

Permit

Environmental Protection Act 1994

Environmental authority EPML00433013

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

Environmental authority number: EPML00433013

Environmental authority takes effect on 10 June 2022.

Environmental authority holder(s)

Name(s)	Registered address
Heritage Minerals Pty Ltd	Level 2 267 St Georges Tce PERTH WA 6000 Australia

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 16: Mining gold ore	ML5615, ML5623, ML5635, ML5589, ML5616, ML5624, ML5648, ML5602, ML5617, ML5625, ML5649, ML5608, ML5618, ML5626, ML5658, ML5609, ML5619, ML5627, ML5659, ML5612, ML5620, ML5628, ML5660, ML5613, ML5621, ML5633, ML6692, ML5614, ML5622 and ML5634.
Schedule 3 17: Mining copper ore	ML5615, ML5623, ML5635, ML5589, ML5616, ML5624, ML5648, ML5602, ML5617, ML5625, ML5649, ML5608, ML5618, ML5626, ML5658, ML5609, ML5619, ML5627, ML5659, ML5612, ML5620, ML5628, ML5660, ML5613, ML5621, ML5633, ML6692, ML5614, ML5622 and ML5634.
Schedule 2 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)	ML5615, ML5623, ML5635, ML5589, ML5616, ML5624, ML5648, ML5602, ML5617, ML5625, ML5649, ML5608, ML5618, ML5626, ML5658, ML5609, ML5619, ML5627, ML5659, ML5612, ML5620, ML5628, ML5660, ML5613, ML5621, ML5633, ML6692, ML5614, ML5622 and ML5634.
Schedule 2 31 - Mineral processing 2: Processing, in a year, the following quantities of mineral products, other than coke 2(b) more than 100,000t	ML5615, ML5623, ML5635, ML5589, ML5616, ML5624, ML5648, ML5602, ML5617, ML5625, ML5649, ML5608, ML5618, ML5626, ML5658,

Environmentally relevant activity/activities	Location(s)
	ML5609, ML5619, ML5627, ML5659, ML5612, ML5620, ML5628, ML5660, ML5613, ML5621, ML5633, ML6692, ML5614, ML5622 and ML5634

Additional information for applicants

Environmentally relevant activities

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

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

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

Agreement between the State of Queensland and Heritage Minerals Pty Ltd

In addition to the requirements found in the conditions of this environmental authority, it should be noted that there is also an agreement between the State of Queensland and Heritage Minerals Pty Ltd for various aspects of site management, known as the *Mt Morgan Phase 2 Agreement*.

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.

The anniversary day of this environmental authority is the same day each year as the effective date. The payment of the annual fee will be due each year on this day. An annual return will be due each year on 01 April.

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

10 June 2022

Date

Rebecca McAuley

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

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Obligations under the *Environmental Protection Act 1994*

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

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

Conditions of environmental authority

Schedule A - General

- A1** This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.
- A2** Contaminants with the potential to cause environmental harm must not be released directly or indirectly to the receiving environment, except as permitted under the conditions of this environmental authority.
- A3** The holder of this environmental authority must ensure that the mining activities are carried out at the locations identified in **Table A1 - Authorised mining activities** and **Schedule I Figure 1 – Mine Area Location**.

Table A1 - Authorised mining activities and locations

Mine domain	Mine feature	Mining lease	Location		Maximum disturbance area (ha)
			Latitude (GDA94)	Longitude (GDA94)	
Tailings Storage Facility (TSF)	Part of No. 2 Mill Tailings Dam	ML5660	-23.63495	150.38008	16.91
	Mundic Sulphide Tails	ML5589 ML5612 ML5613 ML5621 ML5622 ML5623 ML5648 ML5649 ML5659 ML5660	-23.64279	150.37387	35.07
	Red Oxide Tails				
	Part of Shepherds Gully Tails	ML5589 ML5609 ML5628	-23.65099	150.36778	17.53
	Sandstone Gully and Sandstone Gully Tailings Storage Facility Embankment	ML5625 ML5608 ML5626 ML5634 ML5627	-23.64211	150.36457	49.17
Waste Rock Dumps	B Dump	ML5614	- 23.63585	150.37460	0.78
	K Dump	ML5613	-23.63922	150.37597	0.73
	Q Dump	ML5660	-23.64028	150.37963	1.425
	Shepherds Outer Dump	ML5589	-23.65326	150.36925	16.62
	Horse Paddock Dump	ML5620 ML5660 ML5635	-23.63068	150.37663	12.47
	Airfield Dump	ML5609 ML5634 ML5658 ML5622	-23.64679	150.36673	16.98
Mine Infrastructure & Haul Roads	Process Plant & ROM Pad	ML5614 ML5660	-23.6362	150.37553	5.9
	Pipe Corridor	TBD, to be provided by 1 November 2022	TBD, to be provided by 1 November 2022	TBD, to be provided by 1 November 2022	3
	Buildings/Yard	ML5660	-23.63274	150.38356	0.86
	Access Tracks & Haul Roads	ML5589 ML5612 ML5613 ML5621	NA – Linear	NA – Linear	14.48

Mine domain	Mine feature	Mining lease	Location		Maximum disturbance area (ha)
			Latitude (GDA94)	Longitude (GDA94)	
		ML5622 ML5623 ML5648 ML5649 ML5659 ML5660			
	Powerlines	ML5589 ML5612 ML5613 ML5621 ML5622 ML5623 ML5648 ML5649 ML5659 ML5660	NA – Linear	NA – Linear	16
Stockpiles	Non-Potentially Acid Generating (NPAG) Stockpile	ML5589 ML5648	-23.64401	150.36947	1.1
	Slag Stockpiles	ML5659	-23.64460 -23.64522	150.37638 150.37407	3.78
Exploration	Surface Exploration	ML5589 ML5612 ML5613 ML5621 ML5622 ML5623 ML5648 ML5649 ML5659 ML5660	TBD, to be provided by 1 November 2022	TBD, to be provided by 1 November 2022	5

Maintenance of measures, plant and equipment

A4 The holder of this environmental authority must:

- install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; and
- maintain such measures, plant and equipment in a proper and efficient condition; and
- operate such measures, plant and equipment in a proper and efficient manner; and
- ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

Monitoring

A5 Any monitoring data, records and reports required by this environmental authority must be:

- kept for a period of at least five (5) years; and
- provided to a new holder of the environmental authority on transfer of the environmental authority; and
- provided to the administering authority within a timeframe nominated by the administering authority; and
- provided to the administering authority in the format requested.

- A6** The following information must be recorded in relation to all monitoring required under the conditions of this environmental authority:
- (a) The date and time at which the sample was taken; and
 - (b) The location or monitoring point at which the sample was taken; and
 - (c) The results of all monitoring and details of any exceedances of the conditions of this environmental authority; and
 - (d) Any other pertinent details of relevance to interpreting the sampling results (i.e. stream flow, wind conditions or any unusual observations such as odour or colouration).
- A7** Where monitoring is a requirement of this environmental authority, ensure that a suitably qualified and experienced person(s) conducts all monitoring.

Storage and handling of flammable and combustible liquids

- A8** Storage of all flammable and combustible liquids must be contained within an on-site containment system and controlled in a manner that prevents environmental harm and maintained in accordance with AS 1940 - *Storage and Handling of Flammable and Combustible Liquids of 2017 (or more recent editions)*

Notification of Emergencies and Incidents

- A9** The holder of this environmental authority must notify the administering authority by written notification within **twenty-four (24) hours** after becoming aware of any emergency, incident or exceedance relating to the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.
- A10** The notification of emergencies or incidents as required by **Condition A9** must include but not be limited to the following:
- a) the holder of the environmental authority;
 - b) the location of the emergency or incident;
 - c) the number of the environmental authority;
 - d) the name and telephone number of the designated contact person;
 - e) the time of the release;
 - f) the time the holder of the environmental authority became aware of the release;
 - g) the suspected cause of the release;
 - h) the environmental harm caused, threatened, or suspected to be caused by the release; and
 - i) actions taken to prevent any further release and mitigate any environmental harm caused by the release.
- A11** Not more than **fourteen (14) days** following the initial notification of an emergency or incident, written advice must be provided of the information supplied in accordance with **Condition A10** in relation to:
- a) proposed actions to prevent a recurrence of the emergency or incident; and
 - b) outcomes of actions taken at the time to prevent or minimise environmental harm.

- A12** As soon as practicable, but not more than **six (6) weeks** following the conduct of environmental monitoring performed in relation to the emergency or incident, which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this environmental authority, written advice must be provided of the monitoring results of to the administering authority.

Definitions

- A13** Words and phrases used throughout this environmental authority are defined in the Definitions section of this environmental authority. 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.

Exploration

- A14** All exploration activities carried out at the licensed place must comply with each of the Standard Environmental Conditions contained in the most recent version of the Eligibility criteria and standard conditions for exploration and mineral development projects—ESR/2016/1985.
- A15** In respect to the requirements of **condition A14**, where a condition of this Environmental Authority refers to a matter addressed in the *Eligibility Criteria and Standard Conditions for Exploration and Mineral Development Projects (ESR/2016/1985)*, the condition of this Environmental Authority prevails.

Schedule B - Air

- B1** Unless authorised by this environmental authority, the release of contaminants to air must not cause environmental harm, beyond the boundaries of the licensed place.
- B2** The holder of this environmental authority must develop, document and implement an air quality monitoring program that can ensure compliance with the conditions of this environmental authority, by 1 August 2022, or prior to commencement of the mining activity.
- B3** When requested by the administering authority, air quality monitoring must be undertaken to investigate any air quality complaint, and results must be provided to the administering authority within **fourteen (14) days** following completion of monitoring. Monitoring must be carried out as required by the administering authority.
- B4** If the administering authority requires air quality monitoring to be undertaken, all monitoring must be performed by a suitably qualified and experienced person to perform.

General Dust Control

- B5** The holder of this environmental authority shall ensure that all appropriate mitigation measures are employed to prevent environmental harm occurring as a result of dust and particulate matter emissions generated by the mining activities.
- B6** If air quality monitoring indicates that environmental harm is caused by the activities, then the holder of the environmental authority must:
- (a) advise the administering authority of planned mitigation measures; and
 - (b) implement the mitigation measures to prevent further environmental harm.

Schedule W - Water

- W1** Contaminants must not be released directly or indirectly to any waters unless otherwise permitted by a condition of this environmental authority.
- W2** Contaminants must only be released from the processing plant to the Sandstone Gully Tailings Storages Facility.

Water Management Plan

- W3** A Water Management Plan that considers all mine features specified in **Table A1 - Authorised mining activities and locations** must be developed by a suitably qualified and experienced person and implemented, by 1 October 2022.
- W4** The Water Management Plan must include:
- (a) a study of the source of contaminants; and
 - (b) a water balance model; and
 - (c) a water management system; and
 - (d) measures to manage acidic and saline drainage; and
 - (e) contingency procedures for emergencies; and
 - (f) a program for monitoring and review of the effectiveness of the water management plan.
- W5** The Water Management Plan must be reviewed by the holder of this environmental authority annually to assess the adequacy of the plan, ensure actual and potential environmental impacts are managed, and identify and undertake any necessary amendments to the plan.

Erosion and Sediment Control

- W6** An Erosion and Sediment Control Plan must be developed by a suitably qualified and experienced person and implemented to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.

Groundwater

- W7** Groundwater quality must be monitored at the locations and frequency specified in **Table W1 - Groundwater monitoring locations and frequency**
- W8** Groundwater quality must be monitored for the following parameters in the dissolved fraction:
- a) pH
 - b) Electrical Conductivity
 - c) Total Dissolved Salts
 - d) Cyanide (HCN as CN)
 - e) Aluminium
 - f) Arsenic
 - g) Cadmium
 - h) Chromium
 - i) Cobalt
 - j) Copper

- k) Lead
- l) Manganese
- m) Nickel
- n) Selenium
- o) Zinc

W9 By 1 June 2024, the holder of this environmental authority must ensure that groundwater quality measured in accordance with condition **W7** and **W8** above does not show a deterioration in quality.

Table W1 - Groundwater monitoring locations and frequency

Monitoring point(s)	Latitude ⁽²⁾ (GDA 94)	Longitude ⁽²⁾ (GDA 94)	Surface RL (m)	Monitoring frequency
MB2	-23.636	150.376	278.48	Monthly
MB3	-23.642	150.369	278.48	Monthly
MB5SD	-23.645	150.378	223.17	Monthly
MB7D	-23.656	150.372	211.87	Monthly
MB8D	-23.636	150.381	225.89	Monthly
MB9	-23.631	150.3837	238.06	Monthly
MB14	-23.640	150.374	276.13	Monthly

Note ⁽²⁾: Monitoring location(s) will be shown in Schedule I - Figure 2 of the Environmental Authority

Mount Morgan Open Cut Pit

- W10** The holder of this environment authority must only undertake mining activities that result in no change to, or a reduction of the effective catchment reporting to the Mount Morgan Open Cut Pit.
- W11** The holder of this environment authority must only undertake mining activities that result in no change to or an improvement in water quality reporting to the Mount Morgan Open Cut Pit.
- W12** The holder of this environment authority may use water from the open cut pit as the principal supply of water for mining operations.

Schedule D - Noise and vibration

- D1** The holder of this environmental authority must comply with the noise limits specified in **Table D1 – Noise limits**.
- D2** When requested by the administering authority, noise monitoring must be undertaken to investigate any noise complaint, and results must be provided to the administering authority within **fourteen (14) days** following completion of monitoring. Monitoring must be carried out as required by the administering authority.
- D3** If the administering authority requires noise monitoring to be undertaken, all monitoring must be performed by a suitably qualified and experienced person.
- D4** The holder of this environmental authority must complete monitoring and reporting must include the following descriptor characteristics and matters:
- a) $L_{A \max \text{ adj, T}}$; and
 - b) the level and frequency of occurrence of impulsive or tonal noise; and
 - c) atmospheric conditions including wind speed and direction; and
 - d) Location, date and time of recording.
- D5** If monitoring indicates exceedance of the noise limits specified in **Table D1 – Noise limits**, then the holder of this environmental authority must:
- a) address the complaint including the use of appropriate dispute resolution if required; or
 - b) immediately implement noise abatement measures so that emissions of noise from the activity do not result in further environmental nuisance.

Table D1 - Noise limits

Noise level measured as dB(A)	Monday to Saturday			Sundays and public holidays		
	7am - 6pm	6pm - 10pm	10pm - 7am	9am - 6pm	6pm - 10pm	10pm - 9am
Noise limit measured at a 'Noise sensitive place'						
L_{A10} , adj, 10 mins	b/g+5	b/g+5	b/g+3	b/g+5	b/g+5	b/g+0
L_{A1} , adj, 10 mins	b/g+10	b/g+10	b/g+5	b/g+10	b/g+10	b/g+5
Noise limit measured at a 'Commercial place'						
L_{A10} , adj, 10 mins	46b/g+10	b/g+10	b/g+5	b/g+10	b/g+10	b/g+5
b/g+10	b/g+15	b/g+15	b/g+10	b/g+15	b/g+15	b/g+10

- D6** The holder of this environmental authority must comply with the blasting limits specified in **Table D2 - Airblast Overpressure Level**.
- D7** If monitoring indicates exceedance of the blasting limits specified in **Table D2 - Airblast Overpressure Level**, then the holder of this environmental authority must:
- c) address the complaint including the use of appropriate dispute resolution if required; or
 - d) immediately implement noise abatement measures so that emissions of noise from the activity do not result in further environmental nuisance.

Table D2 - Airblast Overpressure Level

Location	Blasting limits		
	Monday to Friday 8:00am – 5:00pm	Saturday 9.00am –1.00 pm	Sundays and public holidays
Sensitive or commercial place	115 dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time		No Blasting

- D8** The holder of this environmental authority must comply with the vibration limits specified in **Table D3 – Vibration limits**.
- D9** 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 officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.
- D10** The holder of this environmental authority must monitor the:
- location of the blast(s) within the mining area (including which bench level); and
 - atmospheric conditions including temperature, relative humidity and wind speed and direction; and
 - Location dates and time of recording.
- D11** If monitoring completed in accordance with **condition D10** indicates an exceedance of the vibration limits in **Table D3 – Vibration limits**, then the holder of this environmental authority must:
- address the complaint including the use of appropriate dispute resolution if required; or
 - immediately implement vibration abatement measures so that vibration from the activity does not result in further environmental nuisance.

Table D3 - Vibration limits

Location	Vibration limit		
	Monday to Friday 8.00 am – 5.00 pm	Saturday 9.00 am – 1.00 pm	Sundays and public holidays
Sensitive or commercial place	5mm/s peak particle velocity for nine (9) out of ten (10) consecutive blasts and not greater than 10 mm/s peak particle velocity at any time		No blasting

- D12** The method of measurement and reporting of noise and vibration must comply with the latest edition of the administering authority's Noise Measurement Manual and Guideline - Noise and vibration from blasting.

Schedule E - Waste

Storage of Tyres

- E1** Tyres stored awaiting disposal or transport for take-back, recycling, or waste-to-energy options must be stockpiled in volumes less than 600m³ in volume and 200m² in area and at least 10m from any other tyre storage area.
- E2** 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 storage area.

Waste Management

- E3** The holder of this environmental authority must develop, document and implement a waste management program for all mine features, by 1 December 2022.
- E4** The waste management program required under condition **E3** must be regularly reviewed and updated at intervals of no greater than five (5) years. The program must include:
- (a) a description of the mining activity that may generate waste; and
 - (b) waste management control strategies including:
 - (i) recording of the types and amounts of wastes generated by the mining activity;
 - (ii) segregation of the wastes;
 - (iii) storage of the wastes;
 - (iv) transport of the wastes; and
 - (v) monitoring and reporting matters concerning the waste; and
 - (c) the hazard characteristics of the wastes generated including disposal procedures for regulated wastes; and
 - (d) a program for reusing, recycling or disposing of all wastes; and
 - (e) how the waste will be dealt with in accordance with the waste and resource management hierarchy, including a description of the types and amounts of waste that will be dealt with under each of the waste management practices in the waste management hierarchy (i.e. avoidance, reuse, recycling, energy recovery, disposal); and
 - (f) how the waste will be stored, handled and transferred in a proper and effective manner; and
 - (g) procedures for identifying and implementing opportunities to minimise the amount of waste generated, promote efficiency in the use of resources and improve the waste management practices employed; and
 - (h) procedures for dealing with accidents, spills, and other incidents that may impact on waste management; and
 - (i) details of any accredited management system employed, or planned to be employed, to deal with the waste; and
 - (j) how often the performance of the waste management practices will be assessed; and
 - (k) the indicators or other criteria on which the performance of the waste management practices will be assessed; and
 - (l) staff training and induction to the waste management program.

Regulated Waste

- E5** All regulated waste generated at the licensed place must only be stored prior to removal within those areas designated for those purposes.
- E6** The holder of the environmental authority must not:
- a) allow waste to be burned at or on the licensed place; or
 - b) remove waste from the licensed place and burn such waste elsewhere.

Laboratory Waste

E7 All mineral waste from the laboratory must be disposed of in the Sandstone Gully Tailings Storage Facility.

Schedule F – Land

General land

F1 The holder of the environmental authority must comply with the operational activities specified in **Table F1 - Operational Activities on Land** for each of the Mine features specified in **Table A1- Authorised mining activities and locations**.

Table F1 - Operational Activities on Land

Mine Feature	Operational Activities
Process Plant & ROM Pad	Mineral processing
Pipe Corridor	Transport of process water and tailings.
Part of No. 2 Mill Tailings Dam	Shape surface to minimise runoff of contaminated water. Install diversions to minimise clean waters entering location Remove overlying waste. Recover tailings for processing. Remove and relocate any waste in the remnant walls that directly impacts the mining of the tailings. Leave stable batters on any remaining waste dumps or remnant walls.
Mundic Sulphide Tails	Remove overlying waste. Recover tailings for processing. Remove and relocate any waste in the remnant walls that directly impacts the mining of the tailings. Leave stable batters on any remaining waste dumps or remnant walls.
Red Oxide Tails	Remove overlying waste. Recover tailings for processing. Remove and relocate any waste in the remnant walls that directly impacts the mining of the tailings. Leave stable batters on any remaining waste dumps or remnant walls.
Part of Shepherds Gully Tails	Shape surface to minimise runoff of contaminated water. Install diversions to minimise clean waters entering location. Remove overlying waste. Recover tailings for processing. Remove and relocate any waste in the remnant walls that directly impacts the mining of the tailings. Leave stable batters on any remaining waste dumps or remnant walls.
B Dump	Establish bund/sump. Recover waste rock crush at site and truck material to plant. Expose former natural land surface. Leave stable batters on any remaining waste dumps or remnant walls.
K Dump	
Q Dump	
Shepherds Outer Dump	Placement of waste rock Shape and compact placed waste to reduce rainfall infiltration and clean water runoff
Horse Paddock Dump	Placement of waste rock Shape and compact placed waste to reduce rainfall infiltration and clean water runoff
Airfield Dump	Placement of waste rock Shape and compact placed waste to reduce rainfall infiltration and clean water runoff
Sandstone Gully	Permanent storage of tailings

Mine Feature	Operational Activities
	Collection and monitoring of seepage within new embankment. Construction of tailings dam wall
Mining Contractor (Services) Yard	Previously disturbed areas to be used for workshops, administration areas and support services.
Haul Roads	Mining Support Infrastructure
Powerlines	Mining Support Infrastructure
Non-Potentially Acid Generating (NPAG) Stockpile	Source of TSF embankment and rehabilitation materials.
Slag Stockpiles	Source of TSF embankment and rehabilitation materials.

Rehabilitation landform criteria

F2 Subject to conditions F5 to F7, all disturbed land must be rehabilitated in accordance with the post mining land use identified in **Table F2 - Current and Expected Land Suitability and Land Use**.

Table F2 - Current and Expected Land Suitability and Land Use

Mine Feature	Rehabilitation	Post Mining Land Use	Land Suitability Objective
Process Plant & ROM Pad	Remove all plant	Strategic Land Management Reserve ⁽¹⁾ .	Class 4
Pipe Corridor	Remove all pipes and support infrastructure		Class 4
Part of No. 2 Mill Tailings Dam	Remove remnant sulphidic dam wall that directly impacts the mining of the tailings. Batter and stabilise remaining waste dump faces. Expose and reinstate original drainage in rehabilitated areas.		Class 4
Mundic Sulphide Tails	Remove remnant sulphidic dam wall that directly impacts the mining of the tailings. Batter and stabilise remaining waste dump faces. Expose and reinstate original drainage in rehabilitated areas.		Land rehabilitated to approximately original contour to class 4; All other land will be Class 5.
Red Oxide Tails	Remove remnant sulphidic dam wall that directly impacts the mining of the tailings. Batter and stabilise remaining waste dump faces.		
Part of Shepherds Gully Tails	Remove remnant sulphidic dam wall that directly impacts the mining of the tailings. Batter and stabilise remaining waste dump faces. Expose and reinstate original drainage in rehabilitated areas.		
Mining Contractor (Services) Yard	Stabilise former land surface. If required treat surface soils to ensure runoff water quality. Establish suitable vegetation.		

Mine Feature	Rehabilitation	Post Mining Land Use	Land Suitability Objective
NPAG Stockpile	Stabilise former land surface. If required treat surface soils to ensure runoff water quality. Establish suitable vegetation.		
Slag Stockpiles	Stabilise former land surface. If required treat surface soils to ensure runoff water quality. Establish suitable vegetation.		
B Dump	Stabilise former land surface. If required treat surface soils to ensure runoff water quality. Establish suitable vegetation.		
K Dump			
Q Dump			
Shepherds Outer Dump			
Horse Paddock Dump			
Airfield Dump			
Sandstone Gully	Completely backfilled. PAF waste rock and tailings transferred from stockpiles to void. Water removed. Dry cover – store and release. Drainage system constructed.		Class 4
Powerline	Reshape and rehabilitate		Class 4
Surface Exploration	Backfill exploration holes. Replace vegetation		Class 4
Roads	Reshape & rehabilitate		Class 4

(1) Strategic Land Management Reserve, including land management monitoring and maintenance of rehabilitated areas, tourism, heritage interpretation and scientific research.

Infrastructure

F3 All infrastructure, constructed by or for the holder of this environmental authority during the mining activities including water storage structures, must be removed from the site prior to mining lease surrender, except where agreed to in writing by the post mining land owner.

Preventing contaminant release to land

F4 Contaminants must not be released to land.

Rehabilitation liability

F5 Subject to condition A3, the holder of this environmental authority is authorised to conduct mining activities at the locations specified in **Table A1 - Authorised mining activities** and **Schedule I Figure 1 – Mine Area Location**. However, where the holder of this environmental authority does not cause disturbance by undertaking mining activities in these areas, the holder of this environmental authority is not required to rehabilitate those areas in accordance with the requirements of **Table F2 - Current and Expected Land Suitability and Land Use**.

- F6** The holder of this environmental authority must undertake rehabilitation activities in accordance with the requirements of condition **F5** on areas where mining activities have been undertaken as detailed in condition **A3**.
- F7** The holder of this environmental authority must undertake rehabilitation as soon as practicable after the completion of mining activities.

Schedule G - Community

Complaint response

- G1** The holder of this environmental authority must record all environmental complaints received about the mining activities including:
- a) name, address and contact number for of the complainant; and,
 - b) time and date of complaint; and,
 - c) reasons for the complaint; and,
 - d) investigations undertaken; and,
 - e) conclusions formed; and,
 - f) actions taken to resolve the complaint; and,
 - g) any abatement measures implemented; and,
 - h) person responsible for resolving the complaint.
- G2** Information collected in accordance with **condition G1** must be made available for inspection by the administering authority upon request.

Schedule H – Regulated Structures

Assessment of consequence category

- H1** 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) if it is an existing structure, prior to any change or modification.
- H2** A consequence assessment report and certification must be prepared for each structure assessed in Condition **H1** and the report may include a consequence assessment for more than one structure.
- H3** 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 (EM635)*.

Design and construction of a regulated structure

- H4** All regulated structures must be designed by, and constructed 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 (EM635)*.
- H5** Construction of a regulated structure is prohibited unless:
- (a) The holder of this environmental authority has prepared a consequence category assessment report; and
 - (b) Certification to the administering authority has been certified by a suitably qualified and experienced person for the design and design plan and the associated operating procedures in compliance with the relevant condition(s) of this environmental authority, and
 - (c) The structure is compliant in all respects with the:
 - i. *Environmental Protection Regulation 2019*, and
 - ii. the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams*, and
 - iii. this environmental authority, and;
 - (d) at least 20 business days has passed since the receipt of those documents, or the administering authority notifies the licensee that a design plan and certification has been submitted for that dam.
- H6** Consequence category assessment 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 Regulated Structures register.
- H7** Regulated structures must:
- (a) be designed, constructed and operated in accordance with the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*; and
 - (b) be designed and constructed to minimise the risk of flooding and erosion.
- H8** Regulated structures must be constructed in accordance with a certified design plan that has been submitted to the administering authority, and such that the resulting structure will deliver the performance stated in that submitted design plan and that dam is compliant in all respects with this environmental authority.

- H9** 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 the 'as constructed' drawings and specifications of the regulated structure is in accordance with the design plan.

Regulated Structures – Operation

- H10** Operation of a regulated structure, except for an existing structure, is prohibited unless the holder of this environmental authority has submitted to the administering authority in respect of regulated structure, all of the following:
- a) one electronic copy of the design plan and certification of the 'design plan', and
 - b) a set of 'as constructed' drawings and specifications; and
 - c) certification of the 'as constructed drawings and specifications'; and
 - 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; and
 - e) the requirements of this authority relating to the construction of the regulated structure have been met; and
 - f) the holder of this environmental authority 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 structure
- H11** An operational plan, developed by a suitably qualified and experienced person must be kept current for each regulated dam.

Regulated Structures - Location

- H12** The regulated structures authorised by this environmental authority are those specified in **Table H1 - Location of Regulated Structures**.
- H13** The regulated structures authorised by this environmental authority must be operated in accordance with the criteria listed in **Table H2 - Details of Regulated Structures**.
- H14** The regulated structures specified in **Table H1 - Location of Regulated dams** must comply with the criteria in **Table H3 - Hydraulic Performance of Regulated Dams**.
- H15** By 1 November of each year, all regulated structures specified in **Table H1 - Location of Regulated Structures** must comply with the criteria listed in **Table H3 - Hydraulic Performance of Regulated Structures**.

Mandatory reporting level

- H16** The Mandatory Reporting Level (the MRL) must be marked on all regulated structures listed in **Table H1 - Location of Regulated Structures** in such a way that it is clearly observable.
- H17** The holder of this environmental authority must, as soon as practical and within **twenty-four (24) hours** of becoming aware, notify the administering authority when the contents of a regulated structure reaches the Mandatory Reporting Level.

H18 The holder of this environmental authority must, immediately on becoming aware that the Mandatory Reporting Level has been reached, act to prevent any unauthorised discharge from the regulated structure.

H19 The holder of this environmental authority must record any changes to the Mandatory Reporting Level in the Register of Regulated Structures.

Design storage allowance

H20 The holder of this environmental authority must assess the performance of each regulated structure over the preceding November to May period based on actual observations of the available storage in each regulated structure taken prior to 1 July of each year.

H21 By 1 November of each year, storage capacity must be available in each regulated structure, to meet the Design Storage Allowance (DSA) volume for the dam as listed in **Table H3 - Hydraulic Performance of Regulated Structures**.

H22 The holder of this environmental authority must notify the administering authority, within **forty-eight (48) hours** of becoming aware that a dam will not meet the Design Storage Allowance by 1 November of any year.

H23 If the holder of this environmental authority becomes aware that insufficient Design Storage Allowance is available in accordance with condition **H21** you must take action to prevent any unauthorised discharge from the dam.

Decommissioning

H24 The holder of this environmental authority must submit a decommissioning plan that has been certified by a suitably qualified and experienced person, to the administering authority **at least one (1) year prior**, to decommissioning any regulated structure specified in **Table H1- Location of Regulated Structures**

H25 Regulated structures must not be abandoned but be either:

- (a) decommissioned and rehabilitated to achieve compliance with condition **H24**; or
- (b) the holder of the environmental authority and the landholder agree in writing that the;
 - i. dam will be used by the landholder following the cessation of the environmentally relevant activity(ies); and
 - ii. landholder is responsible for the dam, from an agreed date.

Table H1 - Location of Regulated structures

Regulated Structure	Central Points	
	Latitude (GDA 94)	Longitude (GDA 94)
Sandstone Gully Tailings Storage Facility	-23.64196	150.36510

Table H2 - Details of Regulated Structures

Name of Regulated Structure	Consequence Category	Maximum surface area (ha)	Maximum volume (m ³)	Purpose of Regulated Structure
Sandstone Gully Tailings Storage Facility	High	49.2	11,52,416	Storage of Cyanide Tailings

Table H3 - Hydraulic Performance of Regulated Structures

Name of Regulated Structure	Spillway	Design Storage Allowance	Mandatory Reporting Level
Sandstone Gully Tailings Storage Facility	1:20 AEP	Peak discharge from a 0.001 AEP storm of critical time of concentration on the total natural catchment with diversions inoperable	1:10 AEP 72-hour ESS

Regulated Structures - Annual Inspection and Report

- H26** Each regulated structure must be inspected annually by a suitably qualified and experienced person.
- H27** At each annual inspection, required by condition **H26**, 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 recommended actions to ensure the integrity of the regulated structure.
- H28** 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)*.
- H29** The holder of this environmental authority must:
- (a) Within twenty (20) business days of receipt of the annual inspection report, provide to the administering authority:
 - i. The recommendations section of the annual inspection report; and
 - ii. If applicable, any actions being taken in response to those recommendations; and
 - (b) 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 of this environmental authority, provide this to the administering authority within 10 business days of receipt of the request.
- H30** The holder of this environmental authority must, within one week of receipt of the annual inspection report, consider the report and its recommendations; and as soon as possible, but within one month of receipt of the annual inspection report, formulate and implement actions to implement the recommendations in the report and ensure that each regulated dam safely performs its intended functions.

Schedule I

Figure 1 - Mine Area Location

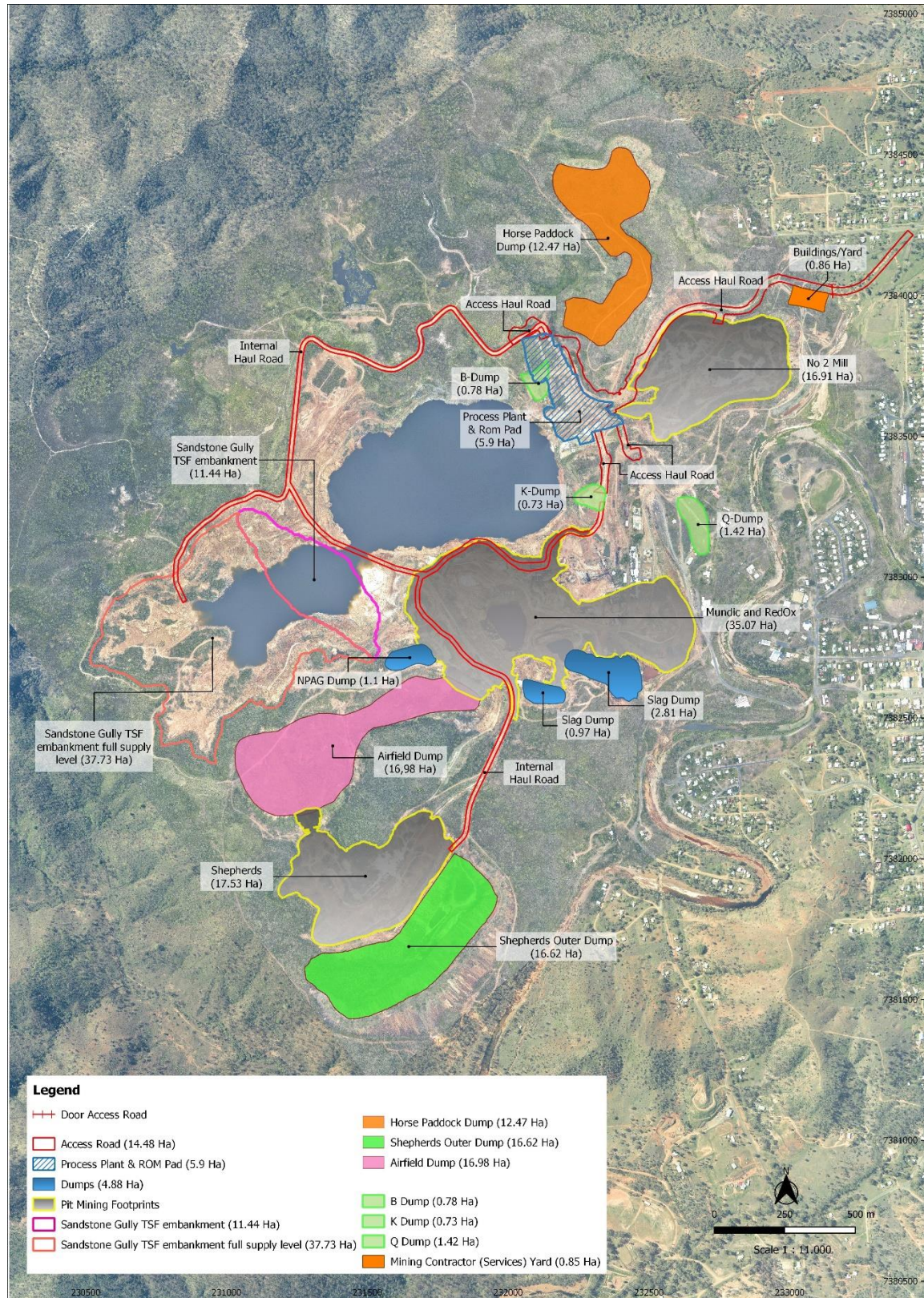


Figure 2 - Groundwater monitoring locations



Attachment 1

Definitions

Words and phrases used throughout this environmental authority are defined below except where identified in the *Environmental Protection Act 1994* or subordinate legislation. Where a word or term is not defined in the *Environmental Protection Act 1994* or subordinate legislation, the ordinary English meaning applies, and the definition should be that given by the Macquarie Dictionary.

“acceptance criteria” means the measures by which actions implemented are deemed to be complete. The acceptance criteria indicate the success of the decommissioning and rehabilitation outcomes or remediation of areas which have been significantly disturbed by the environmentally relevant activities. Acceptance criteria may include information regarding:

- stability of final land forms in terms of settlement, erosion, weathering, pondage and drainage;
- control of geochemical and contaminant transport processes;
- quality of runoff waters and potential impact on receiving environment;
- vegetation establishment, survival and succession;
- vegetation productivity, sustained growth and structure development;
- fauna colonisation and habitat development;
- ecosystem processes such as soil development and nutrient cycling, and the recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;
- microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;
- effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;
- resilience of vegetation to disease, insect attack, drought and fire;
- vegetation water use and effects on ground water levels and catchment yields. **“AEP”** means the Annual Exceedance Probability, which is the probability that at least one event in excess of a particular magnitude will occur in any given year.

“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.

“assess” by a suitably qualified and experienced person in relation to a hazard assessment of a dam, 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 at any time:

- (a) exactly what has been assessed and the precise nature of that assessment;
- (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.

“blasting” means the use of explosive materials to fracture-

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

‘certification’, “certifying” or ‘certified’ by a suitably qualified and experienced person in relation to a design plan or an annual report regarding dams, 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 at any time:

- (a) exactly what is being certified and the precise nature of that certification.
- (b) the relevant legislative, regulatory and technical criteria on which the certification has been based;
- (c) the relevant data and facts on which the certification 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 certification has been based using the relevant data and facts, and the relevant criteria.

“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.

“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 purposes of preparing a design plan.

“dam” means a land-based structure or a void that is designed to contain, divert or control flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works. A dam does *not* mean 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.

“design plan” is the documentation required to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, and the criteria to be used for operating the dam. The documents must include all investigation and design reports, plans and specifications sufficient to hand to a contractor for construction, and planned decommissioning and rehabilitation outcomes; so as to address all hazard scenarios that would be identified by a properly conducted hazard assessment for the structure. Documentation must be such that a ‘suitable qualified and experience person’ could conduct an independent review without seeking further information from the designer.

“design storage allowance” or “DSA” means an available volume, estimated in accordance with the Manual for Assessing Hazard Categories and Hydraulic Performance of Dams published by the Department of Environment and Resource Management, that must be provided in a dam as at the first of November each year in order to prevent a discharge from that dam to a probability (AEP) specified in table 5 of that manual. The DSA is estimated based on 100% runoff of wet season rainfall at the relevant AEP, taking account of process inputs during that wet season, with no allowance for evaporation.

“disturbed land” means land within an operational area which has been disturbed by the mining activities authorised by this environmental authority.

“environmental authority” means an environmental authority granted in relation to an environmentally relevant activity under the *Environmental Protection Act 1994*.

“environmental authority holder” means the holder of this environmental authority.

“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.

“foreseeable future” is the period used for assessing the total probability of an event occurring. Permanent structures and ecological sustainability should be expected to still exist at the end of a 150 year foreseeable future with an acceptable probability of failure before that time.

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

“hazard 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 Hazard Categories and Hydraulic Performance of Dams published by the Department of Environment and Resource Management.

“hydraulic performance” means the capacity of a regulated dam to contain or safely pass flowable substances based on a probability (AEP) of performance failure specified for the relevant hazard category in the Manual for Assessing Hazard Categories and Hydraulic Performance of Dams published by the Department of Environment and Resource Management.

“infrastructure” means water storage dams, roads and tracks, buildings and other structures built for the purpose and duration of the conduct of the environmentally relevant activities, but does not include other facilities required for the long term management of the impact of those activities or the protection of potential resources. Such other facilities include dams other than water storage dams, waste dumps, voids, or stockpiles and assets, that have been decommissioned, rehabilitated, and lawfully recognised as being subject to subsequent transfer with ownership of the land.

“ $L_{A\ 10, \text{adj}, 10 \text{ mins}}$ ” 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.

“ $L_{A\ 1, \text{adj}, 10 \text{ mins}}$ ” 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

“ $L_{A, \text{max adj}, T}$ ” 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 capability” as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

“land suitability” as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

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

“levee” or “bund” means a long embankment that is designed only to provide 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.

“Licensed place” means the mine features specified in **Table A1 - Authorised mining activities** at the locations identified in **Schedule I Figure 1 – Mine Area Location**.

“mandatory reporting level” or “MRL” means a warning and reporting level determined in accordance with the Manual for Assessing Hazard Categories and Hydraulic Performance of Dams published by the Department of Environment and Resource Management. An MRL is the lowest level required in a regulated dam to allow either of the following to be retained:

- (a) the runoff from a 72 hour duration storm at the AEP specified in the Schedule H – Table 3; or
- (b) a wave allowance at that AEP as estimated using a recognised engineering method.

“operational area” means an area within the mining leases the subjects of this environmental authority on which mining activities, as described in the operational plan, are authorised.

“operational plan” means a document that amongst other things sets out procedures and criteria to be used for operating a dam during a particular time period. The operational plan as defined herein may form part of a plan of operations or plan otherwise required in legislation.

“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}).

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

“regulated dam” means any dam in the significant or high hazard category as assessed using the Manual for Assessing Hazard Categories and Hydraulic Performance of Dams published by the Department of Environment and Resource Management.

“regulated structure” includes land-based containment structures, levees, bunds and voids, but not a tank or container designed and constructed to an Australian Standard that deals with strength and structural integrity.

“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.

“self-sustaining” means an area of land which has been rehabilitated and has maintained the required acceptance criteria without human intervention for a period nominated by the administering authority.

“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.

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

“stable” in relation to land, means land form dimensions are and will remain within tolerable limits now and in the foreseeable future. Issues to be properly considered in regard to whether or not the landform is stable include geotechnical stability, settlement and consolidation allowances, bearing capacity (trafficability), erosion resistance and geochemical stability with respect to seepage, leachate and related contaminant generation.

“suitably qualified and experienced person” in relation to dams means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the Professional Engineers Act 1988, OR registered as a National Professional Engineer (NPER) with the Institution of Engineers Australia, OR holds equivalent professional qualifications to the satisfaction of the administering authority for the Act; AND the administering authority for the Act is satisfied that person has knowledge, suitable experience and demonstrated expertise in relevant fields, as set out below:

- (a) knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and
- (b) a total of five years of suitable experience and demonstrated expertise in the geomechanics of dams with particular emphasis on stability, geology and geochemistry, and
- (c) a total of five years of suitable experience and demonstrated expertise each, in three of the following categories:
 - investigation and design of dams.
 - Construction, operation and maintenance of dams.
 - hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology.
 - hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes.

- hydrogeology with particular reference to seepage, groundwater.
- solute transport processes and monitoring thereof.
- dam safety.

“TBD” means To Be Determined.

“tolerable limits” means a range of parameters regarded as being sufficient to meet the objective of protecting relevant environmental values. For example, a range of settlement for a tailings capping, rather than a single value, could still meet the objective of draining the cap quickly, preventing pondage and limiting infiltration and percolation.

“void” means any constructed, open excavation in the ground.

“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.

END OF ENVIRONMENTAL AUTHORITY