Permit

Environmental Protection Act 1994

Environmental authority EPML00715513

This environmental authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.

Environmental authority number: EPML00715513

Environmental authority takes effect on 6 January 2020

Environmental authority holder(s)

Name(s)	Registered address
EXCO RESOURCES PTY LIMITED	Suite 3 Level 32 10 Eagle St BRISBANE CITY QLD 4000 Australia

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 17: Mining copper ore Ancillary 15 - Fuel burning Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour Ancillary 63 - Sewage Treatment 1: Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of (a-i) 21 to 100EP if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme Ancillary 08 - Chemical Storage 3: Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c)	ML2640

ABN 46 640 294 485

Queensland Government

Ancillary 33 - Crushing, milling, grinding or screening Crushing, grinding, milling or screening more than 5000t of material in a year	

Additional information for applicants

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority (EA) is issued is a restatement of the ERA as defined by legislation at the time the EA is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an EA as to the scale, intensity or manner of carrying out an ERA, the conditions prevail to the extent of the inconsistency.

An EA authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the EA specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Contaminated land

It is a requirement of the EP Act that an owner or occupier of contaminated land give written notice to the administering authority if they become aware of the following:

- the happening of an event involving a hazardous contaminant on the contaminated land (notice must be given within 24 hours); or
- a change in the condition of the contaminated land (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the contaminated land (notice must be given within 20 business days);

that is causing, or is reasonably likely to cause, serious or material environmental harm.

For further information, including the form for giving written notice, refer to the Queensland Government website www.qld.gov.au, using the search term 'duty to notify'.

Take effect

Please note that, in accordance with section 200 of the EP Act, an EA has effect:

a) if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority-on the nominated day; or

b) if the authority states a day or an event for it to take effect-on the stated day or when the stated event happens; or

c) otherwise-on the day the authority is issued.

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the *Sustainable Planning Act 2009* or an SDA Approval under the *State Development and Public Works Organisation Act 1971*), this EA will not take effect until the additional authorisation has taken effect.

If this EA takes effect when the additional authorisation takes effect, you must provide the administering authority written notice within 5 business days of receiving notification of the related additional authorisation taking effect.

If you have incorrectly claimed that an additional authorisation is not required, carrying out the ERA without the additional authorisation is not legal and could result in your prosecution for providing false or misleading information or operating without a valid environmental authority.

Kate Rutherford
Department of Environment and Science
Delegate of the administering authority
Environmental Protection Act 1994

Date issued: 06 January 2020

Enquiries:
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Department of Environment and Science

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Obligations under the *Environmental Protection Act 1994*

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

Schedule A – General

A1 This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority holder is silent on a matter, the lack of a condition or silence does not authorise environmental harm.

A2 In carrying out the mining activity authorised by this environmental authority, the holder of this environmental authority must comply with Schedule I – Map 1 (Project Infrastructure Layout - Mine Area).

A3 In carrying out the mining activity authorised by this environmental authority, the holder of this environmental authority must comply with Schedule A **–** Table A1 – Authorised activities and disturbance areas.

Table A1 – Authorised activities and disturbance areas

Domain	Infrastructure Type	Maximum disturbance Area (ha)
Void	Open Cut Pit	5.3
Waste Rock Dump	Waste Rock Dump	2.9
	Laydown Area	1.3
	Batch Plant	0.6
Infrastructure	ROM Pad	1.9
	Stockpile / Loading Areas	0.8
	Workshop	1.1
	Fuel Storage Area	0.5
	Power Facility (Generator Area)	0.1
	Explosives Storage Area	0.8
	Internal Access Roads	10.5
	Offices / Ablutions	0.9
	Heli Pad	0.4
	Accommodation Camp	1.6
	Camp Access Road	0.5
Dams	South Sediment Dam	4.6
	West Mine Water Dam	5.2
STP	Sewage Irrigation Area	0.4
Stormwater Management	Eastern Diversion Drain	3.6
	Water Management Infrastructure (sumps, bunds)	0.3
TOTAL AREA OF LAND DISTURBANCE (ha)		**43.0**
TOTAL MINE LEASE AREA (ha)		**129.43**

A4 The holder of this environmental authority must:

a) Install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;

b) Maintain such measures, plant and equipment in proper condition;

c) Operate such measures, plant and equipment in a proper and efficient manner;

d) Ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

Monitoring

A5 Except where specified otherwise in another condition of this environmental authority, all monitoring records and reports required by this environmental authority must be kept for a period of not less than 5 years and be made available on request.

A6 Where monitoring is a requirement of this environmental authority, ensure that an appropriately qualified person conducts all monitoring.

A7 All analyses, monitoring and tests required to be conducted under this environmental authority must be carried out by a laboratory that has NATA certification for such analyses, monitoring and tests, except as otherwise authorised by the administering authority.

Financial Assurance

A8 The activity must not be carried out until the environmental authority holder has given financial assurance to the administering authority as security for compliance with this environmental authority and any costs or expenses, or likely costs and expenses, mentioned in section 298 of the Act.

A9 The amount of the financial assurance must be reviewed by the holder of this environmental authority when a plan of operations is amended or replaced or the authority is amended.

Risk Management

A10 The holder of this environmental authority must develop and implement a risk management system for mining activities which conforms to the Standard for Risk Management (ISO31000:2009) or the latest edition of the equivalently recognised Standard for Risk Management by 31 January 2014.

Notification of Emergencies, Incidents and Exceptions

A11 The holder of this environmental authority must notify the administering authority by written notification as soon as practicable but within twenty-four (24) hours, after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this environmental authority.

A12 Within 10 days following the initial notification of an emergency or incident, or receipt of monitoring results, which is the latter, further written advice must be provided to the administering authority, including the following:

a) Results and interpretation of any samples taken and analysed;

b) Outcomes of any actions taken at the time to prevent or minimise unlawful environmental harm;

c) Proposed action to prevent a recurrence of the emergency or incident.

Complaints

A13 The holder of this environmental authority must record all environmental complaints received about the mining activities including the following details:

a) Name, address and contact number for of the complainant;

b) Time and date of complaint;

c) Reasons for the complaint;

d) Investigations undertaken;

e) Conclusions formed;

f) Actions taken to resolve the complaint;

g) Any abatement measures implemented; and,

h) Person responsible for resolving the complaint.

A14 The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a timeframe nominated by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures implemented must be provided to the administering authority within ten (10) business days of completion of the investigation, or no later than ten (10) business days after the end of the timeframe nominated by the administering authority to undertake the investigation.

Third Party Audit

A15 The holder of this environmental authority must:

a) Within one (1) year of the commencement of this authority, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority;

b) Obtain further such reports at regular intervals, not exceeding three (3) yearly intervals, from the completion of the report referred to above; and

c) Provide each report to the administering authority within 90 days of its completion.

A16 Where a condition of this environmental authority requires compliance with a standard published externally to this authority and the standard is amended or changed subsequent to the issues of this authority the holder must:

a) Comply with the amended or changed standard within 12 months of the amendment of change being made, unless a different period is specified in the amended standard or relevant legislation; and

b) Until compliance with the amended or changed standard is achieved, continue to remain in compliance with the standard that was current immediately prior to the relevant amendment or change.

Exploration

A17 All exploration activities carried out on the mining leases must comply with each of the Standard Environmental Conditions contained in the most recent version of the Code of Environmental Compliance for Exploration and Mineral Development Projects (the Code). Where there is a discrepancy between the Code and this environmental authority, the conditions of this environmental authority apply.

Definitions

A18 Words and phrases used throughout this environmental authority are defined in Schedule H – Definitions. Where a definition for a term used in this environmental authority is sought and the term is not defined within this environmental authority, the definitions in the *Environmental Protection Act 1994*, its Regulations and Environmental Protection Policies must be used.

END OF CONDITIONS FOR SCHEDULE A

Schedule B - Air

Dust and Particulate Matter Monitoring

B1 The release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nuisance at any sensitive or commercial place.

B2 The holder of this environmental authority shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust or particulate matter emissions generated by the mining activities do not cause exceedances of the following levels when measured at any sensitive or commercial place:

a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with AS 3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited Matter – Gravimetric method.

b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time, when monitored in accordance with:

1) Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air Determination of suspended particulate matter – PM10 high volume sampler with size-selective inlet – Gravimetric method; or

2) Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM10 low volume sampler– Gravimetric method

c) A concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over respectively a one year, when monitored in accordance with AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method.

END OF CONDITIONS FOR SCHEDULE B

Schedule C - Water

Contaminant Release

C1 Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.

C2 The release of contaminants to waters must:

a) only occur during flow events in the receiving waters;

b) only occur from the release points specified in Table C1 - Release Points and depicted in Schedule I, Map 2 – Monitoring Sites for Surface Water and Sediments; and,

c) be monitored at the release point and at the monitoring frequency specified in Table C1 – Release Points for the total daily volume of water released and for each parameter specified in Table C2 - Release Quality Objectives.

Table C1 – Release Points

Release Point	Map Reference (GDA94, MGA, Zone 54)		Mine Affected Water Source and Location	Monitoring Point	Receiving Water Description	Monitoring Frequency
	Easting	Northing				
West Mine Water Dam	400830	7701831	Pit water, infrastructure area, ROM pad	Dam spillway[1]	Lunch Creek tributary	One sample must be taken within 12 hours of commencement of release; When a release event has a duration of 24 hours or greater, samples must be taken daily for one week, and once a week thereafter until release ceases.
South Sediment Dam	401243	7701460	Waste rock dump	Dam spillway[1]	Lunch Creek tributary	

[1] *All reasonable and practical measures must be taken to access sample location where it is safe to do so. Monitoring is subject to safe access.*

Table C2 – Release Quality Objectives

Quality Characteristic[1]	Units	Contaminant Release Limit
pH	pH	6.0 or 20th percentile of reference site concentration, whichever is lower 7.5 or 80th percentile of reference site concentration, whichever is higher.
EC	µS/cm	20 x 80th percentile of reference site concentration[3]
Sulphate	mg/L	20 x 80th percentile of reference site concentration[3]
Aluminum	mg/L	0.055 x 20[2] or 20 x 80th percentile of reference site concentration[3] whichever is higher

Arsenic[4]	mg/L	0.013 x 20^2 or 20 x 80^{th} percentile of reference site concentration[3] whichever is higher
Boron	mg/L	0.37 x 20^2 or 20 x 80^{th} percentile of reference site concentration[3] whichever is higher
Cadmium	mg/L	0.002 x 20^2 or 20 x 80^{th} percentile of reference site concentration[3] whichever is higher
Cobalt	mg/L	20 x 80^{th} percentile of reference site concentration[3]
Copper	mg/L	0.0014 x 20^2 or 20 x 80^{th} percentile of reference site concentration[3] whichever is higher
Lead	mg/L	0.0034 x 20^2 or 20 x 80^{th} percentile of reference site concentration[3] whichever is higher
Manganese	mg/L	1.90 x 20^2 or 20 x 80^{th} percentile of reference site concentration[3] whichever is higher
Nickel	mg/L	0.011 x 20^2 or 20 x 80^{th} percentile of reference site concentration[3] whichever is higher
Zinc	mg/L	0.008 x 20^2 or 20x 80th percentile of reference site concentration[3] whichever is higher

[1] *For water quality objectives parameters, all metals and metalloids must be measured and reported as both total (unfiltered) and dissolved (field filtered) levels;*

[2] *Twenty (20) times contaminant trigger level based on ANZECC (2000), Table 3.4.1, 95% aquatic species protection level for slightly to moderately disturbed ecosystem.*

[3] *Reference site concentration determined from reference site specified in Table C3 –Receiving Water Monitoring Locations.*

[4] *Routine analysis for this parameter is based on combined/total species of the element, where the exceedance of the WQO is identified, an additional sample must be taken and analysed as soon as practicable to determine and quantify speciated forms of this element. This does not apply to sediment analysis.*

C3 Release of contaminants to the receiving environment must not exceed the contaminant limits specified in Table C2 – Release Quality Objectives.

C4 At the time of release the water flow volume in the receiving water must be at least twenty (20) times the volume at which respective mine affected water are released.

Receiving Environment Monitoring

C5 The release of contaminants from the authorised activity to surface waters must not exceed the water quality objectives stated in Table C4 - Receiving Water and Sediment Quality Objectives when measured at the compliance point stated Table C3 – Receiving Water Monitoring Locations.

Table C3 – Receiving Water Monitoring Locations

Monitoring Point	Receiving Waters Location Description	Map Reference (GDA94, MGA, Zone 54)	
		Easting	Northing
Reference* Monitoring Points			
MC3	5 km from the Project site, flows into Lunch Creek	396034	7699445

MC5	Drainage west of Project site which ultimately flows into Lunch Creek	400407	7701273
Upstream Monitoring Points			
MC7	Drainage in the northwest portion of the site, ultimately flows into Lunch Creek	400969	7702645
Downstream Monitoring points			
MC4	Lunch Creek, 3 km downstream of the project site	404281	7700975
MC6	Directly downstream of the mine infrastructure area	400527	7701876

**Reference sites must:*

a) be from the same bio-geographic and climatic region;
b) have similar geology, soil types and topography;
c) contain a range if habitats similar to those at the test sites;
d) be of a similar follow regime; and
e) *not be so close to the test sites that any disturbances at the test site also results in a change at the reference site.*

The data from reference monitoring points must not be used where they are affected by releases from other mines.

Table C4 - Receiving Water and Sediment Quality Objectives

Parameter[1]	Water Quality Objective (mg/L unless otherwise specified)	Sediment Quality Objective[2] (mg/kg dry wt, unless otherwise specified)
pH (pH units)	6.0 - 7.5[3]	Not applicable
EC (µS/cm)	250[4] or 80th percentile of reference site concentration[7], whichever is higher	
Dissolved oxygen	For interpretative purposes only	
Major cations	For interpretive purposes only	Not applicable
Major anions		
Sulphate	80th percentile of reference site concentration[7]	2 x 80th percentile of reference site concentration[7]
Aluminium	0.055[3] or 80th percentile of reference site concentration[7], whichever is higher	2 x 80th percentile of reference site concentration
Arsenic[5]	0.013[3] or 80th percentile of reference site concentration[7], whichever is higher	70[6] or 2 x 80th percentile of reference site concentration[7], whichever is higher
Boron	0.037[3] or 80th percentile of reference site concentration[7], whichever is higher	2 x 80th percentile of reference site concentration[7]
Cadmium	0.0002[3] or 80th percentile of reference site concentration[7], whichever is higher	10[6] or 2 x 80th percentile of reference site concentration[7], whichever is higher
Cobalt	80th percentile of reference site concentration[7]	2 x 80th percentile of reference site concentration[7]
Copper	0.0014[3] or 80th percentile of reference site concentration[7], whichever is higher	270[6] or 2 x 80th percentile of reference site concentration[7], whichever is higher
Lead	0.0034[3] or 80th percentile of reference site concentration[7], whichever is higher	220[6] or 2 x 80th percentile of reference site concentration[7], whichever is higher

Parameter[1]	Water Quality Objective (mg/L unless otherwise specified)	Sediment Quality Objective[2] (mg/kg dry wt, unless otherwise specified)
Manganese	1.9[3] o or 80th percentile of reference site concentration[7], whichever is higher	2 x 80th percentile of reference site concentration[7]
Nickel	0.011[3] or 80th percentile of reference site concentration[7], whichever is higher	52[6] or 2 x 80th percentile of reference site concentration[7], whichever is higher
Zinc	0.008[3] or 80th percentile of reference site concentration[7], whichever is higher	410[6] or 2 x 80th percentile of reference site concentration[7], whichever is higher
Total Hardness	For interpretive purposes only	Not applicable
Particle size distribution	For interpretive purposes only	
Total petroleum hydrocarbons	No detectable film or odour	Not applicable

[1] *For water quality objectives parameters, all metals and metalloids must be measured and reported as both total (unfiltered) and dissolved (field filtered) levels.*

[2] *All stream sediment sampling must be undertaken in accordance with AS 5667.12 Guidance on Sampling of Bottom Sediments of*

[3] *ANZECC/ARMCANZ (2000) values for aquatic ecosystems indicative of slightly-to-moderately disturbed tropical Australian upland river ecosystems Tables 3.3.4 and Table 3.4.1 (high reliability trigger values) and moderate or low reliability trigger values (Section 8.3) if no value available in Table 3.4.1.*

[4] *ANZECC/ARMCANZ (2000) values for upland and lowland rivers Table 3.3.5.*

[5] *Routine analysis for this parameter is based on combined/total species of the element, where the exceedance of the WQO is identified, an additional sample must be taken and analysed as soon as practicable to determine and quantify speciated forms of this element. This does not apply to sediment analysis.*

[6] *ANZECC (2000) Interim Sediment Quality Guidelines – ISQG – high values based on total sediments (dry weight).*

[7] *Reference site concentration determined from reference site specified in Table C3 –Receiving Water Monitoring Locations.*

Note: Where the 80th percentile of a water quality objective (WQO)/sediment quality objective (SQO) is exceeded at a receiving water site and the reference site also exceeds this concentration during the release/flow event, the value of the reference site applies as the WQO/SQO for the duration of the event.

Receiving Environment Monitoring Program (REMP)

C6 By 31 March 2014, the environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. The REMP must also include the condition of recording and monitoring the effects of the release of contaminants on the receiving environment and whilst the contaminants are being released from the licensed place.

For the purposes of the REMP, the receiving environment is the waters of the Lunch Creek and connected or surrounding waterways within 10 km downstream of the release. The REMP should encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly affected by an authorised release of mine affected water.

C7 A REMP design document that addresses the requirements of the REMP must be prepared and made available to the administrating authority upon request.

C8 A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared annually and made available on request to the administrating authority. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.

Water Management Plan

C9 A Water Management Plan must be developed by an appropriately qualified person and implemented.

Stormwater, Sediment and Erosion Controls

C10 An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.

Groundwater

C11 The holder of this environmental authority must not release contaminants to groundwater.

C12 The extraction of groundwater must not cause environmental harm to any groundwater dependent ecosystems.

C13 Groundwater quality and levels must be monitored:

a) at the locations specified in **Table C5 (Groundwater Monitoring Locations and Frequency)**; and

b) at the frequencies specified in **Table C5 (Groundwater Monitoring Locations and Frequency)**; and

c) for the quality characteristics identified in **Table C6 (Groundwater Quality Objectives)**.

Table C5 – Groundwater Monitoring Locations and Frequency

Monitoring Point	Map Reference (GDA94, MGA, Zone 54)		Surface RL[1] (m)	Depth RL[1] (m)	Screened interval RL[1] (m)	Monitoring Frequency	
	Easting	Northing				Standing Water Level	Groundwater Quality
MCWMB01	400450	7702066	490	72	66-72	Monthly	Quarterly
MCWMB04	400424	7702533	484	100	94-100	Monthly	Quarterly
MCWMB05	400428	7702527	484	30	25-31	Monthly	Quarterly
MCWMB06	400930	7702230	449	100	94-100	Monthly	Quarterly

MCWMB07	400949	7702235	449	30	24-30	Monthly	Quarterly
MCWMB08	401292	7701396	406	30	24-30	Monthly	Quarterly
MCWMB09 (Observation bore)	401295	7701393	406	100	94-100	Monthly	Quarterly

**Monitoring locations depicted in Schedule I Map 3 – Groundwater Monitoring Locations*

[1]RL must be measured to the nearest 5cm from the top of the bore casing.

Table C6 – Groundwater quality objectives

Contaminant[1]	**Units**	**Limit type**	**MCWMB01**		**MCWMB04, MCWMB05, MCWMB06, MCWMB07, MCWMB08**		**MCWMB09**	
			Limit A[2]	**Limit B[3]**	**Limit A[2]**	**Limit B[3]**	**Limit A[2]**	**Limit B[3]**
pH	pH	Range	-	6-8.5	-	6-8.5	For interpretation only	
Electrical conductivity (EC)	µS/cm	Maximum	1756	1791	1324	1425		
Sulfate	mg/L	Maximum	479	595	479	595		
Aluminium	mg/L	Maximum	-	0.055[4]	-	0.055[4]		
Arsenic	mg/L	Maximum	-	0.013[4]	-	0.013[4]		
Boron	mg/L	Maximum	-	0.37[4]	-	0.37[4]		
Cadmium	mg/L	Maximum	-	0.0002[4]	-	0.0002[4]		
Chromium	mg/L	Maximum	-	0.001[4]	-	0.001[4]		
Cobalt	mg/L	Maximum	0.01	0.018	0.002	0.008		
Copper	mg/L	Maximum	0.006	0.011	0.006	0.011		
Lead	mg/L	Maximum	-	0.0034[4]	-	0.0034[4]		
Manganese	mg/L	Maximum	-	1.9[4]	-	1.9[4]		
Nickel	mg/L	Maximum	0.02	0.57	0.02	0.57		
Zinc	mg/L	Maximum	0.02	0.03	0.02	0.03		
Major cations			For interpretation only					
Major anions			For interpretation only					
Total Hardness			For interpretation only					

Notes:

1. All metals and metalloids must be measured as 'dissolved' (from analysis of a field filtered sample).
2. Derived from site-specific values, based on dissolved concentration of metals (80th percentiles).
3. Derived from site-specific values, based on dissolved concentration of metals (95th percentiles).
4. Contaminant limit based on ANZECC (2000), Table 3.4.1, 95% aquatic species protection level for slightly to moderately disturbed ecosystem.

C14 Groundwater measured from any compliance bore specified in **Table C5 – Groundwater Monitoring Locations and Frequency** must not exceed the corresponding Limit A specified in **Table C6 – Groundwater quality objectives** on any five consecutive sampling occasions.

C15 Groundwater measured from any compliance bore specified in **Table C5 – Groundwater Monitoring Locations and Frequency** must not exceed the corresponding Limit B specified in **Table C6 – Groundwater quality objectives** on any three consecutive sampling occasions**.**

C16 If groundwater measured from any compliance bore specified in **Table C5 – Groundwater Monitoring Locations and Frequency** exceeds the corresponding Limit B specified in **Table C6 – Groundwater quality objectives** on any one sampling occasion the environmental authority holder must resample the groundwater within the compliance bore for all exceeding parameters within ten business days of receipt of results.

Bore construction and maintenance and decommissioning

C17 The construction, maintenance and decommissioning of groundwater monitoring bores must be undertaken in a manner that:

a) prevents contaminants entering the groundwater; and

b) ensures the integrity of the bores to obtain representative groundwater samples from the target aquifer; and

c) maintains the hydrogeological environment within the aquifer.

C18 A bore drill log must be kept for each reference, compliance and observation groundwater monitoring bore which includes:

a) bore identification reference and geographic coordinate location;

b) specific construction information including but not limited to depth of bore, depth and length of casing, depth and length of screening and bore sealing details;

c) standing groundwater level and water quality parameters including physical parameters and results of laboratory analysis for the possible trigger parameters;

d) lithological data and stratigraphic interpretation by an appropriately qualified person to identify important features associated with groundwater monitoring; and

e) target aquifer formation of the bore.

Groundwater Management Program

C19 A Groundwater Management Program must be developed, documented and implemented by appropriately qualified persons.

C20 The Groundwater Management Program required by Condition C19 must:

a) identify potential sources of contamination to groundwater from the activity; and

b) ensure that all potential groundwater impacts due to the activity are identified, monitored and mitigated; and

c) document sampling and monitoring methodology; and

d) ensure that adequate groundwater monitoring and data analysis is undertaken to achieve the following objectives:

i. detect any impacts to groundwater levels due to the activity;

ii. detect any impacts to groundwater quality due to the activity;

iii. determine compliance with condition C14 and C15; and

iv. determine trends in groundwater quality; and

e) include an appropriate quality assurance and quality control program; and

f) include a conceptual groundwater model; and

g) include a review process to identify improvements to the program that includes addresses any comments provided by the administering authority.

C21 The Groundwater Management Program must be reviewed on an annual basis by an appropriately qualified person to determine if it continues to meet the requirements stated in condition C20.

Monitoring and Sampling

C22 Monitoring and sampling must be carried out in accordance with written procedures and must address the requirements of the latest version of the following documents unless otherwise approved by the administering authority:

a) for waters and aquatic environments, the Queensland Government's Monitoring and Sampling Manual – Environmental Protection (Water) Policy;

b) for groundwater, Groundwater Sampling and Analysis – A Field Guide (2009:27 GeoCat#6890.1) and Australian Standard AS/NZS 5667.11:1998 Water Quality – Sampling – Guidance on sampling of groundwaters;

c) for subterranean aquatic fauna, the Guideline for the Environmental Assessment of Subterranean Aquatic Fauna.

Sewage Treatment

C23 The only contaminant permitted to be released to land is treated sewage effluent in compliance with the release limits stated in Table C7 – Treated Effluent Contaminant Release Limits to Land.

Table C7 – Treated Effluent Contaminant Release Limits to Land

Quality Characteristic	Unit	Release limit	Limit Range	Monitoring Frequency
pH	pH units	6.0 – 9.0	Range	Monthly
5 day Biochemical Oxygen Demand (BOD)	mg/L	20	Maximum	
Total Suspended solids	mg/L	30	Maximum	
Nitrogen	mg/L	30	Maximum	
Phosphorus	mg/L	15	Maximum	
E-coli	Colonies per 100 millilitres	1,000	Maximum	

C24 Treated sewage effluent may only be released to land in accordance with the conditions of this approval at the following locations:

a) Within the nominated area(s) identified in Schedule I - Map 4, Sewage Treatment Plant and Effluent Disposal;

b) Other land for the purpose of dust suppression and/or fire fighting.

C25 The application of treated effluent to land must be carried out in a manner such that:

a) Vegetation is not damaged;

b) There is no surface ponding of effluent;

c) There is no run-off of effluent.

C26 If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present and care should be taken to avoid consuming or otherwise coming into unprotected contact with the effluent.

C27 All sewage effluent released to land must be monitored at the frequency and for the parameters specified in Table C7 – Treated Effluent Contaminant Release Limits to Land.

C28 The daily volume of effluent release to land must be measured and records kept of the volumes of effluent released.

C29 When circumstances prevent the irrigation or beneficial reuse of treated sewage effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measures must be taken to store / lawfully dispose of effluent.

C30 A maximum area of 0.5ha of land, excluding any necessary buffer zones, may be utilised for the irrigation and / or beneficial reuse of treated sewage effluent.

C31 Treated sewage effluent must only be supplied to another person or organisation that has a written plan detailing how the user of the treated sewage effluent will comply with their general environmental duty under section 319 of the Act whilst using the treated sewage effluent.

END OF CONDITIONS FOR SCHEDULE C

Schedule D - Noise and Vibration

D1 Noise and vibration from any mining activity must not cause environmental harm at any sensitive place or commercial place.

Noise Limits

D2 The holder of this environmental authority must ensure that noise generated by the mining activities does not cause the criteria in Table D1 – Noise Limits to be exceeded at a sensitive place.

Table D1 – Noise Limits, Sensitive Place

Noise Level (d(b)A measured as:	Monday to Saturday			Sundays and Public Holidays		
	7am~6pm	6pm~10pm	10pm~7am	9am~6pm	6pm~10pm	10pm~9am
LAeq, adj, 15 mins	CV = 50 AV = 5	CV = 45 AV = 5	CV = 40 AV = 0	CV = 45 AV = 5	CV = 40 AV = 5	CV = 35 AV = 0
LA1, adj, 15 mins	CV = 55 AV = 10	CV = 50 AV = 10	CV = 45 AV = 5	CV = 50 AV = 10	CV = 45 AV = 10	CV = 40 AV = 5

Notes:

a) CV: Critical Value, AV: Adjustment Value

b) To calculate noise limits;
If bg ≤ (CV-AV): Noise limit = bg + AV
If (CV-AV) < bg ≤ CV: Noise limit = CV
If bg > CV: Noise limit = bg+0

c) In the event that measured bg (LA90,adj, 15 mins) is less than 30 dB(A), then 30 dB(A) can be substituted for the measured background level.

d) Bg = background noise level (LA90, adj, 15 mins) measured over 3 – 5 days at the nearest sensitive receptor.

e) If the project is unable to meet the noise limits as calculated above alternative limits may be calculated using the process outlined in the 'Planning for Noise Control' guideline.

D3 The method of measurement and reporting of noise levels must comply with the most recent edition of the administering authority's Noise Measurement Manual or the most recent version of *AS1055 Acoustics – Description and measurement of environmental noise*.

Air-blast Overpressure Nuisance

D4 The holder of this environmental authority must ensure that blasting does not cause the limits for peak particle velocity and air-blast overpressure in Table D2 – Blasting Noise Limits to be exceeded at sensitive or commercial places.

Table D2 – Blasting Noise Limits

Blasting Noise Limits	Sensitive or Commercial Blasting Noise Place limits	
	7 am to 6 pm	6 pm to 7 am
Air-blast Overpressure	115 dB (linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120 dB (linear) Peak at any time.	No blasting
Ground Vibration Peak Particle Velocity	5mm/sec peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/second peak particle velocity at any time.	No blasting

END OF CONDITIONS FOR SCHEDULE D

Schedule E - Waste Management

Waste Management

E1 A Waste Management Plan, in accordance with the Environmental Protection (Waste Management) Policy 2000, must be included in the Plan of Operations. The Waste Management Plan must include re-using and recycling where possible, and a program for safe recycling or disposal of all wastes, and a disposal procedure for hazardous wastes.

E2 Unless otherwise permitted by the conditions of this Environmental Authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.

E3 The holder of this environmental authority may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental harm at any sensitive or commercial place.

END OF CONDITIONS FOR SCHEDULE E

Schedule F – Land and Rehabilitation

F1 Land disturbed by mining must be rehabilitated in accordance with Table F1 Rehabilitation Requirements.

Table F1 Rehabilitation Requirements

Mine Domain	Mine Feature Names	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria
Void	Open Cut	Safe	Site safe for human and animals	Engineered structures and signage to preclude humans and animals (e.g., safety bund wall and fencing)	Rehabilitation report: that all safety precautions have been taken in accordance with the relevant legislation.
		Non-polluting	Hazardous and contaminated material adequately managed.	Safety assessment of final landform by suitably qualified person.	Rehabilitation report: certification structurally sound and safe
		Stable	Minimal probability of wall failure or rock falls that will cause significant environmental harm.	Geotechnical studies of final voids	Rehabilitation report: geotechnical studies to determine whether final landform is stable.
				Risk assessment of final landform	Rehabilitation report: appropriate risk assessment and control measures undertaken.
Waste Rock Dump	Waste rock dump (including UG Laydown areas, UG mine water treatment plant, PAF stockpile area, crushing and concrete plants.	Safe	Site safe for humans and animals	Safety assessment of final landform by suitably qualified person.	Rehabilitation report: certification structurally sound and safe
		Non-polluting	Hazardous and contaminated material adequately managed.	Engineers assessment of cover or final landform design	Engineers certification in rehabilitation report that the waste disposal site has been securely covered to prevent any release or seepage of hazardous or contaminated material.
				Rehabilitation monitoring plan in place to monitor downstream surface/ground	Rehabilitation report: monitoring data demonstrates the cover is functioning in preventing any release or

Mine Domain	Mine Feature Names	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria
				water	seepage of hazardous or contaminated material.
		Stable	Minimal probability of subsidence or rock falls that will cause significant environmental harm	Geotechnical studies of final landforms	Rehabilitation report: geotechnical studies to determine whether final landform is stable.
			Vegetation cover to minimise erosion	Vegetation assessment	Rehabilitation report: revegetation meets the limits set by the analogue sites.
		Self-sustaining	Soil properties that support desired land use	Soil monitoring program in place to ensure remaining soil is able to support post-mining land use	Rehabilitation report: all soil chemical, physical and biological properties are within acceptable limits that ensure soil is able to support post-mining land use.
			Self-sustaining natural vegetation and habitat established	Vegetation assessment	Rehabilitation report: Certification that key species are present, suitable diversity has been achieved and cover/density is adequate. Rehabilitation report: certification that the weed management plan has been successful.
Infrastructure, Roads & Exploration Areas	ROM Pad, stockpile and loading areas, workshop, ablutions, STP, fuel storage area, power facility, explosives storage, internal access haul roads, office car park,	Safe	Site safe for humans and animals	Safety assessment of final landform by suitably qualified person	Rehabilitation report: Certification structurally sound and safe.
		Non-polluting	Hazardous and contaminated material adequately managed	Contaminated land assessment	Evidence of remediated landform in a contaminated land assessment report.
			Runoff and seepage of good quality water that is not likely to	Rehabilitation monitoring plan in place to monitor downstream	Rehabilitation report: monitoring data meets specified contaminant and trigger levels that

Mine Domain	Mine Feature Names	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria
	Accommodation Camp		affect known environmental values	surface/groundwater	ensure environmental values are not being compromised.
		Stable	Landform achieves appropriate erosion rates	Engineers assessment of design and construction of structures to control water flow	Rehabilitation report: Engineer certification that infrastructure sites (both remaining and decommissioned) have the required structures to control water flow and runoff.
			Vegetation cover to minimise erosion	Vegetation assessment	Rehabilitation report: revegetation meets the limits set by the analogue sites.
		Self-sustaining	Soil properties that support desired land use	Soil monitoring program in place to ensure remaining soil is able to support post-mining land use.	Rehabilitation report: all soil chemical, physical and biological properties are within acceptable limits that ensure soil is able to support post-mining land use.
			Self-sustaining natural vegetation and habitat established	Vegetation assessment	Rehabilitation report: Certification that key species are present, suitable diversity has been achieved and cover/density is adequate. Rehabilitation report: certification that the weed management plan has been successful.
Dams	West mine water dam, South sediment dam and water collection dam	Safe	Site safe for humans and animals	Safety assessment of final landform by suitably qualified person. Safety barriers and signage	Rehabilitation report: Certification structurally sound and safe, all precautions implemented.
		Non-polluting	Dams to remain on closure will not contribute contaminants to	Rehabilitation monitoring plan in place to monitor water in the dam	Rehabilitation report: post closure monitoring (water quality) is compliant with established and

Mine Domain	Mine Feature Names	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria
			the environment.	and downstream surface/groundwater	applicable limits.
		Stable	Minimal probability or subsidence that will cause significant environmental harm	Geotechnical studies of final landforms	Rehabilitation report: geotechnical studies to determine whether final landform is stable.
				Risk assessment of final landform	Rehabilitation report: appropriate risk assessment and control measures have ben undertaken.
	Sump and STP irrigation area	Non-polluting	Rehabilitated sump will not contribute contaminants to the environment	Rehabilitation monitoring plan in place to monitor downstream surface/groundwater	Rehabilitation report: monitoring data meets specified contaminant and trigger levels.
		Stable	Vegetation cover to minimise erosion	Vegetation assessment	Rehabilitation report: revegetation meets the limits set by the analogue sites.
		Self-sustaining	For sump to be rehabilitated, soil properties that support desired land use	Soil monitoring program in place to ensure remaining soil is able to support post-mining land use	Rehabilitation report: all soil chemical, physical and biological properties are within acceptable limits that ensure soil is able to support post-mining land use.
	Stormwater drains/diversions	Non-polluting	Discharge will be of good quality water that is not likely to affect known environmental values	Rehabilitation monitoring plan in place to monitor downstream surface water	Rehabilitation report: monitoring data meets specified contaminant and trigger levels that ensure environmental values are not being compromised.
		Stable	Minimal probability or subsidence that will cause significant environmental harm	Geotechnical studies of final landforms	Rehabilitation report: geotechnical studies to determine whether final landform is stable.
		Self-sustaining	Establish safe and stable drains with a low risk of	Water quality established by monitoring or	Rehabilitation report: that the dams meet water quality guidelines,

Mine Domain	Mine Feature Names	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria
			environmental harm	modelling validated by monitoring structural report on integrity of structure.	Engineers certificate of structure.
			Self-sustaining natural vegetation and habitat established	Vegetation assessment	Rehabilitation report: certification that key species are present, suitable diversity has been achieved and cover/density is adequate. Certification that the weed management plan has been successful.

F2 Rehabilitation must commence progressively in accordance with the Plan of Operations.

Contaminated Lands

F3 Before applying for surrend er of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for a notifiable activity or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.

F4 Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide the administering authority a site investigation report under the Act, in relation to any part od the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of the report to ensure that the land is suitable for its final land use under condition F1.

F5 Minimise the potential for contamination of land by hazardous contaminants.

Chemicals and Flammable or Combustible Liquids

F6 All explosives, hazardous chemicals, corrosive substances, toxic substances, gases, flammable or combustible liquids and dangerous goods must be stored and handled in accordance with the current, relevant Australian Standard where such is applicable.

F7 Notwithstanding the requirements of any Australian Standard, any liquids stored on site that have the potential to cause environmental harm must be stored in or serviced by an effective containment system that is impervious to the materials stored and managed to prevent the release of liquids to waters or land.

F8 Where no relevant Australian Standard is available, the following must be applied:

a) Storage tanks must be bunded so that the capacity and construction of the bund is sufficient to contain at least 110% of a single storage tank or 100% of the largest storage tank plus 10% of the second largest storage tank in multiple storage areas; and

b) Drum storages must be bunded so that the capacity and construction of the bund is sufficient to contain at least 25% of the maximum design storage volume within the bund.

F9 All containment systems must be designed to minimise rainfall collection within the system.

Biodiversity offsets

F10 Significant residual impacts to prescribed environmental matters, other than if the impacts were authorised by an existing authority issued before the commencement of the *Environmental Offsets Act 2014* are not authorised under this environmental authority or the *Environmental Offsets Act 2014* unless the impact is specified in Table F2 - Significant residual impacts to prescribed environmental matters.

Table F2- Significant residual impacts to prescribed environmental matters

Prescribed environmental matter	Location of impact (GDA94 – Zone 54)	Maximum extent of impact
Protected wildlife habitat		
Habitat for an animal that is vulnerable wildlife – Purple-necked rock wallaby *Petrogale purpuriecollis*	401021mE; 7701806mN	1.5ha

F11 Records demonstrating that each impact to a prescribed environmental matter not listed in Table F2 - Significant residual impacts to prescribed environmental matters did not, or is not likely to, result in a significant residual impact to that matter must be:

a) Completed by an appropriately qualified person; and

b) Kept for the life of the environmental authority

F12 An environmental offset made in accordance with the *Environmental Offsets Act 2014* and Queensland Offsets Policy, as amended from time to time, must be undertaken for the maximum extent of impact to each prescribed environemtal matter authorised in Table 2 - Significant residual impacts to prescribed environmental matters.

F13 The notice of election for the environmental offset required by condition F12 must be provided to the administering authority no less than (3) months before the proposed commencement of the significant residual impacts for which the environmental offset is required.

END OF CONDITIONS FOR SCHEDULE F

Schedule G – Regulated Dams

G1 The Design Storage Allowance for Dams specified in the Code for Mining Lease Projects and this Environmental Authority are a minimum design storage requirement and any releases from any dams must meet the requirements set out under Schedule C - Water.

G2 The hazard category of each dam must be determined by a suitably qualified and experienced person, prior to its construction and at least once every two years thereafter.

G3 Construction of any dam determined to be in the significant or high hazard category (i.e., a regulated dam) must not be commenced unless the location, basic details, and hydraulic performance of that dam are specifically referenced in this environmental authority.

G4 On cessation of operation of any dam, that dam must be maintained so as to avoid environmental harm until that dam is decommissioned.

G5 Prior to the cessation of the environmentally relevant activity, each dam must be decommissioned such that it either:

a) Becomes a stable landform, that no longer contains flowable substances, or

b) Is approved or authorised under relevant legislation for a beneficial use, or

c) Is a void authorised by the administering authority to remain after decommissioning; and

d) Is compliant with the rehabilitation requirements of this environmental authority.

G6 The following regulated dams must be wholly located within the control points defined in Table G1 – Location of Regulated Dams Containing Hazardous Waste below.

Table G1 – Location of Regulated Dams Containing Hazardous Waste

Name of Regulated Dam Containing Hazardous Waste	Map Reference (GDA94, MGA, Zone 54)	
	Easting	Northing
West Mine Water Dam	400990	7701870
South Sediment Dam	401218	7701500

G7 The following regulated dams must be consistent with the basic details in Table G2 – Size and Purpose of Dams Containing Hazardous Waste below.

Table G2 – Size and Purpose of Regulated Dams Containing Hazardous Waste

Name of Regulated Dam Containing Hazardous Waste	Maximum Surface Area of Contents in Dam (ha)	Maximum Volume of Dam (m^3)	Maximum Depth of Dam (m)	Purpose of Dam
West Mine Water Dam	1.6	112,330	12	Site water collection and storage
South Sediment Dam	3.0	114,920	18	Site water collection and storage

G8 The following regulated dams must meet the hydraulic performance criteria specified in Table G3 - Hydraulic Performance of Regulated Dams.

Table G3 – Hydraulic Performance of Regulated Dams

Dam Name	Design Storage Allowance[1]	Spillway Design Storm[2]	Mandatory [3] Reporting Level
West Mine Water Dam	1:20 AEP	1:100 AEP	1:10 AEP 72 hr duration
South Sediment Dam	1:20 AEP	1:100 AEP	1:10 AEP 72 hour duration

NOTE: Calculations are to be carried out in accordance with the "Manual for Assessing Hazard Categories and Hydraulic Performance of Dams (Department of Environment and Heritage Protection, February 2012)".

[1] A regulated dam must be designed and operated such that, (a) sufficient available storage is maintained to accommodate expected inputs and outputs during the year; and (b) the DSA is provided for at the 1 November for the coming wet season.

[2] The spillway design storm has a duration that produces the peak discharge for the catchment.

[3] The level below spillway crest that can accommodate runoff from a 72-hour storm or wave allowance of the nominated AEP, whichever is lower.

G9 The spillway for any dam containing hazardous waste constructed within the operational land must be designed to withstand the peak flow from the spillway design storm in Table G3 - Hydraulic Performance of Regulated Dams.

G10 Construction of a regulated dam must not be commenced unless:

a) The licensee has submitted to the administering authority two copies of a design plan, together with the certification of a suitably qualified and experienced person that the design of the regulated dam will deliver the performance stated in that submitted design plan and that dam is compliant in all respects with this environmental authority, and

b) At least twenty (20) business days has passed since the receipt of those documents, or the administering authority notifies the licensee that a design plan and certification has been submitted for that dam.

G11 Every regulated dam must be constructed in accordance with a certified design plan that has been submitted to the administering authority, and such that the resulting dam will deliver the performance stated in that submitted design plan and that dam is compliant in all respects with this environmental authority.

G12 When construction of any regulated dam is complete and prior to commencing operation of that dam, the licensee must submit to the administering authority two copies of a set of 'as constructed' drawings, together with the certification of a suitably qualified and experienced person that the dam 'as constructed' will deliver the performance stated in that submitted design plan and that dam is compliant in all respects with this environmental authority.

G13 An operational plan must be kept current for each regulated dam.

G14 Where an operational plan covers decommissioning and rehabilitation, those operations are to be consistent with the design plan for the dam and the rehabilitation requirements of this environmental authority.

G15 The holder of the environmental authority must mark the mandatory reporting level (MRL) defined in Table G3 – Hydraulic Performance of Regulated Dams on the upstream side of the spillway of any dams containing hazardous waste within the operational land.

G16 The licensee must notify the administering authority as soon as possible, but within twenty-four (24) hours, of the level in any regulated dam reaching the MRL; and must immediately act to prevent or minimize any actual or potential environmental harm.

Standards and Criteria

G17 The holder of the environmental authority must design, construct, repair, maintain, operate and decommission the dams containing hazardous and non-hazardous waste in accordance with the criteria outlined in Appendix B of the *Code of Environmental Compliance for Mining Lease Projects*.

G18 High hazard dams containing hazardous waste shall be inspected by a Registered Professional Engineer Queensland (RPEQ) during the month of September each year or at any time if alarming, unusual or otherwise unsatisfactory conditions are observed.

G19 At each annual inspection, the condition and adequacy of each regulated dam must be assessed for dam safety and against the necessary structural, geotechnical and hydraulic performance criteria.

G20 At each annual inspection, if a MRL is required, it must be determined and marked on each regulated dam.

G21 For each annual inspection, two copies of a report on the condition and adequacy of each regulated dam, certified by the suitably qualified and experienced person and including any recommended actions to be taken to ensure the integrity of each regulated dam must be provided to the administering authority within ninety (90) days of the inspection.

G22 The holder of the environmental authority must, promptly, but within one (1) month of receipt of the annual inspection report, formulate and implement actions to ensure that each regulated dam safely performs its intended functions.

END OF CONDITIONS FOR SCHEDULE G

Schedule H - Definitions

"AEP" means annual exceedance probability.

"appropriately qualified person" means any person who conforms to the EPA operational policy for an "appropriately qualified person (analyst)" in accordance with Section 490(7) of the *Environmental Protection Act 1994.*

"authority" means environmental authority (mining activities) under the *Environmental Protection Act 1994*.

"blasting" means the use of explosive materials to fracture-

a) rock, coal and other minerals for later recovery; or

b) structural components or other items to facilitate removal from a site or for reuse.

"commercial place" means a work place used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees accommodation or public roads.

"contaminated land" means land contaminated by a hazardous contaminant.

"dam" means a containment or proposed containment whether permanent or temporary, which is designed to contain, divert or control flowable substances. However this does not include a fabricated or manufactured tank or container designed to a recognised standard.

"design plan" in the context of a dam design is the documentation required under the Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, the procedures and criteria to be used for operating the dam and the decommissioning and rehabilitation objectives in terms procedures, works and outcomes at the end of dam life, The documents can include design and investigation reports, drawings, specifications and certifications.

"environmental authority holder" means the holder of this environmental authority.

"environmental offset" has the meaning in section 7 of the *Environmental Offsets Act 2014.*

"environmental value" means (a) a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or, (b) another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.

"existing authority" has the meaning in section 94 of the *Environmental Offsets Act 2014.*

"flow event" means a flow event producing sufficient water to permit a monitoring creek bed flow of 30cm or more at the sampling station.

"flowable substance" means matter or mixture of materials which can be forced to or otherwise flow under any conditions possible in a situation. It includes water, other liquids or a mixture that includes water or any other liquid or suspended solids.

"hazardous contaminant" means a contaminant, other than an item of explosive ordnance, that, if improperly treated, stored, disposed of or otherwise managed, is likely to cause serious or material environmental harm

because of—(a) its quantity, concentration, acute or chronic toxic effects, carcinogenicity, teratogenicity, mutagenicity, corrosiveness, explosiveness, radioactivity or flammability; or (b) its physical, chemical or infectious characteristics.

"hazardous waste" means any substance, whether liquid, solid or gaseous, derived by or resulting from, the processing of minerals that tends to destroy life or impair or endanger health.

"infrastructure" means water storage dams, roads and tracks, buildings and other structures built for the purpose of mining activities but does not include facilities required for the long terms management of mining impacts or the protection of potential resources. Such facilities include dams containing hazardous waste, waste rock dumps, voids, or ore stockpiles and buildings or other structures whose ownership can be transferred and which have a residual beneficial use for the next owner of the operational land or the background land owner.

"LAeq,adj,15mins" means the noise level, adjusted to represent the response of the human ear and measured in decibels over a period of 15 minutes and adjusted for tonality.

"$L_{A1, adj, 15 mins}$" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 15-minute measurement period, using Fast response.

"land" in the "land schedule" of this document means land excluding waters and the atmosphere.

"land use" term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

"maximum extent of impact" means the total, cumulative, residual extent and duration of impact to a prescribed environmental matter that will occur over a project's life after all reasonable avoidance reasonable on-site mitigation measures have been, or will be, undertaken.

"mandatory reporting level" means the volume below the spillway crest, equivalent to the lower of the AEP, 72 hour storm or the AEP wave allowance (AEP is the annual exceedance probability).

"mineral" means a substance which normally occurs naturally as part of the earth's crust or is dissolved or suspended in water within or upon the earth's crust and includes a substance which may be extracted from such a substance, and includes—

a) clay if mined for use for its ceramic properties, kaolin and bentonite;

b) foundry sand;

c) hydrocarbons and other substances or matter occurring in association with shale or coal and necessarily mined, extracted, produced or released by or in connection with mining for shale or coal or for the purpose of enhancing the safety of current or future mining operations for coal or the extraction or production of mineral oil therefrom;

d) limestone if mined for use for its chemical properties;

e) marble;

f) mineral oil or gas extracted or produced from shale or coal by in situ processes;

g) peat;

h) salt including brine;

i) shale from which mineral oil may be extracted or produced;

j) silica, including silica sand, if mined for use for its chemical properties;

k) rock mined in block or slab form for building or monumental purposes;

but does not include—

l) living matter;

m) petroleum within the meaning of the *Petroleum Act 1923*;

n) soil, sand, gravel or rock (other than rock mined in block or slab form for building or monumental purposes) to be used or to be supplied for use as such, whether intact or in broken form;

o) water.

"notice of election" has the meaning in section 18(2) *Environmental Offsets Act 2014.*

"peak particle velocity (ppv)" means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mms^{-1}).

"plan of operations" for a relevant lease (mining lease), includes any plan of operations given to the administering authority for a proposed lease substantially the same as the relevant lease.

"prescribed environmental matters" has the meaning in section 10 of the *Environmental Offsets Act 2014,* limited to the matters of State environmental significance listed in schedule 2 of the *Environmental Offsets Regulation 2014.*

"progressive rehabilitation" means rehabilitation (defined below) undertaken progressively or a staged approach to rehabilitation as mining operations are ongoing.

"reference site" (or analogue site) may reflect the original location, adjacent area or another area where rehabilitation success has been completed for a similar biodiversity. Details of the reference site may be as photographs, computer generated images and vegetation models etc.

"rehabilitation" the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.

"sensitive place" means;

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel; or
- an educational institution; or
- a medical centre or hospital; or
- a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World

Heritage Area; or

- a public park or gardens.

"significant residual impact" has the meaning to section 8 of the *Environmental Offsets Act 2014.*

"spillway" means passage or outlet from the dam through which surplus water flows.

"stable" means land form dimensions are or will be stable within tolerable limits now and in the foreseeable future. Stability includes consideration of geotechnical stability, settlement and consolidation allowances, bearing capacity (traffic ability), erosion resistance and geochemical stability with respect to seepage and contaminant generation.

"suitably qualified and experienced person" means a person who is a Registered Professional Engineer of Queensland under the provisions of the *Professional Engineers Act 1988* or a Corporate Member of the Institution of Engineers Australia or holds equivalent professional qualifications and has the following:

a) knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and

b) at least a total of five years of suitable experience and demonstrated expertise in at least four of the following areas:

- investigation, design or construction of dams;
- operation and maintenance of dams;
- geomechanics with particular emphasis stability, geology and geochemistry;
- hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;
- hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes;
- hydrogeology with particular reference to seepage, groundwater,
- solute transport processes and monitoring thereof; or
- dam safety.

"watercourse" - means a river, creek or stream in which water flows permanently or intermittently in a visibly defined channel (natural, artificial or artificially improved) with:

a) continuous bed and banks;

b) an extended period of flow for some months after rain ceases, and

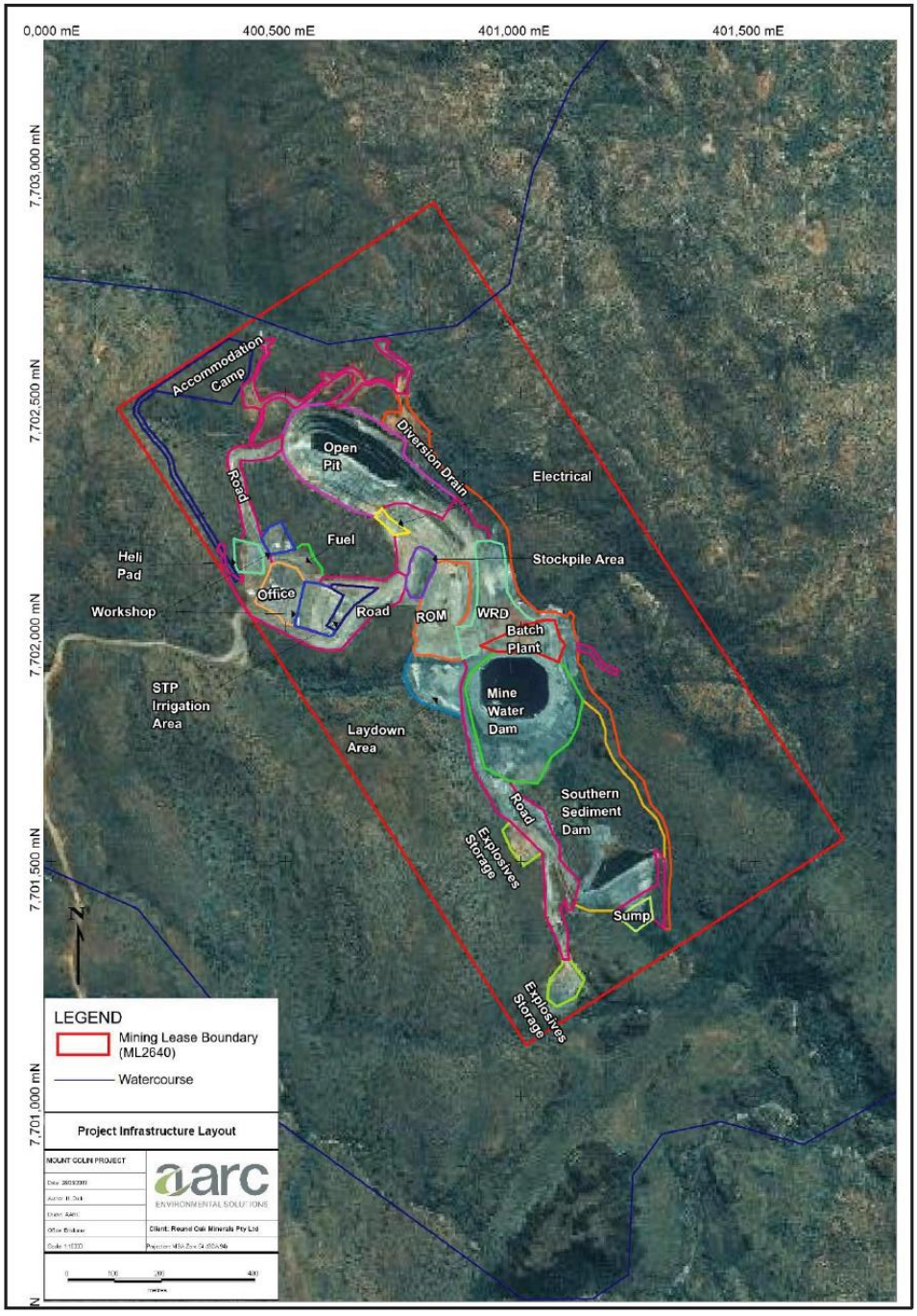
c) an adequacy of flow that sustains basic ecological processes and maintains biodiversity.

"waters" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea) or any part-thereof.

END OF CONDITIONS FOR SCHEDULE H

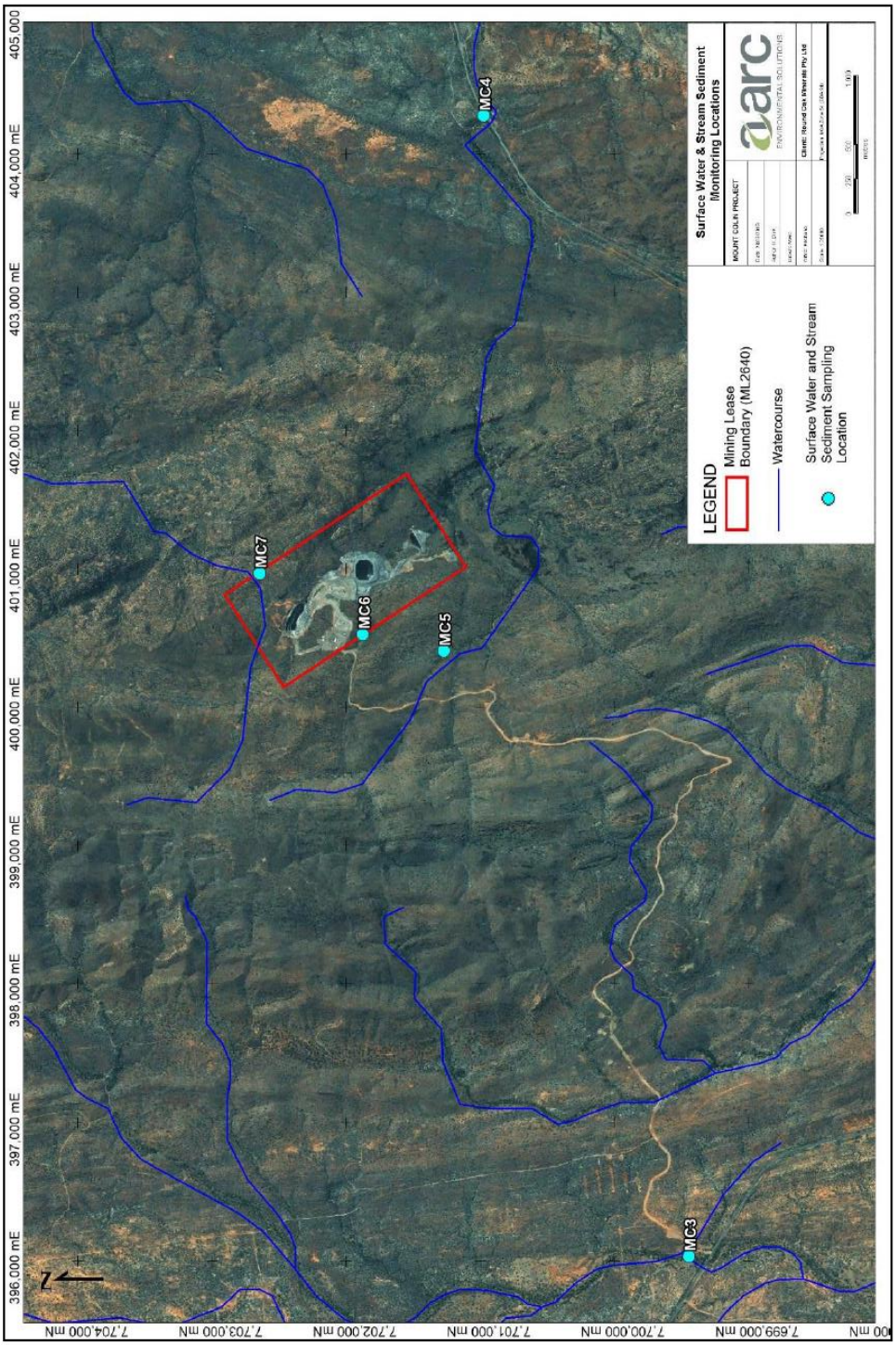
Schedule I - Maps / Plans

Map 1 – Project Infrastructure Layout – Mine Area

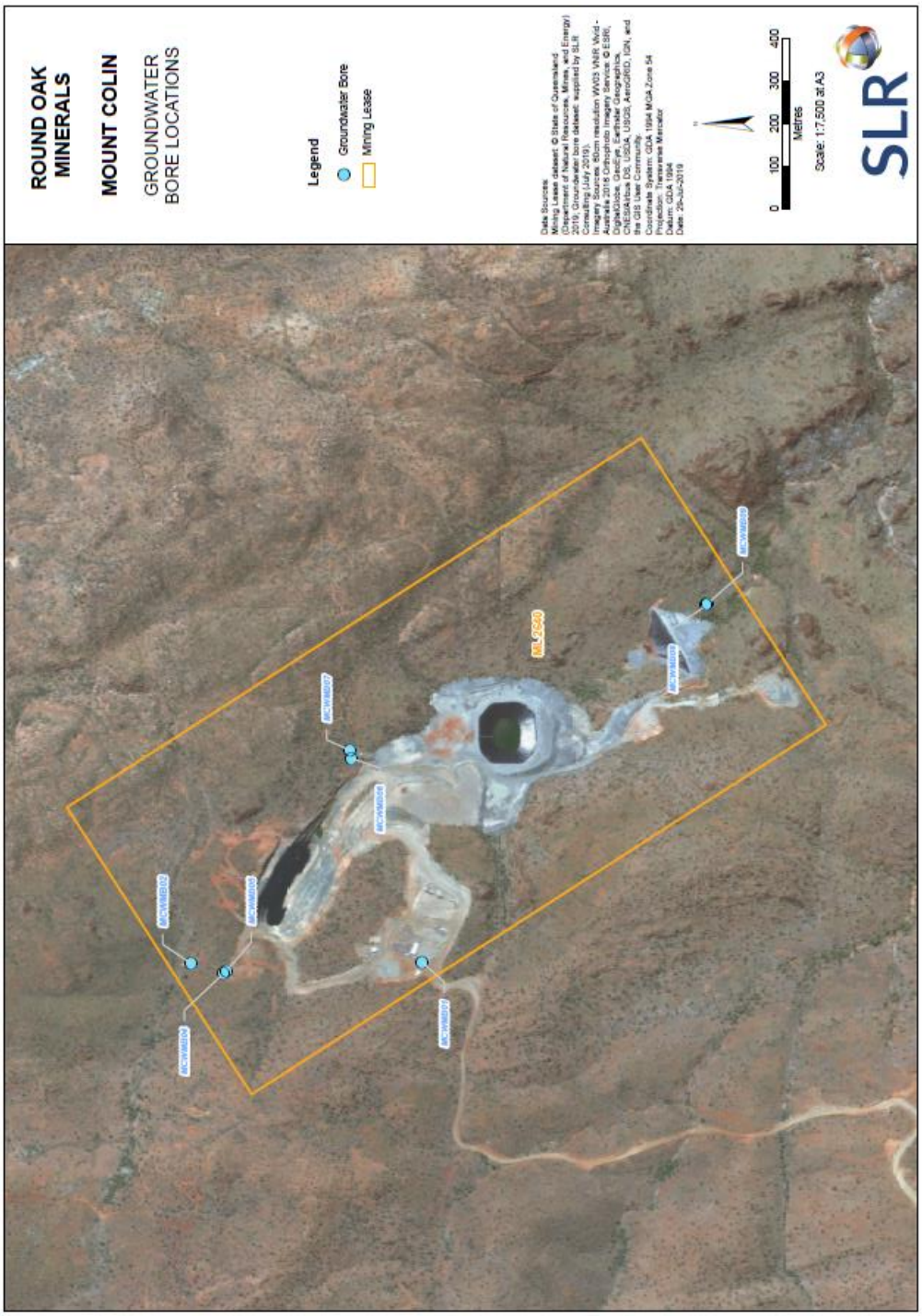


Queensland Government

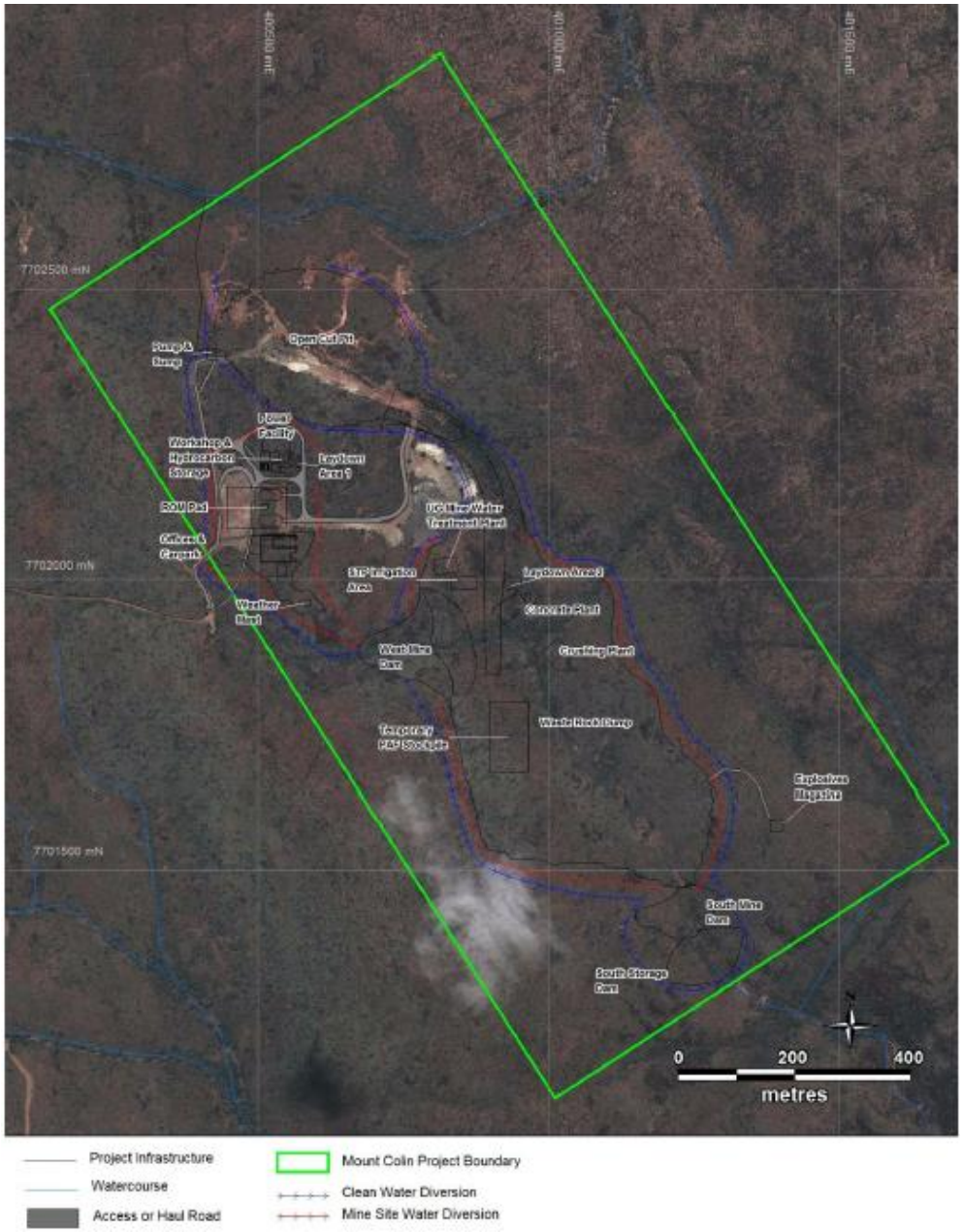
Map 2 – Surface Water and Sediments Monitoring Locations



Map 3 – Groundwater Monitoring Locations



Map 4 – Sewage Treatment Plant and Irrigation Location



END OF CONDITIONS FOR SCHEDULE I

END OF ENVIRONMENTAL AUTHORITY