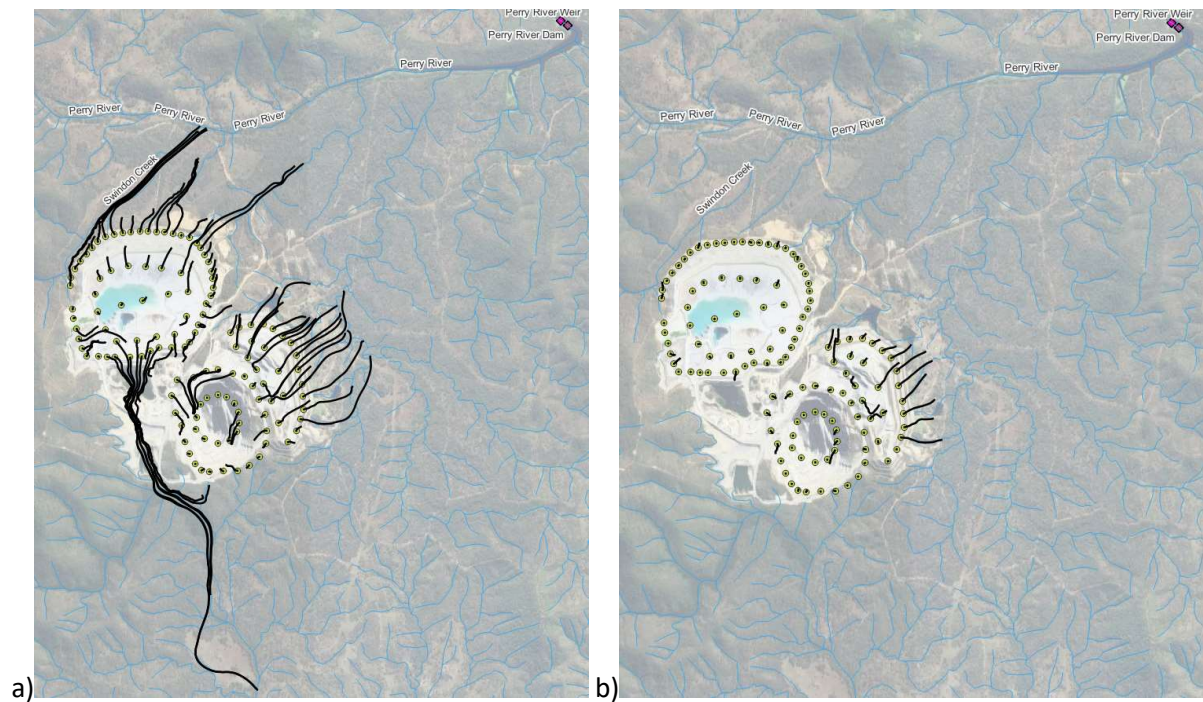


Figure 43 : Particle Tracking a) from 2040 to 2540 (500 Years from Closure); b) from 2395 to 2545 (150 Years following Equilibrium).
Source - SLR (2025b).

The groundwater located under both the TSF and the NRWD is predicted to travel primarily toward drainage lines within the Perry River catchment, with a small portion flowing toward the final void. Velocities are predicted to reduce significantly once mounding under each landform has receded. This work confirms the flow path modelling developed by NRC in 2019 (**Figure 44**) which showed that topographic highs, which include landscape spurs as well as the NWRD and the TSF, were locations of groundwater recharge with groundwater moving downslope and exfiltrating on lower slopes or in creek lines. Intermittent groundwater seeps on lower slopes following high rainfall events have been identified in steep terrain at MRO. The seeps occur naturally in response to seasonal groundwater following rainfall events when groundwater recharge on upper slopes reports further downslope. The NRC model also identified that a fault seal impeded groundwater flow from the TSF into the pit.

Consultation of the DNRME data set for Groundwater Dependant Ecosystems (GDEs) and private bores indicate that no GDEs or private bores are located within the areas where contaminants may travel (SLR 2025b). As such, closure impacts on GDE and/or private bores are unlikely.

Finally, climate change was considered by SLR (2025b), comparing current trends in rainfall and evaporation with predicted trends using three RCP8.5 scenarios. The data shows that climate change is likely to reduce risk of groundwater expression to the surface, due to a predicted reduction in groundwater recharge rates resulting from a predicted decrease in average yearly rainfall, while average yearly evaporation is predicted to increase. The net results of this change would be that there would be a further reduction in the potential volume of contaminated groundwater expressing as baseflow to creeks and thus a reduction in overall risk to environmental receptors.

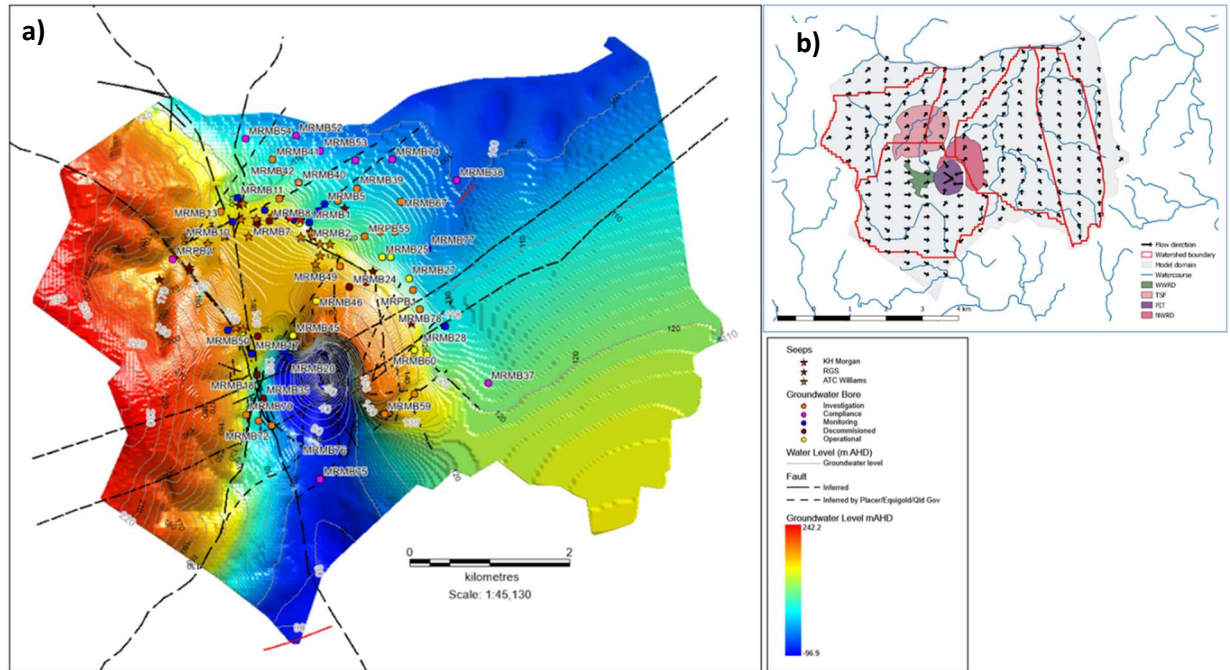


Figure 44 Steady-state groundwater model outputs: a) potentiometric surface; b) groundwater flow paths. (NRC, 2019).

After 2027, MRO will likely maintain operation of the seepage interception infrastructure during and post decommissioning and capping the TSF, and rehabilitation of NWRD and look to utilising constructed wetlands as water management units to remove chemicals of potential concern (sulfate, nitrogen, cyanide, metals) from mine-affected water. For the modelling by SLR (2025b) the dewatering bores were assumed to remain operational through to the end of 2044.

Post closure Water Management plan (WMP)

The objectives for post closure surface water management align with those stated in the PRC Plan guideline (DESI, 2024) Sections 1.3 and 1.4. Ultimately, the intent is to convert the former MRO mine site to a landform that can be passively managed where practical, meets the proposed PMLUs, and preserves environmental values in the long-term.

MRO will maintain majority of its existing water management measures and practices during rehabilitation while the site environment remains disturbed. This includes physical measures for controlling and capturing surface water, groundwater and seepage as well as monitoring and response practices. Upon completion of rehabilitation and closure activities, Evolution will relinquish the site and retire active water management responsibilities as post closure, water shed from the rehabilitated NWRD, TSF, WDs and access tracks left on site will have met water quality objectives and criteria for release to the receiving environment.

Surface water

A concept design for post closure stormwater management at MRO was prepared to inform closure feasibility for MRO as well as to support this Plan (SLR, 2024). The concept design included proposed locations and structural details for water management features to be implemented at MRO Site following closure. The design utilised site digital elevation data from 2024 to determine specifications for open channel drains to safely convey peak runoff from the 1% AEP critical duration storm while remaining stable long-term. The proposed overland drains will report to existing site water storages for water quality regulation prior to release to the environment.

This design was used as the core of an overall conceptual surface water management system (SWMS) that will remain at MRO post closure. The SWMS will be progressively established as the site is rehabilitated. Structures proposed within the current operational area of MRO will be constructed first, then drainage as part of the TSF and NWRD final designs will be later installed. The details and timing for construction of wetland/water treatment systems is still to be confirmed. Existing measures for stormwater management will either be decommissioned or repurposed as part of the SWMS during detailed design. Once the site can demonstrate the SWMS is fit for purpose within the post closure landscape, Evolution can cease management practices related to stormwater management.

The SWMS, subject to detailed design, will be incorporated into the final landform design with the aim to restore pre-mining catchment areas of receiving waters, maximise natural catchment space and enhance environmental flows while meeting accessibility and water quality requirements for the proposed post mining land uses.

Post closure management measures for the pit void are envisioned to include dewatering to smaller storages around the site to enable safe access to users and stock. Further work to is still required to determine requirements for managing pit waters during site rehabilitation and will be provided following works involving final landform design and further water balance modelling. Pit water level and quality data will be collected periodically to inform future optimisation and calibration of the water balance and groundwater modelling.

Standard erosion and sediment control practices will be employed at the site to manage disturbance activities, most notably rehabilitation of the TSF and NWRD, development of the wetland/water treatment systems as well as general reshaping of the broader site. The site will continue to maintain the hydraulic performance criteria of regulated structures and prepare for wet seasons while risks from spills remain during rehabilitation of the site. The water balance model will be updated periodically or in response to discrepancies between observations and predictions.

The current catchment plan for MRO is shown in **Figure 45**, giving a breakdown of the catchment areas by current land use. The catchment plans demonstrate that sediment-laden and mine affected water will continue to form a management requirement at MRO until all catchments are rehabilitated and stable as planned by 2035 to achieve the proposed post closure catchment plan (**Figure 46**). Additionally, seepage is expected to continue to report to water storages until rehabilitation and capping of the TSF and NWRD is completed and associated landforms are dewatered and drained. Therefore, existing storages that capture sediment and seepage will be vital for water management during rehabilitation.

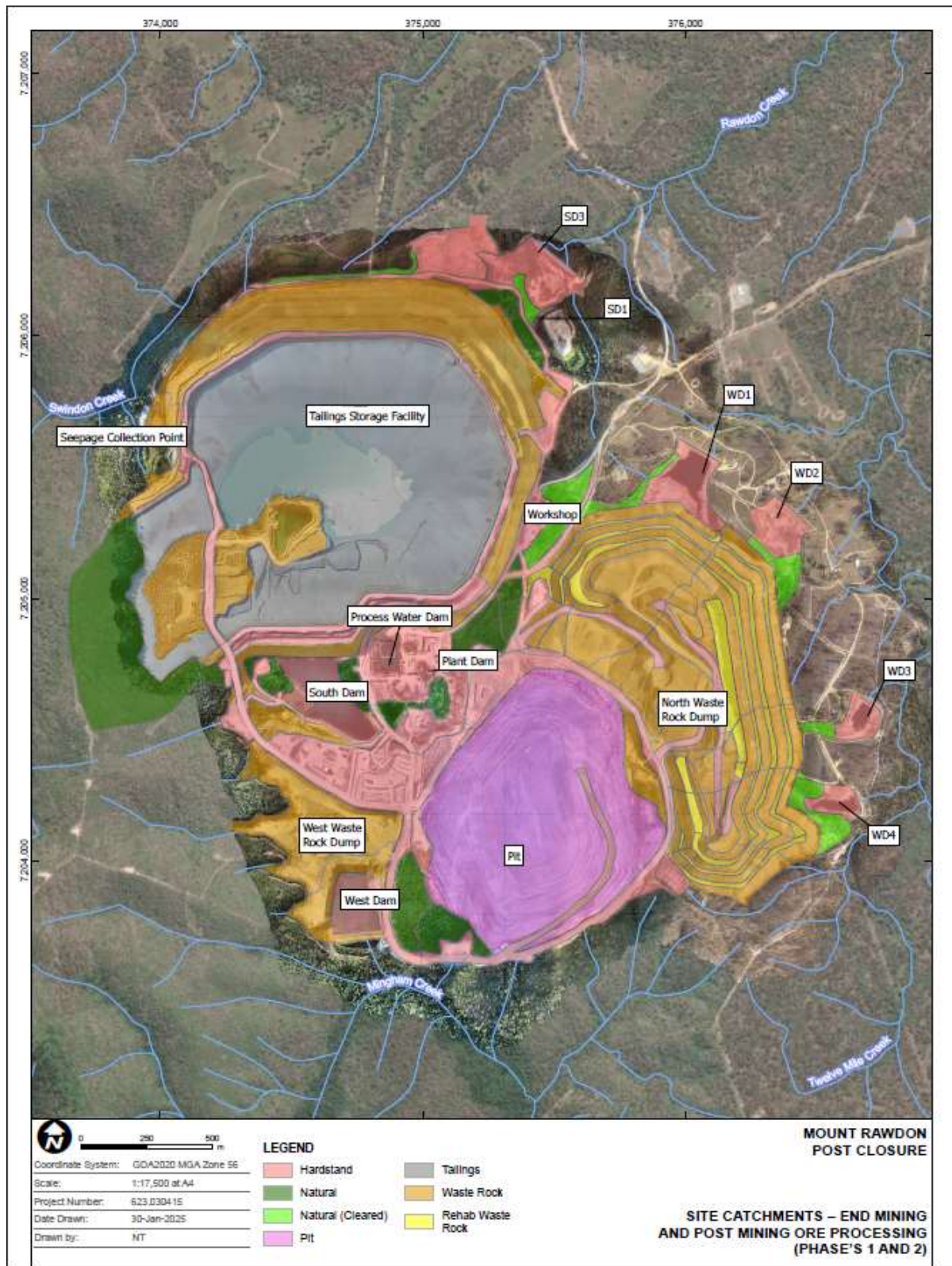


Figure 45 : Site Catchments – End Mining and Post Mining Ore Processing (SLR 2025c)

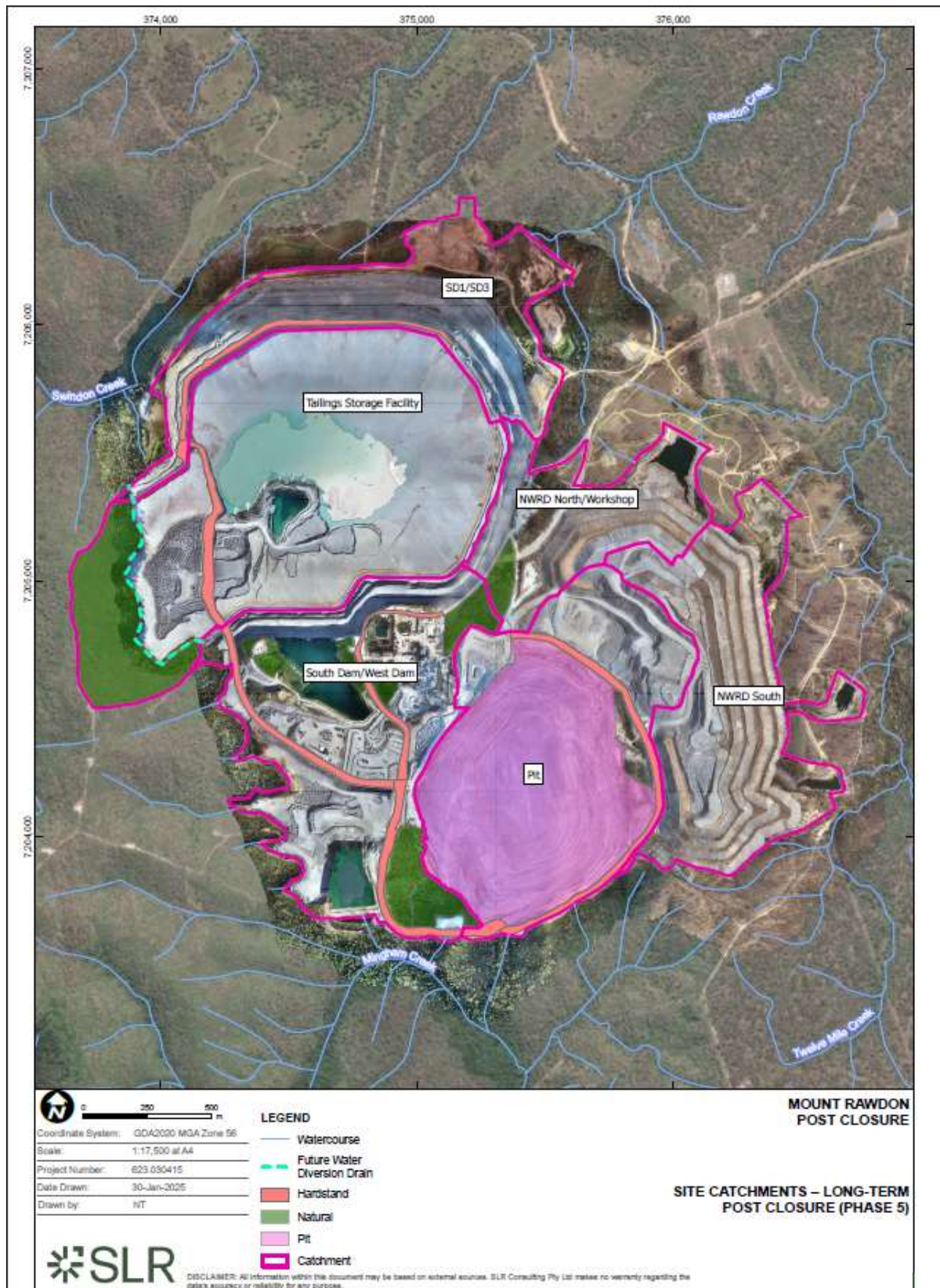


Figure 46 : Site Catchments – Long-term Post Closure (SLR 2025c).

The proposed post closure SWMS is shown in **Figure 47**. Note this is only a concept and is subject to change during detailed design. Hydrological analysis and sizing were complete for all areas of Site external to the TSF plateau and NWRD. Drainage features shown for the TSF plateau and NWRD were sourced from the closure concept designs produced by other closure studies. Additionally, a

wetland/water treatment system sited between the NWRD and the WD2 dam is being trialled to improve seepage water quality and will be included in the final SWMS if the current trial is successful. It is hoped that further systems will be implemented to treat seepage along the northern embankment of the TSF and potential locations for these systems within the overall SWMS are indicated in **Figure 47**.

Existing water storages at MRO will remain in place for existing catchments during rehabilitation however the catchment inputs will change once the TSF and NWRD are rehabilitated, and vegetation is established across the contributing catchments of the Site, allowing “clean” runoff from the rehabilitated landform to be released to the receiving environment. Selected minor dams and sumps within the operational area of MRO may be decommissioned during rehabilitation of the Site (likely to be confirmed during final landform design).

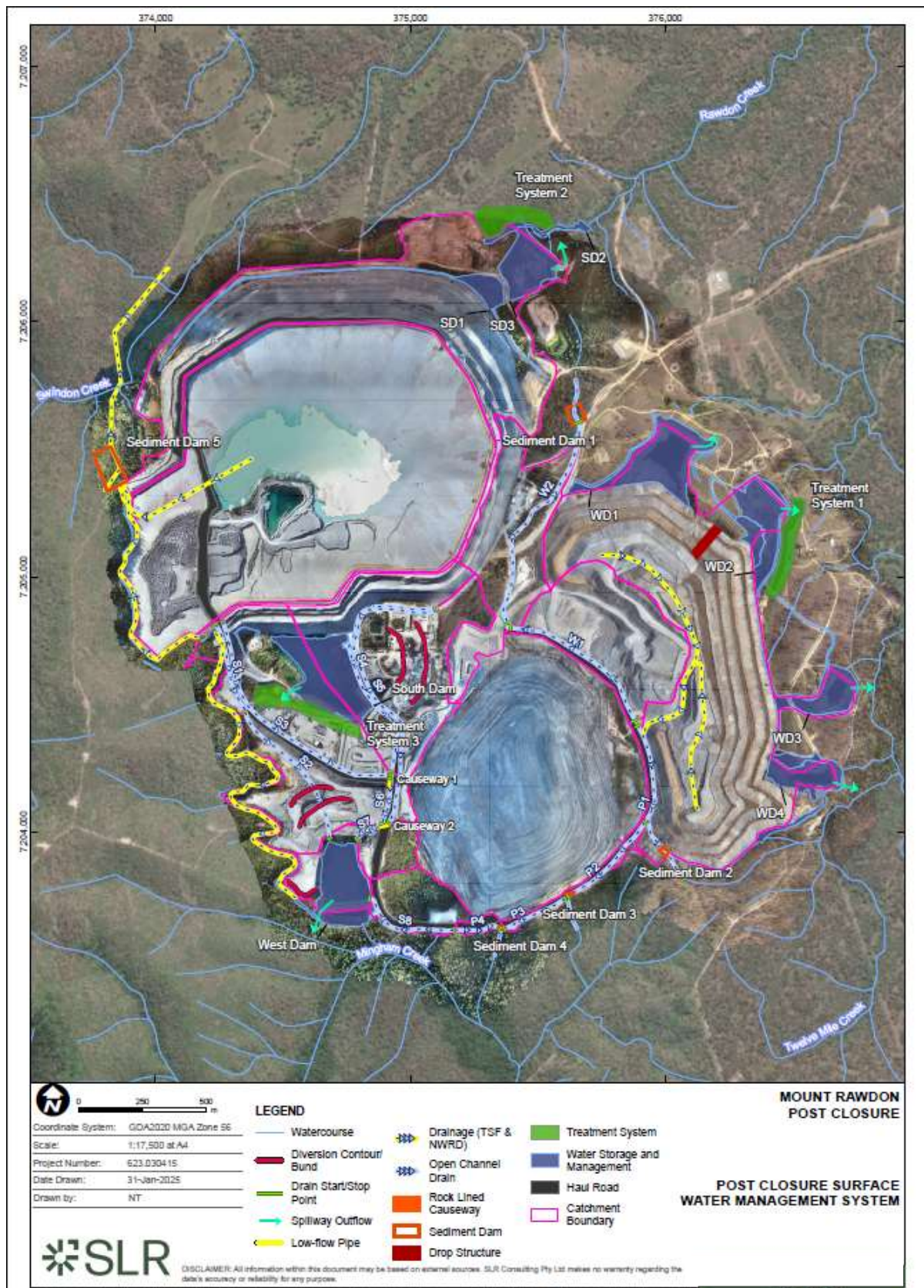


Figure 47 : Post Closure Surface Water Management System (SLR 2025c)

The SWMS has been developed to regulate water quality and render it compatible with the receiving environmental values and PMLU objectives in the post closure landscape.

This will be achieved through the following measures:

- Open channels lined with rock armour, locally occurring vegetation species and incorporating sinuosity to reduce sediment/salt loads and promote nutrient uptake;
- Temporary sediment dams and existing water storages will attenuate flows and reduce sediment, salt and nutrient loads in runoff;
- The rehabilitated TSF and NWRD landforms will enhance water quality by contributing “clean” runoff which was previously “mine affected”, providing increased runoff volumes that are “clean” due to the cover design properties, and mitigating contributions from contaminated seepage due to the cover design properties;
- Wetlands/water treatment systems installed prior to environmental release at the TSF and NWRD to perform targeted water quality improvement; and
- Augmenting downstream flows by aligning dam spillways to discharge to the headwaters of the surrounding watercourses.

During rehabilitation of the site, water quality will be assessed against the water quality criteria in Table E2 of the EA prior to release from any currently approved storages. Once vegetation is established, long-term water quality management features are functioning as desired, and all water quality has been consistently verified as suitable, MRO can present data to the appropriate regulatory authorities to demonstrate that monitoring is no longer necessary or can be conducted at a reduced frequency. Ultimately the water quality within the retained water storages will meet the water quality criteria outlined in the PRCP Schedule and associated completion criteria of the PMLU being water storage for stock water. Surface waters downstream of these storages will also be monitored to ensure any natural releases from these rehabilitated storages and associated catchments following rain events will meet the water quality measured upstream of any disturbances.

Groundwater and Seepage

The existing groundwater monitoring network will be retained during rehabilitation of the site, then is planned to be decommissioned at closure. Dewatering bores and seepage interception trenches will remain operational post rehabilitation of the TSF and NWRD. Once these structures are rehabilitated and associated seepage water quality meets the completion criteria and monitoring requirements the dewatering bores and trenches will be retired. Given the outcomes of groundwater modelling indicates impacts from TSF and NWRD seepage in the Perry River catchment will be negligible, no additional dewatering or interception measures are proposed for installation. Surface water dams and sumps that also serve to capture shallow groundwater and seepage will remain post closure as part of the SWMS. The groundwater model will be updated periodically or in response to discrepancies between observations and predictions. Any future groundwater modelling will be completed on an as required basis.

5.2 Flooding

Topography within MRO rises onto the steep lower slopes of the Boolbunda Range to the west, with general stormwater drainage occurring to the north. Site drainage occurs via a series of defined drainage lines that discharge into the Perry River to the north of MRO.

Within the MRO, topography is undulating and rises significantly to the west, ranging in elevation from around RL 450 m on the western boundary to RL 100 m at the Perry River. Gully lines are typically incised and shallow (ranging in depth from 1.0 to 3.0 m deep). Vegetation cover over the site is typical of the historical grazing activities, which have occurred in this area, and comprises a mixture of open grass land and forested areas on the upper slopes. Flows in site drainages are ephemeral, responding

to rainfall events of high intensity and/or extended duration, with limited residual base-flows observed.

The southern portion of the site, including the Plant Area, West WRD are situated in the headwaters of Mingham Creek and grades to the south towards the Paradise Dam storage within the Burnett River catchment.

Assuming the containment capacity (regulated structures) at MRO are exceeded, the majority of site catchments ultimately report to the Perry River system, however as noted above, some areas are expected to flow towards the south or be 'captive' in the central area of site, as described in **Table 39**.

Table 39: MRO Receiving Drainage/Pathways

System	Reporting Areas	Description of Downstream System
Perry River System	- Northern portions of the Mt Rawdon Site including: - TSF Spillway Flows; - TSF Northern Embankment; - North WRD and Associated WD1 to WD4 System; - TSF SD3.	Flow reports to the Perry River via Rawdon Creek or Twelve Mile Creek The Perry River is in turn dammed by the Perry River Dam Flow over the Perry River Dam is conveyed via the Perry River to the Burnett River confluence point
Paradise Dam System	- Minor southern areas of the site including: - West WRD and West Dam flows; - Southern Upper MRO pit Benches;	Flows from site would be conveyed southwards via a minor gully The gully joins Mingham Creek to the south Mingham Creek reports flows to Paradise Dam Paradise Dam discharges to the Burnett River
Centre of Site	- A central portion of the site is considered hydrologically contained comprising: - South Dam; - Process Plant Area; - Northern	Flow reports to South Dam If South Dam overtops, waters would spill to the MRO Pit in the first instance

Flooding Susceptibility - Hydraulic Assessment

MRO is not located within a floodplain but as it proposes a NUMA for the pit void, to meet the requirements of Section 3.4 of the PRC plan regarding voids in flood plains (DES 2019 & DES 2020), a hydraulic assessment was completed by ATC-Williams P/L (ATCW, 2023) to develop a flood risk profile for the operation under post closure conditions.

Water depths and velocities surrounding site were assessed particularly for features including the TSF, West Dam, South Dam Fill Area, Southern Diversion Drain, Pit bund, Perry River Dam retained dams on site, and downstream tributaries (**Figure 48**). The MRO site layout and hydrology is shown in **Figure 49**.

The flood modelling completed by ATC-Williams in accordance with the Australian Rainfall and Runoff guideline (Ball et al., 2019), was assessed against the following events:

- Probable Maximum Flood (PMF) resulting from the Probable Maximum Precipitation (PMP) – for flood depth (**Figure 50**) and flood velocity (**Figure 51**);
- 1:1,000 Annual Exceedance Probability AEP (0.1%) – for flood depth (**Figure 52**) and flood velocity (**Figure 53**); and
- 1:100 AEP (1%) storm events.

The hydraulic modelling demonstrated that none of the major infrastructure areas or final landforms would be impacted by the extents of PMF or 0.1% AEP flooding extents (ATCW 2023). In particular, the pit void was determined not to be located in the extents of the PMF or 0.1% AEP flood plain of either Rawdon Creek or Twelve Mile Creek.

Overtopping of water storages will not result in any significant impacts on nearby infrastructure or downstream tributaries. The pre-mining flow regimes to the local watercourses across the MRO site have been maintained in the post closure design, as far as practicable.

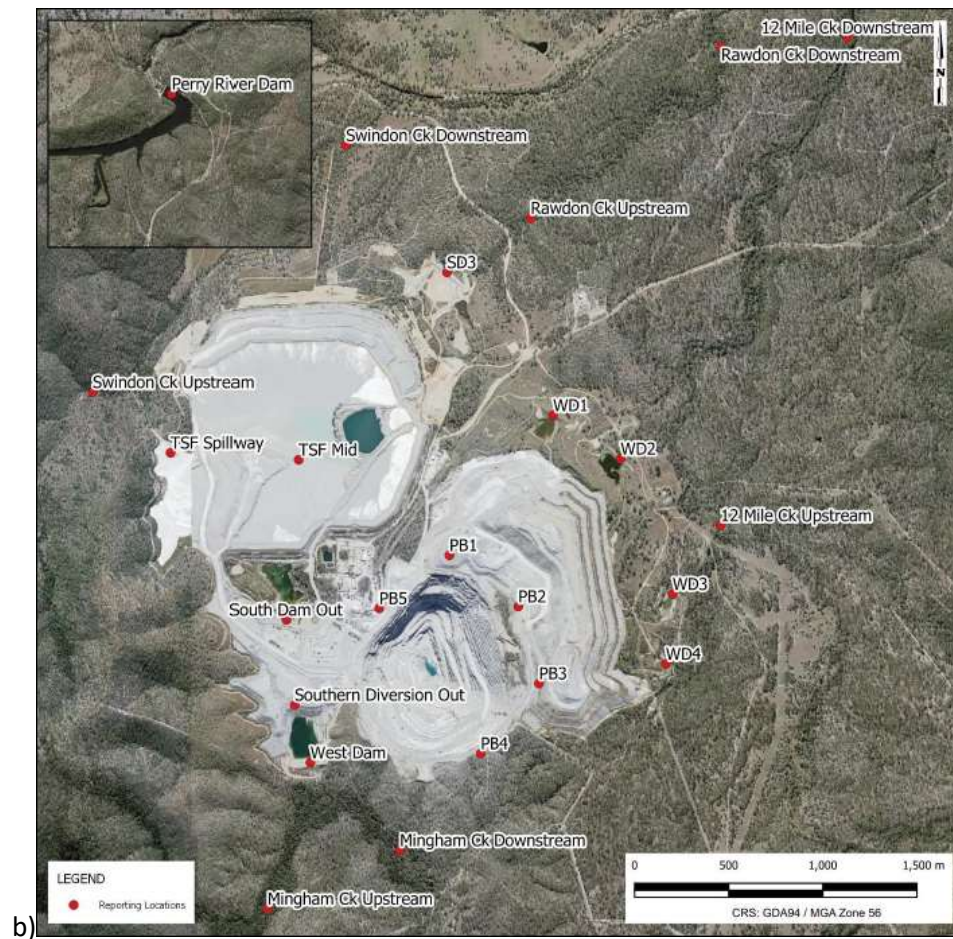
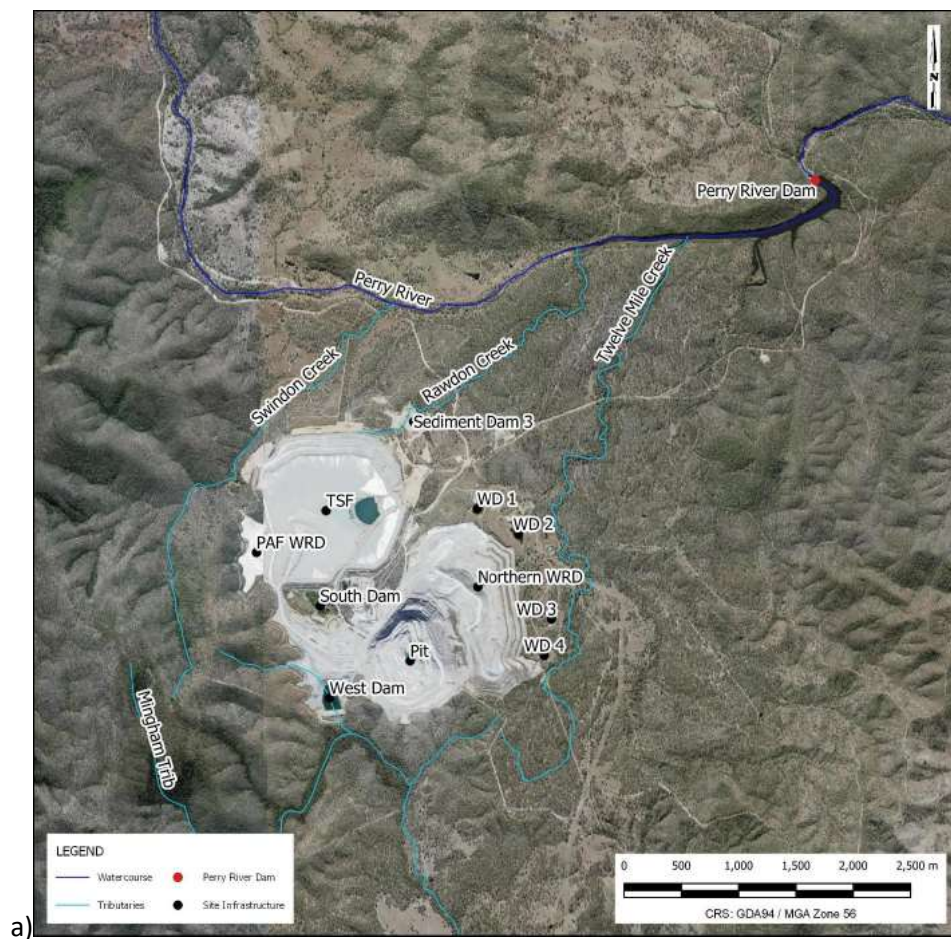


Figure 48 : a) Local hydrology and MRO infrastructure; b) MRO Flood modelling reporting locations (ATCW 2023)

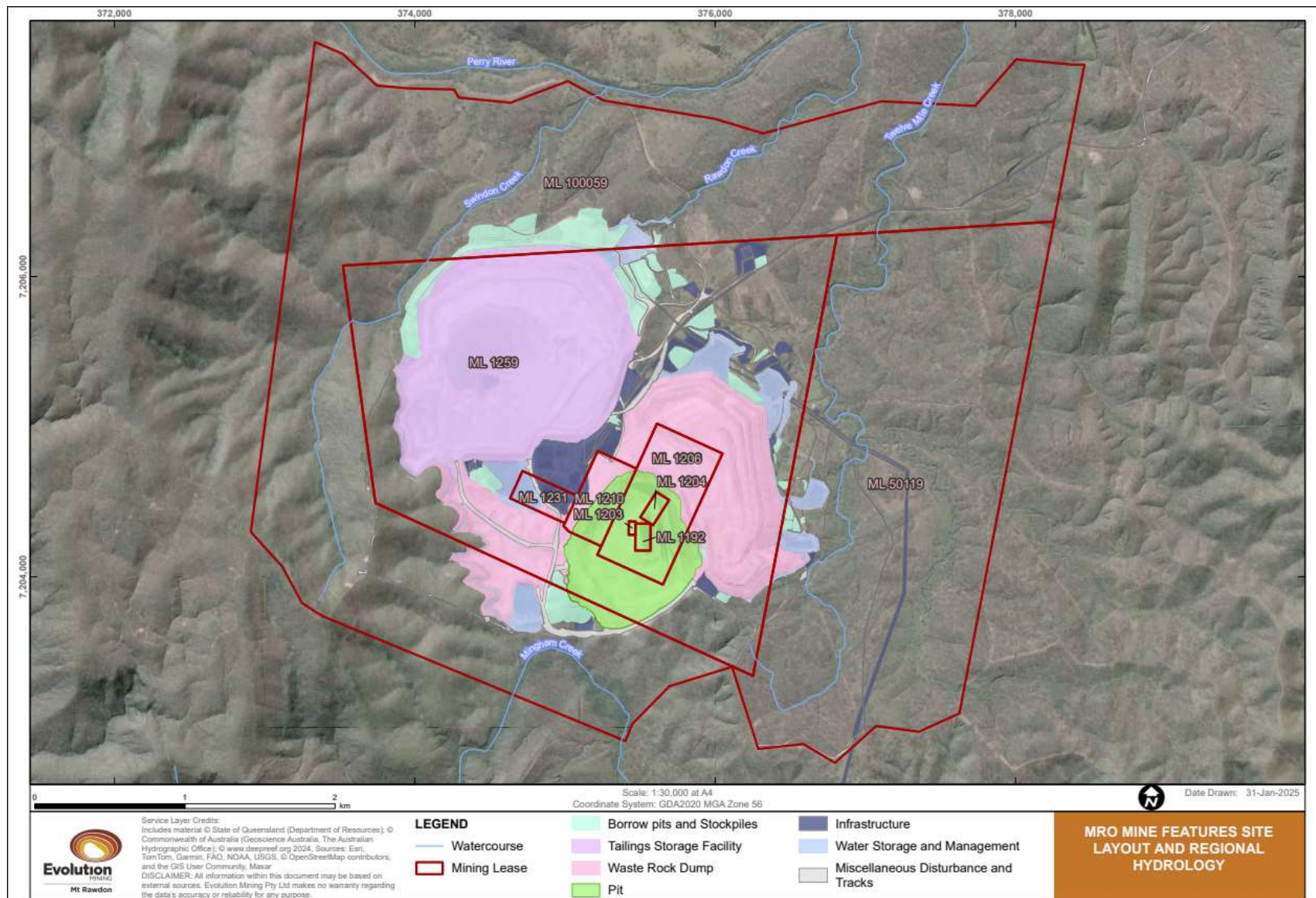


Figure 49: MRO Mine Features Site Layout and Regional Hydrology

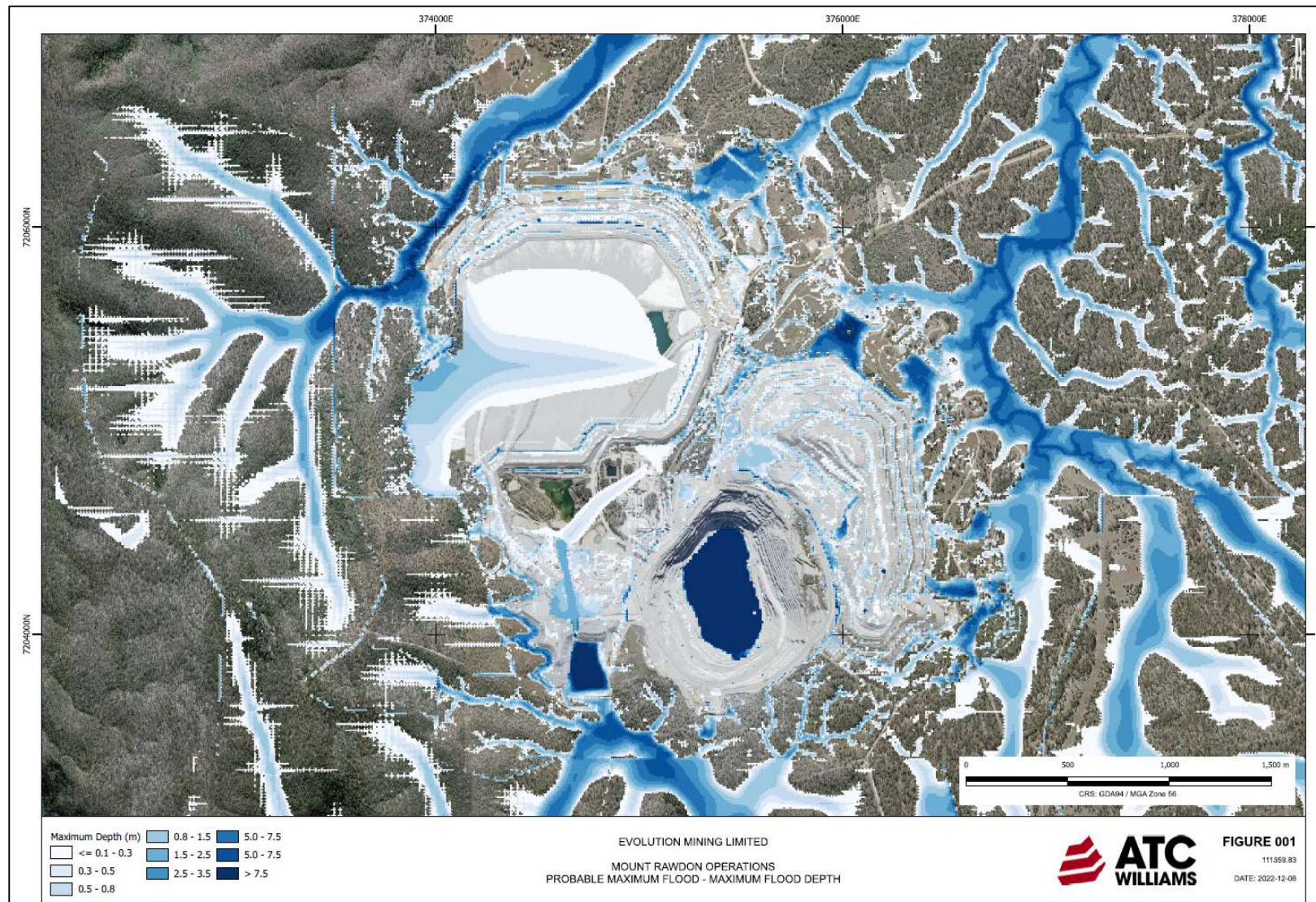


Figure 50 : Probable Maximum Flood - Maximum Flood Depth (ATCW 2023)

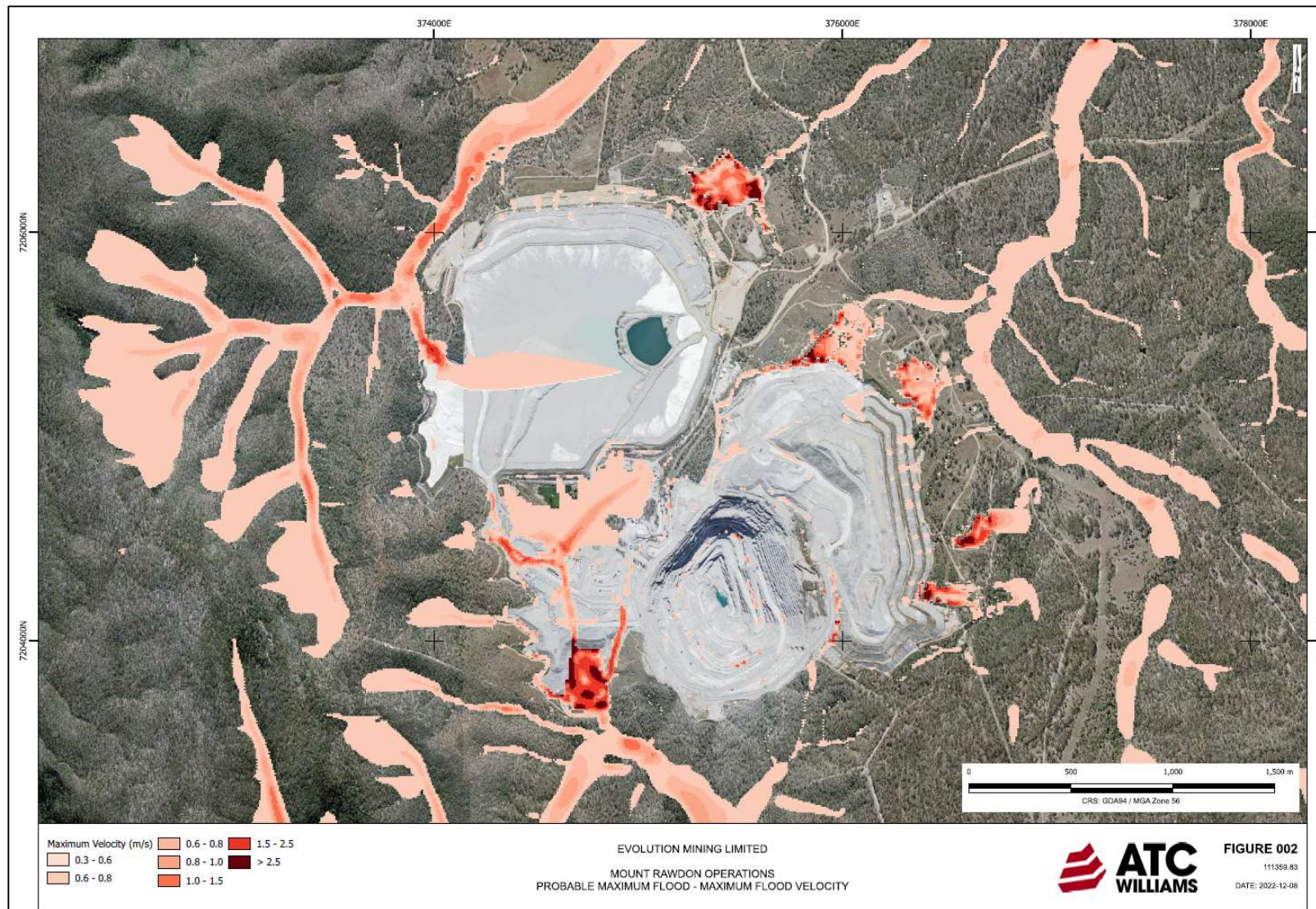


Figure 51 : Probable Maximum Flood - Maximum Flood Velocity (ATCW 2023)

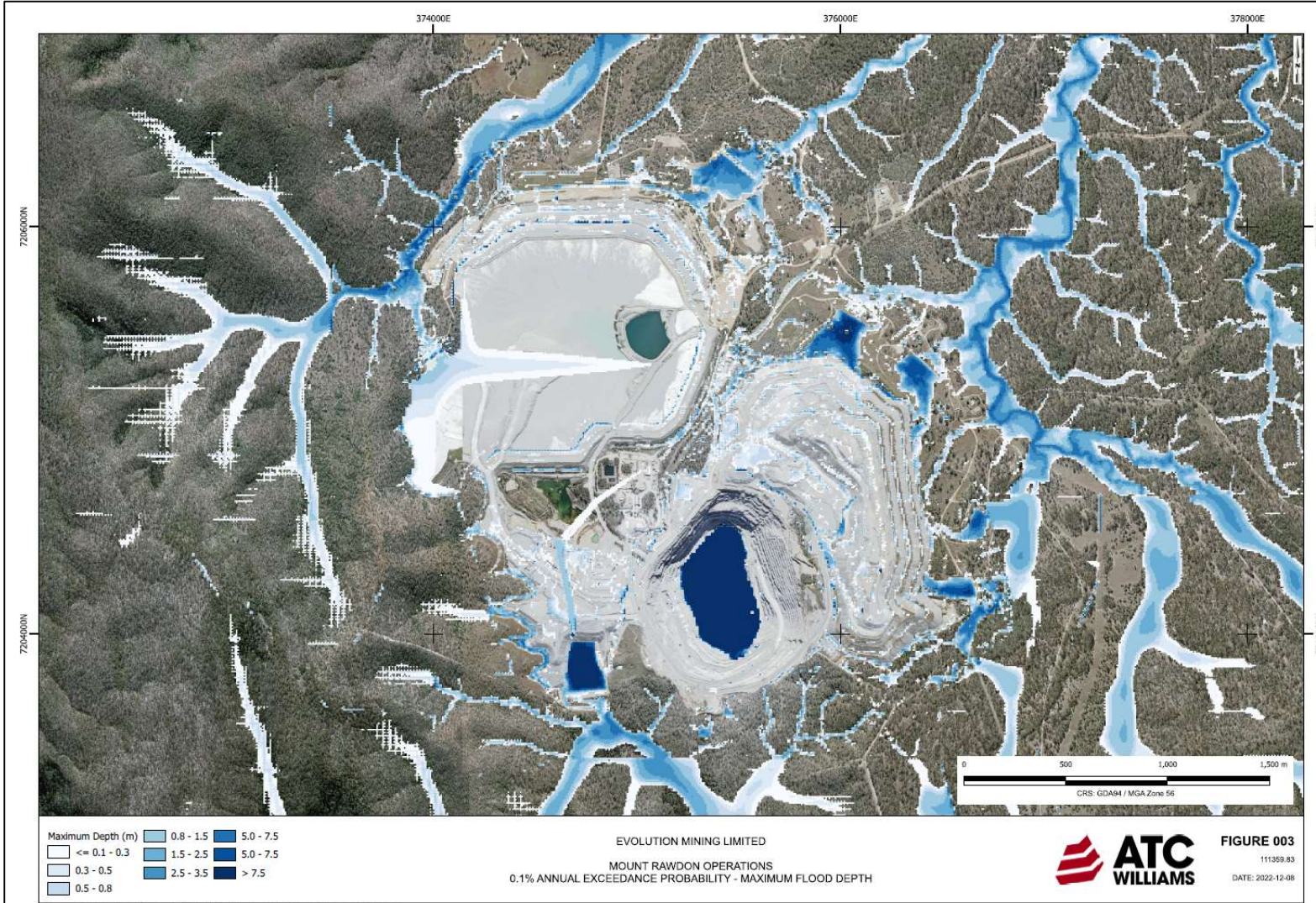


Figure 52 : Probable 1,000yr Flood (0.1% AEP) - Maximum Flood Depth (ATCW 2023)



Figure 53 : Probable 1,000yr Flood (0.1% AEP) - Maximum Flood Velocity (ATCW 2023)

5.3 Soil and Capping Material Assessment

In 2022 MRO commissioned RGS/Deswik to develop a whole of mine, progressive landform haulage schedule for the remaining life of mine plan and closure period. The Deswik.LHS work essentially allocates the movement of all materials on the mine on a truck-by-truck basis. The work completed by MRO exceeds existing requirements for PRCP Planning and Scheduling and reflects current best industry practice recommended by the ICMM (2019).

To support this Deswik.LHS model, RGS developed a Mine Material Management Plan (refer to supporting document Mine Material Management Plan, RGS, 2022) to inform the PRC Plan that encompassed:

- Soil capping material assessment
- Mine material characterisation
- Mine material balances and scheduling
- Landform and cover system design
- Land stability, erosion, and landform evolution
- Mine water management and final void assessment
- Performance monitoring

The Deswik.LHS model was updated by MRO closure planning team and additional material characterisation studies were also conducted in 2024.

Soil stockpiles, soil, saprolite and saprock borrow areas have been identified, sampled, and analysed over the LOM. The soil quality, geochemical and physical properties of the topsoil and subsoil in the pedolith, combined with the saprolite and saprock in the regolith, and the available stockpile of NAF rock in the WWRD have been measured from test pit and drilling programs over the LOM.

Material Characterisation

Capping material – Soil Erosion

In September 2022, RGS conducted additional soil quality, geochemical and physical characterisation of five bulk (1m³) samples of:

- topsoil provided from an existing stockpile,
- topsoil from a location to the north of TSF, and
- topsoil, saprolite and saprock from West Hill

The volume of > 150 mm PSD and 150 mm PSD to 75 mm PSD rock was estimated for each as-received sample and < 75 mm PSD splits of each sample were sent to laboratories for a suite of static soil quality, geochemical and physical analyses to derive measured material properties (RGS, 2023).

Measurement of the erosion rate of each bulk sample using a *Rainfall and Erosion Simulator* (RGS_RaESIM) was undertaken by RGS in Q3 of 2022 that evaluated:

- the effect of a:
 - 1 in1-year 30 mm/hr rainfall event with a 24 hour pause, followed by
 - 1 in10-year 60 mm/hr rainfall event with a 24 hour pause, followed by the equivalent of a
 - 1 in 100-year 90 mm/hr rainfall eventall conducted over 5-days, and
 - runoff from a slope of 5% that is the upper slope that may be applied to the top tier of soil cover systems that may be constructed on the NWRD and TSF
 - erosion of as-placed (loose) material and compacted materials.
-

These conditions were considered to present a highly unlikely outcome and a worst-case scenario in terms of probable erosion on a rehabilitated surface before vegetation has been able to establish and before the as-placed unconsolidated and non-cohesive soil particles have had the chance to reconstitute themselves into soil peds via pedogenic reformation.

Water samples collected at defined times over the duration of each RaESIM run were used to define peak storm event erosion mass and peak cumulative erosion mass that reflect actual erosion from a sample under laboratory conditions with defined slopes and rainfall intensity and duration. The erosion results were then evaluated using MinErosion, a multi-scale erosion/deposition numerical model that was developed to provide erosional stability assessment of mine materials proposed for the soil cover systems for the NWRD, and also applicable to the TSF (RGS, 2023).⁸

A series of event-based erosion scenarios with various rates were evaluated by selecting rainfall intensity from 30mm/hr to 100mm/hr events and rainfall duration from 20 to 100 minutes and applying intensity and duration to slope angle (0 to 60%) and slope length (1 to 130 m). A selection of predicted event-based soil loss (t/ha) for MRO Samples #1 to #5 using a 5% slope were applied for 1 to 50 ARI, 100 and 60 mm events using seven scenarios with varying vegetation cover (0-30%) grass types (Stoloniferous and tussocky grass) and pedolith consolidation time. The results for the 50-year ARI events for each sample and each scenario document the effect that time (resulting in increasing soil cohesion and the reformation of soil peds) and increasing vegetation cover is likely to have on increasing soil stability and reducing erosion.

Modelled erosion rates were derived for:

- Discrete storm events giving 0.3 to 3.1 t/ha for a 100 mm/hr event and 0.2 to 2.3t/ha for a 60 mm/hr event on as-placed soil and saprolite samples
- Annual erosion rates for the as-placed soil and saprolite samples with a 5% slope angle was 4.1 to 7.0 t/ha/yr with a 10 m slope length, increasing to 19.3 to 23.5 t/ha with an 80 m slope.
- Longer term erosion rates verify the effect of 5-Years of pedolith development with 30% vegetation cover on an 80 m slope length was calculated to reduce annual erosion rates from 19.3 to 23.5 t/ha to 0.2 to 1.1 t/ha.

Decreasing erosion rates are due to inferred effects such as pedogenic reformation that includes (i) cohesion of soil particle into soil peds (ii) settlement and consolidation and (iii) binding of the soil profile by plant roots. Under these conditions MINErosion projected that the annual erosion loss for the soil and saprolite samples may be in the order of 0.8 to 1.5 t/ha after two years with 20 % cover of stoloniferous grass (RGS, 2023). The erosion rates were considered to provide viable outcomes for construction of cover systems on the NWRD and TSF at slopes of < 5%. Therefore, there are no limitations to using the materials analysed for cover system construction for the low angle slopes proposed to be applied to the top of the TSF and top of the NWRD. The evaluation assumed that the sides of the TSF and rock armoured slopes of the NWRD would not be rehabilitated with soil covers.

While the geochemical and physical properties of the soil types evaluated above showed that they have different qualities, which need to be considered in detailed design of the cover systems, none of the samples were found to be unsuitable for rehabilitation of the TSF or NWRD (RGS 2023). For example, the chemical and physical properties of the in-situ soil north of the TSF provides justification

⁸ This level of erosion assessment uses methods and approaches developed by the Australian Coal Association Research Program (ACARP), University of Queensland (UQ) and Griffith University over fifteen years and provides significant advantages over USA agricultural software such as the Universal Soil Loss Equation (USLE), Revised Universal Soil Loss Equation (RUSLE) and Water Erosion Prediction Project (WEPP).

for using this material as a subsoil unit, and stockpiled soil and West Hill soil samples reserved for surface cover.

Water quality results from samples collected during the RGS_RaESIM evaluation verify that the metal(loid) concentrations are correlated with sediment mass and that the soils and saprolite contain > 30 trace, minor and major elements. For most samples the unfiltered concentrations are < 1 mg/L but several elements are at concentrations of > 1 mg/L. The unfiltered (total) concentrations in the surface water runoff decrease rapidly over the duration of a rainfall event. Whereas the suite of elements in the unfiltered soils is very broad the filtered (soluble) suite of elements is much smaller and typically includes elements such as Ba, Cu, Li, Mn, Mo and Sr that are at < 0.1 mg/L.

Source Material Characterisation – Geochemical and physical

A number of study campaigns at MRO have tested potential source areas for key rehabilitation materials identified within local soil zones and borrow areas to determine their available quantities as well as their geochemical, agronomic and physical characteristics to verify their suitability for use in rehabilitation of disturbed sites, particularly the TSF and waste rock dumps.

The most recent material testing program conducted in 2024 by ATC-Williams (2024a) infilled and extended sampling to augment previous site investigations (**Figure 54**), with the specific aim of assessing the suitability of borrow material to construct the cover systems proposed for the TSF and NWRD landforms (ATCW, 2024a). The investigation found that the soil located to the north and east of the TSF was a relatively shallow undeveloped soil consisting of a sandier topsoil over clay.

Further, the investigation found that materials required for construction of a cover system include (but are not limited to) the following broad material types (ATCW 2024a & 2024g) found in the subsurface profile, comprising (from top to bottom):

- **Soil** that includes:
 - **Topsoil /Alluvium**, encountered at surface, this A1 soil horizon generally is developed to a depth of 0.25 m. To be used as the topsoil of the cover system to support vegetation. Being the top layer of the native soil profile, it is characterised by higher organic carbon content, some development of soil structure, the presence of plant roots, and typically containing the soil seed bank.
 - **Subsoil/Residual Soil** (nominally 0.5 to 1.9m depth bgl) – an *in-situ* clayey B-horizon soil layer underlying the native topsoil and above weathered rock, typically identified by a decrease in organic carbon content and fewer (and finer) roots. Due to its higher clay content (13 - 17%), very low permeability when compacted (95% MDD⁹), and stability, the subsoil material is best suited to constructing a reduced permeability layer (RPL) at the base of landform covers proposed for MRO.
- **Extremely Weathered (WX) Material/Weathered Rock:**
 - Oxide material lying below surface soils, typically comprising highly to extremely weathered (XW) and weathered rock with variable gravel and clay content related to the level of weathering. Due to the presence of clay and available water storage capacity combined with non-limiting salinity and low available metal and metalloid concentrations, this material would be suitable to use as an Infiltration Storage Layer (ISL). However, its silt and fine sand content plus low calcium requires

⁹ Denotes Maximum Dry Density.

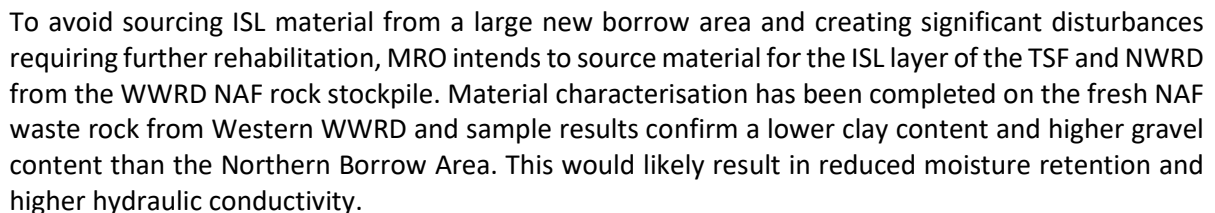
incorporation of calcium source (e.g. gypsum) and compaction to 85-90% MDD to reduce the potential for tunnelling.

- Transitional rock material - weathered materials with minor partially-weathered rock (saprock) and some competent fresh, inert rock - also suitable for the ISL.
- **Fresh competent, inert rock** that may be suitable for:
 - Armouring drains, or
 - Used as rock mulch in the soil cover (e.g. in the Northern WRD)
 - Used to construct the TSF ISL cover layer (e.g. NAF waste rock from the Western WRD and West Hill). This is an important material source that supplements materials from borrow pit areas to the north of the TSF that could be utilised to construct the ISL cover layer.

Additionally, material from x23 accessible and long-established topsoil/growth-media stockpiles sited around MRO were sampled (ATCW, 2024i) to test their suitability for use as growth media on proposed mine landform covers and rehabilitation generally. The results of this sampling program showed that considerable variability in material types was noted, not only occurring between different stockpiles, but also between the samples analysed from the same stockpile. Based on the visual observations, many of the stockpiles contain a mixture of materials and cannot be considered homogeneous. As a result, the stockpiles were assessed as a whole and not as individual stockpiles.

The soil in the stockpiles is predominantly a sandy loam varying to a clay loam (with all samples dominated by the sand fraction) – is different from the *in situ* soil-mixed fractions described to the north of the TSF. Overall, compared to the *in situ* soil characterised to the north and northwest of the TSF (ATCW 2024a), the stockpiled soil tends to be slightly acidic, non-saline, calcium deficient, non-calcic, low fertility and moderately erodible. As the soil displays hard-setting behaviour that is not ideal for placement as a topsoil, it would need to be ameliorated with a calcium-rich material, such as lime, to reduce sodicity, increase the pH and reduce the risk of aluminium toxicity. A slow-release organic fertiliser suitable for native species would be required to improve the establishment of plants and increase microbial activity. It is recommended that the addition of compost is also considered to further improve soil conditions. Without the suggested amendments indicated above the majority of the material sampled would not be suitable for use as a topsoil (ATCW, 2024i). It is likely that the soil includes a weed seed burden which may impact on the establishment of native vegetation. The weeds would require to be monitored and controlled during the early phases (1-3 years) following construction of a cover.

The stockpiled soil is not suitable for use as the RPL due to the relatively high proportion of rock fragments and low to moderate clay content, but may be suitable for the ISL as it contains clay, which will assist in storing moisture and does not appear to present any significant impediment to vegetation growth (ATCW, 2024i).



Other materials which were required as part of the TSF cover trials, but not sampled as part of the material investigation included:

- **Crushed fresh competent, inert rock** specifically used for:
 - Capillary Break layer comprising clean (no fines) gravel aggregate, with a nominal grain size range of 5 mm to 20 mm, imported from a licenced quarry, or manufactured on site by crushing and screening NAF rock.

The data from the sampling campaigns above was subsequently used to develop feasibility level cover designs for the TSF and NWRD.

Note that the soil cover systems at MRO are not proposed to be developed on the angle of repose NAF rock armoured slopes of the final TSF and NWRD rock embankments or batters. Due to their inherent stable geochemical and geophysical characteristics they will remain as durable rock faces being not unlike bare rock ridges and cliffs present on the mountain ridges west of MRO.

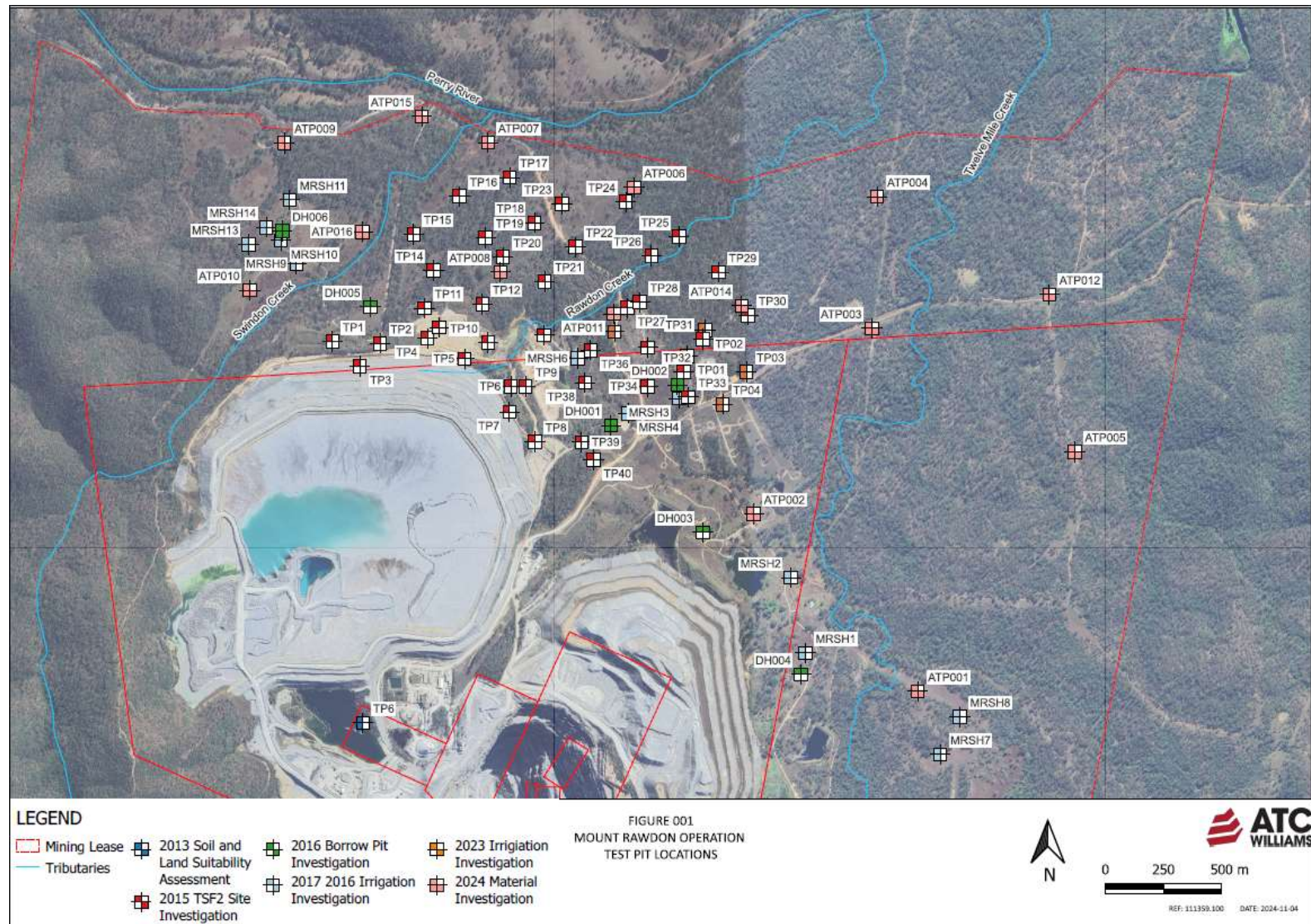


Figure 54 : Material investigations 2013 - 2024 sample locations

Material Inventory

As described above, the available soil resources and capping material has been quantified (**Table 40**) and scheduled into the Deswik.LHS model to illustrate how the material requirements meet the needs of the rehabilitation design objectives for all domain areas.

Table 40: Preliminary Materials Balance

RA	Rehabilitation area (ha)	Volume of topsoil required (m3)	Volume of NAF Rock (regolith) required (m3)	Volume of clay required (m3)
RA 1	99.83	20,980	13,104	0
RA 2	48.54	146,997	718,193	182,563
RA 3	203.92	292,960	2,080,393	944,404
RA 4	16.07	21,600		
RA 5	24.29	31,100		
RA 6	34.399	21,780		30,414
RA 7	79.55	91,945		
RA 8	16.42	31,324		
Total required	N/A	658,686	2,811,960	1,176,085
Available		724,283	2,965,799	1,158,653*

Note : *Clay borrow pit optimisation and material source investigations will continue through 2025.

Based on current cover design material requirements for the North Waste Rock Dump, and Tailings Storage Facility, and topsoil requirements for all other domain areas it is estimated that there are sufficient materials available. Borrow areas and topsoil stockpiles are identified within the Deswik.LHS model (**Figure 55**).

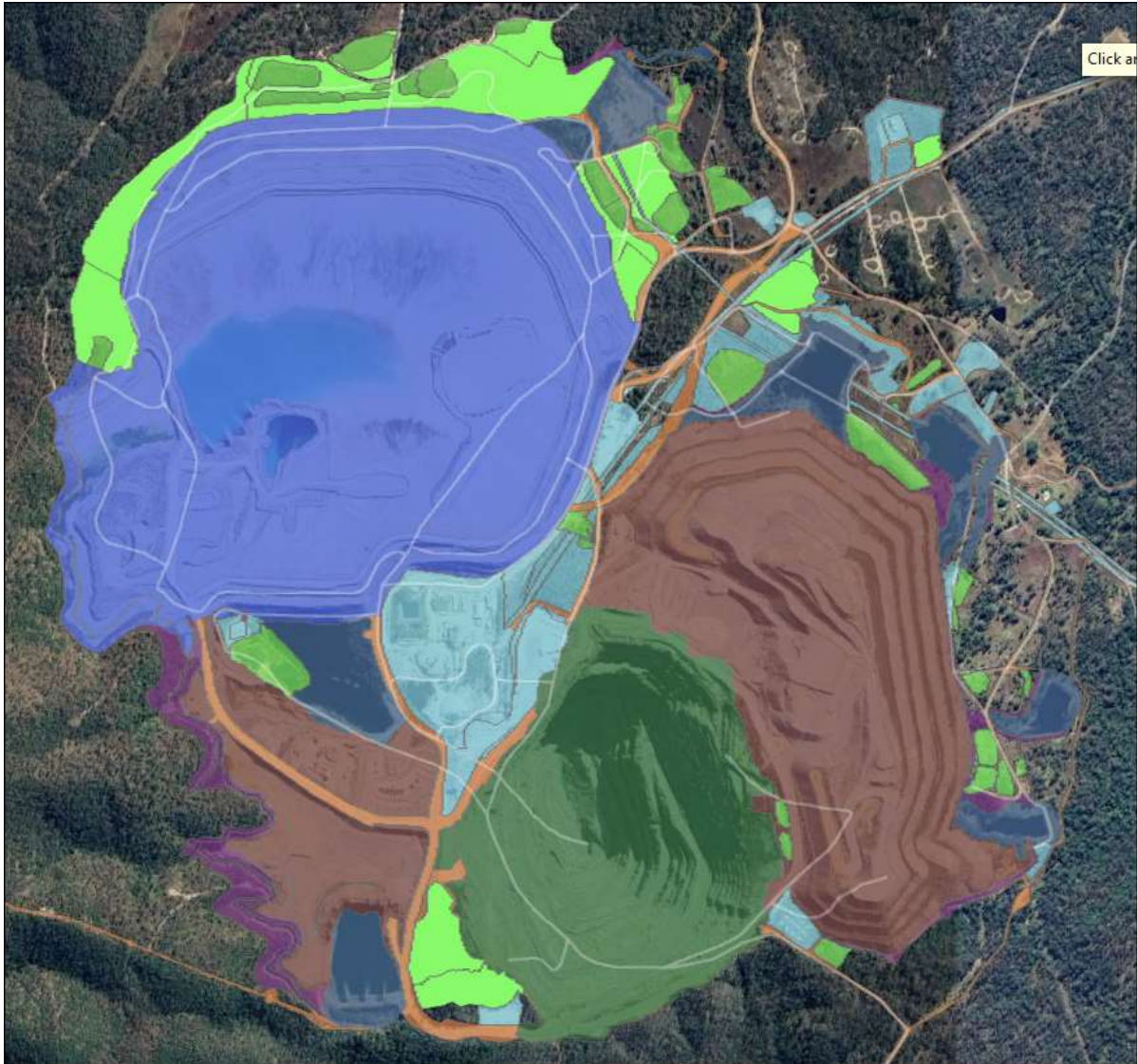




Figure 55: Borrow pit locations near TSF and West Hill and topsoil dumps (dark green).

Stockpile Management and Inspection Test Plans (ITPs)

Topsoil and growth media resources have been allocated for rehabilitation programs and plans according to the relative post-mining land use to ensure that these limited resources are optimally utilised. Following analysis, suitable growth media must be stockpiled according to topsoil management procedures. While the topsoil present in stockpiles throughout MRO are suitable for use in topdressing, several management practices should be adopted to minimise soil degradation:

- Soils must be stripped to appropriate depths to harvest nutrient rich soils;
- Once material is stripped it should ideally be placed on areas immediately ready for rehabilitation or areas soon to be rehabilitated to avoid stockpiling;
- Stripped soils should be respread or separated into windrows for later collection;

- The surface of all stockpiles should be left rough or lightly scarified to allow infiltration and reduce erosion;
- Topsoil stockpiles should not exceed two metres in height and clay soils should be stored at lower heights to minimise dispersion from wind or water.
- If the topsoil is to be stored for a period of less than six months, no additional treatment of the stockpile(s) is required;
- If storage is planned for greater than six months, cleared vegetation from the same location as the topsoil should be spread to encourage stability through vegetation;
- If long term stockpiling (greater than two years) does not “self-seed” it should be appropriately seeded and fertilised to mitigate the impact of erosive forces;
- For rehabilitation to postmining land uses, soils should be spread to the appropriate depths for the intended post-mining land uses and land suitability.

Ameliorants and Fertilisers

The requirement to apply fertiliser or soil ameliorants will be determined through insitu stockpile soil assessments and testing by the appropriate Manager prior to topsoil spreading. Fertilisers and soil ameliorants such as lime or humic acid will be used where required to assist with successful rehabilitation.

Sodicity

The surfaces of sodosols are prone to surface crusting and require management strategies to ensure the soil resources are maintained for the purpose of rehabilitation and revegetation. Successful treatments for sodic soils include the application of gypsum, organic matter and fertiliser.

Gypsum application improves soil structure whilst long term stability and retention of water and nutrients is promoted by organic matter. Applying organic matter such as manure, straw, mulch and wood chips increases the microbiological setting within soil structure and offers improved conditions for the growth of plants by stimulating root function.

Erosion and Low Nutrient status

The sodic nature of the soils on site requires ameliorants to minimise the dispersive and low nutrient nature. Application improves the stabilisation of soils and assists in establishing plants. Whilst soils within the site have shown to be able to support good plant growth, the disruption to soils from stripping and stockpiling can decrease the reduce fertility, slowing the establishment of plants which, coupled with increased dispersion can negatively impact rehabilitation efforts. Minimising incorrect handling and stockpiling timeframes and stockpile gradients will help minimise disturbance and increase likelihood of achieving land rehabilitation outcomes and associated PMLUs.

The application of lime also aids plant establishment and stabilisation of soils by neutralising acidic soils and by improving the structural stability through increased sodium and magnesium. Increased alkalinity promotes the availability of some nutrients including phosphorus.

Further, application of nitrogen, phosphorus and potassium (NPK) fertiliser is recommended for use in revegetation areas to promote nutrient increase in soils. Fertilisers should be applied according to the specific seed mix for intended for associated PMLUs.

Surface Preparation

Appropriate ripping and scarification of the available land for rehabilitation prior to the spread of topsoil and subsoils is essential to increase the binding of soil layers, retention of water, increases infiltration, reduces runoff and promotes the germination of seed.

Prior to the re-spreading of the topsoil, the ground surface should be ripped to assist with binding of the soil layers, water penetration and plant establishment. The ripping depth of surface soils will be site specific depending on the domain and intended PMLU.

Topsoil Preparation

Before utilising topsoil stockpiles, a soil nutrient analysis will be conducted to determine if the topsoil resources require the application of ameliorants or fertilisers.

All planned rehabilitated surfaces should be ripped according site specifics, and the relevant rehabilitation management plan increase the success of seeding. Topsoil should be applied to a minimum of 100 mm and ESC (erosion and sediment control) should be in place where necessary.

Surface contouring should be undertaken as part of ESC to minimise dispersion and reduce the impact of runoff. Scarification of topsoils is to be completed prior to seeding and appropriate machinery should be used to avoid ripping sodic subsoils to the surface.

5.4 Waste Characterisation

MRO has had a history of comprehensive static and kinetic waste characterisation and trials carried out over the life of mine (**Table 41**). The results from these tests provide valuable insights into closure design and rehabilitation methodology of the waste rock dumps and TSF. A summary of the static and kinetic waste characterisation work completed to date is listed in the subsequent sections below.

Table 41: MRO Waste Characterisation

Report title	Finding
RGS (2009). <i>Geochemical Assessment of Waste Rock, Low-Grade Ore and Tailings Materials at Mt Rawdon Gold Mine – Stage 1</i> . Report No. R001-A (890013), 28 August.	- Initial surface runoff and leachate from waste rock and low-grade ore materials is likely to be alkaline and non-saline. - Total metal concentrations in waste rock and low-grade ore materials are unlikely to present any concerns related to mine operation and final rehabilitation. In particular, the low risk waste rock materials appear to be amenable for use as the final surface and batters of the WRD and as part of a final cover system over tailings at the TSF. - The selective handling and encapsulation control strategies employed by Mt Rawdon Mine (MRM) for the management of waste rock and low-grade ore materials currently appear to be successful, as indicated by ongoing surface and groundwater monitoring programs downstream of the NWRD facility.
RGS (2011b). <i>Geochemical and Mineralogical Assessment of Waste Rock, Low-Grade Ore and Tailings Materials at LGL Mt Rawdon Gold Mine – Stage 2</i> . Report, 8 November.	KLC test results suggested that surface runoff and seepage from waste rock and low grade ore materials will remain slightly alkaline to pH neutral and contain a low concentration of salts and trace metals for a significant period of time (> 20 years).

Report title	Finding
MRO (2016). 2016 geochemical (total sulfur and total carbon) database generated from tailings sampling program (3 August to 8 September 2016) using on-site Leco analyser. September.	• Interpretation of the MRO total sulfur and total carbon databases from 2003 to 2016 indicates that these data sets can be used to accurately predict the NAF, PAF-MC and PAF-HC waste rock materials.
RGS (2016b). <i>Conceptual Closure, Decommissioning and Rehabilitation Plan: Mount Rawdon Tailings Storage Facility: Mount Rawdon Operations</i> . Report Number 003 Rev.G, 13 December.	• NAF waste rock is placed into the Western NAF WRD. The NAF waste rock can contain some sulphide minerals but the concentrations of acid neutralising minerals and overall alkalinity significantly exceed the acid producing potential of the rock. Nevertheless, exposed sulfide minerals in NAF rock can oxidise and weather and produce neutral to alkaline pH drainage containing major ions such as sulfate and calcium. RGS has completed a review of the waste rock characterisation methodology and acid waste model used at MRO (RGS, 2016). This work demonstrates that NAF waste rock generated at MRO is likely to have an average ANC:MPA ratio greater than 6, if a simple sulfur cut-off value of < 1 %S is used to delineate NAF waste rock materials and these materials are therefore suitable for use as part of the TSF soil cover system.
RGS (2018) <i>Mt Rawdon Operations Waste Rock Test Pile Review</i> . Report number 2018013 (RevA), 19 July.	• Review of design, construction, and sampling results of the Waste Rock Test Pile field leaching project. • Improvements recommended to correct leachate collection system design deficiencies. • Results for 21 months of date to November 2018 saw almost all pH values reported for leachate from all waste rock types was circum-neutral. Leachate from the PAF High-Capacity materials sporadically displayed a slightly acidic leachate pH which subsequently returned to circum-neutral pH. • This project was discontinued. • (refer to Field Scale Waste Characterisation Test Work section below)
RGS (2020). <i>Geochemical Assessment of Waste Rock and Tailings Materials. Mt Rawdon Gold Mine</i> . Report, 4 December.	• Kinetic Leach Column (KLC) test work on six columns from 2016-2018 including NAF Waste Rock, Medium PAF Waste Rock, High PAF Waste Rock, Tailing, Tailing on top of High PAF Waste Rock, and Tailings mixed with High PAF Waste Rock • NAF waste rock materials have negligible sulfur content, elevated ANC and a high factor of safety with respect to potential for Acid and Metalliferous Drainage (AMD) (including Neutral Metalliferous Drainage (NMD) or Saline Drainage (SD)). • Initial surface runoff and seepage from NAF and PAF waste rock materials (and ongoing surface runoff and seepage from NAF waste rock materials) is likely to be pH neutral to slightly alkaline and have a low level of salinity. Initial and ongoing surface runoff and seepage from NAF waste rock materials is likely to contain excess alkalinity.
RGS (2021). <i>Assessment of Long-Term Geochemical Characteristics of Mt Rawdon Tailing Materials</i> – Final Report., 6 January.	• Static testing on four tailings samples and kinetic test work of four columns containing tailings from 2014-2018. • Tailing materials tested to date have relatively consistent static geochemical characteristics and are classified as NAF. • Contact water and leachate from tailing materials are likely to be pH neutral (in the range pH 7 to 8) and contain excess alkalinity. • The quality of the tailing pore water and any TSF seepage is likely to gradually improve when supernatant/fresh tailings (and waste rock materials) are no longer added to the TSF following closure of this facility.

Report title	Finding
	• Whilst tailing solids contained enriched concentrations of some metals/metalloids compared to typical soil background concentrations, most metals/metalloids appear to be relatively immobile and sparingly soluble at neutral pH. • The risk of release of significantly elevated concentrations of dissolved metal/metalloids and sulfate into surface runoff and any seepage from the TSF is relatively low and manageable, as confirmed by the results of surface water, seepage and groundwater monitoring at the site. • It is expected that the concentration of major ions (including sulfate) in any seepage from the TSF will gradually decrease over time following closure and rehabilitation of the TSF.
RGS (2021). <i>Geochemical Assessment of MRO Tailing Materials</i>, Report, 6 January.	• RGS completed an intensive investigation into the geochemical characteristics of tailing materials generated at MRO over a period of 12 months. • Daily tailing samples generated at the MRO processing plant have variable geochemical characteristics and these materials range in classification from NAF, Uncertain, PAF-LC through to PAF. However, most samples are classified as NAF and/or Uncertain and PAF-LC and PAF materials appear to be generated for a small proportion of the time. • Results from weekly and monthly composite tailing samples indicate that when most tailing materials are mixed at the TSF, the resulting tailings blend is likely to be mostly NAF. • There is a strong correlation between the total sulfur content of the tailing samples and their geochemical classification. The total sulfur content of the tailing materials generally has to be consistently greater than 1.5 % for tailings batches to be classified as PAF. • The tailing materials have a significant amount of readily available alkalinity and buffering capacity that neutralises any acidity generated from sulfide oxidation and generally maintains an alkaline pH. • Based on the static geochemistry results in this report, previous long term kinetic leach column (KLC) test results (RGS, 2020, 2021), and field monitoring data on tailing materials currently stored at the TSF, the risk of any acid generation now and following closure and rehabilitation of the TSF is expected to be very low. • Whilst tailing solids contained enriched concentrations of some metals/metalloids compared to typical soil background concentrations, most metals/metalloids appear to be relatively immobile and sparingly soluble at neutral to alkaline pH. • The risk of release of significantly elevated concentrations of dissolved metal/metalloids and sulfate into surface runoff and any seepage from the TSF is relatively low and manageable, as confirmed by the results of surface water, seepage and groundwater monitoring at the site. • It is expected that the concentration of major ions (including sulfate) in any seepage from the TSF will gradually decrease over time following closure and rehabilitation of the TSF.
RGS (2025a) <i>Geochemical Assessment of Waste Rock and Tailings Materials</i> RevA_25012025, January	• A long-term kinetic geochemical and mineralogical assessment program for representative waste rock and tailings samples from MRO was completed and found that some of the High and Medium PAF waste rock samples were geochemically more benign than expected from the initial static geochemical test results. • New investigation showed strong evidence for passivation of pyrite surfaces by silicon and aluminium, rather than calcite or other potential oxidation and/or neutralisation products – as demonstrated by HCL washing of a

Report title	Finding
	duplicate sample from High PAF Waste Rock (KLC3 - for the four leach events completed during 2024) that showed negligible change in collected KLC leachate characteristics from acid washing. • The source of these elements could be the chlorite or feldspar which are present in the waste rock and tailings materials. In all cases there is sufficient calcite (and possibly Ca- feldspar) present to maintain neutral pH at the decreased rates of reaction of surface passivated pyrite. Several pyrite surfaces were relatively fresh, and did not show evidence of oxidation/weathering effects (e.g. pitting or corrosion) over a period of eight years. • NAF waste rock materials have negligible sulfur content, elevated ANC and a high factor of safety with respect to potential for AMD (including NMD and SD). • High PAF waste rock materials have elevated sulfur content, moderate ANC, and may have a reduced factor of safety with respect to potential for AMD, if exposed to long term oxidising/weathering conditions (as KLC test data indicate the lag period preceding acid generation from PAF waste rock materials is likely to be >8 years). The concentrations of existing major ions leached into contact water from the High PAF waste rock and tailings matrix, including sulfate, are likely to be elevated. • Tailings materials have well balanced acid generating and acid neutralising capacities and continue to generate pH neutral conditions even after extended (10 years) exposure to idealised oxidising/weathering conditions. • Initial surface runoff and seepage from NAF and PAF waste rock materials (and ongoing surface runoff and seepage from NAF waste rock materials) is likely to be pH neutral to slightly alkaline and have a low level of salinity. Initial and ongoing surface runoff and seepage from NAF waste rock materials is likely to contain excess alkalinity. Most metals/metalloids are sparingly soluble at the neutral to slightly alkaline pH of contact water with waste rock and tailings materials at MRO. Some exceptions may include dissolved cadmium and manganese concentrations in leachate from High PAF waste rock and tailings materials over time. Metal/metalloid enrichment in waste rock and tailings materials is likely to be limited to cadmium and silver in some PAF waste rock materials and arsenic, cadmium, silver and zinc in some tailings materials. High PAF waste rock and tailings materials may have the potential to generate elevated concentrations of dissolved cadmium and manganese (and sulfate) in KLC leachate in contact water, which if left unmanaged in the field situation could result in NMD. The long-term static and kinetic geochemical test program for waste rock types and tailings and waste rock mixtures, was designed to reflect potential long-term field storage situations. The results from these studies confirm that the predicted material classification categories (NAF, Medium PAF, and High PAF) remains valid and that the geochemical nature of the tailings has not changed significantly over time. Given the current management strategy employed by MRO for waste rock (i.e. encapsulation of PAF by NAF waste rock) and tailings materials, the potential for AMD from these materials is relatively low. The static and kinetic geochemical information and mineralogical test data obtained to date suggests that existing management and rehabilitation strategy at MRO are likely to meet the long-term site rehabilitation objectives.

As the KLC and mineralogical test results in the most recent KLC test report (RGS 2025a) indicated that some of the MRO samples (e.g., High and Medium PAF Waste Rock) were much slower to react than expected from the static geochemical test results, and indications that passivation of pyrite

oxidation was likely occurring, a geochemical modelling exercise was conducted by RGS (2025b). Work specifically used the results for medium PAF (column KLC 2) and high PAF (column KLC3) waste rock sample testing which had both indicated a lag period preceding acid generation to be > 8years.

A duplicate High PAF Waste Rock column (KLC 3 acid wash (AW)) was acid (HCl) washed and showed minor change in collected KLC leachate characteristics compared to KLC 3 but notable increases in concentration due to acid washing occurred for sulfate, boron, cadmium, manganese, lead and zinc suggesting that passivation had impeded the release of these products.

Geochemical solute release rates (loading rates), acid production rates, were used to estimate the time in years for ANC to be consumed and acid conditions to prevail. The calculations are considered conservative by RGS (2025b) since the main assumption in the 'model' is that all sulfate (leached) is generated from pyrite oxidation and optimal conditions for pyrite oxidation are emulated in the columns (e.g. wetting/drying cycles, exposure to oxygen and fine particle size of waste rock).¹⁰ The calculations for the ABCC test work (<4.5 pH) show:

- The estimated time for all ANC to be consumed for Medium PAF Waste Rock (KLC 2) and the onset of acidic conditions (pH < 4.5) is ~238 (ABCC) to 911 (measured ANC) years.
- The estimated time for all ANC to be consumed for High PAF Waste Rock (KLC 3) and the onset of acidic conditions (pH < 4.5) was comparatively shorter at ~110 (ABCC) to 504 (measured ANC) years as would be expected.

Note the difference in measured ANC compared to ABCC for the samples is likely related to surface-inhibition (e.g. surface coating of pyrite by carbonate minerals) or kinetic-inhibition (i.e. slow reactivity of carbonate minerals) of neutralisation (RGS 2025b).

Mineralogical compositions of the different columns were compiled from semi-quantitative X-ray diffraction (XRD), and Scanning Electron Microscopy (SEM) – Energy Dispersive Spectroscopy (EDS) to better understand the leaching kinetics of the samples which found:

- The samples were dominated by quartz (21-38%), muscovite (14-22%), plagioclase feldspar (trace – 26%) and chlorite (4-10%), with lesser pyrite and calcite, trace gypsum and ankerite, but also a high content of accompanying amorphous material (~20%);
- That pyrite was the major acid producing mineral, which was present in elevated concentrations in the Moderate (~4% pyrite) and High PAF (~15% pyrite) samples; and
- Calcite was detected in moderate quantities in both samples (~2 – 3%).

While silicate minerals (i.e. quartz, muscovite, etc) comprise most of the samples above, under neutral pH conditions, the ANC potential of these minerals is minimal - due to their very slow reaction and dissolution rates. However, the SEM –EDS microscopy analysis indicated that there was strong evidence for ***passivation (coating/ shielding) of pyrite surfaces*** by silicon and aluminium (aluminosilicate minerals) that would help inhibit oxidation of pyrite and thus acid generation.

Field Scale Waste Characterisation Test Work

As part of MROs ongoing commitment to understanding waste rock geochemical characteristics and to assist with the development of rehabilitation and closure strategies for waste rock facilities, MRO designed and constructed a field-scale kinetic leach test pile project in 2016 (**Figure 56**). The trial project was aimed to “determine how specific waste rock dump design types will affect water quality

¹⁰ The ABCC (<pH 4.5) test work also provides a conservative time scale that captures readily available ANC that could potentially be consumed.

characteristics of leachate produced from rainfall events”. RGS Environmental P/L (RGS 2018) carried out a review of the construction of the test pile and made recommendations to improve its design (Table 41).

However, due to inadequacies in the design of the leachate collection (lysimeter) system below each test pile, expected long-term leachate collection was not successful in providing enough samples for a statistically significant dataset. Notwithstanding, RGS found that almost all pH values reported for leachate from all waste rock types was circum-neutral, and the leachate from the PAF High Capacity materials sporadically showing slightly acidic leachate pH which then returned to circum-neutral pH.



Figure 56 : Field waste rock lysimeter pads (ca. 2016).

Unfortunately, the recommended design modifications to improve sample collection made by RGS were found to be infeasible and the project trial was subsequently abandoned late 2017. The current rehabilitation programme for these trial pads is for the waste rock to be collected and hauled to the NWRD to be appropriately placed in a demarcated PAF cell as part of the MRO waste rock rehandling operations scheduled during 2025.

Investigations of Waste Rock Dump AMD generation and seepage impacts

NWRD Seepage Water Quality Assessment

An interpretation of the leachate data obtained from the field plots was also carried out along with a comparison to waste rock dump seepage (NWRD) and pit water quality (Table 4-1 of RGS 2018). It indicated that a toe seepage point (WRDS2) and a low grade ore stockpile (WRDS4) on the North Waste Rock Dump (NWRD) - sampled in June/December 2010 and March/August 2012 respectively - were slightly acidic, having pH values of 4.96 and 4.86, and contained negligible total alkalinity. Sampling points WRD7 and WRD8 located close together at the toe of the NWRD, just upgradient of Water Dam 1 (WD1) had pH values of 5.52 and 5.73, respectively and contained some total alkalinity. The remaining eight WRD sampling points at the NWRD at that time had pH values ranging from 6.43 to 8.53 and elevated total alkalinity. Dissolved calcium, magnesium and sulfate values were elevated indicating that sulfidic materials were oxidising but in the main were buffered by inherent calcite in the waste rock materials. The instances of slightly reduced pH values recorded at the NWRD were addressed at the time by adding crushed limestone to WRD7/WRDS8 to improve the water quality entering the WD1 dam that received seepage downstream of the NWRD. Temporary Low grade ore stockpiles which were present in the affected area were removed for processing.

The presence of AMD generation on the NWRD at the time, contrasted with (ongoing) KLC tests which continue to show that leachate from the waste rock samples is pH neutral to slightly alkaline (in the range pH 6.19 to 9.11 (RGS 2024a) even though being exposed for over 8 years to ideal oxidising/weathering conditions. As the waste rock KLC samples have retained most of their inherent ANC ($\approx 98\%$) post 8 years of exposure, it suggests that the rate of depletion of the inherent ANC in these materials is relatively slow and similar to the sulfide oxidation rate for materials represented by these samples. The waste rock samples in the KLCs show very low sulfide oxidation rate ($\sim 1.3\text{mg/kg/week}$) and sulfate generation rates ($\sim 2.5 \times 10^{-10} \text{ kg O}_2/\text{m}^3/\text{s}$) and suggest that the PAF samples (e.g., the High PAF Waste Rock Sample KLC3) are geochemically more benign (or certainly

much slower to react) than material classifications derived from standard static geochemical test results (RGS 2024a).

MRO have continued with the placement of NAF waste rock over the northeast and northwest sectors and encapsulated the PAF waste rock cells where the slightly acidic pH water was previously recorded. As a result, over the past 15 years, seepage water quality reporting to the WD dams has improved with circum-neutral seepage reporting to the collection drains.

Therefore, to assess the potential long-term impact of the previously observed acid generation on the NWRD the long-term water quality trends for seepage reporting from it and collected downgradient of the NWRD by rock dam WD1 were used as a proxy for the NWRD water quality.

The pH of seepage from the NWRD reporting to dams WD1 to WD4 all show that it has typically remained in the circum-neutral to slightly alkaline pH range of approximately pH 7 to 8 over the past decade (**Figure 57**). It is noted that from October 2010 to September 2024, the median total alkalinity value in samples from WD1 (measured as CaCO_3) was 101 mg/L₃, reflecting excess alkalinity in the samples tested and suggests that the ANC provided by the encapsulation of PAF rock by NAF waste rock is working effectively.

The NWRD seepage water quality data at the WD1 dam located just downgradient of the NWRD indicates that seepage water quality (in terms of pH value and metals zinc, cadmium and copper) has improved with time without having a final closure cover placed. After placement of the final cover, the seepage water quality is expected to show further improvement.

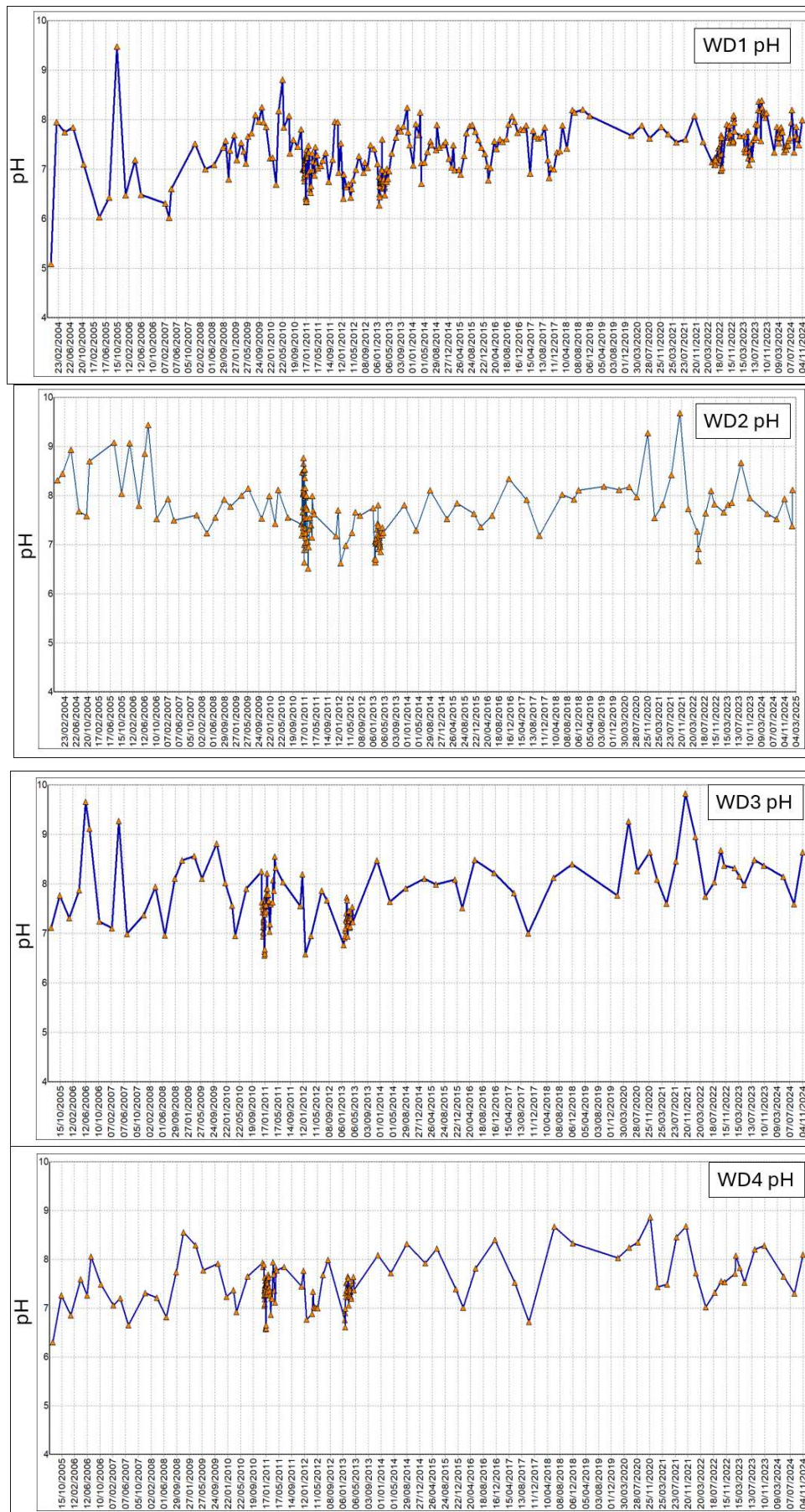


Figure 57 : Field pH of WD1-WD4 dam water (2003 to 2024)

WWRD Seepage Quality Assessment

The West Waste Rock Dump (WWRD) is comprised of NAF waste rock materials only and this material is earmarked for use in specific surface landform rehabilitation works as part of the mine closure plan. The criteria used in the MRO block model to delineate NAF waste rock materials, and the Waste Material Management procedure (that included total sulfur & total carbon analysis to characterize in pit rock materials) was used to manage waste rock movement and placement. The MRO block model was reviewed in 2016 (RGS, 2016) and subsequently improved to increase the level of confidence that the WWRD only contains NAF waste rock materials.

The water chemistry of West Dam is used as a proxy for assessing and potential AMD generation in the WWRD as the dam lies downgradient of and collects seepage from this waste rock dump. Water quality data was collected from West dam from 2014 to 2024. The field pH results demonstrate that pH has typically remained in the circum-neutral to slightly alkaline pH range of approximately pH 7 to 9 over the past decade (**Figure 58**). These results verify that the WWRD is used to contain NAF waste rock only, as the pH of waste rock materials containing appreciable amounts of calcite and small amounts of pyrite would be expected to exhibit a median pH value of around pH 8. It is noted that from March 2014 to August 2024, the total alkalinity value in samples from West dam (as measured by ALS laboratory in Brisbane) ranged from 1 to 286 mg/L (as CaCO₃) and had a median value of 82 mg/L (as CaCO₃), reflecting excess alkalinity in the samples tested and provides ample buffering capacity (RGS 2025c).

Major ion concentrations in West Dam water are dominated by sulfate which has oscillated around 1,400mg/L since 2016. Concentrations of dissolved metals copper and cadmium have generally remained below 0.005mg/L whereas zinc metal trends have been erratic but have shown a consistent downward trend since 2023.

The seepage water quality, in terms of pH value, at West Dam located just downgradient of the WWRD is as expected from a NAF rock dump. Water quality should further improve as waste rock from the WWRD is completely removed for use in constructing final covers on the NWRD and TSF landforms.

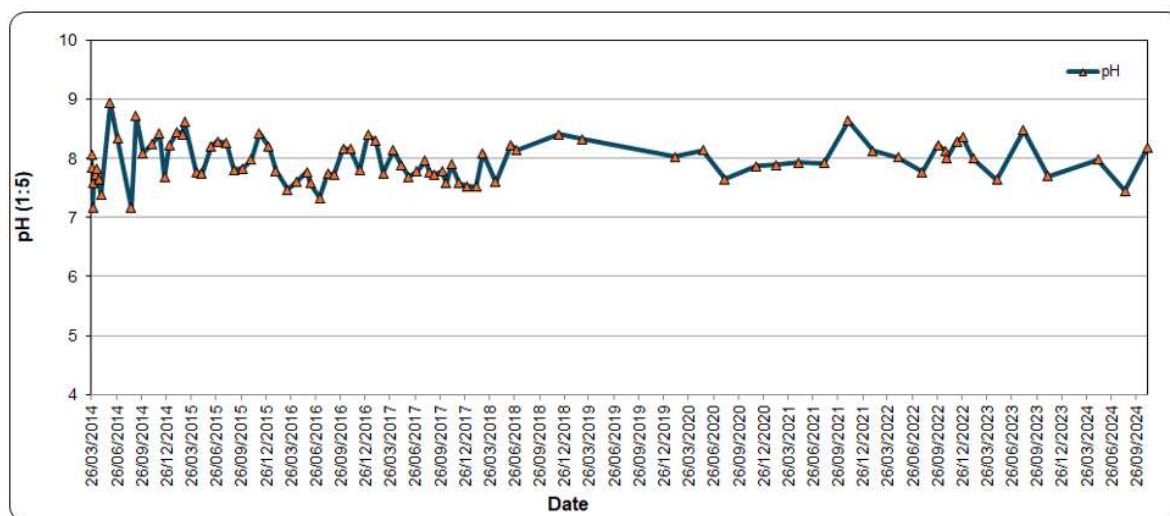


Figure 58 : Field pH of West Dam water (2014 to 2024)

5.5 Rehabilitation Areas (RA) and Landform Designs

Eight rehabilitation areas (RA1-RA8) are identified and referenced throughout this PRC Plan. These include (refer **Figure 28**):

- RA 1 – North Waste Rock Dump (NWRD), and Long-term ore stockpiles (LTOS) consisting of various low ore grades
- RA 2 – West Waste Rock Dump (WWRD), Run of Mine (ROM) temporary ore storage and supporting drains.
- RA 3 – Tailings Storage Facility (TSF), including seepage interception trenches and seepage ponds.
- RA 4 – Haul Roads and internal access roads
- RA 5 – Processing Plant, Workshops, and Infrastructure Management Areas within open woodland areas
- RA 6 – Water Management Infrastructure and Dams
- RA7 – Borrow pits, Topsoil/growth-media stockpiles and other infrastructure areas within grazing land
- RA8 – Borrow pits and Topsoil/growth-media stockpiles within open woodland areas (includes NAF rock borrow pit – west hill, TSF north-west topsoil/ borrow pit areas and other topsoil areas not within grazing PMLU)

RA 1 – North Waste Rock Dump (NWRD) and Long-term ore stockpiles (LTOS)

Rehabilitation area 1 includes the North Waste Rock Dump (NWRD), associated ore stockpiles, and previously rehabilitated berms. The post-mine land use objectives of a Final Waste Storage Landform are that the waste rock rehabilitation areas are fully revegetated, natural-looking landforms of open woodland and potentially capable of sustaining low intensity cattle grazing, if practicable on the flat surface areas allows access. The steepness of the slopes on finished landforms such as waste rock dumps will be conducive to a geotechnically stable structure, with erosion and sediment control landscaping that ensure erosion rates will not interfere with the achievement of proposed PMLU.

NWRD Landform Design

A Mine Material Management Plan was developed for the NWRD and includes a Landform evolution assessment, landform cover design and water balance/quality assessment (refer to supporting document *Mine Material Management Plan, RGS 2022*).

The Northern WRD, with a final approved footprint of 99.83 ha, contains PAF material encapsulated by NAF, coupled with low permeability clay layers on the benches that limit the ingress of water into the NAF embankments and a low permeability cover system on the top of the final landform.

The landform design objectives and key design criteria for the NWRD including the external batters include the following:

- The NWRD was designed and built to produce neutral pH drainage via encapsulating of PAF waste in within an outer core of neutralising rock, thereby acid runoff formed within the centre of the dump is neutralised as it passes through the outer ring of neutralising rocks.
- The NWRD was built in four lifts – each being up to 25 m in height.

- The inner PAF core of the NWRD was covered via the construction of external NAF batters built at the angle of repose utilising competent rock ranging from gravel (~20 mm diameter) up to boulders (> 250 mm diameter). The nominal PSD for the NWRD is P80 > 250 mm.
- The purpose of the NAF rock armour is to provide long term, geotechnical stability, minimise (avoid) erosion so that mineralised sediment is not moved from the NWRD into the receiving environment, avoid the need for soil cover systems on external batters that can be prone to long term failure.
- The NAF external batters utilised placement of 30 m (horizontal) and 25 m (vertical) cover over the internal waste rock in the NWRD (**Figure 59**).
- Each batter was underlain by compacted low permeability clay/silt/sand graded at 5% to collect batter interflow (**Figure 59**) and direct surface flow along contour to a drop structure that will be designed and built on the NE face of NWRD to direct surface flow to the WD1 dam. The design objective of the contour drains is to minimise the amount of water falling onto or flowing through the external batters.

The capping system for the berms was designed in alignment with the *Waste Rock Dump Berm Design for the North Dump* (Haymont, R., NRC, 2013) as illustrated in **Figure 59** and **Figure 60**.

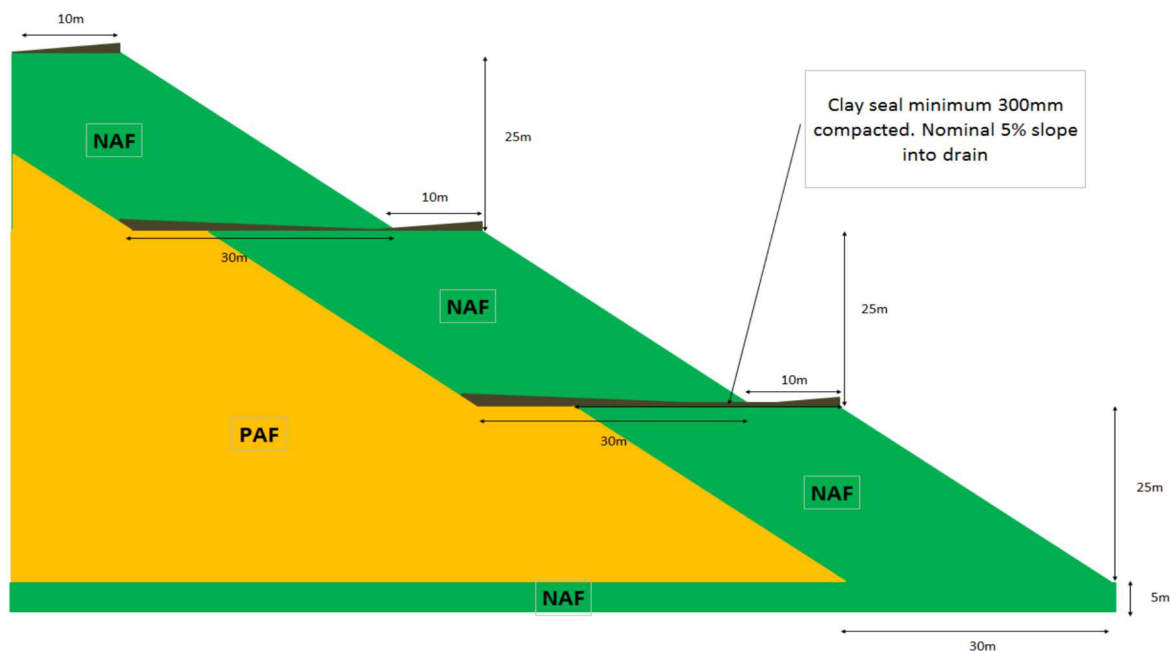


Figure 59: Cross-Section Illustration of Conceptual NORTH WRD Berm Design

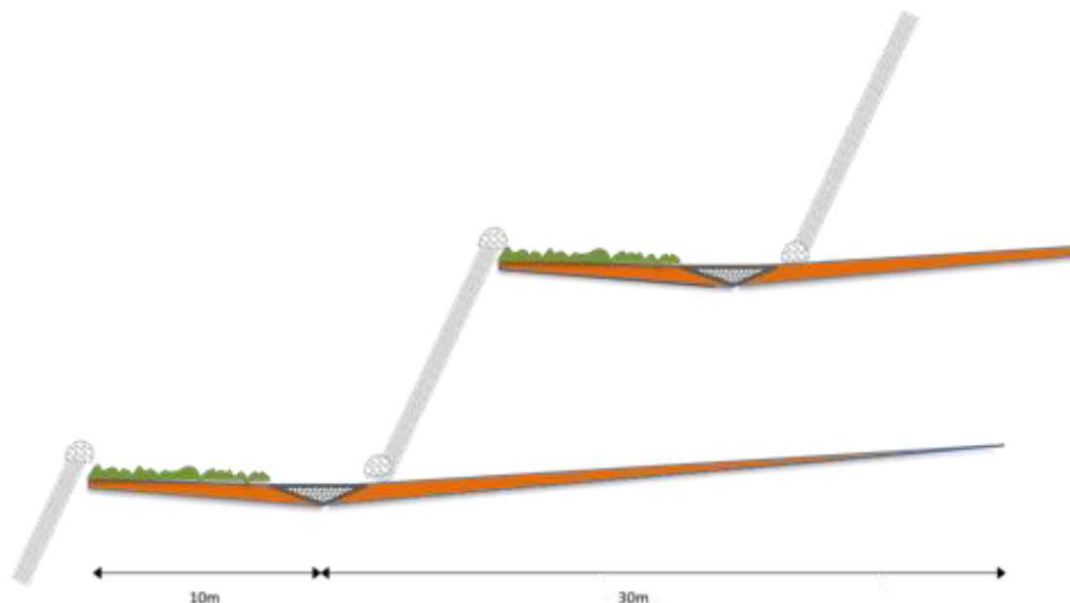


Figure 60: Rehabilitation of Exposed Berm

NWRD Cover system design

As part of a continuous iterative design process, the previous preferred store and release cover concept design (Option 1B of RGS, 2022) was used as a basis of design for further cover design optimisation - given that conceptual design thinking had progressed, and additional material property test work and quantification of available material within the site material balance had come to hand.

A cover system option assessment using numerical soil-plant-atmosphere (SPA) one-dimensional (1D) modelling was conducted - using GeoStudio 2024.1 software and the SEEP/W module - under transient flow conditions, to complete a validation exercise for additional cover system options to refine the design (Okane 2024). A 3m-thick cover, Option 5, was identified as the preferred solution, balancing material availability, thickness, and constructability. As shown in **Figure 61**, from bottom to top, the option 5 cover comprised:

- a 0.5 m minimum interim NAF cover over PAF waste rock, followed by
- a 0.5 m compacted clayey soil layer, (or reduced permeability layer - RPL),
- a 1.0 m of NAF oxide regolith (infiltration storage layer - ISL), and
- a 1.0 m of rocky mulch, (a 50:50 mixture of topsoil and NAF waste rock)

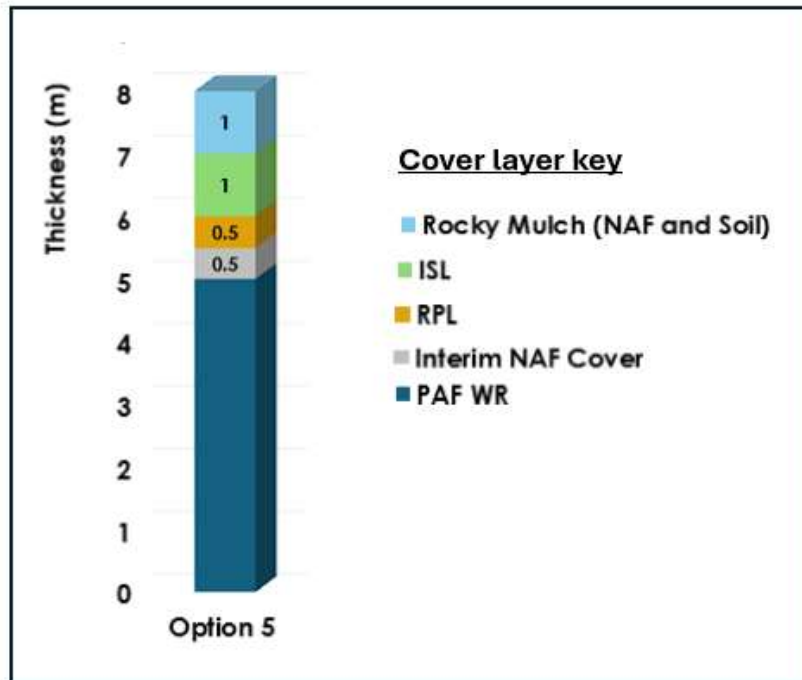


Figure 61 : Preferred 3m thick cover system (Option 5) for the NWRD.

Modelling simulations represented the period from January 1, 1900, to March 31, 2024. Various scenarios and environmental conditions were simulated in the models to compute the water balance within selected cover systems, manage water infiltration, minimise erosion, and support vegetation growth. This predictive capability enabled design comparisons to meet project objectives.

WRC (aka soil-water characteristic curve) and hydraulic conductivity model inputs were obtained from a sample analysis program and cover system selection modelling, based on previous measurements and models by RGS (2022). The rocky mulch material comprises a mixture of NAF material and topsoil sourced from borrow areas on the site. Additionally, previously measured saturated hydraulic conductivity (Ksat) for the reduced permeability layer (RPL) previously known as the compacted clayey soil was approximately 1×10^{-12} m/s. For this modelling task, however, a Ksat value of 1×10^{-8} m/s was used. This adjustment is conservative and is considered reasonable, taking into account practical experience and construction requirements.

The following materials and scenarios were evaluated to understand their impact on the models' outcomes:

- RPL mixed with rocky mulch.
- RPL mixed with ISL.
- Enhanced vegetation cover.
- Varying Ksat values for compacted layers: different Ksat values were tested for the compacted layer, specifically 1.0×10^{-6} and 1.0×10^{-7} m/s.
- Modified rocky mulch properties: adjustments were made to simulate the properties of rocky mulch to assess the impact of rocky mulch with properties closer to NAF rock material on the modelling outcomes. These modified properties were estimated using the characteristics of individual topsoil and NAF rock materials, as characterised in RGS (2022).

Key vegetation parameters included in the model were vegetation cover, plant moisture limit, leaf area index (LAI), root depth, and root density informed from (Okane, 2024a) and RGS (2022) studies. These inputs encompass a varied root depth of the cover layer (growth media and NAF subsoil) subject to cover system thickness variations, with most roots concentrated in the upper 1.0 m of the

cover system. Simulated LAI values used in GeoStudio, with a maximum LAI of 2.0 for 90% vegetation cover and 1.0 for 60% vegetation cover (Okane 2024).

Various options for the preferred cover system were delineated to evaluate their performance, focusing primarily on net percolation (NP) as the key performance indicator. Based on the MRO site climate classification as Cfa (Temperate with no dry season and a warm summer), INAP (2017) categorises the NP rate as shown in **Table 42**.

Table 42 : INAP classification for NP based on the climate at MRO.

NP (% of Precipitation)	INAP Classification Based on Site Climate	Colour Codes
<5%	Very Low	
5%-10%	Low	
10%-20%	Moderate	
20%-50%	High	
>50%	Very High	

A number of cover design scenarios were initially evaluated with vegetation (60% vegetation cover) and without vegetation (bare ground). The compacted RPL was modelled with a Ksat of 1.0×10^{-8} m/s. It was found that the presence or absence of the interim NAF layer did not significantly affect NP values. Thus the 3m interim NAF layer thickness suggested by RGS (2022) did not enhance the performance of the cover system. In all scenarios, increasing vegetation cover reduced the NP values, and similarly, runoff values decreased.

When a 90% vegetation cover was also considered for the selected cover system options, NP decreased to about 5.0% from 6.0% observed with 60% vegetation cover. Notably, runoff also reduced, while transpiration increased significantly (Table 4). In this scenario, root depth was accounted for, primarily for grasses and shrubs, and adjusted according to the thickness of the layers above the compacted layer. In addition, Ksat values of 1.0×10^{-6} m/s and 1.0×10^{-7} m/s were selected to evaluate the impact of different Ksat values in the compacted RPL layer on cover system performance. The analysis revealed that these higher Ksat values did not produce any significant difference compared to the Ksat of 1.0×10^{-8} m/s.

It was observed in model simulations run with a lower RPL Ksat of 1.0×10^{-9} m/s, that approximately 2.0% lower NP values were achieved compared to a Ksat of 1.0×10^{-8} m/s, acting as a barrier type. In contrast, a compacted RPL with higher Ksat values than 1.0×10^{-9} m/s functioned primarily like an enhanced store-and-release cover system, rather than a barrier type. The RPL ksat value of 1.0×10^{-8} m/s was also preferred based upon the experience of RPL construction at other sites as being reasonable and feasible (Okane 2024).

Further, Okane (2024) estimated new properties for the topmost rocky mulch cover layer because it is a mixture of topsoil and coarse NAF rock. Since the mixing process may not be perfectly homogeneous, the properties of the rocky mulch could differ from those of the individual components. This refinement aimed to account for the possibility that the mixture might exhibit characteristics more closely resembling the rock portion, rather than the topsoil.

Ultimately, results lead to NWRD cover system configuration option 5 being selected as the preferred cover system for the NWRD (**Figure 61**). While other options were also considered with a modified rocky mulch layer, all produced NP values that varied between 4% – 7.1% for 60% and 90% vegetation covers (Okane, 2024). At 90% vegetation, NP values were around 4.0% across the different options, suggesting that higher vegetation coverage reduced overall water percolation with strongly enhanced transpiration and water uptake (**Table 43**).

Table 43 : Water balance results for preferred option 5 cover with modified properties for rocky mulch layer.

Waste Facility	Cover Options	Vegetation Options	Water Balance of Compacted Layer ($K_{sat} = 1.0 \times 10^{-8}$ m/s) and Modified Rocky Mulch Cover Options				
			PPT (mm)	RO (%PPT)	AE (%PPT)	AT (%PPT)	NP (%PPT)
NWRD	Option 5	60% Vegetation	892.0	8.2%	27.1%	57.2%	7.5%
		90% Vegetation	892.0	7.0%	10.2%	78.7%	4.1%

PPT: Precipitation; RO: Runoff; AE: Actual Evaporation; AT: Actual transpiration; NP: Net Percolation.

The modelling assessment suggests that the Option 5 cover system is not only effective in terms of water management, but also suitable for sustaining vegetation, thereby maximising the overall benefits of the cover system, and a NP that satisfied a “very Low” INAP Classification. In addition, this option was selected due to its optimal balance between NP values, material availability, layer thickness, and constructability.

The cover landform design modelling objectives and key design criteria for the top of the NWRD included the following:

- The final NWRD landform surface cover will be profiled during the reshape to direct surface flow towards the western access ramp.
- After low grade ore and PAF material on the top and western side of the NWRD has been removed, the NWRD final landform will be covered with an engineered cover system comprising the following:
 - NAF competent rock 0.5m thick will be placed over the exposed waste rock to provide a basal layer. This is referred to as the interim NAF rock cover.
 - A 0.5m thick fine-grained clay/silt/sand reduced permeability layer (RPL) will be placed over the NAF rock interim cover layer. To be constructed as two (2) conditioned and compacted 0.25m-thick lifts to achieve a saturated hydraulic conductivity value of 1×10^{-8} m/s.
 - A 1m thick NAF oxide/transitional NAF waste rock provides the Infiltration Storage layer (ISL) placed over the RPL.
 - NAF waste rock mixed with topsoil to form a 1m thick “rocky mulch layer” (a 50:50 (topsoil and NAF rock blend) is placed over the NAF oxide regolith.
- Surface flow from the top of the cover system will flow to the western access ramp. Part of the ramp will serve as a temporary access road for monitoring access and the remainder of the access ramp will be converted into a rock armoured drain to direct surface flow to the base of the NWRD.
- Post mine closure clean surface run-off from the cover will then be directed to the receiving environment.

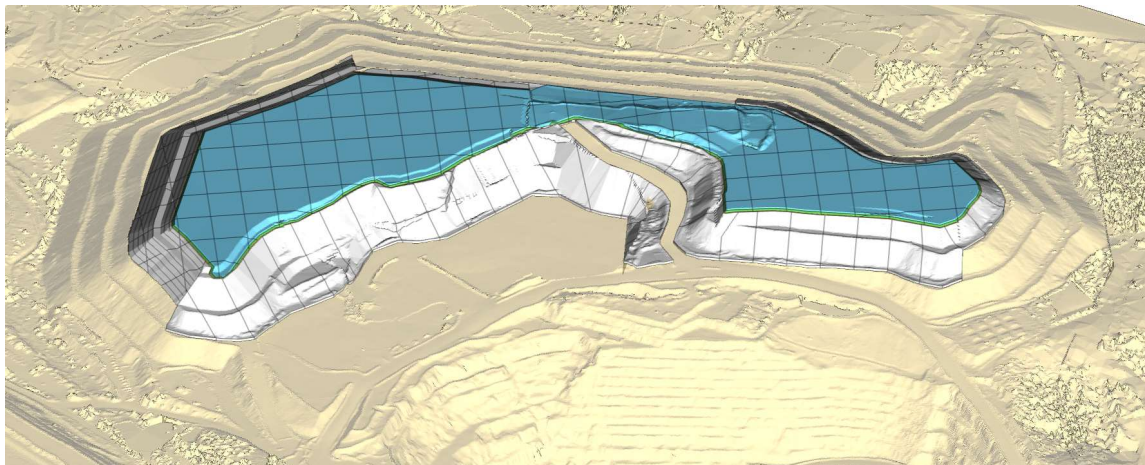
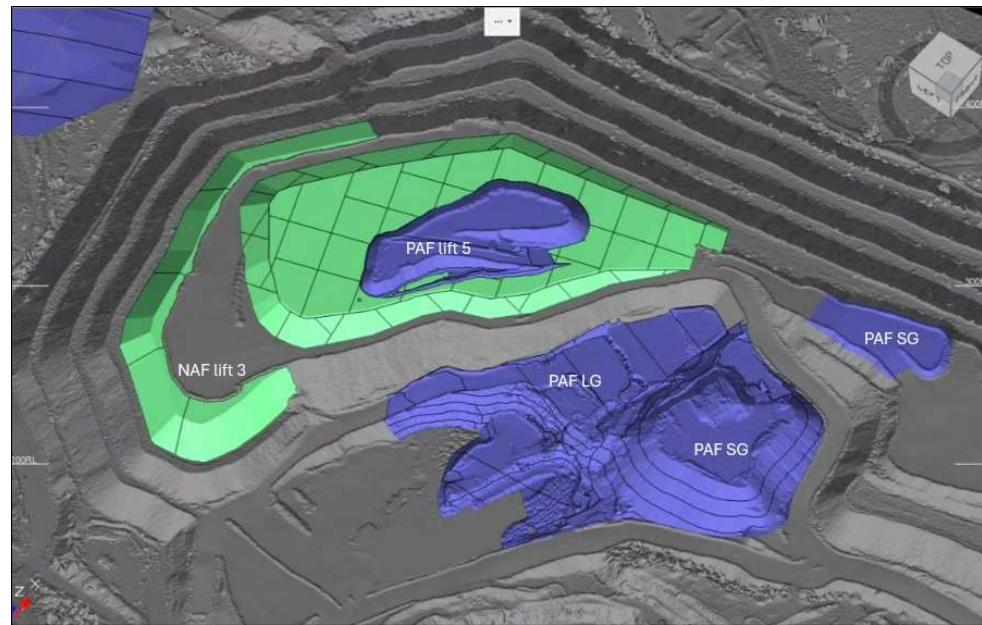


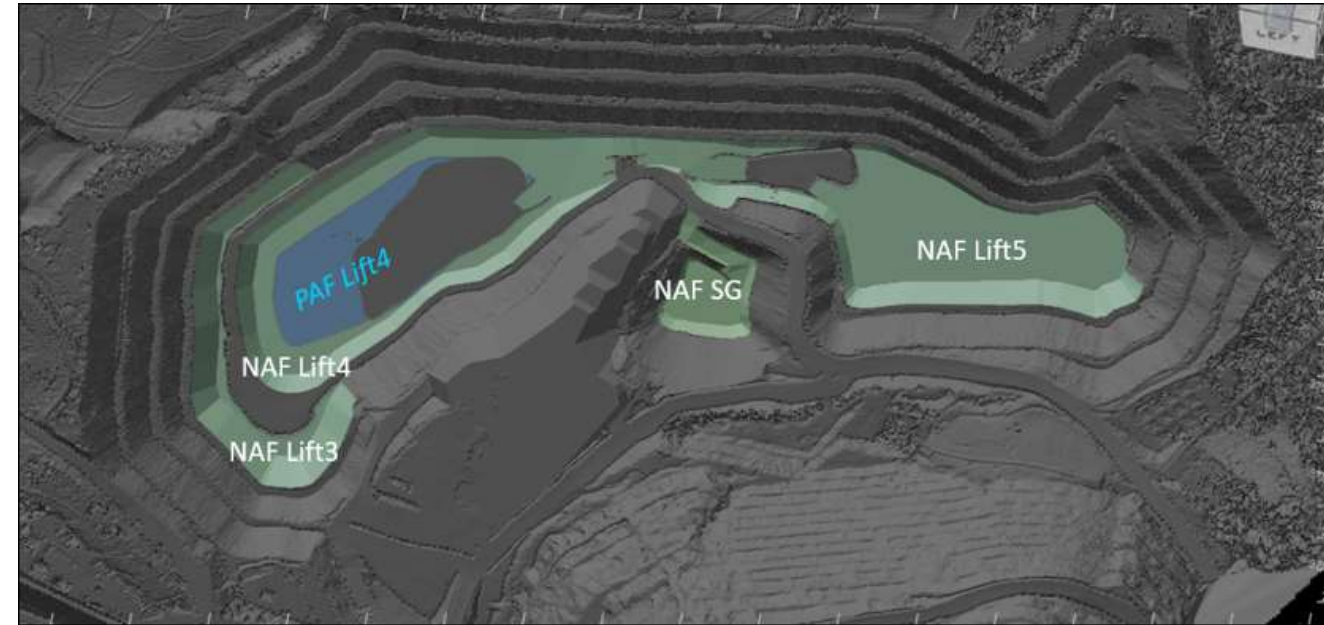
Figure 62: NWRD top tier cover plateau configuration

NWRD schedule and sequencing of material placement PRC_{PLAN.LHS}

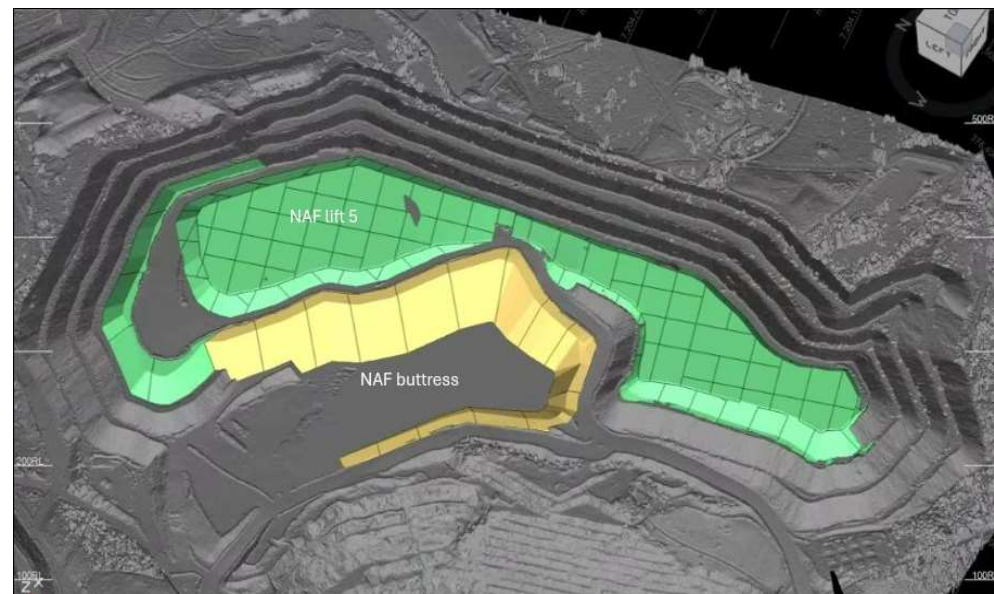
The scheduling of materials to progressively rehabilitate the NWRD to the final landform design was initially simulated and optimised in 2022 using Deswik.CAD and Deswik.LHS (PRC_{PLAN.LHS}). Following completion of more detailed modelling and design work (Okane 2024), the Deswik design files were updated to reflect the proposed sequencing. **Figure 63** shows the sequencing of the material placement to the final NWRD landform design from 2025 to 2030 post removal of stockpiles.



1) October 2024. NWRD current status - PAF (lift 5) rehandle & relocation required and low grade (LG) and subgrade (SG) stockpile processing planned.



2) 2025 - 2026. Early works - Progressive PAF rehandle (lift 4) complete and placement of NAF encapsulation layers north (Lifts 4 & 5) and interim NAF rock layer (Lift 5) to the south. Low grade stockpiles processed.



3) 2026-2027. Early works – progressive placement of NAF encapsulation layer (lift 5) over PAF rehandle (Lift 4). Low grade stockpiles processed, and NAF rock buttress/encapsulation layer placed over western slope and north of ramp.



4) 2027 - 2028. Early works - Placement of soil-clay layers and topsoil on berms and west ramp. Preliminary rehabilitation - former low grade and subgrade stockpile footprint covered with topsoil and vegetation.



5) 2028 - 2030. Rehabilitation works – construction of store and release cover and establishment of vegetation on top tier, and ramp vegetated.

Figure 63: NWRD PRCLPLAN.LHS sequence Q1 2024 to Q4 2027

NWRD Landform Evolution Assessment

As part of a series of key design and landform studies proposed to be integrated into the detailed cover system design, a Landform evolution model (LEM) assessment was conducted on the top tier cover proposed for the NWRD, covering 25.5 hectares (Okane, 2025a). The LEM was performed to assess potential water runoff, erosion risks, and deposition processes, providing data to inform post-closure planning and long-term performance expectations. LEMs are used to offer insight into soil erosion over extended periods, supporting long-term closure strategies.

The LEM work was conducted using a two-dimensional (2D) hydrodynamic flow CAESAR Lisflood model that simulates erosion and deposition in surface catchments and reaches over time scales ranging from hours to thousands of years. The assessment considered factors such as waste rock properties, NWRD top tier cover system geometry, vegetation cover, climate, and the necessary timeframes to inform future erosion modelling and landform evolution projections.

The scope of the LEM assessment included:

- Estimating erosion rates for the NWRD top tier cover system.
- Identifying potential high-risk erosion areas on the NWRD top tier cover system.

The LEM excluded the rock batters of the NWRD on the basis that the average particle size distribution (PSD) of the NAF waste rock of the batters is coarse enough to generate runoff only during rare, high-intensity rainfall events. Even if runoff did occur, the flow-induced bed stresses on the batter face are not expected to be sufficient to mobilise the rock particles due to a low hydraulic depth and lack of flow concentrations (Okane, 2025a).

The rocky mulch material evaluated in the numerical modelling (Okane, 2024) served as the primary material for the LEM assessment, being the topmost layer of cover with a thickness of 1m. This material was modelled with properties similar to Sample 4 and Sample 5 from the RGS (2023) erosion measurement investigation – with Sample 5 described as a mixture of Sample 4 and NAF waste rock, it closely resembled the expected rocky mulch material. Emerson Aggregate and column tests performed on Sample 4 classified it as Class 6, indicating complete flocculation and low tendency to disperse).

Previously, RGS (2023) estimated erosion rates for borrow materials proposed as cover for the NWRD, modelling them on slopes with a 5% gradient and lengths from 10 m to 110 m. The current LEM assessment by Okane (2025), applied a 3% slope for similar lengths in line with the longitudinal flow path designed along the top tier plateau.

The proposed drainage design for the top tier NWRD served as the base surface for the LEM analysis and was developed using the DRAINS software from Watercom, considered the NWRD's design, cover materials, and local climate. The design adheres to Australian Rainfall and Runoff (ARR) guidelines and incorporates rainfall data from BOM. The drainage system is designed to manage surface runoff from rainfall events, including those with a 1% annual exceedance probability (AEP), by utilising rock-lined channels to accommodate peak flow velocities. Two ramp-style drains are incorporated to align with the NWRD design and to direct water towards the base of the NWRD, dividing the plateau area into three lobate-shaped catchments (**Figure 64**).¹¹

¹¹ N.b. At the time of the LEM assessment, MRO had not yet decided if it was going to reclaim and process the subgrade ore stock pile (central lobe in the figure). As MRO has since undertaken to do so, further adjustments to drainage outputs in the current LEM are required.

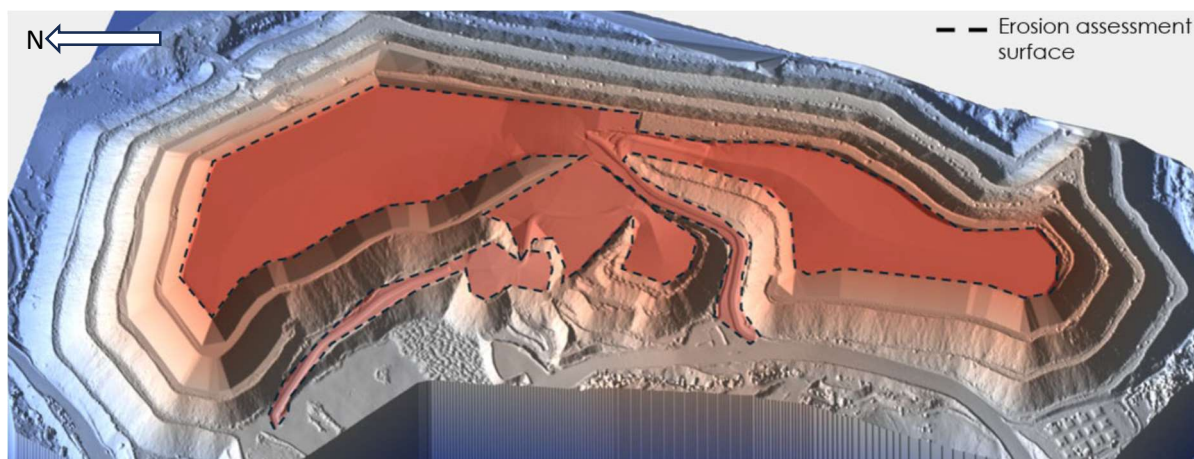


Figure 64 : NWRD Erosion surface for LEM assessment (Okane 2025a).

Modelling input parameters are listed in **Table 44**.

Table 44 NWRD LEM Modelling input parameters (Okane 2025a).

Parameter	Value	Unit	Comment
Modelled cover system surface area	25.48	ha	Surface is based on 2023 NWRD survey and hydraulic surface drainage design.
Maximum run time duration	876,000	hours	100 years of rainfall data was used as input accounting for daily rainfall in mm.
Minimum time step	1,440	sec	CAESAR Lidflood accounts for a variable timestep, increasing the time step when the model perceives no rainfall data and reducing the time step when rainfall events occur.
Erosion reduction when vegetation is established	99.6	%	Vegetation is set to achieve 60% of surface cover over 5 years since model initiation. Vegetation helps to stabilise the surface by increasing surface roughness and reducing runoff velocities. Higher vegetation cover can significantly reduce the erosion rate.
Maximum erosion limit	0.001	m ³	This specifies the maximum volume of material that can be eroded or deposited within a cell in a single time step. This parameter prevents numerical instability caused by too large amounts of material being moved from cell to cell. It also controls the time step, which is restricted to allow this value (as a maximum) to be moved from one cell to another.
Active layer thickness	0.1	m	The active layer represents surface layers that have the potential to be eroded in a single timestep.
Rocky mulch manning n	0.025		Associated with material roughness, the manning's value is calculated based on D50 = 0.013 m of the proposed rocky mulch PSD, $n = 0.0395 * (D_{50})^{1/6}$.
Courant number	0.2	-	Courant number' is a value that controls the numerical stability and speed of operation of the flow model (Bates et al., 2010).
Froude number limit	1.5	-	This value limits turbulent flow to prevent flows exceeding a Froude number passing between cells.

To quantify inter rill erosion, a 100-yr rainfall sequence was used from the numerical modelling work of the cover system to calculate the volume of sediment exiting the surface, as well as indicating areas

where sediment is deposited and eroded. A design rainfall event of 1% AEP was adopted as the critical storm event.

Average sediment yields output at the commencement of the CAESAR Lisflood model (**Figure 65**) predict an overall maximum erosion rate of the NWRD top tier cover system of 25.6 t/ha/y when averaged over the entire 25.5 ha top tier cover surface (Okane 2025a). The erosion rate is expected to significantly decrease after year 5 when vegetation is set to reach 60% of surface coverage as a conservative approach. These erosion rates are acceptable, as they meet the long-term target erosion rate of 5 t/ha/y, or less, 5 years post construction of the cover system. The estimated cumulative sediment loss from the cover surface over 100 years is approximately 86 t/ha, which represents only about 0.8 cm of cover thickness reduction in terms of mass loss.

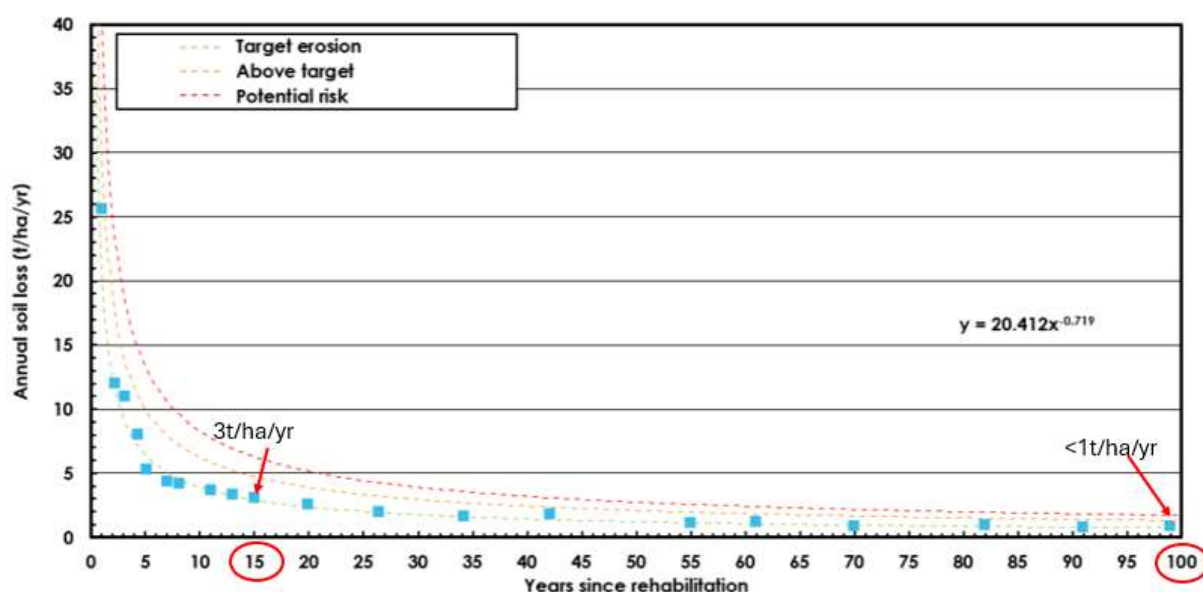


Figure 65 : Total annual soil loss rate over complete cover surface (Okane 2025a).

Model visualisation outputs of the NWRD after the 100-year assessment period (**Figure 66**), illustrate the predicted spatial distribution of erosion and deposition over the NWRD top tier cover system. This includes measurement of vertical changes in the landform erosion surface developed from erosion and deposition layers formed after 100 years. Highest erosion areas were modelled to occur in drainage channel sections which experience peak flow velocities (**Figure 67**). As expected in these specific areas that entrain concentrated flow are designed to be rock armoured, overlying a compacted clay base. Rock armouring will be similar to riprap-sized rock (or as specified by future design modifications).

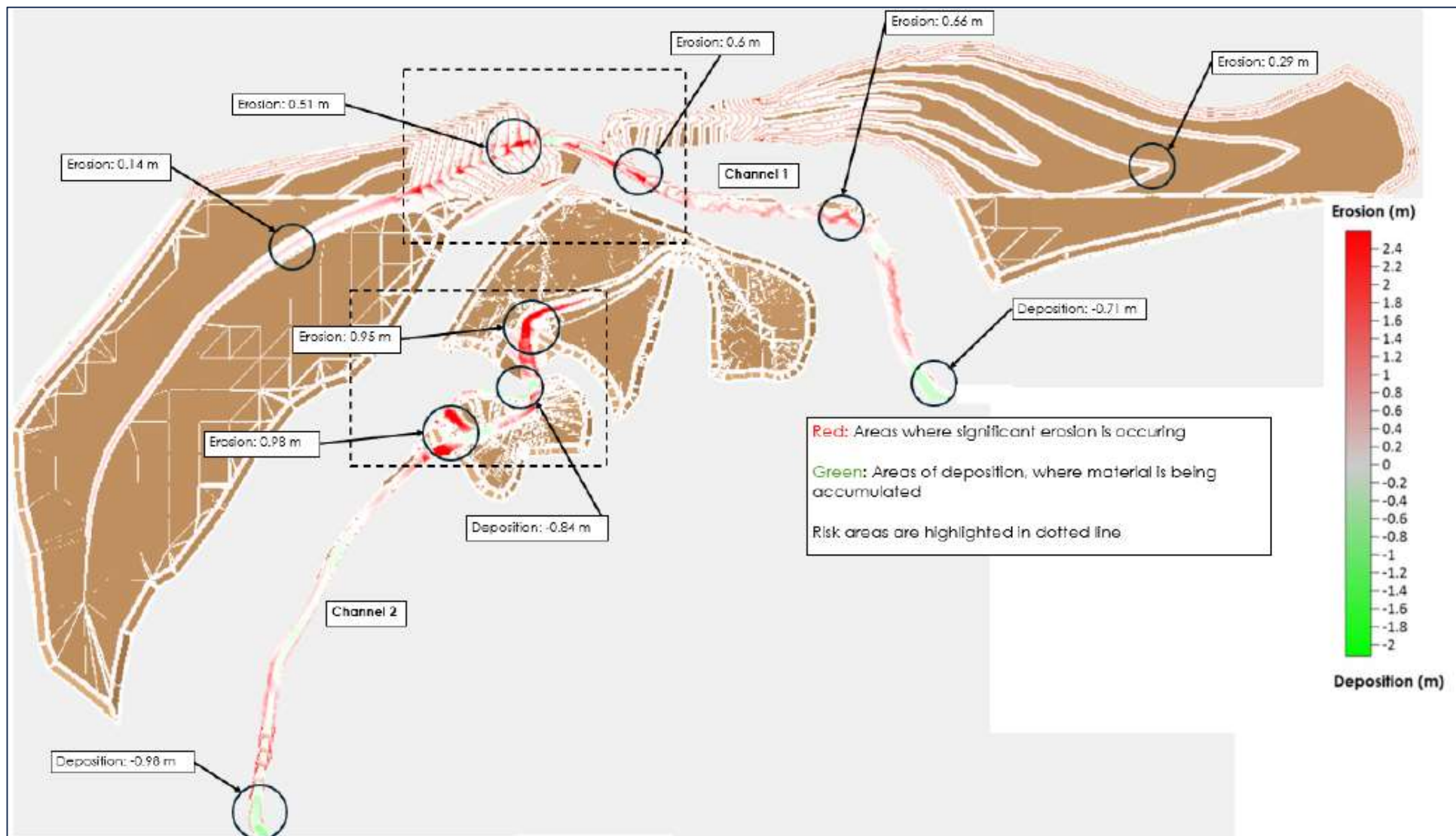


Figure 66 : NWRD cover - CAESAR LSFlood erosion/deposition output visualisation after 100-years (Okane, 2025a).

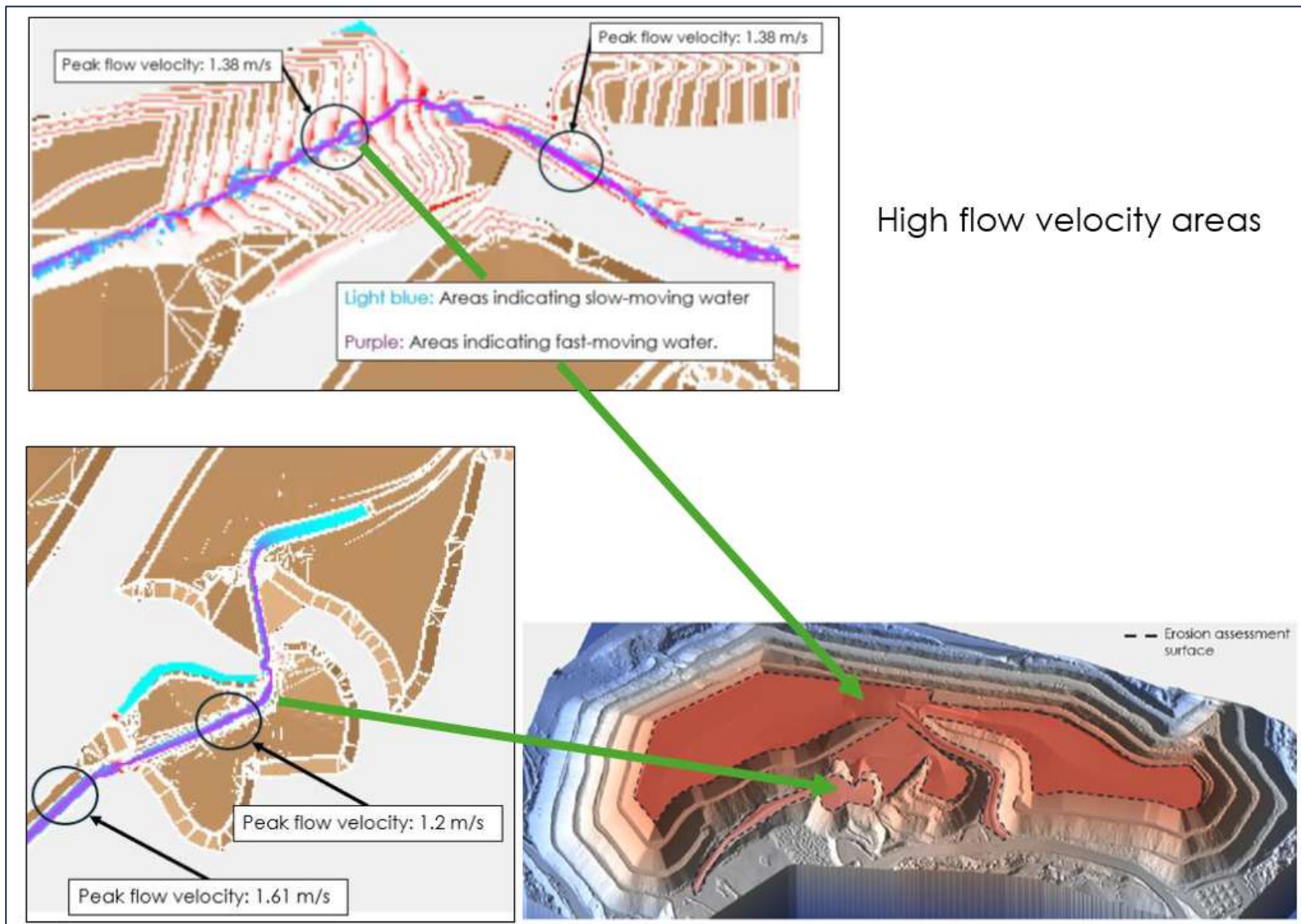


Figure 67: NWRD cover- CAESAR Lsflood flow velocity output visualization after 100 years (Okane, 2025a).

An additional modelling sensitivity analysis was conducted by Okane (2025) by selecting a 1-in 200 AEP rainfall event with a 6-hour storm burst. This demonstrated the continued performance and resilience of the landform design over this extended period that resulted in a sediment yield of only 0.26 t/ha/year. This is totally consistent with the assumption that, over time, as the landform matures, and vegetation becomes established, the annual sediment yield would decrease to marginal quantities.

The results of the event-based assessment presented in **Figure 68**, highlights key areas where high peak flow velocities were developed and confined to drainage channels, as expected in these specific areas that have entrain concentrated flow. These channel areas will be targeted to be designed with robust rock armouring to prevent erosion.

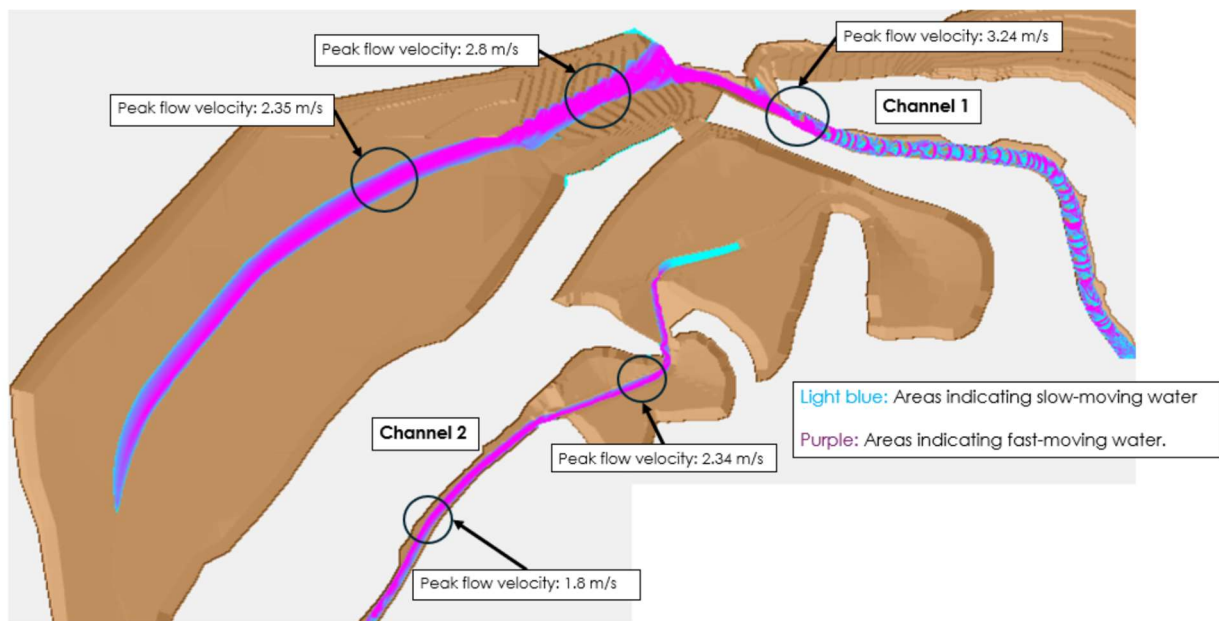


Figure 68 : Identified high flow velocity risk areas for a 1-in-200 AEP simulation (Okane 2025a).

To monitor progressive rehabilitation and outcomes, measuring changes in the cover system surface over time and comparing with model predictions, will be conducted to ensuring total yield volumes are within the ranges expressed in the proposed criteria. This approach will provide a quantitative assessment of the landform's performance during closure, enabling timely maintenance as needed and demonstrating trends to the regulator at the time of closure.

Assessing changes in the surface of the top tier cover system over time (using high-resolution aerial photogrammetry or high-density LiDAR) will enhance the potential for achieving long-term “safe and stable” landforms post-closure. However, as seasonal variations may occur due to factors such as drought and abnormally high rainfall, a reasonable monitoring cycle of 5 years post closure will be implemented - although more frequent monitoring will be assessed should the need for annual maintenance arise during the cover vegetation establishment phase.

NWRD Geotechnical Assessment

Cartledge Mining and Geotechnics (CMG) undertook geotechnical assessments of the NWRD (CMG, 2022 & 2024) using parameters for the stability analysis collected from previous site studies and other relevant reports [refer to supporting document EVO010009 - Rev 0 - MRO PRCP Geotechnical Assessment-NWRD (2024)]. Three distinct shear strength models for the NWRD were applied in the stability assessments, as outlined in **Table 45**.

Table 45 : Modelling strength parameters (CMG 2024)

Material	ρ (kt/m ³)	c (MPa)	ϕ (°)	σ_{tm} (MPa)
Domain 4	26	201	37	24
Waste Rock (Leps(1970))	22	0	40	-
Waste Rock (Willams & Walker	22	3	40	-
Waste Rock (power curve)	22	$\tau = a\sigma^b$ ($a=2.067$, $b=0.898$)		-
Clayey Soils	18	2	30	-

Notes: ρ – Rock Mass Density, c – Rock Mass Cohesion, ϕ – Rock Mass Friction Angle, σ_{tm} – Rock Mass Tensile Strength.

Two and three-dimensional (2D and 3D) modelling were conducted as part of a geotechnical analysis of the long-term stability of the final NWRD landform design to satisfy the PRCP Guideline (DES, 2021) requirement for closure planning. Thus the stability analysis conducted by Cartledge (2024) was directed solely at determining the NWRD long-term geotechnical stability and deformation under established and analysed post-closure conditions. Reference to other relevant studies conducted for the MRO NWRD indicated that erosion will not impact the slope profiles of the waste dump post-closure due to the hard rock material properties of the volcanic rocks used in the construction of the waste dump (RGS, 2023). This assumption has been considered in this geotechnical analysis.

The assessment criteria adopted by CGM for the slope stability analysis were based on the overall slope scale under the high consequence of failure, as listed in Hawley and Cuning (2009) and based on static and pseudo-static (incorporating the effects of earthquakes) factor of safety values as summarised in **Table 46**.

As the location of the MRO waste dump is sited away from any critical infrastructure and has unrestricted access, with overall slopes less than 30° and the landform is less than 250 m high, its consequence level was rated as is moderate (CMG, 2024). However, the material input parameters adopted in the CMG assessment were collected from previous studies and were deemed to be of low confidence level due to inherent uncertainties. Based on this information, and as outlined in **Table 46**, the minimum FoS used for static and pseudo-static analyses was 1.5 and 1.15, respectively, with the maximum probability of failure (PoF) ranging between 2.5-5% and maximum allowable strain less than 0.75% (CMG, 2024).

Table 46: Typical FoS and PoF acceptance criteria values (Hawley & Cuning, 2009)

Consequence ^{1,3}	Confidence ^{2,3}	Static analysis		Pseudo-static analysis	Maximum allowable strain ⁵
		Minimum FoS	Maximum PoF ⁴	Minimum FoS	
Low	Low	1.3–1.4	10–15%	1.05–1.1	≤1%
	Moderate	1.2–1.3	15–25%	1.0–1.05	≤1.5%
	High	1.1–1.2	25–40%	1.0	≤2%
Moderate	Low	1.4–1.5	2.5–5%	1.1–1.15	≤0.75%
	Moderate	1.3–1.4	5–10%	1.05–1.1	≤1%
	High	1.2–1.3	10–15%	1.0–1.05	≤1.5%
High	Low	≥1.5	≤1%	1.15	≤0.5%
	Moderate	1.4–1.5	1–2.5%	1.1–1.15	≤0.75%
	High	1.3–1.4	2.5–5%	1.05–1.1	≤1%

A probabilistic seismic analysis (PSHA) conducted at MRO in 2020 (CMG 2024) concluded that MRO is in a low seismicity region of Australia. For the final landform analysis, two design events were considered: the operational basis earthquake (OBE) of peak ground acceleration of 0.09g and the site evaluation earthquake (SEE) of peak ground acceleration of 0.25g, both having a magnitude of 7.5. For post-closure analysis, the SEE design event was applied to assess the stability of the final waste

rock dump landform. CMG also created a phreatic surface from the Mt Rawdon Post-Closure Groundwater Model (SLR, 2020) which was used as the groundwater table for the open pit model and applied to the final landform analysis.

Using Slide 3 Limit Equilibrium analysis results (**Table 47**) in its numerical modelling, CMG (2024) identified two primary failure modes in the geotechnical analysis of the NWRD: localised failures (bench-scale) and global failures (affecting the overall slope). Under static loading, the minimum factor of safety (FoS) varied with material parameters, with some areas on the north side showing marginal safety.

Deformation analysis results revealed vertical and E-W displacements that aligned closely with InSAR monitoring data, suggesting no significant long-term stability concerns.

The final waste dump model elements were incorporated by CMG into the Waste dump and stockpile stability rating and hazard classification system (summarised in **Table 48**) to derive a Waste Dump Stability Rating (WSR) that classified the NWRD within the moderate hazard category (red dot in **Figure 69**). This rating requires that the WRS guidelines are referred to in site preparation, monitoring, and mitigation measures for NWRD management.

Table 47: Minimum FoS obtained from stability analysis results with different material parameters

Material parameters	Scenario	(GLE/Morgenstern-Price)*	Target FoS under acceptance criteria [‡]
Mohr-Coulomb (Zero Cohesion)	Static	1.08	1.4 -1.5
	Seismic	0.66	1.1 -1.15
Mohr-Coulomb (3kPa Cohesion)	Static	1.31	1.4 -1.5
	Seismic	0.85	1.1 -1.15
Power curve	Static	1.73	1.4 -1.5
	Seismic	1.24	1.1 -1.15

Notes: * Results show the global lowest calculated FoS. No FoS <1.5 for static or <1.15 for dynamic scenarios was found to create deep-seated instabilities; ‡ Hawley & Cuning (2017).

Table 48: Waste Dump Stability Rating Summary (CMG 2024)

	Rating	Group Score	Index Score
Engineering Geology Index (EGI)			
Regional Setting	Neutral	3.5	25.5
Foundation Condition	Neutral	7.0	
Material Quality	Good	15.0	
Design and Performance Index (DPI)			
Geometry and Mass	Medium	5.0	31.0
Stability Analysis	-	-	
Construction	Very Favourable	11.0	
Performance	Very Good	15.0	

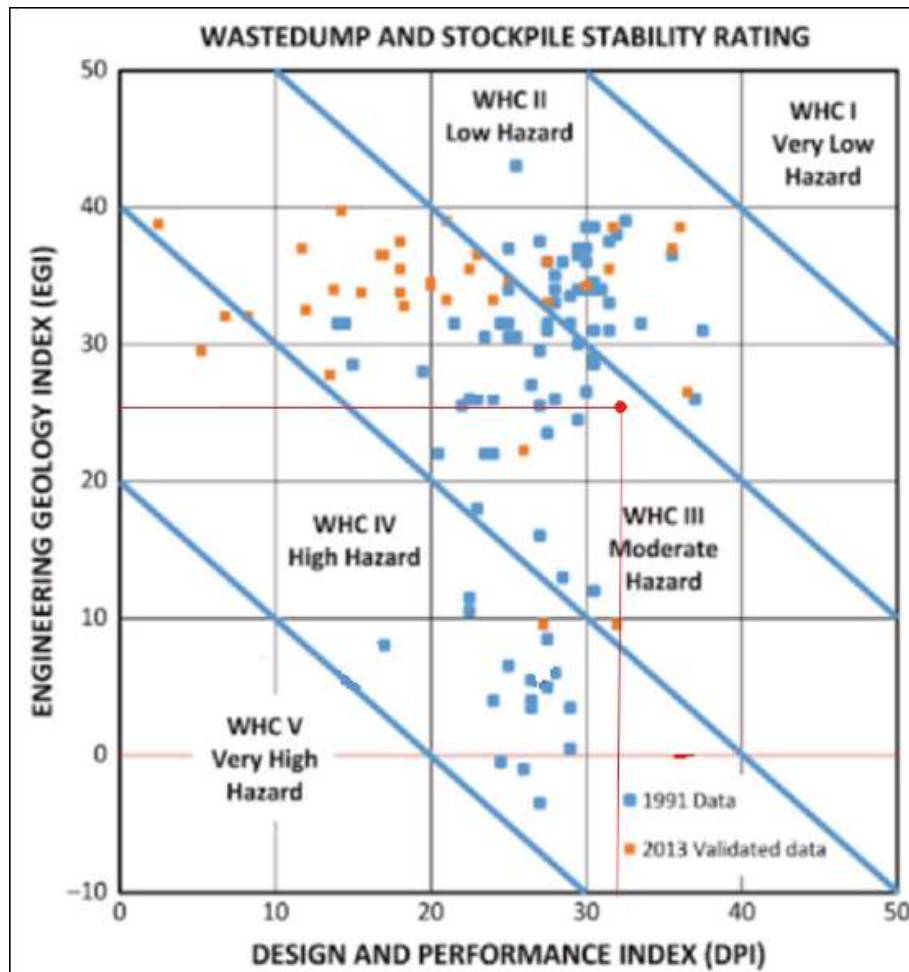


Figure 69: Waste rock dump stability and hazard chart showing MRO NWRD stability rating (red dot).

CMG (2024) considered that long-term erosion effects will not impact the dump profile conditions and degrade the material strength properties due to the nature of the rock material used during construction, so that any long-term changes to the waste dump profile are forecast to be insignificant. CMG, that suggested a sensitivity analysis of the phreatic surface variations was required to better assess long-term stability impacts.

This was done by Okane (2025b) who extended the work by CMG, with a stability analysis that modelled a slope section of the NWRD under an extreme rainfall scenario (**Figure 70**) and testing the:

- Drained condition of materials and
- Undrained condition of contractive materials, using

shear strength parameters outlined in **Table 49** to produce the FoS results for the stability assessment shown in **Table 50**.

Okane's (2025b) results indicated:

- That the minimum required FoS for the NWRD were achieved under all proposed loading conditions.
- The NWRD remains globally and locally stable for the long-term drained scenario.
- The material properties used were adequate for the batters.

Table 49 : Material Geotechnical Properties

Material	Unit Weight (kN/m ³)	C' (kPa)	Friction Angle ϕ (°)	Undrained Shear Strength (Su kPa)	Source
Cover material	22	10	35		(Okane, 2025b)
Compacted soil	18	2	30	0.35	(Okane, 2025b)
Waste Rock Average Leps	22		Appendix A		(Leps, 1970)
Waste Rock Lower Quartile Leps	22		Appendix A		(Leps, 1970)
Foundation	26	200	37		(Cartledge, 2024)



Figure 70 : NWRD plan view showing analysed section 'A' (Okane 2025b).

Table 50 : Stability Assessment Results NWRD sloe section 'A' (Okane 2025b).

Loading Condition	Slip surface extent	FoS	Target FoS
Long term - Drained	Global	1.53	1.5
Long term - Drained	Local	1.5	1.5
Pseudo Static - Undrained	Global	1.25	1.15

The work above demonstrated that the use of large volumes of coarse, competent and rock material to construct the angle of repose rock batters, provided general stability and reduced the risk of phreatic surface development within the batters. Similarly, while geotechnical stability analysis of the

final landform did not include erosion - given the competent nature of the rock on the NWRD embankments and slopes - the effects of erosion on the modelled results are considered to be negligible and the slopes durable.

A preliminary drainage options assessment to improve NWRD slope drainage design was conducted by Okane (2025c). The assessment was directed to address potential failure mechanisms and propose design and maintenance practices to support the long-term stability of the berms and overall landform.

The northern drop structure was identified as a potential closure solution for surface drainage management of the NWRD (**Figure 72**). It potentially could provide controlled conveyance of water down the NWRD slopes, leveraging the existing longitudinal gradient of the berms designed to drain large areas towards a low point on the NE batter.

Conceptually, the primary function of the drop structure is to safely manage surface runoff by converging the energy of flowing water from the berms into one drain armoured with specified rock lining. General design considerations for this type of structure include:

- The location of the drop structure to be aligned with longitudinal drainage gradient of the berms to minimise excavation and earthworks.
- The longitudinal drainage gradient of the berms to be consistent to avoid water ponding.
- That the drop structure is to be constructed on slopes at or near the angle of repose $\sim 40^\circ$.
- Analysis of design peak flow rates based on design rainfall patterns to size the structure appropriately and be structurally resilient to cater for extreme weather events and defined annual exceedance probability (AEP).

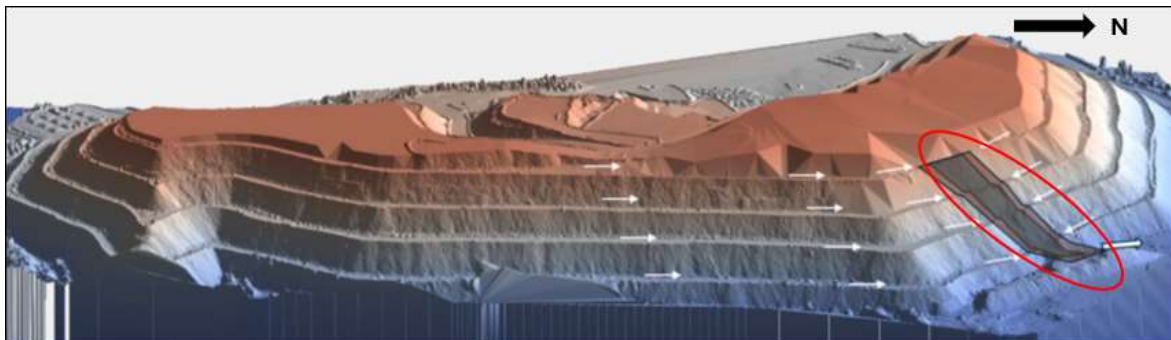


Figure 71 : Current NWRD landform drainage along berms to a proposed drop structure (circled).

Other engineering design parameters to consider in optimising surface water management and reducing long-term stability risks for the NWRD drop structure include:

- Drop-down drain sizing
- Subbase material specifications
- Berm longitudinal grade
- Rock lining specifications and sizing
- Apron design and scour protection.

Okane (2025c) also identified the following construction risks and control measures:

- Construction on angle of repose slopes where the unconsolidated nature of waste rock at the angle of repose poses a risk of instability during construction – utilise temporary benching to provide safe working conditions.
- Management of high flow velocity and concentrations - a robust large structure that is capable of managing these flows is required.
- Segregation of rock material - use controlled placement techniques to ensure a well-graded rock lined structure.

- Long term longitudinal berm drainage and sediment control – ensure effective longitudinal drainage along the berms.
- Berm erosion – avoid water retention on berms to reduce risk of piping and/or gullying.

A forward work program will be actioned by MRO to progress the development of the drainage system into a detailed design that achieves the desired drainage performance outcomes and ensure a stable, free-draining landform.

RA 2 – West Waste Rock Dump (WWRD) and Run of Mine (ROM)

Rehabilitation area 2 comprises the West Waste Rock Dump (or WWRD, a non-acid forming waste rock stockpile), Run of Mine (or ROM, a temporary storage location for ore prior to processing) and supporting drains.

West Waste Rock Dump (WWRD)

The WWRD is composed of entirely NAF material and is currently acting as a stockpiled reserve of NAF for use across the site where required including the construction of the TSF embankments. The material has many uses across site rehabilitation areas including capping, construction of berms, ESC structures and for rehabilitation purposes. Progressive rehabilitation of the WRD cannot be initiated given the extensive use of the NAF material under current operational strategy. Under the current materials balance for the site, the entire WWRD will be consumed for rehabilitation of other domains, such as the TSF and NWRD. Therefore, the remaining disturbed footprint surface will be prepared and revegetated to an open woodland post mine land use with West Dam being retained during and post rehabilitation work as a stock water dam.

Run of Mine

As the Run of Mine (ROM) will be required until end of ore processing operations, decommissioning of the ROM will be towards the end of closure as access will be required to remove remaining infrastructure such as the crusher bin. Then the remaining NAF rock base will be reclaimed and utilised for TSF or NWRD landform rehabilitation.

The rehabilitation of the NAF area will include being reshaped, topsoiled, ripped to specified depths and seeded with appropriately selected species. The area will be revegetated to a native open woodland.

RA 3 – Tailings Storage Facility (TSF) including seepage interception trenches and seepage ponds

The Tailings Storage Facility (TSF) comprises a valley-type storage, formed by a primary embankment at the northern end of the site (referred to as Northern Embankment), an embankment at the southern end that extends around the eastern perimeter (referred to as Southern Embankment), and a saddle embankment formed on the western perimeter (referred to as Western Saddle Embankment). The original decant structure, originally located at the northeastern portion of the TSF, was infilled with tailings and a new decant structure established in a central southwestern portion of the TSF in 2022 (**Figure 72**). Both structures were constructed using PAF-HC waste rock with the former being progressively encapsulated within fine-grained NAF low permeability tailings.

Both PAF-HC and PAF-MC waste rock has been placed as a series of lifts to form a PAF stockpile in the western TSF cell (PAF-MC) and central decant and supporting road (PAF-HC). PAF rock emplaced in the main part of the TSF around the decant will become fully encapsulated by deposited NAF tailings, and PAF rock in the western cell has been reshaped in 2024 also to being covered by NAF tailings.

The proposed end of life design configuration for the TSF embankments is for it to be built up to the 193mRL, as approved in the current EA (**Figure 72**). The TSF plateau will be rehabilitated to an open woodland and the outer embankments will remain as exposed angle of repose rock batterers.¹² Both of these features will comprise a Final Waste Storage Landform PMLU that will involve the decommissioning and removal of pumping and piping infrastructure followed by the installation of an appropriate cover system and revegetation. Ongoing dewatering is required until the closure of the TSF and seepage is expected to be minimal following closure and reshaping of this landform to meet its PMLU function.

¹² Low-intensity grazing maybe introduced periodically and where practicable as a management tool to limit the amount of fuel load, reducing the impact of potential bushfires.

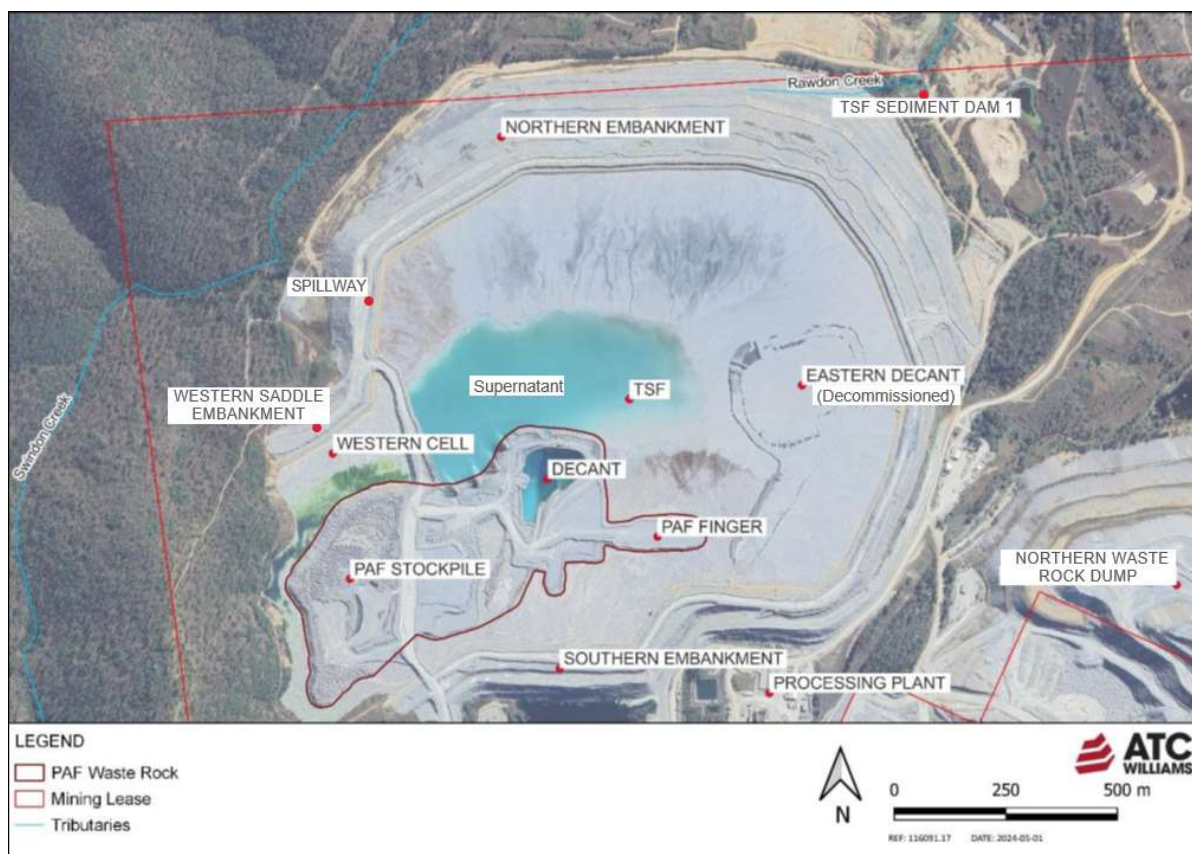


Figure 72 : TSF configuration

Tailings cover system design

The tailings storage facility is one of the largest single domains and areas for rehabilitation at MRO and investigations into potential cover system options for the TSF have been ongoing since they were commenced in 2007 by Allan Watson Associates (AWA 2007). The most recent conceptual cover system design was completed in 2023 as a result of a multicriteria assessment workshop (ATCW 2023b). Additional technical studies in 2024, including modelling (ATCW 2024g), and design work for cover trials sited within the footprint of the TSF (ATCW 2024f) further optimised the closure design for the top tier of the TSF. Collectively, the studies informed an iterative conceptual cover design process and a construction plan progression, as well as an understanding of modelling predictions of how the landform could behave once rehabilitated and into closure. A range of different cover designs were assessed, with field trials partially constructed late 2024, to be commissioned with instrumentation in early 2025, to further inform cover design and construction as well as validate cover modelling.

Following completion of the TSF to final as-built design levels, a cover system will be constructed over the tailings beach. With respect to achieving a non-polluting landform, the primary objective of the cover system and landform design is to minimise seepage discharge to groundwater and through the embankment toe by reducing water flux through the landform. This will be achieved by reducing infiltration through the cover system to the extent practical, effectively isolating the tailings, thus reducing and/or minimising recharge and downward migration of water through the landform. Without the continued introduction of new water into the tailings underlying the cover system, the saturated tailings will drain excess moisture over time and achieve an equilibrium where seepage flux will decrease and contaminants will attenuate.

Applying the Global Acid Rock Drainage (GARD) Guide cover criteria to the climate of MRO suggested that a store and release cover was the most suitable cover type for the TSF (**Figure 73**). As MRO is sited in subtropical Southeast Queensland, having a mean annual rainfall of 927mm (varying between maximums of 1,994mm in wet and 379mm in dry years), its climate is ideally suited to apply a store and release cover as they perform best in wet/dry climates with high potential evaporation equal to two-or three-times rainfall (**Figure 73**).

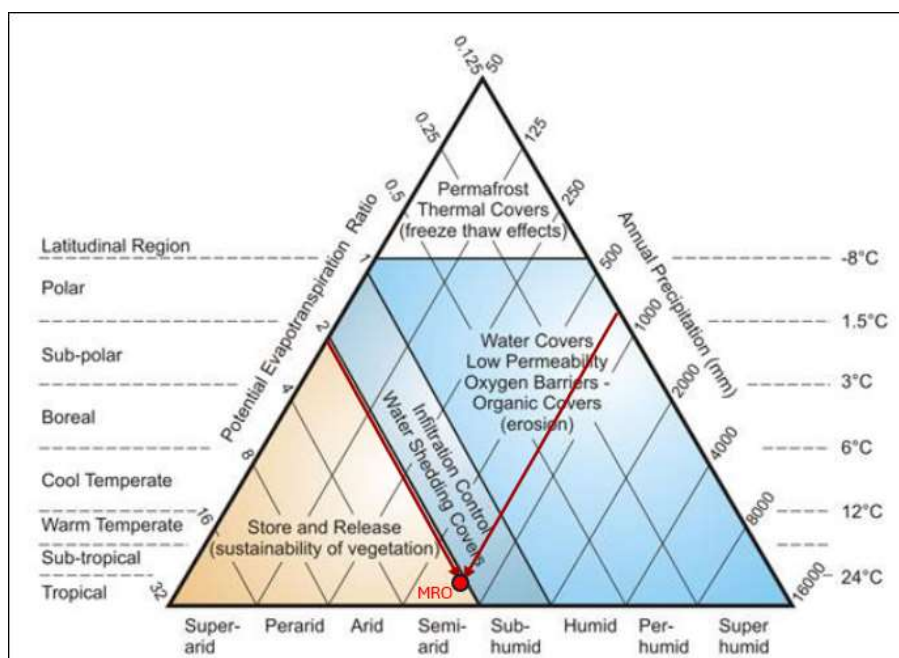


Figure 73 : GARD Guide cover systems and climate types

A store and release cover can be thought of as a ‘natural analogue’ that mimics an undisturbed soil profile reducing net infiltration by storing water during periods of high rainfall, where it is cycled within the soil profile and gradually released to the atmosphere through evaporation or removed by actual (plant) transpiration and releasing it as evapotranspiration in dry periods. A store and release cover can also be combined and optimised with other engineering controls such as an Infiltration Storage Layer (ISL), Reduced Permeability Layer (RPL), or synthetic liner.

In 2023, ATC-Williams (2023b) developed four conceptual cover system options with a store and release cover identified as the preferred cover system option (Cover D).¹³ Cover D is an engineered hybrid store and release cover designed with low-enough permeability to shed excess water from the TSF and to also allow sufficient rainfall to infiltrate and pass through the uppermost cover layer represented by a topsoil (TS) layer (**Figure 74**). In this cover design water would then percolate into the Infiltration Storage Layer (ISL) located deeper within the cover system profile, which, together with the uppermost TS layer, would sustainably support a vegetation community consistent with an open woodland PMLU and include species endemic to area. A Reduced Permeability Layer (RPL) forming the basal layer, was designed to minimise net percolation into the underlying tailings and PAF waste rock - and prevent capillary rise of solutes from underlying tailings into the ISL that may affect plant growth. The combined action of the above layers, was intended to create an effective

¹³ Three other cover configurations were considered including: Cover A – retained a RPL with addition of a capillary break below it, while two covers incorporated geomembranes: Cover B using a bituminous membrane; and Cover C employed a geosynthetic clay liner sandwiched between two RPL layers.

cover system that controlled the soil water balance (e.g. evapotranspiration, runoff and drainage) and promote the long term stability of the rehabilitated TSF.

The Cover D arrangement was required to meet performance objectives (ATCW 2024f) that achieved:

- An acceptable water balance having a Net Percolation percentage of <10% of total annual rainfall depth, and a
- Flux of >10mm/day for less than 10 days per year (at the interface between cover system and tailings), with
- A vegetation cover of >30% with sufficient plant available water capacity (PAWC) in the cover to sustain target vegetation.

In detail the Cover D store and release cover system comprises (from top of cover to tailings below):

- Native vegetation (i.e. trees, shrubs, forbs and grasses);
- 0.2 m Topsoil;
- 1.3 m Infiltration Storage Layer (ISL) comprising loosely placed rock compacted to >85% Maximum Dry Density;
- 0.4 m Reduced Permeability Layer (RPL) comprising residual clay, compacted to achieve a saturated hydraulic conductivity value of less than 1×10^{-10} m/s (as per lab tests).

In addition, two cover design options were adapted for use in rehabilitation trials (**Figure 74**):

“Modified Cover D” – Store and Release & Shedding Cover System (a modified version of the preferred cover system above was designed to promote rainfall runoff by reducing the permeability of the ISL):

- Native vegetation
- 0.2 m Topsoil
- 1.3 m Infiltration Storage Layer (ISL) comprising loosely placed rock with compaction increased to >90% Maximum Dry Density
- 0.4 m Reduced Permeability Layer comprising residual clay compacted to achieve a saturated hydraulic conductivity value of less than 1×10^{-10} m/s (as per lab tests).

A modified version of the default cover system described by DESI for a high-risk structure (but only comprising a single capillary break (CB) layer) has been designed as “Cover A”. This cover option was included for assessment as a cover rehabilitation trial as a means to demonstrate comparable performance between the store and release systems represented by Cover D and Modified Cover D.

“Cover A” - A Store and Release Cover System with a Capillary Break:

- Native Vegetation
- 0.2 m Topsoil
- 1.3 m Infiltration Storage Layer (ISL) comprising loosely placed rock compacted to 85% Maximum Dry Density
- 0.4 m Reduced Permeability Layer comprising residual clay compacted to achieve a saturated hydraulic conductivity value of less than 1×10^{-10} m/s (as per lab tests)
- 0.6 m Capillary Break Layer – comprising a clean gravel aggregate, with a nominal grain size range of 5mm to 20mm is designed to disrupt the upward movement of water and any solutes through capillary action.

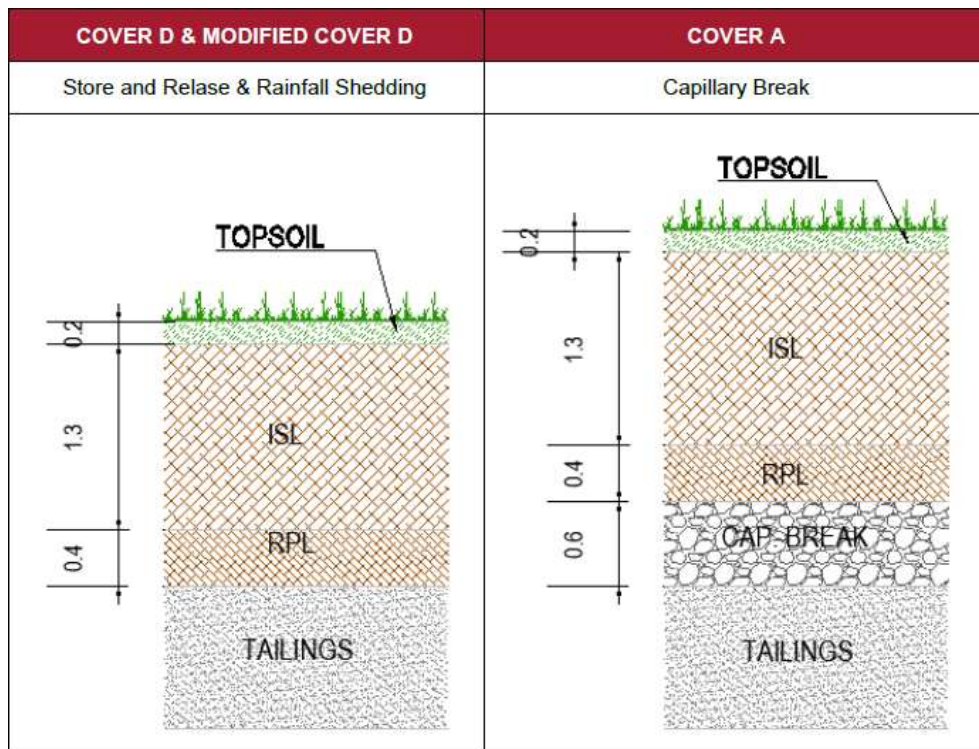


Figure 74 : Optimised TSF cover D, modified cover D and cover A profiles (ATCW 2023f)

Cover D is also planned to be applied over the PAF waste rock pads in located on the western side of the TSF to form a near-flat plateau cover and a sloped cover layer (**Figure 75**). This would occur after tailings were hydraulically placed over the PAF rock platform to provide: a more even surface on which a RPL could be placed; and to reduce oxygen flux through the PAF cell thereby minimising potential for AMD generation (ATCW, 2024d).

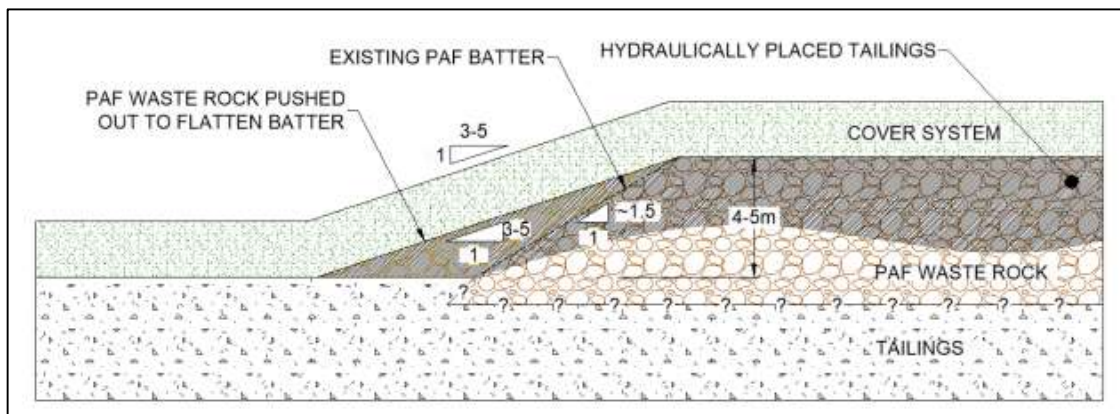


Figure 75: Tailings hydraulically placed over PAF material (ATCW 2024d).

It is understood that the proposed Mount Rawdon Pumped Hydro Project (MRPH) has the potential to generate substantial volumes of NAF waste rock that may be used for the rehabilitation of the TSF. NAF waste rock resources generated as a result of the pit cut back (subject to current geotechnical investigation) could be used as a trafficable layer for the construction of the cover system. A model scenario included the addition of a 1m thick layer of NAF waste rock as a trafficable basal layer to compare its impact on cover system performance.

Cover Modelling

A SEEP/W model was used to predict cover system performance and optimise the cover system options for rehabilitation trial construction. It comprised a one-dimensional column, with 5m of tailings overlain by the cover system. While the depth of tailings exceeds 5m, climatic forcing was generally limited to the top few metres of the modelled profile. Negligible movement of water was estimated by the model within the tailings so that modelling with increased tailings depths would have no material impact on the outcome of the model (ATCW 2024g).

The SEEP/W model used material properties derived from the laboratory test work (Section 5.3) to produce estimated Soil Water Characteristic Curves (SWCCs). Laboratory testing noted that the moisture content measured at lower suctions for the ISL, RPL and Topsoil did not conform to typical traces for SWCCs as extremely high Volumetric Moisture Contents (VWC) above lower suctions above field capacity (FC) were reported (ATCW 2024g) resulting in SWCC plots for these layers that were similar at the dry end, only a few were similar at the wet end.¹⁴

Hydraulic conductivity curves were also estimated using SEEP/W inputting the SWCCs above and using saturated hydraulic conductivity values from laboratory test work (**Table 51**).

Table 51 : Adopted Saturated Hydraulic Conductivity Values (ATCW 2024g)

LAYER	SWCC	SAMPLE ID	SATURATED HYDRAULIC CONDUCTIVITY (m/s)
Topsoil	Topsoil	Sample 1	1.33×10^{-5}
ISL	Lower Bound	Sample 9	1.11×10^{-8}
ISL	Upper Bound	Sample 10	4.02×10^{-8}
Modified ISL	Lower Bound	Sample 9	5.21×10^{-7}
Modified ISL	Upper Bound	Sample 10	1.87×10^{-8}
RPL	Lower Bound	Sample 4	3.00×10^{-10}
RPL	Upper Bound	Sample 3	3.00×10^{-10}
Tailings	Lower Bound	Tailings Coarse	1.06×10^{-7}
Tailings	Upper Bound	Tailings Fine	2.6×10^{-8}

Vegetation inputs to SEEP/W comprised leaf area index, plant moisture limiting function, normalised root density and cover soil fraction. As vegetation parameters are generally highly variable, for the purposes of the model, a constant leaf area index of 2.5 and cover soil fraction of 0.85 were adopted, meaning that vegetation remained constant over the duration of the modelling and did not vary seasonally or annually (ATCW 2024g). It was expected that plant function would increase over the first 3-5 years of the trials while plants became established. In order to provide a conservative

¹⁴ Note that default SWCC's from SEEP/W for a poorly graded gravel were adopted for the CB Layer.

estimate of initial performance, vegetation was not modelled on all cover systems. This approach provided increased confidence that a nominated cover system would meet the performance criteria, even in the extreme scenario should vegetation fail in the future.

Given that the material for the RPL would be borrowed, its thickness was reduced to 0.40 m (from 0.6m), which is considered the minimum practicable thickness for construction. The construction of the RPL will be performed in two lifts to achieve the desired compaction criteria. The ISL was also reduced in thickness in Cover A to make it consistent with Cover D in order to compare performance of the CB layer in the trials (ATCW 2024f).

Modelling results for all the various cover configurations achieved net percolation of <1% of rainfall as the RPL was input with a hydraulic conductivity value of $\times 10^{-10}$ m/s (**Table 52**). The overall similarity in performance between the three cover systems was a result of the moisture remaining predominantly in the ISL, so that the presence or absence of a CB layer had no deterministic effect on results.

Table 52 : Average Annual Water Balance

Model ID	Scenario		Average Annual Water Balance			
			Rainfall (mm/yr)	Runoff (mm/yr and % of Rainfall)	Evaporation (mm/yr and % of Rainfall)	NP (% of Rainfall)
7	Optimised Cover D	Upper	823.5	29 (3%)	809 (98%)	(<1%)
8		Lower	823.5	70 (9%)	803 (97%)	(<1%)
9	Optimised Modified Cover D	Upper	823.5	40 (5%)	800 (97%)	(<1%)
10		Lower	823.5	90 (11%)	774 (94%)	(<1%)
11	Optimised Cover A	Upper	823.5	34 (4%)	807.5 (98%)	(<1%)
12		Lower	823.5	42.5 (5%)	807.5 (98%)	(<1%)

Source: - ATCW (2024g)

Notes : The sum of the losses (rainfall, evaporation and net percolation) are greater than 100% of the rainfall depth over the modelled period. The cause of additional losses is due to: Loss of initial moisture in cover system; Variability between the starting and ending water balance conditions; Model error/mass balance error (insufficient to materially impact the outcomes of the model).

Saturation in the topsoil and upper layers of the ISL was highly variable, with increased water saturation after rainfall events, followed by periods of drying due to evaporation. At greater depths within in the ISL, increases in VWC are observed only following large rainfall events, indicating a significant rainfall depth if required for infiltration deep into the cover system profile. Relatively static VWC in the tailings, indicated rainfall infiltrating the cover system (e.g. Cover D) did not reach the tailings (**Figure 76**).

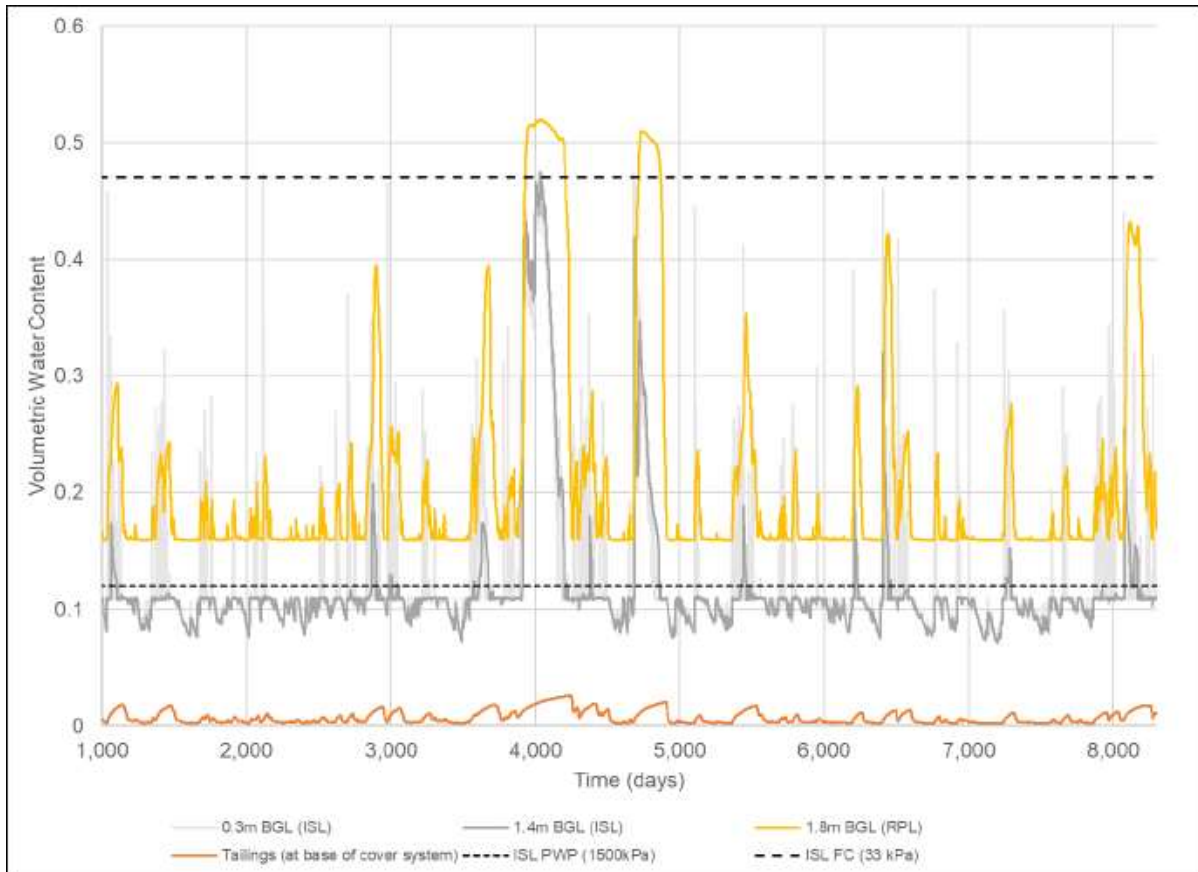


Figure 76 : Modelled ISL VWC – Optimised Cover D (Upper Bound) (ATCW 2024g)

Further, moisture flux rates in the tailings, 0.2 m below the interface of the cover system and the tailings were close to zero, with an average rate in the order of 1×10^{-12} m/s, equating to approximately to 0.03 mm/year and 0.7 mm for the 20-year modelled duration (ATCW 2024g). This indicated that minimal moisture moves across the cover system RPL and tailings interface. At this low rate, it is not expected that salts are likely to move into the profile and affect plant growth.

Material balance

Based upon the design thickness of each topsoil, ISL RPL and CB layer of the three main cover types modelled, a material balance was estimated to construct them - assuming that a final TSF surface area of 130ha is to be covered (**Table 53**).

Table 53 :TSF Cover Material Balance

LAYER	COVER D & MODIFIED COVER D	COVER A
Topsoil Layer	260,000 m ³	260,000 m ³
ISL	1,690,000 m ³	1,885,000 m ³
RPL	780,000 m ³	650,000 m ³
CB	-	780,000 m ³

Source ATCW (2024f).

Surface Drainage

Before placement of a cover onto the TSF occurs, initial management of excess water is required to desaturate and consolidate the tailings surface. During the dewatering phase, DSA for the TSF will be supported by storage within an external dam or the open pit until suitable surface conditions are achieved and the final cover is placed. The resultant tailings landform will remain close to the current operation tailings surface that will eventually cover both the central decant and PAF rock platform (**Figure 77**). A central drain excavated from the lowest point in the TSF (formerly the central decant location) to a proposed outlet located on the western embankment that would interface with basement rock forming the natural topography.

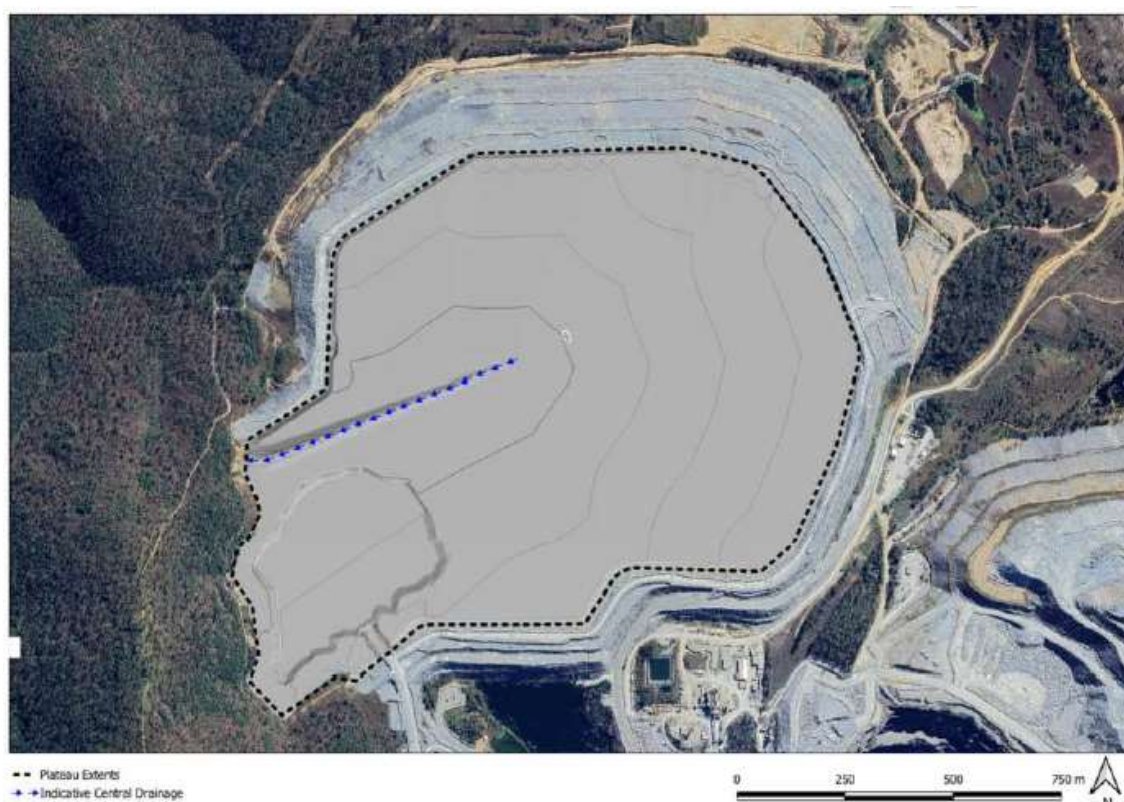


Figure 77: Final TSF plateau landform geometry

The plateau cover is designed to be water shedding so that no free water is retained on the TSF landform surface. Conceptually, this will diffuse overland flow over shallow gradients (0.6% to 1%) formed on a bowl-shaped TSF plateau cover surface (**Figure 78** and **Figure 79**) and off the northerly sloping PAF WRD cover surface, would fall toward the central discharge drain minimising potential for concentrated flow areas and erosion. The central drain would be established over the TSF cover and comprise a geotextile covered by rock armouring (**Figure 80**). The channel flow would discharge from an outlet (former spillway) located on the north-western embankment. Shed water would then flow down an engineered energy dissipating dropdown structure and then out to the receiving environment via Swindon Creek to the north (**Figure 78**).

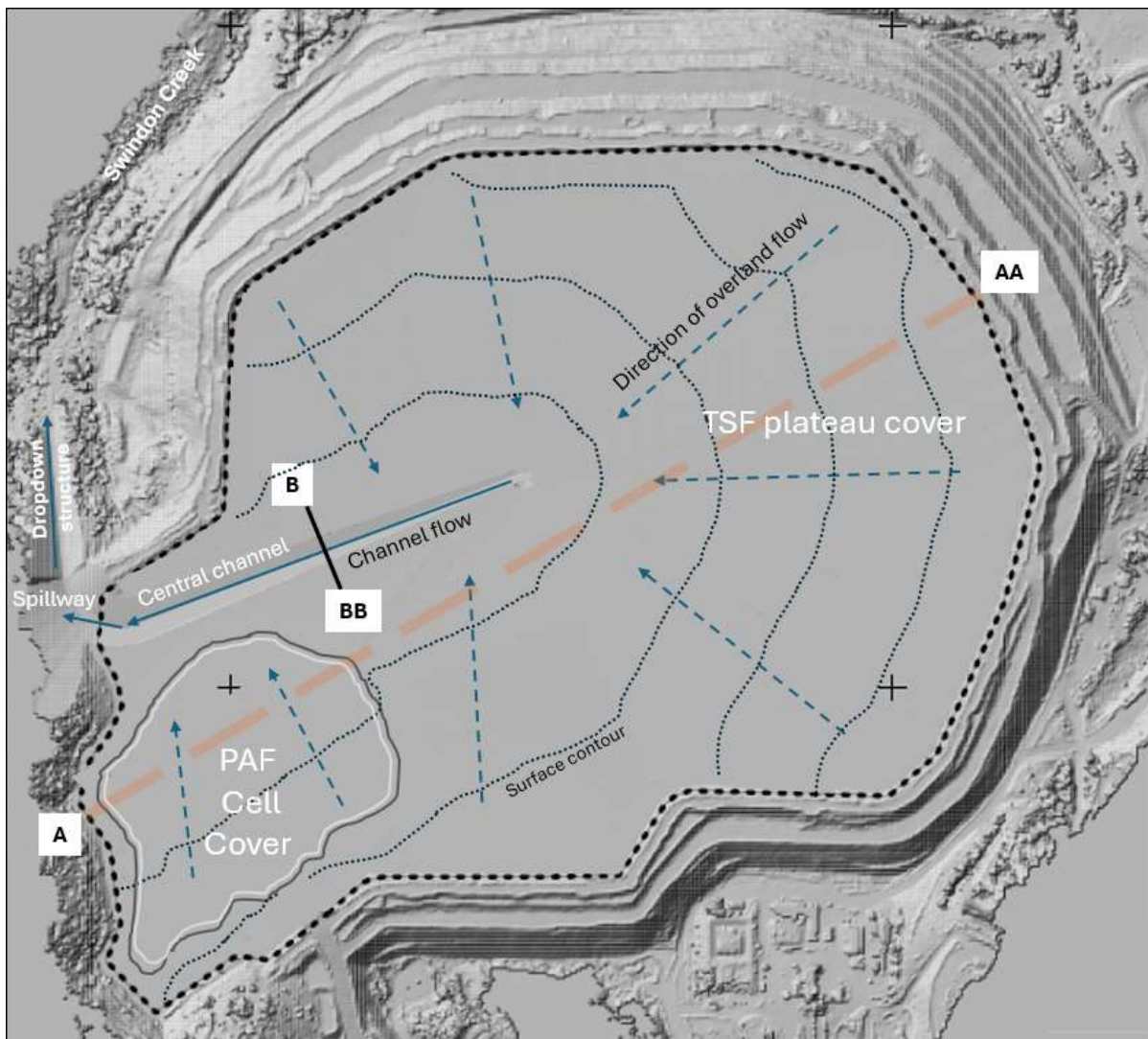


Figure 78: Final TSF plateau and PAF cell cover surface drainage and water release points.

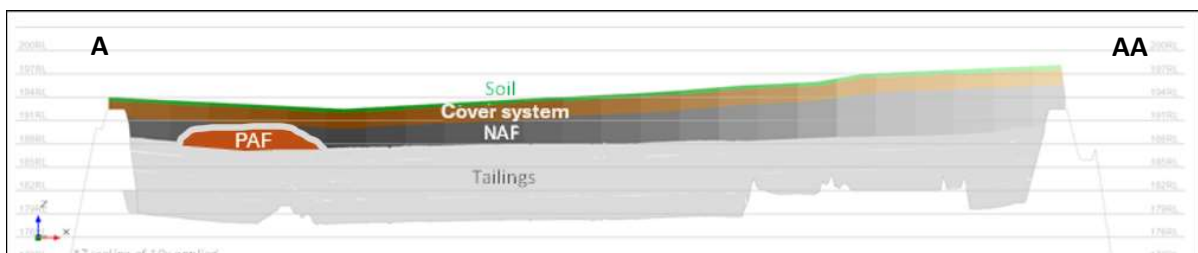


Figure 79: TSF cover system cross-section A-AA

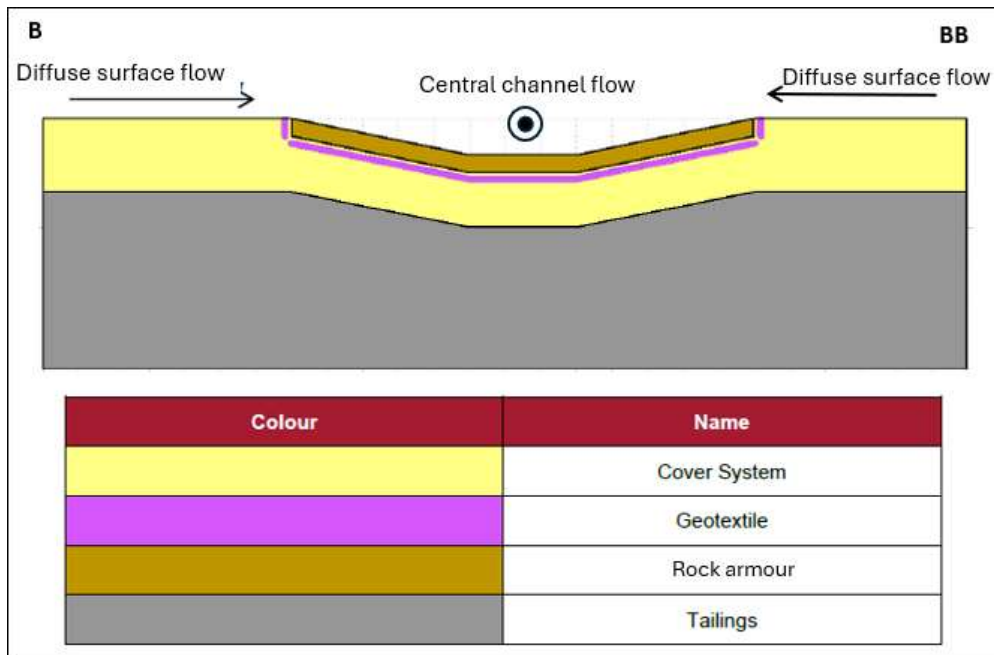


Figure 80: Central Channel Cross-section B-BB (after ATCW, 2024h)

TSF Landform design and material placement sequencing

The concept closure, decommissioning and rehabilitation plan for the TSF includes the following key components (RGS, 2016):

- Continued placement of PAF-HC waste rock into the decant structure(s) within the TSF to fully encapsulate this material within fine grained NAF low permeability tailings to eliminate oxygen entry into bulk PAF-HC waste rock materials and reduce/negate sulfide oxidation.
- Placement of PAF-MC waste rock into a series of low-profile benches on the western TSF cell that will be encapsulated progressively within NAF tailings. The key design criteria for this are that PAF-MC waste rock will not be placed within 25 m horizontal of the natural ground to the west of the TSF, 50 m of the external final TSF landform, and the top of the PAF waste rock will be covered with a layer of NAF tailings¹⁵ (Figure 81) to protect the overlying RPL layer.
- The PAF-MC waste rock stockpiles have been reshaped (2024) and will be encapsulated by NAF tailings.
 - The final landform design for the TSF will require clean surface water flow from the hills to the west of the TSF to be directed to the north toward Swindon Creek via perpetual surface water diversion drains.

¹⁵ Further discussion with RGS in December 2024 clarified that the tailings, if used to encapsulate the PAF rock pads on the TSF, would provide minimal alkalinity as it had a low ANC and therefore encapsulation thicknesses were indeterminate. However, if tailings were hydraulically deposited on top of the coarse PAF rock dump it would infiltrate into and infill void spaces between PAF rock, potentially reducing the ingress of oxygen into the PAF waste rock pad and also provide a cushioning layer to an RPL cover layer where it was placed over the PAF rock platform – with the RPL also reducing both oxygen and water flux.

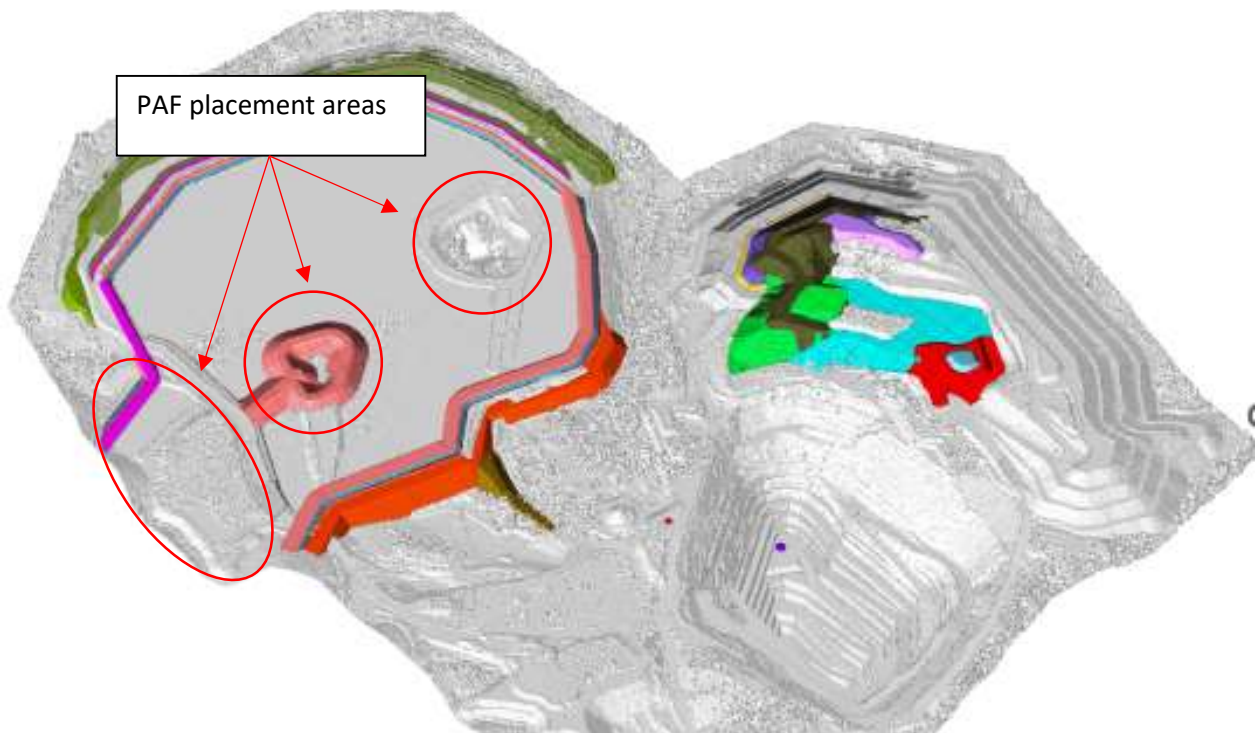


Figure 81: TSF PAF placement

TSF Operational water management moving into rehabilitation phase

Pumping and piping infrastructure will be decommissioned and removed; however, ongoing dewatering is required until the closure of the TSF, with seepage from it expected to reduce in volume after installation of the cover system.

The TSF drainage catchment will report either to the pit or be directed to the north -west and off site. Some transfer of water to the open cut pit will occur via pumping. Seepage currently reporting through the TSF structure is collected by a range of seepage collection infrastructure (i.e. subsurface drains, sumps, wells and bores, as well as some open channels and ponds) and transferred via a pipeline network to be contained within a series of dams that form the operational mine-affected water management system.

While general tailings characteristics at MRO are well-understood (e.g. physical properties and geotechnical behaviour based on material laboratory classification and *in-situ* Piezocone Penetration Testing (CPTu) testing), TSF dewatering and consolidation post final tailings deposition and their potential impact on cover construction and performance are less known. ATC-Williams (ATCW, 2025) was engaged to perform further testing and modelling to determine consolidation settlement effects of the TSF in influencing the free-draining nature of the landform. This settlement is dictated primarily by the depth, compressibility and permeability of the tailings, and the water table at closure and how these factors change with time.

Other factors influencing settlement and dewatering may include: the effects of differential settlement caused by irregular thicknesses of tailings; reduction of future settlement time if tailings are preloaded; having other structures located within the depositional footprint of the TSF (i.e. haul road, PAF waste rock stockpiles, decant and causeways); and lower settlement rates for the coarser tailings placed from the TSF perimeter (ATCW, 2025). These variables may be partially addressed by developing construction staging of the final cover, with the opportunity to begin construction loading in sub-domains of expected higher settlements first to allow for some of the settlement to occur

during the construction phase (noting that this would still require additional quantities of cover materials).

Consolidation modelling using permeability and load stage compression testing coupled found that the TSF surface will settle to levels over an extended period, that can be accommodated by the proposed cover design, but ATC-Williams (2025) recommended additional CPTu testing to evaluate the tailings profile towards the centre of the facility, and installation of vibrating wire piezometers (VWP) at depth to track the drawdown. These works will be included the forward work programme planned for closure.

The following three phases of water management for the TSF are identified as it transitions from operations to rehabilitation that will need to be developed to detailed design.

1. Phase 1 – processing and mine operations

There is a requirement for the planned and controlled deposition of tailings to control the geometry of the final tailings beach profile to:

- Minimise surface reshaping of desaturated tailings to the desired final landform surface geometry,;
- increase the slope of the tailings beach from the TSF embankment perimeter to the current tailings supernatant pond, and,
- reduce the volume of “fill” required to be placed in the basal layer on the tailings (fill could include relocated tailings or NAF waste rock).

This process requires active management of TSF tailings deposition strategy and is being integrated into the TSF operational plan by MRO and ATCW.

2. Phase 2 – cessation of tailings deposition and transition to rehabilitation

A detailed water management plan will be developed to maintain the design storage allowance (DSA) of the TSF (approx. 2 GL) as the TSF transitions through rehabilitation.

MRO understand that the TSF must maintain the DSA until rehabilitation with emplacement of a store and release cover is complete that it is functioning in an as-designed manner (i.e. that the cover system can sustain the desired open woodland PMLU use and surface runoff from the cover system can be released directly to the environment).

3. Phase 3 – basal layer construction

During this phase of work the:

- water storage within the TSF is progressively reduced as it is replaced with rock, and cover units
- the TSF needs to be kept as empty of water as possible
- DSA must be maintained within the TSF or be available in an external dam or the open pit.

If external DSA is viable then a pipe/pump/drainage system will need to be put in place during this phase of work to enable adequate transfer of water from the TSF to the open pit.

During this phase of work the following actions may be required:

- A NAF rock basal layer maybe be placed over the tailings beach
- Consideration of the rate of deposition will be taken during the placement of the NAF rock layer due to previous concerns relating to deformity of the design structure from an increased rate of deposition

Profiling the tailings may include placement of up to 1 m of NAF waste rock into the tailings to provide a structurally competent base (trafficable to earthmoving equipment) with low permeability.

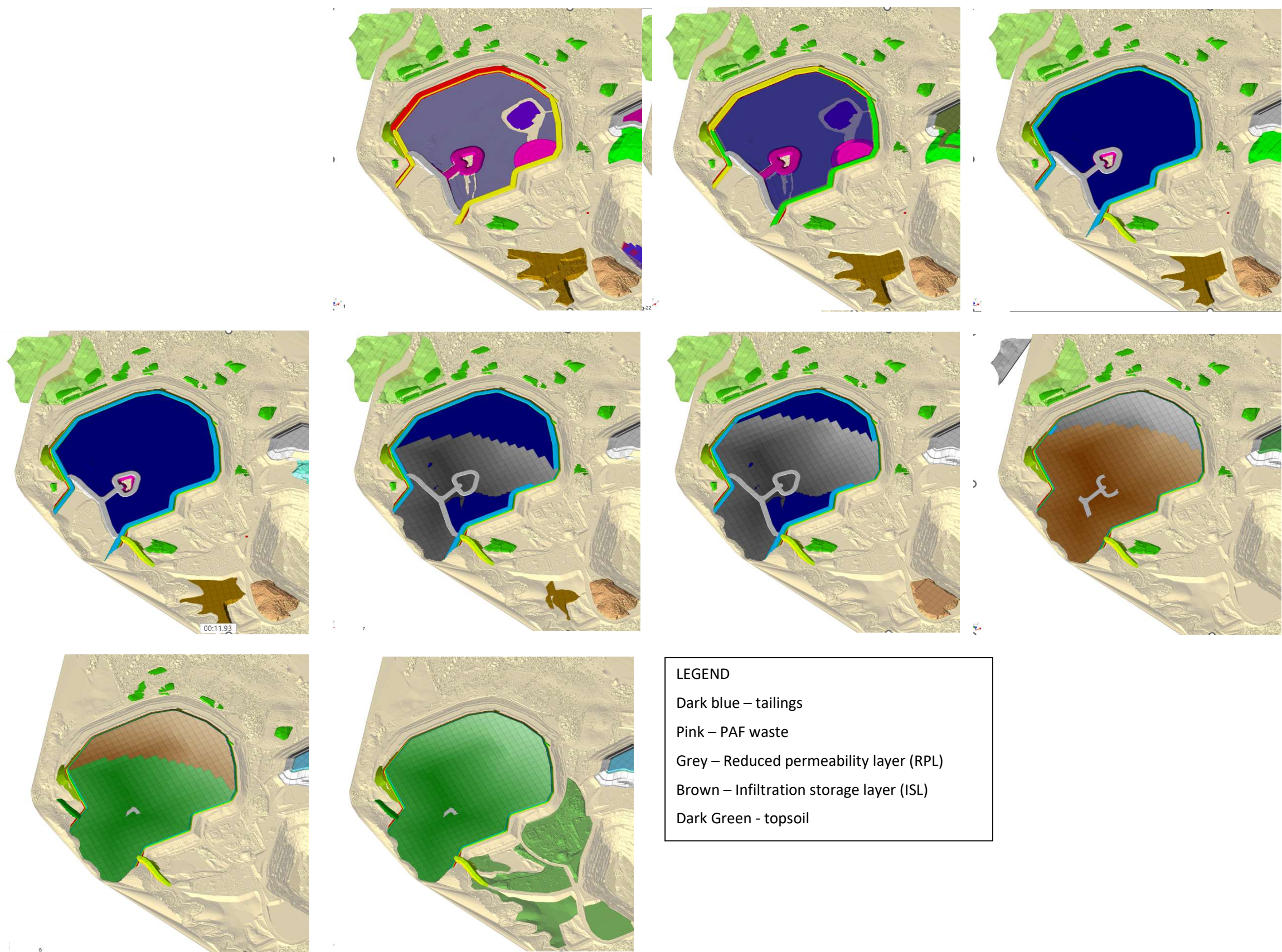


Figure 82: TSF PRCPLAN.LHS timestep sequence.

TSF Landform Evolution Assessment

A final landform design that addressed the erosional stability and surface water management of the final TSF landform, including Potentially Acid Forming (PAF) waste rock stockpiles on the TSF, was identified in a TSF Final Landform Options Assessment workshop held between ATC-Williams and Evolution in August 2024 (ATCW, 2024h). The preferred final TSF landform was a raised, near flat-lying, plateau landform that would support a Final Waste Storage Landform. The plateau is to comprise a preferred store and release cover (Cover D) design as outlined above in the tailings cover system section (ATCW, 2023).

As part of a series of key design and landform studies proposed to be integrated into the detailed cover system design, a Landform evolution model (LEM) assessment was conducted on the top tier cover (covering 130 ha)¹⁶ proposed for the TSF, based on geotechnical investigations undertaken to date and based on the proposed geometry for the final landform (ATCW, 2024c). To inform cover system erosion, ATCW undertook two-dimensional erosion modelling in Water Erosion Prediction Project (WEPP) and landform evolution modelling (LEM) in SIBERIA. While the modelling has been used to determine erosional stability of the proposed landform, the results are considered conceptual but are useful to demonstrate performance of any proposed drainage controls designed to prevent problematic erosion that may be indicated in the model.

Details of the erosion modelling inputs, assumptions, modelling rationale, design considerations, technical requirements for the final landform, and discussion of results follow. The LEM assessment was confined to the as-constructed final plateau landform and PAF WRD cover components of the TSF (**Figure 78**). Rock fill batters were not modelled by ATCW (2024c), as it is an engineered structure comprising well-graded rock fill material, possessing a maximum particle size of 500mm with no greater than 5% fines (i.e. fraction passing the 75µm size) by weight. The rockfill material specified in the construction of the embankments was not to be susceptible to significant weathering, breakdown or degradation following placement. The rockfill used in dam construction was designed to provide stability and prevent erosion of the TSF structure thus promoting durability.

The primary objectives with respect to erosion in the cover design were to:

- Avoid erosion which would impact the performance of the cover system (i.e. through reducing the depth of cover).
- Prevent exposure of the underlying waste.
- Ensure long-term erosional stability of the landform.

The key driver for preventing erosion is to establish and maintain vegetation over the rehabilitated landform. Three vegetation scenarios were used in the WEPP model: no vegetation (0 %) (worst case), 30 % and 80 % static vegetation cover (i.e., vegetation does not grow or die off over the course of the simulation), aligning with the performance criteria. Noting that static vegetation cover may represent site conditions (e.g., seasonal dieback and extended wet or dry seasons).¹⁷ The WEPP model is sensitive to climate and therefore a representative climate record was necessary for accurate prediction. The model used a synthetic data set that incorporated years of drought and years of high volume and high intensity rainfall events (ATCW, 2024c). However, ATC-Williams (2024c) considered that there was a level of uncertainty when modelling future climate projections beyond a 50-year period using a relatively short-term climate record.

¹⁶ The total TSF footprint covers 204 hectares including the outer embankments.

¹⁷ Plant parameters are influenced by a wide range of factors including climate conditions, plant species and conditions, which are complex to model.

Soil input parameters for the WEPP model were informed by reported not values and empirical formulas. Topsoil values were based on the erosion measure and modelling report prepared by RGS (2023). For consistency in modelling, Sample 2 from the RGS report was adopted for the topsoil in the erosion modelling, as it was determined to be the most comparable to the topsoil adopted in the TSF Cover System Modelling (ATCW 2024g). The weathered rock material for the ISL was based on the material investigation completed by ATC-Williams (2024a). Variation to soil properties are expected to impact the WEPP model outcomes (i.e. percentages of clay, sand and rock, organic matter and cation exchange capacity). The adopted soil input parameters assumed that that cover system comprised of moderately fresh and weakly altered NAF rock (ISL layer) overlain by soil/growth media. The ISL material is yet to be tested by the trial plots being constructed by MRO and ATC-Williams (Section 5.7).

A target loss rate of 10 t/ha/yr was assigned as the maximum average soil loss rate for all years of modelling (ATCW 2024e) based on soil loss rates within the region surrounding MRO (**Figure 83**). However, as the WEPP model is based on a simplified cross section geometry (500 m slope at 0.6 %), localised erosion rates are likely to occur which exceed the estimated average annual soil loss rates as they represent the annual average soil loss rates for the entire slope length (ATCW 2024c).

A model duration of 50 years was adopted, as it was considered to be an appropriate model duration to determine average erosion rates:

- Vegetation is assumed to be established at the beginning of the model start time, as erosion control structures would remain in place until sufficient ground cover was established, nominally to be established by a construction and rehabilitation works completion date.
- The 50-year period adopted included years of high and low rainfall, allowing assessment of loss rates for varying climatic conditions.
- Results indicated erosion loss rates, range from 0.38 tonnes per hectare per year (t/ha/yr) to 4.2 t/ha/yr, which is less than half of the target loss rate (**Table 54**).

Because the model predictions showed a stable erosion rate over the 50-year period, longer model durations were expected to be similar to the current model predictions.

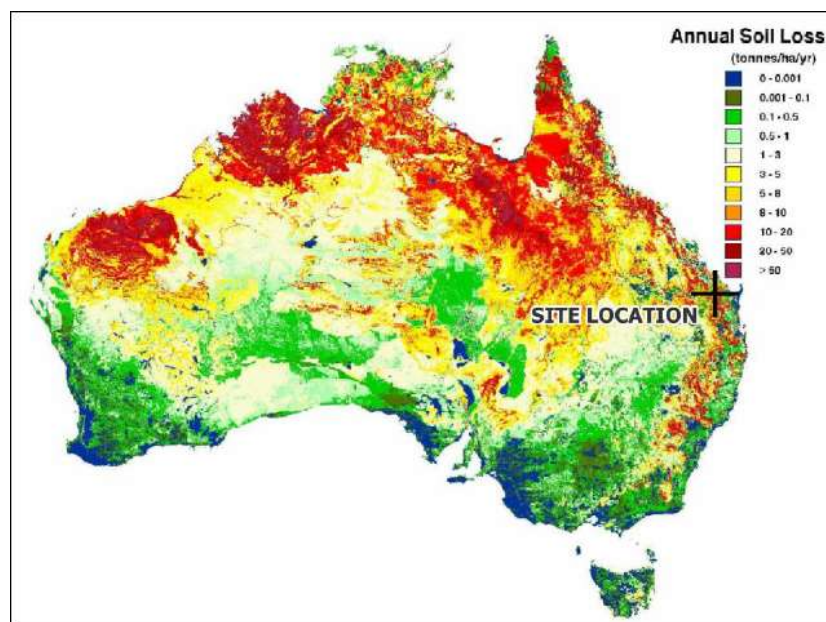


Figure 83 : Australian Annual Soil Loss Estimate

Table 54: TSF LEM Average Annual Soil Loss Rates

Scenario	Average Annual Soil Loss (T/Ha/Yr)		
	0 % No Vegetation Cover	30 % Vegetation Cover	80 % Vegetation Cover
500 m TSF cover @ 0.6 % slope and vertical hydraulic conductivity = 7 mm/hr	4.2	2.14	0.75
500 m TSF cover @ 0.6 % slope and calculated vertical hydraulic conductivity = 26.62 mm/hr	2.01	0.71	0.38

Source: ATCW (2024c)

Hydraulic analysis of the study area was undertaken by ATC-Williams (2024c) using the two-dimensional (2D) program TUFLOW, to compute both sub-critical and supercritical hydrodynamic flow regimes generated by 1% AEP, 0.1% AEP and PMP design storms on the TSF closure surface, expressed as Possible Maximum Flood (PMF) event flow rates, depths and velocities. Upon discharging from the TSF, flows enter Swindon Creek.

The PMF rainfall event produced the highest water surface elevation, peak flow rate and peak velocity in the TSF. As rainfall depth decreases in conjunction with the decreasing extremity of the storm event (0.1% AEP and 1% AEP), the modelled depths, flow rates and velocities also decrease, as expected. Velocities over the capped plateau surface are less than 1 m/s and depths less than 0.5m up to the PMF event (**Figure 84**), but greater in the central channel (ATCW, 2024c).

The results also indicate that there is a fall in water surface elevation across the TSF closure surface. The maximum velocities across the TSF closure surface are less than 0.6 m/s, so erosion of emerging vegetation is unlikely to occur in extreme rainfall events (ATCW, 2024c).

In the PMF event, velocities in the spillway vary between 0.9 m/s (along sections with a 1% longitudinal slope) and increase to 2.4 m/s in the section with the 10% longitudinal slopes. This area of maximum velocity occurs where the spillway is constructed into bedrock material (**Figure 84**). In the PMF event, flow depths in the spillway vary between 6.5 m (along sections with a 1% longitudinal slope) and 3.76 m in the section with the 10% longitudinal slopes (ATCW, 2024c).

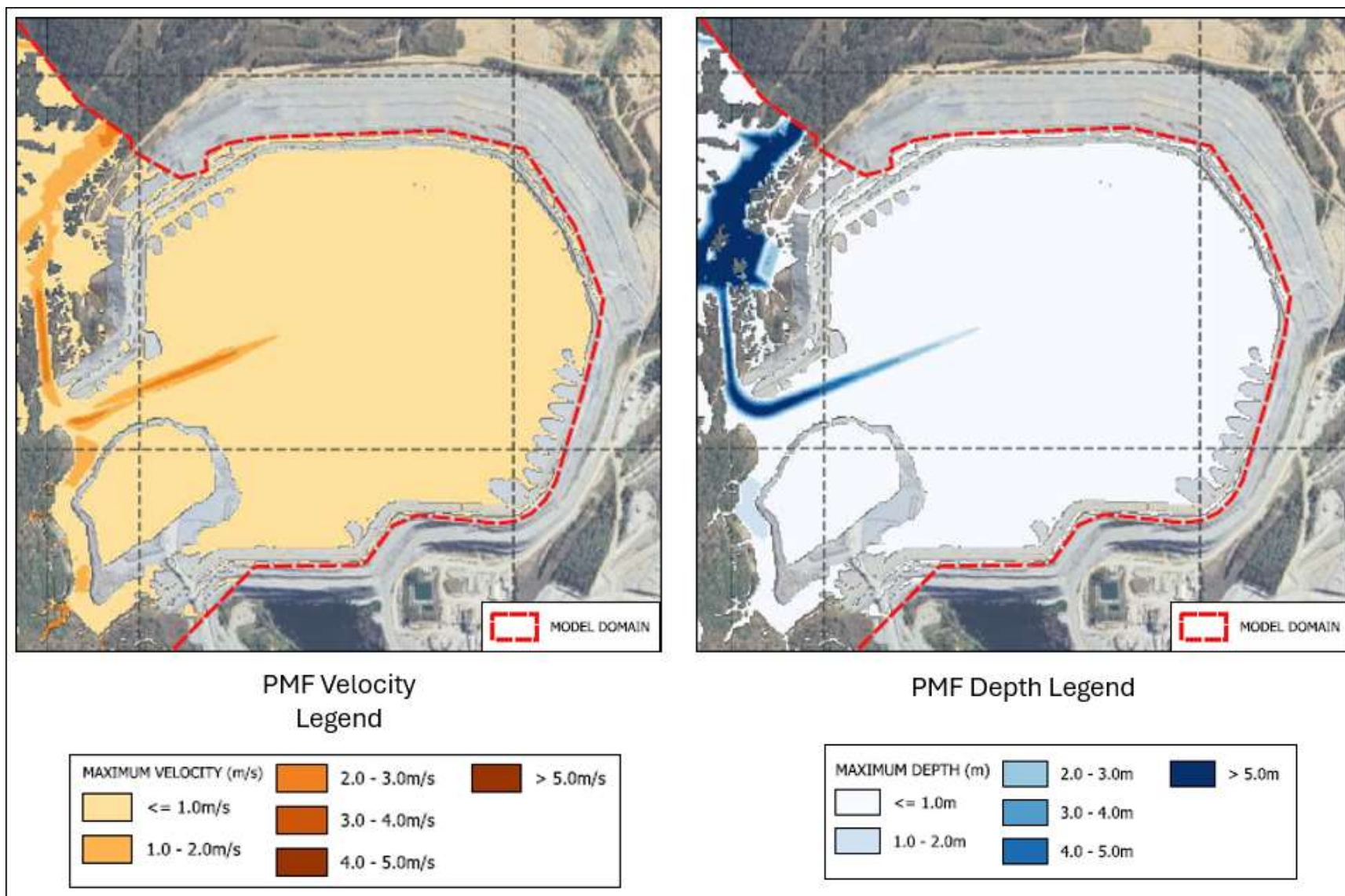


Figure 84 : Possible Maximum Flood (PMF) modelling results – TSF landform. (ATCW 2024c)

Estimated soil loss rates generated using WEPP and the hydrological flow parameters from TUFLOW were input into the SIBERIA (the soil erosion and landform evolution model) to estimate the severity of erosion and estimate the final landform surface, at defined time intervals of 50, 100 and 200-years. The LEM results show relatively stable conditions for the TSF plateau cover with minimal erosion, however greatest erosion occurs in the main drainage channel and the PAF cover batter elements after 200-years (**Table 55**). Estimated maximum erosion loss is shown in Table 55 and modelled results showing indicative areas of erosion and deposition for 50, 100 and 200-year intervals are shown in **Figure 86**, **Figure 87** and **Figure 88** respectively.

Table 55 : Estimated Maximum Soil Loss (TSF LEM SIBERIA Results)

	Estimated Maximum Soil Loss Depth		
	50 Years	100 Years	200 Years
Plateau	0.02 m	0.04 m	0.06 m
Central Drain batters	1.09 m	1.64 m	2.16 m
PAF batters	0.98 m	1.28 m	1.57 m
	Estimated Maximum Soil Accumulation		
Plateau	0.02 m	0.02 m	0.04 m
Central Drain channel	0.50 m	0.65 m	0.79 m
PAF batters	0.59 m	0.69 m	0.73 m

Source: ATCW (2024c)

As no drainage controls were implemented in the model to manage flows, based on expected erosion rates as modelled in WEPP, the addition of drainage controls, such as contour furrows, would further minimise soil loss especially on areas of the Central Drain and PAF batters where potential erosion is indicated to occur. Future TSF cover design iterations and rehabilitation trials will help to develop these controls.

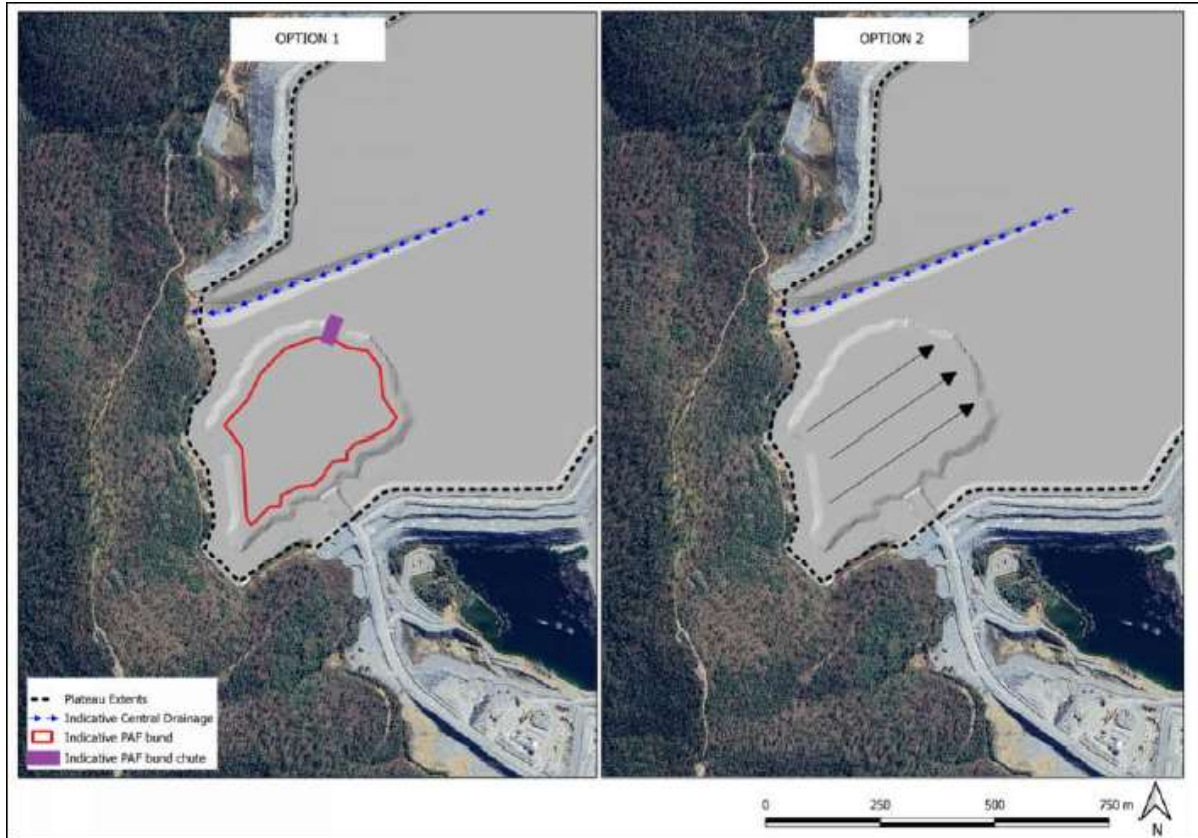


Figure 85 : Potential treatment options for the Central drainage channel and PAF cover batters.
Source: ATCW (2024c)

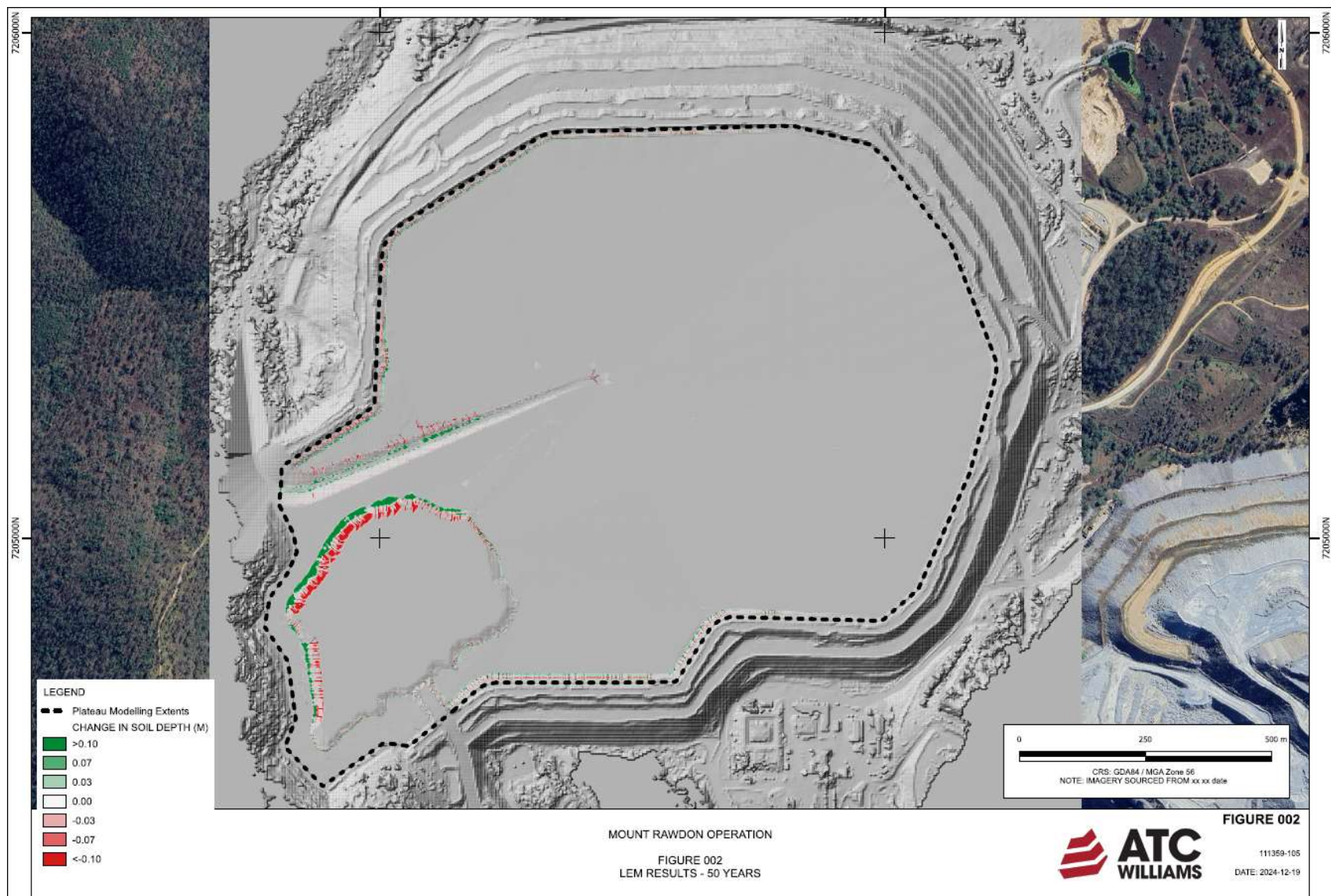


Figure 86 : SIBERIA TSF LEM results - 50 years

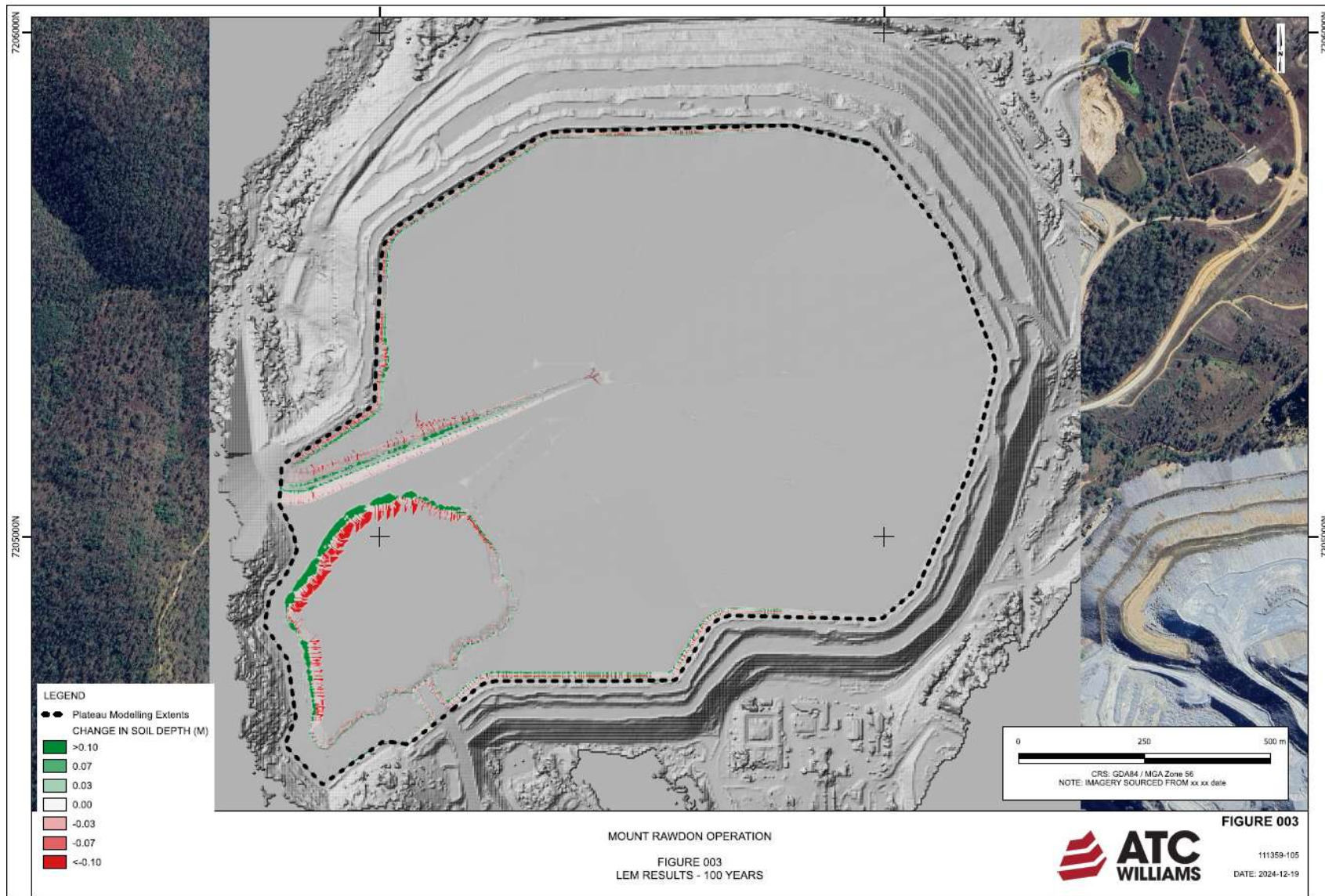


Figure 87 : SIBERIA TSF LEM results - 100 years

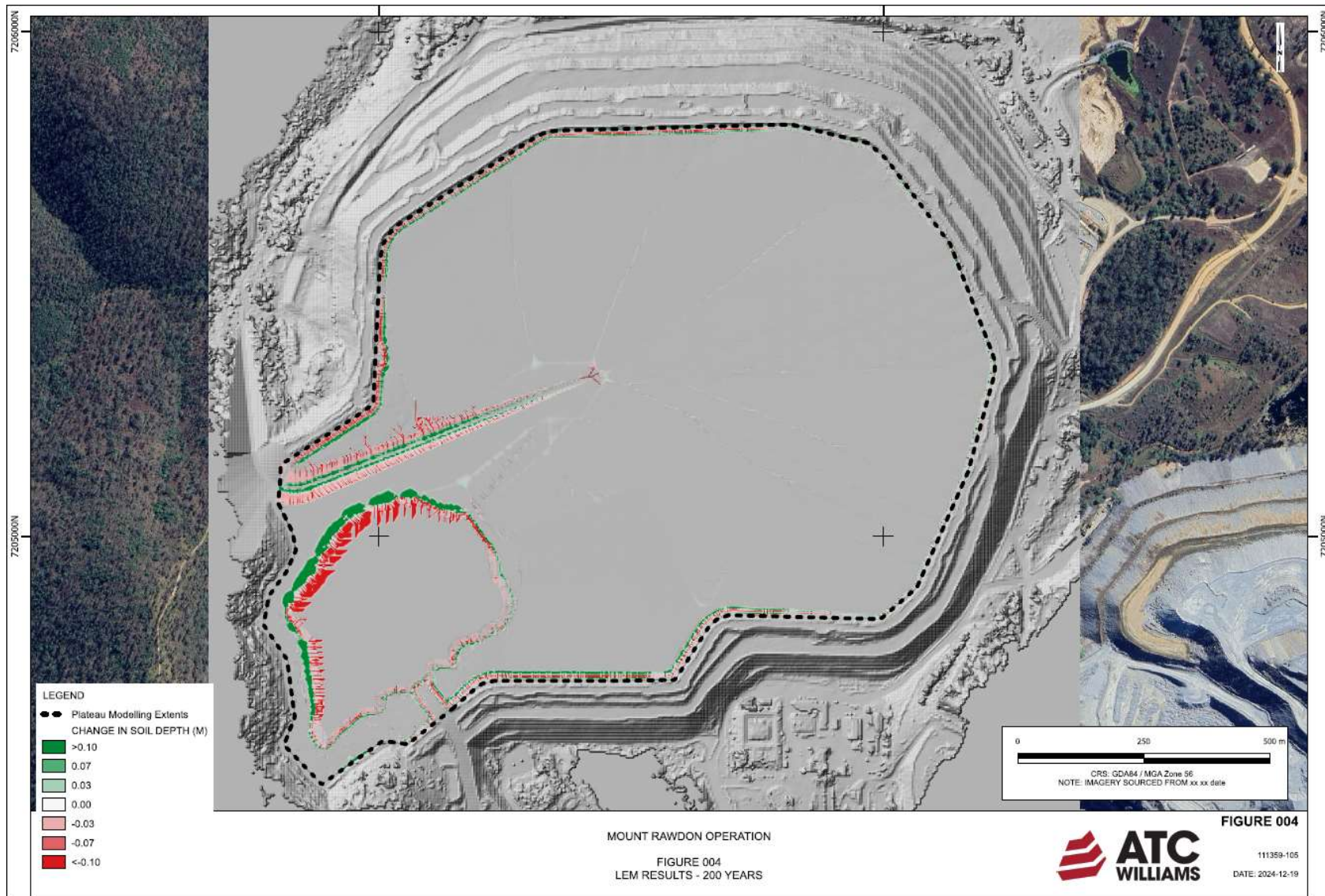


Figure 88 : SIBERIA TSF LEM results - 200 years.

ATC-Williams (2024c) also conducted TUFLOW modelling to quantify the impacts of the 1% AEP, 0.1% AEP and Probable Maximum Precipitation (PMP) design storms in terms of showing maximum water depths and velocities.

Currently the LEM is uncalibrated, and assumed to be conservative and there is still a need to optimise the TSF cover design, and validate modelling predictions with field cover trial outcomes.

TSF Geotechnical assessment

Cartledge Mining and Geotechnics (CMG, 2022c) undertook geotechnical assessments of the TSF comprising deformation and stability analysis of final landform conditions.

Five sections in the 2020 TSF LOM Stability Assessment, completed by ATC, were replicated for this study with the updated final shell design for the TSF.

Three scenarios were analysed for each chainage section:

- Long-term drained, considering stability under steady-state seepage conditions
- Undrained, considering poor drainage
- Post-seismic, considering liquefaction of TSF material

The analysis methods used (the Spencer, and Morgenstern-Price Global Limit Equilibrium) were selected to resolve both horizontal and vertical force equilibrium and moment equilibrium and to ensure that similar results were derived to validate the failure surfaces. The adopted assessment criteria for the slope stability analysis are based on ANCOLD guidelines (**Table 56**) for the expected range of stability conditions for the embankment.

Table 56: ANCOLD Guidelines factor of safety (ANCOLD, 2019)

Loading Condition	Recommended Minimum FoS for Tailings Dams	Shear Strength to be used for Evaluation
Long-term drained	1.50	Effective Strength
Undrained	1.30	Consolidated Undrained Strength
Post-Seismic	1.00	Post-Seismic Shear Strength

All analysed sections returned acceptable FoS results as required by the ANCOLD guidelines for long-term, undrained and post-seismic global stability conditions (**Table 57**).

Table 57 : Stability Analysis Results

Chainage Section	FoS (Spencer)	FoS (GLE / Morgenstern-Price)
Long-Term Stability Scenario		
CH359m	1.88	1.87
CH898m	2.50	2.51
CH2059m	2.32	2.32
CH3128m	2.41	2.40
CH3536m	1.94	1.91
Undrained Scenario		
CH359m	1.92	1.92
CH898m	2.23	2.22
CH2059m	2.27	2.27
CH3128m	1.93	1.92
CH3536m	2.16	2.14
Post-Seismic Scenario		
CH359m	1.07	1.05
CH898m	1.96	1.98
CH898m (with additional buttressing)	1.09	1.07
CH2059m	1.19	1.16
CH3128m	1.30	1.28
CH3536m	1.05	1.30

All sections analysed met the acceptable FoS criteria, demonstrating required geotechnical stability during closure and post-closure periods (CMG, 2022c).

The final TSF shell analysed for geotechnical stability does not include the effects of erosion, and results only indicate conditions during the closure period. Long term effects of erosion leading to reprofiling of the analysed final landform conditions are discussed in the preceding Landform Evolution Assessment section.

RA 4 – Haul Roads and internal access roads

Rehabilitation works conducted across the site must involve the return of all haul roads excluding those road sections (2ha) that are designated to remain for landholder use (i.e. light vehicle access),

to a satisfactory state that will meet the criteria of the desired PMLU of open woodland.¹⁸ All road surfaces and heights will be remediated to align with natural contours and appropriate erosion and sediment control measures or design for the landscape. Should this require the removal or scalping of road surfaces to regrade contours, the material will be appropriately placed or stockpiled for reuse.

“Clean” surface water runoff from these areas and drainage lines will be managed in accordance with site water management guidelines and will be, where necessary and appropriate, redirected to remaining dams for the landholder. Should erosion persist in these areas, appropriate preventative measures will be considered.

Following minimum reprofiling requirements, topsoil should be applied to a minimum of 100 mm using available topsoil stockpile resources and should then be ripped to a minimum of 300 mm to promote the establishment of vegetation whilst allowing for infiltration and adequate drainage. Following the initial implementation of revegetation practices, invasive species will be managed concurrently according to the weed management plan to allow the successful establishment of native species.

RA 5 – Processing Plant, Workshops, and Infrastructure Management Areas within open woodland areas

All infrastructure will be removed apart from selective sheds and buildings that will be beneficial to the landholder and remain for use. The post-mining land use will be non-polluting, safe for animals and humans and remain self-sustaining as open woodland. The land will be left in a suitable condition to support a native species ecosystem similar to surrounding areas and will also be capable of supporting low intensity grazing of land capability class VII. Final landform will incorporate appropriate ESC measures and design that will direct runoff water to restore or regenerate remaining water infrastructures where appropriate or return clean water to the receiving environment through appropriate structures.

Infrastructure areas

Much of the infrastructure at MRO is contained at the centre of the operation and the main infrastructure areas contain the processing plant, workshops and warehouse. The total disturbance area for infrastructure areas is approximately 24.29ha.

Remediation of contaminated areas will be important to achieve the indicative success criteria for infrastructure areas. Technical studies have been progressed to investigate potential land contamination within the infrastructure areas, as well as to develop a strategy for the treatment of assets. An understanding of the methodology to decontaminate, decommission, demolish and dispose of the actual infrastructure has also been developed. It is considered preferential for all infrastructure to be donated or salvaged and then will otherwise be demolished and disposed. Only infrastructure with a clear use and benefit to the proposed PMLU will be retained.

¹⁸ All access tracks not lying on former active mine areas shall be retained for future for landholder use.



Figure 89: Main Infrastructure Area at MRO, as Viewed from the South.

Key studies and investigations focused on Infrastructure areas at MRO have been completed to support a detailed understanding of the required rehabilitation methodology. A summary of studies and investigations is detailed below:

- Given all infrastructure areas have been developed on natural ground, there are no structural or geotechnical issues to be managed. One exception to this is the ROM wall, for which a concrete block wall has been installed, which will require to be reshaped once the containment is removed.
- There are limited geochemical concerns for the infrastructure areas, given they have been developed at the pre-mining natural surface, known to be benign (RGS, 2022). Residual mining and processing wastes within these areas will be removed at closure.
- A Detailed Site Investigation (DSI) was completed to understand potential land contamination across the MRO site (WPS, 2024), which identified a small number of areas requiring further investigation or remedial activities (with the development of remedial action plans). It is anticipated that further investigation will be required once processing activities are complete, and foundations and hardstands start to be removed from the infrastructure areas.
- Development of an asset register, with cataloguing of potential treatment and fate to form an asset strategy, occurred as part of the 2024 closure Feasibility Study (Xenco, 2024). Further investigation occurred into the potential resale/auction of assets (Martin's, 2024), as well as the alternate cost and methodology to decontaminate, decommission, demolish and dispose of assets (CMA, 2024). This has informed a detailed asset strategy.
- Topsoil material will be placed over all disturbed infrastructure areas to a depth of at least ~0.1 m. This topsoil will likely be sourced from stockpiled material, or in-situ topsoil/alluvium material from borrow areas. Recommendations for amelioration and supplementation of materials have been made, in particular additional of organic material. Consideration of material quantities for the closure of MRO have include that required for Infrastructure Areas, indicating that sufficient materials are available using existing stockpiles.

Further to this, a high-level summary of the fate and treatment of each asset class or type (irrespective of location) is provided below as **Table 58**, and it is noted that a detailed register, breaking down to each individual asset, has been developed as part of the 2024 Closure Feasibility Study.

Table 58: Summary of Asset Treatment

Asset Class	Description	Fate	Removal Treatment/ Methodology	Ongoing Maintenance
Buildings	- Admin Buildings - Mobile Maintenance/ Main Workshop - Ancillary Offices - Processing Lab - Stores	Salvaged or demolished	All buildings will have services terminated prior to removal from site for sale or salvage and scrap value	n/a
Processing	- Crushing circuit - Desorption circuit - Grinding circuit - Reagents - ROM (Processing)	Salvaged or demolished	Auction process to be held to identify salvage partner and process, or else all infrastructure to be demolished as per methodology outlined in PEP.	n/a
Ancillary Facilities	- Water Treatment Plant - Sewage Treatment Plant - Landfill Area (trench)	Salvaged or demolished	Auction process to be held to identify salvage partner and process, or else all infrastructure to be demolished as per methodology outlined in PEP.	n/a
Fuelling Facilities	- Concrete footings and pads - Stockpile areas - Ancillary mining areas	Salvaged or demolished	Concrete foundations, driveways, pathways and mineral waste will be disposed of within TSF or NWRD encapsulation.	n/a
Hardstand areas	- Concrete footings and Pads - Processing Laydown Yard - Temporary Laydown Locations - Stockpile Areas	Demolished	Concrete foundations, driveways, pathways and mineral waste will be disposed of within TSF or NWRD encapsulation.	n/a
Services	- Electrical Reticulation - Communications (Telstra Hill) - Underground Lines/services	Retained or demolished	Services to be removed where redundant, using appropriately licenced personnel and disposed to an offsite location	Ongoing maintenance aligned to current operating practices as per relevant utility/ operator.

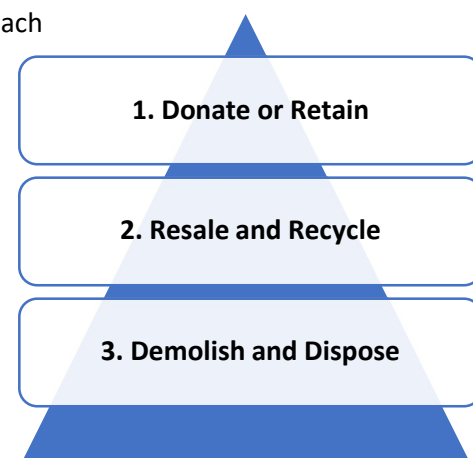
Asset Class	Description	Fate	Removal Treatment/ Methodology	Ongoing Maintenance
Roads and Tracks	- Bitumen roads - Unsealed tracks	Retained or removed	All roads and tracks to be removed will be ripped and revegetated in line with PMLU	Maintenance of retained roads and tracks to become the responsibility of future landowner in line with PMLU
Electrical	- Powerline - Substations - Transformers	Retained or demolished	Services to be removed where redundant, using appropriately licenced personnel and disposed to an offsite location	Ongoing maintenance aligned to current operating practices as per relevant utility/ operator.

Decommissioning, Decontamination, Demolition, Disposal (DDDD)

In 2024 CMA Contracting were engaged to assist MRO with developing an asset strategy from decommissioning through to disposal.

The overarching asset strategy for MRO is to adopt a 'net benefit' approach as a hierarchy, as follows:

- Offer to donate as appropriate for social benefit
- Resale first, then recycling of scrap and other high value items; and
- Demolish and dispose of remaining assets as part of closure activities.



To support this strategy, all fixed infrastructure and mobile assets have been identified and a register of assets has been developed.

MRO will complete any activities required to ready assets for donation, including cleaning, loading and liaison with delivery providers. Once donated assets have left the MRO mining leases, they become the property of the receiving party. An agreement will be signed to outline all obligations and responsibilities of each party where this occurs. Any assets to be retained (for a future landowner or neighbour) will also have a specific agreement developed to outline similar matters with future landholder. Required timing for removal (as per the approved PRC Schedule) will be noted on the site Asset Register.

Once infrastructure to be removed (for salvage or resale) has been identified, a review against preliminaries will be completed. For example, this will focus on understanding where underground services are located on the site services plan and ensuring all energy sources have been decommissioned, depressurised, and isolated prior to demolition. Decontamination processes will be completed by MRO personnel, such as for infrastructure as part of the processing circuits, or hydrocarbons within machinery. Alternately, appropriately qualified contractors (or site personnel) may be used for decontamination activities; and will also be used to 'gently' deconstruct items to be salvaged, and ready all items for transport to receiving parties.

Once all assets to be salvaged and donated have been removed, demolition will occur, in a manner to quickly and efficiently bring infrastructure to ground and pulled apart by large machinery, to allow for an extended process of sorting for disposal. A methodology for this stage is detailed within the MRO Closure Feasibility Report 2025 and generally involves using large excavators and cranes to implement induced collapse techniques, as well as standard mechanical demolition methods to accomplish the demolition. Oxy-cutting gas equipment may be utilised during the demolition process, with waste separated in accordance with the waste management plan for MRO.

Scrap metals will be collected on-site in designated scrap metal skip bins and removed by an appropriately licenced contractor for further separation according to scrap metal grade levels. Smaller scrap metal items containing regulated waste such as steel drums, will be treated for waste stream found within and subsequently crushed for recycling. Larger scrap metal items such as steel rods, reinforcing steel, aluminium products and pipes will be shredded for ease of separation and melted (according to properties) for recycling. Regulated waste materials shall be appropriately removed by a licenced waste contractor for recycling, treatment or disposal. Redundant concrete, hardstands, and roads will be removed, along with any residual linear infrastructure and services that have been decommissioned.

All water infrastructure including groundwater bores, seepage management structures and pumping infrastructure will be inspected before being retained (assumed to occur on request of a future landowner). Redundant boreholes to be removed shall be decommissioned and rehabilitated as per the Minimum Construction Requirements for Water Bores in Australia. A register of decommissioned bores shall be kept by MRO.

A Detailed Site Investigation (DSI) was completed for MRO in 2024, which assessed the potential for land contamination within all site areas (Error! Reference source not found.). This identified a range of areas for which Remedial Action Plans (RAPs) have been developed to inform potential remediation options, determine a preferred approach and identify materials to be remediated and acceptable locations for disposal. Further investigation and assessment of contamination land will also need to be conducted once infrastructure is removed. A subsequent Contamination Land Assessment Report shall be prepared (by a Suitably Qualified Person (SQP)) to verify that potentially contaminated land has been remediated as part of rehabilitation and closure activities. This report will include the following detail:

- A site investigation report, scientifically assessing whether contamination exists;
- A validation report, describing works undertaken as part of remediation activities; and
- A site suitability statement, stating that land is not contaminated and is suitable for the proposed PMLU.

All rehabilitation areas are required to undergo an assessment for identification of contaminated lands under the National Environment Protection Measure (NEPM).

Following minimum reprofiling requirements, topsoil should be applied to a minimum of 100 mm using available topsoil stockpile resources and should then be ripped to a minimum of 300 mm to promote the establishment of vegetation whilst allowing for infiltration and appropriate drainage. Following the initial implementation of revegetation practices, invasive species will be managed concurrently according to the weed management plan to allow the successful establishment of native species.

Landholder Agreement

Evolution Mining has a written agreement with the underlying landholder of Swindon Station (Refer to letter: *MRO Infrastructure Transfer Deed 2025* in Appendix 9.1.

The following infrastructure is to remain for the landholder for post-closure use:

- Site roads and tracks;
- Raw water dams and associated pipework;
- Sheds;
- Infrastructure to supply power to the site (powerlines, substation, switchyard).

Ongoing Maintenance

Ongoing maintenance of infrastructure is required throughout operational and closure phases until the landholder assumes ownership of the infrastructure planned for retention. From this point onwards, the landholder also assumes responsibility for the upkeep and maintenance of the remaining infrastructure.

RA 6 – Water Management Infrastructure and Dams

The intended final land use for water management infrastructure and dams (including supporting drains) at MRO is to remain as a water storage for beneficial reuse (including agricultural purposes such as stock water supply). A recently constructed wetland trial area will be retained until such time an assessment of its effectiveness is determined and whether it is required for continued water treatment.

To achieve their PMLU, the water in the dams must not pose any harm to the receiving environment. The safety risk of a water body of this nature also needs to be managed, so the water body poses minimal risk to people, wildlife, and stock.

The water dams can be considered successfully rehabilitated when:

- Dam walls and bypass channels are stabilised with adequate vegetation or rock.
- Erosion does not compromise dam wall integrity.
- In the case of a person or animal accessing the water body, egress from the dam should be manageable through reasonable means
- Water quality meets the intent of the PMLU of a water storage for beneficial use (i.e. stock watering)

Remediation measures to improve the water quality of water holding structures may include desilting (removal of heavy metals) and or installation of adequate stormwater and ESC structures (improve de-sedimentation). The floor of each dam will then be assessed and analysed to determine if additional excavation is required to remove any further contaminated material or certified by an accredited Land Contamination assessor/auditor to confirm the absence of any land contamination (refer to Rehabilitation Milestone 2 – Remediation of Contaminated Land).

A monthly sampling program for water quality monitoring within water holding structures is in place and will continue through post closure.

Appropriate diversion/ containment structures are designed to the appropriate risk event and constructed to minimise potential for scouring or dam wall failure. Where inspections identify that a dam wall requires re-profiling to improve drainage and or stability, it will be assessed by a Registered Professional Engineer of Queensland (RPEQ) with subsequent 'as-constructed' design certification obtained. As Constructed Designs shall be maintained in the Regulated Structures Register.

Seepage Treatment System (Bioreactor/Wetland System)

A full-scale trial wetland treatment system, was constructed by MRO in 2024 to treat seepage and runoff from the weathering of waste rock in the NWRD. This is covered in detail in section 5.7 (Rehabilitation Trials).

RA 7 – Borrow pits and Topsoil/growth-media stockpiles (within grazing land)

RA7 includes borrow pits and topsoil stockpiles located on grazing land not directly affected by mining operations and where cattle grazing practices have continued. Once borrow pits have been exhausted, the area will be reshaped, where required, to prevent erosion. Topsoil stockpiles will be utilised in rehabilitation activities, and once exhausted, their underlying footprint will be ripped and seeded with native woodland vegetation to meet the post-mining land use of low intensity grazing.

RA 8 – Borrow pits and Topsoil/growth-media stockpiles (within open woodland areas)

RA8 includes borrow pits and topsoil stockpiles located on open woodland areas used by mining operations and where mining landforms have been constructed (e.g. TSF, NWRD, WWRD and hardstand infrastructure areas). Once borrow pits have been exhausted, the area will be reshaped, where required, to prevent erosion. Topsoil stockpiles will be utilised in rehabilitation activities, and once exhausted, their underlying footprint will be ripped and seeded with pasture grasses to meet the post-mining land use of open woodland.

5.6 Revegetation

Revegetation Objectives

The following are the revegetation objectives for MRO, which are consistent with the proposed PMLUs:

- To enable the rapid establishment of vegetation on exposed areas to prevent erosion in the early stages of rehabilitation.
- To establish effective and robust vegetation/ecosystems consistent with four PMLUs:
 - Open woodland: a patchwork of sparse to moderate density of native trees, shrubs and pasture grasses to create a well-structured vegetation ecosystem (with canopy, understorey and ground cover) that also provides habitat for native fauna.¹⁹
 - Water Storage: the establishment of stable structure with adequate vegetation cover for bank stabilization and suitable water quality for stock consumption.
 - Low-intensity grazing: open areas of native pasture grasses including patches of sparse to moderately dense native canopy species and shrubs similar to that found in open woodland communities neighbouring the mining lease. These communities will provide shade for livestock and to a lesser degree, long term habitat for native fauna species. Grazing will provide economic benefit to future landholders and the community indirectly.

¹⁹ Presence of a grass ground cover may support low-intensity grazing and shade for livestock should grazing be used as a land management tool.

- Final Waste Storage Landform: supporting live vegetation cover on plateau areas that approximate a low open woodland comprising a patchwork of sparse to moderate density of native shrubs and native grasses to create a well-structured vegetation ecosystem (with canopy, understorey and ground cover) that also provides habitat for native fauna. The outer slopes of this PMLU do not require revegetation and are excluded.

Site Preparation Strategies

Site surface preparation is dependent on the rehabilitation area and will be detailed in the Closure Plans for relevant rehabilitation areas. Surface preparation activities will be required to follow the relevant quality assurance processes detailed in the rehabilitation area-specific ITPs. Ripping will be implemented to break up compacted areas (e.g. hardstands) and scarifying to be used along contours to prepare a seedbed.

Amelioration and Fertilising

Amelioration and fertilising of rehabilitation areas are dependent on the topsoil being utilised for the rehabilitation area. Topsoil sampling is to be conducted prior to placement on prepared landforms. Sampling is to be used to determine the existing basic parameters and nutrient level of the selected stockpile. Professional advice from an agronomist will then be obtained to determine the most appropriate type of fertiliser and level. Where possible, locally sourced fertiliser will be utilised where applicable e.g. local feedlots.

Seed Management

Purchasing of seed will occur from locally based seed suppliers, where applicable. Seed gathering or collection at MRO and surrounding areas may be required should seed availability be limited and is to be completed by suitably qualified personnel. In instances where specified seed species are unavailable, a reference to rehabilitation trials will be made for use of alternative species.

Seeds requiring storage prior to planting out should be maintained in cool, dry conditions and protected (if necessary treated) from insects. A suitable place to store seeds would be in air-tight containers in an air-conditioned room. Seed not stored with these conditions will have a shortened viability period and germination rates may decrease.

It is recommended that purchased seed be treated with a fungicide prior to delivery to protect the seed and also extend potential storage periods. Prior to using the seeds, first, determine any pre-treatment that may be required to enhance or facilitate germination.

Seed Broadcast

Areas to be direct-seeded should be prepared for seeding before the commencement of the wet season. Seeding should occur in late December or early January when soil moisture is sufficient to stimulate germination and there is a high probability of two (2) to three (3) months of rainfall to support establishment. Key environmental conditions where seeding is to be avoided are:

- When wind speeds exceed 15km/h;
- When the surface is fully saturated;
- When temperatures are exceeding 37°C;
- During heavy rain or when significant rainfall is forecast within five (5) days; or
- During any other significant weather event or a forecasted event is to occur within five (5) days. (events include fire, dust storms, localised flooding).

Periods of extended drought are a significantly limiting factor for successful rehabilitation practices. Rehabilitation during periods of drought will require additional resources such as watering to seeded areas until vegetation is considered established or rainfall occurs. The associated additional resources come at a significant financial cost and it is recommended that long-range forecasts be used to review and amend the PRCP Schedule to appropriate weather conditions.

A minimum seeding rate is proposed at 7.5 kg/ha of native grass seed and 1.5 kg/ha of native shrub seed.²⁰ Higher levels of seeding rate offer increased opportunity for successful levels of sustainable seed germination.

Rehabilitation trials will sample varying seeding rates and where successes are recorded, seeding rates for rehabilitation areas will be amended.

Establishment Period

Germination should be visually monitored one (1) month after seeding. If germination has failed it may be necessary to reseed while there is a probability of follow-up wet season rain. Long-range weather forecasts can assist in making this decision. Reseeding should not be undertaken later than 1 April unless unseasonal wet weather is forecast. In such event, retreatment should be scheduled for the following wet season.

Weed treatment will be required during the establishment period (the first two years). Weed control is to be targeted by spot spraying of weeds. Newly established rehabilitation areas shall be protected from fires that may negatively impact on rehabilitation viability. Firebreaks shall be established around rehabilitation areas as required and fuel reduction burning shall be carried out in accordance with the Fuel Reduction Burning Procedure (MRO_EVN_PRO_0262).

Key Flora Species

The proposed flora species to be planted in disturbed areas is presented in **Table 59** and is based on a review of existing regional ecosystem (RE) mapping found that RE 12.11.6 (*Corymbia citriodora* subsp. *variegata*, *Eucalyptus crebra* woodland on metamorphics +/- interbedded volcanics) to be the most widespread and dominant surrounding the MRO site (**Figure 24**).

Recent PMAV (property map of assessable vegetation) mapping of the MRO area and surrounds found it to be dominated by RE 12.11.6 (least concern) comprising a woodland to open forest of *Corymbia citriodora* with associated *Eucalyptus crebra* and *Corymbia intermedia* (40 % cover, 24 m height) over a sparse subcanopy of *C. citriodora* with subdominant *Acacia disparrima* and *E. crebra* (15 % cover, 10 m height). A sparse low tree layer was present of *A. disparrima*, *Alphitonia excelsa*, *Acacia leiocalyx* (30 % cover, 4 m height). A very sparse shrub layer was present comprising *A. disparrima*, *Acacia leiocalyx*, *Lantana camara** (2 % cover, 1.2 m height). The ground layer was mid-dense dominated by *Aristida queenslandica* with subdominant *Eragrostis* sp, *Themeda triandra*, *Heteropogon contortus*, *Arundinella nepalensis*, *Chrysocephalum apiculatum* and *Stylosanthes viscosa**²¹ (60 % cover, 0.3 m height).

Other mapped REs included:

- 12.3.3 *Eucalyptus tereticornis* woodland on Quaternary alluvium

²⁰ On the revegetation trial pads native tree species will be tested and sown a rate of 3 kg/ha.

²¹ * - denotes an environmental weed species

- 12.3.7 *Eucalyptus tereticornis*, *Casuarina cunninghamiana* subsp. *cunninghamiana* +/- *Melaleuca* spp. fringing woodland.
- 12.11.12 Araucarian complex microphyll vine forest on metamorphics +/- interbedded volcanics (QH 2024), and
- 12.12.5 *Corymbia citriodora* subsp. *variegata*, *Eucalyptus crebra* woodland on Mesozoic to Proterozoic igneous rocks
- 12.12.12 *Eucalyptus tereticornis*, *Corymbia intermedia*, *E. crebra* +/- *Lophostemon suaveolens* woodland on Mesozoic to Proterozoic igneous rocks.

The species proposed are subject to change based on outcomes from rehabilitation trials and where seed is not available in sufficient quality or quantity as listed for RE 12.11.6 in **Table 59**, it will be substituted by an equivalent weight of a comparable open woodland species within the same storey type or technical descriptions of RE 12.11.5, 12.11.8, or 12.12.5.

Table 59: Preferred Species for Use in Rehabilitation and Associated Regional Ecosystem 12.11.6

Storey Type	Species Name	Common Name	Notes & Reference RE
Tree	<i>Corymbia tessellaris</i>	Carbeen or Moreton Bay Ash	Dominant – associated with RE 12.11.6
	<i>Corymbia citriodora</i> subsp. <i>variegata</i>	Spotted Gum	Dominant – associated with RE 12.11.6 & 12.12.5
	<i>Corymbia intermedia</i>	Pink bloodwood	Dominant – associated with RE 12.11.6
	<i>Eucalyptus crebra</i>	Narrow Leaved Ironbark	Dominant – associated with RE 12.11.6
	<i>Eucalyptus moluccana</i>	Gum-topped Box	Dominant – associated with RE 12.11.6
	<i>Eucalyptus tereticornis</i>	Forest Red Gum	Dominant – associated with RE 12.11.6
	<i>Eucalyptus siderophloia</i>	Northern grey ironbark	Dominant – associated with RE 12.11.6
	<i>Eucalyptus exserta</i>	Queensland peppermint	Dominant – associated with RE 12.11.6
	<i>Eucalyptus melanophloia</i>	Silver-leaved ironbark	Dominant – associated with RE 12.11.8
Shrub	<i>Acacia aulacocarpa</i>	Salwood	Occurs in Bioregion– associated with RE 12.11.6
	<i>Acacia crassa</i>	Curracabah	Occurs in Bioregion
	<i>Acacia decora</i>	Western silver wattle	Occurs in Bioregion
	<i>Acacia disparrima</i> subsp. <i>disparrima</i>	Hickory Wattle	Occurs in Bioregion– associated with RE 12.11.6
	<i>Acacia excelsa</i>	Ironwood	Occurs in Bioregion
	<i>Acacia falcata</i>	Sickle Leaf Wattle	Associated with RE 12.11.6. Nitrogen-fixing, good for soil improvement.
	<i>Acacia fimbriata</i>	Brisbane wattle	Associated with RE 12.11.6
	<i>Acacia julifera</i>	n/a	Occurs in Bioregion
	<i>Acacia leiocalyx</i>	Black Wattle	Dominant – associated with RE 12.11.6
	<i>Acacia maidenii</i>	Maiden's wattle	Occurs in Bioregion– associated with RE 12.11.6
	<i>Acacia penninervis</i>	Mountain Hickory	Occurs in Bioregion
	<i>Acacia rhodoxylon</i>	Ringy Rosewood	Occurs in Bioregion
	<i>Acacia salicina</i>	Native Willow	Occurs in Bioregion
	<i>Acacia ulicifolia</i>	Prickly Moses	Occurs in Bioregion
	<i>Alphitonia excelsa</i>	Red Ash	Dominant – associated with RE 12.11.6
Legume	<i>Glycine tabacina</i>	Glycine Pea	Broadscale application
	<i>Crotalaria montana</i>	Rattlepod	Broadscale application

Storey Type	Species Name	Common Name	Notes & Reference RE
Grass	<i>Aristida queenslandica</i> <i>var. queenslandica</i>	Wire grass	Occurs in RE 12.11.6
	<i>Bothriochloa decipiens</i>	Pitted Bluegrass	Occurs in Bioregion: Erect, perennial grass that is widespread across communities in Southeast Queensland. Low weed potential, tolerant of low nitrogen levels, adapted to areas with over 500 mm of rainfall, but will persist in drier areas.
	<i>Bothriochloa bladhii</i>	Forest bluegrass	Occurs in Bioregion
	<i>Cymbopogon refractus</i>	Barb Wire Grass	Occurs in RE 12.11.6: Prefers poor soils, low forage value, drought tolerant.
	<i>Chrysopogon filipes</i>	Veviter Grass	Occurs in Bioregion
	<i>Echinochloa telmatophila</i>	Swamp Barnyard Grass	Occurs in Bioregion
	<i>Heteropogon contortus</i>	Black Spear Grass	Dominant – associated with RE 12.11.6
	<i>Lomandra longifolia</i>	Cluster-Headed Mat-Rush	Occurs in Bioregion
	<i>Lomandra multiflora</i>	n/a	Occurs in Bioregion
	<i>Panicum decompositum</i>	Star grass	<i>Panicum decompositum</i>
	<i>Themeda triandra</i>	Kangaroo Grass	Occurs in RE 12.11.6: Associated with woodland vegetation communities in the Southeast Queensland region

Topsoil (Growth Media) Stockpiles

The primary goal of topsoil management is to store and preserve topsoil resources for optimal recovery and application for rehabilitation. Where possible, topsoil stockpiles should be placed within the catchment of a sediment dam and within the range of adequate ESC measures. These will be employed on and surrounding stockpiles to prevent loss of nutrient and resources through erosion. This is also achieved through the construction of stockpiles with a scoured surface to increase infiltration and promote the growth of vegetation whether seed mix has been applied or is left to naturally revegetate.

Should stockpiles remain for longer than one year, seeding will be applied if adequate self-seeding does not occur. Accurate surveying of topsoil stockpiles is required to assess quantity, condition of resource and presence of weed species, to determine whether any amelioration is required. Invasive species will be managed routinely in accordance with site procedures and the *Queensland's Land Protection (Pest and Stock Route Management) Act 2002*. Continued management of invasive weed species is necessary to successfully reduce seed stock within the soils.

Species of Conservation Significance

Where it is consistent with the PMLUs, habitat for threatened fauna or species of significance is to be incorporated into the landscape as suggested below.

Koala

Habitat for Koalas will be incorporated into the open woodland PMLU. This will be achieved by ensuring that selected tree species will be relevant food trees for Koalas. The tree species selected that meet these criteria are listed in **Table 60**.

Table 60: Koala Preferred Food Tree Species to be Used in Selected PMLUs

Scientific Name	Common Name	Preference Level for Koalas
<i>Eucalyptus tereticornis</i>	Forest Red Gum	Primary
<i>Eucalyptus crebra</i>	Narrow Leaved Ironbark	Primary
<i>Lophostemon confertus</i>	Brush Box	Secondary

Greater Glider

Greater Gliders habitat occurs in high-basal areas of over-story and requires large areas of old-growth forest that includes hollows. The average establishment of naturally occurring hollows takes place within an ecosystem from 10 years and onwards. Given that the proposed monitoring period for the establishment of PMLUs is 10 years, it is not expected that Greater Gliders will occur within the monitoring period. Long term establishment of trees will promote naturally occurring habitat at later stages.

Little Pied Bat

The Little Pied Bat prefers dry open forest and open woodland for habitat. The PMLU incorporation of open woodland will support habitat for this species with no additional management inputs.

Quoll

In 2020, ARE was commissioned to provide a review of the MRO Quoll Management Plan, the site area and data collected during annual monitoring. A recommendation has been provided that given the limited available evidence of Quoll presence with the MRO area and the high level of predator species, it is unlikely that Quoll's would utilise the MRO area as suitable habitat, therefore further monitoring of the species be ceased. Under this recommendation, no additional measures have been implemented into the PMLUs for supporting specific Quoll habitat requirements.

Grey-headed Flying Fox

The Grey-headed Flying Fox utilises eucalypt forests and woodlands for habitat and flowering gum tree species for food. The PMLU Open-woodland and light-intensity grazing supports the development of habitat for this species, by providing long term habitat (open woodland) and also food trees (refer to **Table 59** for species list of selected trees). No additional management inputs are required.

Powerful Owl

Whilst no specific habitat requirements have been incorporated into the proposed PMLUs for the Powerful Owl, the Open woodland and Low-intensity Grazing PMLU will support the species return with no additional management inputs required.

Squatter Pigeon

Habitat for Squatter Pigeons is to be incorporated into the PMLU Open woodland and low-intensity grazing and also low-intensity grazing. This species requires two (2) main aspects of habitat to sustain a population; a diversity of native and introduced pasture species and herbs for food supply and also a minimum tree cover that generates mid-range story cover for habitat. The relevant PMLUs seed selection is likely to meet the requirements for the support of a Squatter Pigeon population with no additional management inputs.

Revegetation Approach

Rehabilitation methodology for MRO is discussed below in the corresponding sections. The development of Quality Assurance processes and documents is discussed about Milestones; specifically the development of a Rehabilitation Quality Assurance Procedure that will include the development of rehabilitation area-specific Inspection Test Plans (ITPs) for each stage of rehabilitation works (e.g. Landform Design and Construction, Drainage construction, Topsoiling, Fertilising and Seeding and Landform Approval).

Reference Sites

Undisturbed sites of natural vegetation endemic to the MRO area will be selected and the condition of these and rehabilitated mine areas monitored on a year-to-year basis to compare the effects of seasonal variation on rehabilitation performance and success in achieving the proposed PMLU.

Specific locations for the relevant reference sites will be determined prior to completion of revegetation of each proposed rehabilitation area.

5.7 Rehabilitation Trials

Three types of rehabilitation trials are planned leading up to the end of mine life to test the design attributes outlined within this PRC Plan, these include:

1. Mine landform cover trials and performance monitoring – includes cover systems for the TSF (NWRD under consideration as covered by the TSF cover trial sharing a similar design)
2. Passive water treatment of mine wastewater – bioreactor/wetland water treatment
3. Revegetation and seed viability – to test various seed types and revegetation methods – includes the *Trailblazer Project*.

Mine Landform Cover Trials

TSF Cover system trial and performance monitoring

Trial design and location

A series of cover trial plots were constructed by MRO during October 2024 on the TSF. As the material requirements (i.e. soil, clay and rock) to construct the cover layers on the TSF are the same as that proposed for the NWRD, and as design specifications for both cover trials were similar, no trial is planned by MRO for the NWRD cover.²²

The selection of the trial location was based on the following criteria:

- The trial area should resemble the overall site condition of the TSF.
- The trial area should have a similar slope to the proposed final landform.
- The trial area should be compatible with the tailings deposition plan and placement/relocation of PAF waste rock.

²² Two previously proposed cover trial sites were discounted. i) On top of the NWRD: There is no free area on the NWRD suitable to host a long-term trial as large parts of the dump will undergo significant PAF rock rehandling and extensive placement of an interim NAF rock cover. ii) The waste rock pad trial designed and built by MRO in 2016 was discontinued by end 2017, due to issues with the as-constructed design unable to produce sufficient leachate for geochemical sampling.

- The trial area should not likely be disturbed as the cover system trials will be required for an extended period to understand performance.
- The trial area should be accessible for construction, monitoring and maintenance.
- The trial area should be large enough to remove the potential for edge effects.

The selection of a trial location on the western cell was justified as:

- It is an isolated cell that is removed from operations in area that can be kept independent of longer-term operation of the TSF.
- The area grades approximately 0.7% to the northwest and representative of the TSF surface.
- There is access via the TSF Western Access and north via the Haul Road and TSF Well 5.
- The area is large enough to facilitate the trials (approximately 50 m by 60 m at the base) and reduce edge effects. The area to the southwest was also large enough to accommodate three separate UQ trial plots (approximately 30 m by 30 m at the base).

Detailed design and technical specifications for constructing and three TSF cover system trials were produced by ATC-Williams (ATCW 2024f) with the purpose of evaluating the performance of potential cover system options for the rehabilitation and closure of the TSF. The detailed design report provides the rationale, design considerations and technical requirements for the trials and by extension, also to the final cover required for the TSF. As outlined in PRCP Section 5.5: *Rehabilitation Areas (RA) and Landform Designs – RA3 Tailings Storage Facility – Tailings cover System Design*, three cover designs are to be trialled: Cover A, Cover D and modified cover D (**Figure 90**).

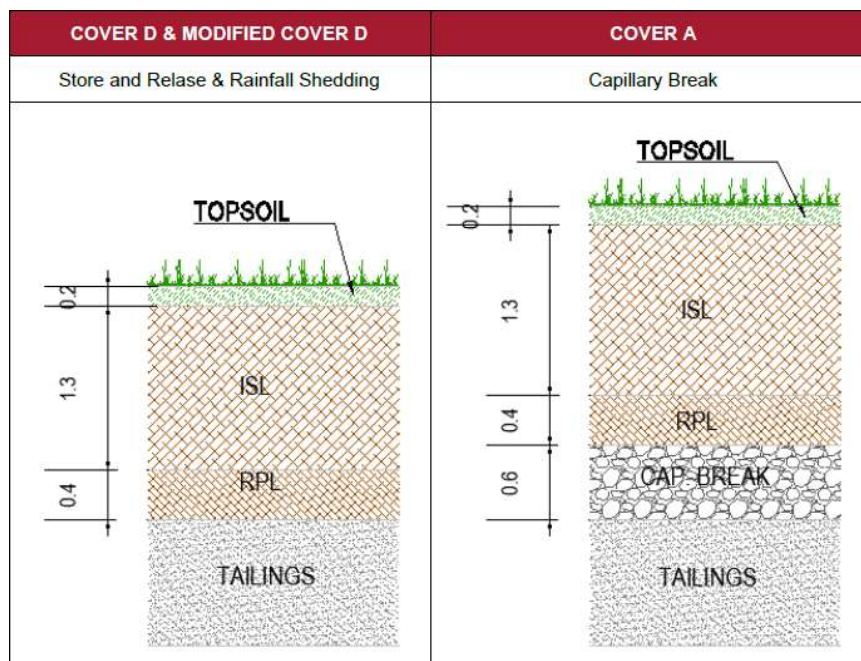


Figure 90 : Three optimised cover designs for TSF trial plots (ATCW 2024f)

Additionally, the MRO-preferred design (Cover D) was replicated as 3-smaller trial plots to form part of the *Trailblazer Project* (a partnership between MRO and the University of Queensland’s Sustainable Minerals Institute) outlined below.

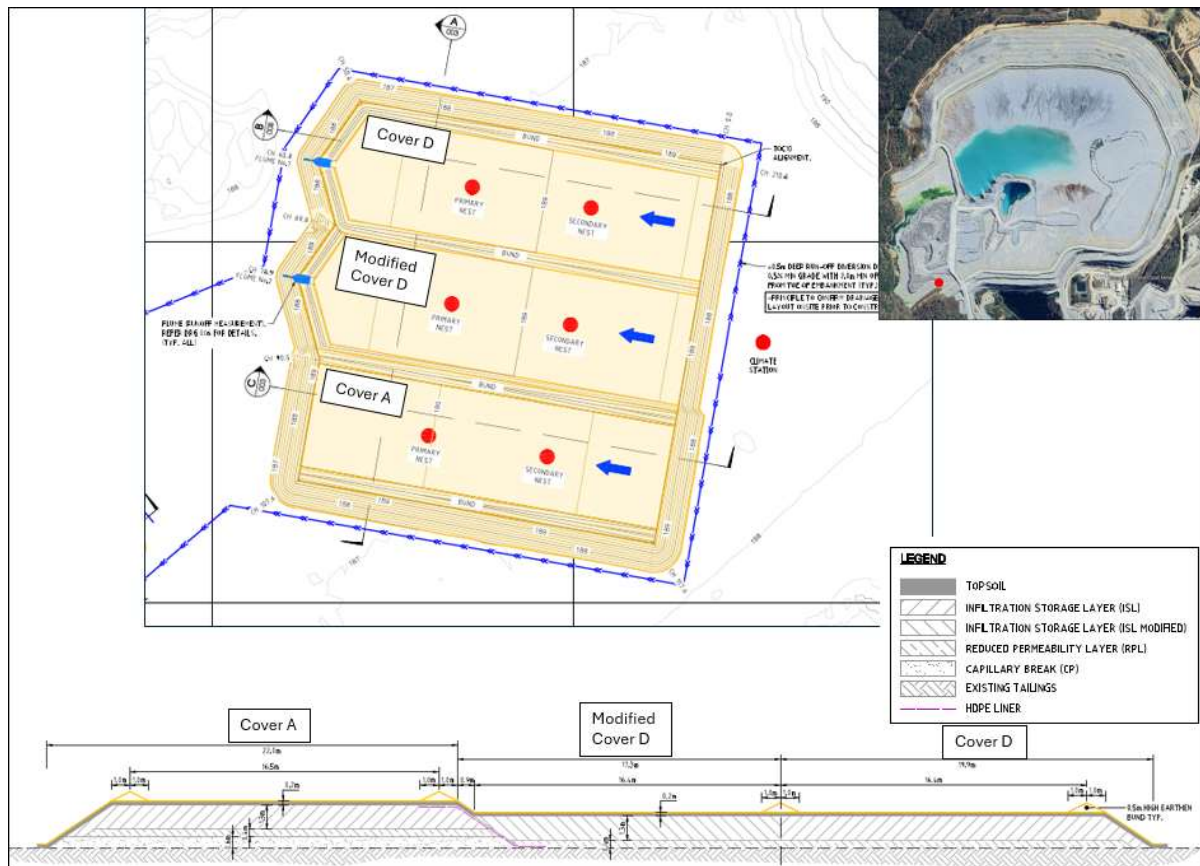


Figure 91 : Location, plan and cross-sections of Cover A, Modified cover D and Cover D trial pads (ATCW 2-24f)

Trial plot Instrumentation & monitoring

Cover system monitoring instrumentation will be installed within each cover system layer within each trial cell (**Figure 91** and **Figure 92**). These sensors will measure in situ matric suction, volumetric water content, temperature and EC. Matric suction and volumetric water content will be used to assess movement of water through the cover from the surface and, potentially, from the tailings.²³

Each trial cover trial plot will have the following instrumentation installed:

- **Sensors:** A 'primary nest' of matric suction and volumetric water content sensors will be installed at various depths within the cover system profile of each trial plot (**Figure 92**). A suction plate lysimeter and vibrating wire piezometer are also planned to be installed on each trial plot. A 'secondary nest' will be installed with volumetric water content sensors to capture spatial variability;
- **Data Logger:** A data logger will be installed to collect and store data from the instrumentation and will be located on the surface of the primary nest;
- **Weather Station:** A single weather station will be installed within a representative area to the east of the trial plot to collect data on the weather conditions;

²³ Note: Volumetric water content sensors measure soil water content in the soil profile. They also measure temperature and bulk EC. Matric suction sensors measure soil water suction.

- **Surface Water Runoff Flume:** A prefabricated flume will be installed at the Cover D and Modified Cover D to measure runoff volume. Cover A has the same surface profile as Cover D and therefore surface water runoff will not be monitored.

As surface water runoff is an important component of the overall water balance of the cover system, flumes will be installed to measure the volume of water that runs off the cover system during rainfall events. These data are critical for evaluating the effectiveness of each cover system design in directing water away from infiltration and potential seepage towards the tailings/PAF waste rock. A berm will be used to direct surface water runoff of Cover D and Modified Cover D to the Flume, which is designed to monitor both low and high flow.

In addition, a remote visual monitoring will be facilitated by a Wi-Fi camera placed to monitor condition of the three trial plots (to capture rain events, vegetation establishment and plant condition).

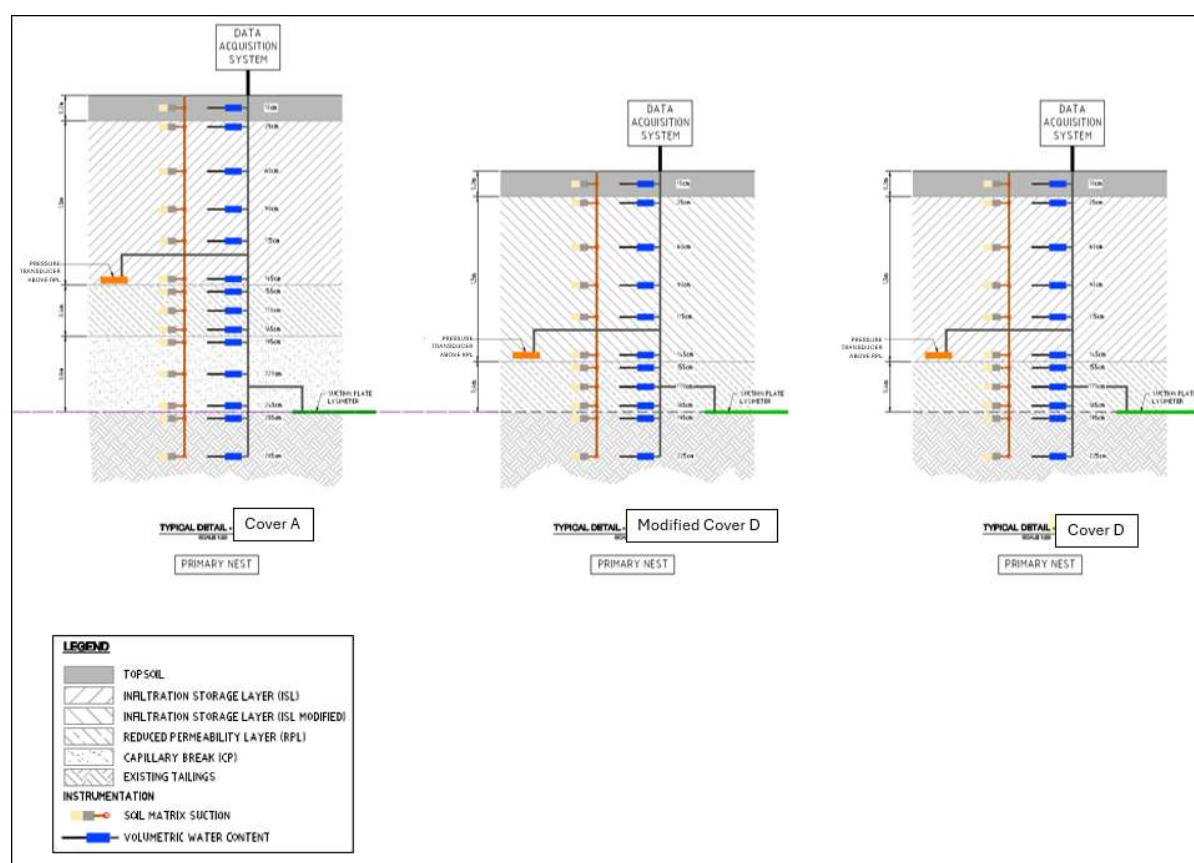


Figure 92 : Schematic cross-section of instrumentation nests planned for cover trial plots (ATCW 2024f).

Vegetation

The establishment of vegetation on the cover system will be an important aspect of the long-term rehabilitation and closure of the TSF. The plant species selected will be consistent on the three trial plots and contain mixed vegetation. The plant species will be determined by MRO and UQ's SMI as part of the UQ trials but all will follow the vegetation species for open woodland represented by Regional Ecosystem 12.11.6 as listed in **Table 59**.

Factors to be considered will include:

- Plant soil-water function (i.e. rooting character and evapotranspiration) aspects favourable to store and release cover performance.
- Selection of suitable plant species adapted to the local climate and soil conditions.
- Establishment methods (e.g., seeding, planting seedlings).
- Potential need for irrigation during the initial establishment phase.

Monitoring And Maintenance Plan

A Monitoring and Maintenance Plan is designed to gather data on the performance of each cover system throughout the trial period. The data will be used to evaluate the performance of each cover system design in achieving the performance criteria. The trials will be required for a minimum of 5 to 10 years, depending on initial monitoring results, to gain an understanding of cover system performance. If practicable, the trials will be retained in the longer term and integrated into the long term monitoring system.

The results of the trials will be used to calibrate a water balance model to more accurately predict the longer-term performance of the covers and thereby select the best cover system for the rehabilitation for the TSF. An optimised cover system design can then be implemented for full scale construction of the cover system.



Figure 93 : ATC-Williams and Trailblazer cover trial plot locations on TSF (October 2024).

The Trailblazer Program

MRO- SMI Trailblazer partnership

The Resources Technology and Critical Minerals Trailblazer is part of a large, \$370.3 million Australian Government-funded Trailblazer Universities Program that was formed to enhance research

capabilities, foster commercialisation, and create new opportunities for industry collaboration (Australian Government 2024). Led by three selected universities, Curtin University, The University of Queensland and James Cook University, the program is focused on driving Australia's innovation agenda to encourage the translation and commercialisation of university research, strengthening capability and driving real-world impact within the resources technology and critical minerals sector.

In early September 2024, Mount Rawdon Operations P/L (MRO) entered a 3-year collaborative Trailblazer project with the Sustainable Minerals Institute (SMI) at the University of Queensland. MRO and the SMI developed collaborative opportunities to address key research questions related to the sustainable closure and rehabilitation of MRO.

Research scope

The main area of research interest is the rehabilitation of the tailings storage facility (TSF) and the exploration of novel technologies for assessing the performance of a cover system, by incorporating vegetation to form 'live covers' - using resilient species of plants referred to as 'superplants' and assessing their ecohydrology and biogeochemistry before the full closure of the TSF. The current rehabilitation plan for the TSF involves the placement of an engineered 'hybrid' cover system that will feature both store-and-release and water-shedding functionality.

A novel time- and cost-effective 'scale up' approach for the rehabilitation of mine tailings and rock waste, will be developed using macrocosm vegetation trials which will up-scale to full-scale field trials to test the performance of 'live covers' and 'hybrid' mine landform covers. The outcomes of this scale-up approach will enhance confidence in the performance of the soil cover and vegetation, informing the design of large-scale field trials and the implementation of final rehabilitation plans.

The core programme is structured as two stages. Stage 1 comprises the use of mesoscale (1-1.5 tonnes) instrumented lysimeters to replicate physical constructed models of rehabilitation, testing the performance of 'superplants' and the ecohydrology and biogeochemistry of soil, water, and plant systems that form 'live covers' that will cap final engineered hybrid rock and soil covers to the TSF and waste rock dump landforms at MRO.

The lysimeters will be used to evaluate the performance of various native plant species selected for establishing vegetation on the TSF cover, conforming with an open woodland post-mining land use. The lysimeters will be run as physical simulations of a constructed cover, with, and without, the embedded plant species. Water flow, soil water potential, volumetric water content, and solute transport in the cover will be monitored using in-situ sensors (**Figure 94**).

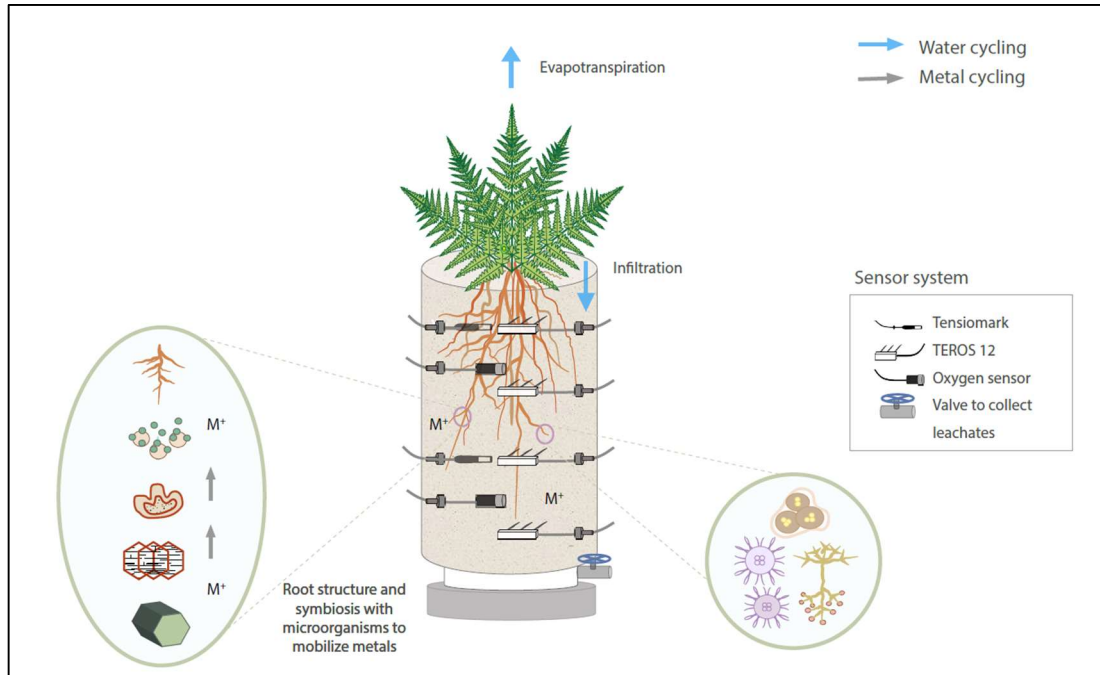


Figure 94 :Schematic of an instrumented lysimeter. The actual lysimeters used will be constructed as a stacked array of plastic 44 gallon drums (UQ-SMI).

Soil-plant-water nutrients, trace elements and carbon cycles will be monitored through periodic water quality sampling. The cover water balance, measured by evaporation, evapotranspiration, and change in contained water storage will inform a water flow and solute transport model to determine the plant water uptake as well as the performance of the cover layer (**Figure 95**).

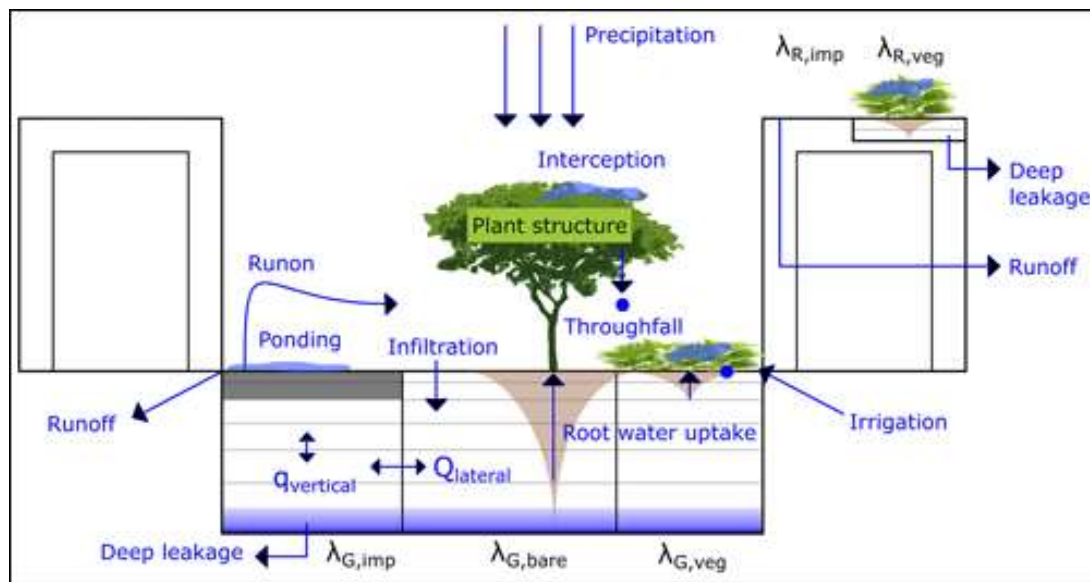


Figure 95 : Schematic of vadose zone water fluxes for bare and covered soil cells.

Source – Meili et al.(2020)

The lysimeter trials will help observe, test and model elements of soil cover structure, and also allow measurement of biological aspects such as root and microorganism symbiosis, root architecture, root water access, and root penetration effects. The first year of the project will also include the survey of a reference site for the select trial plant species to understand the growth characteristics of those plants in their natural habitat under varying climatic conditions.

The lysimeters will be supplemented by glasshouse vegetation pot trials to test selected plant species establishment including germination/strike and survival rates and suitability of growth media substrates and amendments.

This information will inform stage 2 of the project, comprising three large-scale field trial cover plots - each 30m x 30m in dimension – that were constructed on the TSF in October 2024 and to be instrumented early 2025 (**Figure 96**). The field trials will test various vegetation cover scenarios - open woodland, shrubland and grassland, taking into account the material used in construction of the cover, information gathered in the lysimeter study, and the final hydraulic gradient of the TSF surface. Water balance parameters, vegetation performance, and seepage chemistry will be monitored as well as water flux. Collectively, all the monitored trial parameters will provide quantitative results for the live vegetation cover and the constructed store and release soil cover, giving an understanding of the plant-water-soil function and the performance of the trials, and an opportunity to integrate this information into sustainable mine rehabilitation plans.

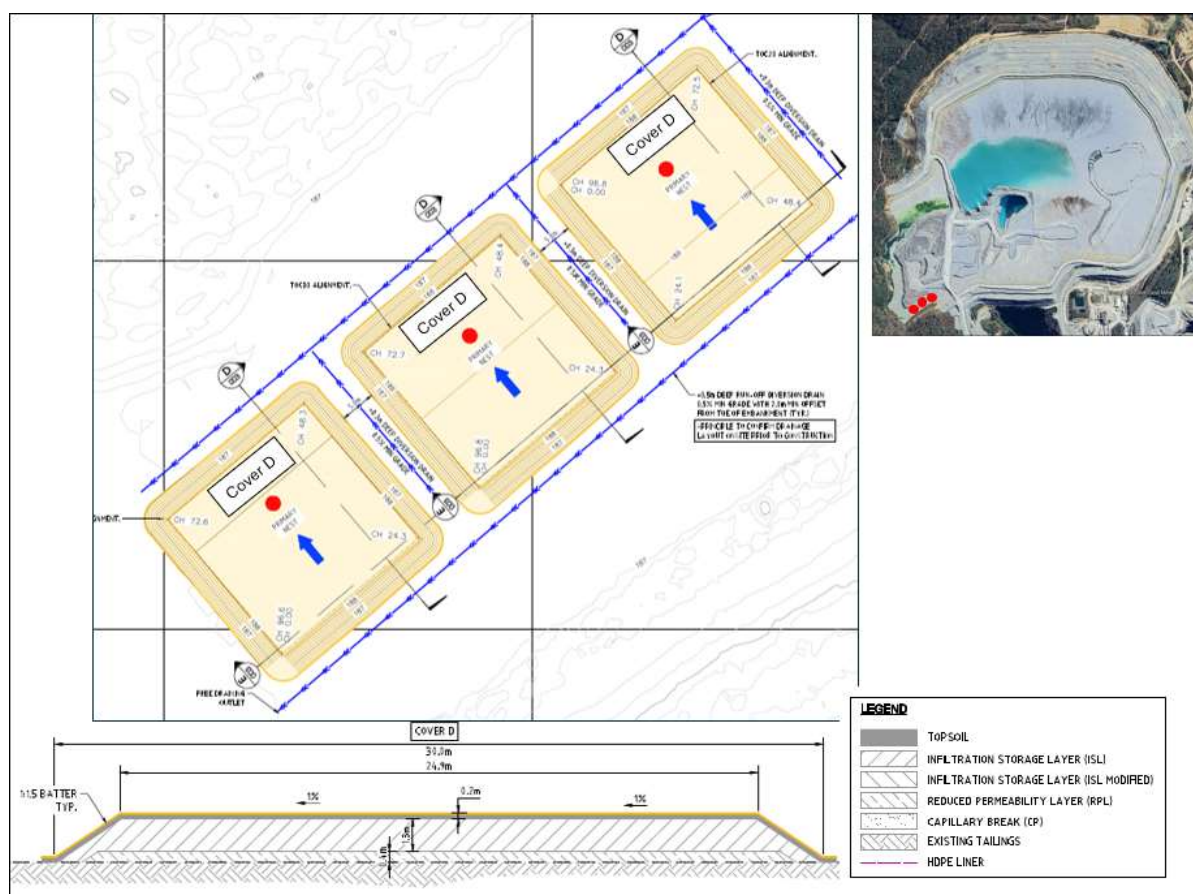


Figure 96 : Location, plan and cross section of x3 Cover-D "Trailblazer" trial plots (ATCW 2024f).

By generating a database of parameters necessary for designing a self-sustaining 'live cover', the project should establish a case for a collaborative scale-up testing facility dedicated to research in, and providing testing services for, mined land rehabilitation applications. The outcomes of this scale-up approach will significantly enhance confidence in the long-term performance of a live cover established upon a mine landform.

Passive Water Treatment - Wetlands

Previous investigations

A small wetland pilot trial, that followed initial laboratory bench-scale work (Cheng et al., 2021), was conducted from 2019 -2020, in partnership with CSIRO and Australian Wetland Consulting (AWC), successfully improved NWRD seepage water quality received by WD2. The constructed wetland utilised sulphate-reducing bioreactors (SRB), and a Ferrosol Soil Treatment to attempt the reduction of sulphate concentrations and other Contaminants of Potential Concern (COPC) within the captured waste rock dump seepage water to a quality that could allow the controlled release of treated any waters into the receiving environment.

The trial also involved the application of the *Virtual Curtain*® as an initial treatment within WD2, followed by the installation and implementation of three (3) concept sulphate ‘filtration’ technologies, operating in conjunction in a ‘mini-wetland’, for the treatment of stormwater runoff and leaching from mine waste areas such as the North WRD and TSF site for eventual release into the receiving environment.

A preliminary application of hydrogen peroxide to the source WD2 water was required as an algicide prior to implementing the *Virtual Curtain*® Trial. By removing the algae, phosphorus (P) and heavy metals bound to the algal filaments were released into a chemically available form that the *Virtual Curtain*® could specifically target. The *Virtual Curtain*® trial involved the mixing and application of chemicals (Sodium Aluminate liquid, Sodium Hydroxide liquid and Magnesium Hydroxide liquid) across the entire surface area of WD2. This developed a white clay precipitate or ‘curtain’ in the water column, which sequestered dissolved P and COPC from the water column and settled them on the base of the dam. The precipitate also provided a buffering system by locking P and COPC into the sediment floor and prevented future release of P making it biologically unavailable to algae, thus limiting their future and potential growth. Additionally, any heavy metals that could potentially inhibit the sulphate reducing bacteria crucial for the constructed wetland trial would also become biologically unavailable.

The pilot wetland trial used a combination of systems by first flushing the site impacted stormwater generated from the North WRD through two (2) models of sulphate reducing bioreactors, and a Typha spp. inhabited wetland, designed to also reduce sulphate to sulphide at a lower rate. These systems were all linked to individual ferrosol soil treatment systems that removed sulphate by precipitation of iron sulphides. Zinc and cadmium were also planned to be removed in the process through coprecipitation with the iron sulphide.

The results of the pilot trial formed the basis for a scaled-up design for a field trial large enough to address the site-wide water quality issues for release into the receiving environment.

Constructed Bioreactor/Wetland

Located upstream of waste rock dam 2 (WD2), a composite seepage treatment system (or bioreactor/wetland) was constructed in 2024 to a design aimed to reduce elevated concentrations of water quality constituents contained in the seepage to levels where the treated water could meet all required water quality objectives to either be safely released to the receiving environment, or for beneficial reuse as water source for cattle grazing. The focus of this option is to passively treat water from the mine site to support its application for future land uses.

The treatment design provided by Alluvium Consulting Australia P/L broadly follows a 2-stage process comprising an initial anaerobic (“bioreactor”) treatment stage (Alluvium 2023a) followed by an aerobic (“polishing wetland”) treatment stage (Alluvium 2023a) of seepage water (**Figure 97**).

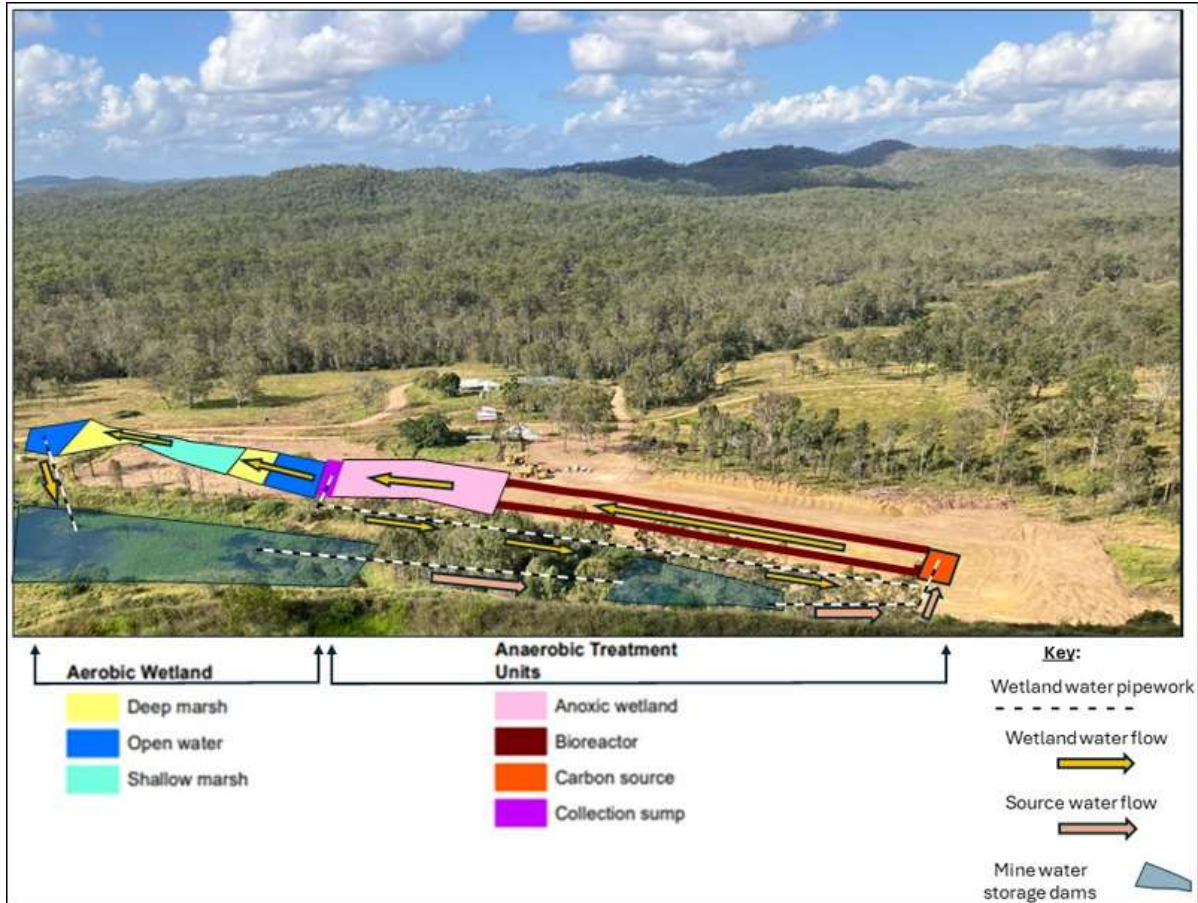


Figure 97 : Layout of anaerobic and aerobic seepage treatment system showing treatment flow paths (June 2024).

In summary, a schematic process flow diagram and an as-constructed aerial view of the bioreactor/wetland (**Figure 98**) shows that:

1. The anaerobic treatment (stage 1) comprises:
 - A subsurface bioreactor unit (Bio) consisting of x2 anaerobic chambers filled with wood mulch and gravel to host Sulfate-Reducing Bacteria (SRB) that will reduce sulfate to gaseous hydrogen sulfide;
 - An anoxic wetland (AnxW) downstream of the bioreactors that is a mixed gravel, wood mulch and hay mulch bed allows continued subsurface treatment to further remove sulfate and nitrate, aided by wetland plants (e.g. bullrush) planted on the surface of this structure;
 - The water in stage 1 is recirculated to the top of the bioreactor several times through a carbon source basin (CS) until a quality is reached where it can be transferred to the stage 2 aerobic wetland.
2. The tertiary aerobic wetland (stage 2) comprises a multilevel series of open water ponds (AW1-3), and both shallow (SM) and deep marsh (DM) wetland cells that collectively provide additional treatment to remove total nitrogen (TN) and total phosphorus (TP).

A target through-put of 230m³/day is planned to be treated as it covers most of the projected seepage base inflow into WD2. The bioreactor/wetland trial was commissioned in early January 2025, and it is estimated that a period of 18 – 24 months will be required for wetland plants and SRB microbes to establish and become fully functional. This means that in the first few months it is unlikely that sulfate removal will occur at any significant rate while the microbial community in the bioreactors establishes itself and wetland plants to reach full growth are able to effectively phytoremediate metals and

nutrients (TN and TP) in the polishing ponds. Therefore, final treated water that is not recycled to the top of the treatment system will be returned to WD2 in a closed loop.

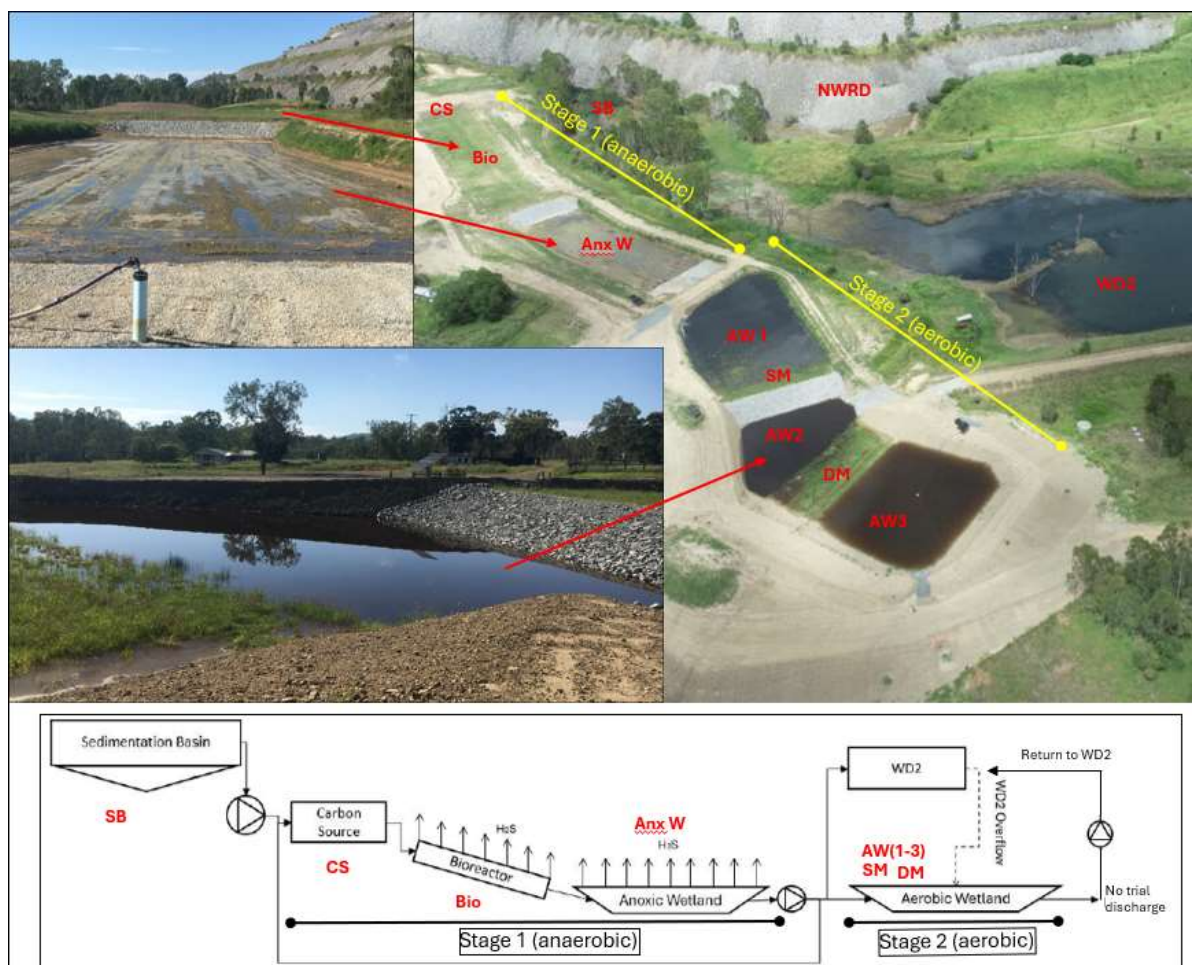


Figure 98 : Commissioned seepage treatment system layout and process flow diagram (MRO Jan. 2025).

The bioreactor/wetland treatment system is currently being trialled to understand its overall performance and there MRO has not progressed with a wholistic water treatment system for post closure water management. If the trial proves to be feasible for the passive treatment of seepage from waste rock dump and TSF landforms the next stage will be to progress with the wholistic conceptual design.

Success Criteria

Rehabilitation trial success will be assessed once the findings have been analysed against the potential for full-scale operations to be implemented. Quality assurance and controls will be used to assess each stage of the project and development. Completion criteria are based upon achieving desired water quality results consistent with the post mine land use of stock water (see Section 7.1). The release criteria will need to meet design WQO/EV's, either on release from the bioreactor/wetland or after flowing through a mixing zone into receiving waters.

Revegetation methods and seed viability

Rehabilitation trials of vegetation performance of proposed PMLU's will be conducted to evaluate specified seeding rates and selection of seed species in terms of success in the landscape. Findings of the rehabilitation trials will be included in successive reviews of the PRCP.

The main elements to be monitored in the PMLU rehabilitation trials include:

- Alternative seed species that meet the completion criteria
- Density and structure of seeding mixes
- Assessment of the soil and overburden/interburden mix on vegetation establishment and growth

As the rehabilitation trials progress, additional elements may be identified and incorporated if applicable. The rehabilitation trials are not designed to delay the onset of rehabilitation works according to the PRCP Schedule.

6 Risk Assessment

6.1 Surrender of the Environmental Authority

A surrender application must comply with the requirements of Section 262 of the *EP Act 1994*.

MRO must provide a progressive or final rehabilitation report which includes a compliance statement. The final rehabilitation report is to contain an environmental risk assessment for the land that complies with section 264(2) of the *EP Act 1994*. The environmental risk assessment must have used a methodology that has been approved by the administering authority; this will be used as a key step for identifying any residual risks and costs associated with MRO. The associated costs will be representative of potential repairs (for structures that may fail), required monitoring and long-term maintenance costs for the ongoing management of the rehabilitated land.

The identified residual risks will incur a payment as a pre-condition to the surrender of the EA, allowing the administering authority to address the identified residual risks.

MRO is also required to develop and provide a post-mining management plan that outlines all the specific requirements for ongoing maintenance of the rehabilitated land.

6.2 Risk Assessment Matrix

Under section 126C(1)(f) of the *Environmental Protection Act 1994* and the *PRCP Guideline*, a risk assessment has been completed to assess the risks of a PMLU not meeting the required completion criteria. The risk assessment provides tools and processes that will be implemented to manage or minimise the identified potential risks.

The risk assessment (**Table 61**) has been developed on the prescribed milestones for the PMLUs. The risk matrix used for the risk assessment is shown in **Figure 99** below.

Figure 99 Risk Assessment Matrix

Evolution Mining Risk Assessment Matrix (RAM)								
				Consequence				
				1	2	3	4	5
				Very Minor	Minor	Moderate	Major	Extreme
Likelihood	5	Almost Certain	Has happened more than once per year at the Location	Moderate	High	High	Very High	Very High
	4	Likely	Has happened at the Location OR more than once per year in the organisation	Moderate	Moderate	High	Very High	Very High
	3	Possible	Has happened in the Organisation, OR occurs in similar industry more than once per year	Low	Moderate	Moderate	High	Very High
	2	Unlikely	Has not happened in the organisation but is heard of in similar Industry	Low	Low	Moderate	Moderate	High
	1	Rare	Rarely or never heard of in similar Industries	Low	Low	Low	Moderate	Moderate

Consequence						
			People (Physical & Psychological)	Environment	Asset Financial / Production	Reputational (Legal & LTO)
5	Material Risks (Inherent)	Extreme	> 2 Fatalities OR permanent disabling injuries / illness	Permanent OR unrecoverable significant damage or effect	Over AUD \$200M impact	National public concern / prolonged media attention or NGO Action. Significant prosecution, loss of approvals, permits or licenses. Significant damage to cultural sites and / or loss of key partners
4	Critical Risk (Inherent)	Major	1 - 2 Fatalities OR permanent disabling injuries / illness	Widespread and long-term (>3 year) damage or effect	AUD \$40M - < \$200M impact	Public concern with prolonged media attention (local or regional); NGO Involvement. Significant fines, infringements OR delays to approvals, permits or licenses
3		Mod-erate	Injury / Illness LTI >10 Days	Medium-term (<3 year) localised damage or effect	AUD \$1M - < \$40M impact OR 3 - 30 days of unplanned production outage	Local public concern, Fines, infringements OR impact to approvals, permits or licenses.
2		Minor	Recordable Injury Occupational Hygiene Exceedance with PPE control failures	Short-term (<1 year) damage or effect to a small area	AUD \$100K- \$1M impact OR < 3 days unplanned production outage	Local media attention. Regulatory enforcement
1		Very Minor	Injuries / Illnesses requiring minor or no treatment	Minor event with no lasting environment damage of effect	AUD <\$100,000 OR > 1 day unplanned production outage	Minor public awareness with little or no reputational impact
Material Risk & Critical Control Program			Material & Critical Risks are based on plausible risk scenarios using Inherent Consequence Ratings. These Risks are managed through the Critical Control Management Program	Material Risks		Critical Risk
				All Extreme Consequences Categories Oversight sits with the Evolution Mining Board		Major Consequence Category (for the People Category Only) Oversight sits with the Evolution Leadership Team

Table 61: Risk Assessment for Residual Rehabilitation Risks

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
Stakeholder Engagement	Community Acceptance First Nations values	Final land use is not accepted by local community. Cultural heritage values not adequately considered in the development of the PRC Plan.	Final land use benefits not realised. Reputational damage. Inability to surrender mining licence. Significant rework to develop final land use.	Likely	Moderate	H	- Engagement and partnership with First Nations representatives - Stakeholder perception survey and response to issues. - Community engagement as per Community Consultation Plan and Stakeholder Engagement Plan. - Annual SR Plan to align with LOM objectives including sponsorships and donations, Shared Value Projects. - Social Impact Assessment 2020	- Progress Shared Value Project – Natural Capital, Land Rehabilitation, Traditional Cool Burn Program. - Mt Perry Co-developed Community Action Plan - Mt Rawdon Pumped Hydro consultation plan.	Proactive and transparent engagement / communication with community will ensure values are incorporated into planning processes for rehabilitation and closure of Mt Rawdon.	Resourcing and roles to carry out community engagement timeframes and objectives. Consultant support to facilitate various workshops and meetings.	Unlikely	Minor	L
	Pit void, Waste Rock dump and TSF Closure	Un-identified change of operations/mine plan resulting in an extension of operational activities not consistent with Rehabilitation Schedule	Failure to complete operational activities within designated areas Delay of Rehabilitation Schedule - the amendment of PRCP required	Likely	Moderate	H	Rehabilitation timeframes align with PRCP and are integrated into the LOM and budget plan which is reviewed each year.	Amend PRCP schedule as required if mine plan changes impact on availability for rehabilitation to commence.	The proposed actions will enable the early identification of potential deviations from the PRCP Schedule and adjust mine plans/schedules if required.	Adequate time allocated for planning and progress meetings; if required, additional financial costs associated with changes to schedules.	Rare	Moderate	L
	RM1 Infrastructure Decommissioning and Removal	Infrastructure decommissioning takes longer than planned Infrastructure not identified and therefore not removed	Failure to remove all infrastructure in accordance with PRCP schedule - delay of Milestone Delay of Rehabilitation Schedule - required amendment of PRCP	Possible	Minor	M	- Detailed Asset and Disposal Register. - Asset Decommissioning, Decontamination, Demolition, Disposal (DDDD) Plan (2024). - Auction Valuation of Assets (2024).	- Annual review of asset decommissioning and removal plan. - Amend PRCP schedule if required. - Independent AQP to certify RM1.	The proposed actions will enable early identification of deviances from PRCP schedule and time to make adjustments as required	Adequate timing allocation for planning and progress meetings Adequate personnel resource for management of the register	Rare	Minor	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
							- Licenced waste removalists Contractor. - Detailed work packages by area/domain. - Inspection and Test Plan (ITP) proforma incld. hold points and evidence capture. - Technical IPR process to support and review Closure FS. - Legal agreements/ third party contracts.						
RM2	Investigation and /or remediation of contaminated Lands	Remediation works not completed or not completed to schedule	Delay of Rehabilitation Schedule and delay to future milestones Additional financial implications for additional remediation	Possible	Minor	M	- Detailed Site Investigation (DSI) – WSP 2024 - Additional Contamination Investigation – WSP June 2025 - Sampling and Analysis Quality Plan (SAQP) - WSP 2024 - Stage 1 Remediation Action Plan (RAP) – WSP July 2025 - Asset Decommissioning, Decontamination, Demolition, Disposal (DDDD) Plan (2024). - Licenced waste removalists Contractor. - Detailed work packages by area/domain. - Inspection and Test Plan (ITP)	- Engage Suitably Qualified Person (SQP) and complete stage 2 DSI and RAP once infrastructure removed from identified areas. - Complete and finalise Contaminated Land Investigation reports to meet RM2 milestone criteria. - Suitably Qualified person (SQP) certifies that that no contamination unsuitable for the PMLU remains or is occurring.	The assessment is to be completed by a SQP and approved auditor (as per the <i>Environmental Protection Act 1994</i>)	Resources for an approved auditor to complete audit Additional financial resources if contamination requires remediation	Unlikely	Minor	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
							proforma incld. hold points and evidence capture. Waste Management Plan.						
		Previously un-identified contamination source discovered	Delay to future milestones Increased financial costs to review PRCP or alternative remediation options	Unlikely	Moderate	M	As above.	- Monitoring schedule of water quality will be developed upon decommissioning of structure. Initial water quality assessment will determine required measures for remediation - If remediation measures do not succeed within the defined period, alternative measure (chemical amelioration) will be risk assessed to determine the feasibility	Water quality will be monitored in accordance with the <i>Department of Environment and Science Monitoring and Sampling Manual 2018</i> . All samples will be analysed by a NATA accredited laboratory. Water quality must meet the specified livestock watering specifications within Environmental Authority (where applicable) and <i>ANZECC (2000) Guidelines</i>	Resources for monitoring regime. If required, additional resources for remediation alternatives	Rare	Moderate	M
RM3	Landform Development and Reshaping	Surface exposure of PAF materials due to non-conformance with design.	Delay to future milestones Increased financial costs to review PRCP or alternative remediation options	Unlikely	Moderate	M	- Application of QA/QC controls during construction to ensure compliance to design (such as ITPs and RPEQ hold points). - Mine Waste Management Plans and Procedures. - LOM and mine planning	PRCP Amendment to schedule if milestone dates cannot be achieved due to re-work.	The QA/QC process will ensure hold points capture records of material types and conformance to design are intervals to ensure surface exposure of PAF materials does not occur.	Resources for monitoring regime. If required, additional resources for remediation alternatives	Rare	Moderate	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
							considers PRCP milestones and criteria.						
		Unprecedented weather events (e.g. rainfall, flooding, fire)	Water quality impacts (downstream environments) Water quality impacts (onsite structures) - delay to future milestones	Likely	Moderate	H	- Water management infrastructure (dams, drains, etc) in place - Annual Regulated dam inspections and DSA reporting. - Conceptual design of surface water drainage completed in 2024 with consideration of LEM impact and flood exposure. - Application of QA/QC controls during construction to ensure compliance to design (such as ITPs and RPEQ hold points). - Technical IPR process to support and review Closure FS, with a focus on adequacy of TSF closure.	- Slope designed with approved gradient - Earthworks timed to coincide with the dry season, where practicable - Long-range weathers forecasts are monitored quarterly to review the applicability of timed works - Sediment management systems (drains and sediment dams) to be operational during construction of final landform - Maintenance of the containing water management system post-closure (WDs) will provide an additional failsafe. - Long-term monitoring and maintenance plan to minimise risk of structure failure	Design of slopes will limit the capacity for water to carry material ESCP controls measures will limit/reduce material entering waterways and will be designed/installed with reference to the Best Practice Erosion and Sediment Control (IECA 2008) guidelines Rainfall forecasts and long-range forecasts will assist with the prediction of significant events that may impact the landform development. Schedules can be amended to accommodate.	Adequate time allocated for regular review of weather forecasts and the ability to modify operations Adequate time for the development of ESC tools and processes The appropriate time, personnel and materials for installation of ESC structures	Unlikely	Moderate	M

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
							Engaged suitably qualified consultants, preferable with site experience.						
			Significant failure of landform - failure to meet design criteria Reduced safety and/or stability of final landform - failure to meet closure criteria Financial costs associated with rework	Likely	Moderate	H	- Geotechnical assessments completed for all NWRD, TSF and Pit indicating factor or safety is achieved. - Slope angles do not exceed angle of repose. - As constructed reports standard process at MRO including ITP, hold points and evidence collection.	- Stringent Quality Assurance process to be implemented as part of the development of rehabilitation area Closure Plans. Quality Assurance is to include Inspection Test Plan (ITP) checkoff process that confirms landform consistency with design. - Pre and Post wet season and major weather event inspections are to be completed as part of QA processes. - Annual audits of landforms to be completed for early identification of design inconsistencies	QA processes will enable early detection of failures and also prevent the progression of works if landform is not consistent with the design.	Scheduled time allocation for inspections/audits Adequate timing for development of QA processes and training provided to all relevant personnel	Unlikely	Moderate	M
		Failure to achieve PMLU that is approved and consistent with surrounding landholders/stakeholders requests	Regulatory non-compliance (under approved PRCP) and impacts from the decline in relationships with community/stakeholders	Unlikely	Moderate	M	- Community consultation as per CCP and Stakeholder Engagement Plan. - PMLUs consider economic and social benefits to the community and surrounding landholders	Continue to development of Mt Rawdon Pump Hydro Project.	PRCP outlines a formalised process of community consultation that meets the requirements to fulfil the development of the PRCP. Engagement of technical expertise ensures the process is undertaken as required.	Adequate timing and personnel resources to conduct a community consultation process.	Rare	Minor	L
		Timing and design specifications for final landform not adequately implemented	Milestone not achieved and delay to future milestones	Possible	Minor	M	PRCP Schedule timing embedded into LOM and annual budget	Stringent Quality Assurance process to be implemented as part of the development of	The proposed actions will enable the early identification of	Scheduled time allocation for inspections/audits	Unlikely	Minor	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
							cycle planning processes.	rehabilitation area Closure Plans. - Quality Assurance is to include Inspection Test Plan (ITP) checkoff process that confirms landform consistency with design. - Monthly meetings are to take place between management (responsible personnel) and work crews regarding landform construction.	potential deviations from the PRCP Schedule and adjust mine plans/schedules if required. The QA process will also prevent works from progressing if it is not compliant with the designs.	Adequate timing for development of QA processes and training provided to all relevant personnel. Adequate timing for planning and progress meetings.			
		Erosion & Sediment Controls and Stormwater Measures not appropriate	Significant failure of landform - failure to meet design. Financial costs associated with rework	Possible	Moderate	H	- Assessment and modelling of landform evolution completed in 2024 with acceptable soil loss rates over time. - EoR for TSF has been involved with all closure technical studies for the TSF providing review and input. - Long-term stability of batters also addressed, and shown to be stable from geotechnical assessment. - Long-term monitoring and maintenance plan to minimise and respond to risk of failure or any	- Quality Assurance process to be implemented as part of the development of rehabilitation area Closure Plans. Quality Assurance is to include Inspection Test Plan (ITP) checkoff process that confirms consistency with design. - Monthly meetings are to take place between management (responsible personnel) and work crews regarding design construction - Pre and Post wet season and major weather event inspections are to be completed as part of QA processes. Inspections must be approved by site Management - Identified areas of failure must be remediated (unless unprecedented conditions exist) and	The proposed actions will enable the early identification of potential deviations from the PRCP Schedule and adjust mine plans/schedules if required. The QA process will also prevent works from progressing if it is not compliant with the designs.	Scheduled time allocation for inspections/audits Adequate timing for development of QA processes and training provided to all relevant personnel. Adequate timing for planning and progress meetings. Financial resources for sampling regime	Rare	Moderate	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
							minor erosion occurring.	approved by site management					
			Impacts on surrounding water qualities with increased sedimentation	Unlikely	Minor	L	Erosion and Sediment Control Plans.	- Early procurement of required resources - Onsite available equipment for remediation - QA/QC process to include requirements for erosion and sediment control measures to design. - Construction contracts to include scoping and requirements for ESCP.	ESC is a well-known risk and control methods understood. An ESCP will ensure there is a plan for temporary measures required during earthworks.	Contract management and incorporation of obligations and management plans to ensure compliance with relevant ESC best practice guidelines.	Rare	Minor	L
RM4	Installation of surface cover on tailings storage facility (RA3) and North Waste Rock Dump (NWRD) - Waste rock and long-term ore stockpiles (RA1)	Unavailability of rock or materials for the development of structures	Potential for acid mine drainage, neutral metalliferous mine drainage or saline mine drainage to reduce water quality in groundwater and surface water The increased financial cost of remediation	Unlikely	Moderate	M	- Completion of a materials balance and annual review to ensure adequate material is available. - Deswik LHS model built to	Annual review of material balance.	An annual review will enable early identification of issue with materials balance and alternative measures can be sought	Adequate timing allocation for development of Closure Plans for relevant rehabilitation areas Adequate timing allocation for	Rare	Moderate	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
							inform material balance and haulages.			completion of materials balance			
		Insufficient material available for the adequate cover system	Potential for acid mine drainage, neutral metalliferous mine drainage or saline mine drainage to reduce water quality in groundwater and surface water The increased financial cost of remediation	Possible	Major	H	Material characterisation completed in 2024 to validate availability and suitability of materials for capping.	- Adequate material placed as per design Monitoring will be conducted to review the effectiveness of the capping system. - Geochemical analysis has previously been completed. Additional analysis will be conducted if changes are identified in the landscape. - Deswik LHS model built to inform material balance and haulages. - Detailed borrow area investigations completed and ongoing.	Geochemical analysis has been conducted by SQP, advice to be followed accordingly	Resources for capping Adequate timing allocation for monitoring and resources for additional monitoring if required	Unlikely	Moderate	M
		Cover system/capping does not sufficiently contain required material	Potential for acid mine drainage, neutral metalliferous mine drainage or saline mine drainage to reduce water quality in groundwater and surface water The increased financial cost of remediation	Unlikely	Major	M	- Quality Assurance is to include Inspection Test Plan (ITP) checkoff process that confirms consistency with design. - Substantial Geochem studies and investigations completed during operations.	- Insitu Instrumentation and monitoring to be conducted of soil capping system to demonstrate conformance to design objectives and PRCP schedule criteria. - Annual rehabilitation report to capture reporting results for field trials and/or insitu instrumentation and performance monitoring.	A combination of instrumentation, monitoring and reporting will ensure design objectives are compared to performance monitoring results.	Adequate timing allocation for monitoring and resources associated with required sampling. Engagement consultants scope of work incorporates requirements of PRCP milestone criteria.	Rare	Major	M

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
							- Both static and kinetic investigations to predict geochemical patterns - Cover modelling completed with sensitivity analysis to explore adaptability of cover system in preventing infiltration of water. Acceptable outcomes noted in terms of reducing infiltration.	Independent SQP survey of final landform and certification that RM4 criteria achieved.					
		Overburden and waste rock are more reactive than anticipated	Delay of Rehabilitation Schedule	Possible	Moderate	H	- Quality Assurance Inspection Test Plan (ITP) checkoff process that confirms consistency with design. - Substantial Geochem studies and investigations completed during operations. - Both static and kinetic investigations to predict geochemical patterns - Cover modelling completed with sensitivity analysis to explore adaptability of cover system in preventing infiltration of water. Acceptable outcomes noted in terms of reducing infiltration.	- PRCP schedule to be incorporated into the mine planning schedule - Monthly progress meetings are to take place between management (responsible personnel) and operational work crews during remediation operational works. - Extensive waste characterisation studies completed to date and ongoing.	the proposed actions will enable the early identification of potential deviations from the PRCP Schedule and adjust mine plans/schedules if required.	Adequate timing allocation for planning and progress meetings	Unlikely	Minor	L
RM5	Surface Preparation	Unprecedented weather event - heavy rainfall occurring before the	Exposure of dispersive subsoils to rain Increased risk of erosion	Unlikely	Moderate	M	Quality Assurance Inspection Test Plan (ITP) checkoff process	Minimum topsoil placement meets design criteria and will be managed through ITPs.	Implementation of ITP process ensures a thorough QA	Adequate time allocation for development of QA processes and training	Rare	Minor	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
		establishment of vegetative cover	Reduced chance of germination increased financial costs for landform reshaping and surface preparation				that confirms consistency with design.	- QA is to be completed on all top soiled areas to confirm the adequate placement of topsoil (e.g. site inspection/measurement and survey review). - Long-range forecasts are to be monitored quarterly and compared against relevant PRCP schedule for identification of applicable weather events. Short-range forecasts are to be completed weekly upon commencement of rehabilitation works; identified high rainfall events may delay scheduled works.	process of all works.	provided to relevant personnel			
		Inadequate topsoil / growth media cover	Reduced viability of topsoil, limiting plant establishment at rehabilitated sites Topsoil heavily infested with weed propagules, impacting plant growth	Likely	Moderate	H	- Inspection of topsoil stockpiles during site weed inspection, and control methods implemented if required. - Vehicle washdown procedure	- QA processes for topsoil stripping and placement. - Annual site audit and inspection for weed species identification. Control methods implemented if required (e.g. new infestations)	Implementation of a Topsoil Management Procedure enables a thorough QA process for all topsoil resources	Adequate time allocation for development of QA processes and Topsoil Management Procedure. Training allowance for relevant personnel Adequate timing allocation for inspections and audits	Unlikely	Minor	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
		Inappropriate topsoil or subsoil management whilst stockpiled	Failure of suitable surface preparation for uncontaminated landform and vegetation growth	Possible	Major	H	- Material characterisation completed in 2024 to validate availability and suitability of materials for capping. - TSF cover trials in place to test suitability of growth media for associated PMLU and milestone criteria.	Minimum capping requirements must be achieved for relevant rehabilitation areas as prescribed by Technical Experts Monitoring of landform is to be conducted through all stages of revegetation and during the prescribed monitoring period. Quality assurance process (ITPs) to be developed and implemented for each relevant rehabilitation area. Works may not progress until formal completion and approval of relevant ITP Additional geochemical testing to be conducted if required Rehabilitation trials to be conducted and necessary amendments made to methodology if required	Utilising the technical advice per the relevant geochemical reports provided ensures scientifically-based methodology Undertaking rehabilitation trials will enable a process of trial and error to amend methodologies	Adequate timing for review of methodology process and monitoring requirements	Unlikely	Major	M
		Weeds outcompete native seeds establishment	Loss of topsoil Increased siltation to the downstream environment Limited revegetation on eroded slopes Increased financial costs for re-work	Possible	Moderate	H	- TSF cover trials and vegetation management plans. - UQ research project underway to validate acceptability of planned reveg prescriptions (as a key driver of PMLU outcomes)	- Seeding works are to be coincided with rainfall events to ensure maximum germination opportunities (high rainfall events are to be avoided) - Extended droughts may require a review of PRCP schedule or alternative watering sources may be implemented	Site experience with vegetation trials will reduce risks of weeds.	Vegetation monitoring and establishment reporting from trials.	Rare	Moderate	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
RM6	Revegetation	Incorrect seeding rates and/or species	Poor seedling growth and development	Possible	Moderate	H	- TSF cover trials and vegetation management plans. - UQ research project underway to validate acceptability of planned reveg prescriptions (as a key driver of PMLU outcomes) - Native seed collection program with natural resource management group.	Revegetation management procedure to be developed based on results from trials and PRCP schedule seed mix and application rates. Implementation of a ITP process which includes a review of seed selection Seed verification certificate must be sighted prior to commencement of seeding	Site experience with vegetation trials will reduce risks of weeds.	Vegetation monitoring and establishment reporting from trials.	Rare	Moderate	L
RM7	Achievement of surface requirement	Revegetation monitoring indicates criteria not achieved	Inhibited establishment of tree or grass species due to overgrowth of other types Insufficient variability in species resulting in failure to achieve future milestones	Unlikely	Moderate	M	- Rehabilitation trials to be conducted to verify most resilient and regionally appropriate seed species - Native and local seed stock where available.	Biocondition/vegetation monitoring report completed by AQP demonstrate milestone criteria on correct trajectory.	Seed selection is based upon surrounding landscape species presence, proposed PMLU and review of rehabilitation trials successes Planting methodology is to be based on industry best practice (e.g. <i>Department of Agriculture and Fisheries Establishing Sown Pastures</i>) Monitoring against indicators and completion criteria will enable early identification and	Adequate timing allocation for development of ITP process and training to relevant personnel Resources and costs associated with conduction of rehabilitation trials	Rare	Moderate	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
									patterns of plant establishment				
		Inappropriate quantity of grass/tree seed used in mix	Lack of seed of specified species will result in non-compliant ecosystem/PMLU	Unlikely	Moderate	M	- TSF cover trials and vegetation management plans. - UQ research project underway to validate acceptability of planned reveg prescriptions (as a key driver of PMLU outcomes) - Native seed collection program with natural resource management group.	- Seed collection and procurement is to commence at the start of the project, to ensure supplies are available - Seed stores can be maintained onsite, with appropriate conditions - Rehabilitation trials will trial alternative seed species where applicable	Seed selection is based upon surrounding landscape species presence, proposed PMLU and review of rehabilitation trials successes	Resources for appropriate seed storage Resources and costs associated with conducting rehabilitation trials	Rare	Minor	L
		Selected seed unavailable	Premature grazing could result in damaging vegetation establishment Impacted land stability, especially at water-holding structures	Possible	Moderate	M	- TSF cover trials and vegetation management plans. - UQ research project underway to validate acceptability of planned reveg prescriptions (as a key driver of PMLU outcomes)	- Fencings are to be maintained and inspected routinely. Repairs conducted immediately and stock removed immediately. - Re-introduction of cattle grazing will be dependent on rehabilitated area ability to meet completion criteria	surrounding land uses includes cattle grazing, therefore regular and consistent inspections of fences ensures limited access for stock	Adequate timing allocation for inspections and when required, resources for required repairs	Unlikely	Minor	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
							Native seed collection program with natural resource management group.	Re-introduction of cattle grazing will be staged (where applicable) and monitoring					
		Introducing livestock	Landform and ecosystem does not meet designated PMLU Financial costs for rework	Unlikely	Moderate	M	- TSF cover trials and vegetation management plans. - UQ research project underway to validate acceptability of planned reveg prescriptions (as a key driver of PMLU outcomes) - Native seed collection program with natural resource management group. - Swindon Station property management plan.	- Seed mixes are based on surrounding land types and professional recommendations by agronomists where applicable - Rehab trials will be conducted to trial resilient and relevant species. Trials will also explore seeding methodology - Methodology and processes will be reviewed after each completed rehabilitation area and updated to more appropriate and successful methodology - Regular monitoring of rehabilitated areas will identify early insufficiencies with vegetation types - Sites with identified insufficient densities of designated vegetation may undergo planting of tube stock (trees and shrubs) or re-seeding within two (2) years	Seed selection is based upon surrounding landscape species presence, proposed PMLU and review of rehabilitation trials successes Planting methodology is to be based on industry best practice (e.g. <i>Department of Agriculture and Fisheries Establishing Sown Pastures</i>) Monitoring against indicators and completion criteria will enable early identification and patterns of plant establishment	Resources and costs associated with conducting rehabilitation trials Timing allocation for review processes Resources and financial cost if additional seeding/tube stock is required	Unlikely	Minor	L
		Insufficient density of designated vegetation types (e.g. tree/shrubs or grasses)	Establishment of weed species may impact the establishment of desired species resulting in the delay of future milestones	Unlikely	Minor	L	Vehicle wash down areas.	Strict vehicle wash down procedures for any vehicle entering rehabilitated areas (e.g. Weed Inspection certification or adequate	Annual weed inspections are occurring as part of standard environmental management	Training resources for a new process Adequate timing allocation for inspections and audits	Rare	Minor	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
								training) - Annual site audit and inspection for weed species identification. Control methods implemented if required (e.g. new infestations) - Limited access of any vehicle into rehabilitated areas and site-wide communication	The limiting of access into rehabilitated areas significantly reduces the potential occurrence				
		Uncontrolled establishment of weed species	Insufficient pasture density to meet completion criteria Insufficient species richness to meet completion criteria Increased risk of erosion and weed species establishment	Unlikely	Moderate	M	Biodiversity management plan.	Seed mixes are based on surrounding land types and professional recommendations by agronomists where applicable Rehab trials will be conducted to trial resilient and relevant species. Trials will also explore seeding methodology Methodology and processes will be reviewed after each completed rehabilitation area and updated to a more appropriate and successful methodology. Additional analysis of nutrient cycling and soil composition may be conducted to determine causing factor Regular monitoring of rehabilitated areas will identify early insufficiencies with vegetation types Sites with identified insufficient densities of designated vegetation may	Seed selection is based upon surrounding landscape species presence, proposed PMLU and review of rehabilitation trials successes Planting methodology is to be based on industry best practice (e.g. <i>Department of Agriculture and Fisheries Establishing Sown Pastures</i>) Monitoring against indicators and completion criteria will enable early identification and patterns of plant establishment	Resources and costs associated with conducting rehabilitation trials Timing allocation for review processes Resources and financial cost if additional seeding/tube stock is required	Rare	Moderate	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
								undergo planting of tube stock (trees and shrubs) or re-seeding within two (2) years Surrounding and connected grazing properties will support grazing, reducing reliance on rehabilitated areas for pasture productivity					
		Poor pasture development / Introducing livestock	Inability to meet final PMLU; social and economic impact to surrounding landholders and community	Likely	Moderate	H	Swindon Station property management plan.	Seed mixes are based on surrounding land types and professional recommendations by agronomists where applicable Rehab trials will be conducted to trial resilient and relevant species. Trials will also explore seeding methodology Methodology and processes will be reviewed after each completed rehabilitation area and updated to a more appropriate and successful methodology. Additional analysis of nutrient cycling and soil composition may be conducted to determine causing factor Regular monitoring of rehabilitated areas will identify early insufficiencies with vegetation types	Seed selection is based upon surrounding landscape species presence, proposed PMLU and review of rehabilitation trials successes Planting methodology is to be based on industry best practice (e.g. <i>Department of Agriculture and Fisheries Establishing Sown Pastures</i>) Monitoring against indicators and completion criteria will enable early identification and patterns of plant establishment	Resources and costs associated with conducting rehabilitation trials Timing allocation for review processes Resources and financial cost if additional seeding/tube stock is required	Rare	Moderate	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
								Sites with identified insufficient densities of designated vegetation may undergo planting of tube stock (trees and shrubs) or re-seeding within two (2) years					
			Premature grazing could result in damaging vegetation establishment Impacted land stability, especially at water-holding structures Financial costs associated with remediation works	Possible	Moderate	M	Suitable fencing in place and maintenance and inspection regime.	Fencings are to be maintained and inspected monthly. Repairs conducted immediately and stock removed immediately.		Adequate timing allocation for inspections and when required, resources for required repairs	Unlikely	Minor	L
			Unprecedented weather impacts (drought, high rainfall, fire) Any major unprecedented weather event can severely impact the effective establishment of designated species and delay Milestone achievement Financial costs associated with re-work and/or weed control	Possible	Moderate	M	Annual monitoring plans and reports.	- Long-range forecasts are to be monitored quarterly and compared against relevant PRCP schedule for identification of applicable weather events. Short-range forecasts are to be completed weekly upon commencement of rehabilitation works; identified high rainfall events may delay scheduled works. - Seeding works are to be coincided with rainfall events to ensure maximum germination opportunities (high	Long-range and short term forecasts will be reviewed from the Bureau of Meteorology. Rehabilitation is to be conducted in accordance with industry best practice	Time allocation for review of weather forecasts and the ability to alter work schedules	Rare	Moderate	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
								rainfall events are to be avoided) - Extended droughts may require a review of PRCP schedule or alternative watering sources may be implemented - Fire breaks and backburning conducted as per site management plans					
		Water quality is not suitable for intended PMLU due to unforeseen external contamination	Delay of future milestones Increased financial costs to review PRCP or alternative remediation options	Possible	Major	H	- MRO wetland trial underway; methodology from the trial will be reviewed and implemented into other locations, if applicable - Monitoring schedule of water quality in place. - Water quality limits in place.	Initial water quality assessment will determine required measures for remediation If remediation measures do not succeed within the defined period, alternative measure (chemical amelioration) will be risk assessed to determine the feasibility	Water quality will be monitored in accordance with the <i>Department of Environment and Science Monitoring and Sampling Manual 2018</i> . All samples will be analysed by a NATA accredited laboratory. Water quality must meet the specified stock watering specifications within the Environmental Authority (where applicable) and <i>ANZECC (2000) Guidelines</i> .	Resources for monitoring regime. Resources for review of wetland trials and implementation into additional areas (if applicable) If required, additional resources for remediation alternatives	Unlikely	Moderate	M

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
RM8	Achievement of post-mining land use to a stable condition	Water quality is not suitable for intended PMLU due to existing contamination of water quality	Loss of topsoil Increased siltation to the downstream environment Limited revegetation on eroded slopes Increased financial costs for re-work In-ability or delay to surrender of ML.	Possible	Major	H	- MRO wetland trial underway; methodology from the trial will be reviewed and implemented into other locations, if applicable - Monitoring schedule of water quality in place. - Water quality limits in place.	- Long-range forecasts are to be monitored quarterly and compared against relevant PRCP schedule for identification of applicable weather events. Short-range forecasts are to be completed weekly upon commencement of rehabilitation works; identified high rainfall events may delay scheduled works. - Surface preparation works are to be conducted not within two (2) weeks of major rainfall events - Extended droughts may require a review of PRCP schedule or alternative watering sources may be implemented	Long-range and short term forecasts will be reviewed from the Bureau of Meteorology. Rehabilitation is to be conducted in accordance with industry best practice	Time allocation for review of weather forecasts and the ability to alter work schedules	Unlikely	Moderate	M

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
		People or fauna injury or incident	Rehabilitated areas are unsafe to people or fauna	Unlikely	Moderate	M	- Abandonment bund and fencing of pit void. - Property fencing in place with suitable gates. - Roads reduced in width or rehabilitated and redirected away from landforms and voids where possible. - Warning signs in place. - Make Safe Risk Assessment completed during Closure Feasibility Study (2025).	Risk assessment to be completed confirming that safety hazard in rehabilitation are not significantly different to surrounding unmined landscapes subject to the same land use.	Risk assessment completed in accordance with Australian Standards and site Safety & Health Management System.	Suitable qualified personnel/team	Rare	Minor	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
		Geotechnical failure to landform (TSF, NWRD, Residual void)	Costly remediation effort Potential harm to environment Community Impact In-ability or delay to surrender of ML.	Unlikely	Major	H	- Assessment and modelling of structure failure for all structures (NWRD, Pit, TSF) completed in 2023/24 with acceptable FoS noted for all different analyses - EoR has been involved with all closure technical studies for TSF	Landform design and as built construction reports / rehabilitation reports certified by AQP as geotechnically stable with a $FoS \geq 1.5$.	FoS and geotechnical assessment considers all possible failure modes under environmental conditions.	Geotechnical engineer consultant.	Rare	Major	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
		Contamination to receiving environment post closure	Harm to environment including surface and groundwaters	Unlikely	Moderate	M	- Surface and groundwater sampling program. - Construction control documentation to be prepared for cover system installation including Tech spec and ITPs for install - Adoption of Evn PM framework and standards to control contractor outputs - Technical studies to predict long-term seepage and groundwater response have been completed. - Timing and potential migration of mine impacted groundwater after closure has been modelled is well understood. - Tailings management for final deposition to support closure, water management complete or underway. - Technical IPR process to support and review Closure FS, with a focus	- Landform assessed as erosionally stable by suitably qualified person. - Groundwater sampling demonstrates no serious environmental harm.	Compliance with completion criteria	Monitoring reporting	Rare	Minor	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
							on adequacy of TSF closure - Monitoring and maintenance plan for post-establishment period. - Engaging suitably qualified consultants and contractors, preferable with site experience and with similar activities.						

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
		PMLU Low intensity Grazing not achieved	Failure to meet the completion criteria of PMLU Failure to support economically viable cattle grazing PMLU not achieved, significant financial cost implications for rework/remediation	Unlikely	Moderate	M	Annual monitoring program.	- A multitude of pasture species are to be included in seed mix and high seeding rate to improve seed germination rates -- rehab trials - Regular monitoring of rehabilitated sites will track pasture diversity and enable early identification of poor diversity. Additional seeding may occur if applicable - Surrounding and connected grazing properties will support grazing, reducing reliance on rehabilitated areas for pasture productivity	Seed selection is based upon surrounding landscape species presence, proposed PMLU and review of rehabilitation trials successes Planting methodology is to be based on industry best practice (e.g. <i>Department of Agriculture and Fisheries Establishing Sown Pastures</i>) Monitoring against indicators and completion criteria will enable early identification and patterns of plant establishment	Resources and costs associated with conducting rehabilitation trials Timing allocation for review processes Resources and financial cost if additional seeding/tube stock is required AQP signoff and annual performance monitoring reports against designs and PRCP Schedule criteria.	Rare	Minor	L
		PMLU Open woodland not achieved	Failure to meet the completion criteria of PMLU Not a functioning ecosystem similar to other open woodland environments	Unlikely	Moderate	M	Annual monitoring program against milestone criteria and design criteria.	- Seed verification must be reviewed and approved by management before seeding - Regular monitoring of rehabilitated sites will track pasture diversity and enable early identification of poor diversity. Additional seeding may occur if applicable - Plant species richness assessment	Monitoring against indicators and completion criteria will enable early identification and patterns of plant establishment	Resources and costs associated with conducting rehabilitation trials Timing allocation for review processes Resources and financial cost if additional seeding/tube stock is required AQP signoff and annual performance monitoring reports against designs and	Rare	Minor	L

Milestone		Risk / Hazard (Triggers / Indicators)		Impacts	Initial Risk Rating			Existing Controls	Additional Controls or Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
					Likelihood	Consequence	Risk Rating					Likelihood	Consequence	Risk Rating
									demonstrates completion criteria achieved.		PRCP Schedule criteria.			
		PMLU Final Waste Storage Landform not achieved	Failure to meet the completion criteria of PMLU Unacceptable risk or harm to environment	Unlikely	Moderate	M	Annual monitoring program against milestone criteria and design criteria.	Cover trials performance reporting to demonstrate early achievement of criteria.	Trials and supporting studies will ensure an appropriate level of planning has been completed to support achievement of the PMLU.	AQP signoff and annual performance monitoring reports against designs and PRCP Schedule criteria.	Rare	Minor	L	
		PMLU water storage not achieved	Failure to meet the completion criteria of PMLU Unacceptable risk or harm to environment	Unlikely	Moderate	M	Annual monitoring program against milestone criteria and design criteria.	Water quality within storages achieves water quality objectives	Supportive of beneficial reuse e.g. stock water	Sampling report with compiled data AQP signoff and annual performance monitoring reports against designs and PRCP Schedule criteria.	Rare	Minor	L	

Table 62: Risk Assessment for Residual Non-use Management Area Risks

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Proposed Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating				Likelihood	Consequence	Risk Rating
Cessation of major mining and processing operations	Pit void Closure	Un-identified change of operations/mine plan resulting in an extension of operational activities not consistent with Rehabilitation Schedule	Failure to complete operational activities within designated areas Delay of Rehabilitation Schedule - the amendment of PRCP required	Likely	Moderate	H	Review of Mine Plan and tracking against closure dates for each rehabilitation area to be completed bi-annually until six (6) months prior to initial rehabilitation area closure. Amend PRCP schedule as required if mine plan changes impact on availability for rehabilitation to commence. Rehabilitation timeframes align with PRCP and are integrated into the LOM and budget plan which is reviewed each year.	The proposed actions will enable the early identification of potential deviations from the PRCP Schedule and adjust mine plans/schedules if required.	Adequate time allocated for planning and progress meetings; if required, additional financial costs associated with changes to schedules.	Rare	Moderate	L
	MM1 Achievement of structural stability	Pit wall and associated landforms are geotechnically unstable post closure to an unacceptable level	Failure to surrender ML and associated EA conditions. Legacy risk to community, people, and fauna	Possible	Major	H	Pit walls have been designed and mined to a suitable factor of safety (FoS >1.5). Suitable offset distance for abandonment bund to allow for areas of instability on pit crest and provide a safe distance for people and fauna. Nominated NUMA area includes location of abandonment bund. Pit abandonment bund to be constructed of competent (non-dispersive) material and to an appropriate design (min. 2m height, min. 4m base). No external surface water or floodwaters to be directed to void (other than runoff from within the abandonment bund offset area between the pit crest). Independent AQP to certify designs and milestone criteria achieved and relevant design plans. Water balance modelling completed demonstrates that void will not overtop/spill. Suitable QA/QC processing including ITP for construction of abandonment bund to design.	The proposed actions will ensure geotechnical stability of landform has met the required criteria and design standards to prevent an unacceptable level of risk to people or the environment.	Adequate time and resources allocated for planning and completion of required studies, design updates and QA/QC processes.	Unlikely	Major	M

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Proposed Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating				Likelihood	Consequence	Risk Rating
MM2	Achievement of surface requirements	Surface requirements not completed to design (including safety bund, fencing, signage)	Unacceptable level of risk to people and the environment Failure to surrender ML and associated EA conditions	Possible	Major	H	Suitable offset distance for abandonment bund to allow for areas of instability on pit crest and provide a safe distance for people and fauna. Nominated NUMA area includes location of abandonment bund. Pit abandonment bund to be constructed of competent (non-dispersive) material and to an appropriate design (min. 2m height, min. 4m base). Safety signage and fencing to be installed to prevent access to residual void. No external surface water or floodwaters to be directed to void (other than runoff from within the abandonment bund offset area between the pit crest). Independent AQP to certify designs and milestone criteria achieved and relevant design plans. Suitable QA/QC processing including ITP for construction of abandonment bund to design.	The proposed actions will ensure surface requirements (bund, fence, signage) surrounding the NUMA meets the required criteria and design standards to prevent an unacceptable level of risk to people or the environment.	Adequate time and resources allocated for planning, procurement, and installation of surface requirements.	Rare	Moderate	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Proposed Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating				Likelihood	Consequence	Risk Rating
MM3	Achievement of sufficient improvement	Residual void is not safe, is geotechnically unstable, and/or is a risk to the surrounding environment.	Unacceptable level of risk or harmful to people and the environment Failure to surrender ML and associated EA conditions	Possible	Major	H	Pit walls have been certified to achieve a suitable factor of safety (FoS >1.5). Suitable offset distance for abandonment bund to allow for areas of expected erosion and instability on pit crest and provides a safe distance for people and fauna. Nominated NUMA area includes location of abandonment bund. Pit abandonment bund to be constructed of competent (non-dispersive) material and to an appropriate design (min. 2m height, min. 4m base).	The proposed actions will ensure the residual pit void and associated NUMA landform area is safe, geotechnically stable and does not present an unacceptable risk of environmental harm.	Adequate time and resources allocated for planning and completion of required studies, design updates and QA/QC processes.	Rare	Moderate	L

Milestone		Risk / Hazard (Triggers / Indicators)	Impacts	Initial Risk Rating			Proposed Actions	Justification of treatment option	Resource Requirements	Residual Risk Rating		
				Likelihood	Consequence	Risk Rating				Likelihood	Consequence	Risk Rating
							No external surface water or floodwaters to be directed to void (other than runoff from within the abandonment bund offset area between the pit crest). Flood modelling re-run at end of life and calibrated against the final landform Void water balance modelling completed demonstrates that void will not overtop/spill and will remain a terminal sink (max water level will remain below natural surrounding groundwater level). Surrounding groundwater monitoring bores demonstrate no concerning outward movement of seepage from the void. Surrounding surface water monitoring locations demonstrate no concerning outward movement of seepage from the void. Suitable QA/QC processing including ITP for construction of abandonment bund to design. Independent AQP to certify designs and milestone criteria achieved and relevant design plans (certifies achievement of MM3.1 - MM3.8 Schedule milestone criteria)					

7 Monitoring & Maintenance

7.1 Rehabilitation Milestone (RM) Monitoring

The PRCP schedule lists eight rehabilitation milestones for MRO (refer to Section 9.1). The EP Act at section 126(c)(j) requires consideration of monitoring and maintenance requirements to demonstrate that milestones and milestone criteria have been met. These requirements are further detailed in Department of Environment Science and Innovation Guideline (2023).

Monitoring and maintenance requirements for each rehabilitation milestone at MRO have been identified (**Table 63**). This includes monitoring methods, frequencies, reporting and contingency actions that may be required to ensure compliance with this PRCP. To the extent possible, methodologies are based on legislative requirements, Australian Standards, Queensland Government guidelines, and recognised standards in soil and land evaluation, ecological assessment, and civil and geotechnical engineering. All monitoring and maintenance activities will be completed by appropriately qualified persons (AQPs).

Table 63 Rehabilitation milestones, criteria, and monitoring requirements at MRO

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
RM1	Infrastructure decommissioning and removal	1.1 With the exception of any infrastructure to remain as part of the post-mining land use (PMLU), or where infrastructure is agreed to be retained by the Landholder/s by formal Agreement (Deed) the following are complete: a) All services disconnected, terminated and removed. b) All buildings and associated infrastructure demolished and removed. c) All concrete, hardstands, and roads removed. d) Linear infrastructure (pipelines, electrical power, fencing) removed. e) All drillholes, bores, sediment ponds and sumps decommissioned f) All machinery and equipment not required for rehabilitation removed from site. g) All fencing and associated foundations removed. h) All pipelines drained and removed.	1.1 Document review. and on-ground inspection. QA/QC processes (ITP).	1.1 As per ITP hold points.	1.1 Signed Deed retained. 1.2 GIS updated & Report by AQP.	1.1 N/A 1.2 PRCP amendment application.

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		i) All waste not authorised to be disposed of on-site under Environmental Authority EPML00712113 removed. j) All surface water drainage infrastructure that is associated with a watercourse, or forms part of a non use management area (NUMA), is removed. k) All dams: i. dewatered ii. desilted iii. liner removed. l) Watercourse crossings and culverts removed. 1.2 An independent AQP has certified the achievement of RM1.1.				
RM2	Identification and/or remediation of contaminated lands	2.1 Contaminated Land Investigation Document completed in accordance with the <i>Environmental Protection Act 1994</i>, including a site investigation report, and, where required, a Validation Report and/or a draft Site Management Plan. 2.2 Contaminated and hazardous material either remediated in-situ or removed/transported to	2.1 Waste tracking requirements in Queensland (Department of Environment and Science 2023). 2.2 Contaminated land framework (EP Act 1994).	2.1 -2.2 As land is available for assessment.	2.1 Waste tracking documentation. 2.2 CLID. Land removed from Environmental Management Register (EMR).	2.1 Land is listed on EMR or Contaminated Land Register (CLR). If listed on CLR, a Site Management Plan will be prepared.

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		an approved landfill for disposal and waste tracking information recorded and submitted. 2.3 Suitably Qualified person (SQP) certifies that that no contamination unsuitable for the PMLU remains or is occurring.				
RM3	Landform development and reshaping	Milestone criteria that apply to all PMLUs. 3.1 All major earthworks (including reshaping, pushing/trimming) are completed in accordance with the design specification provided by an AQP. 3.2 Diversions/drainage constructed in accordance with the engineering designs developed by an AQP. 3.3 Bulk earthworks completed to tolerance of ± 2 m of design. 3.4 An “As-Constructed Report” prepared which details and justifies all variations to the design, including a certification that such variations will not affect the design performance 3.5 Constructed landform achieves geotechnical stability with a Factor of Safety (FoS) ≥ 1.5.	3.1 Geotechnical engineering calculations, slip failure analysis, overall factor of safety method. 3.2 Visual inspection, sampling and analysis of surface materials. 3.3 Survey as-builts. 3.4 Survey as-builts.	3.1-3.5 & 3.8-3.9 As landform construction is completed.	3.1 Report by geotechnical engineer (RPEQ)/AQP. 3.2 Report by AQP. 3.3 Survey data, GIS updated. 3.4 Survey data, GIS updated.	3.1 Landform is reworked to achieve desired FoS. 3.2 Landform is reworked to achieve desired design. 3.3 Bulk earthworks are redone to achieve design tolerance. 3.4 N/A.

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		3.6 No surface exposure of potentially acid forming (PAF) materials. 3.7 All environmentally problematic material is appropriately placed and located within the final landform, consistent with the relevant designs. 3.8 Slope angles do not exceed angle of repose. 3.9 With the exception of Final Waste Storage Landforms, all landforms are shaped to be water-shedding. 3.10 Disturbed natural watercourse bed and banks returned to a natural condition with profile similar to the pre-disturbance condition. 3.11 Independent AQP has surveyed the final landform and certified that RM3.1 - 3.12 have been achieved. Milestone criteria that apply to RA2 and RA8: 3.12 Landforms in RA2 and RA8 must be reshaped to mimic natural topography, ensuring stability and blending with the	3.5 LiDAR aerial survey and slope analysis methods in National Committee on Soil and Terrain (2024). 3.6 Visual inspection. 3.7 Visual inspection, sampling and analysis of sediments. 3.8 Survey as-builts & Visual inspection. 3.9 – 3.10 Survey as-builts & Visual inspection.	3.6 As required. 3.7 As required. 3.8-3.9 As landform construction is completed. 3.10 As rehabilitation completed.	3.5 Survey data, GIS updated. 3.6 GIS updated. 3.7 – 3.12 Report by AQP.	3.5 Landform is reworked to achieve desired slope angles. 3.6 PAF material is removed and buried. 3.7 Any identified contaminated sediments will be removed. 3.8 & 3.9 Landform is reworked to achieve desired design. 3.10 & 3.12 Any variances identified by monitoring and surveying will be rectified to the satisfaction of the AQP.

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		surrounding landscape. Reshaping must be completed prior to revegetation and certified by an independent AQP.	3.12 Survey as-builts & Visual inspection.	3.12 As landform construction is completed.		
RM4	Installation of surface cover on tailings storage facility (RA3) and North Waste Rock Dump (NWRD) - Waste rock and long-term ore stockpiles (RA1)	Milestone criteria that apply to RA1 and RA3 4.1 Cover system design and performance criteria based on level of environmental risk has been endorsed via an independent AQP peer review. 4.2 The cover system displays erosional stability, is geotechnically stable and supports the PMLU. 4.3 The measured in situ drainage flux from the cover system into the landform has been demonstrated to be <5% of average annual rainfall. 4.4 All cover materials are Barren or NAF, and not capable of generating AMD (Acid and Metalliferous Drainage). 4.5 The cover system must demonstrate, through in situ monitoring and independent verification, that water	4.1 Survey, direct measurement of layer thicknesses, compaction testing (sand cone method), permeability testing (constant head method), visual inspection, photography. 4.2 – 4.5 On ground inspection and monitoring via in-situ subsurface sensors (moisture , matric suction and EC), flume water level sensors, and water quality from automated lysimeter samples post rain events (if drainage is generated)	4.1 At nominated hold-points in the cover construction works, progressively and at the completion of earthworks. 4.2 – 4.5 Continuous data capture by surface camera and in-situ sensors. Post rainfall event checks of automated lysimeter samples.	4.1 As-built report by AQP. 4.2 – 4.5 Report by AQP.	4.1 All identified non-compliances will be rectified.

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		infiltration is minimised to levels consistent with the design specifications, and that no measurable increase in contaminant concentrations occurs in basal seepage or surface water runoff attributable to the cover system. 4.6 Independent AQP has surveyed the final landform and certified that RM4.1 - 4.5 have been achieved.				
RM5	Surface preparation	5.1 Assessment of growth media characteristics and the development of an amelioration and physical treatment plan is completed by an AQP. 5.2 Ameliorant and physical treatments such as fertiliser, lime, gypsum, and/or organic matter are applied as determined from soil testing and plant use requirements and as recommended by the AQP and as identified in criteria RM5.1. Milestone criteria that apply to all PMLUs (excluding outer slopes of	5.1 Visual inspection, soil sampling and laboratory testing, rehabilitation as-built records. 5.2 Visual inspection, rehabilitation as-built records.	5.1 – 5.7 As rehabilitation areas are completed.	5.1 – 5.7 Report by AQP.	5.1 – 5.7 All variances identified by monitoring will be rectified to the satisfaction of the AQP.

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		NWRD and TSF which do not require revegetation) 5.3 Prior to the application of topsoil/growth media any visible erosion and settlement of cover systems has been remediated. 5.4 After respreading onto the surface of rehabilitation, the growth media is tilled to a minimum of 0.2 m, following the contour. 5.5 Apply fertiliser as determined from soil testing and plant use requirements and as recommended by the AQP. 5.6 Following amelioration, representative soil testing of growth media and assessment by an AQP confirms: a) Acidity as pH, between 6.0 and 8.5; b) Salinity as saturated extract electrical conductivity (ECe), ≤2 dS/m; c) Sodicity as exchangeable sodium percentage (ESP), ≤6 %; d) Fertility levels are suitable for the PMLU and target vegetation establishment.	5.3 Visual inspection, rehabilitation as-built records. 5.4 – 5.6 Visual inspection, field sampling and laboratory testing of soil samples.			

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		5.7 The surface and groundwater monitoring network are installed, and monitoring is underway (one year of sampling undertaken). 5.8 Independent AQP has certified the plan in RM 5.1 and achievement of RM 5.2 - 5.7.	5.7 Monitoring of surface flows and ground water levels and water quality sampling and testing.	5.7 Quarterly monitoring		
RM6	Revegetation	Milestone criteria that apply to all PMLUs (excluding outer slopes of NWRD and TSF which do not require revegetation) 6.1 All revegetation trials embarked on immediately to demonstrate that methodologies pursued will work. 6.2 Seeding completed using seed mix and sowing rates described in DESTI PRCP Schedule (2025) Appendix 1: Seed mix and application rate or as amended for additional native locally appropriate species as recommended by an AQP and certified as suitable to achieve a stable condition and achieve the PMLU. 6.3 Monitoring needs to be sufficiently intensive and	6.1 Visual inspection, biocondition monitoring records. 6.2 Visual inspection, rehabilitation activity records/as-built records. 6.3 – 6.5 Visual inspection, rehabilitation biocondition	6.1 Once vegetation is established on the trials conduct biocondition assessment of trials each May or June. 6.2 As rehabilitation areas are completed. 6.3 – 6.5 & 6.7 Biocondition assessment	6.1 – 6.10 Report by AQP.	6.1 – 6.10 All variances identified by monitoring will be rectified to the satisfaction of the AQP.

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		frequent over the first two seasons (years) to ensure the survival of seedlings, and all species required (reference community composition). 6.4 At least three canopy species dominating revegetation at year 1 and year 2. 6.5 Maintenance should be in accordance with survival of seedlings and to ensure surviving composition is appropriate for the PMLU. 6.6 Maintenance will ensure that erosion is contained. 6.7 For RA1, and RA3, seeding completed using seed mix and sowing rates described in DESTI PRCP Schedule (2025) Appendix 1: Seed mix and application rate, and DESTI PRCP Schedule (2025) Appendix 4: Mt Rawdon - BioCondition milestone criteria for mine site rehabilitation – TSF and WRD. 6.8 Non-native seed must not be used for the revegetation except where a sterile cover crop is required for temporary erosion and/or sediment control.	assessment survey records. 6.6 Visual inspection, LiDAR analysis. 6.7 Biocondition assessment as per Queensland Herbarium published <i>'BioCondition Assessment Manual'</i>. 6.8 Field survey checks of 'weediness'.	monitoring each May or June. 6.6 Post significant rain events during wet season (October -March) 6.7 Monthly surveys during germination and early plant establishment phase. 6.8 Monthly field inspection.		

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		6.9 Soil health must be monitored annually for all rehabilitation areas to ensure long-term productivity, including testing for organic matter, microbial activity, and nutrient levels. 6.10 Stock exclusion fencing has been established to prevent stock from grazing newly seeded areas. 6.11 Independent AQP has certified the achievement of RM 6.1 - 6.10.	6.9 Soil sampling 6.10 Visual perimeter fence inspection	6.9 Annual soil sampling. 6.10 Quarterly fence inspection		
RM7	Achievement of surface requirements	Milestone criteria that apply to all PMLUs 7.1 Revegetation monitoring needs to be sufficiently intensive and frequent to ensure the survival of all species. 7.2 AQP confirms that no ecosystem altering weeds (environmental weeds) or weeds of national significance are greater than a total 5 % of the vegetation cover (i.e., no more than 5 % in total). Naturalised grass species (i.e. Red Natal (<i>Melinis repens</i>) and Rhodes (<i>Chloris gayana</i>)) may be present greater than 5% in total if AQP determines that they are being appropriately	7.1 Vegetation field survey checks. 7.2 Field survey checks of 'weediness'.	7.1 As landforms become available for assessment. Then weekly to fortnightly inspections until vegetation is established. 7.2 Monthly field inspections during the first 2 seasons then annually.	7.1 Site monitoring reports. 7.2 Laboratory reports; site monitoring reports; Report by AQP.	7.1 – 7.3 Vegetation maintenance (e.g. water, weeding, fertilising, & supplementary planting by direct seeding and/or tube stock) as required to to achieve required species richness in rehabilitation. 7.2 – 7.11 All variances identified by monitoring will be rectified to the satisfaction of the AQP. Including any

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		managed and supportive towards overall ecosystem function. 7.3 Native vegetative groundcover is >50 %, with native perennial grasses and litter comprising ≥25 % of total groundcover. 7.4 Rehabilitated landforms are assessed as geotechnically stable with FoS ≥1.5. 7.5 With respect to erosion: a) No erosion classified as 'moderate' or 'severe' as defined by DESTI PRCP Schedule (2025), Appendix 2 – Erosion classification framework b) No erosion will compromise the achievement of a PMLU to a stable condition. c) Erosion requiring intervention has been remediated and does not impact achieving the PMLU. 7.6 The growth media (topsoil and subsoil) physical, chemical, and biological properties do not limit vegetation cover	7.3 Visual inspection, BioCondition assessment methodology according to Neldner <i>et al.</i> (2022). 7.4 Geotechnical field survey monitoring and assessment of engineering calculations, slip failure analysis, stability modelling, overall factor of safety method. 7.5 Visual performance assessment, surface and aerial LiDAR survey and analysis.	7.3 As landforms become available and once vegetation is established, conduct biocondition assessment of vegetation each May or June. 7.4 – 7.11 As landforms become available for assessment, then annually or more frequently if identified in the monitoring plan.	7.3 Report by AQP. 7.4 Report by geotechnical engineer (RPEQ)/ AQP. 7.5 – 7.18 Report by AQP.	rectification works as prescribed by the AQP to ensure appropriate land suitability class is achieved

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		performance or restrict the potential effective depth of rooting. 7.7 No surface exposure of PAF materials. 7.8 No scouring, overtopping, sedimentation or destabilisation in or associated with erosion and sediment control and engineered drainage structures. 7.9 All contour banks and other temporary erosion and sediment control structures have been removed. 7.10 Any ESC and drainage structures to be retained as permanent features remain stable with no increased risk of gully erosion at surrender. 7.11 The stability assessment required as per RM7.13 must consider performance, maintenance requirements and residual risk post closure. 7.12 Independent AQP certifies achievement of RM7.1 – 7.18. Specific criteria for RA1 and RA3:	7.6 Agronomic soil testing and soil amendments. 7.7 Visual inspection, material sampling and laboratory analysis, acid-base accounting. 7.8 - 7.10 Visual performance assessment, surface and aerial LiDAR survey and analysis. 7.11 Geotechnical field survey monitoring and assessment of engineering calculations, slip failure analysis, stability modelling,			

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		7.13 Monitoring data and technical assessments indicate that the tailings storage facility and waste rock dumps are on a trajectory to achieve a stable condition. 7.14 Native plant species richness and diversity. Refer to DESTI PRCP Schedule (2025), Appendix 3.2 – Mt Rawdon – BioCondition milestone criteria for mine site rehabilitation – TSF and WRD: a) Shrubs, ≥3 (Count). b) Maximum rooting depth does not impact the physical integrity of the cover system. c) Grasses, ≥3 (Count). PMLU specific criteria for Open Woodland (RA2, RA4, RA5, RA8): 7.15 A BioCondition assessment is completed by an AQP using the methodology outlined in the latest version of the Queensland Herbarium published '<i>BioCondition Assessment Manual</i>' and determines	overall factor of safety method. 7.13 – 7.14 BioCondition assessment methodology according to Neldner et al. (2022) 7.15 – 7.16 BioCondition assessment methodology	7.13 – 7.14 As landforms become available and once vegetation is established, conduct biocondition assessment of vegetation each May or June. 7.15 – 7.16 As landforms become available and		7.13 – 7.14 All variances identified by monitoring will be rectified to the satisfaction of the AQP - including any rectification works as prescribed by the AQP to ensure appropriate land suitability class is achieved. 7.15 – 7.16 All variances identified by monitoring will be

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		that the overall BioCondition is maintained or improving over time. 7.16 The BioCondition assessment completed under RM7.15 complies with the PRCP Benchmark for the PMLU. The overall BioCondition score exceeds 20/60, as per DESTI PRCP Schedule (2025) Appendix 3.1 – BioCondition milestone criteria for mine site rehabilitation. Specific criteria for low intensity grazing (RA7): 7.17 Land Suitability Class 1, 2, or 3. 7.18 Minimum vegetation composition (per hectare (averaged)) of: a) Four species of native '3P' (perennial, productive, and palatable) native pasture species. Where 3P species are not available, native pasture species appropriate to	according to Neldner et al. (2022) 7.17 Land suitability assessment methodology according to Department of Science Information Technology and Innovation and Department of Natural Resources and Mines (2015).	once vegetation is established, conduct biocondition assessment of vegetation each May or June. 7.17 As landforms become available and once vegetation is established, conduct Land suitability assessment. 7.18 As grazing areas become available		rectified to the satisfaction of the AQP. Including any rectification works as prescribed by the AQP to ensure appropriate land suitability class is achieved. 7.17 – 7.18 All variances identified by monitoring will be rectified to the satisfaction of the AQP. Including any rectification works as prescribed by the AQP to ensure appropriate land

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		the area and suitable for the PMLU are acceptable, b) Two native legume species, and c) 10 % locally suitable native shade tree and shrub cover. d) Inclusion of vegetation stepping stone or ecological corridor traversing the low intensity grazing landscape and connecting with areas of native vegetation. Stepping stones placed no more than 50 metres apart to facilitate wildlife movement. Corridors must include a mix of native trees, shrubs, and groundcover species to mimic natural ecosystems and connect rehabilitated areas to surrounding native vegetation. The effectiveness of corridors must be monitored annually for five years, with adaptive management applied as needed.	7.18 Field survey checks of as-established vegetation placed as stepping stone habitat.	for establishment of native vegetation stepping stones / corridors field vegetation assessment, then monitored annually for five years.		suitability class is achieved.

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
RM8	Achievement of post-mining land use to a stable condition	Milestone criteria that apply to all PMLUs. 8.1 Safety hazards in rehabilitation are not significantly different to surrounding unmined landscapes subject to the same land use. 8.2 Landform is geotechnically stable and achieves a FoS ≥ 1.5. 8.3 The land is structurally and erosionally stable. 8.4 With respect to erosion: a) No evidence of erosion classified as 'moderate' or 'severe' as defined by DESTI PRCP Schedule (2025), Appendix 2 – Erosion classification framework. b) Any erosion present will not compromise the achievement of a PMLU to a stable condition. c) All other erosion requiring intervention has been remediated and does not impact achieving the PMLU.	8.1 Risk management framework methods aligned to AS/NZS ISO 31000:2018. 8.2 Geotechnical engineering calculations, slip failure analysis, overall factor of safety method. 8.3 & 8.4 Visual inspection, LiDAR analysis, groundcover assessment methods in National Committee on Soil and Terrain (2009).	8.1 As rehabilitation is completed and monitoring reports are available for consideration. 8.2 As landforms become available for assessment. 8.3 Following vegetation establishment in rehabilitation. 8.4 Following significant rainfall events.	8.1 Report by AQP. 8.2 Report by geotechnical engineer (RPEQ). 8.3 Report by AQP. 8.4 Laboratory reporting sheets (including electronic files), report by AQP.	8.1 Risks will be as low as reasonably practicable (ALARP). 8.2 Landform is reworked to achieve desired FoS. 8.3 & 8.4 All active erosion will be repaired and variances identified by monitoring will be rectified to the satisfaction of the AQP.

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		d) No evidence of scouring, overtopping, sedimentation, or destabilisation in or associated with erosion and sediment control and engineered drainage structures. 8.5 AQP confirms that ecosystem altering weeds (environmental weeds) and/or weeds of national significance compose no greater than a total 5 % of the vegetation cover (i.e., no more than 5 % in total) and are being appropriately managed to ensure that this PMLU is achieved. Naturalised grass species (i.e. Red Natal (<i>Melinis repens</i>) and Rhodes (<i>Chloris gayana</i>)) may be present greater than 5% in total if AQP determines that they are being appropriately managed and supportive towards overall ecosystem function. 8.6 Soil testing of the growth media confirms the topsoil and subsoil physical, chemical, and biological properties do not limit vegetation cover	8.5 Field survey and BioCondition assessment methodology according to Neldner <i>et al.</i> (2022). 8.6 Agronomic soil testing.	8.5 Annual biocondition assessment each May or June. 8.6 Prior to revegetation program, and as rehabilitation areas become	8.5 Field survey records; report by AQP. 8.6 Laboratory reporting sheets (including electronic files), report by AQP.	8.5 All variances identified by monitoring will be rectified to the satisfaction of the AQP. 8.6 Any variances identified by monitoring will be rectified to the satisfaction of the AQP.

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		performance (e.g., nutrient availability, drought stress). 8.7 Final landform survey confirms no built structures remain other than those that form part of a landholder agreement. 8.8 Surface water quality results monitored monthly during flow at, <i>but not limited to</i>, downstream locations specified in DESTI PRCP Schedule (2025), Appendix 5 – Surface water monitoring locations, must not exceed the limits in DESTI PRCP Schedule (2025), Appendix 4 - Surface water quality limits, for a minimum of 5 consecutive years. 8.9 If the surface water quality exceeds the criteria of DESTI PRCP Schedule (2025), Appendix 4 - Surface water quality limits, the applicable upstream/reference site must be compared to the downstream site result; and quality result measured at a downstream site must be equal to or less than the quality result measured at the	8.7 Infrastructure inventory and field survey 8.8 & 8.9 Surface water sampling and laboratory analysis.	available for assessment. 8.7 As rehabilitation areas become available for assessment. 8.8 & 8.9 Monthly during flow for a minimum of 5 consecutive years.	8.7 Report by AQP. 8.8 & 8.9 Laboratory reporting sheets (including electronic files), report by AQP.	8.7 Rectification works as prescribed by the AQP to ensure appropriate land suitability class is achieved. 8.8 & 8.9 All variances identified by monitoring will be rectified to the satisfaction of the AQP.

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		applicable upstream/reference site²⁴. 8.10 For a minimum of five consecutive years groundwater quality must be monitored quarterly at, <i>but not limited to</i>, compliance bores/locations specified in DESTI PRCP Schedule (2025), Appendix 6 – Groundwater monitoring locations, for all quality characteristics listed in DESTI PRCP Schedule (2025), Appendix 7 – Groundwater quality limits. 8.11 Groundwater quality results must not exceed the limits in DESTI PRCP Schedule (2025), Appendix 7 – Groundwater quality limits, for 3 consecutive results. 8.12 Groundwater level is monitored quarterly and for a	8.10 – 8.12 Groundwater sampling and laboratory analysis.	8.10 – 8.12 Quarterly for a minimum of 5 consecutive years.	8.10 – 8.12 Laboratory reporting sheets (including electronic files), report by AQP.	8.10 – 8.12 All variances identified by monitoring will be rectified to the satisfaction of the AQP.

²⁴ For pH, the quality result measured at the downstream location must be within the prescribed range. However, where pH at the downstream location is greater-than (>) the highest limit in the range, the pH at the applicable upstream location must be greater-than or equal-to (≥) the downstream location. Conversely, where pH at the downstream location is less than (<) the lowest limit in the range, the upstream pH at the applicable upstream location must be less-than or equal-to (≤) the downstream location.

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		minimum of 5 consecutive years. 8.13 No adverse change to the contaminated land status has occurred post the completion of RM2. 8.14 Where engineered drainage structures are to be retained as permanent features (e.g. contour banks, bench drains, rock drains), it must be certified by an AQP that the structures are stable and can be expected to remain stable and functional in the long-term. 8.15 Seepage water within seepage drains and collection ponds from Final Waste Storage Landform (RA3) is non-polluting to the receiving environment. Specific criteria for Low Intensity Grazing (RA7) 8.16 Land Suitability Class 1, 2, or 3 8.17 >70 % established and self-sustaining vegetative groundcover of species as listed in DESTI PRCP Schedule	8.13 Assessment against the Contaminated land framework (EP Act 1994). 8.14 Visual performance assessment, surface geotechnical and aerial LiDAR survey and analysis. 8.15 Stored water sampling and laboratory analysis. 8.16 – 8.19 Land suitability assessment methodology according to Department of Science Information Technology and	8.13 As land is available for assessment. 8.14 As landforms become available for assessment, then annually or more frequently if identified in the monitoring plan. 8.15 Annually or more frequently if identified in the monitoring plan. 8.16 – 8.19 As rehabilitation areas become available for assessment.	8.13 Contaminated land investigation documents (CLID); Report by AQP. 8.14 Report by geotechnical engineer (RPEQ); report by AQP. 8.15 Laboratory reporting sheets (including electronic files); report by AQP. 8.16 – 8.19 Field survey records; report by AQP.	8.13 Land is listed on EMR or Contaminated Land Register (CLR). If listed on CLR, a Site Management Plan will be prepared to the satisfaction of the AQP. 8.14 & 8.15 All variances identified by monitoring will be rectified to the satisfaction of the AQP. 8.16 - 8.19 All variances identified by monitoring will be rectified to the satisfaction of the AQP - including any rectification works

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		(2025), Appendix 1 – Species list and seeding rates. 8.18 Minimum vegetation composition (per hectare (averaged)) of: a) four species of native ‘3P’ (perennial, productive, and palatable (3P)) native pasture species. Where 3P species are not available, native pasture species appropriate to the area (regional ecosystem) and suitable for the PMLU are acceptable, b) two native legume species, and c) 20 % locally suitable native shade tree and shrub cover. d) inclusion of vegetation stepping stone or ecological corridor traversing the low intensity grazing landscape and connecting with areas of native vegetation.	Innovation and Department of Natural Resources and Mines (2015); supplemented by BioCondition assessment methodology according to Neldner <i>et al.</i> (2022).			as prescribed by the AQP to ensure appropriate land suitability class is achieved

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		8.19 Assessment of land condition demonstrates a sustainable grazing outcome has been achieved. Specific criteria for Open Woodland (RA4, RA5 and RA8) 8.20 A BioCondition assessment is completed by an AQP using the methodology outlined in the latest version of the Queensland Herbarium's '<i>BioCondition Assessment Manual</i>'. 8.21 The BioCondition assessment completed under RM8.20 complies with the PRCP Benchmark for the PMLU. The overall BioCondition score exceeds 35/60, as per DESTI PRCP Schedule (2025), Appendix 3.1 – BioCondition milestone criteria for mine site rehabilitation. Specific criteria for Water Storage (RA6). 8.22 Water storages are safe for native animals and stock	8.20 – 8.21 BioCondition assessment methodology according to Neldner <i>et al.</i> (2022). 8.22 -8.24 Stored water storage sampling and laboratory analysis; field vegetation	8.20 – 8.21 As landforms become available and once vegetation is established, conduct biocondition assessment of vegetation each May or June. 8.22 – 8.24 At completion of rehabilitation activities; Annually	8.20 – 8.21 Field survey records; report by AQP.	8.20 & 8.21 All variances identified by monitoring will be rectified to the satisfaction of the AQP. 8.22 – 8.24 All variances identified by monitoring

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		access and have vegetated banks. 8.23 The Southern Diversion Drain, non-retained dams, and any other structures not authorised for retention are decommissioned, and the landform reshaped to a free-draining, stable condition. 8.24 Where engineered water storages are to be retained as permanent features (e.g. stock water dams), it must be certified by an AQP that the dams are safe and stable and can be expected to remain safe, stable and functional in the long-term. Specific criteria for (RA1 and RA3): 8.25 Meet the cover performance drainage target of <5 % of average annual rainfall. 8.26 Plant species richness, refer to DESTI PRCP Schedule (2025), Appendix 3.2: Mt Rawdon - BioCondition milestone criteria for mine site rehabilitation – TSF and WRD:	inspection, geotechnical inspection; and as-built surface survey. 8.25 On ground inspection and monitoring via in-situ subsurface sensors (moisture , matric suction and EC), flume water level sensors, and water quality from automated lysimeter samples post rain events (if drainage is generated).	or more frequently if identified in the monitoring plan. 8.25 Continuous data capture by surface camera and in-situ sensors. Post rainfall event checks of automated lysimeter samples.	8.22 – 8.24 Field survey records; Laboratory reporting sheets (including electronic files); Report by AQP. 8.25 Instrument data records; Report by AQP.	will be rectified to the satisfaction of the AQP. 8.25 - 8.27 All identified non-compliances will be rectified.

Rehabilitation milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		e) Trees and/or Shrubs ≥ 3 (Count). f) Native grasses, ≥ 3 (Count). g) Maximum rooting depth does not impact the physical integrity of the cover system. 8.27 Litter cover ≥ 20 %. 8.28 Independent AQP certifies achievement of RM 8.1 - 8.27 .	8.26 – 8.27 Rooting depth determined as per trial testing data; BioCondition assessment methodology according to Neldner <i>et al.</i> (2022).	8.26 – 8.27 As landforms become available and once vegetation is established, conduct biocondition assessment of vegetation each May or June.	8.26 – 8.27 Field survey records; report by AQP.	

¹ The intent of reporting is to present and discuss results of monitoring.

² Contingency strategies are only required where monitoring shows milestone criteria are not being met.

7.2 Improvement Area Milestone (MM) Monitoring

The PRCP schedule lists three improvement area milestones for MRO (refer to Section 9.1.6). The EP Act (1994) section 126(c)(j) requires consideration of monitoring and maintenance requirements to demonstrate that milestones and milestone criteria have been met using best practice management of the area to achieve sufficient improvement of the land. These requirements are further detailed in Department of Environment Science and Innovation Guideline (2023).

Monitoring and maintenance requirements for each improvement area milestone at MRO have been identified (**Table 64**). This includes monitoring methods, frequencies, reporting and contingency actions that may be required to ensure compliance with this PRCP. To the extent possible, methodologies are based on legislative requirements, Australian Standards, Queensland Government guidelines, and recognised standards in soil and land evaluation, ecological assessment, and civil, geotechnical and hydraulic engineering. All monitoring and maintenance activities will be completed by appropriately qualified persons (AQPs).

Table 64: Improvement Area milestones, criteria, and monitoring requirements at MRO

Management Area milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
MM1	Achievement of structural stability	1.1 Pit wall landforms including safety bund, diversions, and/or drainage must: a) prevent surface or seepage flow of floodwater into the void b) Be geotechnically stable when subjected to floodwaters c) Not be constructed with dispersive material. 1.2 The final design for pit wall landform must be completed by an AQP based on the latest flood modelling and materials data prior to construction. 1.3 All flood protection landforms and flood protection measures designed and constructed consistent with the findings of PRCP13 and PRCP14. 1.4 Final residual voids are not subject to inundation from floodwaters up to and including the 0.1% AEP. 1.5 Final void must achieve a FoS ≥ 1.5 within the NUMA as determined by an AQP. 1.6 The location of the voids and associated safety bunds does not cause instability or degradation to the land outside the NUMA.	1.1 , 1.6 & 1.7 On-ground visual inspection and survey of as-builts, LiDAR aerial survey. 1.2 Geotechnical engineering calculations, slip failure analysis, overall factor of safety method. 1.3 & 1.4 Hydrological and water engineering calculations and modelling, and meteorological weather station data collection and analysis. 1.5 & 1.6 Geotechnical monitoring (pit crest and pit outer rim area)	1.1, 1.4 – 1.7 Following rainfall events.	1.1 Report by AQP. 1.2 & 1.3 Report by geotechnical engineer (RPEQ). 1.4 - 1.7 Report by AQP.	All variances identified by monitoring will be rectified to the satisfaction of the AQP.

Management Area milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		1.7 Residual voids must not overtop. 1.8 Independent AQP certifies achievement of MM1.1 – MM1.7				
MM2	Achievement of surface requirements	2.1 Fencing erected around the perimeter of the safety bund to prevent access to the residual void. 2.2 Competent safety bund and fencing in place to prevent access to the residual void. 2.3 The safety bund and fencing provide flood protection in accordance with engineering requirements, including: a) Constructed from non-weathered, non-dispersive dumped rockfill; b) a minimum 2 m in height; c) a minimum of 4 m base width. 2.4 Safety signage (design in accordance with Australian standard) is erected at 100 m intervals along the fence. 2.5 Independent AQP certifies achievement of MM2.1 – MM2.4.	2.1 & 2.2 On-ground visual inspection of integrity of as-built structures and LiDAR aerial survey. 2.2 Engineering designs in accordance to requirements. 2.3 & 2.4 Inspection and testing of as-built structures.	2.1 & 2.4 As required. 2.2 & 2.3 Following significant rainfall events.	2.1 - 2.4 Report by AQP.	All variances identified by monitoring will be rectified to the satisfaction of the AQP.
MM3	Achievement of sufficient improvement	3.1 The pit wall landform has been constructed in accordance with the final design. 3.2 Appropriate safety infrastructure at the geotechnical set-back distance has been installed to prevent access to the NUMA.	3.1 Verification of as-built structure/s with the mine design plan using survey plans and LiDAR aerial survey. 3.2 On-ground visual inspection of as-built structure locations	3.1 & 3.2 At completion of as-built structures 3.3 At completion of as-built structures and following significant rainfall events.	3.1 Report by AQP.	All variances identified by monitoring will be rectified to the satisfaction of the AQP.

Management Area milestone		Criteria	Monitoring method	Monitoring frequency	Reporting ¹	Contingency strategy ²
		3.3 The residual void is safe to humans and livestock. 3.4 The water level and quality in the void do not and will not cause environmental harm to the receiving environment, as demonstrated by groundwater level, quality monitoring and modelling. 3.5 An AQP demonstrates with water quality, water level and modelling data, that the residual void acts as groundwater sinks post-closure. 3.6 Voids retain flood immunity, supported by flood modelling re-run at end of life and calibrated against the final landform. 3.7 The residual void will not present an unacceptable risk of environmental harm. 3.8 Erosion of the landform within the NUMA area will not negatively impact on the stability of any adjacent rehabilitation areas, or their ability to sustain their PMLU. 3.9 Independent AQP certifies achievement of MM3.1 – MM3.8.	and LiDAR aerial survey. 3.3 On ground inspection of structural integrity and function of safety bund and fencing. 3.4 , 3.5 & 3.7 Water level monitoring (void and ground water) and sampling of both void water and ground water in conjunction with hydrogeological water modelling conducted by an AQP. 3.6 AQP to re-run flood modelling based upon updated climatic data and landform as-built structure/s. 3.7 Risk assessment based upon water quality monitoring and modelling. 3.8 Risk assessment based upon geotechnical monitoring and modelling.	3.4 Quarterly water sampling and annual water modelling. 3.5 - 3.8 Annually.		

7.3 Monitoring Report

At the completion of each monitoring period, a report is to be completed, providing a summary of all the data collected and the correlation to any previous monitoring data collected. The methodology for data collection used must clearly state its consistency with the methodology within this PRCP. The report is to be presented to demonstrate the evidence of positive or negative trends occurring within the rehabilitation areas. It will also identify any remediation works required and a prospective timeline to complete such works. Where applicable, the completion of relevant milestones is to be detailed and justified.

All monitoring reports are to be completed by 1 September in the calendar year that the relevant monitoring was completed.

7.4 Audits

In accordance with the *PRCP Guideline*, all holders of a PRCP schedule must commission a rehabilitation auditor (SQP) to complete an audit on the PRCP schedule every three (3) years. The first three (3) year period commences from the first day the schedule takes effect (i.e. 1 September 2025). Each subsequent audit period is for the three (3) years commencing on the day after the previous audit period ended.

The audit is to address the following aspects:

- Steps and processes how the PRCP holder has implemented to achieving or working towards the defined milestones.
- Whether and how the PRCP holder has complied with the conditions imposed within the PRCP schedule.
- Justification provided to the administering authority that any supplied information regarding rehabilitation is correct and true.
- Justification whether the PMLUs are likely to be achieved, with regard to pending and completed rehabilitation.

The audit report must be provided to the administering authority within four (4) months of completion of the audit period. The report must also include a declaration provided by the holder of the PRCP, stating that they have not knowingly given false or misleading information to the rehabilitation and that all relevant information has been provided to the rehabilitation auditor.

If applicable, the report may include recommendations for the PRCP holder regarding actions that may require an implementation to ensure the success of the rehabilitation and PRCP schedule.

The administering authority will provide feedback within 10 business days or request further information. From this point, the holder of the PRCP has 20 business days to provide further requested information. The administering authority reserves the right to implement the following actions upon receiving the audit report:

- Amend the PRCP schedule under section 215 of the EP Act ;
- Take appropriate compliance action if a non-compliance is identified; and
- Take no further action.

The administering authority also reserves the right to issue an audit notice, under Section 322 of the *EP Act 1994*, which requires the holder of the PRCP to commission an audit. All PRCP schedule audit reports are made public on a public register.

7.5 PRCP Amendments

The holder of the PRCP may, at any time, apply to the administering authority to amend the PRCP schedule. The application may be made to amend only the PRCP schedule, or as part of an amendment application for an EA. An amendment application must be submitted in the approved form and can be accompanied by the relevant fee and an amended rehabilitation planning part for the holder's PRCP that complies with section 126C of the EP Act. The PRCP holder should always consider whether a proposed amendment to the PRCP schedule requires a concurrent amendment to the EA to ensure consistency between both licences/instruments.

Once the PRCP has been amended, the rehabilitation planning sections of the PRCP must be reviewed to identify any required additional changes. A copy of the amended PRCP must be provided to the administering authority within 10 business days of receiving a copy of the amended PRCP schedule or receiving written notice under section 211 of the EP Act unless an extension period has been approved by the administering authority.

7.6 Annual Returns

With the relevant annual return relating to the land in which the PRCP schedule applies, the annual return must also include an evaluation of the effectiveness of the PRCP schedule, including the environmental management carried out under the schedule, for the year which the annual return relates to.

The evaluation must include:

- Whether any milestones under the PRCP schedule for the relevant year have been completed; and
- Whether the holder has complied with the conditions imposed on the PRCP schedule.

The annual return must also include the requirement for the PRCP holder to submit spatial information relating to the location of the rehabilitation or improvement.

7.7 Progressive Rehabilitation Certification

When rehabilitated areas have been rehabilitated in accordance with the completion criteria and milestones of this PRCP, in accordance with all relevant requirements of the EP Act, the relevant EA and the PRCP schedule, the holder of the EA can apply for progressive rehabilitation certification. The application must be accompanied with a progressive rehabilitation report, in accordance with the requirements listed in section 318ZD of the *EP Act 1994*.

7.8 Final Rehabilitation Report

The final rehabilitation report is to be prepared and provided when surrendering the relevant EA. The report is required to demonstrate how the conditions of the EA have been complied with and that any rehabilitation has been carried out with the requirements within the EA and PRCP. Reference to the EP Act section 262 can provide further details on the requirements of the final rehabilitation report.

7.9 Post-Mining Management Report

A post-mining management report is required to be provided with the surrender application of the EA and the final rehabilitation report. The report is required to outline the ongoing management of the rehabilitated land, including monitoring requirements. An environmental risk assessment is

required to be included that identifies any potential residual risk and how this risk will be managed accordingly. Further details on the requirements of the post-mining management report can be found in section 264A of the EP Act.

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9 Appendices

9.1 PRCP Schedule

This section of the PRCP provides a schedule of land availability at MRO for rehabilitation in conjunction with the rehabilitation milestones to achieve progressive rehabilitation. The schedule has been developed in accordance with section 126D of the *EP Act 1994* and in accordance with the rehabilitation milestones that apply to each rehabilitation area. This constitutes the MRO PRCP schedule.

9.1.1 Final Site Design

Figure 100 provides a visual representation of the maximum footprint disturbance which is scheduled to occur in the Year 2025 of operations at MRO, the relevant mining lease boundaries and the proposed PMLUs.

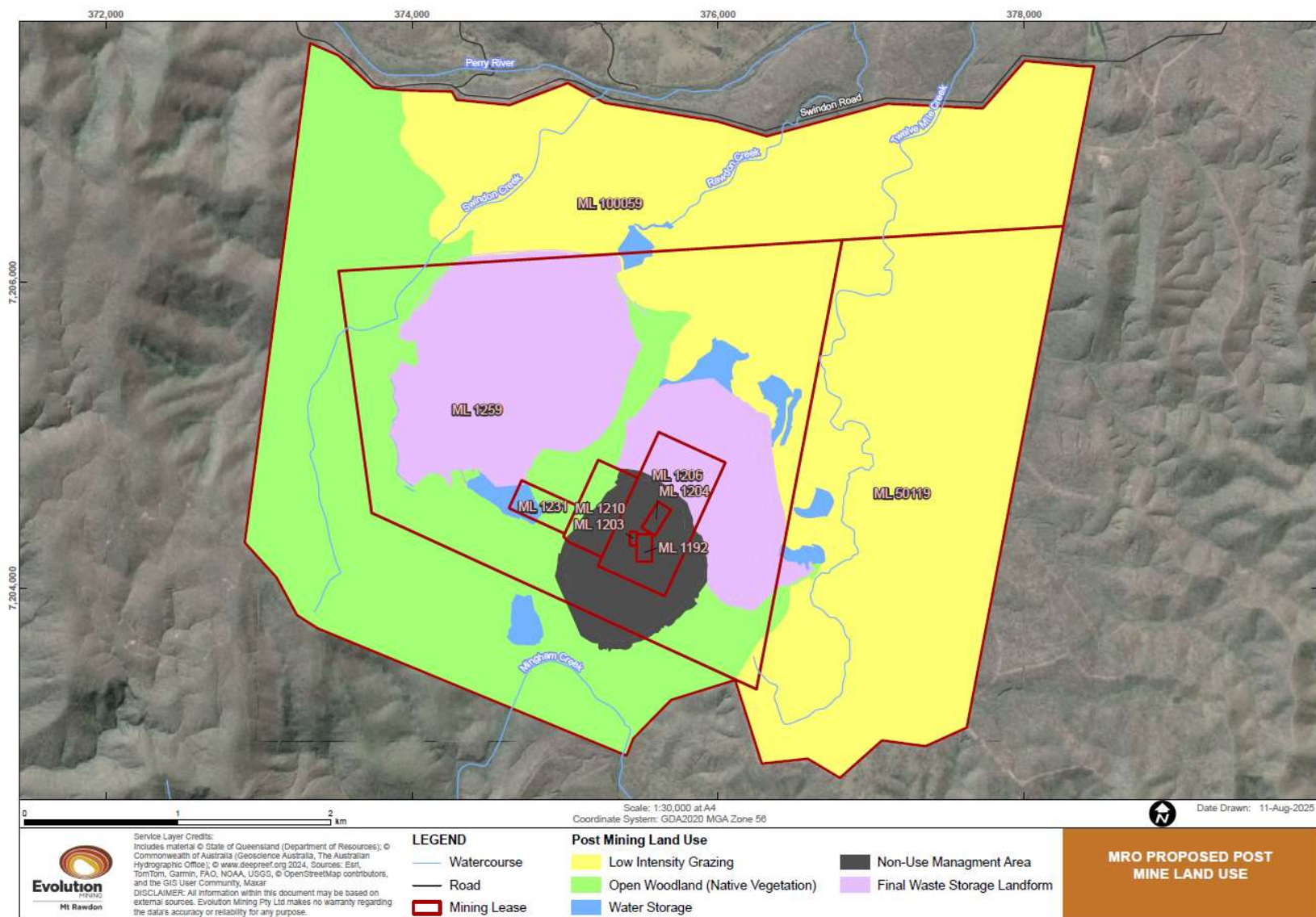


Figure 100: Maximum Footprint Disturbance at Year 2025

9.1.2 Schedule of Land Availability for Rehabilitation

MRO finished mining in the open pit in August 2024 and will continue to process ore stockpiles until the end of 2025. The site will then transition the processing plant into care and maintenance and continue with progressive rehabilitation of areas as per the schedule. MRO will continue to develop the feasibility study and associated approvals into converting the pit into a pumped hydro lower reservoir supporting the Mt Rawdon Pumped Hydro project. If the pumped hydro project proceeds this will see mining in the open pit recommence via a cutback on the north and west walls, as well as processing ore and storage of tailings and waste rock. This will require an amendment to the site EA and PRCP.

MRO will continue with progressive rehabilitation of disturbance areas as they become available such as laydown areas, as well as rehandling and minor reshaping of TSF PAF stockpile, NWRD PAF stockpile, as well as monitoring of rehabilitation trials (TSF cover, and bioreactor/wetland trials).

Disturbed land is considered available for rehabilitation when:

- Land is no longer being used for operational activities e.g. drilling, mining, haulage and storage of ore and waste rock, tailings deposition;
- Area is no longer being utilised by operational equipment or infrastructure; and
- Is safe to access.

The schedule of land availability for rehabilitation²⁵ is shown in **Table 65** the structure and sequencing of which is based on the projected MRO closure timeline and the key driving factors and various interrelated activities for the PRCP schedule, including:

- Subgrade stockpile on NWRD rehandle and processing – end of 2025 – followed by decommissioning of processing plant and placing it into care and maintenance.
- TSF landform development – initial consolidation and settlement modelling indicates a drying period is required before the tailing footprint becomes trafficable for earthmoving equipment and for a cover to be placed.
- TSF cover trial duration – ideally, MRO would allow the TSF cover trials to run for 3-5 years minimum, commencing early 2025 to calibrate the cover modelling and inform the design.
- Pit cut back feasibility – drilling and feasibility study work will continue for all of 2025 and into 2026 and so pit will remain active until this is completed.
- WWRD material is required for rehabilitation material and therefore area cannot be rehabilitated until rehabilitation of other domains is completed.
- NWRD – progressive reshaping will continue including PAF rehandle.
- Haul Roads – haul roads overlie other rehabilitation areas and therefore cannot be rehabilitated until underlying domains completed.
- Water infrastructure – water storages and dewatering infrastructure will remain in place until final milestones and associated completion criteria for other areas are achieved.

²⁵ Note that the land available per year is not a cumulative total of land available.

Table 65: Schedule of Land Availability for Rehabilitation

Land Available for rehabilitation in each rehabilitation area (ha)								
Rehabilitation areas	2026	2027	2028	2029	2030	2031	2032	2033
RA1 NWRD and long-term ore stockpiles			99.83 →					
RA2 WWRD, ROM and supporting drains							48.54→	
RA3 TSF (incl. interception drains & seepage ponds)			203.92→					
RA4 Haul Roads and internal access roads			16.07 →					
RA5 Processing Plant, Workshop & Infrastructure Management Areas (within open woodland areas)			24.29→					
RA6 Water Management Infrastructure & Dams							34.399→	
RA7 Borrow pits and Topsoil/growth-media stockpiles (within grazing land)							79.55 →	
RA8 Borrow pits and Topsoil/growth-media stockpiles (within open woodland areas)							16.42→	
Total								523.02 ha

9.1.3 Rehabilitation Milestones

Rehabilitation milestones relevant to MRO are listed in **Table 66**.

Table 66: Rehabilitation Milestones

Milestone reference	Rehabilitation milestone	Milestone criteria
RM1	Infrastructure decommissioning and removal	1.1 With the exception of any infrastructure to remain as part of the post-mining land use (PMLU), or where infrastructure is agreed to be retained by the Landholder/s by formal Agreement (Deed) the following are complete: a) All services disconnected, terminated and removed. b) All buildings and associated infrastructure demolished and removed. c) All concrete, hardstands, and roads removed. d) Linear infrastructure (pipelines, electrical power, fencing) removed. e) All drillholes, bores, sediment ponds and sumps decommissioned f) All machinery and equipment not required for rehabilitation removed from site. g) All fencing and associated foundations removed. h) All pipelines drained and removed. i) All waste not authorised to be disposed of on-site under Environmental Authority EPML00712113 removed. j) All surface water drainage infrastructure that is associated with a watercourse, or forms part of a non use management area (NUMA), is removed. k) All dams: i. dewatered ii. desilted iii. liner removed.

Milestone reference	Rehabilitation milestone	Milestone criteria
		l) Watercourse crossings and culverts removed. 1.2 An independent AQP has certified the achievement of RM1.1.
RM2	Investigation and/or remediation of contaminated lands	2.1 Contaminated Land Investigation Document completed in accordance with the <i>Environmental Protection Act 1994</i>, including a site investigation report, and, where required, a Validation Report and/or a draft Site Management Plan. 2.2 Contaminated and hazardous material either remediated in-situ or removed/transported to an approved landfill for disposal and waste tracking information recorded and submitted. 2.3 Suitably Qualified person (SQP) certifies that that no contamination unsuitable for the PMLU remains or is occurring.
RM3	Landform development and reshaping	Milestone criteria that apply to all PMLUs. 3.1 All major earthworks (including reshaping, pushing/trimming) are completed in accordance with the design specification provided by an AQP. 3.2 Diversions/drainage constructed in accordance with the engineering designs developed by an AQP. 3.3 Bulk earthworks completed to tolerance of ± 2 m of design. 3.4 An “As-Constructed Report” prepared which details and justifies all variations to the design, including a certification that such variations will not affect the design performance 3.5 Constructed landform achieves geotechnical stability with a Factor of Safety (FoS) ≥ 1.5. 3.6 No surface exposure of potentially acid forming (PAF) materials. 3.7 All environmentally problematic material is appropriately placed and located within the final landform, consistent with the relevant designs. 3.8 Slope angles do not exceed angle of repose. 3.9 With the exception of Final Waste Storage Landforms, all landforms are shaped to be water shedding.

Milestone reference	Rehabilitation milestone	Milestone criteria
		3.10 Disturbed natural watercourse bed and banks returned to a natural condition with profile similar to the pre-disturbance condition. 3.11 Independent AQP has surveyed the final landform and certified that RM3.1 - 3.12 have been achieved. Milestone criteria that apply to RA2 and RA8: 3.12 Landforms in RA2 and RA8 must be reshaped to mimic natural topography, ensuring stability and blending with the surrounding landscape. Reshaping must be completed prior to revegetation and certified by an independent AQP.
RM4	Installation of surface cover on tailings storage facility (RA3) and North Waste Rock Dump (NWRD) - Waste rock and long-term ore stockpiles (RA1)	Milestone criteria that apply to RA1 and RA3 4.1 Cover system design and performance criteria based on level of environmental risk has been endorsed via an independent AQP peer review. 4.2 The cover system displays erosional stability, is geotechnically stable and supports the PMLU. 4.3 The measured in situ drainage flux from the cover system into the landform has been demonstrated to be <5% of average annual rainfall. 4.4 All cover materials are Barren or NAF, and not capable of generating AMD (Acid and Metalliferous Drainage). 4.5 The cover system must demonstrate, through in situ monitoring and independent verification, that water infiltration is minimised to levels consistent with the design specifications, and that no measurable increase in contaminant concentrations occurs in basal seepage or surface water runoff attributable to the cover system. 4.6 Independent AQP has surveyed the final landform and certified that RM4.1 - 4.5 have been achieved.
RM5	Surface preparation	5.1 Assessment of growth media characteristics and the development of an amelioration and physical treatment plan is completed by an AQP.

Milestone reference	Rehabilitation milestone	Milestone criteria
		5.2 Ameliorant and physical treatments such as fertiliser, lime, gypsum, and/or organic matter are applied as determined from soil testing and plant use requirements and as recommended by the AQP and as identified in criteria RM5.1. Milestone criteria that apply to all PMLUs (excluding outer slopes of NWRD and TSF which do not require revegetation) 5.3 Prior to the application of topsoil/growth media any visible erosion and settlement of cover systems has been remediated. 5.4 After resspreading onto the surface of rehabilitation, the growth media is tilled to a minimum of 0.2 m, following the contour. 5.5 Apply fertiliser as determined from soil testing and plant use requirements and as recommended by the AQP. 5.6 Following amelioration, representative soil testing of growth media and assessment by an AQP confirms: a) Acidity as pH, between 6.0 and 8.5; b) Salinity as saturated extract electrical conductivity (ECe), ≤2 dS/m; c) Sodidity as exchangeable sodium percentage (ESP), ≤6 %; d) Fertility levels are suitable for the PMLU and target vegetation establishment. 5.7 The surface and groundwater monitoring network are installed, and monitoring is underway (one year of sampling undertaken). 5.8 Independent AQP has certified the plan in RM5.1 and achievement of RM 5.2 - 5.7.
RM6	Revegetation	Milestone criteria that apply to all PMLUs (excluding outer slopes of NWRD and TSF which do not require revegetation) 6.1 All revegetation trials embarked on immediately to demonstrate that methodologies pursued will work.

Milestone reference	Rehabilitation milestone	Milestone criteria
		6.2 Seeding completed using seed mix and sowing rates described in DESTI PRCP Schedule (2025) Appendix 1: Seed mix and application rate or as amended for additional native locally appropriate species as recommended by an AQP and certified as suitable to achieve a stable condition and achieve the PMLU. 6.3 Monitoring needs to be sufficiently intensive and frequent over the first two seasons (years) to ensure the survival of seedlings, and all species required (reference community composition). 6.4 At least three canopy species dominating revegetation at year 1 and year 2. 6.5 Maintenance should be in accordance with survival of seedlings and to ensure surviving composition is appropriate for the PMLU. 6.6 Maintenance will ensure that erosion is contained. 6.7 For RA1, and RA3, seeding completed using seed mix and sowing rates described in DESTI PRCP Schedule (2025) Appendix 1: Seed mix and application rate, and Appendix 3.2: Mt Rawdon - BioCondition milestone criteria for mine site rehabilitation – TSF and WRD. 6.8 Non-native seed must not be used for the revegetation except where a sterile cover crop is required for temporary erosion and/or sediment control. 6.9 Soil health must be monitored annually for all rehabilitation areas to ensure long-term productivity, including testing for organic matter, microbial activity, and nutrient levels. 6.10 Stock exclusion fencing has been established to prevent stock from grazing newly seeded areas. 6.11 Independent AQP has certified the achievement of RM 6.1 - 6.10.
RM7	Achievement of surface requirement	Milestone criteria that apply to all PMLUs 7.1 Revegetation monitoring needs to be sufficiently intensive and frequent to ensure the survival of all species. 7.2 AQP confirms that no ecosystem altering weeds (environmental weeds) or weeds of national significance are greater than a total 5 % of the vegetation cover (i.e., no more than 5 % in total). Naturalised grass species (i.e.

Milestone reference	Rehabilitation milestone	Milestone criteria
		Red Natal (<i>Melinis repens</i>) and Rhodes (<i>Chloris gayana</i>) may be present greater than 5% in total if AQP determines that they are being appropriately managed and supportive towards overall ecosystem function. 7.3 Native vegetative groundcover is >50 %, with native perennial grasses and litter comprising ≥25 % of total groundcover. 7.4 Rehabilitated landforms are assessed as geotechnically stable with FoS ≥1.5. 7.5 With respect to erosion: d) No erosion classified as ‘moderate’ or ‘severe’ as defined by DESTI PRCP Schedule (2025) Appendix 2 – Erosion classification framework e) No erosion will compromise the achievement of a PMLU to a stable condition. f) Erosion requiring intervention has been remediated and does not impact achieving the PMLU. 7.6 The growth media (topsoil and subsoil) physical, chemical, and biological properties do not limit vegetation cover performance or restrict the potential effective depth of rooting. 7.7 No surface exposure of PAF materials. 7.8 No scouring, overtopping, sedimentation or destabilisation in or associated with erosion and sediment control and engineered drainage structures. 7.9 All contour banks and other temporary erosion and sediment control structures have been removed. 7.10 Any ESC and drainage structures to be retained as permanent features remain stable with no increased risk of gully erosion at surrender. 7.11 The stability assessment required as per RM7.13 must consider performance, maintenance requirements and residual risk post closure. 7.12 Independent AQP certifies achievement of RM7.1 - 7.17. Specific criteria for RA1 and RA3:

Milestone reference	Rehabilitation milestone	Milestone criteria
		7.13 Monitoring data and technical assessments indicate that the tailings storage facility and waste rock dumps are on a trajectory to achieve a stable condition. 7.14 Native plant species richness and diversity. Refer to DESTI PRCP Schedule (2025) Appendix 3.2 - Mt Rawdon - BioCondition milestone criteria for mine site rehabilitation – TSF and WRD: e) Shrubs, ≥3 (Count). f) Maximum rooting depth does not impact the physical integrity of the cover system. g) Grasses, ≥3 (Count). PMLU specific criteria for Open Woodland (RA2, RA4, RA5, RA8): 7.15 A BioCondition assessment is completed by an AQP using the methodology outlined in the latest version of the Queensland Herbarium published '<i>BioCondition Assessment Manual</i>' and determines that the overall BioCondition is maintained or improving over time. 7.16 The BioCondition assessment completed under RM7.15 complies with the PRCP Benchmark for the PMLU. The overall BioCondition score exceeds 20/60, as per DESTI PRCP Schedule (2025) Appendix 3.1 – BioCondition milestone criteria for mine site rehabilitation. Specific criteria for low intensity grazing (RA7) 7.17 Land Suitability Class 1, 2, or 3. 7.18 Minimum vegetation composition (per hectare (averaged)) of: a) Four species of native '3P' (perennial, productive, and palatable) native pasture species. Where 3P species are not available, native pasture species appropriate to the area and suitable for the PMLU are acceptable, b) Two native legume species, and c) 10 % locally suitable native shade tree and shrub cover.

Milestone reference	Rehabilitation milestone	Milestone criteria
		d) Inclusion of vegetation stepping stone or ecological corridor traversing the low intensity grazing landscape and connecting with areas of native vegetation. Stepping stones placed no more than 50 metres apart to facilitate wildlife movement. Corridors must include a mix of native trees, shrubs, and groundcover species to mimic natural ecosystems and connect rehabilitated areas to surrounding native vegetation. The effectiveness of corridors must be monitored annually for five years, with adaptive management applied as needed.
RM8	Achievement of post-mining land use to a stable condition	Milestone criteria that apply to all PMLUs. 8.1 Safety hazards in rehabilitation are not significantly different to surrounding unmined landscapes subject to the same land use. 8.2 Landform is geotechnically stable and achieves a FoS ≥ 1.5. 8.3 The land is structurally and erosionally stable. 8.4 With respect to erosion: e) No evidence of erosion classified as ‘moderate’ or ‘severe’ as defined by DESTI PRCP Schedule (2025) Appendix 2 – Erosion classification framework. f) Any erosion present will not compromise the achievement of a PMLU to a stable condition. g) All other erosion requiring intervention has been remediated and does not impact achieving the PMLU. h) No evidence of scouring, overtopping, sedimentation, or destabilisation in or associated with erosion and sediment control and engineered drainage structures. 8.5 AQP confirms that ecosystem altering weeds (environmental weeds) and/or weeds of national significance compose no greater than a total 5 % of the vegetation cover (i.e., no more than 5 % in total) and are being appropriately managed to ensure that this PMLU is achieved. Naturalised grass species (i.e. Red Natal (Melinis repens) and Rhodes (Chloris gayana)) may be present greater than 5% in total if AQP determines that they are being appropriately managed and supportive towards overall ecosystem function.

Milestone reference	Rehabilitation milestone	Milestone criteria
		8.6 Soil testing of the growth media confirms the topsoil and subsoil physical, chemical, and biological properties do not limit vegetation cover performance (e.g., nutrient availability, drought stress). 8.7 Final landform survey confirms no built structures remain other than those that form part of a landholder agreement. 8.8 Surface water quality results monitored monthly during flow at, <i>but not limited to</i>, downstream locations specified in DESTI PRCP Schedule (2025) Appendix 5 – Surface water monitoring locations, must not exceed the limits in DESTI PRCP Schedule (2025) Appendix 4 - Surface water quality limits, for a minimum of 5 consecutive years. 8.9 If the surface water quality exceeds the criteria of DESTI PRCP Schedule (2025) Appendix 4 - Surface water quality limits, the applicable upstream/reference site must be compared to the downstream site result; and quality result measured at a downstream site must be equal to or less than the quality result measured at the applicable upstream/reference site²⁶. 8.10 For a minimum of five consecutive years groundwater quality must be monitored quarterly at, <i>but not limited to</i>, compliance bores/locations specified in DESTI PRCP Schedule (2025) Appendix 6 – Groundwater monitoring locations, for all quality characteristics listed in DESTI PRCP Schedule (2025) Appendix 7 – Groundwater quality limits. 8.11 Groundwater quality results must not exceed the limits in DESTI PRCP Schedule (2025) Appendix 7 – Groundwater quality limits, for 3 consecutive results. 8.12 Groundwater level is monitored quarterly and for a minimum of 5 consecutive years.

²⁶ For pH, the quality result measured at the downstream location must be within the prescribed range. However, where pH at the downstream location is greater-than (>) the highest limit in the range, the pH at the applicable upstream location must be greater-than or equal-to (≥) the downstream location. Conversely, where pH at the downstream location is less than (<) the lowest limit in the range, the upstream pH at the applicable upstream location must be less-than or equal-to (≤) the downstream location.

Milestone reference	Rehabilitation milestone	Milestone criteria
		8.13 No adverse change to the contaminated land status has occurred post the completion of RM2. 8.14 Where engineered drainage structures are to be retained as permanent features (e.g. contour banks, bench drains, rock drains), it must be certified by an AQP that the structures are stable and can be expected to remain stable and functional in the long-term. 8.15 Seepage water within seepage drains and collection ponds from Final Waste Storage Landform (RA3) is non-polluting to the receiving environment. Specific criteria for Low Intensity Grazing (RA7) 8.16 Land Suitability Class 1, 2, or 3 8.17 >70 % established and self-sustaining vegetative groundcover of species as listed in DESTI PRCP Schedule (2025) Appendix 1 – Species list and seeding rates. 8.18 Minimum vegetation composition (per hectare (averaged)) of: h) four species of native '3P' (perennial, productive, and palatable (3P)) native pasture species. Where 3P species are not available, native pasture species appropriate to the area (regional ecosystem) and suitable for the PMLU are acceptable, i) two native legume species, and j) 20 % locally suitable native shade tree and shrub cover. k) inclusion of vegetation stepping stone or ecological corridor traversing the low intensity grazing landscape and connecting with areas of native vegetation. 8.19 Assessment of land condition demonstrates a sustainable grazing outcome has been achieved. Specific criteria for Open Woodland (RA4, RA5 and RA8)

Milestone reference	Rehabilitation milestone	Milestone criteria
		8.20 A BioCondition assessment is completed by an AQP using the methodology outlined in the latest version of the Queensland Herbarium's <i>'BioCondition Assessment Manual'</i>. 8.21 The BioCondition assessment completed under RM8.20 complies with the PRCP Benchmark for the PMLU. The overall BioCondition score exceeds 35/60, as per DESTI PRCP Schedule (2025) Appendix 3.1 – BioCondition milestone criteria for mine site rehabilitation. Specific criteria for Water Storage (RA6). 8.22 Water storages are safe for native animals and stock access and have vegetated banks. 8.23 The Southern Diversion Drain, non-retained dams, and any other structures not authorised for retention are decommissioned, and the landform reshaped to a free-draining, stable condition. 8.24 Where engineered water storages are to be retained as permanent features (e.g. stock water dams), it must be certified by an AQP that the dams are safe and stable and can be expected to remain safe, stable and functional in the long-term. Specific criteria for (RA1 and RA3): 8.25 Meet the cover performance drainage target of <5 % of average annual rainfall. 8.26 Plant species richness, refer to DESTI PRCP Schedule (2025) Appendix 3.2: Mt Rawdon - BioCondition milestone criteria for mine site rehabilitation – TSF and WRD: l) Trees and/or Shrubs ≥3 (Count). m) Native grasses, ≥3 (Count). n) Maximum rooting depth does not impact the physical integrity of the cover system. 8.27 Litter cover ≥20 %.

Milestone reference	Rehabilitation milestone	Milestone criteria
		8.28 Independent AQP certifies achievement of RM 8.1 - 8.27 .

9.1.4 Rehabilitation Schedule

Post-mining land uses (PMLU)										
Rehabilitation area			RA1							
Relevant activities			North Waste Rock Dump (NWRD) - Waste rock and long-term ore stockpiles							
Total rehabilitation area size (ha)			99.83							
Commencement of first milestone: RM1			10/06/2029							
PMLU			Final Waste Storage Landform							
Date area is available	10/12/2028	10/12/2030	10/12/2032							
Cumulative area available (ha)	99.83	99.83	99.83							
Milestone completed by	10/12/2030	10/12/2032	10/12/2040							
Milestone Reference	Cumulative area achieved (ha)									
RM1	99.83									
RM3	99.83									
RM4		99.83								
RM5		99.83								
RM6			99.83							
RM7			99.83							
RM8			99.83							

Post-mining land uses (PMLU)							
Rehabilitation area		RA2					
Relevant activities		West Waste Rock Dump (WWRD) (Non-acid forming waste rock stockpile (WWRD), Run of Mine (ROM) (temporary ore storage), and supporting drains					
Total rehabilitation area size (ha)		WWRD 39.35ha, ROM 6.26ha, drains 2.93ha = Total 48.54 ha					
Commencement of first milestone: RM1		01/06/2033					
PMLU		Open woodland					
Date area is available	10/12/2032	10/12/2034					
Cumulative area available (ha)	48.54	48.54					
Milestone completed by	10/12/2034	10/12/2042					
Milestone Reference	Cumulative area achieved (ha)						
RM1	48.54						
RM2	48.54						
RM3	48.54						
RM5	48.54						
RM6		48.54					
RM7		48.54					
RM8		48.54					

Post-mining land uses (PMLU)										
Rehabilitation area			RA3							
Relevant activities			Tailings Storage Facility, including seepage interception trenches and seepage ponds.							
Total rehabilitation area size (ha)			203.92 ha							
Commencement of first milestone: RM1			01/06/2029							
PMLU			Final Waste Storage Landform							
Date area is available	10/12/2028	10/12/2034								
Cumulative area available (ha)	203.92	203.92								
Milestone completed by	10/12/2034	10/12/2042								
Milestone Reference	Cumulative area achieved (ha)									
RM1	203.92									
RM3	203.92									
RM4	203.92									
RM5	203.92									
RM6		203.92								
RM7		203.92								
RM8		203.92								

Post-mining land uses (PMLU)										
Rehabilitation area			RA4							
Relevant activities			Haul Roads and internal access roads							
Total rehabilitation area size (ha)			16.07 ha							
Commencement of first milestone: RM1			01/06/2029							
PMLU			Open woodland							
Date area is available	10/12/2028	10/12/2034								
Cumulative area available (ha)	16.07	16.07								
Milestone completed by	10/12/2034	10/12/2042								
Milestone Reference	Cumulative area achieved (ha)									
RM1	16.07									
RM2	16.07									
RM3	16.07									
RM5	16.07									
RM6		16.07								
RM7		16.07								
RM8		16.07								

Post-mining land uses (PMLU)										
Rehabilitation area			RA5							
Relevant activities			Processing Plant, Workshops, and Infrastructure Management Areas within open woodland areas							
Total rehabilitation area size (ha)			24.29ha							
Commencement of first milestone: RM1			01/06/2029							
PMLU			Open woodland							
Date area is available	10/12/2028	10/12/2034								
Cumulative area available (ha)	24.29	24.29								
Milestone completed by	10/12/2034	10/12/2042								
Milestone Reference	Cumulative area achieved (ha)									
RM1	24.29									
RM2	24.29									
RM3	24.29									
RM5	24.29									
RM6		24.29								
RM7		24.29								
RM8		24.29								

Post-mining land uses (PMLU)										
Rehabilitation area		RA6								
Relevant activities		Water Management Infrastructure and Dams								
Total rehabilitation area size (ha)		34.399 ha								
Commencement of first milestone: RM1		01/06/2033								
PMLU		Water storage								
Date area is available	10/12/2032									
Cumulative area available (ha)	34.399									
Milestone completed by	10/12/2042									
Milestone Reference	Cumulative area achieved (ha)									
RM1	34.399									
RM2	34.399									
RM3	34.399									
RM5	34.399									
RM6	34.399									
RM7	34.399									
RM8	34.399									

Post-mining land uses (PMLU)										
Rehabilitation area			RA7							
Relevant activities			Borrow pits, Topsoil/growth-media stockpiles, and other infrastructure areas within grazing land							
Total rehabilitation area size (ha)			32.70 ha topsoil/borrow & Topsoil dump areas, 46.39 ha other infrastructure areas (helipad, Orica yard, landfill, miscellaneous, powerlines, small access roads, drains) Total = 79.55 ha							
Commencement of first milestone: RM1			01/06/2033							
PMLU			Low intensity grazing							
Date area is available	10/12/2032	10/12/2034								
Cumulative area available (ha)	79.55	79.55								
Milestone completed by	10/12/2034	10/12/2042								
Milestone Reference	Cumulative area achieved (ha)									
RM1	79.55									
RM2	79.55									
RM3	79.55									
RM5	79.55									
RM6		79.55								
RM7		79.55								
RM8		79.55								

Post-mining land uses (PMLU)										
Rehabilitation area			RA8							
Relevant activities			Borrow pits and Topsoil/growth-media stockpiles within open woodland areas (includes NAF rock borrow pit – west hill, TSF north-west topsoil/borrow pit areas and other topsoil areas not within grazing PMLU),							
Total rehabilitation area size (ha)			16.42 ha							
Commencement of first milestone: RM3			01/06/2033							
PMLU			Open woodland							
Date area is available	10/12/2032	10/12/2034								
Cumulative area available (ha)	16.42	16.42								
Milestone completed by	10/12/2034	10/12/2042								
Milestone Reference	Cumulative area achieved (ha)									
RM3	16.42									
RM5	16.42									
RM6		16.42								
RM7		16.42								
RM8		16.42								

9.1.5 Schedule of Land Availability for Improvement Area

The schedule of land availability for rehabilitation²⁷ is shown in **Table 67**.

Table 67: Schedule of Land Availability for Improvement

Land Available for improvement in each Non-use Management area (ha)									
Improvement area		2026	2027	2028	2029	2030	2031	2032	2033
IA1	Residual void (Pit) - Mining, water storage and geotechnical monitoring (includes pit crest and pit outer rim area)			81.97 →					
Total									81.97 ha

²⁷ Note that the land available per year is not a cumulative total of land available.

9.1.6 Improvement Area Milestones

Milestone reference	Management milestone	Milestone criteria
MM1	Achievement of structural stability	1.1 Pit wall landforms including safety bund, diversions, and/or drainage must: d) prevent surface or seepage flow of floodwater into the void e) Be geotechnically stable when subjected to floodwaters f) Not be constructed with dispersive material. 1.2 The final design for pit wall landform must be completed by an AQP based on the latest flood modelling and materials data prior to construction. 1.3 All flood protection landforms and flood protection measures designed and constructed consistent with the findings of PRCP13 and PRCP14. 1.4 Final residual voids are not subject to inundation from floodwaters up to and including the 0.1% AEP. 1.5 Final void must achieve a FoS ≥ 1.5 within the NUMA as determined by an AQP. 1.6 The location of the voids and associated safety bunds does not cause instability or degradation to the land outside the NUMA. 1.7 Residual voids must not overtop. 1.8 Independent AQP certifies achievement of MM1.1 – MM1.7
MM2	Achievement of surface requirements	2.1 Fencing erected around the perimeter of the safety bund to prevent access to the residual void. 2.2 Competent safety bund and fencing in place to prevent access to the residual void.

		2.3 The safety bund and fencing provide flood protection in accordance with engineering requirements, including: d) Constructed from non-weathered, non-dispersive dumped rockfill; e) a minimum 2 m in height; f) a minimum of 4 m base width. 2.4 Safety signage (design in accordance with Australian standard) is erected at 100 m intervals along the fence. 2.5 Independent AQP certifies achievement of MM2.1 – MM2.4.
MM3	Achievement of sufficient improvement	3.1 The pit wall landform has been constructed in accordance with the final design. 3.2 Appropriate safety infrastructure at the geotechnical set-back distance has been installed to prevent access to the NUMA. 3.3 The residual void is safe to humans and livestock. 3.4 The water level and quality in the void do not and will not cause environmental harm to the receiving environment, as demonstrated by groundwater level, quality monitoring and modelling. 3.5 An AQP demonstrates with water quality, water level and modelling data, that the residual void acts as groundwater sinks post-closure. 3.6 Voids retain flood immunity, supported by flood modelling re-run at end of life and calibrated against the final landform. 3.7 The residual void will not present an unacceptable risk of environmental harm. 3.8 Erosion of the landform within the NUMA area will not negatively impact on the stability of any adjacent rehabilitation areas, or their ability to sustain their PMLU. 3.9 Independent AQP certifies achievement of MM3.1 – MM3.8.

9.1.7 Improvement Area Schedule

Non-use management area (NUMA)										
Improvement area		IA1								
Relevant activities		Residual void (Pit) - Mining, water storage and geotechnical monitoring (includes pit crest and pit outer rim area)								
Total size (ha)		81.97 ha								
Commencement of first milestone: MM1		10/06/2029								
NUMA		NUMA – Residual Void								
Date area is available	10/12/2028									
Cumulative area available (ha)	81.97									
Milestone completed by	10/12/2035									
Milestone Reference	Cumulative area achieved (ha)									
MM1	81.97									
MM2	81.97									
MM3	81.97									

9.2 Spatial Information

Data files of the following spatial information has been provided with the submission of this PRCP submission:

- The location and maximum extent of the disturbance footprint for the mine life
- The identified rehabilitation areas and associated PMLUs for the area within the MRO area
- The identified non-use management areas (NUMAs) for the area within the MRO area
- The rehabilitation areas within the MRO area;

Polygons are within final name: *EPML00701113_PRCP_PY_31012025.zip*

Excluded:

- The locations of any sensitive receptors – there are no nearby sensitive receptors
- The extent of the floodplain – MRO is not within a floodplain area.

9.3 Infrastructure Transfer Deed – MRO 2024

9.4 Supporting documents submitted with this Plan

Supporting Document	File name
ATC-Williams (2023c). <i>Mount Rawdon Operations: Progressive Rehabilitation and Closure Planning – Hydraulic Assessment</i> . Report Ref: 111359-83R01 Rev2, 28 February 2023	111359.83.R01_Rev2_Hydraulic Assessment Closure
ATC-Williams (2024a) <i>Mount Rawdon Operation: Northern Area Material Characterisation</i> . Report Ref. 111359-100R001-REV1, 5 November 2024.	111359-100R001-Rev1
ATC-Williams (2024c) <i>Mount Rawdon Operation: Erosion and Landform Evolution Modelling Report</i> . Ref. 111359-105R01-REVB, November 2024 (Working Draft Report).	111359-105R01-revB_working draft
ATC-Williams (2024f) <i>Tailings Storage Facility Field Cover System Trials: Detailed Design Report</i> . Ref: 111359-100R04-rev0, 6 December 2024.	111359-100R04-rev0
ATCW (2024g). “Mount Rawdon Operation: Tailings Storage Facility Cover System Modelling”, Ref. 111359-100R03-Rev0, December 2024.	111359-100R03-rev0
Cartledge Mining and Geotechnics (2022a). <i>Mt Rawdon Mine Progressive Rehabilitation Closure Plan (PRCP) Geotechnical Assessments – Open Pit</i> . Report Ref. EVO010007_Rev 1_Final, 11 November 2022.	EVO010006 - Rev 0 - MRO PRCP Geotechnical Assessment-Open Pit_Final
Cartledge Mining and Geotechnics (2022c). <i>Mt Rawdon Mine Progressive Rehabilitation Closure Plan (PRCP) Geotechnical Assessments – Tailings Storage Facility (TSF)</i> . Report Ref. EVO010006_Rev 0_Final, 12 November 2022	EVO010006 - Rev 0 - MRO PRCP Geotechnical Assessment-Tailings Storage Facility_Final
Cartledge Mining and Geotechnics (2024). <i>Mt Rawdon Mine Progressive Rehabilitation Closure Plan (PRCP) Geotechnical Assessments –NWRD</i> . Report Ref. EVO01009_Rev 0, 4 March 2024.	EVO010009-AA_Rev 0 -MRO NWRD PRCP Geotechnical Assessment_04Mar2024
Okane Consultants (2024a). <i>Mount Rawdon Operations Northern Waste Rock Dump Detailed Cover System Design: Concept</i>	1178-222-002_Okane NWRD Detailed Cover System Design_Concept Review Study_Final

<i>Study Review Report</i> . Project no. 1178-222-002, 10 May 2024.	
Okane Consultants (2025a). “MRO NWRD - Landform Evolution Modelling”. Memorandum, Ref. B-1178-224-MEM-005, 10 January 2025.	B-1178-224_Okane_NWRD Cover System LEM_Rev 0 Final_100125
Okane Consultants (2025b). “MRO NWRD – Berm Geotechnical Stability Assessment”. Memorandum, Ref. B-1178-224-002, 7 January 2025.	1178-224 MRO NWRD Geotechnical Stability Assessment Rev3_Final_070125
RGS (2023). <i>Erosion measurement and modelling Mt. Rawdon Operations – Technical report</i> . 01_2022055__Erosion measurement and modelling_RevB_07012025	2022055 MRO Erosion measurement and modelling_RevB_07012025
RGS (2025a). <i>Geochemical Assessment of Waste Rock and Tailings Materials : Mt Rawdon Gold Mine</i> . Report Ref 01_2023062__Geochemical Assessment of Waste Rock and Tailings Materials_Revision A_12012025, January 2025.	01_2023062__Geochemical Assessment of Waste Rock and Tailing Materials_Revision A_12012025
SLR Consulting Australia (2025c). <i>Mt Rawdon Operations – Post Closure Water Management Plan</i> , Report Ref: 623.030415.00002, Rev1.0, 31 January 2025	623.030415.00002.MRO_Post_Closure _WMP_v1.0
SLR Consulting Australia (2025c). <i>Mt Rawdon Operations – Post Closure Groundwater Modelling</i> , Report Ref: 623.030415.00002, Rev2.0, 17 January 2025	623.030415.00002_R1_V2.0
SLR Consulting Australia (2025a). <i>Mount Rawdon Operations : Post-Closure Water Balance Assessment</i> . Report Ref. 623.030415.00001 Rev 02, 23 January 2025.	623.030415.00001_MRO Post Closure WBM
Community Consultation Plan	MRO Community ConsultationPlan_v3
Community Consultation Register 2024	MRO Consultation Register_Jan2024

**Please note supporting documents above may be updated following submission of the PRC Plan. Please refer to latest revision for latest information.*

9.5 Community Consultation Plan