Permit

Environmental Protection Act 1994

Environmental authority EPML00911413

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

Environmental authority number: EPML00911413

Environmental authority takes effect on

Environmental authority holder(s)

Name(s)	Registered address
Capricorn Copper Pty Ltd	Level 3, 235 Edward St BRISBANE QLD 4000

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 17: Mining copper ore Ancillary 08 - Chemical Storage 1: Storing a total of 50t or more of chemicals of dangerous goods class 1 or class 2, division 2.3 under subsection (1)(a) 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) Ancillary 31 - Mineral processing 2: Processing, in a year, the following quantities of mineral products, other than coke (b) more than 100,000t Ancillary 33 - Crushing, milling, grinding or screening Crushing, grinding, milling or screening more than 5000t of material in a year	ML5407, ML5412, ML5413, ML5418, ML5419, ML5420, ML5429, ML5430, ML5441, ML5442, ML5443, ML5444, ML5451, ML5454, ML5457, ML5459, ML5467, ML5485, ML5486, ML5489, ML5500, ML5548, ML5549, ML5550, ML5562, ML5563, ML90180, ML90181 and ML90182

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.

Queensland Government

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 *Planning Act 2016* 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.

Signature	Date

Department of the Environment, Tourism, Science and Innovation
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Mineral Business Centre
PO Box 7230, CAIRNS, QLD, 4870
Phone: 07 4222 5352
Email: ESCairns@des.qld.gov.au

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)

Legislative Requirements and Conditions of Environmental Authority

Schedule A – General

Release of contaminants

(A1-1) The holder must ensure that contaminants with the potential to cause environmental harm are not released directly or indirectly to land, air or waters except as permitted under the conditions of this environmental authority.

Activity

(A2-1) This environmental authority authorises environmental harm referred to in the conditions herein. Where a condition in this environmental authority refers to environmental harm, the condition is taken to authorise the environmental harm occurring in compliance with the condition. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising environmental harm.

(A2-2) In carrying out the mining activity, the holder must comply with Schedule A – Table 1 (Authorised Disturbance).

Schedule A – Table 1 (Authorised Disturbance)

Infrastructure	Area (ha)	Location (GDA94)		Mining Lease
		Latitude (Centroid X° S)	Longitude (Centroid X° E)	
Old TSF	11.05	S 19° 41’ 10.31”	E 139° 22’ 2.24”	ML5467 & ML5489
North West Gully	2.38	S 19° 41’ 13.05”	E 139° 21’ 52.84”	ML5467 & ML5489
Concentrate Shed Area	0.7	S 19° 41’ 18.67”	E 139° 22’ 5.77”	ML5467, ML5444 & ML5489
Old SX-EW Plant	2.81	S 19° 41’ 24.25”	E 139° 21’ 57.02”	ML5467
BioteQ Plant	1.18	S 19° 41’ 29.4”	E 139° 21’ 55.79”	ML5467
Concentrator	4.26	S 19° 41’ 25.8”	E 139° 21’ 59.65”	ML5467
Main Workshop and Office Areas	1.53	S 19° 41’ 20.29”	E 139° 21’ 59.18”	ML5467
Stormwater Pond	0.81	S 19° 41’ 28.5”	E 139° 21’ 53.02”	ML5467
ROM Pad	2.75	S 19° 41’ 23.53”	E 139° 22’ 4.58”	ML5467 & ML5444
DSO Stockpile Pad	4.13	S 19° 41’ 40.27”	E 139° 21’ 58.96”	ML5413, ML5419 & ML5467
Mill Creek Dam	10.59	S 19° 41’ 32.13”	E 139° 21’ 45.32”	ML5429, ML5486, ML5467, ML5407, ML5485, ML5419 & ML5563
Hoover Dam (Old Mill Creek)	0.34	S 19° 41’ 19.71”	E 139° 21’ 38.91”	ML5486
Esperanza Bypass Ramp	1.91	S 19° 41’ 44.87”	E 139° 21’ 37.8”	ML5563, ML5485 & ML5430
North WRD Embankment	6.01	S 19° 41’ 29.61”	E 139° 21’ 27.97”	ML5459 & ML5486
North WRD Sump	2	S 19° 41’ 22.95”	E 139° 21’ 31.06”	ML5459
Process Ponds (Old Raffinate Ponds)	2.35	S 19° 41’ 35.08”	E 139° 21’ 51.33”	ML5467 & ML5419
Mammoth WRD	4.16	S 19° 41’ 49.66”	E 139° 21’ 51.94”	ML5419 & ML5413
Mammoth WRD Extension	7.71	S 19° 41’ 46.35”	E 139° 21’ 59.14”	ML5413, ML5419, ML5444, ML5418 & ML5500
Batch Plant	1.58	S 19° 41’ 46.1”	E 139° 21’ 47.33”	ML5419
Old Dump Sump	1.12	S 19° 41’ 45.06”	E 139° 21’ 44.49”	ML5419 & ML5485
Heap Leach Pad 1	3.37	S 19° 41’ 50.63”	E 139° 22’ 4.51”	ML5418, ML5500 & ML5419
Heap Leach Pad 2	4.45	S 19° 42’ 6.98”	E 139° 21’ 57.78”	ML5548
Mammoth Valley & Mammoth Hill	8.9	S 19° 41’ 56.86”	E 139° 22’ 0.33”	ML5413, ML5419, ML5500 & ML5548
Underground Infrastructure	1.79	S 19° 41’ 36.45”	E 139° 22’ 7.78”	ML5444 & ML5418
Core Shed & Contractors Area	2	S 19° 41’ 34.58”	E 139° 22’ 11.53”	ML5444
Magazine Creek Raw Water Dams	8.22	S 19° 41’ 50.89”	E 139° 22’ 18.15”	ML5548, ML5444 & ML5418
Exploration Drill Pads & Tracks	3.72	S 19° 42’ 5.43”	E 139° 21’ 39.92”	ML5419, ML5451, ML5420, ML5548 & ML90181

Esperanza WRD	28.14	S 19° 42' 9.75"	E 139° 21' 20.91"	ML5442, ML5548, ML90180, ML5457, ML5443, ML5420 & ML5451
Esperanza Diversion Drain	1.43	S 19° 42' 47.16"	E 139° 21' 26.92"	ML90182
Upper Esperanza Diversion Dam	8.57	S 19° 42' 47.23"	E 139° 21' 36.82"	ML90182
Temporary Upper Esperanza Diversion Drain – Embankment and spillway	2	S 19°42'39.22"	E 139°21'9.44"	ML90182
Temporary Upper Esperanza Diversion Drain – Cut		S 19°42'36.72"	E 139°21'18.00"	ML90182
Esperanza Pit and Tailings Disposal	26.19	S 19° 41' 56.93"	E 139° 21' 26.56"	ML5486, ML5443, ML5430, ML5442, ML5485, ML5412, ML5549, ML5420, ML5457 & ML5548
North WRD Evaporation Pan	2.1	S 19° 41' 49.27"	E 139° 21' 21.88"	ML5486 & ML5443
Esperanza TSF	27.78	S 19° 41' 50.1"	E 139° 21' 9.89"	ML5486, ML5562 & ML5442
North WRD Surface	13.18	S 19° 41' 41.96"	E 139° 21' 25.81"	ML5486, ML5430 & ML5563
Explosives Magazine	1.69	S 19° 40' 48.46"	E 139° 22' 28.91"	ML5550
Camp Area	12.96	S 19° 42' 34.7"	E 139° 22' 57.93"	Not applicable
Magazine Creek	0.56	S 19° 41' 46.93"	E 139° 22' 9.91"	ML5418 & ML5500
Haul Roads	22.33	S 19° 41' 52.44"	E 139° 21' 39.38"	ML5418, ML5442, ML5451, ML5489, ML5419, ML5420, ML5550, ML5563, ML5430, ML5444, ML5562, ML5457, ML5467, ML5485, ML5486 & ML5548
ESS upper cave subsidence zone	6	S 19° 42' 27.22"	E 139° 21' 1.84"	ML5441
Paste Fill Plant	0.1	S 19° 41' 56.04"	E 139° 21' 38.43"	ML5485
Exploration investigation test pits and drill pads, groundwater monitoring bores and access tracks	6.06	Authorised exploration, access tracks and groundwater bores extents depicted on EA Map, Schedule I – Plan 5 (Investigation Areas)	Authorised exploration, access tracks and groundwater bores extents depicted on EA Map, Schedule I – Plan 5 (Investigation Areas)	ML5418, ML5419, ML5444, ML5454, ML5467, ML5489, ML5548, ML5550, ML90180, ML90181 & ML90182

(A2-3) Disturbance caused by exploration investigation test pits and drill pads, groundwater monitoring bores and access tracks referred to in Schedule A – Table 1 (Authorised Disturbance) must not occur within endangered regional ecosystems described as 1.3.7 (Eucalyptus camaldulensis woodland on channels and levees).

Maintenance of Measures, Plant and Equipment

(A3-1) The holder must:

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

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

(c) Operate such measures, plant and equipment in a proper manner.

Monitoring and Measurements

(A4-1) The holder must record, compile and keep for a minimum of seven (7) years all measurements and monitoring results required under a condition of this environmental authority.

(A4-2) The holder must ensure that all monitoring required under a condition of this environmental authority is conducted:

(a) By a competent person/s;

(b) In accordance with methods prescribed in the latest edition of the administering authority's monitoring and sampling manual;

(c) Using representative samples; and

(d) For laboratory analysis, by a laboratory with appropriate accreditation for the specific method of analysis (NATA accredited unless the administering authority agrees to alternative standards in writing).

(A4-3) All instruments and devices used for the measurement or monitoring of any parameter or quality characteristic required by a condition of this environmental authority must be calibrated, appropriately operated and maintained.

(A4-4) The following information must be recorded for all monitoring and measurements required under a condition of this environmental authority:

(a) The date and time when the sample was taken;

(b) The person/s conducting the sampling;

(c) The location where the sample was taken;

(d) Pertinent details relating to the sampling (i.e., stream flow or relevant observations);

(e) For laboratory analyses, all chain of custody, certificate of analysis and quality control/assurance documents.

(A4-5) Any monitoring plan, system or program required to be developed and implemented by a condition of this environmental authority must be reviewed at least once every three (3) years by a suitably skilled and competent person for effectiveness in identifying environmental impacts and amended promptly as required.

(A4-6) Within five (5) days of a request from the administering authority, the holder must make available for inspection in the form and by the means requested by the administering authority, all or any of the following:

(a) Monitoring results or records required under a condition of this environmental authority.

(b) Reports or plans required under a condition of this environmental authority.

(c) Details of any investigation required under a condition of this environmental authority.

(A4-7) The holder must implement available measures to enable all monitoring required under a condition of this environmental authority to be conducted.

Note: Available measures could include establishing and maintaining safe all-weather access to a monitoring location by upgrading roads/tracks, use of suitable automated sampling devices, developing alternative routes or utilising alternative transport.

Storage and Handling of Flammable and Combustible Liquids

(A5-1) Spillage of all flammable and combustible liquids must be contained within an on-site containment system and controlled in a manner that prevents unauthorised environmental harm and maintained in accordance with *Section 5.8 of AS 1940 – 2004 The storage and handling of flammable and combustible liquids*.

Definitions

(A6-1) Words and phrases used throughout this environmental authority are defined in Schedule I – 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.

Notification of Emergencies, Events and Exceedances

(A7-1) The holder must promptly (but within twenty-four (24) hours) notify the administering authority by telephone, facsimile or email after becoming aware of any emergency or event 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.

(A7-2) The holder must promptly (but within twenty-four (24) hours) notify the administering authority by telephone, facsimile or email after becoming aware of any monitoring result that demonstrates the exceedance of a contaminant limit specified in a condition of this environmental authority.

(A7-3) Any notification for conditions (A7-1) and (A7-2) of this environmental authority must include but not be limited to the following:

- (a) The environmental authority number and name of the holder;
- (b) The name and telephone number of the designated contact person;
- (c) The location of the emergency, event or exceedance;
- (d) The date and time of the emergency, event or exceedance;
- (e) The time the holder of the environmental authority became aware of the emergency, event or exceedance;
- (f) Where known:
  - (i) the estimated quantity, type and concentration of substances involved in the emergency, event or exceedance;
  - (ii) the actual or potential cause of the emergency, event or exceedance;
  - (iii) a description of the nature and effects of the emergency, event or exceedance including environmental risks, and any risks to public health or livestock;
- (g) Any sampling conducted or proposed, relevant to the emergency, event or exceedance;
- (h) Immediate actions taken to prevent or mitigate any further environmental harm caused by the emergency, event or exceedance; and
- (i) What notification of stakeholders who may be affected by the emergency, event or exceedance has occurred or is being undertaken.

(A7-4) Within ten (10) business days following the initial notification of any emergency, event or exceedance required for condition (A7-1) or (A7-2) of this environmental authority, the holder must provide written advice to the administering authority in a form and by the means acceptable to the administering authority, which includes at minimum:

- (a) All details pertaining to the initial notification specified in condition (A7-3) of this environmental authority;
- (b) Results and interpretation of any samples taken and analysed in relation to the emergency, event or exceedance;
- (c) Outcomes of actions undertaken to prevent or minimise unlawful environmental harm;
- (d) Any proposed actions to prevent a recurrence of the emergency, event or exceedance; and
- (e) Any proposed actions and time-frames to further monitor and/or investigate the source, cause and extent of environmental harm resulting from the emergency, event or exceedance.

(A7-5) The holder must promptly, but not more than five (5) business days following the conduct of any further environmental monitoring and/or investigation nominated for condition (A7-4) of this environmental authority, provide written advice to the administering authority detailing:

- (a) The results of any monitoring and/or investigations performed;
- (b) Any resultant actions and time-frames proposed to be undertaken.

(A7-6) The environmental authority holder must promptly notify the occupiers or registered owners of affected land and any other potentially impacted stakeholder by telephone, email or facsimile after becoming aware of any emergency, event or exceedance that has the potential to impact on environmental

values or breaches any condition of this environmental authority concerning the release of contaminants to the receiving environment.

Note: Potentially impacted stakeholders include anyone potentially impacted directly by an emergency, event or exceedance such as recreational water users.

(A7-7) The notification in condition (A7-6) of this environmental authority must include the following:

(a) The location of the emergency, event or exceedance;

(b) The date and time of the emergency, event or exceedance;

(c) The estimated quantity and type of any substances involved in the emergency, event or exceedance;

(d) The potential impacts to environmental values caused by the emergency, event or exceedance; and

(e) Where there is potential impact on livestock or human health, precautionary measures that should be taken.

Concentrate storage and handling

(A8-1) The storage and handling of mineral concentrate must only occur in the areas defined and for the purposes specified in Schedule A – Table 2 (Mineral Concentrate Storage Areas).

Schedule A – Table 2 (Mineral Concentrate Storage Areas)

Name	Coordinates (GDA94)		Area (m^2)	Purpose
	Latitude	Longitude		
Concentrate Shed	S 19° 41’ 15.6”	E 139° 22’ 6.86”	5,291	Storage of mineral concentrate within the storage shed and load-out for transport off-site
	S 19° 41’ 19.31”	E 139° 22’ 6.82”		
	S 19° 41’ 19.13”	E 139° 22’ 5.2”		
	S 19° 41’ 17.76”	E 139° 22’ 4.23”		
Temporary concentrate storage facility	S 19° 41’ 21.88”	E 139° 21’ 56.22”	684	Temporary storage of mineral concentrate within the modified SX-tank when there is no available capacity in the concentrate storage and loading facility
	S 19° 41’ 22.06”	E 139° 21’ 56.65”		
	S 19° 41’ 23.55”	E 139° 21’ 55.97”		
	S 19° 41’ 23.37”	E 139° 21’ 55.54”		

(A8-2) The holder must ensure that the storage, handling and transport of mineral concentrate is conducted in a manner that minimises the release of mineral concentrate to air, land and waters.

(A8-3) The holder must ensure that all vehicles are free of residual mineral concentrate contamination prior to exiting any of the mineral concentrate storage areas specified in Schedule A – Table 2 (Mineral Concentrate Storage Areas).

(A8-4) The holder must undertake the storage and handling of mineral concentrate in accordance with controls and measures nominated in the “*Secondary/Emergency concentrate storage procedure*” issued 4 December 2012 unless the administering authority agrees to alternative measures and controls.

Risk Management and Emergency Response

(A9-1) The holder 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 equivalent recognised Standard for Risk Management by 1 July 2013.

(A9-2) The holder must develop and implement an emergency response plan to respond to emergency events and incidents by 1 August 2013.

(A9-3) The emergency response/contingency plan required under condition (A9-2) must include at minimum:

(a) Response procedures to be implemented to prevent or minimise the risk of environmental harm arising from emergency events and incidents;

(b) Response procedures to minimise the extent and duration of environmental harm caused by an emergency event or incident;

(c) The practices and procedures to be employed to restore the environment or mitigate any environmental harm caused;

(d) The resources to be used in response to an emergency event or incident;

(e) Procedures to investigate the cause of any emergency events or incidents, including releases, and where necessary, implement remedial actions to reduce the likelihood of recurrence of similar events;

(f) The provision and availability of documented procedures to staff attending any emergency events and incidents to enable them to effectively respond;

(g) Training of staff that will be called upon to respond to emergency events and incidents to enable them to effectively respond;

(h) Timely and accurate reporting of the circumstance and nature of emergency events and incidents to the administering authority in accordance with conditions of this environmental authority;

(i) Procedures for accessing monitoring points during emergency events and incidents; and

(j) Procedures to notify any occupiers or registered owners of affected land and other potentially impacted stakeholder who may be affected by the emergency event or incident.

Complaints and Community Engagement

(A10-1) The holder must record all complaints received about the mining activities, promptly notify the administering authority of the complaint and provide any details requested by the administering authority relating to the complaint, including at minimum:

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

(b) Time and date of the complaint;

(c) Specifics of 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.

(A10-2) The holder 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 which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the administering authority. The results of the investigation and abatement measures implemented must be provided to the administering authority within ten (10) business days following 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, whichever is sooner.

(A10-3) The holder must establish, promote and maintain easily accessible lines of communication between residents, stakeholders and land owners potentially affected by the activities to ensure that social and cultural heritage impacts are identified and managed. This must include but not necessarily be limited to the following:

(a) Provide the opportunity for regular meetings to occur with all relevant stakeholders at a frequency of no less than once every six (6) months; and

(b) Provide the opportunity for establishment of a consultative committee with representation for all relevant stakeholders that meet at regular intervals as determined by the committee (only if required by the relevant stakeholders).

Third Party Auditing

(A11-1) The holder must nominate a third party auditor who is a suitably skilled and competent person to audit compliance with the conditions of this environmental authority before the 1 June 2013 and thereafter at a minimum frequency of once every three (3) years.

(A11-2) The third party auditor must certify the independent findings of the audit.

(A11-3) The financial costs of the third party audit are the responsibility of the holder.

(A11-4) The holder must promptly act upon any recommendations arising from the audit by:

(a) Investigating any non-compliance issues identified; and

(b) Promptly implementing measures or taking necessary action to ensure compliance with the requirements of this environmental authority.

(A11-5) Within one (1) month of completing the audit, the holder must provide a written report to the administering authority, the certification from the third party auditor must be included in this report. In addition, the report must outline all:

(a) Actions taken by the holder to ensure compliance with this environmental authority; and

(b) Actions taken to prevent a recurrence of any non-compliance issues identified.

END OF CONDITIONS FOR SCHEDULE A

Schedule B – Air

Dust nuisance

(B1-1) Subject to Condition (B1-2) the release of dust or particulate matter resulting from the mining activity must not cause an environmental nuisance, at any sensitive place.

(B1-2) When requested by the administering authority, dust and particulate monitoring must be undertaken within a reasonable and practicable timeframe, as nominated by the administering authority, to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised person) of environmental nuisance at any sensitive place. The results of this investigation must be provided to the administering authority within 14 days following completion of monitoring.

END OF CONDITIONS FOR SCHEDULE B

Schedule C – Water

Receiving waters objectives

(C1-1) Contaminants that will, or have the potential to cause environmental harm, must not be released directly or indirectly to any waters except as permitted under the conditions of this environmental authority.

Contaminant Release to Waters

(C2-1) The release of contaminants to waters must only occur from the release point specified in Schedule C – Table 1 (Contaminant Release Point) and identified in Schedule I – Plan 1 (Contaminant Release Point).

Schedule C – Table 1 (Contaminant Release Point)

Release Point	Description of Release	Description of Source	Description of receiving waters	Location (GDA94)	
				Latitude	Longitude
W1 Release Point	Controlled release from water transfer systems	Mill Creek Dam or Processing Ponds~~Esperanza TSF~~	Gunpowder Creek	S 19°41' 20.0"	E 139°21' 24.9"

(C2-2) The release of contaminants to waters from the release point must be monitored at the release point specified in Schedule C – Table 1 (Contaminant Release Point) for each quality characteristic and at the frequency specified in Schedule C – Table 2 (Release Contaminant Limits).

Schedule C – Table 2 (Contaminant Release Limits)

Parameter[1]	Contaminant release limit (maximum release limit unless specified otherwise)		Minimum Monitoring Frequency
	<100 m^3/s background flow	>100 m^3/s background flow	
	Dilution rate 1:20[a]	Dilution rate 1:80[b]	
pH (pH units)	Must be between the range of~~-~~ 6.5~~0~~ to 9.0~~8.5~~		EC and pH must be recorded at least every five (5) minutes for the duration of a release event.~~• One sample must be taken at the commencement of the release event and thereafter at a minimum frequency of once every six hours for the duration of the release event.~~
Electrical conductivity (µs/cm)	5,325~~For indicative purposes only~~	10,256	
Dissolved oxygen (mg/L)	Must be greater than 2		~~•~~ One sample must be taken ~~at the~~within one hour of a release event commencing~~ement of the release event;~~ and ~~•~~ ~~F~~for release events with duration of greater than twenty-four hours, samples must be taken daily for one week and once a week thereafter until the release event ceases.
~~Total dissolved solids (mg/L)~~	~~7,000~~		
Sulfate (mg/L)	~~3~~4,500	9,000	
Suspended Solids (mg/L)	5030 or 10% above ~~reference site[1, 2] levels during flow events~~	60	
Dissolved ~~A~~arsenic (mg/L)	0.03~~0.25~~		
Total arsenic (mg/L)	0.03		
Dissolved ~~C~~cobalt (mg/L)	0.19~~5~~	0.33	
Total cobalt (mg/L)	0.47		
Dissolved ~~C~~copper (mg/L)	0.25 ~~2.5~~	1	
Total copper (mg/L)	1.7		
Dissolved ~~L~~lead (mg/L)	0.01~~0.05~~		
Total lead (mg/L)	0.01		
Dissolved ~~Z~~zinc (mg/L)	0.09~~10~~		
Total zinc (mg/L)	0.11		

Parameter[1]	Contaminant release limit (maximum release limit unless specified otherwise)		Minimum Monitoring Frequency
	<100 m³/s background flow	>100 m³/s background flow	
	Dilution rate 1:20[a]	Dilution rate 1:80[b]	
Oil & grease	No detectable film or odour		
Minimum background creek flow (m³/s)	2	100	Recorded at least every five (5) minutes for the duration of a release event.

1 All metals and metalloids must be measured and reported as both total (unfiltered) and dissolved (field filtered) levels.
a. Water to be released at a dilution factor of 1:20 (maximum 1 part release flow rate to 20 parts background flow rate).
b. Water to be released at a dilution factor of 1:80 (maximum 1 part release flow rate to 80 parts background flow rate).

(C2-3) Waters released from the location listed in Schedule C – Table 1 (Contaminant Release Point) must not exceed the contaminant limit listed in Schedule C – Table 2 (~~Release~~ Contaminant Release Limits) for any specified parameter.

(C2-4) ~~The maximum volume of treated waste waters released in any seventy-two (72) hour period shall not exceed 70,000 cubic metres.~~ The release of contaminants to waters in accordance with condition (C2-3) is authorised for the period 1 November 2025 – 1 November 2028. At the end of this period, Schedule C – Table 2 will expire and the release of contaminants to waters is no longer authorised. The administering authority may remove this condition (C2-4) on provision of revised contaminant limits listed in Schedule C – Table 2 (Release Contaminant Release Limits) by the holder.

(C2-5) The maximum volume of treated waste waters released in any twelve (12) month period shall not exceed 500,000 cubic metres.

(C2-4~~6~~) The holder must ensure that contaminant release to receiving waters does not occur unless background flow exceeds 2~~1.1~~ metres³/second at all times.

(C2-5~~7~~) The flow rate in Gunpowder Creek must be at least ~~ten~~ twenty (~~10~~20) times the rate at which treated waste waters are released from 'W1 release point' as determined on any day waste water is to be released.

(C2-6) Waters must not be released at a rate greater than 1.5 metres³/second.

(C2-7~~8~~) All waters released from 'W1 release point' must be discharged in a manner that ensures the effective dilution and dispersion of contaminants.

(C2-8~~9~~) For any release of contaminants to receiving waters, the holder must:

(a) Record the date and time for both the commencement and cessation of the release event;

(b) Determine and record the total daily volume (in Mega litres/day) and rate (in metres³/hour) of waters released;

(c) Determine and record receiving waters background flow (metres³/hour) immediately upstream of the release point specified in Schedule C – Table 1 (Contaminant Release Point) for the duration of the release event; and

(d) If requested by the administering authority, provide this information to the administering authority within twenty-four hours of the request.

Receiving Waters Monitoring

(C3-1) The holder must undertake monitoring at each Monitoring Point specified in Schedule C – Table 3 (Receiving Waters Monitoring Locations) for each parameter specified in Schedule C – Table 4 (Receiving Waters ~~Contaminant Trigger Levels and~~ Contaminant Limits) and at the following frequency:

~~(a) For sediment quality at Receiving Water Sites and Reference Sites, biannually (once at the end of the wet season and once at the end of the dry season); and~~

~~(b)~~(a) For water quality at Receiving Water Sites and Reference Sites, monthly when waters are

not flowing; and

~~(c)~~(b) For water quality at Receiving Water Sites and Reference Sites, weekly during flow events (where no release event occurring); or

~~(d)~~(c) For water quality at Receiving Water Sites and Reference Sites during any release event:

i. On~~c~~e sample taken as soon as reasonably practicable but no later than within ~~two~~ six hours of the release event commencing; and

ii. For release events with duration of greater than twenty-four hours, samples must be taken daily for one week and once a week thereafter until the release event ceases.

(d) For water EC and pH at Receiving Water Sites GPA4, GPD1 and GPD2 (real-time monitoring stations) during any release event, every five (5) minutes, continuously, until the release event ceases.

~~(e)~~ For water quality at Observation Sites, once at the commencement of each flow event, unless the administering authority provides written advice that this is not required.

~~(f)~~(e)

Schedule C – Table 3 (Receiving Waters Monitoring Locations)

Monitoring Point	Description	Co-ordinates (GDA94, Zone 54)	
		Latitude	Longitude
Receiving Water Sites (RWS)			
GPA2	Gunpowder Creek at the Mt Oxide Road causeway- (on the upstream side of the causeway)	S 19° 41' 19.6"	E 139° 21' 24.2"
GPA4~~5~~	Gunpowder Creek downstream of the Mill Creek confluence	S 19° 41' 14.8~~06.5~~"	E 139° 21' 33.6~~46.1~~"
GPA6~~7~~	Gunpowder Creek downstream of Old Mammoth Tailings Dam	S 19° 40' 48~~2~~.9"	E 139° 22' ~~27.6~~15.5"
GPD2	Gunpowder Creek downstream of GPD1	S 19° 39' 380"	E 139° 22' 53.6"
MGA1	Magazine Creek downstream of the Mt Oxide Road causeway	S 19° 41' 23.9"	E 139° 22' 19.1"
~~GPD1[1]~~	~~Gunpowder Creek downstream of the Greenstone Creek confluence~~	~~S 19° 40' 00.4"~~	~~E 139° 22' 42.7"~~
GS2	Greenstone Creek downstream of the Magazine Creek confluence	S 19° 40' 49.1"	E 139° 22' 34.3"
Reference Sites (RS)			
GPU1~~[1]~~[2]	Gunpowder Creek upstream of any mine impacts	S 19° 42' 27.4"	E 139° 20' 13.9"
MGU1	Magazine Creek East branch upstream of any mine impacts	S 19° 42' 11.2"	E 139° 22' 19.6"
Observation Sites			
REHAB01	At the former spillway of the Old TSF	S 19° 41~~29~~' 4.8~~52.9~~"	E 139° 22' 8.0~~7.7~~"
REHAB02	At the spillway of Heap Leach Pad 2	S 19° 42' 5.4"	E 139° 22' 3.7"

~~1 When the environmental authority holder has conducted a risk assessment that has deemed that crossing Greenstone Creek puts at risk the safety and health of personnel undertaking monitoring during high flow events, monitoring locations GPA7 and GS2 may be utilised together instead of GPD1.~~

~~2~~ When the environmental authority holder has conducted a risk assessment that has deemed that crossing Gunpowder Creek puts at risk the safety and health of personnel undertaking monitoring, monitoring location GPA2 may be utilised as a reference site to assess potential impact from a release instead of GPU1.

1

Schedule C - Table 4 (Receiving Waters ~~Contaminant Trigger Levels and~~ Interim Contaminant Limits)

Parameter[a]	Nil to low background flow (<2 m³/s)			High background flow (=>2 m³/s)	
	Contaminant limit			Contaminant limit	Cease release trigger
	GPA2	GPA6	GPD2	GPD2	GPA4
pH (pH units) (in situ)	6.5 – 8.7 [d]	6.5 [b] - 8.7 [d]	6.5 – 9.2 [h]	6.5 – 8.5 [b]	

Parameter[a]	Nil to low background flow (<2 m³/s)			High background flow (=>2 m³/s)	
	Contaminant limit			Contaminant limit	Cease release trigger
	GPA2	GPA6	GPD2	GPD2	GPA4
EC (µS/cm) (in situ)	2867 [e]	3062 [g]	1270 [h]	630 [i]	630 [i]
Sulfate (mg/L)	For interpretation purposes			For interpretation purposes	NA
Fluoride (mg/L)	1.7 [b]			1.7 [b]	NA
Dissolved aluminium (mg/L)	0.29 [d]			0.44 [f]	NA
Dissolved arsenic (mg/L)	0.013 [b]			0.013 [b]	NA
Dissolved boron (mg/L)	0.94 [b]			0.94 [b]	NA
Dissolved cadmium (mg/L)	0.0002 [b]			0.0002 [b]	NA
Dissolved chromium (mg/L)	0.001 [b]			0.001 [b]	NA
Dissolved cobalt (mg/L)	0.021 [e]	0.006 [g]	0.002 [h]	0.003 [f]	NA
Dissolved copper (mg/L)	0.016 [e]	0.020 [g]	0.013 [h]	0.014 [f]	NA
Dissolved lead (mg/L)	0.003.4 [b]			0.003.4 [b]	NA
Dissolved manganese (mg/L)	1.9 [b]			1.9 [b]	NA
Dissolved nickel (mg/L)	0.022 [e]	0.011 [b]		0.011 [b]	NA
Dissolved uranium (mg/L)[c]	0.001 [d, e, g]			0.001 [d, f]	NA
Dissolved zinc (mg/L)	0.025 [d]			0.044 [d]	NA
Dissolved silver (mg/L)	For interpretation purposes				
Total hardness	For interpretation purposes				
Dissolved organic carbon	For interpretation purposes				
Major ions (calcium, chloride, potassium, magnesium, sodium, bicarbonate, carbonate)	For interpretation purposes				

a. Metals and metalloids must be measured and reported as both total (unfiltered) and dissolved (field filtered) levels. Contaminant limits apply to dissolved concentrations only.
b. DGVs for the protection of moderately disturbed (95% species protection) aquatic ecosystems from ANZG (2018), unless otherwise specified. DGVs may be hardness and DOC corrected in accordance with current ANZG guidance.
c. Dissolved uranium to be analysed to a limit of reporting (LOR) of 0.5 µg/L or less.
d. Site-specific value based on 95th percentile of GPU1 data collected to date at the appropriate flow rate (i.e. <2 cumecs or >2 cumecs).
e. Site-specific value based on the 95th percentile of GPA2 data collected between 2020-2024 at <2 cumecs flow rate.
f. Site-specific value based on the 95th percentile of GPA2 data collected to date at >2 cumecs flow rate, excluding 9-13 March 2023 elevated results.
g. Site-specific value based on 95th percentile of all adjacent site (GPA, excluding GPA2) data collected at the appropriate flow rate (i.e. <2 cumecs or >2 cumecs), excluding release events.
h. Site-specific value based on 95th percentile of all downstream site data (GPD) collected at the appropriate flow rate (i.e. <2 cumecs or >2 cumecs), excluding release events.
i. Queensland Water Quality Guidelines (2009), 90th percentile of Gulf data adopted for EC.

~~Parameter~~	~~Water quality[6]~~		~~Sediment quality[7]~~	
	~~Trigger Level[4] (µg/L unless otherwise specified)~~	~~Contaminant Limit[4] (mg/L unless otherwise specified)~~	~~Trigger Level[4] (mg/kg unless otherwise specified)~~	~~Contaminant Limit[4] (mg/kg unless otherwise specified)~~
~~pH (pH units)~~	~~6.0 – 8.5~~		~~Not applicable~~	
~~EC (µS/cm)~~	~~435~~	~~TBD*~~	~~Not applicable~~	
~~Sulphate~~	~~250 mg/L~~	~~1,000 mg/L~~	~~Not applicable~~	
~~Fluoride~~	~~80th percentile[1] of reference site concentration[2]~~	~~2 mg/L~~	~~Not applicable~~	
~~Major cations~~	~~For interpretive purposes~~		~~Not applicable~~	
~~Major anions~~	~~For interpretive purposes~~		~~Not applicable~~	

~~Aluminium~~	~~80th percentile[1] of reference site[2] concentration[3] or 55, whichever is higher~~	~~95th percentile[1] of reference site[2] concentration[3] or 5, whichever is lower~~	~~Not applicable~~	
~~Arsenic[5]~~	~~80th percentile[1] of reference site[2] concentration[3] or 13, whichever is higher~~	~~95th percentile[1] of reference site[2] concentration[3] or 0.5, whichever is lower~~	~~Reference site concentration[2] or 20, whichever is higher~~	~~70 or three times the reference site concentration[2], whichever is higher~~
~~Boron~~	~~80th percentile[1] of reference site[2] concentration[3] or 370, whichever is higher~~	~~95th percentile[1] of reference site[2] concentration[3] or 5, whichever is lower~~	~~Reference site concentration[2]~~	~~Three times the reference site concentration[2]~~
~~Cadmium~~	~~80th percentile[1] of reference site[2] concentration[3] or 0.2, whichever is higher~~	~~95th percentile[1] of reference site[2] concentration[3] or 0.01, whichever is lower~~	~~Reference site concentration[2] or 1, whichever is higher~~	~~10 or three times the reference site concentration[2], whichever is higher~~
~~Chromium[5]~~	~~80th percentile[1] of reference site[2] concentration[3] or 1.0, whichever is higher~~	~~95th percentile[1] of reference site[2] concentration[3] or 1, whichever is lower~~	~~Reference site concentration[2] or 80, whichever is higher~~	~~370 or three times the reference site concentration[2], whichever is higher~~
~~Cobalt~~	~~80th percentile[1] of reference site[2] concentration[3]~~	~~95th percentile[1] of reference site[2] concentration[3] or 1, whichever is lower~~	~~Reference site concentration[2]~~	~~Three times the reference site concentration[2]~~
~~Copper~~	~~80th percentile[1] of reference site[2] concentration[3] or 1.4, whichever is higher~~	~~95th percentile[1] of reference site[2] concentration[3] or 1, whichever is lower~~	~~Reference site concentration[2] or 65, whichever is higher~~	~~270 or three times the reference site concentration[2], whichever is higher~~
~~Lead~~	~~80th percentile[1] of reference site[2] concentration[3] or 3.4, whichever is higher~~	~~95th percentile[1] of reference site[2] concentration[3] or 0.01, whichever is lower~~	~~Reference site concentration[2] or 50, whichever is higher~~	~~220 or three times the reference site concentration[2], whichever is higher~~
~~Manganese~~	~~80th percentile[1] of reference site[2] concentration[3] or 1900, whichever is higher~~	~~95th percentile[1] of reference site[2] concentration[3]~~	~~Reference site concentration[2]~~	~~Three times the reference site concentration[2]~~
~~Nickel~~	~~80th percentile[1] of reference site[2] concentration[3] or 11, whichever is higher~~	~~95th percentile[1] of reference site[2] concentration[3] or 1, whichever is lower~~	~~Reference site concentration[2] or 21, whichever is higher~~	~~52 or three times the reference site concentration[2], whichever is higher~~
~~Uranium~~	~~80th percentile[1] of reference site[2] concentration[3]~~	~~95th percentile[1] of reference site[2] concentration[3] or 0.2, whichever is lower~~	~~Reference concentration[2]~~	~~Three times the reference concentration[2]~~
~~Zinc~~	~~80th percentile[1] of reference site[2] concentration[3] or 8.0~~	~~95th percentile[1] of reference site[2] concentration[3] or 20, whichever is lower~~	~~Reference concentration[2] or 200, whichever is higher~~	~~410 or three times the reference concentration[2], whichever is higher~~
~~Total Hardness~~	~~For interpretive purposes only~~		~~Not applicable~~	
~~Total Organic Carbon~~	~~Not applicable~~		~~For interpretive purposes~~	
~~Particle size distribution~~	~~Not applicable~~		~~For interpretive purposes~~	

~~1. Must be determined in accordance with QWQG (2009) and ANZECC (2000) methodology.~~

~~2. Reference sites are specified in Schedule C - Table 3 (Receiving Waters Monitoring Locations).~~

~~3. Where the 80th/95th percentile of a water quality trigger level/contaminant limit 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 water quality trigger level/contaminant limit for the duration of the event.~~

~~4. Site specific trigger levels and contaminant limits for water quality (80th and 95th percentile of reference site concentration) must be calculated in accordance with QWQG (2009) and ANZECC (2000) methodology if sufficient monitoring data is available. The environmental authority holder must maintain a database documenting all relevant water quality monitoring data and calculation of 80th/95th percentiles adopted as water quality trigger levels and contaminant limits.~~

~~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. For all water quality monitoring, metals and metalloids must be measured and reported as both total (unfiltered) and dissolved (field filtered) concentrations.~~

~~7. All stream sediment sampling must be undertaken in accordance with AS 5667.12 *Guidance on Sampling of Bottom Sediments of 1998*.~~

~~TBD – The holder must determine a trigger level and contaminant limit for Electrical Conductivity in accordance with the REMP, relevant provisions of the Environmental Protection (Water) Policy 2009 and ANZECC (2000) methodology before 1 October 2013.~~

Schedule C - Table 5 (Receiving Waters Trigger Levels and Contaminant Limits)

Parameter[a]	Trigger Level	Contaminant Limit
pH (pH units)	6.5 – 8.5 [b]	
EC (µS/cm)	550 [c]	630 [d]
Sulfate (mg/L)	For interpretation purposes	
Fluoride (mg/L)	1.7 [b]	
Aluminium (mg/L)	0.26 [e]	0.43 [f]
Arsenic (mg/L)	0.013 [b]	
Boron (mg/L)	0.94 [b]	
Cadmium (mg/L)	0.0002 [b]	
Chromium (mg/L)	0.001 [b]	
Cobalt (mg/L)	0.0014 [b]	
Copper (mg/L)	0.006 [e]	0.009 [f]
Lead (mg/L)	0.0034 [b]	
Manganese (mg/L)	1.9 [b]	
Nickel (mg/L)	0.011 [b]	
Uranium (mg/L)	0.0005[b]	
Zinc (mg/L)	0.009 [e]	0.044 [f]
Silver (mg/L)	For interpretation purposes	
Total hardness	For interpretation purposes	
Dissolved organic carbon	For interpretation purposes	
Major ions (calcium, chloride, potassium, magnesium, sodium, bicarbonate, carbonate)	For interpretation purposes	

a. Metals and metalloids must be measured and reported as both total (unfiltered) and dissolved (field filtered) levels. Contaminant limits apply to dissolved concentrations only.
b. DGVs for the protection of moderately disturbed (95% species protection) aquatic ecosystems from ANZG (2018), unless otherwise specified. DGVs may be hardness and DOC corrected in accordance with current ANZG guidance.
c. Queensland Water Quality Guidelines (2009), 80th percentile of Gulf data adopted for EC.
d. Queensland Water Quality Guidelines (2009), 95th percentile of Gulf data adopted for EC.
e. Site-specific value based on 80th percentile of GPU1 data collected at background flows >2 m^3/s.
f. Site-specific value based on 95th percentile of GPU1 data collected at background flows >2 m^3/s.

(C3-2) For a period of three (3) years commencing on 1 November 2025, ~~C~~contaminant levels in receiving waters ~~(for water quality and sediment quality)~~ must not exceed any of the contaminant limits specified in Schedule C - Table 4 (Receiving Waters ~~Contaminant Trigger Levels and~~ Interim Contaminant Limits).

(C3-3) From 1 November 2028, contaminant levels in receiving waters must not exceed any of the contaminant limits specified in Schedule C - Table 5 (Receiving Waters Trigger Levels and Contaminant Limits).

(C3-~~4~~3) From 1 November 2028, ~~I~~if a receiving waters ~~sediment quality or~~ water quality parameter exceeds the trigger level specified in Schedule C - Table ~~4~~5 (Receiving Water ~~and Sediment Contaminant~~ Trigger Levels and Contaminant Limits) at a receiving water site specified in Schedule C - Table 3 (Receiving Waters Monitoring Locations), the holder must compare this result to the applicable reference site; and

(a) If the contaminant level at the receiving water site is less than the contaminant level at the reference site, no further action is required for this exceedance event; or

(b) If the contaminant level at the downstream receiving water site is greater than the contaminant level measured at the reference site:

i. Undertake sampling of potentially impacted receiving waters for all parameters listed in

Schedule C - Table 5~~4~~ (Receiving Waters Contaminant Trigger Levels and Contaminant Limits) and at all monitoring points defined in Schedule C - Table 3 (Receiving Waters Monitoring Locations) as soon as possible following identification of~~-~~ the exceedance; and

ii. Complete an investigation on the potential for environmental harm to occur in accordance with ANZECC (2000) methodology, within three (3) months of identifying this exceedance.

Note: Where a contaminant trigger level exceedance has occurred and is under investigation in accordance with condition (C3-4~~4-3~~) (b), no further reporting is required for subsequent exceedance events of that parameter during the course of the investigation.

(C3-5~~4~~) Within one (1) week of completing an investigation required for condition (C3-4~~3~~) (b), the holder must provide a written report to the administering authority detailing:

(a) All pertinent aspects of the investigation including objectives, applied methodology, investigation outcomes, assumptions relied upon and justification for any assertions made; and

(b) Any actions undertaken and/or proposed (including timeframes) to prevent or minimise environmental harm.

(C3-4~~5~~) By 30 June each year the holder must provide a written report to the administering authority outlining an assessment of each release event within the previous 12 months against Schedule C conditions C1-1 to C3-3. ~~For each calendar month during which a contaminant release or flow event has occurred, the holder must compile a report on all monitoring data required for conditions (C2-2), (C2-6) and (C3-1) of this authority, including a review of compliance with conditions of the authority, within fourteen days of that calendar month concluding.~~

Receiving Environment Monitoring Program (REMP)

(C4-1) The holder must ensure that a REMP is developed by a suitably skilled and competent person to monitor change in the receiving environment, detect any impacts from the mining activities and determine the extent of any identified impact. At minimum, the REMP must include:

(a) Monitoring of the receiving environment including but not limited to all underlying groundwater, Gunpowder Creek, tributaries and clean water diversions (to the extent that impacts could reasonably be expected to occur as a result of the mining activities).

(b) Certification from a suitably skilled and competent person that the REMP complies with all conditions of this environmental authority.

(c) A description of potentially affected receiving waters including key communities and background water quality characteristics based on accurate and reliable monitoring data that takes into consideration any temporal and spatial variation.

(d) Identification of applicable environmental values and water quality objectives to be achieved in accordance with the Environmental Protection (Water) Policy 2009.

(e) Water quality indicators for the receiving environment to monitor achievement of water quality objectives for the duration of the REMP.

(f) Consideration of relevant reports prepared by a government agency or professional research organisation relating to the receiving environment within which the REMP will be implemented.

(g) Consideration of relevant historical datasets (where available).

(h) Determination of receiving environment monitoring locations that include sufficient reference/background and test sites in accordance with ANZECC (2000) methodology to detect and characterise any potential impacts from the mining activities.

(i) Monitoring conducted as part of the REMP must include at minimum;

i. Use of biological indicators (including macroinvertebrates) in accordance with ANZECC (2000) and AusRivas methodology;

ii. Monitoring of metal/metalloid levels of receiving water sediments in accordance with

ANZECC (2000) methodology and the most recent version of AS5667.1 Guidance on Sampling of Bottom Sediments;

iii. Monitoring for any potential toxicants and stressors including all parameters specified in Schedule C - Table 5 (Receiving Waters Contaminant Trigger Levels and Contaminant Limits), dissolved oxygen saturation and temperature;

iv. Sampling frequencies sufficient to develop site specific contaminant limits and trigger levels before 1 September 2013 and detect any impacts to the receiving environment from the mining activity;

v. Monitoring of stream flow and hydrology; and

vi. Consideration of spatial and temporal variation in the receiving environment.

(j) A REMP procedure, that when implemented will:

i. Identify potential adverse environmental impacts caused by mining activities;

ii. Determine achievement of water quality objectives; and

iii. Achieve all other requirements of the REMP.

(k) The REMP procedure must outline methodology and implementation instructions sufficient to achieve all monitoring requirements of the REMP and include;

i. Location of monitoring points;

ii. Sampling frequencies;

iii. Sample collection and analysis methodology;

iv. Monitoring data storage, collation and interpretation (including statistical analyses);

v. Procedures for quality assurance and control; and

vi. Clearly define responsibilities for implementation of the REMP procedure.

(C4-2) The holder must ensure that the REMP has been developed and implemented before 1 October 2013 in accordance with all requirements of condition (C4-1) of this environmental authority, and a copy of the REMP has been provided to the administering authority at least one month prior to its implementation.

(C4-3) The holder must provide a written report outlining the findings of the REMP to the administering authority by 1 October 2015 and thereafter every twelve months. This report must be developed in consultation with a suitably skilled and competent person and include:

(a) All monitoring results as required for condition (C4-1) of this environmental authority;

(b) Interpretation of the monitoring results;

(c) An assessment of all detected impacts to the receiving environment;

(d) An assessment of assimilative capacity of the receiving environment for any detected contaminants;

(e) The suitability of environmental authority contaminant release limits to protect downstream environmental values; and

(f) If contaminant release limits are identified as unsuitable to protect downstream environmental values, provide recommendations for more appropriate contaminant limits; and

(g) Certification from the suitably skilled and competent person confirming the validity of all interpretations, assessments and assertions made in the report.

Groundwater

(C5-1) Groundwater quality and hydraulic head (m AHD) must be monitored at the locations and frequencies specified in Schedule C - Table 5 (Groundwater Monitoring Locations and Frequency) and identified in Schedule I – Plan 3 (Groundwater Monitoring Locations) for all parameters listed in Schedule C - Table 6 (Groundwater Trigger Levels and Contaminant Limits).

Schedule C - Table 5 (Groundwater Monitoring Locations and Frequency)

Monitoring Point	Purpose of monitoring bore	Coordinates (GDA94)		Surface RL[1]	Monitoring frequency
		Latitude	Longitude		
Compliance Bores (CB)					• 1 sample every 3 months for groundwater quality; and • 1 sample every month for groundwater level
GWMB02	Esperanza TSF	S 19°41'43.7"	E 139°21'21.4"	278.641	
GWMB03R	Esperanza TSF	S 19°41'24.7"	E 139°21'25.6"	277.209	
GWMB04R	Esperanza TSF	S 19°41'32.4"	E 139°21'15.1"	275.078	
GWMB05R	Esperanza TSF	S 19°41'39.6"	E 139°21'03.4"	285.29	
GWMB06R	Esperanza TSF	S 19°41'46.1"	E 139°21'00.9"	291.546	
GWMB07	Esperanza TSF	S 19°42'04.7"	E 139°21'03.5"	269.271	
GWMB08	Old TSF	S 19°41'20.1"	E 139°21'57.5"	215.245	
GWMB09	Old TSF	S 19°41'20.1"	E 139°21'57.5"	215.15	
GWMB10	Old TSF	S 19°41'20.4"	E 139°21'59.2"	215.205	
GWMB11	Old SX Tanks/Mill Creek Dam	S 19°41'23.8"	E 139°21'57.4"	215.795	
GWMB12	Old SX Tanks/Mill Creek Dam	S 19°41'25.1"	E 139°21'55.5"	215.017	
GWMB13	Old SX Tanks/Mill Creek Dam	S 19°39'49.2"	E 139°21'55.8"	215.229	
GWMB16	Esperanza Pit	S 19°41'41.5"	E 139°21'41.7"	219.151	
GWMB18	North WRD	S 19°41'19.2"	E 139°21'33.7"	256.98	
GWMB19	North WRD	S 19°41'21.5"	E 139°21'31.4"	201.647	
GWMB21	Heap Leach Pads	S 19°42'07.0"	E 139°21'59.3"	313.332	
GWMB22	Heap Leach Pads	S 19°42'07.8"	E 139°22'03.6"	311.613	
GWMB24	Magazine Creek Raw Water Dams	S 19°41'36.3"	E 139°22'21.0"	260.948	
GWMB26	Heap Leach Pads/Magazine Creek	S 19°41'25.8"	E 139°22'15.8"	245.917	
GWMB29	Old TSF	S 19°41'05.2"	E 139°22'03.8"	224.507	
GWMB30	North West Gulley Dam	S 19°41'06.8"	E 139°21'53.7"	202.389	
GWMB31	Old TSF/Gunpowder Creek	S 19°41'04.5"	E 139°21'59.7"	222.946	
GWMB32	Old TSF/Gunpowder Creek	S 19°41'02.8"	E 139°22'04.3"	198.972	
GWMB33	Old TSF/Gunpowder Creek	S 19°40'58.9"	E 139°22'08.4"	199.9	
GWMB34	Magazine Creek Raw Water Dams	S 19°42'04.9"	E 139°22'18.5"	276.54	
GWMB35	Gunpowder Creek	S 19°40'49.1"	E 139°22'33.0"	196.592	
GWMB36	Gunpowder Creek	S 19°40'56.3"	E 139°22'10.2"	196.78	
GWMB37	Esperanza South	S 19°42'13.5"	E 139°20'59.1"	231.618	
GWMB41	North WRD/Mill Creek	S 19°41'18.5"	E 139°21'40.1"	206.774	
GWMB42	North WRD/Mill Creek	S 19°41'19.4"	E 139°21'36.3"	201.359	
GWMB43	Old Heap Leach/Magazine Creek	S 19°42'12.3"	E 139°22'05.8"	296.065	
GWMB44	Old Heap Leach/Magazine Creek	S 19°41'49.0"	E 139°22'08.1"	227.428	
GWMB45	Esperanza Pit	S 19°41'51.2"	E 139°21'37.3"	225.621	
GWMB46	Esperanza Pit	S 19°41'54.6"	E 139°21'34.9"	223.208	
GWMB48*	Old TSF	S 19°40'56.3"	E 139°22'10.2"	228.503	
GWMB63	North WRD	S 19°41' 29.68"	E 139°21' 25.71"	266.0 [2]	
GWMB64	North WRD	S 19°41' 20.35"	E 139°21' 26.71"	197.2 [2]	
GWMB65	North WRD	S 19°41' 20.03"	E 139°21' 30.06"	200.9 [2]	
GWMB66	North WRD	S 19°41' 20.04"	E 139°21' 32.61"	198.1 [2]	
Reference Bores (RB)					
GWMB38[1]	Esperanza South	S 19°42'39.4"	E 139°21'11.3"	295.33	

[1] RL must be measured to the nearest 0.05 metres from the top of the bore casing in m AHD.
[2] Approximate surface level based on 2018 lidar survey. To be confirmed at time of installation

(C5-2) Groundwater from compliance bores identified in Schedule C - Table 5 (Groundwater Monitoring Locations and Frequency) must not exceed any of the contaminant limits defined in Schedule C - Table 6 (Groundwater Trigger Levels and Contaminant Limits).

(C5-3) If a groundwater parameter for a compliance bore identified in Schedule C - Table 5 (Groundwater Monitoring Locations and Frequency) exceeds the trigger level stated in Schedule C - Table 6 (Groundwater Trigger Levels and Contaminant Limits), the holder must compare the contaminant level of the compliance bore to the contaminant level of the reference bore; and,

(a) If the contaminant level of the compliance bore is less than the contaminant level of the reference bore, no action is to be taken; or

(b) If the contaminant level of the compliance bore is greater than the contaminant level of the

reference bore, complete an investigation on the potential for environmental harm to occur in accordance with ANZECC (2000) methodology within three (3) months of identifying this exceedance.

Note: Where exceedance of a trigger level has occurred and is under investigation in accordance with condition (C5-3) (b), no further reporting is required for subsequent trigger events of that parameter during the course of the investigation.

Schedule C - Table 6 (Groundwater Trigger Levels and Contaminant Limits)

Parameter*	Trigger Level# (µg/L unless otherwise specified)	Contaminant Limit # (mg/L unless otherwise specified)
pH (pH units)	6.0 – 8.5	
EC (µS/cm)	435	1,000
Sulphate (SO_4^{2-})	80th percentile[1] of reference bore level[2] or 250 mg/L, whichever is higher	95th percentile[1] of reference bore[2] concentration[3] or 1,000, whichever is lower
Fluoride (F^-)	80th percentile[1] of reference bore concentration[2]	2
Major cations	For interpretive purposes only	
Major anions	For interpretive purposes only	
Aluminium	80th percentile[1] of reference bore[2] concentration[3] or 55, whichever is higher	95th percentile[1] of reference bore[2] concentration[3] or 5, whichever is lower
Arsenic[4]	80th percentile[1] of reference bore[2] concentration[3] or 13, whichever is higher	95th percentile[1] of reference bore[2] concentration[3] or 0.5, whichever is lower
Boron	80th percentile[1] of reference bore[2] concentration[3] or 370, whichever is higher	95th percentile[1] of reference bore[2] concentration[3] or 5, whichever is lower
Cadmium	80th percentile[1] of reference bore[2] concentration[3] or 0.2, whichever is higher	95th percentile[1] of reference bore[2] concentration[3] or 0.01, whichever is lower
Chromium[4]	80th percentile[1] of reference bore[2] concentration[3] or 1.0, whichever is higher	95th percentile[1] of reference bore[2] concentration[3] or 1, whichever is lower
Cobalt	80th percentile[1] of reference bore[2] concentration[3]	95th percentile[1] of reference bore[2] concentration[3] or 1, whichever is lower
Copper	80th percentile[1] of reference bore[2] concentration[3] or 1.4, whichever is higher	95th percentile[1] of reference bore[2] concentration[3] or 1, whichever is lower
Lead	80th percentile[1] of reference bore[2] concentration[3] or 3.4 , whichever is higher	95th percentile[1] of reference bore[2] concentration[3] or 0.01, whichever is lower
Manganese	80th percentile[1] of reference bore[2] concentration[3] or 1900, whichever is higher	95th percentile[1] of reference bore[2] concentration[3]
Nickel	80th percentile[1] of reference bore[2] concentration[3] or 11, whichever is higher	95th percentile[1] of reference bore[2] concentration[3] or 1, whichever is lower
Uranium	80th percentile[1] of reference bore[2] concentration[3]	95th percentile[1] of reference bore[2] concentration[3] or 0.2, whichever is lower
Zinc	80th percentile[1] of reference bore[2] concentration[3] or 8.0	95th percentile[1] of reference bore[2] concentration[3] or 20, whichever is lower
Total Hardness	For interpretive purposes only	

1. Must be determined in accordance with QWQG (2009) and ANZECC (2000) methodology.
2. Reference bores are specified in Schedule C - Table 5 (Groundwater Monitoring Locations and Frequency).
3. Where the 80th/95th percentile of a groundwater trigger level/contaminant limit is exceeded for a compliance bore and the reference bore also exceeds this concentration during the same sampling event, the value of the reference bore applies as the groundwater trigger level/contaminant limit for that sampling event.
4. Site specific trigger levels and contaminant limits for groundwater (80th and 95th percentile of reference site concentration) must be calculated in accordance with QWQG (2009) and ANZECC (2000) methodology if sufficient monitoring data is available. The environmental authority holder must maintain a database documenting all relevant groundwater monitoring data and calculation of 80th/95th percentiles adopted as groundwater trigger levels and contaminant limits.
5. Routine analysis for this parameter is based on combined/total species of the element, where the exceedance of a groundwater trigger level or contaminant limit is identified, an additional sample must be taken and analysed as soon as practicable to determine and quantify speciated forms of this element.
6. For all groundwater monitoring, metals and metalloids must be measured and reported as both total (unfiltered) and dissolved (field filtered) concentrations.

* Note: The holder may provide the administering authority with a report to enable the review of specified parameters and contaminant limits for protection of environmental values of receiving waters and their applicability.

(C5-4) Groundwater monitoring bores must be constructed and operated in accordance with methods prescribed in the latest edition of the Agriculture and Resource Management Council of Australia and New Zealand manual titled *Minimum Construction Requirements for Water Bores in Australia.*

(C5-5) The holder must develop and implement a groundwater monitoring program within three (3) months of the commencement of underground mining. The program must include:

(a) monitoring of contaminants listed in Schedule C - Table 6 (Groundwater Trigger Levels and Contaminant Limits).

(b) sufficient locations to detect changes in groundwater elevation contours and flow direction.

Annual Groundwater Monitoring Report

(C6-1) The holder must develop and document an annual Groundwater Monitoring Report by 1 June 2014 and thereafter every twelve months. The Groundwater Monitoring Report must be developed and certified by a suitably skilled and competent person who is experienced in developing and interpreting results for groundwater monitoring programs related to mining activities.

(C6-2) The Groundwater Monitoring Report specified for condition (C6-1) of this authority must include at minimum:

(a) Certification from the suitably skilled and competent person that the Groundwater Monitoring Report meets all requirements outlined in this authority;

(b) Presentation of all groundwater monitoring data for groundwater monitoring bores listed in Schedule C - Table 4 (Groundwater Monitoring Locations) of this authority;

(c) Consideration and discussion on the effectiveness of the current Groundwater Monitoring Program for detecting contamination of groundwater and nomination of any improvements that could be made to ensure early detection of impacts to groundwater as required;

(d) Proposed actions and timeframes to undertake further investigation of potential environmental impacts for any detected contamination of groundwater not in accordance with this authority; and

(e) Proposed mitigation measures and implementation timeframes for any detected contamination of groundwater not in accordance with this authority.

Water Management Plan

(C7-1) A Water Management Plan must be developed by a suitably skilled and competent person and implemented before 31 October 2013 for all mining activities conducted under this authority. The Water Management Plan must provide for the proper and effective management of actual and potential environmental impacts resulting from the mining activity and ensure compliance with all conditions of this authority.

(C7-2) The Water Management Plan must be developed in accordance with the administering authority's *Guideline for Preparing a Water Management Plan 2009* or any updates that become available from time to time. The Water Management Plan must include at minimum:

(a) A contaminant source study;

(b) A site water balance and model;

(c) A water management system;

(d) Saline and metalliferous drainage prevention and management measures;

(e) Acid rock drainage prevention and management measures;

(f) Measures to prevent or minimise contamination of stormwater runoff, including;

i. Diversion of uncontaminated stormwater runoff around areas disturbed by mining activities or where contaminants or wastes are stored or handled;

ii. Collection and segregation of contaminated stormwater runoff and leachate for treatment, reuse or release in accordance with the conditions of this environmental authority;

iii. Roofing or minimising the size of areas where contaminants or wastes are stored or handled; and

iv. Using alternate materials and or processes (such as dry absorbents) to clean up spills

to minimise the generation of contaminated waters.

(g) Erosion and sediment controls, including;

i. Placement of erosion and sediment control structures to minimise erosion of disturbed areas and prevent contamination of waters;

ii. Procedures to ensure that erosion and sediment control structures are maintained and adequate storage is available in sediment dams in accordance with design criteria; and

iii. Training of staff that will be responsible for maintenance and operations of sediment and erosion control structures.

(h) Emergency and contingency planning; and

(i) Provisions for monitoring and review.

(C7-3) Each year the holder must undertake a review of the Water Management Plan prior to the wet season (i.e., no later than 1 November) and a further review following the wet season (i.e., by 1 April the following year) to ensure that proper and effective *measures, practices and procedures are in place so that* operations are in accordance with the conditions of this authority and that environmental harm is prevented or minimised.

Water General

(C8-1) Water samples collected from monitoring locations specified in Schedule C - Water of this authority must be taken:

(a) Within two hours of each other for samples linked to a particular release event (i.e., the reference site, release point and receiving water site associated with a release event); or

(b) Within six hours of each other for samples linked to a particular flow event (i.e., the reference site and receiving water site associated with a flow event); or

(c) Within twenty-four hours of each other for all other receiving waters (water) quality samples; or

(d) Within forty-eight hours of each other for all receiving waters sediment samples and groundwater quality samples.

Dam Water Quality

(C9-1) The holder must monitor the water quality within any dam associated with the mining activity at a minimum frequency of once every six (6) months for the parameters specified in Schedule C – Table 7 (Dam Water Quality Limits).

(C9-2) If a water quality parameter exceeds the contaminant limit specified in Schedule C – Table 7 (Dam Water Quality Limits) in any dam associated with the mining activity, the holder must prevent livestock access and minimise native fauna access.

Schedule C - Table 7 (Dam Water Quality Limits)

Parameter	Contaminant Limit# (mg/L unless otherwise specified)
pH (pH unit)	Less than 5.0 or greater than 9.0
Total dissolved solids	4,000
Sulphate	1,000
Fluoride	2.0
Aluminium	5.0
Arsenic	0.5
Boron	5.0
Cadmium	0.010
Chromium	1.0
Cobalt	1.0
Copper	1.0

Parameter	Contaminant Limit# (mg/L unless otherwise specified)
Lead	0.10
Manganese	0.50
Nickel	1.0
Uranium	0.20
Zinc	20.0

All metals/metalloid analyses are for total (unfiltered) concentrations.

Temporary Watercourse Diversion

(C10-1) The temporary watercourse diversion identified in Schedule I – Plan 4 must be designed and constructed to:

(a) maintain the pre-existing hydrologic characteristics of the surface water system; and

(b) maintain the pre-existing hydraulic characteristics of the surface water system that forms part of the temporary watercourse diversion. Where structures that require on-going maintenance are constructed as a component of the temporary watercourse diversion, they must not compromise the performance of the temporary watercourse diversion and adjoining watercourses; and

(c) maintain sediment transport and water quality regimes that minimise any impacts to upstream and downstream water quality, geomorphology or vegetation; and

(d) maintain the functionality of the substrate in the diversion.

(C10-2) A certified Design Plan that achieves the requirements of condition C10-1 must be submitted to the administering authority at least five (5) business days before commencing construction of the temporary watercourse diversion.

(C10-3) A certified set of ‘as constructed’ drawings and specifications must be submitted to the administering authority within sixty (60) business days from the completion of construction of the temporary watercourse diversion. These drawings and specifications must include:

(a) certification from the suitably qualified and experienced person who supervised the construction of the watercourse diversion.

(b) that the 'as constructed' drawings and specifications of the watercourse diversion are in accordance with the certified design plan.

(C10-4) The holder must implement and maintain a Register of Watercourse Diversions that contains details of temporary watercourse diversions planned and constructed at the licensed place.

(C10-5) The temporary watercourse diversion identified in Schedule I – Plan 4 must be decommissioned by 1 November 2028.

(C10-6) Before 1 November 2024 and every one year after, the holder must prepare an annual inspection report from a suitably qualified and experienced person that contains an assessment of the performance of the temporary watercourse diversion and includes any recommended actions to ensure the integrity of the structure.

(C10-7) The holder must within 20 days of receiving the report mentioned in condition C10-6, provide to the administering authority:

(a) the recommendation section of the report; and

(b) if applicable, any actions being undertaken in response to those recommendations.

END OF CONDITIONS FOR SCHEDULE C

Schedule D - Noise and Vibration

Noise nuisance

(D1-1) Noise from the mining activity must not cause an environmental nuisance, at any sensitive place.

(D1-2) When requested by the administering authority, noise monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised person) of environmental nuisance at any sensitive place, and the results must be notified within **14 days** to the administering authority following completion of monitoring.

Vibration nuisance

(D2-1) Subject to Conditions (D2-2) vibration from the mining activity must not cause an environmental nuisance, at any sensitive place.

(D2-2) When requested by the administering authority, vibration monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised person) of environmental nuisance at any sensitive place, and the results must be notified within **14 days** to the administering authority following completion of monitoring.

END OF CONDITIONS FOR SCHEDULE D

Schedule E - Waste

Storage of tyres, conveyer belts and mill liners

(E1-1) Tyres, conveyer belts and mill liners stored awaiting disposal or transport for take-back and recycling, or waste-to-energy options - should be stockpiled in volumes less than 3m in height and 200m^2 in area and at least 10m from any other tyre, conveyer belt and mill liner storage area.

(E1-2) All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a 10m radius of the scrap tyre, conveyer belt and mill liner storage area.

Disposal of tyres, conveyer belts and mill liners

(E2-1) Where practicable, scrap tyres, conveyer belts and mill liners resulting from the mining activities can be disposed of in underground stopes provided this practice does not cause an unacceptable fire risk or compromise mine safety.

(E2-2) Disposing of scrap tyres, conveyer belts and mill liners resulting from the mining activities in spoil emplacements is acceptable, provided tyres are placed as deep in the spoil as reasonably practicable.

(E2-3) Scrap tyres, conveyer belts and mill liners resulting from the mining activities disposed within the operational land must not impede saturated aquifers or compromise the stability of the consolidated landform.

Regulated waste

(E3-1) All regulated waste received at and removed from the site must be transported by a person who holds a current authority to transport such waste under the provisions of the *Environmental Protection Act 1994*.

(E3-2) Except as otherwise provided by the conditions of this authority, all waste removed from the site must be taken to a facility that is lawfully allowed to accept such waste under the provisions of the *Environmental Protection Act 1994*.

Tailings management

(E4-1) A tailings management procedure must be developed and implemented. These procedures must include provisions for:

- (a) Containment of tailings in accordance with best practice environmental management;
- (b) The management of seepage or leachate during operation and post-closure;
- (c) The control of fugitive emissions to air;
- (d) Characterisation of tailings to identify the potential to generate contaminated seepage or leachate must be undertaken at a minimum frequency of once every month during tailings deposition. Characterisation must include:
  - i. Determining the acid producing potential through calculating both the ‘Net Acid Producing Potential’ and the ‘Net Acid Generation test’.
  - ii. Determining the level of aluminium, arsenic, boron, cadmium, chromium, cobalt, copper, lead, manganese, nickel, uranium and zinc.
  - iii. Where the acid producing potential of tailings material has not been conclusively determined, tailings material must be considered as acid forming unless further geochemical testing demonstrates otherwise.
- (e) Reducing the exposure of potentially acid producing tailings to oxidizing conditions;
- (f) A rehabilitation strategy which meets the rehabilitation objectives specified in Schedule F – Land of this environmental authority; and

(g) Monitoring of rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of tailings, including the prevention and management of acid drainage, erosion minimisation and establishment of vegetation cover.

The holder must provide a copy of the current tailings management procedure to the Administering Authority when requested.

(E4-2) Tailings must be contained in the designated tailings storage areas (TSF) listed in Schedule A - Table 1 (Authorised Mining Activities) and must not be released to the receiving environment.

END OF CONDITIONS FOR SCHEDULE E

Schedule F - Land

Rehabilitation Objectives

(F1-1) Land disturbed by mining must be rehabilitated in accordance with Schedule F – Table 1 (Rehabilitation Requirements).

Schedule F - Table 1 (Rehabilitation Requirements)

Infrastructure	Rehabilitation Goals	Rehabilitation Objectives	Indicators	Completion Criteria
Old TSF	All land subject to mining activities must be rehabilitated to meet the requirements of the administering authorities Guideline- Rehabilitation Requirements for Mining Projects and will be defined in the Post Mine Land Use Plan.	TBD[1]	TBD[1]	TBD[1]
North West Gully				
Concentrate Shed Area				
Old SX-EW Plant				
BioteQ Plant				
Concentrator				
Main Workshop and Office Areas				
Stormwater Pond				
ROM Pad				
DSO Stockpile Pad				
Mill Creek Dam				
Hoover Dam (Old Mill Creek)				
Esperanza Bypass Ramp				
North WRD Embankment				
North WRD Sump				
Process Ponds (Old Raffinate Ponds)				
Mammoth WRD				
Mammoth WRD Extension				
Batch Plant				
Old Dump Sump				
Heap Leach Pad 1				
Heap Leach Pad 2				
Mammoth Valley & Mammoth Hill				
Underground Infrastructure				
Core Shed & Contractors Area				
Magazine Creek Raw Water Dams				
Exploration Drill Pads & Tracks				
Esperanza WRD				
Esperanza Diversion Drain				
Upper Esperanza Diversion Dam				
Esperanza Pit				
North WRD Evaporation Pan				
Esperanza TSF				
North WRD Surface				
Explosives Magazine				
Camp Area				
Magazine Creek				
Haul Roads				
ESS upper cave subsidence zone				
Paste Fill Plant				

[1]TBD – The holder must provide these details to the administering authority in accordance with condition (F3-1).

Rehabilitation landform criteria

(F2-1) Progressive rehabilitation must commence within twelve (12) months of areas becoming available within the operational land. Progressive rehabilitation should occur where possible before the onset of the wet season.

(F2-2) Rehabilitated areas must be managed to minimise the proliferation of species not consistent with rehabilitation objectives.

(F2-3) All land subject to mining activities must be rehabilitated to:

(a) Stable landforms with a self-sustaining vegetation cover and species that are similar to adjoining undisturbed areas;

(b) Safe landforms, which are non-polluting, geo-chemically and geo-technically stable;

(c) Ensure that any final landforms do not require ongoing maintenance; and

(d) Ensure that the maintenance requirements for rehabilitated land are no greater than that required for the land prior to its disturbance by mining activities.

(F2-4) Maintenance of rehabilitated areas must take place to ensure and demonstrate that:

(a) Landforms are stable;

(b) Erosion control measures remain effective;

(c) Stormwater runoff and seepage from subsidence zones and rehabilitated areas does not negatively affect the environmental values of any waters;

(d) Plants show healthy growth and recruitment is occurring; and

(e) Rehabilitated areas are free of any declared pest species.

(F2-5) Rehabilitation can be considered successful when:

(a) The site can be managed for its designated land-use (e.g., similar to that of surrounding undisturbed areas);

(b) No greater management input is required than for other land in the area being used for a similar purpose and there is evidence that the rehabilitation has been successful for at least three (3) years;

(c) The rehabilitation is carried out in accordance with all requirements (including goals, objectives, indicators and completion criteria) specified in Schedule F - Table 1 (Rehabilitation Requirements) and in the Post Mine Land Use Plan; and

(d) Written agreement is obtained from the landowner/holder and the administering authority.

Post Mine Land Use Plan

(F3-1) The holder must develop and submit to the administering authority a Post Mine Land Use Plan (PMLUP). The PMLUP must describe how the rehabilitation objectives in Schedule F - Table 1 (Rehabilitation Requirements) will be achieved. The Post Mine Land Use Plan must include at minimum:

(a) Schematic representation of final land form inclusive of drainage features;

(b) Slope design;

(c) Cover design;

(d) Drainage design;

(e) Erosion controls proposed on reformed land;

(f) Description of experimental design for monitoring of analogue and rehabilitated areas inclusive of statistical design;

(g) Proposed re-vegetation methods inclusive of plant species selection, re-profiling, re-

spreading soil, soil ameliorants/amendments, surface preparation and method of propagation;

(h) Materials balance including available top soil and low permeability capping material ;

(i) Geotechnical, geochemical and hydrological studies;

(j) An investigation of residual voids that includes at minimum;

(k) options available for minimising final void area and volume;

(l) final potential wall and base rock geochemical composition and potential for mobilisation of contaminants to waters (i.e., acid, salts and metals); and

(m) a void hydrology study addressing the long-term water balance in the voids, connections to groundwater and an assessment of potential final void water quality.

(n) Chemical, physical and biological properties of soil and water;

(o) Nominate performance criteria for the cover system; and

(p) A rehabilitation monitoring program.

The holder must provide a copy of the current Post Mine Land Use Plan (PMLUP) to the Administering Authority when requested.

Rehabilitation Monitoring Program

(F4-1) A rehabilitation monitoring program must be developed and implemented on commencement of rehabilitation identified in Schedule F - Table 1 (Rehabilitation Requirements) by a person nominated by the holder of this environmental authority possessing appropriate qualifications and experience in the field of mine site rehabilitation.

(F4-2) The holder must conduct rehabilitation monitoring in accordance with the program developed in Condition (F4-1) on at least a yearly basis, which must include sufficient spatial and temporal replication to enable scientifically justifiable conclusions as established under the rehabilitation program or other methodology to the satisfaction of the administering authority.

(F4-3) Verification of rehabilitation success is to be carried out for each domain. Monitoring must be carried out for each mine domain identified in Schedule F - Table 1 (Rehabilitation Requirements) at a minimum sampling intensity that includes sufficient replication to enable statistical analysis of results at an acceptable power.

Post Closure Management Plan

(F5-1) A Post Closure Management Plan for the site must be prepared by 1 November 2018 or at least thirty six (36) months prior to final production on-site, whichever is sooner, and implemented until:

(a) The site is proven to be geo-technically and geo-chemically stable; and

(b) It can be demonstrated to the satisfaction of the administering authority that no release of contaminants from the site will result in environmental harm.

(F5-2) The Post Closure Management Plan must include the following elements:

(a) Operation and maintenance of:

(i) Wastewater collection and reticulation systems;

(ii) Wastewater treatment systems;

(iii) The groundwater monitoring network;

(iv) Final cover systems; and

(v) Vegetative cover.

(b) Monitoring of:

(i) Surface water quality;

(ii) Groundwater quality;

(iii) Seepage rates;

(iv) Erosion rates;

(v) The integrity and effectiveness of final cover systems; and

(vi) The health and resilience of vegetative cover.

Residual void outcome

(F6-1) Residual voids must not cause any serious environmental harm to land, surface waters or any recognised groundwater aquifer, other than the environmental harm constituted by the existence of the residual void itself, and subject to any other condition within this environmental authority.

Infrastructure

(F7-1) All buildings, structures, mining equipment and plant erected and/or used for the mining activities must be removed from the site prior to surrender, except where agreed in writing by the administering authority and the landowner.

Topsoil

(F8-1) Topsoil and subsoil must be stripped and stockpiled ahead of mining to a depth determined from soil surveys to ensure that useable soil resources are preserved for rehabilitation.

(F8-2) Topsoil and subsoil stockpiles must be managed to ensure stability and minimise the release of contaminants. Measures must include at minimum:

(a) Vegetating stockpiles;

(b) Minimising the height of stockpiles; and

(c) Re-using stockpiles as soon as possible.

Contaminated Land

(F9-1) Prior to making an application for Surrender or approval for Progressive Rehabilitation, the holder must undertake a contaminated land assessment of the relevant areas of the licensed place in accordance with the administering authority's *Guideline for the Assessment & Management of Contaminated Land in Queensland*.

Activities in a watercourse

(F10-1) Disturbance caused by exploration investigation test pits and drill pads, groundwater monitoring bores and access tracks referred to in Schedule A – Table 1 (Authorised Disturbance) must not be carried out in flowing waters, standing waters, wetlands or lakes.

Matters of State Environmental Significance

(F11-1) Significant residual impacts to prescribed environmental matters, are not authorised under this environmental authority or the *Environmental Offsets Act 2014.*

(F11-2) Records demonstrating that each impact to a prescribed environmental matter 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.

END OF CONDITIONS FOR SCHEDULE F

Schedule G – Dam and levee structures

Assessment of consequence category

(G1-1) The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933) at the following times:

(a) prior to the design and construction of the structure, if it is not an existing structure; or

(b) prior to any change in its purpose or the nature of its stored contents.

(G1-2) A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.

(G1-3) Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933).

Design and construction[1] of a regulated structure

(G2-1) Conditions G2-2 to G2-6 inclusive do not apply to existing structures.

(G2-2) All regulated structures must be designed by, and constructed[2] under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933).

(G2-3) Construction of a regulated structure is prohibited unless:

(a) the holder has submitted a consequence category assessment report and certification to the administering authority; and

(b) the design and design plan and the associated operating procedures has been certified by a suitably qualified and experienced person in compliance with the relevant condition of this authority.

(G2-4) Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933), and must be recorded in the Register of Regulated Structures.

(G2-5) Regulated structures must:

(a) be designed and constructed in accordance with and conform to the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933);

(b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of:

(i) floodwaters from entering the regulated dam from any watercourse or drainage line; and

(ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line.

(c) where associated with a ‘significant’ or ‘high’ consequence for ‘failure to contain – seepage’, have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.

[1] Construction of a dam includes modification of an existing dam—refer to the definitions.
[2] Certification of design and construction may be undertaken by different persons.

(G2-6) Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that:

(a) the 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure;

(b) construction of the regulated structure is in accordance with the design plan.

Notification of affected persons

(G2-7) All affected persons must be provided with a copy of the emergency action plan in place for each regulated structure

(a) for existing structures that are regulated structures, within 20 business days of this condition taking effect;

(b) prior to the operation of the new regulated structure; and

(c) if the emergency action plan is amended, within 5 business days of it being amended.

Operation of a regulated structure

(G3-1) Operation of a regulated structure, except for an existing structure, is prohibited unless the holder has submitted to the administering authority in respect of regulated structure, all of the following:

(a) one paper copy and one electronic copy of the design plan and certification of the ‘design plan’ in accordance with condition G2-3;

(b) a set of ‘as constructed’ drawings and specifications;

(c) certification of the ‘as constructed drawings and specifications’ in accordance with condition G2-6;

(d) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan;

(e) the requirements of this authority relating to the construction of the regulated structure have been met;

(f) the holder has entered the details required under this authority, into a Register of Regulated Structures; and

(g) there is a current operational plan for the regulated structures.

(G3-2) For existing structures that are regulated structures:

(a) where the existing structure that is a regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, the holder must submit to the administering authority within 12 months of the commencement of this condition a copy of the certified system design plan including that structure; and

(b) there must be a current operational plan for the existing structures.

(G3-3) Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in a manner that is consistent with the current operational plan and, if applicable, the current design plan and associated certified ‘as constructed’ drawings.

Mandatory reporting level

(G4-1) The Mandatory Reporting Level (the MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.

(G4-2) The holder must, as soon as practical and within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.

(G4-3) The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.

(G4-4) The holder must record any changes to the MRL in Schedule G - Table 1 (Regulated Dams) in the Register of Regulated Structures.

Design storage allowance

(G5-1) The holder must assess the performance of each regulated dam over the preceding November to May period based on actual observations of the available storage in each regulated dam taken prior to 1 July of each year.

(G5-2) By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the dam (or network of linked containment systems).

(G5-3) The holder must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.

(G5-4) The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.

Annual inspection report

(G6-1) Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

(G6-2) At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include a recommendations section, with any recommended actions to ensure the integrity of the regulated structure or a positive statement that no recommendations are required.

(G6-3) The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933).

(G6-4) The holder must within 20 business days of receipt of the annual inspection report, provide to the administering authority:

(a) The recommendations section of the annual inspection report; and

(b) If applicable, any actions being taken in response to those recommendations; and

(c) If, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this to the administering authority within 10 business days of receipt of the request.

Transfer arrangements

(G7-1) The holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.

Decommissioning and rehabilitation

(G7-2) Regulated Structures must not be abandoned but be either:

(a) decommissioned and rehabilitated to achieve compliance with condition G7-3; or

(b) be left in-situ for a beneficial use(s) provided that:

(i) it no longer contains contaminants that will migrate into the environment; and

(ii) it contains water of a quality that is demonstrated to be suitable for its intended beneficial use(s); and

(iii) the administering authority, the holder of the environmental authority and the landholder agree in writing that the dam will be used by the landholder following the cessation of the environmentally relevant activity(ies).

(G7-3) After decommissioning structures, all significantly disturbed land caused by the carrying out of the environmentally relevant activity(ies) must be rehabilitated to meet the following final acceptance criteria:

(a) the landform is safe for humans and fauna;

(b) the landform is stable with no subsidence or erosion gullies for at least three (3) years;

(c) any contaminated land (e.g. contaminated soils) is remediated and rehabilitated;

(d) not allowing for acid mine drainage; or

(e) there is no ongoing contamination to waters (including groundwater);

(f) rehabilitation is undertaken in a manner such that any actual or potential acid sulfate soils on the area of significant disturbance are treated to prevent or minimise environmental harm in accordance with the Instructions for the treatment and management of acid sulfate soils (2001);

(g) all significantly disturbed land is reinstated to the pre-disturbed soil suitability class;

(h) for land that is not being cultivated by the landholder:

(i) groundcover, that is not a declared pest species is established and self-sustaining

(ii) vegetation of similar species richness and species diversity to pre-selected analogue sites is established and self-sustaining, and

(iii) the maintenance requirements for rehabilitated land is no greater than that required for the land prior to its disturbance caused by carrying out the resource activity(ies).

(i) for land that is to be cultivated by the landholder, cover crop is revegetated, unless the landholder will be preparing the site for cropping within 3 months of resource activities being completed.

Register of Regulated Dams

(G8-1) Each regulated dam listed in Schedule G - Table 1 (Regulated Dams) must meet the hydraulic performance criteria listed in Schedule G – Table 1 (Regulated Dams) for that structure.

(G8-2) The holder must ensure that all practicable measures are implemented to prevent waters from Esperanza Creek catchments infiltrating through the Esperanza Waste Rock Dump**.**

Schedule G - Table 1 (Regulated Dams)

Name of Regulated Dam	Consequence Category	Max Operating Level (mAHD)	Spillway Capacity Design Criteria	Design Storage Allowance (DSA)			Mandatory Reporting Level (MRL)		
				Design Criteria	Volume (ML)	Level (mAHD)	Design Criteria	Volume (ML)	Level (mAHD)
Esperanza TSF (ETSF) [1]	High	284	1:100,000 AEP flood plus wave run-up allowance for 1:10 AEP wind **OR** Probable Maximum Flood (PMF)	1:20 AEP 2 month wet-season plus process inputs during period.	DSA is provisioned within the Esperanza Pit. Excluding the ETSF decant sump area[3], the ETSF structure is to contain no surface water as at 1st November each year.		1:10 AEP, 72 hr duration	1:10 AEP, 72hr duration storm event containment is provisioned within the Esperanza Pit.	
Esperanza Pit [1]	High	222	1:100,000 AEP flood plus wave run-up allowance for 1:10 AEP wind **OR** Probable Maximum Flood (PMF)	1:20 AEP 2 month wet-season plus process inputs during period.	1409.2	207.7	1:10 AEP, 72 hr duration	443.4	217.9
Mill Creek Dam [1]	High	219	1:100,000 AEP flood plus wave run-up allowance for 1:10 AEP wind **OR** Probable Maximum Flood (PMF)	1:20 AEP 2 month wet-season plus process inputs during period.	494	216.1	1:10 AEP, 72 hr duration	234.6	217.7
Process Pond 1	Significant	230	1:100 AEP to 1:1000 AEP	n/a[2]			n/a[2]		
Process Pond 2	Significant	230	1:100 AEP to 1:1000 AEP	n/a[2]			n/a[2]		
Process Pond 3	Significant	229	1:100 AEP to 1:1000 AEP	n/a[2]			n/a[2]		
Process Pond 4	Significant	229	1:100 AEP to 1:1000 AEP	n/a[2]			n/a[2]		
Hoover Dam	Significant	204	1:100 AEP to 1:1000 AEP	n/a[2]			n/a[2]		
North WRD Dam	Significant	202	1:100 AEP to 1:1000 AEP	n/a[2]			n/a[2]		
North West Gully Sludge	Significant	219	1:100 AEP to 1:1000 AEP	n/a[2]			n/a[2]		

Dam					

Notes:

1. Details as presented in the GHD (2021) report '*Capricorn Copper Pty Ltd: Esperanza TSF, Esperanza Pit and Mill Creek Dam Consequence Category Assessment: July 2021*' (revision 1, 14/07/21), including associated 'Form of certification' by David Maxwell Brett RPEQ 8002 (14/07/2021).
2. Not applicable. The *Manual for Assessing Consequence Categories and Hydraulic Performance Criteria of Structures* (EM635) does not require determinations for a DSA, emergency storm surge allowance (ESS) and MRL for dams that have been assessed as having a low consequence category for the 'failure to contain – overtopping' scenario. These dams were assessed and certified as having a low consequence category for the 'failure to contain – overtopping' scenario in the report titled *'Report for Mount Gordon Mine Site Annual Review of Referrable and Water Management Dams'*, dated November 2014 and prepared by GHD.
3. The ETSF decant sump area includes the ETSF decant sump end-of-pipe and a surrounding area of 50m radius, and must be located at least 100m away from all ETSF saddle dams and embankments.

(G8-3) A Register of Regulated Structures must be established and maintained by the holder for each regulated structure.

(G8-4) The holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated structure is submitted to the administering authority.

(G8-5) The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with condition G3-1 and G3-2 has been achieved.

(G8-6) The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.

(G8-7) All entries in the Register of Regulated Structures must be approved by the chief executive officer for the holder of this authority, or their delegate, as being accurate and correct.

(G8-8) The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the electronic format required by the administering authority.

Esperanza TSF

(G9-1) The holder must implement all remedial options for seepage management outlined in the *Birla Mount Gordon Report for Esperanza Tailings Dam Raise Master Seepage Report May 2012* (GHD) and provide the administering authority with certification from a suitably qualified and experienced person that the seepage management measures:

(a) have been implemented in accordance with best practice environmental management techniques; and

(b) have been constructed in accordance with the *Birla Mount Gordon Report for Esperanza Tailings Dam Raise Master Seepage Report May 2012* (GHD) and relevant engineering and environmental management practices.

(G9-2) The holder must maintain and operate any seepage management systems in a manner which prevents the release of contaminants to the receiving environment.

(G9-3) The holder must operate and manage the Esperanza TSF in a manner that ensures:

(a) Surface water drains to the decant pond;

(b) Decant pond water levels and volume are minimised;

(c) There is no ponding of water against any embankment;

(d) All reasonable and practicable measures are implemented to prevent the release of contaminants to the receiving environment from the Esperanza TSF; and

(e) Any contaminated seepage from the Esperanza TSF is intercepted and returned to an appropriate containment facility.

(G9-4) The holder must regularly review management and operation of the Esperanza TSF (at a minimum review frequency of annually) and provide the administering authority a report by 1 June each year detailing:

(a) Management techniques applied;

(b) Performance against the management goals defined in condition G9-3 of this environmental authority; and

(c) Improvements / alterations to management and operation of the dam which are required to prevent or minimise contaminant release from the Esperanza TSF.

END OF CONDITIONS FOR SCHEDULE G

Schedule H – Definitions

"acceptance criteria" means the measures by which the actions implemented to rehabilitate the land are deemed to be complete (same as completion criteria).

"administering authority" means:

(a) for a matter, the administration and enforcement of which has been devolved to a local government under section 514 - the local government; or,

(b) for another matter - the chief executive.

"affected person" is someone whose drinking water can potentially be impacted as a result of discharges from a dam or their life can be put at risk due to dwellings or workplaces being in the path of a dam break flood.

"AHD" means 'Australian Height Datum' which is the Australian national standard of geodetic datum for altitude measurements and is measured in metres (m). The level of 0.0 m AHD approximates the mean sea level (as previously measured for the period 1966-1968).

"airblast overpressure" means energy transmitted from the blast site within the atmosphere in the form of pressure waves. The maximum excess pressure in this wave, above ambient pressure is the peak airblast overpressure measured in decibels linear (dB).

"ambient (or total) noise" at a place, means the level of noise at the place from all sources (near and far), measured as the Leq for an appropriate time interval.

"annual exceedance probability" or AEP the probability that at least one event in excess of a particular magnitude will occur in any given year.

"annual inspection report" means an assessment prepared by a suitably qualified and experienced person containing details of the assessment against the most recent consequence assessment report and design plan (or system design plan);

(a) against recommendations contained in previous annual inspections reports;

(b) against recognised dam safety deficiency indicators;

(c) for changes in circumstances potentially leading to a change in consequence category;

(d) for conformance with the conditions of this authority;

(e) for conformance with the 'as constructed' drawings;

(f) for the adequacy of the available storage in each regulated dam, based on an actual observation or observations taken after 31 May each year but prior to 1 November of that year, of accumulated sediment, state of the containment barrier and the level of liquids in the **dam;** (;

(g) for evidence of conformance with the current operational plan.

"ANZECC (2000)" means *the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)* published by the *Australian and New Zealand Environment and Conservation Council* and *the Agriculture and Resource Management Council of Australia and New Zealand* or any equivalent update/replacement guidelines.

"appropriately qualified person" means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relating to the subject matter using the relevant protocols, standards, methods or literature.

"assessed" or **"assessment"** by a suitably qualified and experienced person in relation to a consequence assessment of a structure, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit of the assessment:

(a) exactly what has been assessed and the precise nature of that determination;

(b) the relevant legislative, regulatory and technical criteria on which the assessment has been based;

(c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and

(d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

"associated works" in relation to a dam, means:

(a) operations of any kind and all things constructed, erected or installed for that dam; and

(b) any land used for those operations.

"authority" means an environmental authority or a development approval.

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

- rock, coal and other minerals for later recovery; or
- structural components or other items to facilitate removal from a site or for reuse.

"endangered regional ecosystem" means the biodiversity status as identified in the database known as the 'Regional ecosystem description database' kept by the chief executive.

"certification" means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933), including design plans, 'as constructed' drawings and specifications, construction, operation or an annual report regarding regulated structures, undertaken in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQs (ID: 1.4 (2A)).

"certifying", **"certify" or "certified"** have a corresponding meaning as 'certification'.

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

"consequence category" means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*.

"construction" or "constructed" in relation to a dam includes building a new dam and modifying or lifting an existing dam, but does not include investigations and testing necessary for the purpose of preparing a design plan.

"chief executive" means the chief executive of the Department of Environment and Heritage Protection or its successor.

"commercial place" means a place used as an office or for business or commercial purposes, other than a place within the boundaries of the operational land.

"competent person" means a person with the demonstrated skill and knowledge required to carry out the task to a standard necessary for the reliance upon collected data or protection of the environment.

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

"dam crest volume" means the volume of material (liquids and/or solids) that could be within the walls of a dam at any time when the upper level of that material is at the crest level of that dam. That is, the instantaneous maximum volume within the walls, without regard to flows entering or leaving (for example, via spillway).

“design plan” is a document setting out how all identified consequence scenarios are addressed in the planned design and operation of a regulated structure.

“design storage allowance” or “DSA” means an available volume, estimated in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority, must be provided in a regulated dam as at 1 November each year in order to prevent a discharge from that dam to an “annual exceedance probability” (AEP) specified in that Manual.

“designer” for the purposes of a regulated dam, means the certifier of the design plan for the regulated dam.

“development approval” means a development approval under the *Integrated Planning Act 1997* or the *Sustainable Planning Act 2009* in relation to a matter that involves an environmentally relevant activity under the *Environmental Protection Act 1994*.

“emergency action plan means documentation forming part of the operational plan held by the holder or a nominated responsible officer, that identifies emergency conditions that sets out procedures and actions that will be followed and taken by the dam owner and operating personnel in the event of an emergency. The actions are to minimise the risk and consequences of failure, and ensure timely warning to downstream communities and the implementation of protection measures. The plan must require dam owners to annually update contact information where required.

“environmental authority” means a licence or approval issued pursuant to the *Environmental Protection Act 1994.*

“existing structure” means a structure that was in existence prior to the adoption of this schedule of conditions under the authority.

“extreme storm storage” means a storm storage allowance determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority.

“flow event” in regards to receiving waters, means stream flow resulting in the flux of waters between permanent pools in Gunpowder Creek adjacent to the mining activities.

“flowable substance” means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.

“groundwater” means subterranean water (including water located in an aquifer).

“holder” means:

(a) where this document is an environmental authority, any person who is the holder of, or is acting under, that environmental authority; or

(b) where this document is a development approval, any person who is the registered operator for that development approval.

“hydraulic head” means the elevation (measured in m AHD) of the potentiometric level or water table level of groundwater.

“hydraulic performance” means the capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*.

“in situ” in relation to water quality monitoring, means sampling a population variable (e.g., the concentration of an aquifer groundwater quality parameter) as close as possible to its origin. Unless otherwise specified under a condition of this environmental authority, in situ water quality parameters must include pH, electrical conductivity, dissolved oxygen (% saturation) and total suspended solids.

“infrastructure” means dams, roads and tracks, buildings and other structures built for the purpose of mining activities but does not include facilities required for the long-term 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.

“$L_{A\ 10,\ adj,\ 10\ mins}$” means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10-minute measurement period, using Fast response.

“$L_{A\ 1,\ adj,\ 10\ mins}$” means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10-minute measurement period, using Fast response

“$L_{A,\ max\ adj,\ T}$” means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute 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.

“leachate” means a liquid that has passed through or emerged from, or is likely to have passed through or emerged from, a material stored, processed or disposed of at the operational land which contains soluble, suspended or miscible contaminants likely to have been derived from the said material.

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

“low consequence dam” means any dam that is not a high or significant consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*.

“mandatory reporting level” or “MRL” means a warning and reporting level determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority, or for a regulated structure listed in Schedule G – Table 1 (Regulated Dams), the MRL listed in that table.

“manual” means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority, as amended from time to time.

“modification” or “modifying” (see definition of ‘construction’)

“major anions” in regards to water quality monitoring, includes at minimum the carbonate ion (CO_3^{2-}), bicarbonate ion (HCO_3^-) and chloride ion (Cl^-).

“major cations” in regards to water quality monitoring, includes at minimum the sodium ion (Na^+), potassium ion (K^+), magnesium ion (Mg^{2+}) and calcium ion (Ca^{2+}).

“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—

(a) living matter;
(b) petroleum within the meaning of the Petroleum Act 1923;
(c) 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;
(d) water.

"noxious" means harmful or injurious to health or physical wellbeing, other than trivial harm.

"offensive" means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive, other than trivial harm.

"operational plan" includes:

(a) normal operating procedures and rules (including clear documentation and definition of process inputs in the DSA allowance);

(b) contingency and emergency action plans including operating procedures designed to avoid and/or minimise environmental impacts including threats to human life resulting from any overtopping or loss of structural integrity of the regulated structure.

"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).

"potentiometric level" means the level (m AHD) to which water would rise (due to the static pressure in the system) from a partially or totally confined aquifer if allowed to equilibrate with atmospheric pressure (e.g., the level water would rise to if the aquifer were penetrated by a bore).

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

"progressive rehabilitation" means rehabilitation undertaken progressively or a staged approach to rehabilitation in conjunction with ongoing mining operations.

"QWQG (2009)" means *the Queensland Water Quality Guidelines 2009* published by the *Queensland Government* or any equivalent update/replacement guidelines.

"receiving environment" in relation to an activity that causes or may cause environmental harm, means the part of the environment to which the harm is, or may be, caused.

"receiving waters" means waters including Gunpowder Creek, its tributaries and any underlying or hydraulically connected groundwater that is impacted, or may be impacted, by the mining activities.

"Register of Regulated Structures" is a record of regulated structures which includes the following information:

(a) Date of entry of regulated structure in the register;

(b) Name of the regulated structure, its purpose and intended/actual contents;

(c) The consequence category of the regulated structure as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933);

(d) Dates, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the regulated structures;

(e) Name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;

(f) For the regulated structure, other than in relation to any levees –
   i. The dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;
   ii. Coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area
   iii. Dam crest volume (megalitres);
   iv. Spillway crest level (metres AHD).
   v. Maximum operating level (metres AHD);
   vi. Storage rating table of stored volume versus level (metres AHD);
   vii. Design storage allowance (megalitres) and associated level of the dam (metres AHD);
   viii. Mandatory reporting level (metres AHD);

(g) The design plan title and reference relevant to the regulated structure;

(h) The date construction was certified as compliant with the design plan;

(i) The name and details of the suitably qualified and experienced person who certified that the constructed regulated structure was compliant with the design plan;

(j) Details of the composition and construction of any liner of the regulated structure;

(k) The system for the detection of any leakage through the floor and sides of the regulated structure;

(l) Dates when the regulated structure underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;

(m) Dates when recommendations and actions arising from the annual inspection were provided to the administering authority;

(n) Dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

"regulated dam" means any dam in the significant or high consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933*)* published by the administering authority, and/or any regulated structure listed in Schedule G – Table 1 (Regulated Dams).

"regulated structure" means any structure in the significant or high consequence category as assessed using the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933) published by the administering authority. A regulated structure does not include:

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

"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.

"release" means the discharge of a contaminant/s to the receiving environment as a result of the mining activities and is further defined in the *Environmental Protection Act 1994* as:

> ***release****, of a contaminant into the environment, includes—*
>
> *(a) to deposit, discharge, emit or disturb the contaminant; and*
> *(b) to cause or allow the contaminant to be deposited, discharged, emitted or disturbed; and*
> *(c) to fail to prevent the contaminant from being deposited, discharged emitted or disturbed; and*
> *(d) to allow the contaminant to escape; and*
> *(e) to fail to prevent the contaminant from escaping.*

"representative" means, where a sample frequency or location is not specified under a condition of this environmental authority, a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activities.

"residual drilling material" means waste drilling materials including muds and cuttings or cement returns from well holes and which have been left behind after the drilling fluids are pumped out.

"residual void" means an open pit or subsidence zone resulting from the removal of ore and/or waste rock which will remain following the cessation of all mining activities and completion of rehabilitation processes.

"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 1992* or a World Heritage Area; or
- a public park or gardens; or
- a place used as a workplace, 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.

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

"spillway" means a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges form the dam, normally under flood conditions or in anticipation of flood conditions.

"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.

"structure" means dam or levee.

"suitably qualified and experienced person" in relation to regulated structures means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the *Professional Engineers Act 2002*, and has demonstrated competency and relevant experience:

- for regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design.

- for regulated levees, an RPEQ who is a civil engineer with the required qualifications in the design of flood protection embankments.

Note: It is permissible that a suitably qualified and experienced person obtain subsidiary certification from an RPEQ who has demonstrated competence and relevant experience in either geomechanics, hydraulic design or engineering hydrology.

“suitably skilled and competent person” means a person who has professional qualifications, training and experience relevant to the nominated subject matter, who can give authoritative assessment, advice and analysis on performance relative to the subject matter using relevant protocols, standards, methods and literature.

“system design plan” means a plan that manages an integrated containment system that shares the required DSA and/or ESS volume across the integrated containment system.

“tolerable limits” means that a range of values could be accepted to achieve an overall environmental management objective (e.g. a range of settlement of a tailing capping could still meet the objective of draining the cap quickly, preventing pondage and limiting infiltration and percolation).

“trivial harm” means environmental harm which is not material or serious environmental harm and will not cause actual or potential loss or damage to property of an amount of, or amounts totalling more than $5,000.

"void" means any constructed, open excavation in the ground.

“watercourse” has the meaning in Schedule 4 of the *Environmental Protection Act 1994* and means:

1. a river, creek or stream in which water flows permanently or intermittently—

    (a) in a natural channel, whether artificially improved or not; or

    (b) in an artificial channel that has changed the course of the watercourse.

2. Watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.

“waters” includes all or any part of a river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed and banks of a watercourse, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater.

“water table level” means the top of the saturated zone of an unconfined aquifer (in m AHD), the standing water level.

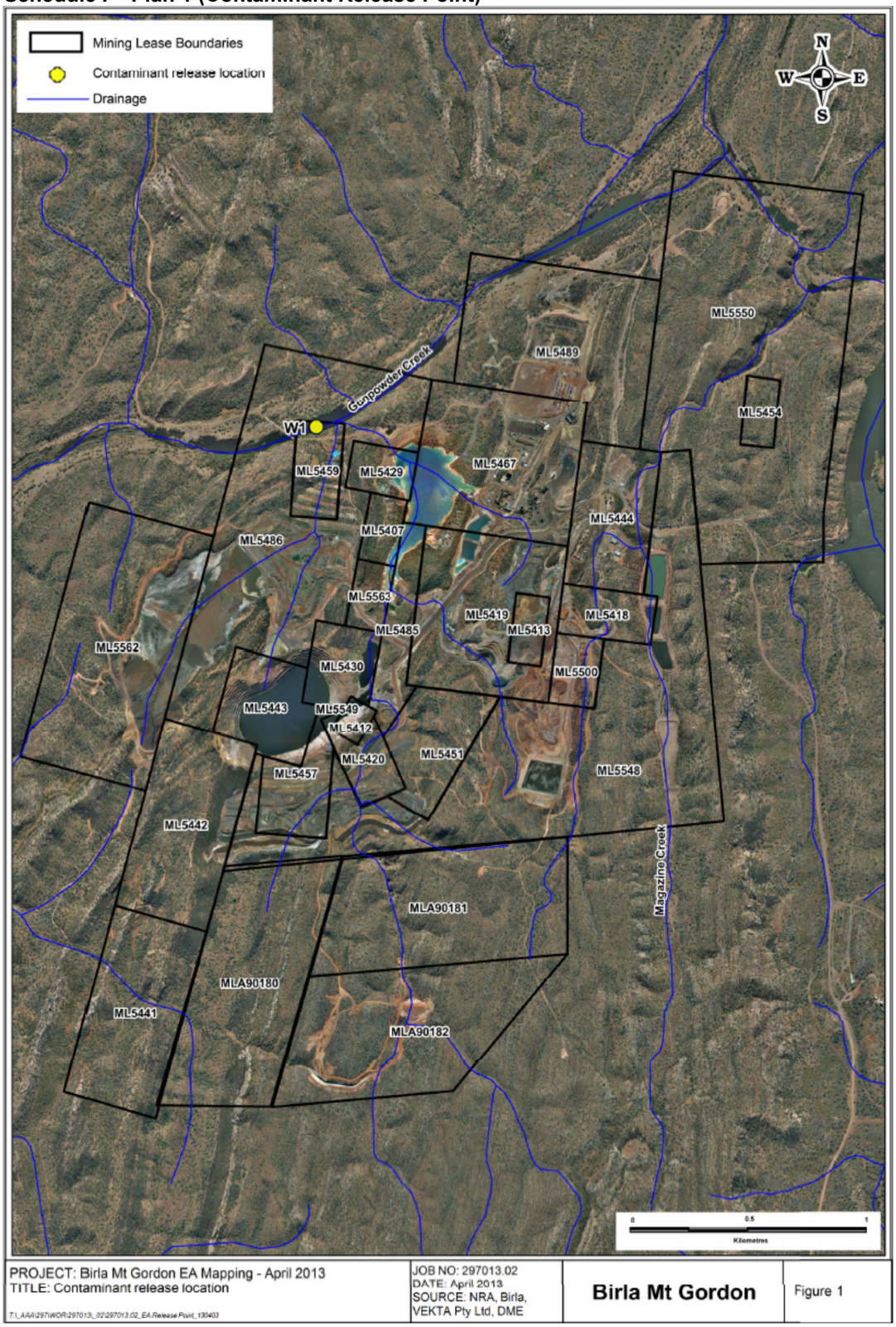
“water year” means the 12 month period from 1 July to 30 June.

“wet season” means the time of year, covering one or more months, when most of the average annual rainfall in a region occurs. For the purposes of DSA determination this time of year is deemed to extend from 1 November in one year to 31 May in the following year inclusive.

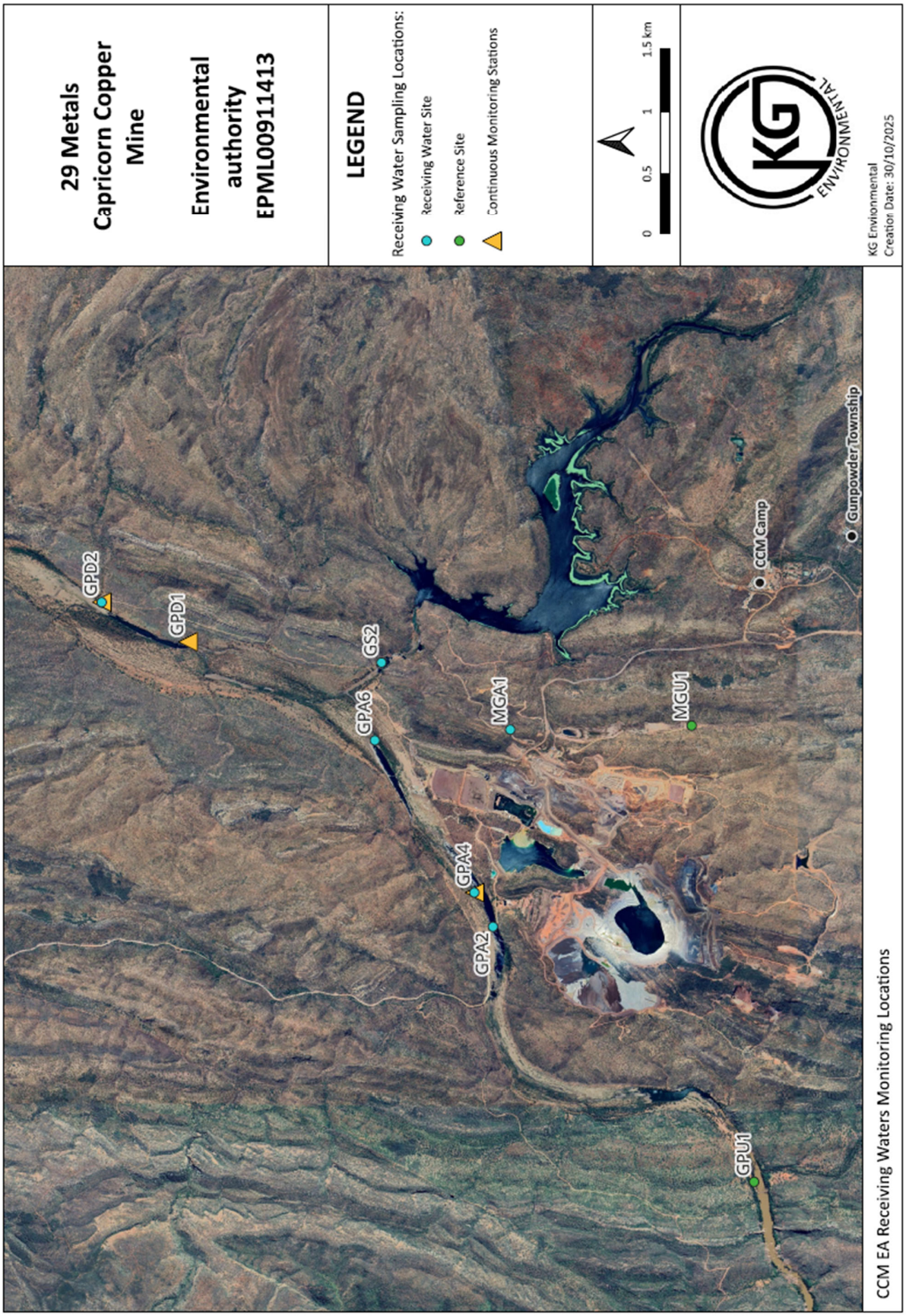
END OF CONDITIONS FOR SCHEDULE H

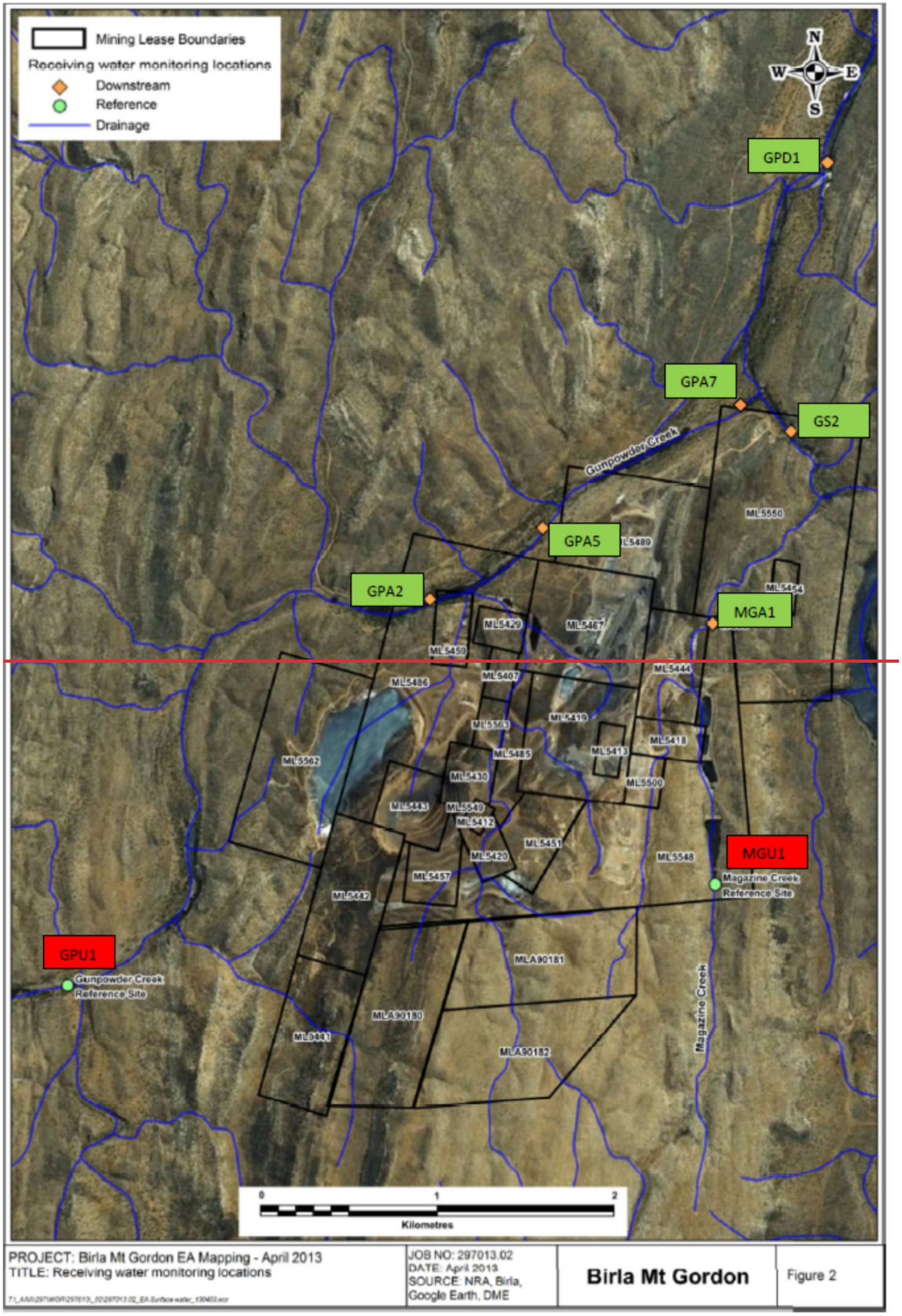
Schedule I – Maps / Plans

Schedule I – Plan 1 (Contaminant Release Point)



Schedule I – Plan 2 (Receiving Waters Monitoring Locations)


29 Metals
Capricorn Copper Mine
Environmental authority
EPML00911413
LEGEND
Receiving Water Sampling Locations:
Receiving Water Site
Reference Site
Continuous Monitoring Stations
0
0.5
1
1.5 km
KG ENVIRONMENTAL
KG Environmental
Creation Date: 30/10/2025
GPD2
GPD1
GS2
GPA6
MGA1
MGU1
GPA4
GPA2
GPU1
CCM Camp
Gunpowder Township
CCM EA Receiving Waters Monitoring Locations



Schedule I – Plan 3 (Groundwater Monitoring Locations)

Paper Size ISO A3
0 100 200 300
Metres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

N

GHD

Capricorn Copper
Catchment Management Option Analysis, ESS
Diversion Concept Design & ETSF Detailed Design

Project No. 12538625
Revision No. A
Date 26/07/2021

Groundwater Bores

FIGURE 1

Schedule I – Plan 4 (Birla Mt Gordon Mine Site Layout)

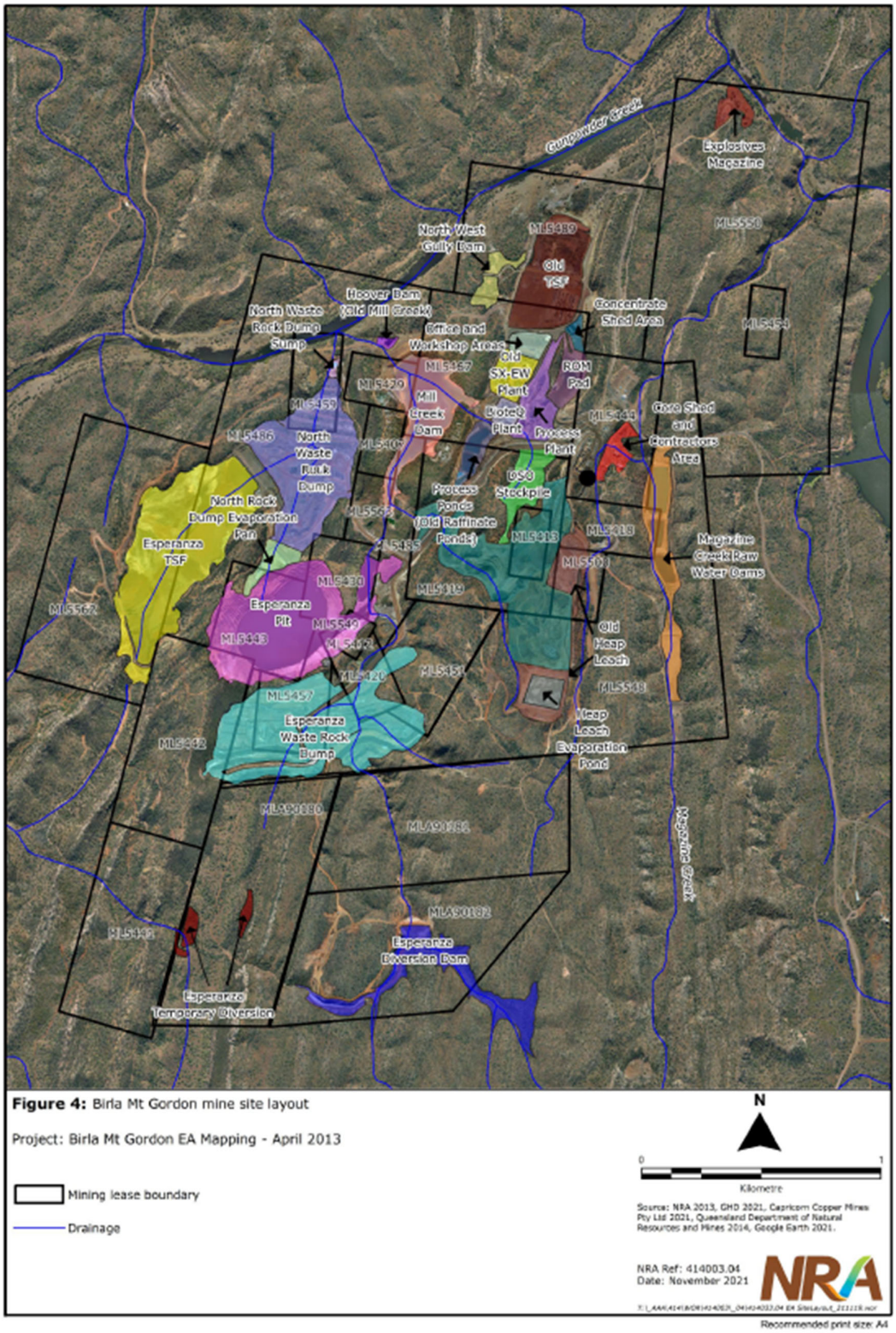


Figure 4: Birla Mt Gordon mine site layout

Project: Birla Mt Gordon EA Mapping - April 2013

Schedule I – Plan 5 (Investigation Areas)

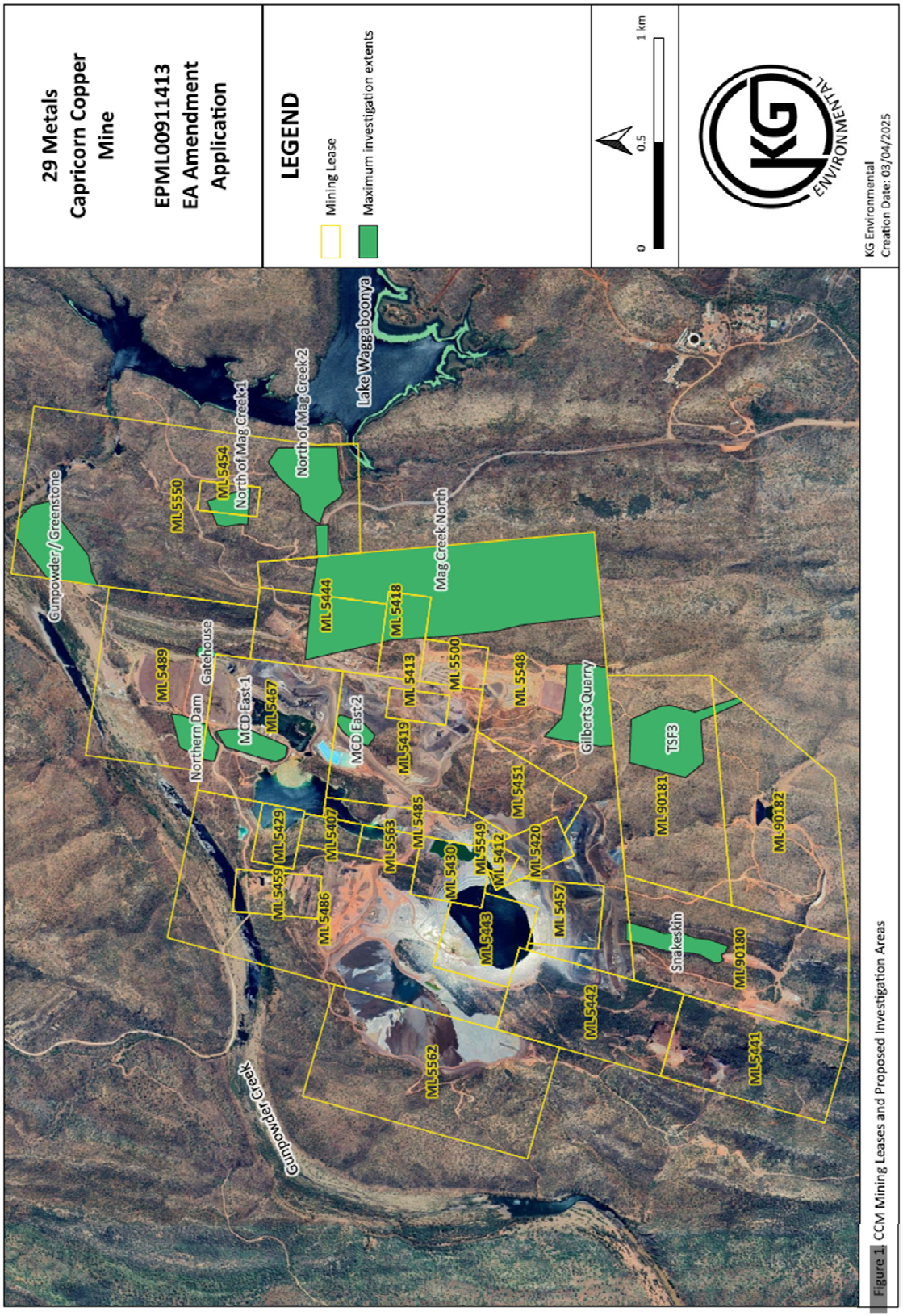


Figure 1 CCM Mining Leases and Proposed Investigation Areas

END OF CONDITIONS FOR SCHEDULE I

END OF ENVIRONMENTAL AUTHORITY