



Hillside Copper Mine
Mine Closure Management Plan
Program for Environment Protection and Rehabilitation (PEPR)

MINE CLOSURE MANAGEMENT PLAN

DRAFT



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Document Owner

Sustainability Manager

Document Approver

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Revision History

Version No.	Date Published	Details
1.0	06/06/2017	First draft – Rex team
2.0	09/11/2017	Technical review
3.0	10/11/2017	Management review
4.0	13/11/2017	Uploaded onto HMCV website & forwarded to DPC

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Definition of Terms

ACR	Annual Compliance Report.
AQMP	Air Quality Management Plan.
AWS	Automatic Weather Station.
DPC	Department of the Premier and Cabinet.
DRP	Decommission and Rehabilitation Plan.
DPTI	Department of Planning, Transport and Infrastructure.
DSCP	Decant and Seepage Collection Pond.
EML	Extractive Mineral Lease 6439.
EMS	Environmental Management System.
EPA	Environment Protection Authority, South Australia.
FoS	Factor of Safety.
GWMP	Ground Water Management Plan.
HDPE	High Density Polyethylene.
HMCV	Hillside Mine Community Voice.
LoM	Life of Mine.
MCMP	Mine Closure Management Plan.
Mine Closure	A process that extends over the mine life cycle and that typically culminates in tenement relinquishment. Includes decommissioning and rehabilitation.
ML	Mineral Lease 6438.
MLP	Mining Lease Proposal.
MPL	Miscellaneous Purpose Licence 146.
NAF	Non-Acid Forming.
NVMP	Native Vegetation Management Plan.
PAF	Potential Acid Forming.
PMP	Probable Maximum Precipitation.
ROM/ROM Pad	Run of mine pad.
RSF	Rock Storage Facility.
RWP	Return Water Pond.
TPAG	Threatened Plant Action Group.
TSF	Tailings Storage Facility.
YPC	Yorke Peninsula Council.



1. INTRODUCTION

Rex Minerals Limited plans to develop and operate the Hillside Mine, situated 12 kilometres south of the township of Ardrossan. Conventional open cut mining techniques will be employed using trucks and excavators to deliver ore to a processing plant that will produce a copper concentrate.

Planning for mine closure will be progressively refined and adapted as the project develops. Successful closure of the mine will be achieved through the life of mine (LoM) objectives and outcomes integrated into the overall environmental management system through all stages of the mine project.

The iterative process of developing detailed closure strategies are intended to progressively remove uncertainties and assumptions prior to implementation.

The regulatory framework enables continual development of all aspects associated with mine completion, including the final detailed designs in the PEPR and the refinement of the closure strategies and designs in subsequent reviews of the PEPR. Prior to relinquishment of the ML, EML and MPL, Rex Minerals will be required to demonstrate that that all obligations associated with the tenements have been addressed.

The Hillside Mine closure plan provides a description of the measures to be implemented for mine closure and to conceptualise the Hillside Mine at completion when all the rehabilitation has been completed, balancing legal compliance with community expectations.

The Hillside Mine closure plan and potential land use options fundamentally attempts to maximise the amount of land to be returned to agriculture post closure. Native vegetation will be planted in strategic locations to reinstate and improve vegetation corridors where return to agriculture is not practical. The proposed land use options within the ML are represented in Figure 4 of Appendix 1.

1.1 ENVIRONMENTAL MANAGEMENT SYSTEM

Rex Minerals is committed to minimising the impact of its operations on the local environment and community, and is developing a comprehensive Environmental Management System (EMS), that will be based on the International Standard 14001:2015. This MCMP is a component of the Hillside Mine EMS.

1.2 OBJECTIVES

The objective of this Plan is to provide the framework for:

- ensuring compliance with all relevant statutory requirements,
- Rex Minerals Policies and Standards;
- implementing tools and practices to manage and minimise the impact of the mine closure on the environment and nearby land owners;
- providing details on mine closure management responsibilities;
- enable agreed post mining land use(s);
- ensuring all mine waste materials left onsite are chemically and physically stable;
- ensuring no industrial or commercial waste left onsite; and
- ensuring the pit void is secured against inadvertent public access.



2. MINE CLOSURE CONDITIONS

The following Hillside Mine ML conditions (Second Schedule) relate to mine closure.

Surface Water

24 The Tenement Holder must ensure that:

24.2 inundation of third party property and infrastructure by water (to a greater extent than would be expected to occur prior to mining operations commencing) after mine completion is not caused by mining operations;

24.3 unless the Tenement Holder obtains a registered Waiver of Exemption under the Act to undertake mining activities (inclusive of inundation).

25 The Tenement Holder must:

25.1 Ensure no surface water contaminated as a result of mining operations leaves the Land; and

25.2 ensure that, apart from water contained in the pit void:

25.2.1 no surface water contaminated prior to mine completion remains within the Land after mine completion; and

25.2.2 no contamination of surface water occurs after mine completion as a result of mining operations within the Land.

3. MINE CLOSURE OUTCOMES

The following Hillside Mine ML clauses (Sixth Schedule) relate to mine closure.

Air Quality Outcomes

2 The Tenement Holder must, in construction, operation and post mine completion, ensure no loss of abundance or diversity of native vegetation on or off the Land through:

2.1 Clearance,

2.2 dust/contaminant deposition,

2.3 fire,

2.4 reduction in water supply, or

2.5 other damage,

unless prior approval under the relevant legislation is obtained.

3 The Tenement Holder must, in construction, operation and post mine completion, ensure no impacts to agricultural productivity for third party land users on or off the Land as a result of mining operations, including:

3.1 Reduction in crop yield;

3.2 reduction in grain quality; or

3.3 adverse health impacts to livestock.

Visual Amenity Outcomes



- 12 The Tenement Holder must, in construction, operation and post mine completion, ensure that the form, contrasting aspects and reflective aspects of mining operations are visually softened to blend in with the surrounding landscape.

Soil and Land Disturbance Outcomes

- 14 The Tenement Holder must, in construction, operation and post mine completion ensure that the existing (pre-mining) soil quality and quantity is maintained.
- 15 Before mine completion, the Tenement Holder must satisfy the Director of Mines that where practicable, the pre-mining land use can be recommenced after mine completion.

Soil and Land Disturbance Outcomes - TSF and WRD

- 19 The Tenement Holder must ensure that the WRD and TSF final landforms will be physically stable post mine completion.
- 20 The Tenement Holder must, in construction, operation and post mine completion, ensure that water seepage from the TSF, WRD's or ore stockpiles does not result in adverse impacts on adjacent land uses including, but not limited to, growth of native vegetation and cropping land.

Native Vegetation Outcome

- 22 The Tenement Holder must, in construction, operation and post mine completion, ensure no loss of abundance or diversity of native vegetation on or off the Land through;
- 22.1 clearance,
 - 22.2 dust/contaminant deposition,
 - 22.3 fire,
 - 22.4 reduction in water supply, or
 - 22.5 other damage,
- unless prior approval under the relevant legislation is obtained.

Weeds, Pest and Pathogens Outcome

- 24 The Tenement Holder must, in construction, operation and post mine completion, ensure no introduction of new species of weeds, plant pathogens or pests (including feral animals), nor sustained increase in abundance of existing weed or pest species in the Land compared to adjoining land.

Coastal and Marine Outcome

- 26 The Tenement Holder must ensure no loss of abundance and diversity of marine flora and fauna from contaminants and dust deposition resulting from mining operations, during operations and post mine completion.

Public Safety Outcomes

- 38 The Tenement Holder must demonstrate that post mine completion, the risks to the health and safety of the public so far as it may be affected by mining operations are as low as reasonably practicable.

Adjacent Land Use and Third Party Property Outcomes

- 42 The Tenement Holder must during construction, operation and post mine completion, ensure that there are no adverse impacts to third party land use on property adjacent to and on the Land as a



result of mining operations, other than those agreed between the Tenement Holder and the affected user.

- 43 The Tenement Holder must, in construction, operation and post mine completion, ensure no impacts to agricultural productivity for third party land users on or off the Land as a result of mining operations, including;
- 43.1 reduction in crop yield;
 - 43.2 reduction in grain quality; or
 - 43.3 adverse health impacts to livestock.
- 45 The Tenement Holder must, during construction, operation and post mine completion, ensure that as a result of a geotechnical failure caused by mining;
- 45.1 there are no adverse impacts to adjacent land use; and
 - 45.2 there is no unauthorised damage to public or private property and infrastructure.

The following Hillside Mine EML clauses (Sixth Schedule) relate to Mine closure.

Air Quality Outcome

- 1 The Tenement Holder must, in construction, operation and post mine completion, ensure that there are no public health and/or public nuisance impacts from air emissions and/or dust generated by mining operations.

Visual Amenity Outcome

- 4 The Tenement Holder must, in construction, operation and post mine completion, ensure that the form, contrasting aspects and reflective aspects of mining operations are visually softened to blend in with the surrounding landscape.

Soil and Land Disturbance Outcome

- 5 The Tenement Holder must, in construction, operation and post mine completion, ensure that the existing (pre-mining) soil quality and quantity is maintained.

Native Vegetation Outcome

- 7 The Tenement Holder must not clear any native vegetation on the Land other than in accordance with the realignment of the St Vincent Highway and the realignment of the Yorke Highway.

Weeds, Pest and Pathogens Outcome

- 8 The Tenement Holder must, in construction, operation and post mine completion, ensure no introduction of new species of weeds, plant pathogens or pests (including feral animals), nor sustained increase in abundance of existing weed or pest species on the Land compared to adjoining land.

4. BASELINE MEASUREMENTS AND MODELLING

References to the baseline measurements, modelling and conditions are listed in Table 4 in Section 10.

5. UNCERTAINTY ASSESSMENT

Rex Minerals has designed the Pit wall abandonment bund (2m high by 5m at base) that is located 50m from the edge of the pit. The accepted industry standard for long term pit wall geotechnical stability requires a Factor of Safety (FoS) of 1.5. The modelled pit wall geotechnical stability has a FoS of 1.66



at the crest of the western pit wall and FoS of 1.74 along the western Hillside property boundary with third party property which is well above the industry standard.

The geotechnical modelling on the western pit wall is modelled using the geotechnical information accrued during exploration and the feasibility studies. It includes data on geology, hydrology, rock types, strengths and failure modes based on the design parameters, including blasting practices and bench heights. Some of the inputs used in developing the EFS pit design are described in Table 1.

Table 1 Design parameters for the Hillside Mine slope stability modelling.

Parameter	Type/Value
Bench Height	10 metres
Perimeter Blast Hole Diameter	152 millimetres
Structural Model	Structural mapping including geotechnical domains, major structures
Material Strength Test	Uniaxial Compressive Strength (MPa)
Slope Movement	Prism monitor Fixed GPS or survey monitor

The key actions to confirm assumptions for slope stability are listed below in Table 2.

Table 2 Actions to be taken to check Geotechnical model related assumptions during early operations

Assumption	Action
Final wall drill and blast design is representative of modelling parameters	Review all drill and blast data through quality control processes to ensure parameters are as per the modelling assumptions for back break.
Rock type and strength encountered matches modelled data	Remodel and estimate pit stability using slope geotechnical data acquired during excavation.
Displacement Monitoring system	Confirm displacement monitoring confirms predicted model outcomes.

6. KEY RISKS

Key risks identified for mine closure are:

- Stability of the final open pit and TSF;
- PAF management; and



- Company insolvency prior to mine closure.

7. MINE CLOSURE MEASURES & POTENTIAL LAND USE OPTIONS

For management purposes the Hillside Mine has been divided into domains based on the type of closure activity required. The components of each domain are described below in Table 3 and Figure 5 Appendix 1 illustrates closure domains within the ML. The Sustainability Manager is responsible for mine closure until a Closure Superintendent is appointed at the later stages of decommissioning.

Table 3 Closure Domains and Proposed Final Land Use at Closure

Closure Domain (~ Area)	Components	Potential Land Use Options	Timing to completion
Processing Plant (45Ha)	<p>Processing plant and supporting infrastructure (crushing plant, conveyors, stockpiles, SAG mill, tailings pumping system, flotation/concentrate plant, pipelines including the tailings pipeline, ponds/dams, bunds and tanks)</p> <p>Mine buildings (administrative offices, workshops sheds, fuel storage, stores shed)</p> <p>ROM pad and associated hardstand areas (truck park bay, lay-down area, fuel bay, stores shed, car park and perimeter of processing plant)</p> <p>Water and process water ponds including the raw water pond</p> <p>Internal power lines</p> <p>Explosives magazine area</p> <p>Sealed roads</p> <p>Stockpile footprints</p> <p>Waste and waste treatment or recycling facilities</p> <p>Sewage and waste water treatment plant</p> <p>Fuel Farm</p>	<p>Agricultural pursuits.</p> <p>If oxide or low grade ore stockpiles remain these will be sown with salt tolerant native grasses.</p>	12 months
Tailings Storage Facilities (TSF) (168Ha)	<p>Tailings Storage Facility</p> <p>Blanket drainage system</p> <p>Decant and Seepage Collection Pond (DSCP)</p>	Native vegetation (native grasses/salt tolerant species to provide erosion protection dependant on the requirements specified in the detailed design).	6 months
Rock Storage Facilities (773Ha)	<p>North-eastern RSF (262Ha)</p> <p>South-eastern RSF (212Ha)</p> <p>Western RSF (299Ha)</p>	Slopes suitable for agricultural pursuits (0 to 10°)	Completed at cessation of surface dumping.



Hillside Copper Mine
 Mine Closure Management Plan
 Program for Environment Protection and Rehabilitation (PEPR)

Closure Domain (~ Area)	Components	Potential Land Use Options	Timing to completion
		Agricultural pursuits for a portion of 10 to 15° slopes on the western RSF is proposed Slopes suitable for native vegetation (greater than 15°).	
Open Pit (169Ha)	Pit walls Pit lake Pit rim bunding and fencing	Potential flora and fauna refuge. The open pit could be made available for ecotourism or aquaculture uses. Currently being workshopped with stakeholders.	Completed at cessation of pit excavation.
Utility and Pipeline Corridors (1Ha)	Overhead power line SA Water pipeline	Returned original state; agriculture pursuits, access tracks or native vegetation. SA Water pipeline remains as this is State Government infrastructure within the road reserve.	Remains unless SA Water and Electricity Provider decide to remove.
Bore Field (1Ha)	Borefield Pipelines	All surface infrastructure will be removed and the pre-mining land use of agriculture re-established. Buried pipeline will remain in place.	2 months
Undisturbed Land (buffer area) (80Ha)	Monitoring sites Road underpass Fences and bores. Remnant native vegetation (73Ha)	Agricultural pursuits/remnant native vegetation to remain Road underpass to remain as integral part of road under DPTI care and control	12 months
Non-Domain Specific Closure Aspects	Waste disposal Internal haul roads (unsealed) (55Ha) Site drainage infrastructure	All waste removed from site and recycled where possible Strategic haul roads and pads will be retained as firebreaks others will be revegetated to blend in with surrounds Site drainage lines removed where appropriate and drainage returned to natural drainage system or where necessary directed into open pit	3 months



7.1 PROCESSING PLANT

The processing plant and all above ground infrastructure and buildings will be dismantled and sold, recycled or disposed of in an appropriate manner. All tarmac and compacted road base material from sealed roads in and around the processing plant will be ripped up, removed and reinstated with topsoil. All sedimentation dams, drains and costeans, that are not required following closure, will be filled in and rehabilitated. Unwanted concrete pads and footings will be removed down to an appropriate depth ~1 m compatible with the proposed agricultural land use.

The magazine compounds, sheds and shipping containers will be dismantled and all infrastructure removed from site for reuse or recycling. All fittings, pipes, lining and pumps, etc. will be disposed in accordance with the EPA standards and the waste management plan operating at the time of mine closure.

The land will be rehabilitated to be used for agricultural pursuits. In general, any concrete, compacted clay, asphalt, plastic liners or any materials used to cover or seal the ground will be removed and recycled or disposed in an approved manner.

If there is a downstream benefit to the local community or add value to any subsequent land use, for example storage sheds, dams and associated water and power reticulation, these structures will be left in place and handed over to the new owner on relinquishment who will be responsible for any future maintenance and liability.

The ROM pad high wall will remain and the base of the walls will be filled in and contoured to blend into the surrounding pre-mining landform. The drainage from within the plant will report to the RWP during the operational stage. The RWP embankment consists of the same materials as the TSF embankment (i.e. waste rock and selected low permeability upstream facing). The RWP embankment and base will be lined with low permeability clay material which will be removed at closure and if suitable, the material will be used as fill during rehabilitation or placed in an RSF. Once the RWP is decommissioned the surface water run-off will drain into the open pit at closure.

HDPE lined process water dams will be drained and pumped into the open pit or TSF depending on water quality. The dam walls will be removed and if suitable the material will be used as fill during rehabilitation or placed in an RSF. The exposed ground will be tested for potential contaminants. If the soil is contaminated it will be remediated in situ or removed and disposed in an appropriate manner. After contamination clearance, the subsoil will be treated (may involve ripping due to compaction) and covered with 0.1 to 0.3 m of topsoil and stabilised with appropriate vegetation applicable to agricultural production.

Approximately 18.5 Mt of oxide ore unsuitable for treatment through the flotation plant will be stockpiled in the first 6 years of pit operations. This material could be suitable for alternative treatment later in the life of the Project. If it should remain at closure it is recognised that it is a potential source of soluble copper and will be treated to ensure encapsulation. The stockpile will be either rounded or pushed back into western RSF and re-profiled. The oxide will be covered (top to bottom) by:

- Cover Layer 1 – 0.2 m of topsoil;
- Cover Layer 2 – 1 m of rock fill (ROM waste rock material);
- Oxide ore; and



- Foundation clay pad.

The 1.0 m of rock fill layer to be placed over the oxide ore will be sourced from NAF material placed directly from ex-pit waste movement. There is no requirement for selective sourcing. The topsoil material will be sourced from the topsoil stockpiles located around the site and maintained during the LoM for the purpose of mine closure. The topsoil will be respreads to approximately 0.2m and revegetated according to the potential land use which is a combination of cropping, native vegetation and other agriculture uses. This will minimise any potential for soluble copper generation and keep the resource available for later exploitation should that prove economic.

7.2 TAILINGS STORAGE FACILITY

At mine completion, the TSF closure design will mimic the proposed deposited tailings surface which is a concave surface that slopes towards the decant location to the west. The overall closure shape will tie in with the overall western RSF closure surface as shown in Figure 17 (Appendix 1).

A typical section of the TSF at closure is shown in Figure 6 (Appendix 1) and the TSF spillway configuration is presented in Figure 7 (Appendix 1). Allowance has been made for a suitably sized spillway and outlet channel (designed to cater of a Probable Maximum Precipitation [PMP] flood event) between the TSF western embankment crest and the RSF, which flows to the west.

All surface storm water run-offs will be collected and removed from the facility via the central outlet drain. The tailings surface will be capped with a low water flux cover system consisting of a waste rock layer (to be recovered from the western RSF) covered with topsoil and revegetated. Topsoil stripped from within the impoundment area at the time of construction will have been stockpiled for this purpose. A spillway, with appropriate erosion protection, will be constructed to cater for the peak flood resulting from the PMP. The final tailings surface requiring a capping is estimated to be 172 ha including the proposed embankment crest width (118 ha excluding the embankment crest width).

The purpose of a soil cover above the tailings is to minimise ingress of surface water and reduce the development of downwards flow through the tailings which may carry contaminants to the underlying strata and the ground water. The design of the TSF closure will result in the flattening of the embankment profile to an average overall slope of approximately 1:50 (vertical: horizontal). Infiltration will reduce due to the placement of the capping and revegetation requirements. The capping layer will act as a store and release cover that will assist to capture storm water run-off thereby reducing erosion. The overall RSF closure has been design to take into account incident rainfall.

The cover assessment has been carried out using typical representative soil characteristics and has not included detailed soil testing therefore the expected specific performance of the cover is beyond the scope of the current design.

Closure will incorporate a conceptual cover strategy based on current available guidelines and mine sites in similar climates and includes the following general configuration and nominal thicknesses, in sequence from the tailings surface (top to bottom):

- Cover Layer 1 – 0.2 m of topsoil;
- Cover Layer 2 – 0.4 m of weathered rock fill;

- Cover Layer 3 – 0.6 m of rock fill;
- Deposited tailings 30 m;
- Foundation clay 3 m; and
- Sandstone/Siltstone 40 m.

The first 0.6 m of rock fill layer to be placed over the tailings will be sourced from NAF material located within the western RSF. There is no requirement for selective sourcing. The 0.4 m of weathered rock fill material will also be sourced from NAF material within the western RSF. However, this should be selectively sourced to consist of mainly granular material (i.e. finer than the underlying rock fill material). The topsoil material will be sourced from the topsoil stockpiles located around the site and maintained during the LoM for the purpose of mine closure. Figure 1 below shows the cover profile of the TSF at closure.

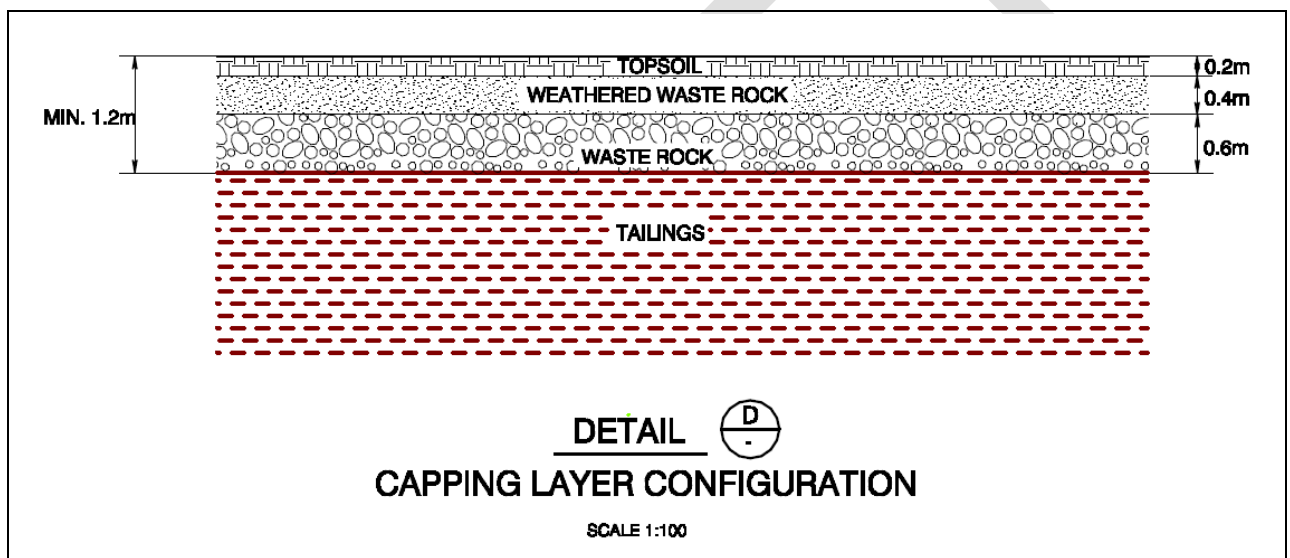


Figure 1: Closure Cover Profile of the TSF

The tailings contained in the TSF have an acid neutralizing capacity / maximum potential acidity ratio of 2.16 indicating there is a high probability that all of the tailings material will remain circum-neutral in pH. Accordingly, decant water is unlikely to require treatment. It is anticipated that water quality in the TSF will be suitable to be pumped to the pit to accelerate the drying process once processing has ceased and excess water is no longer fed back into the process water stream. The water quality in the TSF will be checked to ensure that it is similar or better than that in the open pit receiving environment prior to any water being pumped. If necessary, this water will be pumped to the DSCP.

At mine completion, the TSF will drain through the underdrainage blanket system to the DSCP. This water will be retained in the DSCP until the water quality meets background water quality levels occurring in the open pit and then discharged to the pit. If the water does not meet background water quality levels, the water will be treated prior to discharge.



Run-off from the rehabilitated TSF will be directed via the emergency spillway and surface drains to the RWP. Capture of this run-off within the RWP will ensure that run-off water is of an acceptable quality to discharge into the mine pit.

The DSCP embankment and base will be lined with low permeability clay material and the embankment will have a crest width of 15 m with a 2: 1 upstream and 3: 1 downstream slopes. Prior to rehabilitation any sediment occurring in the dam will be tested and if the EPA SA standards (Standards for the Production and use of Waste Derived Fill, January 2010) are met it will remain in situ. Should the sediment not meet the appropriate standards it will be stabilised and be disposed of as required.

7.3 ROCK STORAGE FACILITIES

At mine closure, the three RSFs will extend from the main mine site access point to the south-eastern end of the open pit, forming a bund around the processing plant, pit and Yorke Highway. The western RSF incorporates the TSF along with the DSCP and oxide stockpile, see Figure 5 (Appendix 1).

The RSFs will be rehabilitated progressively as soon as practicable in the mine scheduling. The north-eastern and south-eastern RSFs will reach their maximum height in Years 8 and 9 respectively. However, progressive rehabilitation will commence soon after the lower batters are completed in years 2 and 4 respectively. Progressive rehabilitation significantly reduces mine closure costs by using mine equipment opportunistically and taking advantage of available run of the mine materials. Progressive rehabilitation will also provide an opportunity during the operational phase of mine life to confirm that the rehabilitation planned for the Hillside site will work as intended.

Geochemical studies found less than <5% PAF. All such material will be contained within the RSFs west of the open pit or over the pit.

Rehabilitation of the RSFs will consist of pushing back the batters to achieve a concave slope following best practice erosion stability guidelines, by utilising three slope angles of 20°, 15° and 10° with the flattest slope placed at the toe of each RSF see Figure 2 and Figure 3.

The RSFs will be covered with subsoil and topsoil to a depth dependant on their proposed final landforms. The north-eastern RSF, south-eastern RSF and western RSF will be vegetated as per Figure 4 (Appendix 1).

The steeper slopes (20°) and inside the pit abandonment bund will be covered with a mix of topsoil and rock to minimise erosion and stabilised with a dominant native shrub vegetation or other agriculture uses. The desired outcome at relinquishment is to hand over a physically and chemically stable landform with native vegetation trending towards self-sustainability and rehabilitated pastures where the new landowner can continue agricultural pursuits in-line with local practices and minimal inputs to the remnant and replanted native vegetation.

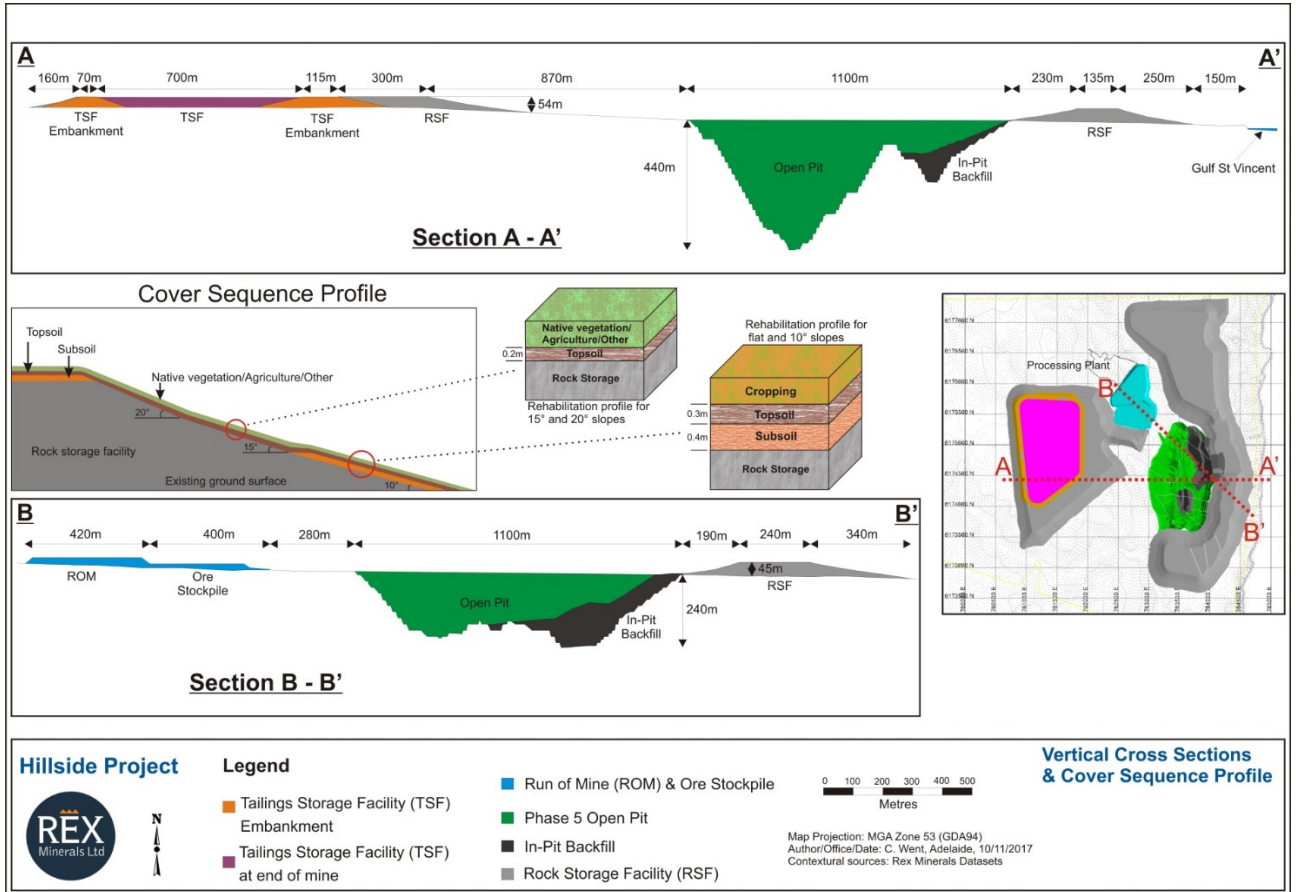


Figure 2 Proposed Final Landform (Section A and B)

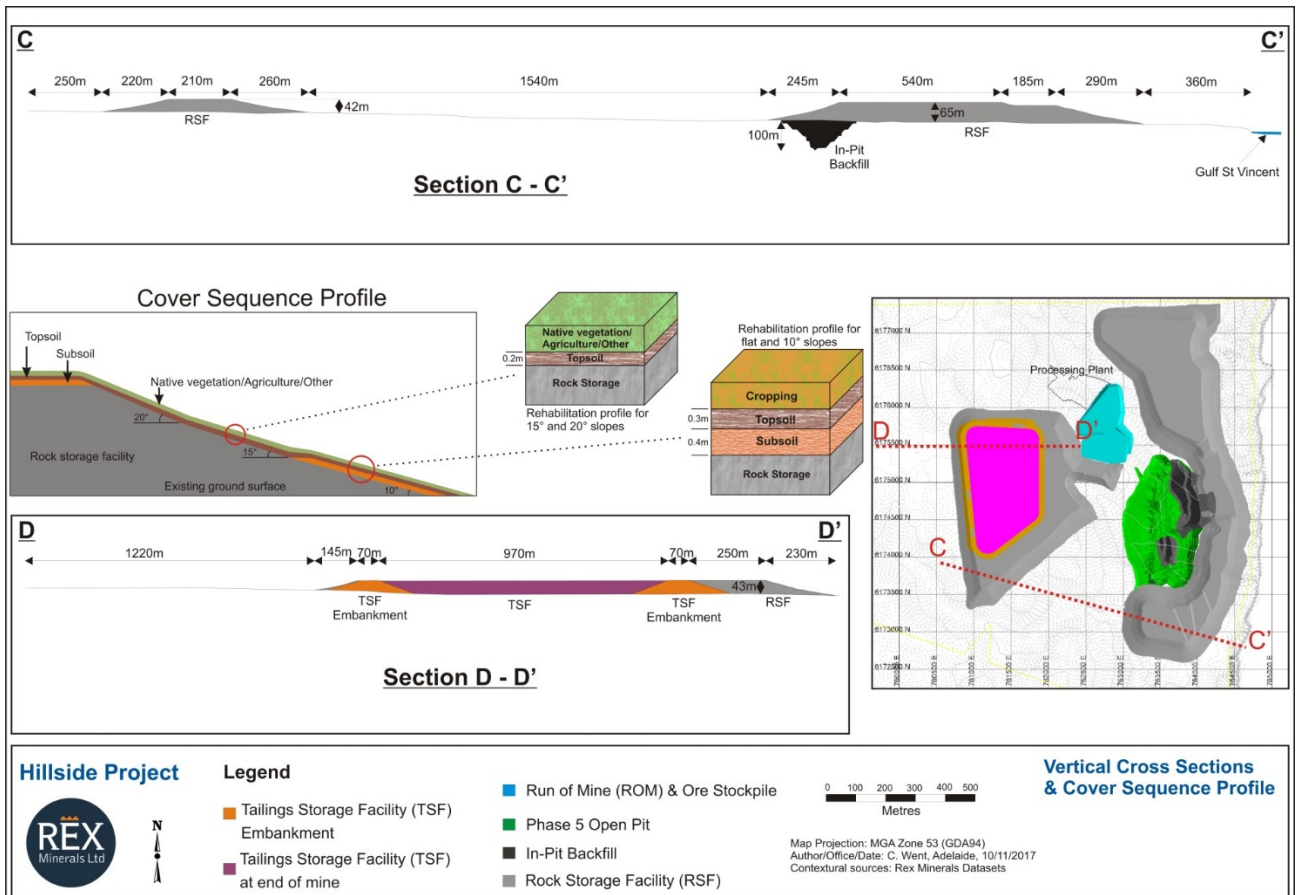


Figure 3 Proposed Final Landform (Section C and D)

7.4 OPEN PIT

Once backfill has completed (on mine closure) the remaining mine pit will be oval in shape, approximately 1760 m long and 1000 m wide with steep slopes reaching the pit base at -395mRL. A surface area of approximately 30 Ha of the southern and eastern areas of the open pit will be backfilled and rehabilitated for agriculture as shown in Figure 4 (Appendix 1).

Following mine closure access to the open cut pit will be restricted by the construction of a stock proof fence and abandonment bund. The abandonment bund will be constructed and positioned in accordance with WA mine guidelines document (ZMA048HA 1997). The bunds will be 2 m high and 5 m wide with location determined by a geotechnical engineer before mine closure, to ensure the bunds remain in perpetuity. The bunds will be vegetated with native species. (see Figure 21 of Appendix 1). The two 35 m wide haul roads will remain in the pit to divert run-off water to the pit lake. The pit haul roads will link up to haul roads from the RSFs forming an internal drainage system to divert run-off. The run-off may initially contain sediment while landscapes are stabilising, but is not expected to have any other pollutants.



Post closure modelling of pit water level recovery shows that the pit will fill very slowly to around -300mRL by year 62, -120mRL 110 years after mine closure and to -70mRL 157 years after mine closure. It will reach long term equilibrium level after 550 years at -27mRL.

No groundwater from the pit lake will move off-site as open pit will act as a sink in perpetuity. Accordingly, all groundwater will always flow towards the open pit. An assessment of the pit lake water chemistry post closure was prepared by a consultant (Logsdon 2014). The key findings from the assessment were as follows:

The primary source of soluble material is from the final pit walls. The amount of the pit walls that are available for oxidation declines with time as the pit walls are inundated with water during filling. As only a small rind of pit-wall rock remains when the pit lake reaches equilibrium, sulphide oxidation and subsequent water-rock reactions effectively ceases when the rocks are inundated, so the submerged portions of the pit walls are treated as un-reactive.

Water quality is near neutral pH (7.7 – 7.8) as the wall rock in the ultimate pit shell will be very low in sulphides (~15%).

Water quality reaches the chlorinity typical of seawater sometime between 80 and 320 years, but remains in the vicinity of seawater chlorinity for several hundred years, rising to the steady-state system value only after about 500 years.

The low predicted levels of metals are unlikely to be available to ecological receptors. Final land uses for the open pit void are still being considered in consultation with stakeholders and will form part of the detailed final mine closure plan.

7.5 UTILITY AND PIPELINE CORRIDORS

The SA Water pipeline will remain as it is property of the South Australian State Government. All fences and signage and any instrumentation on the surface will be removed and the land returned to the original land use.

An above ground power line from the Ardrossan West power substation will be constructed along Silo Road and south to the mine site on the western side of the Yorke Highway. There will be a power off take to the Port Ardrossan near the Yorke Highway and Silo Road intersection.

On closure the power supply lines will be considered a valuable asset and are likely to be handed over to the state power utilities, as will the responsibility for maintaining the power lines. If an arrangement for the handover of the power line is not able to be made, the power lines will be removed at closure. As much as possible the waste will be recycled, with the remainder disposed of in an EPA licensed landfill.

7.6 BORE FIELD

An above ground power line from the existing SA Power Networks coastal power line will be installed to the Hillside bore field (a distance of approximately 1km).

All surface infrastructure will be removed and the pre-mining land use of agriculture re-established. The buried section of the pipeline will remain in place.



7.7 UNDISTURBED LAND

This domain includes the proposed EML and will contain the temporary stockpiles of excess cut from the highway realignment. Prior to EML closure any remaining stockpiled material will be removed and used off-site for the Pine Point Road diversion. This portion of land will be transferred to DPTI/YPC to take over responsibility of the care, control and management of the proposed highway.

During the operational and mine closure phases and right through to relinquishment the native vegetation in the area will be upgraded through a combination of weed management, pest control and selective plantings of native vegetation endemic in the coastal zones of this region.

The vegetation selected for planting will be from seeds or propagating material from Yorke Peninsula based on advice from local environmental groups such as TPAG. The NVMP will be refined over the mine life to ensure that at handover the vegetation communities are established to the point that they will be self-sustaining.

All concrete within 0.75 m of the surface and clean building rubble will be disposed in the RSFs or open pit. All rubbish will be removed and disposed in an approved landfill. Once the buildings and concrete pads are removed the site will be ripped and covered with topsoil where necessary and returned to land suitable for agricultural pursuits.

The ML will include agricultural land that will be held as buffer for the mining activities. During the operational stage this land will be managed in a manner compatible with local agricultural pursuits, no mining vehicles, personnel or equipment will need to access these areas and will generally be delineated by stock fences.

As mine completion nears any unnecessary fences separating the undisturbed land from the mining operations will be removed or relocated. A weeds and pest inspection will be conducted and any remedial action required will be undertaken. Any degraded pasture will be fertilised and sown if required to ensure that the pasture species mix and density is compatible with local practice.

Non-Domain Specific Completion Aspects

The non-domain specific aspects during mine completion consist of waste disposal, compacted contaminated soil, unsealed internal haul roads and pads and maintaining access to future mining as far as practicable. These have been addressed separately in the following sections.

7.8 WASTE DISPOSAL

Mine closure waste will consist of concrete, scrap metal, plastics (mostly HDPE), batteries, tyres, wood, putrescibles and domestic waste sewage, reagent containers and packaging materials.

Concrete waste will be disposed in the pit, TSF or RSFs depending on the location and availability at the time of removal. All metals, plastics and cardboard/wood and containers will be recycled where possible, some non-recyclable materials will be sent in a closed truck to the nearest available EPA approved landfill.

A program for separating domestic rubbish into bottles and cans, recyclables and organic waste established during the operational phase will be continued through to mine closure. The above practices



will ensure that no chemically unstable waste will remain at mine closure after all the rehabilitation works have been complete.

Sewage will continue to be processed through the treatment plant at the processing site will remain in place until all other rehabilitation works have been completed. After completion of rehabilitation activities on the Project site the sewerage treatment plants will be removed.

7.9 INTERNAL HAUL ROADS AND PADS

At the end of mine life several internal haul roads, access tracks, pond liners, concrete pads, borrow pits and hard stands will remain and these will be removed and revegetated. All non-essential internal haul roads, access tracks, concrete pads borrow pits and hard stands will be dismantled, or broken up and disposed as outlined above. Any compacted ground will be ripped and sown to pastures, or planted with native vegetation on the steeper slopes.

7.10 SITE DRAINAGE

During operations, run-off generated from RSFs and other infrastructure will be separated from the natural drainage systems, where possible. This run-off has the potential to carry contaminants (especially sediment) and will be directed into sediment settling dams and then reused where appropriate for process water. After rehabilitation, once the surface run-off is shown to meet the agreed upon water standards for the naturally occurring drainage then the diversion system separating the mine run-off from the natural drainage will be removed. Should the run-off not meet these standards then the drainage diversions will be retained and the run-off water diverted to the pit.

Run-off from the TSF and RSFs will potentially have a high sediment load. During the operational phase this water will be diverted to the process water management system or a system of sediment settlement dams and sumps to settle the sediment. Only clean run-off will be allowed to return to the natural drainage channels.

7.11 ACCESS FOR FUTURE MINING

The South Australian government requires that access for any future mining or reprocessing is maintained. The majority of the access haul road to the open pit will remain open and be used as drainage channels. However, a complete geotechnical and hydrological risk assessment will be required before any future mining was to take place.

A low grade ore stockpile will be accumulated up until year 13 of operations. At closure, it is anticipated that no low grade ore will remain. Approximately 14 million tonne of oxide ore unsuitable for treatment through the flotation plant will be stockpiled in the first four years of operation. This material could be suitable for alternative treatment later in the life of the Project. If it should remain at closure it is recognised that it is a potential source of soluble copper and will be treated to ensure encapsulation. The stockpile will be either rounded or pushed back into north eastern Rock Storage Facility and re-profiled. The oxide will be treated in a similar way to the TSF by:



- sealing layer of non-acid forming, low permeability compacted earth fill (0.5 m depth);
- mine spoil cover of non-acid forming rockfill (1.0 m depth);
- topsoil cover (0.1 – 0.3 m depth); and
- stabilised by pasture species and low shrubs.

This will minimise any potential for soluble copper generation and keep the resource available for later exploitation should that prove economic.

7.12 REHABILITATION STRATEGIES AND TIMING

A description of the process for closure activities have been provided above for each closure domain. The description included broad strategies to be applied as part of mine closure for rehabilitation for the components of each closure domain. As the stages of mining progress the mine closure plan will be able to provide greater detail regarding the timing of the associated closure activities. At this stage, the following timelines provide a conceptual outline for the closure timing of the major mine and infrastructure components in relation to each other.

Mine scheduling will allow the southern and northern RSFs to be completed in Years 8 and 9 respectively. With progressive rehabilitation will commence soon after the lower batters are completed in years 2 and 4 respectively. Rehabilitation of these RSFs is scheduled to be completed within 2 years to leverage optimal seasonal timing.

Progressive rehabilitation of completed portions of the western RSF is a priority and will occur as soon as practicable in the mine scheduling. All topsoil and subsoil stockpiles are stabilised with pasture species on an on-going basis and any opportunity for a one-shift policy will be implemented. An assessment of the proportion of material available to backfill the open pit will occur on an ongoing basis.

Oxides may be processed during or after mining operations have ceased. Placement of cover materials over the TSF can commence during the final months of operations, working from the perimeter inwards as quickly as the TSF surface dries to a condition allowing machinery access. The final TSF capping, dismantling of the processing plant components at the mine will be undertaken once processing is completed. Ongoing waste management throughout the life of mine will ensure that minimal additional waste is required to be removed for closure.

7.13 REHABILITATION LIABILITY ESTIMATE

In the event of default (Company going into administration) the government has a set of costed detailed design works and will be able to issue a tender and pay for works via the mine closure bond. This includes any outstanding rehabilitation at mine closure that has not been completed to satisfaction of the regulator to enable relinquishment of the lease. The bond estimate is based on reasonable third-party costs of undertaking the rehabilitation strategies as outlined in the document and include costs for project management, inflation, normal project variation, and contingency provision for risk associated with the strategies and uncertainty in the cost estimates.



There is not expected to be any residual liability post mine closure once all rehabilitation has been completed. However, if any residual liability is identified then the transfer of the liability is to be negotiated between the Company and the landowner. Residual liability would include ongoing maintenance or monitoring.

8. CONSULTATION

This Plan is being prepared in consultation with the DPC, Yorke Peninsula Council, and the HMCV consultation group and directly with local landowners.

9. RESPONSE PROCEDURES

9.1 COMMUNITY RESPONSE PROCESS

All complaints received in relation to the Hillside Mine closure will be handled through the Hillside Complaints Management Procedure.

10. MONITORING PROGRAM

Progressive rehabilitation and ongoing performance assessment will be carried out in areas where mining and related operations have been completed and further disturbance is unlikely.

Ongoing monitoring during operations and post closure of the mine closure measurement criteria will be used to demonstrate the achievement of outcomes for mine closure.

The details of the mine closure measurement criteria and outcomes are given in Table 4: Mine Closure Criteria and Outcomes) below. This is a comprehensive summary of the Hillside Mine requirements prior to relinquishment of the ML and EML. The MPL outcomes are the responsibility of SA Water and the Electricity Provider.

Table 4: Mine Closure Criteria and Outcomes

Lease No	Lease Schedule & Reference No	Description of the Outcome	What will be measured and form (method of measurement)	Locations	Outcome Achievement	Frequency	Control or baseline data
			A	B	C	D	E
ML6438	Second Sch 24	<p>The Tenement Holder must ensure that:</p> <p>24.2 inundation of third party property and infrastructure by water (to a greater extent than would be expected to occur prior to mining operations commencing) after mine completion is not caused by mining operations;</p> <p>24.3 unless the Tenement Holder obtains a registered Waiver of Exemption under the Act to undertake mining activities (inclusive of inundation).</p>	Aerial extent and water depth of inundation.	Monitoring locations as specified in the Surface Water Management Plan. (Figure 8)	Independent expert verifies there has been no inundation of third party property and infrastructure by water (to a greater extent than would be expected to occur prior to mining operations commencing) after mine completion is not caused by mining operations.	During precipitation event.	Modelling of post closure water flows in the Surface Water Management Plan
ML6438	Second Sch 25	<p>The Tenement Holder must:</p> <p>25.1 Ensure no surface water contaminated as a result of mining operations leaves the Land; and</p> <p>25.2 Ensure that, apart from water contained in the pit void:</p> <p>25.2.1 no surface water contaminated prior to mine completion remains within the Land after mine completion; and</p> <p>25.2.2 no contamination of surface water occurs after mine completion as a result of mining operations within the Land.</p>	Surface water tests will comprise pH, Total Dissolved Solids (TDS), turbidity and dissolved copper ions testing.	Anywhere water is found to pond within the ML and the monitoring points specified in the Surface Water Management Plan. (Figure 8)	Independent expert verifies there has been no surface water contaminated prior to mine completion remains within the Land after mine completion; and no contamination of surface water occurs after mine completion as a result of mining operations within the Land.	During precipitation event.	Modelling of post closure water flows in the Surface Water Management Plan

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Lease No	Lease Schedule & Reference No	Description of the Outcome	What will be measured and form (method of measurement)	Locations	Outcome Achievement	Frequency	Control or baseline data
			A	B	C	D	E
ML6438	Sixth Sch 2	2. The Tenement Holder must, in construction, operation and post mine completion, ensure no loss of abundance or diversity of native vegetation on or off the Land through: 2. The Tenement Holder must, in construction, operation and post mine completion, ensure no loss of abundance or diversity of native vegetation on or off the Land through: 2.1. Clearance, 2.2. dust/contaminant deposition, 2.3. fire, 2.4. reduction in water supply, or 2.5. other damage, unless prior approval under the relevant legislation is obtained.	Native vegetation abundance and diversity through the walk linear transects.	Areas specified in the Native Vegetation Monitoring Sites (Figure 9)	No Loss of abundance or diversity of native vegetation compared to the baseline data which is certified independent expert.	Annual (Spring) plus one year post closure.	Vegetation baseline survey conducted prior to commencement of operations Appendix 5-12 in the MLP
ML6438	Sixth Sch 2	2. The Tenement Holder must, in construction, operation and post mine completion, ensure no loss of abundance or diversity of native vegetation on or off the Land through: 2. The Tenement Holder must, in construction, operation and post mine completion, ensure no loss of abundance or diversity of native vegetation on or off the Land through: 2.1. Clearance, 2.2. dust/contaminant deposition, 2.3. fire, 2.4. reduction in water supply, or 2.5. other damage, unless prior approval under the relevant legislation is obtained.	Undisturbed native vegetation area in Ha using aerial survey.	25 Areas of undisturbed native vegetation (73 Ha total) specified in Impacted Native Vegetation (Figure 10)	A suitably qualified independent expert will verify the total area of undisturbed native vegetation is not reduced by clearing unless approved for clearing by legislation.	Annual and one year post closure.	MLP Figure 5.12-2 updated for the impact of the smaller EFS mine design footprint now called the Impacted Native Vegetation.

Table 4: Mine Closure Criteria and Outcomes

Lease No	Lease Schedule & Reference No	Description of the Outcome	What will be measured and form (method of measurement)	Locations	Outcome Achievement	Frequency	Control or baseline data
			A	B	C	D	E
ML6438	Sixth Sch 3	3. The Tenement Holder must, in construction, operation and post mine completion, ensure no impacts to agricultural productivity for third party land users on or off the Land as a result of mining operations, including: 3.1. Reduction in crop yield; 3.2. reduction in grain quality; or 3.3. adverse health impacts to livestock	PM10 dust levels using BAM monitors.	Monitors as per Air Quality Monitoring Plan and Wind Directions (Figure 11)	No impacts to agricultural productivity for third party land users on or off the Land as a result of mining operations, including: 3.1. Reduction in crop yield; 3.2. reduction in grain quality; or 3.3. adverse health impacts to livestock	Measurements taken at intervals of not more than 10 minutes reported as a 24 hour midnight to midnight average for one year post closure.	All areas outside the mine operational area have a PM10 below 150ug/m3 for all 24 hour periods (midnight to midnight).
ML6438	Sixth Sch 3	3. The Tenement Holder must, in construction, operation and post mine completion, ensure no impacts to agricultural productivity for third party land users on or off the Land as a result of mining operations, including: 3.1. Reduction in crop yield; 3.2. reduction in grain quality; or 3.3. adverse health impacts to livestock	Measure of mg/kg of copper in wheat and barley as per standard grain quality testing procedure.	Areas specified in Crop Quality Monitoring Area on the ML. (Figure 12)	No impacts to agricultural productivity for third party land users on or off the Land as a result of mining operations, including reduction in grain quality with maximum residual copper below the limit measured at an external laboratory.	Annual at harvest plus one year post closure.	Maximum Residue Limits for copper in grain (Barley and Wheat) of 10mg/kg of harvested grain.
ML6438	Sixth Sch	3. The Tenement Holder must, in construction, operation and post mine completion, ensure no impacts to agricultural productivity for third party land users on or off the Land as a result of mining	Resolution of all issues	Locations specified in the	Post closure audit by a suitably qualified	One year post closure	Cases of adverse impact to the

Table 4: Mine Closure Criteria and Outcomes

Lease No	Lease Schedule & Reference No	Description of the Outcome	What will be measured and form (method of measurement)	Locations	Outcome Achievement	Frequency	Control or baseline data
			A	B	C	D	E
	3	operations, including: 3.1. Reduction in crop yield; 3.2. reduction in grain quality; or 3.3. adverse health impacts to livestock	regarding adverse health impacts to livestock recorded in the complaints register.	landowner communication protocol	independent expert of the complaints register shows no unresolved issues regarding adverse health impacts to livestock.	audit report of the complaint register.	health of livestock of third party land users on/off the land received before construction in the complaints register.
ML6438	Sixth Sch 12	1. The Tenement Holder must, in construction, operation and post mine completion, ensure that the form, contrasting aspects and reflective aspects of mining operations are visually softened to blend in with the surrounding landscape.	Final landforms have been rehabilitated in accordance as described in PEPR Section 3.4.9 and Section 3.6.	Six photo monitoring locations shown in Visual Amenity Assessment (Figure 13)	At post mine completion a site inspection by a suitably qualified independent geomorphology expert demonstrates the form, contrasting aspects and reflective aspects are visually softened to blend in with surrounding landscape	Summer and winter 1 year post closure.	Design of final landform perspective with mature trees/bush screening used as baseline. (Figure 14 & Figure 15)

Table 4: Mine Closure Criteria and Outcomes

Lease No	Lease Schedule & Reference No	Description of the Outcome	What will be measured and form (method of measurement)	Locations	Outcome Achievement	Frequency	Control or baseline data
			A	B	C	D	E
ML6438	Sixth Sch 15	15. The Tenement Holder must, in construction, operation and post mine completion ensure that the existing (pre-mining) soil quality and quantity is maintained.	The soil type will be classified using the PIRSA, DENR et al classification, pH and salinity. The quantity of soil types will be measure in tonnes by survey during disturbance and rehabilitation.	Sample locations of undisturbed and disturbed areas at the Surface Soil Textures and Monitoring Sites. (Figure 16)	A suitably qualified independent environmental expert will certify that the existing pre-mining top soil quality and quantity is maintained by most of the soil west of the 762500mE as sand and most of the soil east of 762500mE as loam. Existing pre-mining sub soil quality and quantity is maintained by most of the soil west of the 762500mE as loam or clay loam and most of the soil east of 762500mE as light clay or light medium clay.	One year post closure on areas that are rehabilitated and undisturbed.	Baseline soil survey presented in the MLP. to characterise the pre-mining condition and quantity of all soils within the Land.
ML6438	Sixth Sch 19	19. The Tenement Holder must ensure that the WRD and TSF final landforms will be physically stable post mine completion.	Annual aerial and ground surveys of mine surface (height mRL) at closure of final	Aerial and ground locations/contours on the WRD (RSF) and TSF to be shown in the Mine Closure	The WRD and TSF has had no significant movement and is considered by an independent geotechnical and	Annually one year post closure.	Final rehabilitation design shape.

Table 4: Mine Closure Criteria and Outcomes

Lease No	Lease Schedule & Reference No	Description of the Outcome	What will be measured and form (method of measurement)	Locations	Outcome Achievement	Frequency	Control or baseline data
			A	B	C	D	E
			landform shape.	Contours map (Figure 17)	geomorphological expert to be stable.		
ML6438	Sixth Sch 20	20. The Tenement Holder must, in construction, operation and post mine completion, ensure that water seepage from the TSF, WRD's or ore stockpiles does not result in adverse impacts on adjacent land uses including, but not limited to, growth of native vegetation and cropping land.	Water direction, flow rate (l/s), water quality (salinity, pH and metal concentrations (as per Table 7, GWMP).	Ground water monitoring holes, shown in the Ground Water Monitoring Location Plan. (Figure 18)	Independent qualified expert verifies that there is no water seepage from the TSF, WRD's or ore stockpiles that results in adverse impacts on adjacent land uses including, but not limited to, growth of native vegetation and cropping land.	Water seepage measured monthly during operations and bi-annual one year post closure.	Modelled and measured ground water flow direction, quantity and quality from the GWMP.
ML6438	Sixth Sch 22	22. The Tenement Holder must, in construction, operation and post mine completion, ensure no loss of abundance or diversity of native vegetation on or off the Land through: 2. The Tenement Holder must, in construction, operation and post mine completion, ensure no loss of abundance or diversity of native vegetation on or off the Land through: 22.1. Clearance, 22.2. dust/contaminant deposition, 22.3. fire, 22.4. reduction in water supply, or 22.5. other damage, unless prior approval under the relevant legislation is obtained.	Native vegetation abundance and diversity through the walk linear transects.	Areas specified in the Native Vegetation Monitoring Sites (Figure 9)	No Loss of abundance or diversity of native vegetation compared to the baseline data.	Annual (Spring) plus one year post closure.	Vegetation baseline survey conducted prior to commencement of operations Appendix 5-12 in the MLP

Table 4: Mine Closure Criteria and Outcomes

Lease No	Lease Schedule & Reference No	Description of the Outcome	What will be measured and form (method of measurement)	Locations	Outcome Achievement	Frequency	Control or baseline data
			A	B	C	D	E
ML6438	Sixth Sch 22	22. The Tenement Holder must, in construction, operation and post mine completion, ensure no loss of abundance or diversity of native vegetation on or off the Land through: 2. The Tenement Holder must, in construction, operation and post mine completion, ensure no loss of abundance or diversity of native vegetation on or off the Land through: 22.1. Clearance, 22.2. dust/contaminant deposition, 22.3. fire, 22.4. reduction in water supply, or 22.5. other damage, unless prior approval under the relevant legislation is obtained.	Undisturbed native vegetation area in Ha using aerial survey.	25 Areas of undisturbed native vegetation (73 Ha total) specified in Impacted Native Vegetation (Figure 10)	Total area of undisturbed native vegetation is not reduced by clearing unless approved for clearing by legislation (specific area reference i.e. Ha as specified)	Annual (Spring) plus one year post closure.	MLP Figure 5.12-2 updated for the impact of the smaller EFS mine design footprint now called the Impacted Native Vegetation.
ML6438	Sixth Sch 24	24. The Tenement Holder must, in construction, operation and post mine completion, ensure no introduction of new species of weeds, plant pathogens or pests (including feral animals), nor sustained increase in abundance of existing weed or pest species in the Land compared to adjoining land.	Walk through method of weeds, pests and plant pathogens.	The areas defined the Declared Weeds and Monitoring Areas. (Figure 19)	No new species of weeds, plant pathogens or pests identified operational area of the ML compared to adjoining land.	Annual plus one year post closure.	Baseline survey of weeds, plant pathogens and pests on the operational area of the ML.
ML6438	Sixth Sch 24	24. The Tenement Holder must, in construction, operation and post mine completion, ensure no introduction of new species of weeds, plant pathogens or pests (including feral animals), nor sustained increase in abundance of existing weed or pest species in the Land compared to adjoining land.	Walk through method of weeds, pests and plant pathogens.	The areas defined the Declared Weeds and Monitoring Areas. (Figure 19)	No sustained increase in abundance of existing weed or pest species in the operational area of the ML and water monitoring bores (B5, S5) compared to adjoining land.	Annual plus one year post closure.	Baseline survey of weeds, plant pathogens and pests on the operational area of the ML.

Table 4: Mine Closure Criteria and Outcomes

Lease No	Lease Schedule & Reference No	Description of the Outcome	What will be measured and form (method of measurement)	Locations	Outcome Achievement	Frequency	Control or baseline data
			A	B	C	D	E
ML6438	Sixth Sch 26	26. The Tenement Holder must ensure no loss of abundance and diversity of marine flora and fauna from contaminants and dust deposition resulting from mining operations, during operations and post mine completion.	Copper content in marine sediment, Sea grass abundance, diversity using linear transects, Coastal gully using photo point survey, Coastal survey using walk through method.	Location points specified in the Coastal and Marine Monitoring Locations. (Figure 20)	Independent Marine Biologist verifies no loss of abundance and diversity of marine flora and fauna from contaminants and dust deposition resulting from mining operations, during operations and post mine completion.	Annual plus one year post closure.	Baseline study of flora and fauna at the locations specified in the MLP
ML6438	Sixth Sch 38	38. The Tenement Holder must demonstrate that post mine completion, the risks to the health and safety of the public so far as it may be affected by mining operations are as low as reasonably practicable.	Survey the height of the abandonment bunds from ground level in (m).	Areas specified in Abandonment Bunds and Geotechnical Monitoring at Mine Closure. (Figure 21)	Post closure audit by a suitably qualified independent expert of pit abandonment bund survey to show access to the public kept as low as reasonably practical.	One year post closure.	During mine closure, abandonment bunds of at least 2m in height is placed around the open pit void and an abandonment bund at least 1m high is placed around the

Table 4: Mine Closure Criteria and Outcomes

Lease No	Lease Schedule & Reference No	Description of the Outcome	What will be measured and form (method of measurement)	Locations	Outcome Achievement	Frequency	Control or baseline data
			A	B	C	D	E
							Throoka Creek diversion drain.
ML6438	Sixth Sch 38	38. The Tenement Holder must demonstrate that post mine completion, the risks to the health and safety of the public so far as it may be affected by mining operations are as low as reasonably practicable.	The height of the abandonment bund from ground level in (m) via survey using electronic distance measurement.	Areas specified in Abandonment Bunds and Geotechnical Monitoring at Mine Closure. (Figure 21)	Post closure audit by a suitably qualified independent expert of pit ramp abandonment bund survey to show access to the public kept as low as reasonably practical.	One year post closure.	After final closure a pit ramp access abandonment bund 2m in height with a with 1:2 slope is placed at the access point to the pit to prevent easy access down the ramp to the pit lake.
ML6438	Sixth Sch 38	38. The Tenement Holder must demonstrate that post mine completion, the risks to the health and safety of the public so far as it may be affected by mining operations are as low as reasonably practicable.	The displacement of prisms in (m) on abandonment bunds using survey.	Areas specified in Abandonment Bunds and Geotechnical Monitoring at Mine Closure. (Figure 21)	An independent geotechnical expert verifies the risks to the health and safety of the public so far as it may be affected by mining operations caused by ground instability are as	Annually plus one year post closure.	AMC Consultant's modelling of the pit wall displacement at the transects shows a displacement between 0-

Table 4: Mine Closure Criteria and Outcomes

Lease No	Lease Schedule & Reference No	Description of the Outcome	What will be measured and form (method of measurement)	Locations	Outcome Achievement	Frequency	Control or baseline data
			A	B	C	D	E
					low as reasonably practicable.		400mm over 16 years in line with a long term stable wall.
ML6438	Sixth Sch 43	3. The Tenement Holder must, in construction, operation and post mine completion, ensure no impacts to agricultural productivity for third party land users on or off the Land as a result of mining operations, including: 3.1. Reduction in crop yield; 3.2. reduction in grain quality; or 3.3. adverse health impacts to livestock	PM10 dust levels using BAM monitors.	Monitors as per Air Quality Monitoring Plan and Wind Directions (Figure 11)	No impacts to agricultural productivity for third party land users on or off the Land as a result of mining operations, including: 3.1. Reduction in crop yield; 3.2. reduction in grain quality; or 3.3. adverse health impacts to livestock	Measurements taken at intervals of not more than 10 minutes reported as a 24-hour midnight to midnight average for one-year post closure.	All areas outside the mine operational area have a PM10 below 150ug/m3 for all 24 hour periods (midnight to midnight).
ML6438	Sixth Sch 43	3. The Tenement Holder must, in construction, operation and post mine completion, ensure no impacts to agricultural productivity for third party land users on or off the Land as a result of mining operations, including: 3.1. Reduction in crop yield; 3.2. reduction in grain quality; or 3.3. adverse health impacts to livestock	Measure of mg/kg of copper in wheat and barley as per standard grain	Areas specified in Crop Quality Monitoring Area on the ML. (Figure 12)	No impacts to agricultural productivity for third party land users on or off the Land as a result of mining operations, including reduction in grain quality with maximum residual	Annual at harvest plus one year post closure.	Maximum Residue Limits for copper in grain (Barley and Wheat) of 10mg/kg of harvested grain.

Table 4: Mine Closure Criteria and Outcomes

Lease No	Lease Schedule & Reference No	Description of the Outcome	What will be measured and form (method of measurement)	Locations	Outcome Achievement	Frequency	Control or baseline data
			A	B	C	D	E
			quality testing procedure.		copper below the limit measured at an external laboratory.		
ML6438	Sixth Sch 43	3. The Tenement Holder must, in construction, operation and post mine completion, ensure no impacts to agricultural productivity for third party land users on or off the Land as a result of mining operations, including: 3.1. Reduction in crop yield; 3.2. reduction in grain quality; or 3.3. adverse health impacts to livestock	Resolution of all issues regarding adverse health impacts to livestock recorded in the complaints register.	Locations specified in the landowner communication protocol	Post closure audit by a suitably qualified independent expert of the complaints register shows no unresolved issues regarding adverse health impacts to livestock.	One year post closure audit report of the complaint register.	Cases of adverse impact on health impacts to livestock of third party land users on an off the Land received before construction in the complaints register.
ML6438	Sixth Sch 45	45. The Tenement Holder must, during construction, operation and post mine completion, ensure that as a result of a geotechnical failure caused by mining; 45.1. there are no adverse impacts to adjacent land use; and 45.2. there is no unauthorised damage to public or private property and infrastructure.	The displacement of prisms in (m) on abandonment bunds using survey.	Areas specified in Abandonment Bunds and Geotechnical Monitoring at Mine Closure. (Figure 21)	An independent geotechnical expert verifies there on no adverse impacts to adjacent land use and no unauthorised damage to public or private property or	One year post closure.	AMC Consultant's modelling of the pit wall displacement at the transects shows a displacement between 0-400mm over 16 years in line with

Table 4: Mine Closure Criteria and Outcomes

Lease No	Lease Schedule & Reference No	Description of the Outcome	What will be measured and form (method of measurement)	Locations	Outcome Achievement	Frequency	Control or baseline data
			A	B	C	D	E
					infrastructure as a result of geotechnical failure.		a long term stable wall.
EML6439	Sixth Sch 1	Air Quality Outcome 1. The Tenement Holder must, in construction, operation and post mine completion, ensure that there are no public health and/or public nuisance impacts from air emissions and/or dust generated by mining operations.	Dust type and method of measurement as per Air Quality Monitoring Plan.	Monitors as per Air Quality Monitoring Plan and Wind Directions (Figure 11)	No public health or public nuisance impacts from air emissions and/or dust generated by mining activities.	Frequency defined the AQMP plus 6 months post closure.	ML Air Quality Conditions
EML6439	Sixth Sch 4	Visual Amenity Outcome 4. The Tenement Holder must, in construction, operation and post mine completion, ensure that the form, contrasting aspects and reflective aspects of mining operations are visually softened to blend in with the surrounding landscape.	Survey height metres and location of stockpiles	Six photo monitoring locations shown in Visual Amenity Assessment (Figure 13)	Site inspection by suitably qualified independent expert confirms that all stockpiles are removed from the EML post closure.	At road diversion project closure.	Baseline survey shows no road diversion stockpiles are present on the EML.

Table 4: Mine Closure Criteria and Outcomes

Lease No	Lease Schedule & Reference No	Description of the Outcome	What will be measured and form (method of measurement)	Locations	Outcome Achievement	Frequency	Control or baseline data
			A	B	C	D	E
EML6439	Sixth Sch 6	Soil and Land Disturbance Outcome 6. The Tenement Holder must, in construction, operation and post mine completion, ensure that the existing (pre-mining) soil quality and quantity is maintained.	The soil type will be classified using the PIRSA, DENR et al classification, pH and salinity. The quantity of soil types will be measure in tonnes by survey during disturbance and rehabilitation.	Sample locations of undisturbed and disturbed areas at the Surface Soil Textures and Monitoring Sites. (Figure 16)	A suitably qualified independent environmental expert will certify that the existing pre-mining top soil quality and quantity is maintained by most of the soil west of the 762500mE as sand and most of the soil east of 762500mE as loam. Existing pre-mining sub soil quality and quantity is maintained by most of the soil west of the 762500mE as loam or clay loam and most of the soil east of 762500mE as light clay or light medium clay.	One year post closure on areas that are rehabilitated and undisturbed.	Baseline soil survey presented in the MLP. to characterise the pre-mining condition and quantity of all soils within the Land.
EML6439	Sixth Sch 7	Native Vegetation Outcome 7. The Tenement Holder must not clear any native vegetation on the Land other than in accordance with the realignment of the St Vincent Highway and the realignment of the Yorke Highway.	Not Applicable	Not Applicable	No native vegetation left as all will be cleared from ML with SEB offset.	Not Applicable	Not Applicable

Table 4: Mine Closure Criteria and Outcomes

Lease No	Lease Schedule & Reference No	Description of the Outcome	What will be measured and form (method of measurement)	Locations	Outcome Achievement	Frequency	Control or baseline data
			A	B	C	D	E
EML6439	Sixth Sch 8	Weeds, Pest and Pathogens Outcome 8. The Tenement Holder must, in construction, operation and post mine completion, ensure no introduction of new species of weeds, plant pathogens or pests (including feral animals), nor sustained increase in abundance of existing weed or pest species on the Land compared to adjoining land.	Walk through method of weeds, pests and plant pathogens.	The areas defined the Declared Weeds and Monitoring Areas. (Figure 19)	No sustained increase in abundance of existing weed or pest species in the operational area of the ML compared to adjoining land.	Biannual three years post closure.	Baseline survey conducted for the MLP of weeds, plant pathogens and pests on the operational area of the ML, EML and adjacent areas.



11. REPORTING

The Hillside Mine will report on the performance of the MCMP in the ACR this will be provided to the HMCV and made available for public information on the Rex Minerals website.

12. PERFORMANCE INDICATORS

The following performance indicators will be measured against the ML and EML conditions:

- Compliance with relevant mine closure standards at the mine closure domains listed in section 7.
- Minimisation of mine closure complaints as evidenced by trends in the frequency and extent of complaints.
- Compliance with this Plan, as indicated by internal and statutory reporting.

13. CONTINUAL IMPROVEMENT

The Hillside Mine will strive to continually improve on the mine's environmental performance by applying the principles of best practice to mining operations, including where cost-effective and practicable, the adoption of new best practice technologies and improved mine closure control measures.

14. REVIEW

This Plan will be reviewed, and if necessary revised, to the satisfaction of the DPC and in consultation with relevant government agencies, in accordance with the requirements relating to PEPR review, update and approval:

- following changes to project approval or licence conditions relating to mine closure management or monitoring;
- following any significant mine closure related incident;
- when a relevant/significant improvement has been identified;
- for necessary or any unforeseen changes to mine closure domains;
- where a risk assessment identifies the requirement to alter the Plan;
- annually.

15. REFERENCES

Assessment Report Pit Lake Water Chemistry Post Closure by Logsdon 2014.

Safety Bund Wall Around Abandoned Open Pit Mines guidelines, WA Dept. Industry and Resources document ZMA048HA.1997.



16. APPENDICES

Appendix 1: Maps / Sections / Images

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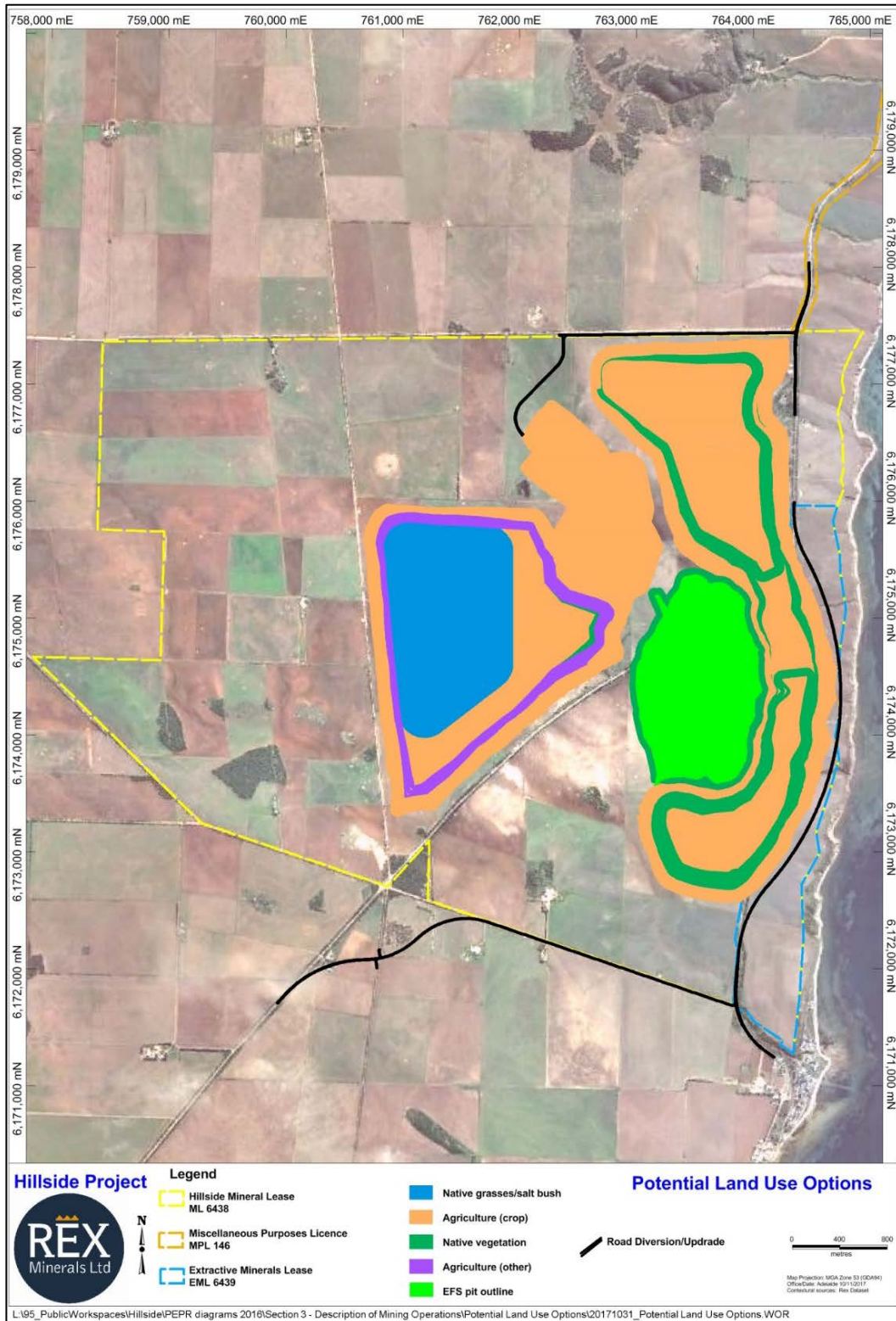


Figure 4 Potential Land Use Options within the ML

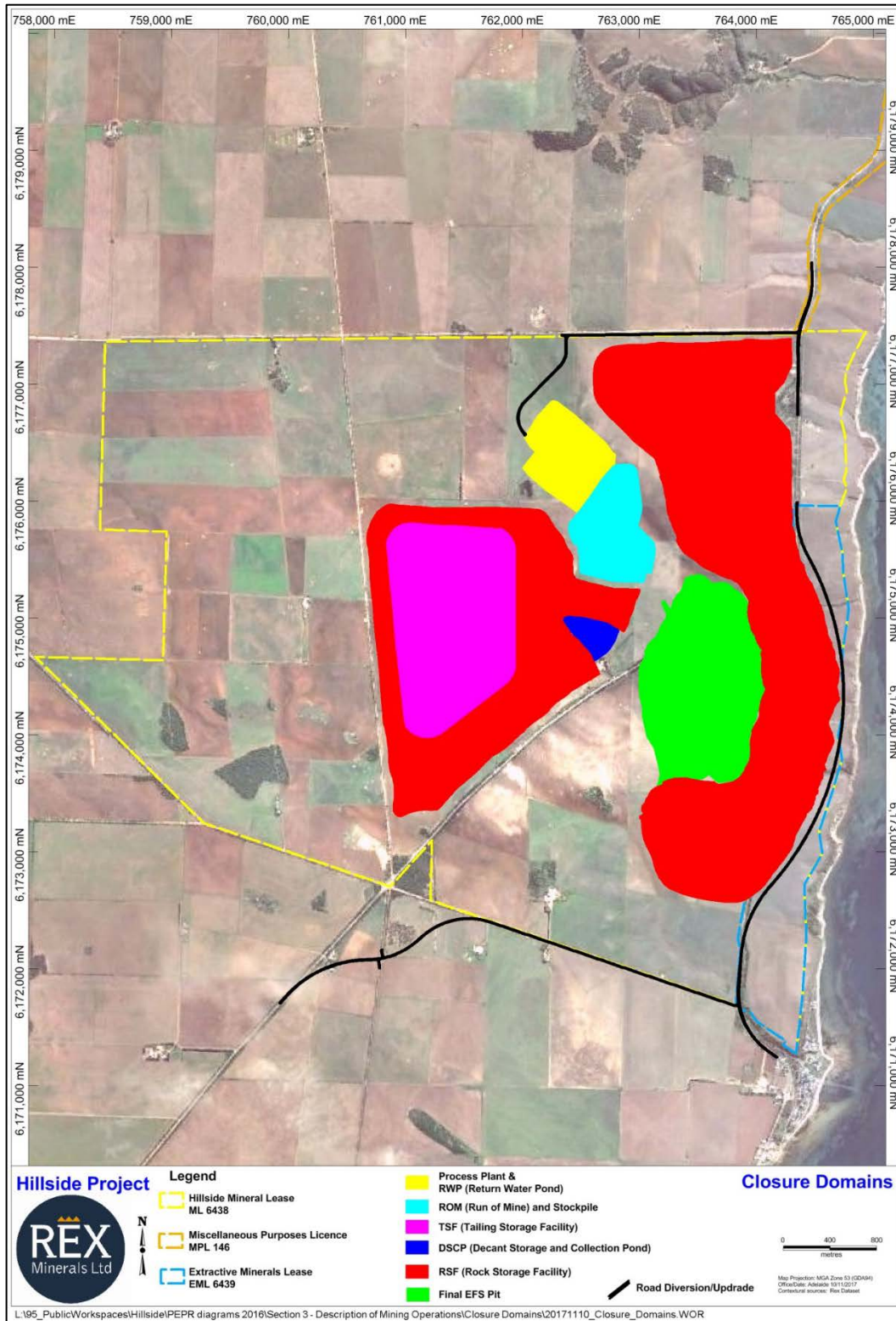


Figure 5 Location of the Closure Domains at the ML

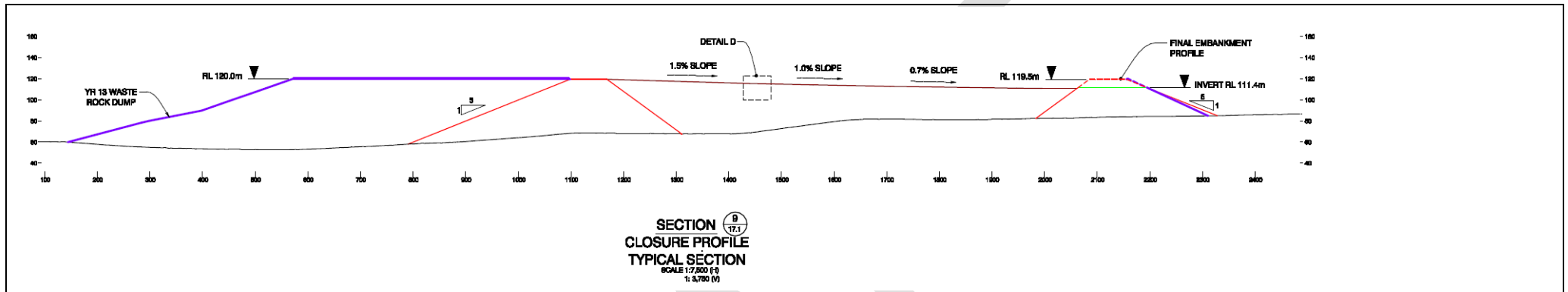


Figure 6 TSF Closure Section

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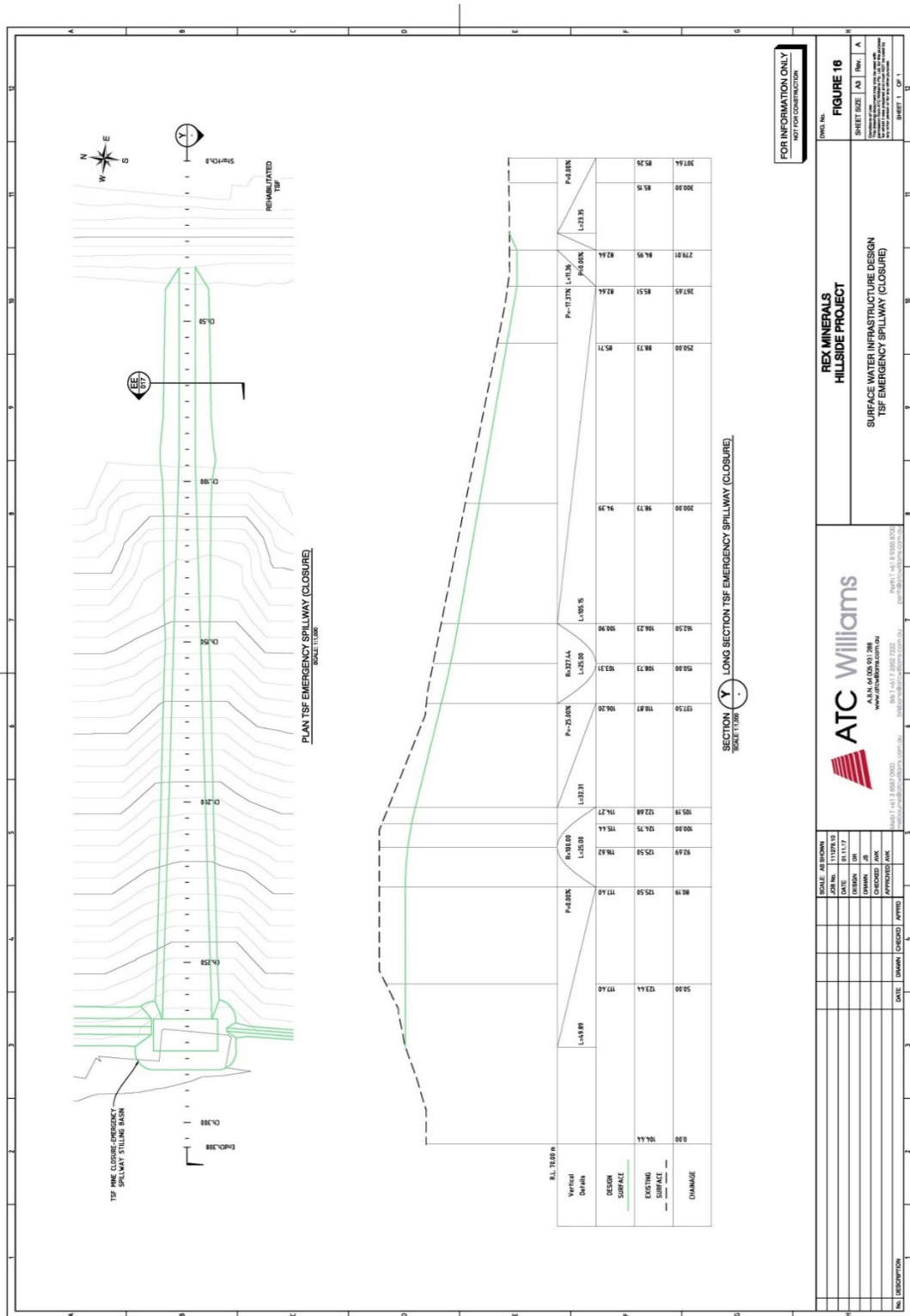


Figure 7 TSF Spillway Configuration



Figure 8 Surface Water Monitoring Locations



Hillside Copper Mine
 Mine Closure Management Plan
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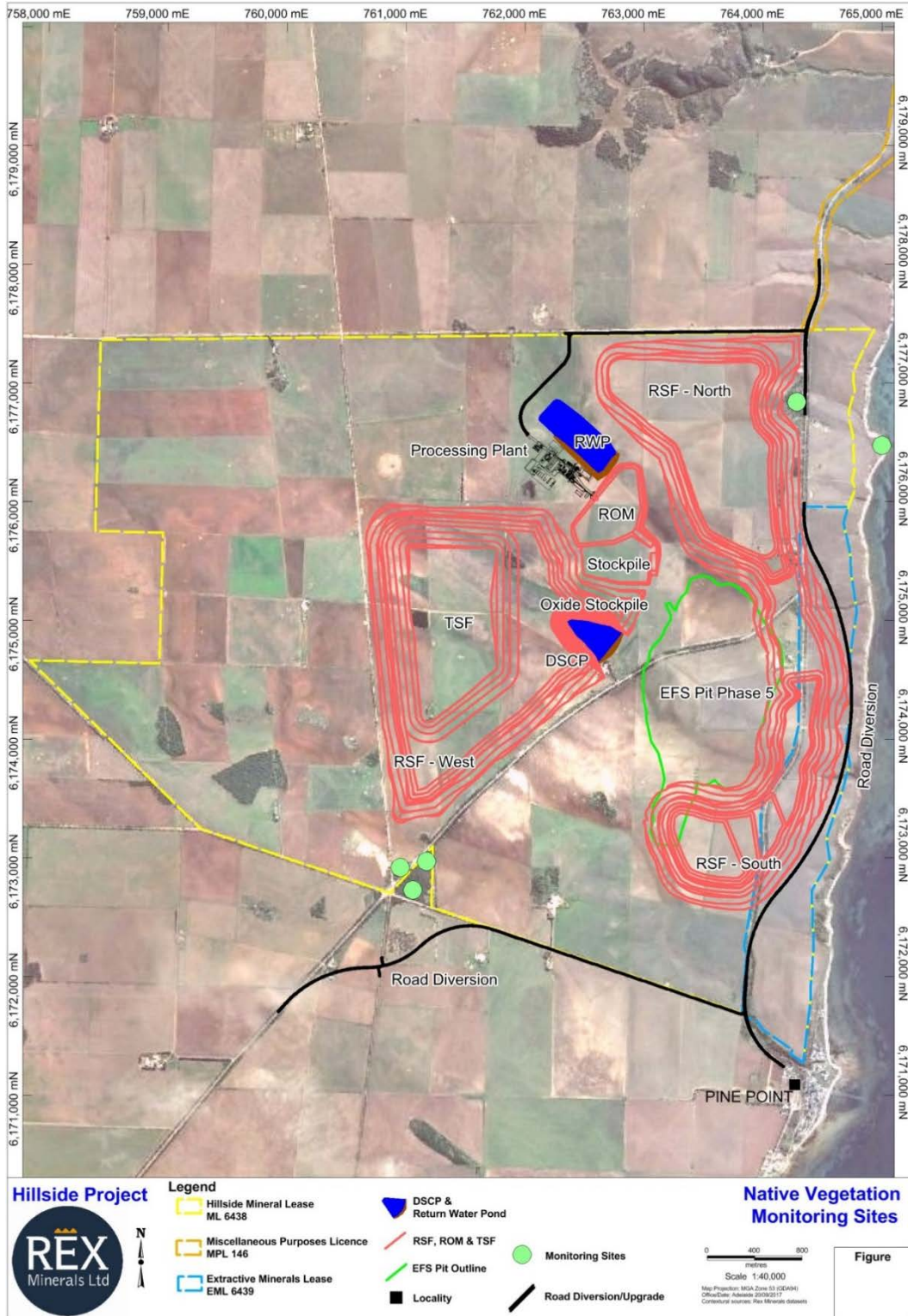
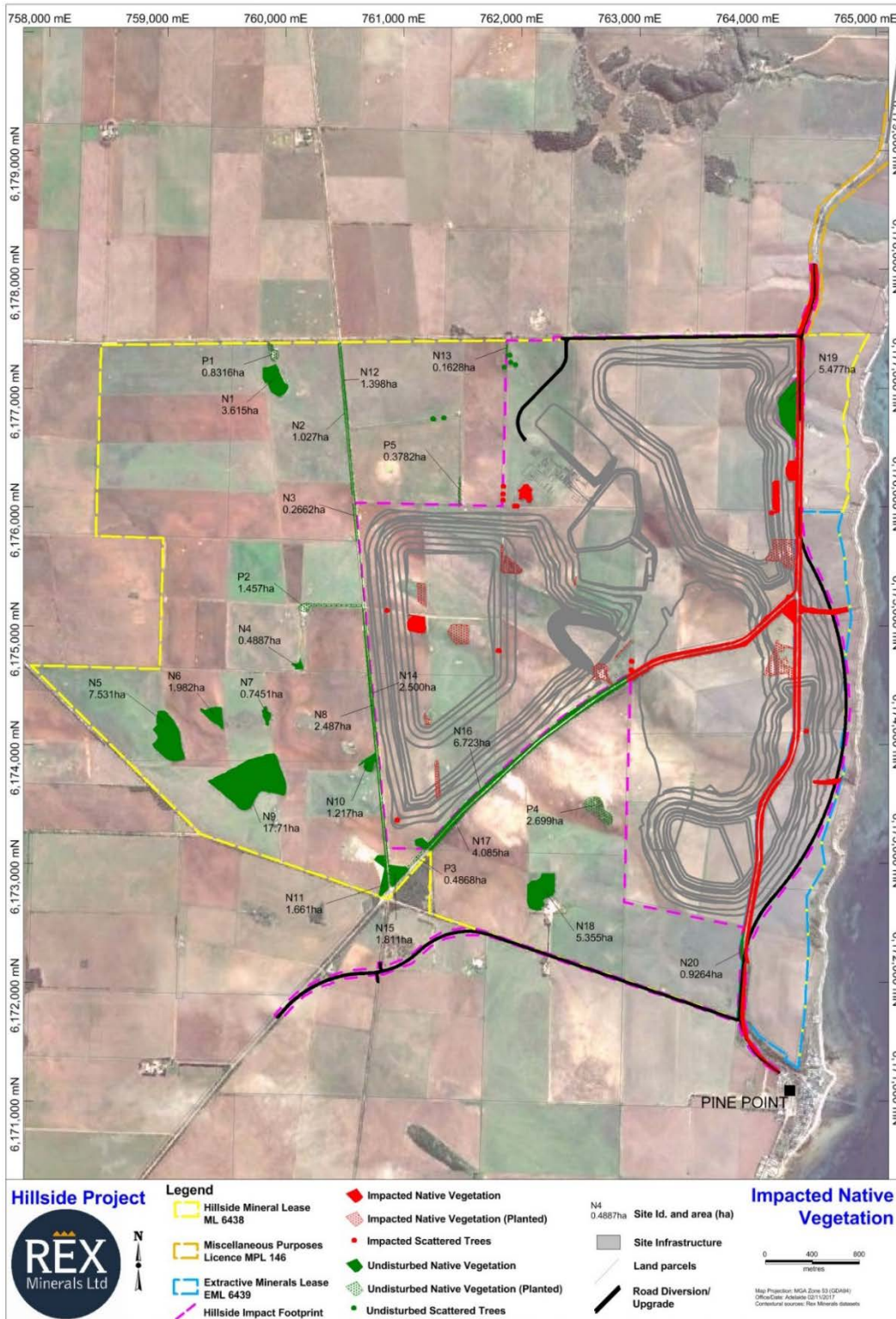


Figure 9 Native Vegetation Monitoring Sites



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Figure 10 Impacted Native Vegetation

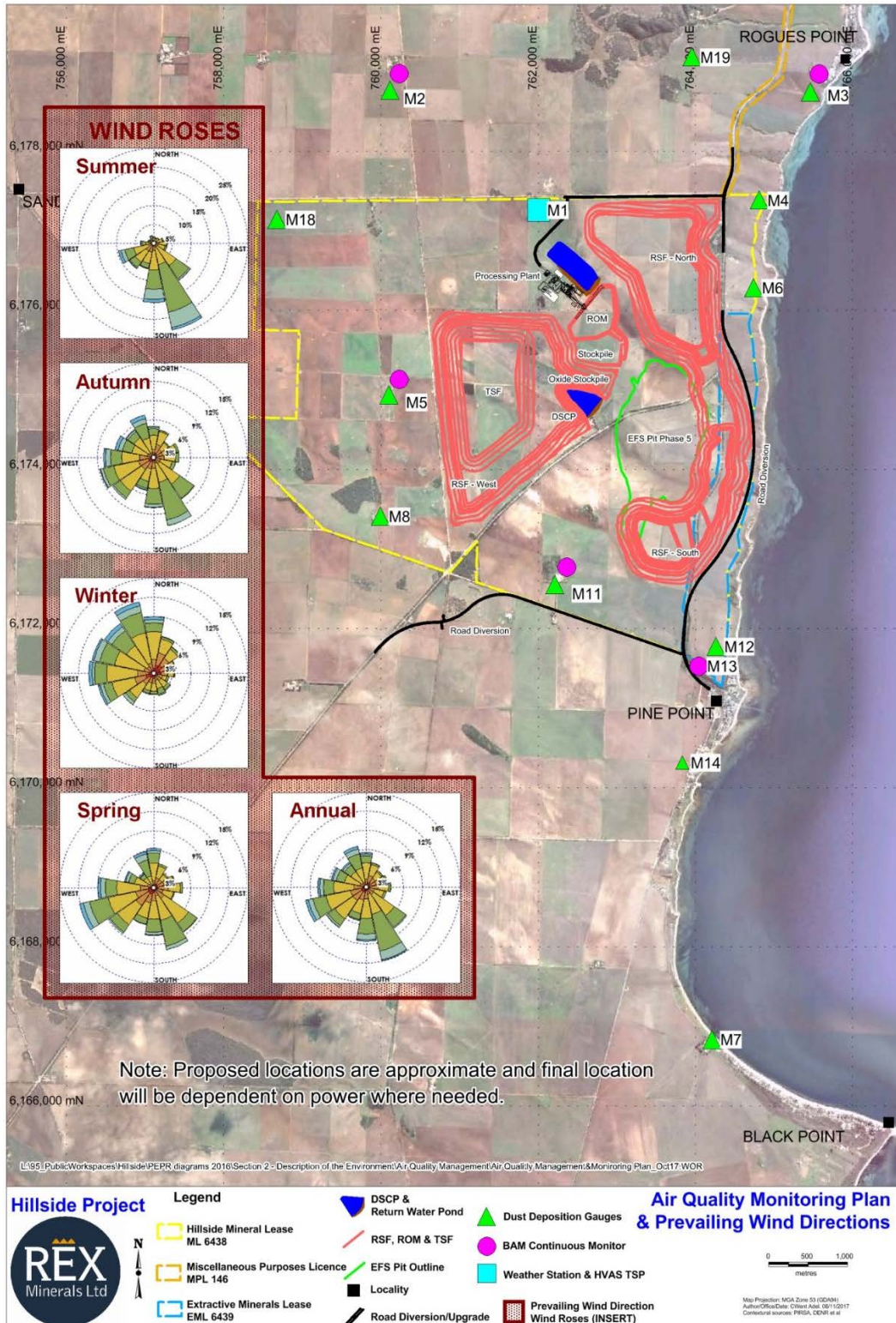


Figure 11 Air Quality Monitoring Plan & Prevailing Wind Directions

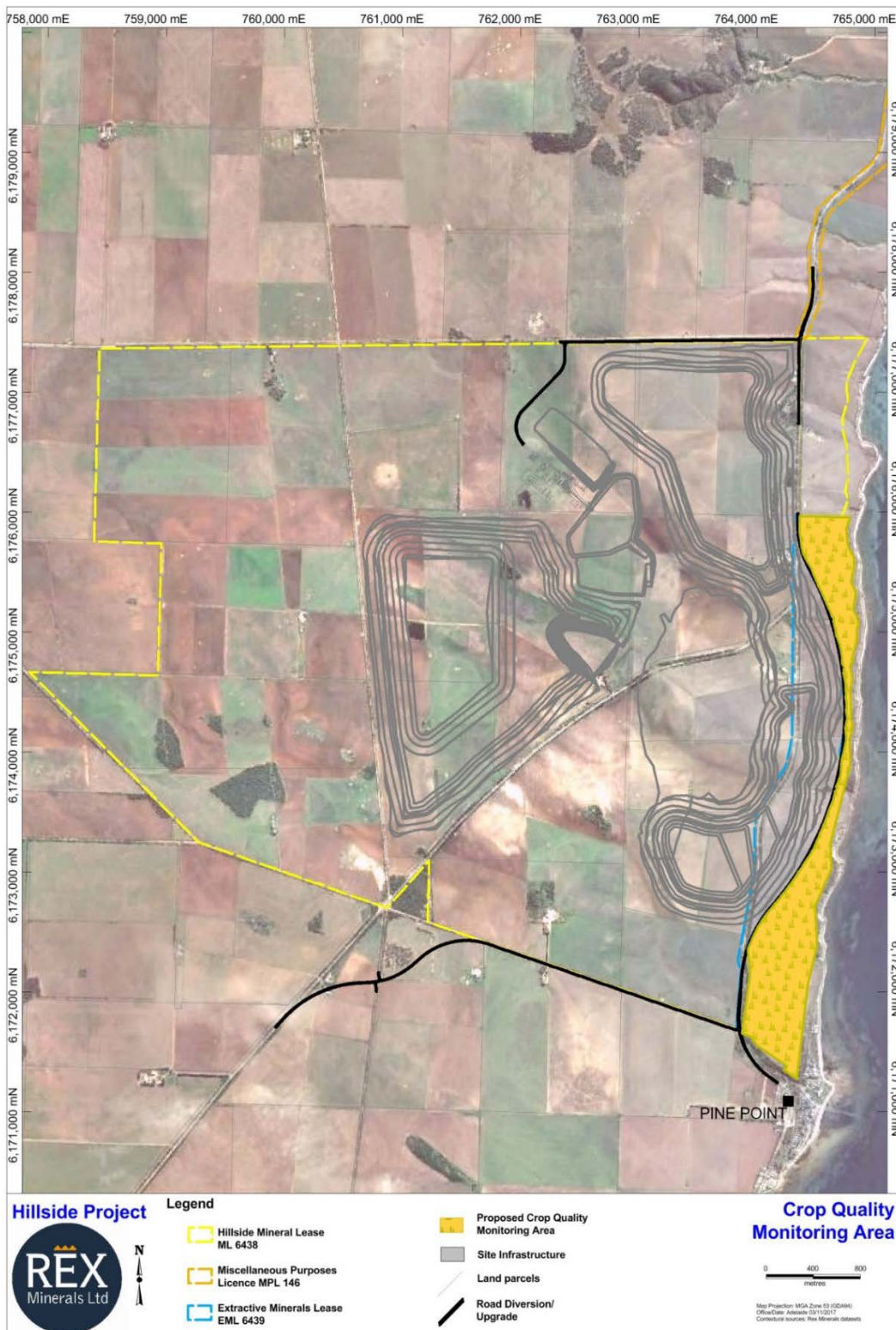


Figure 12 Crop Quality Monitoring Area

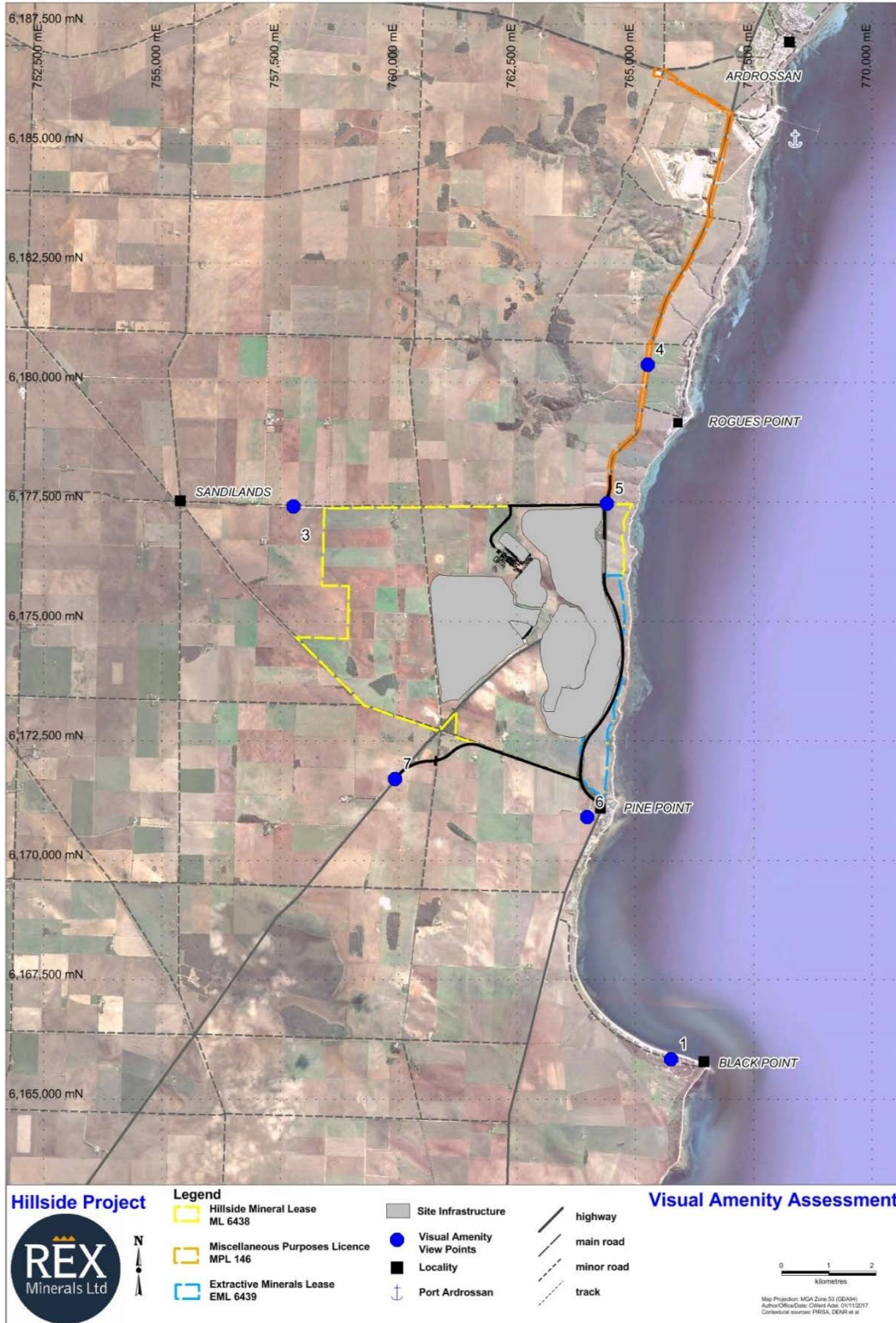


Figure 13 Visual Amenity Assessment



View Point 1



View Point 3



View Point 4

Figure 14 Visual Amenity Assessment (viewpoints 1, 3 and 4)



View Point 5

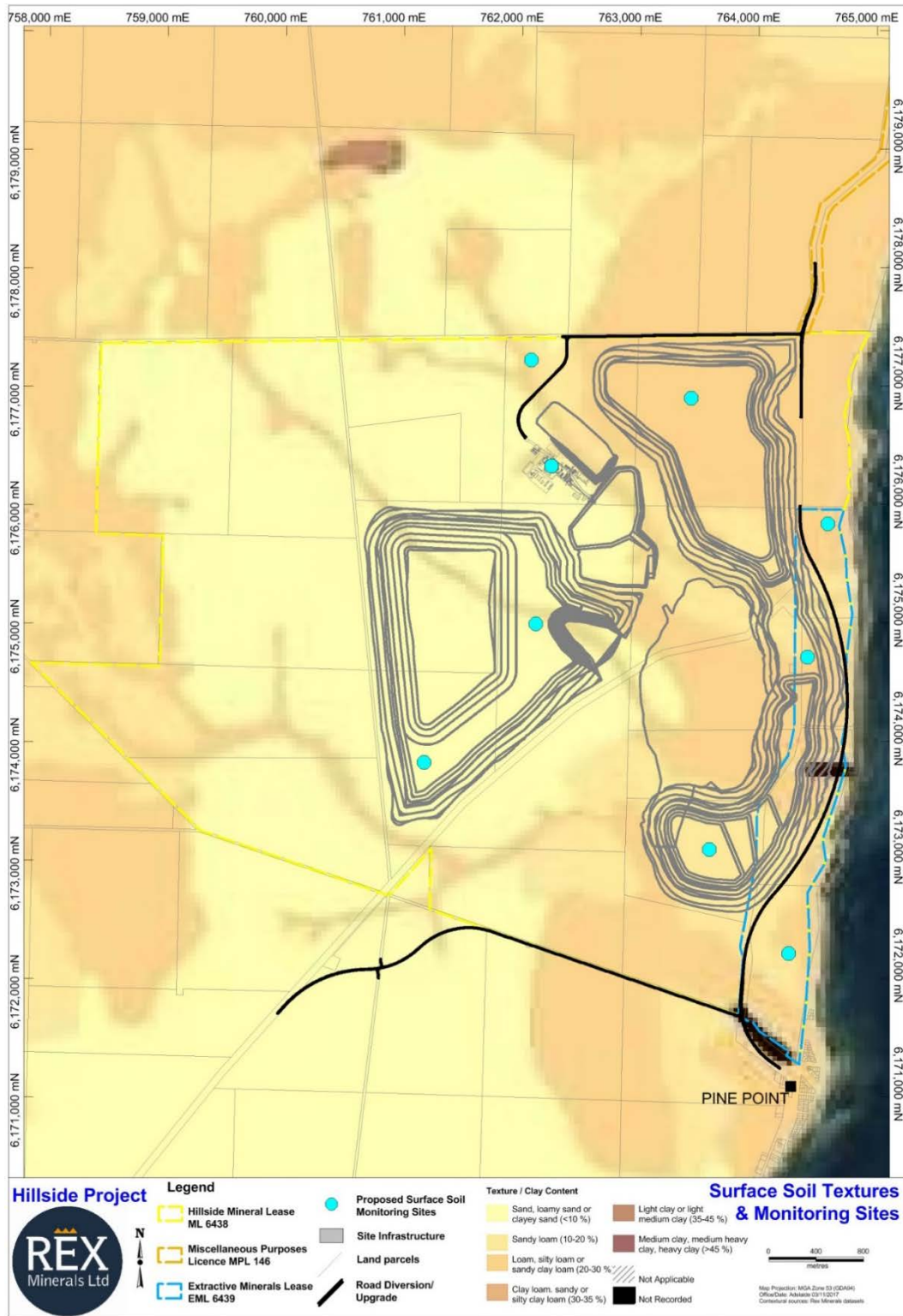


View Point 6



View Point 7

Figure 15 Visual Amenity Assessment (viewpoints 5, 6 and 7)



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Figure 16 Surface Soil Textures & Monitoring Sites

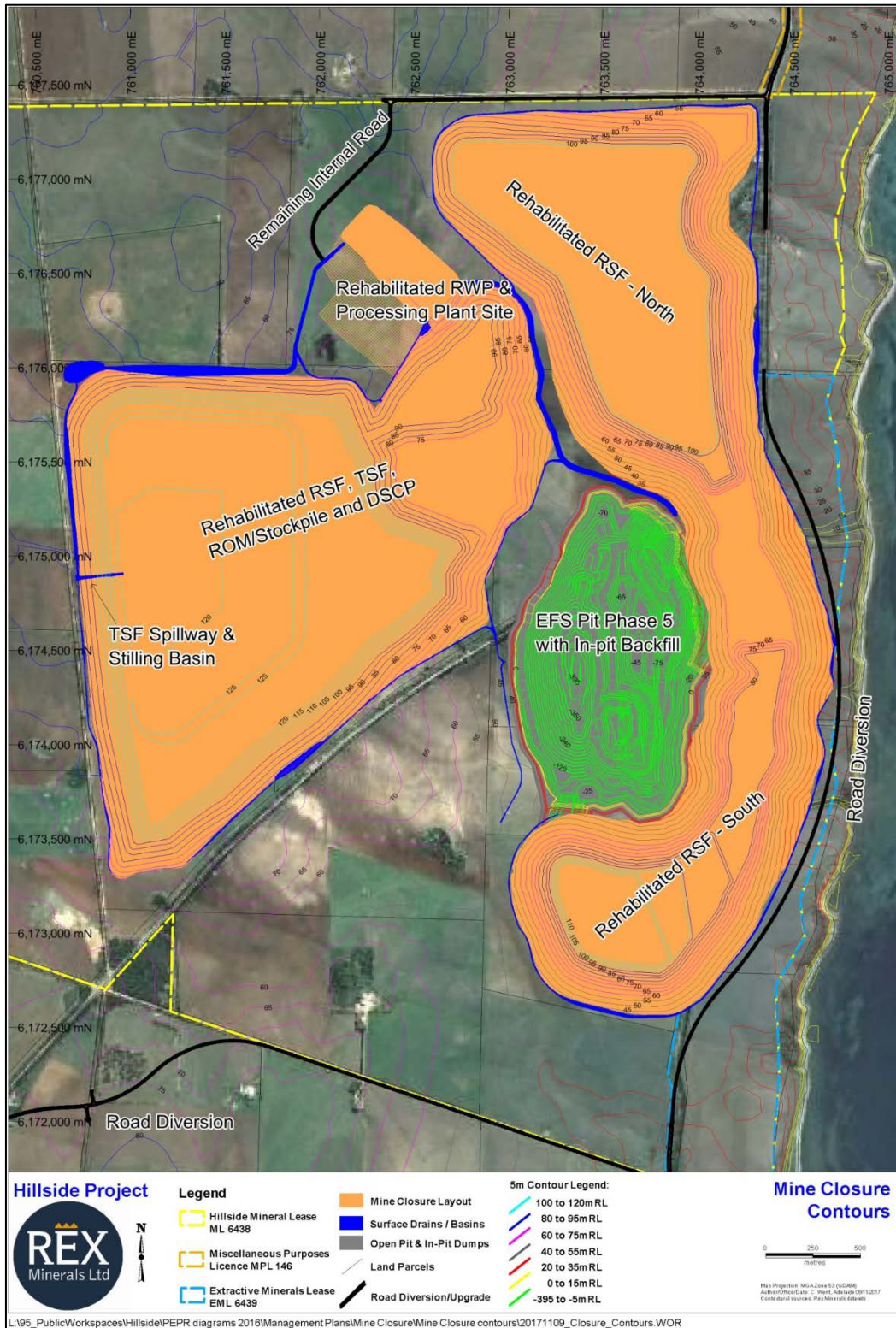


Figure 17 Mine Closure Contours



Hillside Copper Mine
 Mine Closure Management Plan
 Program for Environment Protection and Rehabilitation (PEPR)

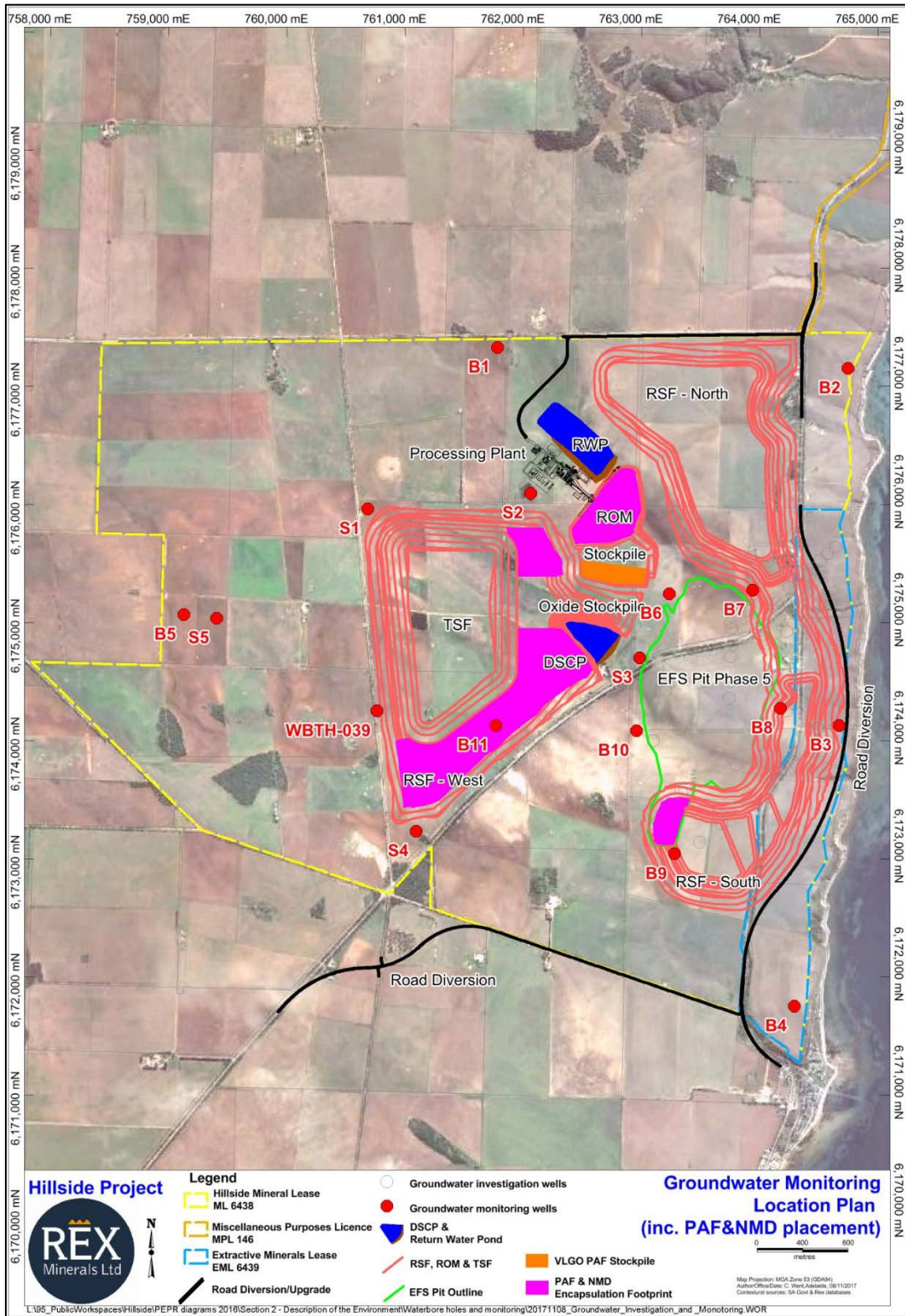


Figure 18 Groundwater Monitoring Location Plan (Inc. PAF & NMD placement)



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 Mine Closure Management Plan
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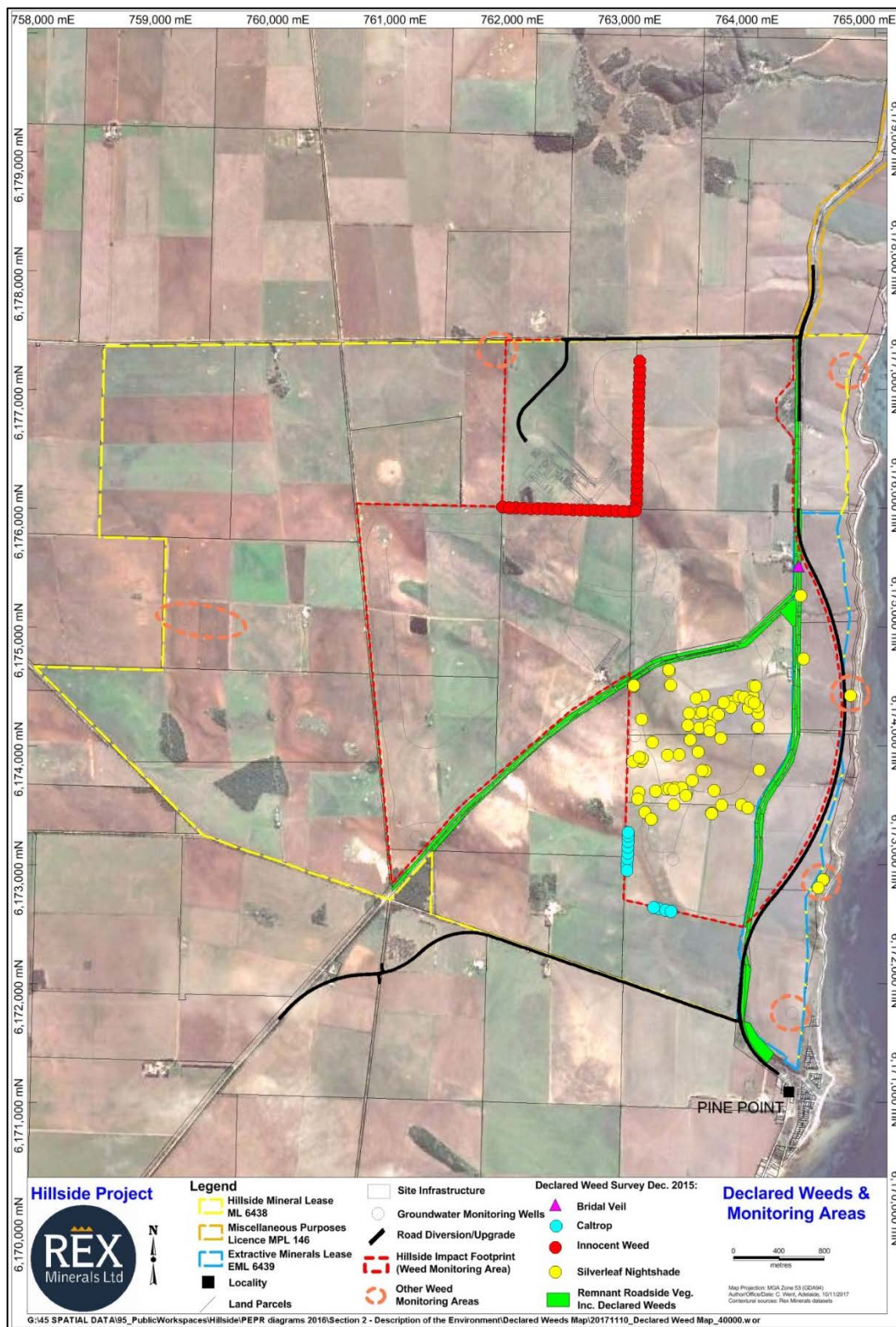


Figure 19 Declared Weeds & Monitoring Areas

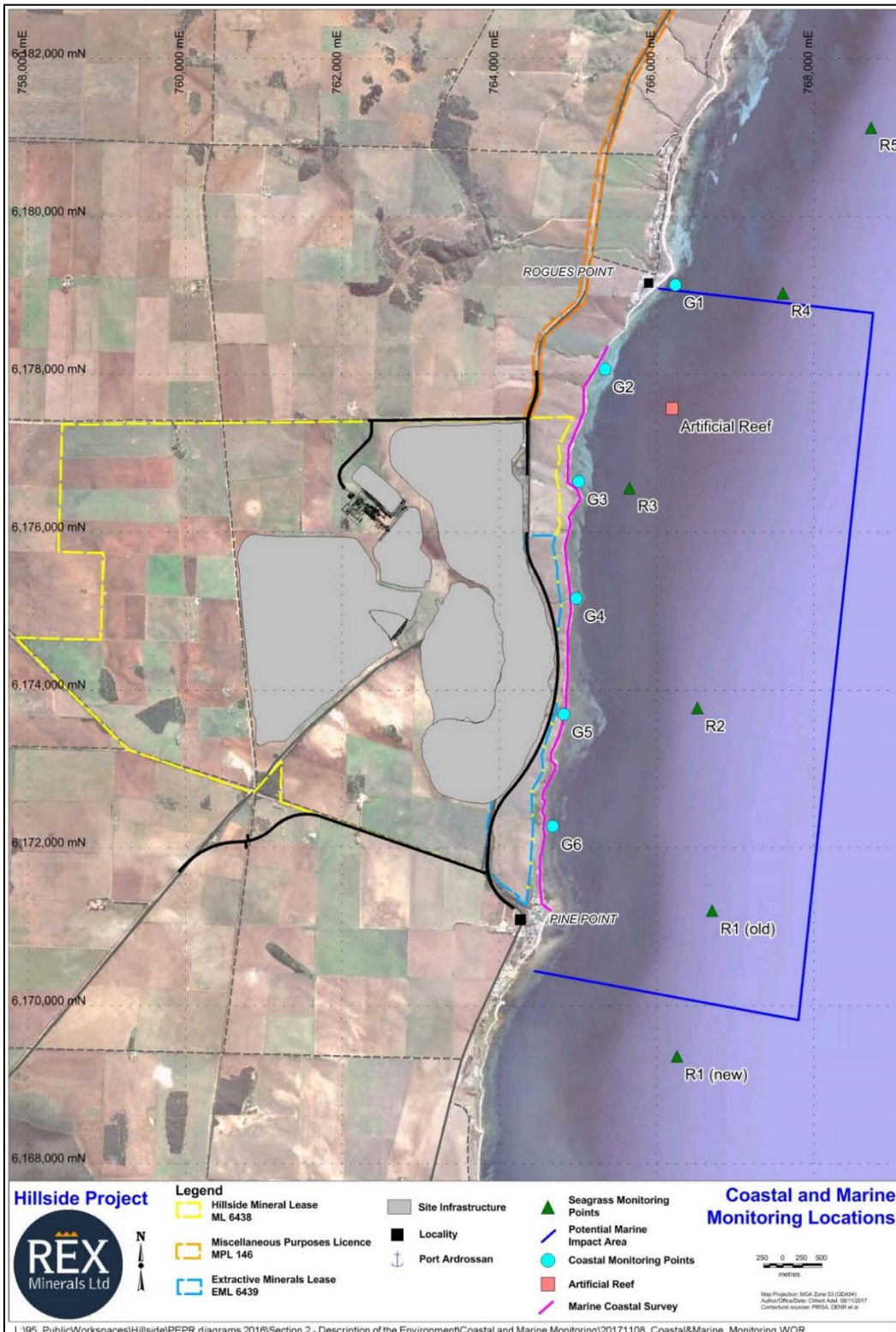


Figure 20 Coastal and Marine Monitoring Locations

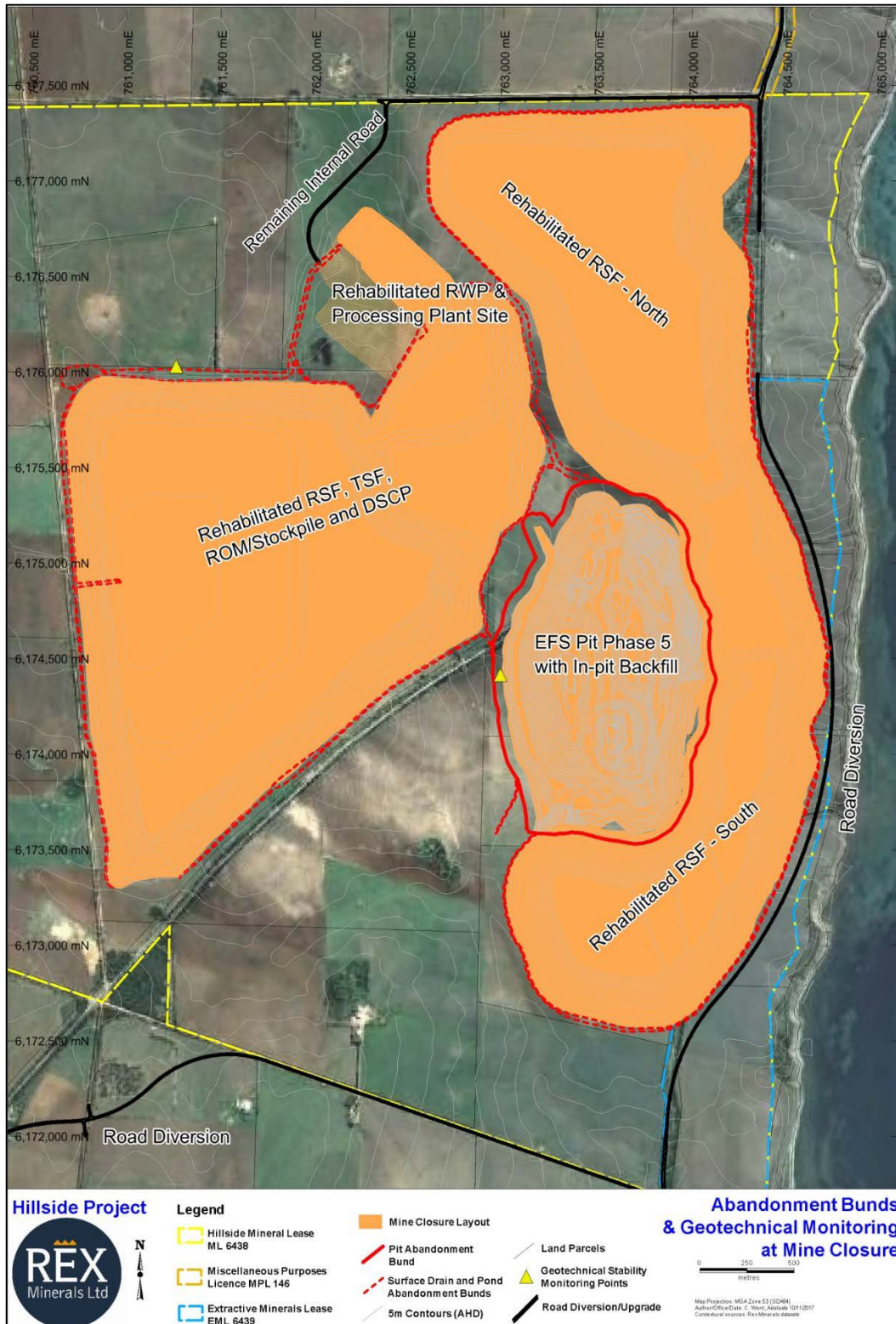


Figure 21 Abandonment Bunds & Geotechnical Monitoring at Mine Closure



Appendix 2: Correspondence Records

Key relevant communications with DPC and the community relating to this management plan are detailed below.

Date	Communication with	Action or Outcomes
7/11/17	DPC	Meeting
13/11/17	HMCV	Draft Plan forwarded for listing on HMCV website
13/11/17	DPC	Draft Plan forwarded to DPC

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