Permit

Environmental Protection Act 1994

Environmental authority EPML00899613

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

Environmental authority number: EPML00899613

Environmental authority takes effect on 23 October 2024

Environmental authority holder(s)

Name(s)	Registered address
Eva Copper Mine Pty Ltd	Level 3, 12 Cribb Street, Milton, QLD 4064.

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 16: Mining gold ore.	ML90162, ML90163, ML90164, ML90165 and ML90166
Schedule 3 17: Mining copper ore.	
Resource Activity, Ancillary 07 - Chemical Manufacturing, 3: Manufacturing, in a year, a total of 200t or more of any of the following, (d) explosives.	
Resource Activity, 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).	
Resource Activity, 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).	
Resource Activity, Ancillary 14 - Electricity generation, 2: Generating electricity by using a fuel, other than gas, at a rated capacity of (a) 10 MW to 150 MW electrical.	

Environmentally relevant activity/activities	Location(s)
Resource Activity, Ancillary 15 - Fuel burning, using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour.	
Resource Activity, Ancillary 31 - Mineral processing, 2: Processing, in a year, the following quantities of mineral products, other than coke, (b) more than 100,000t.	
Resource Activity, Ancillary 33 - Crushing, milling, grinding or screening, Crushing, grinding, milling or screening more than 5000t of material in a year.	
Resource Activity, Ancillary 60 - Waste disposal, 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a), (a) less than 50,000t.	
Resource Activity, Ancillary 63 - Sewage Treatment, 1: Operating sewage treatment works, other than no release works, with a total daily peak design capacity of, (b-i) more than 100 but not more than 1500EP if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme.	

Additional information for applicants

Environmentally relevant activities

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

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

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

Contaminated land

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

- the presence of, or happening of an event involving, a hazardous contaminant on the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or

- if the land is contaminated land – a change in the condition of the land that is causing, or is reasonably likely to cause, serious or material environmental harm (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 land (notice must be given within 20 business days).

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.

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	23 October 2024 Date

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

Enquiries:
Minerals 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)

Other permits required

This permit only provides an approval under the *Environmental Protection Act 1994*. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department and other State Government agencies prior to commencing any activity at the site. For example, this may include permits / approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access State controlled roads), the Department of Resources (to clear vegetation), and the Department of Agriculture and Fisheries (to clear marine plants or to obtain a quarry material allocation).

Development Approval

This permit is not a development approval under the *Planning Act 2016*. The conditions of this environmental authority are separate, and in addition to, any conditions that may be on the development approval. If a copy of this environmental authority is attached to a development approval, it is for information only, and may not be current. Please contact the Department of Environment, Science and Innovation to ensure that you have the most current version of the environmental authority relating to this site.

Conditions of environmental authority

Location: ML90162, ML90163, ML90164, ML90165, ML90166.

Approximately 65km north-west of Cloncurry.

This Environmental Authority incorporates the following Schedules:

Schedule A - General
Schedule B - Air
Schedule C - Land and Rehabilitation
Schedule D - Regulated Structures
Schedule E - Waste Management
Schedule F - Noise
Schedule G - Water
Schedule H - Sewage Treatment
Schedule I - Definitions
Schedule J - Plans

The environmentally relevant activity(ies) conducted at the location as described above must be conducted in accordance with the following site-specific conditions of approval.

SCHEDULE A – GENERAL

Activity

(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) No more than 12.6 million tonnes of gold and copper ore is to be processed on site in a year.

(A3) In carrying out the mining activity the holder of this Environmental Authority must comply with Schedule A – Table 1 (Authorised Mining Activities).

Schedule A – Table 1 (Authorised Mining Activities)

Mine Domain	Mine Feature	Tenure	Maximum Area of Disturbance (ha)	Coordinates (GDA94 MGA zone 54)	
				Easting	Northing
Void	Little Eva Pit	ML90165	87	410813	7772052
	Turkey Creek Pit	ML90165	28	412436	7771534
	Bedford North Pit	ML90164	14	415014	7767665
	Bedford South Pit	ML90164	8	414974	7766382
	Lady Clayre Pit	ML90162	23	409828	7752523
	Blackard Pit	ML90164	88	412565	7765286
	Scanlan North Pit	ML90162	7	412387	7755292
	Scanlan South Pit	ML90162	24	412243	7754186

Mine Domain	Mine Feature	Tenure	Maximum Area of Disturbance (ha)	Coordinates (GDA94 MGA zone 54)	
				Easting	Northing
Waste Rock Dump	Little Eva WRD	ML90165	209	411660	7772224
	Bedford North WRD	ML90164	31	415376	7767259
	Bedford South WRD	ML90164	14	415320	7766405
	Lady Clayre	ML90162	42	410219	7771153
	Blackard West WRD	ML90164	112	411325	7765807
	Blackard South East WRD	ML90164	21	413614	7764500
	Blackard South WRD	ML90164	73	412759	7764059
	Scanlan East WRD	ML90162	18	412654	7754526
	Scanlan West WRD	ML90162	38	411831	7754769
Processing area	Process Plant infrastructure area	ML90165	44	411673	7771164
	Mine infrastructure area	ML90165	8	412123	7770991
	Power plant infrastructure area	ML90165	3	411407	7770736
Run of Mine	ROM	ML90165	6	411452	7771374.5
Dam	Tailing Storage Facility (TSF)	ML90164	424	412542	7769429
		ML90165		412480	7770384
	Process Water Pond	ML90165	1.5	411572	7770828
	Raw Water Pond	ML90165	1.3	411491	7770793
	Site Runoff Pond	ML90165	1.2	411662	7770871
	Little Eva SRB (EVA-SRB-1)	ML90165	1	411371	7773483
	Little Eva SRB (EVA-SRB-2)	ML90165	1	412158	7772675
	Little Eva SRB (EVA-SRB-3)	ML90165	1	412744	7771807
	Little Eva SRB (EVA-SRB-4)	ML90165	2	411579	7771643
	Little Eva SRB (EVA-SRB-5)	ML90165	3	411088	7770695
	Bedford SRB (BD-SRB-1)	ML90164	1	415305	7767014
	Bedford SRB (BD-SRB-2)	ML90164	1	415782	7767331
	Bedford SRB (BD-SRB-3)	ML90164	1	415639	7766872
	Bedford SRB (BD-SRB-4)	ML90164	1	415329	7766509
	Bedford SRB (BD-SRB-5)	ML90164	1	415519	7766290
	Blackard SRB (BL-SRB-1)	ML90164	2	411638	7767160
	Blackard SRB (BL-SRB-2)	ML90164	1	411557	7766139
	Blackard SRB (BL-SRB-3)	ML90164	1	411832	7765584
	Blackard SRB (BL-SRB-4)	ML90164	1	413096	7764539
	Blackard SRB (BL-SRB-5)	ML90164	1	412379	7764517
	Blackard SRB (BL-SRB-6)	ML90164	1	413262	7764234
	Blackard SRB (BL-SRB-7)	ML90164	1	413061	7763676
	Blackard SRB (BL-SRB-8)	ML90164	1	413294	7764660
	Blackard SRB (BL-SRB-9)	ML90164	1	413302	7764544
	Blackard SRB (BL-SRB-10)	ML90164	1	413444	7764266
	Scanlan SRB (SC-SRB-1)	ML90162	1	412251	7755048
	Scanlan SRB (SC-SRB-2)	ML90162	1	411705	7754265
	Scanlan SRB (SC-SRB-3)	ML90162	1	412768	7754905
	Scanlan SRB (SC-SRB-4)	ML90162	1	412899	7754411
	Lady Clayre SRB (LC-SRB-1)	ML90162	1	410667	7752700
	Lady Clayre SRB (LC-SRB-2)	ML90162	1	410211	7752869
	Lady Clayre SRB (LC-SRB-3)	ML90162	1	410463	7752158
	Lady Clayre SRB (LC-SRB-4)	ML90162	1	409877	7752002
	South-east basin (Accommodation Village)	ML90166	1	417241	7769353

Mine Domain	Mine Feature	Tenure	Maximum Area of Disturbance (ha)	Coordinates (GDA94 MGA zone 54)	
				Easting	Northing
	North-east basin (Accommodation Village)	ML90166	1	417295	7769638
Ancillary Infrastructure	Solar farm	ML90165	120	407178	7772806
	Solar farm access and powerline easement	ML90165	14	407893 411479	7773191 7770696
	Roads	ML90162 ML90163 ML90164 ML90165 ML90166	67	-	-
	Magazine and explosives facility	ML90165	1	413632	7772251
	Blackard laydown	ML90164	3	412218	7765200
	Scanlan laydown	ML90162	17	412064	7754531
	Bedford laydown	ML90164	2	415136	7766370
	Lady Clayre laydown	ML60162	12	410039	7752409
	Accommodation Village	ML90166	14.5	417136	7769476
	Northern Borefield	ML90165	3	410690	7774750
	Powerlines	ML90162 ML90163 ML90164 ML90165 ML90166	35	To be advised at least 2 months prior to construction.	To be advised at least 2 months prior to construction.
	Rubbish Disposal	ML90164	1	To be advised at least 2 months prior to construction.	To be advised at least 2 months prior to construction.
	Sewage Treatment Plant (STP)	ML90166	1	417184	7769608
	STP disposal area 1	ML90166	0.6	416969	7769227
	STP disposal area 2	ML90166	1.5	417101	7769687
	Concrete aggregate borrow pit area	ML90166	4	416124	7771509
	Construction material borrow pit area	ML90166	4	416774	7770700
Surface Water Diversion	Cabbage Tree Creek, Blackard Creek and unnamed tributary of Blackard Creek Diversions and buffer land.	ML90165	136	409420	7773686
				411165	7773686
				409420	7770123
				411165	7770123
	Little Eva Pit Levee and buffer land.	ML90165	63	409596	7773324
				411212	7773324
				409596	7770766
				411212	7770766
	TSF Drainage	ML90164 ML90165	10	411453	7768891
				411367	7770284
				411651	7770747
	Scanlan North Diversion	ML90162	1	412427	7755484
	Scanlan North Bund	ML90162	1	412341	7755457
	Scanlan Bund	ML90162	3	412474	7753929
	Scanlan Diversion	ML90162	1	412304	7753808

Mine Domain	Mine Feature	Tenure	Maximum Area of Disturbance (ha)	Coordinates (GDA94 MGA zone 54)	
				Easting	Northing
	Blackard Diversion	ML90164	4	412886	7764659
	Blackard Bund 1	ML90164	1	412365	7764674
	Blackard Bund 2	ML90164	1	413089	7765030
	Turkey Creek Diversion	ML90165	2	412845	7772096
	Bedford Bund	ML90164	1	414849	7766437
	Bedford Diversion	ML90164	1	414954	7766580
Topsoil Stockpiles	Topsoil Stockpiles	ML90165	30	Coordinates must be provided to the administering authority prior to stockpiling.	
		ML90162 ML90163 ML90164 ML90165 ML90166	10	Coordinates must be provided to the administering authority prior to stockpiling.	
		ML90166 (TS006)		417206	7770584
		ML90166 (TS007)		417099	7770139
		ML90166 (TS008)		417042	7769206
		ML90165 (TS009)		412068	7771327
		ML90165 (TS010)		411047	7771034
		ML90165 (TS011)		412761	7771227
		ML90164 (TS012)		415380	7769919
Exploration	Exploration	ML90162 ML90163 ML90164 ML90165 ML90166	10	-	-

Maintenance of Measures, Plant and Equipment

(A4) The holder of this Environmental Authority must:

(a) install measures, plant and equipment necessary to ensure compliance with the conditions of this Environmental Authority;

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

(c) operate such measures, plant and equipment in a proper manner; and

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

Monitoring and Reporting

(A5) Except where specified in another condition of this environmental authority, all monitoring, monitoring data, records and reports required by this environmental authority or related to environmental management of the activities must be:

(a) carried out by an appropriately qualified person;

(b) kept for a period of not less than five (5) years;

(c) provided to the administering authority in the specified format within ten (10) business days of a request; and

(d) undertaken in accordance with the most recent version of any applicable standard or guideline for the activity.

(A6) The following information must be recorded in relation to all monitoring required under a condition of this environmental authority:

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

(b) the location where the sample was taken; and

(c) any other pertinent details of relevance to interpreting the sampling results (i.e., stream flow, wind conditions, atmospheric conditions, locations of blasting, or any unusual observations such as odour or colouration).

Risk Management

(A7) The holder of this Environmental Authority must develop and implement a risk management system for mining activities which conforms to the *Standard for Risk Management (ISO31000:2009)* or the latest edition of the Australian Standard for Risk Management prior to commencement of mining activities.

Emergency Response/Contingency

(A8) The holder of this Environmental Authority must develop and implement an emergency response/ contingency plan to respond to emergency events and incidents prior to commencement of mining activities. The emergency response/contingency plan must address the following matters as a 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 remedial actions to reduce the likelihood of recurrence of similar events;

(f) the provision and availability of documented procedures to staff attending any emergency event or incident to enable them to effectively respond;

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

(h) timely and accurate reporting of the circumstance and nature of emergency events or incidents to the administering authority in accordance with conditions of this Environmental Authority;

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

(j) procedures to notify any potentially impacted stakeholder who may be affected by the emergency event or incident.

Notification

(A9) The holder of this Environmental Authority must notify the administering authority by telephone and email as soon as practicable but within twenty-four (24) hours, after becoming aware of any incident, exceedance or release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this Environmental Authority.

(A10) The notification in condition (A9) 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 incident, exceedance or release;

(d) the date and time of the incident, exceedance or release;

(e) the time the holder of this Environmental Authority became aware of the incident, exceedance or release;

(f) where known:

(i) the estimated quantity and type of substances involved in the incident, exceedance or release;

(ii) the actual or potential cause of the incident, exceedance or release;

(g) a description of the nature and effects of the incident, exceedance or release including environmental harm and/or nuisance caused, threatened, or suspected to be caused by the incident, exceedance or release.

(h) any sampling conducted or proposed, relevant to the incident, exceedance or release;

(i) immediate actions taken to prevent and/or mitigate any further environmental harm and/or environmental nuisance caused by the incident, exceedance or release;

(j) what notification of stakeholders who may be affected by the incident, exceedance or release has occurred/is being undertaken.

(A11) The holder of this Environmental Authority must notify the occupiers or registered owners of affected land and any other potentially impacted stakeholder as soon as reasonably practicable after becoming aware of any incident, exceedance or release that has the potential to impact on environmental values or breaches any condition of this Environmental Authority concerning releases of contaminants to the environment.

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

(a) results and interpretation by an appropriately qualified person of any samples taken and analysed;

(b) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm; and

(c) proposed actions to prevent a recurrence of the emergency or incident.

Complaints

(A13) The holder of this Environmental Authority must record all environmental complaints received about the mining activities including:

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

(b) time and date of complaint;

(c) reasons for the complaint;

(d) investigations undertaken;

(e) conclusions formed;

(f) actions taken to resolve the complaint;

(g) any abatement measures implemented; and

(h) person responsible for resolving the complaint.

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

Community

(A15) The holder of this Environmental Authority must establish, promote and maintain easily accessible lines of communication between residents, stakeholders and landowners reasonably expected to be affected by the mining activity to ensure that environmental impacts are identified and managed. This must begin at least six (6) months prior to the commencement of mining activities, and include but not be limited to the following:

(a) regular meetings with all relevant stakeholders at intervals of not more than six (6) months; and

(b) the establishment of a consultative committee with representation of all relevant stakeholders that meet at regular intervals as determined by the committee.

Third Party Reporting

(A16) The holder of this environmental authority must:

(a) within one (1) year of the commencement of mining activities, obtain from an appropriately qualified person a report on compliance with the conditions of this Environmental Authority;

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

(c) provide each report to the administering authority within ninety (90) days of its completion.

Exploration

(A17) 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).*

(A18) 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 the Environmental Authority prevails.

Transition to New Standards

(A19) Where a condition of this Environmental Authority requires compliance with a standard, guideline or policy published externally to this Environmental Authority and the standard, guideline or policy is amended or changed subsequent to the issue of this Environmental Authority, the holder of this Environmental Authority, unless otherwise agreed to by the administrating authority, must:

(a) comply with the amended or changed standard, guideline or relevant legislation within two (2) years of the amendment or change being made, unless a different period is specified in the amended standard, guideline, policy or relevant legislation; and

(b) continue to remain in compliance with the previous standard, guideline or policy until compliance with the amended or changed standard, guideline or policy is achieved.

END OF CONDITIONS FOR SCHEDULE A

SCHEDULE B – AIR

General

(B1) Unless authorised by this Environmental Authority, the release of noxious or offensive odour, dust or any other airborne contaminant resulting from the mining activity must not cause environmental harm.

Bulk Material Handling Management

(B2) The holder of this Environmental Authority must ensure that vehicles used for transporting bulk materials on or from the licensed place have appropriate load preparation to prevent the spillage and/or loss of particulate matter and/or windblown dust during transport.

Air Quality – Particulate Matter

(B3) The mining activity must not cause particulate matter to exceed the following levels when measured at any sensitive place or commercial place:

(a) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM_{10}) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time. Monitoring must be conducted in accordance with:

(i) the most recent version of Australian Standard AS3580.9.6 *Determination of suspended particulate matter – PM (/sub) 10 high volume sampler with size-selective inlet – Gravimetric method*; or

(ii) an alternate method of monitoring PM_{10} which complies with the performance specifications detailed in other Australian Standards for PM_{10} and agreed to in writing by the administering authority.

(b) a concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a one (1) year averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.3:2003 *Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method*;

(c) a concentration of arsenic with an aerodynamic diameter of less than 10 micrometres (PM_{10}) suspended in the atmosphere of 0.006 micrograms per cubic metre over a one (1) year averaging time. Monitoring must be conducted in accordance with:

(i) the most recent version of Australian Standard AS3580.9.6 *Determination of suspended particulate matter – PM (/sub) 10 high volume sampler with size-selective inlet – Gravimetric method*; or

(ii) an alternate method of monitoring PM_{10} which complies with the performance specifications detailed in other Australian Standards for PM_{10} and agreed to in writing by the administering authority.

(d) a concentration of cadmium with an aerodynamic diameter of less than 10 micrometres (PM_{10}) suspended in the atmosphere of 0.005 micrograms per cubic metre over a one (1) year averaging time. Monitoring must be conducted in accordance with:

(i) the most recent version of Australian Standard AS3580.9.6 *Determination of suspended particulate matter – PM (/sub) 10 high volume sampler with size-selective inlet – Gravimetric method*; or

(ii) an alternate method of monitoring PM_{10} which complies with the performance specifications detailed in other Australian Standards for PM_{10} and agreed to in writing by the administering authority.

(e) a concentration of lead suspended in the atmosphere of 0.5 micrograms per cubic metre over a one (1) year averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.3:2003 *Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method.*

Note: Limits based on Schedule 1 of the Environmental Protection (Air) Policy 2019.

Air Quality – Dust Deposition

(B4) The holder of this Environmental Authority must conduct the mining activity in such a manner so as not to cause any exceedance of the limits identified in Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits) at or beyond the boundaries of the licensed place.

Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits)

Air Quality Indicator	Measurement Period	Trigger Level[1]	Limits
Arsenic and its compounds as arsenic[4]	Annual average	4 µg/m^2/day	-
Cadmium and its compounds as cadmium[4]	Annual average	2 µg/m^2/day	-
Copper and its compounds as copper[4]	Annual average	330 µg/m^2/day[6]	-
Lead and its compounds as lead[4]	Annual average	100 µg/m^2/day[6]	250[5] µg/m^2/day
Total insoluble matter (insoluble analysis and particulate matter deposition rate)[3]	Monthly average	-	120[6] mg/m^2/day[7]

1. Trigger levels based on First General Administrative Regulation Pertaining to the Federal Emission Control Act (Technical Instructions on Air Quality Control – TA Luft) (Table 6 page 29).
3. Monitored in accordance with the most recent version of Australian Standard AS3580.10.1 *Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method.*
4. Metals analysis is to be carried out in accordance with a methodology, sufficient to produce representative results capable of comparison against the respective limits and trigger levels.
5. World Health Organisation – Air Quality Guidelines for Europe Second Edition, 2000 (Chapter 6 page 152)
6. Determined based on TA Luft lead deposition guidelines and the HIL A soil investigation levels from NEPC (1999) Table 5-A
7. Based on the New Zealand Ministry for Environment Good Practice Guide for Assessing and Managing for Environmental Effects of Dust Emissions (Table 7.1)
8. The dust deposition limit is calculated over a nominal month as per AS/NZS3580.10.1 of 2003 (or more recent editions).

(B5) In the event of monitoring results showing an exceedance of any of the trigger levels specified in Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits) at or beyond the boundaries of the licensed place, the holder of this Environmental Authority must:

(a) complete an investigation to identify the cause of the exceedance;

(b) if the investigation shows that the exceedance is not attributable to the mining activity then no further action is required and this must be advised to the administering authority; or

(c) if the investigation shows that the exceedance is attributable to the mining activity provide a written report to the administering authority within one (1) month of the date of the monitoring results showing an exceedance, outlining:

(i) details of the investigations carried out;

(ii) details of the environmental impacts observed; and

(iii) actions taken to prevent environmental harm.

(B6) If monitoring indicates the maximum concentrations in condition (B3) or the limits in Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits) have been exceeded at a sensitive place or commercial place as a result of a mining activity, then the holder of this Environmental Authority must immediately implement dust abatement measures to ensure that dust emissions generated by the mining activity no longer exceed the levels specified in condition (B3) and Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits).

Air Quality Monitoring Program

(B7) Prior to the commencement of mining activities, the holder of this Environmental Authority must develop and implement an air quality monitoring program for the air quality indicators specified in condition (B3) and Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits) at the monitoring locations and at the frequency specified in Schedule B – Table 2 (Air Quality Monitoring Program – Dust Deposition and Particulate Matter) and Schedule J – Plan 2 – Air Quality Monitoring Locations.

Schedule B – Table 2 (Air Quality Monitoring Program – Dust Deposition and Particulate Matter)

Monitoring Location Description	Coordinates (GDA94 MGA zone 54)		Monitoring Frequency
	Easting	Northing	
Compliance			
AQ3 - Roseby Homestead[1]	413635	7754700	For TSP, arsenic, cadmium and lead: Once every six (6) days. PM_{10}: continuous
Reference			
AQ1 South of Lady Clayre[1]	411201	7752961	For dust deposition measured as insoluble matter: Monthly. For arsenic, cadmium, copper and lead in deposited dust: Monthly.
AQ2 South East of Lady Clayre and Roseby Homestead[1]	413851	7754252	

1) Monitoring sites must comply with Australian Standard 3580.1.1:2007 Methods for the sampling and analysis of ambient air – Guide to siting air monitoring equipment.

(B8) Prior to the commencement of mining activities, the holder of this Environmental Authority must develop and implement a dust deposition monitoring program to monitor the deposition of contaminants in dust generated by the mining activity in the receiving environment and the actual and potential environmental impacts as a result of that deposition. At a minimum, the program must include:

(a) a description of the sources, locations and predicted quantity of contaminants in air emissions generated by each mining activity carried out at the licensed place;

(b) collection of contaminants in dust deposition samples at the monitoring locations and at the frequency specified in Schedule B – Table 3 (Air Quality Monitoring Program – Dust Deposition) and Schedule J – Plan 2 – Air Quality Monitoring Locations;

(c) annual assessment of the environmental harm caused by dust deposition on the receiving environment and performance against air quality trigger levels and limits specified in Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits); and

(d) a sufficient number of impact monitoring and reference locations, constructed in accordance with Australian Standard 3580.1.1:2007 *Methods for the sampling and analysis of ambient air – Guide to siting air monitoring equipment*, to enable scientifically justifiable conclusions on the level of impact from mining activity.

Schedule B – Table 3 (Air Quality Monitoring Program – Dust Deposition)

Monitoring Location Description	Coordinates (GDA94 MGA zone 54)		Monitoring Frequency
	Easting	Northing	
Downwind sites			
AQ6 Process Plant/TSF[1]	410650	7773740	Monthly
Processing area[1]	To be advised to the administering authority at least 2 months prior to the commencement of mining activities[2]	To be advised to the administering authority at least 2 months prior to the commencement of mining activities[2]	Monthly
AQ8 Access road[1]	416906	7770938	Monthly
AQ5 Blackard[1]	411387	7767128	Monthly
AQ10 Bedford[1]	415240	7768250	Monthly
Upwind sites (reference)			
AQ5 Process Plant/TSF[1]	411387	7767128	Monthly
Processing area[1]	To be advised to the administering authority at	To be advised to the administering authority at	Monthly

Monitoring Location Description	Coordinates (GDA94 MGA zone 54)		Monitoring Frequency
	Easting	Northing	
	least 2 months prior to the commencement of mining activities[2]	least 2 months prior to the commencement of mining activities[2]	
AQ7 Village/Access road[1]	416940	7768915	Monthly
AQ4 Blackard[1]	413516	7763366	Monthly
AQ9 Bedford[1]	415830	7764580	Monthly

1. Monitoring sites must comply with Australian Standard 3580.1.1:2007 *Methods for the sampling and analysis of ambient air – Guide to siting air monitoring equipment.*
2. Monitoring site must be located sufficiently to measure potential emissions from the Concentrate Shed during easterly winds.

(B9) Prior to implementation, the dust deposition monitoring program required by condition (B8) must be certified that it meets the requirements of this Environmental Authority by an appropriately qualified person.

(B10) A copy of the dust deposition monitoring program for the air quality indicators required by condition (B8) and an air quality monitoring program for the air quality indicators specified in condition (B3) and Schedule B – Table 1 (Dust Deposition Trigger Levels and Limits) must be provided to the administering authority on request.

Air Quality Monitoring Requirements

(B11) Samples taken for air quality monitoring specified in this Environmental Authority must be collected and analysed in accordance with the requirements of the administering authority's latest edition of the *Air Quality Sampling Manual*, or more recent editions or supplements to that document as are published by the administering authority, unless otherwise agreed by the administering authority in writing.

Concentrate Management

(B12) All mineral concentrate must be stored, stockpiled and loaded in fully enclosed buildings.

(B13) Buildings or structures used for the storage, stockpiling and loading of mineral concentrate must incorporate the following dust control measures as a minimum:

(a) all necessary openings and vents in the buildings or structures (other than doorways and access ways) must be covered with filter media or other equivalent dust control measures;

(b) cladding of the buildings or structures must be securely affixed and free of any unnecessary holes;

(c) all doorways and access ways in the buildings or structures must be fitted with doors;

(d) all doors in the buildings or structures must remain closed except when being used for access or egress;

(e) all doors, doorways and access ways in the buildings or structures must be maintained in such a condition that doors, when closed, provide a seal against the release of mineral concentrate to the receiving environment;

(f) transfer of mineral concentrate to vehicles and containers must be carried out in a manner that minimises the likelihood of any release of mineral concentrate to the atmosphere and waters; and

(g) transfer of mineral concentrate along conveyor belts must be designed and operated in a manner that prevents the release of mineral concentrate to the atmosphere and waters.

(B14) The interior of all mineral concentrate storage, stockpiling and loading buildings or structures must be maintained under negative air pressure sufficient to prevent release of mineral concentrate from the buildings or structures.

(B15) Condition (B14) does not apply if the holder of this Environmental Authority can demonstrate to the satisfaction of the administering authority that the requirements of condition (B13) achieve an acceptable environmental performance.

(B16) The buildings and structures in place at the licensed place for the storage, stockpiling and loading of mineral concentrate must be constructed and maintained to withstand a Category 2 cyclone.

(B17) The construction and state of the buildings and structures in place at the licensed place for the storage, stockpiling and loading of mineral concentrate must be checked for compliance with condition (B16) by an appropriately qualified person at least once every three (3) years.

(B18) A truck and front end loader wash bay must be installed and maintained as part of the fully enclosed mineral concentrate storage and loading facility for cleaning machinery before exit from the storage and loading facility to prevent the movement of mineral concentrate outside the storage and loading facility.

House-keeping Procedure

(B19) A whole of site housekeeping procedure must be developed and implemented which must include, but not be limited to:

(a) the completion of periodic inspections of the licensed place including all structures, plant, equipment and trafficked surfaces to identify and remove exposed mineral concentrate that may be mobilised by wind, water or equipment movement; and

(b) an ongoing cleaning and maintenance schedule to minimise any potential release of mineral concentrate and to ensure there is no build-up of mineral concentrates over time in areas where it may be mobilised.

Weather Station

(B20) The holder of this Environmental Authority must establish and maintain a permanent meteorological station to continuously measure and record wind speed, wind direction, temperature and daily rainfall volume prior to the commencement of mining activities.

(B21) The permanent meteorological station must be installed in accordance with the latest edition of the Bureau of Meteorology guideline *Observation specifications No.2013.1 Guidelines for the positioning and exposure of meteorological instruments and observing facilities*.

(B22) The holder of this Environmental Authority must record, compile, evaluate and keep all monitoring records obtained from the permanent automatic meteorological station.

Point Source Releases to Air

(B23) Point source emissions of contaminants to air must:

(a) only occur from the release points specified in Schedule B Table 4 - Release points (air); and

(b) comply with the Minimum Exit Gas Temperature specified in Schedule B Table 4 - Release points (air); and

(c) comply with the Minimum Release Height specified in Schedule B Table 4 - Release points (air); and

(d) comply with the Minimum Efflux Velocity specified in Schedule B Table 4 - Release points (air).

Schedule B – Table 4 - Release points (air)

Release point	Description (power generation unit)	Locations		Source description	Minimum release height (m)[1]	Minimum exit gas temperature (°C)[1]	Minimum efflux velocity (m/s)[1,2]
		Easting (GDA94 MGA z54)	Northing (GDA94 MGA z54)				
Power plant infrastructure area							
RP1	Diesel thermal power station	411407	7770736	Up to 75 generator units for a total production of 75MW of electricity	3.2	479	59

[1] - Minimum release height (m), Minimum exit gas temperature (°C) and Minimum efflux velocity (m/s) must be measured for each power generation unit.
[2] - Minimum exit gas temperature (°C), based on preliminary calculations.

(B24) Point source emissions of contaminants to air must not exceed the contaminant release limits specified in Schedule B Table 5 - Contaminant limits (air).

Schedule B Table 5 - Contaminant limits (air).

Contaminant	Release point	g/kWh	Minimum monitoring frequency[1]
CO	RP1	3.5[2]	All release points must be monitored during commissioning of the generators and once per year thereafter.
NO_x	RP1	0.67[2]	
PM	RP1	0.03[2]	

Schedule B Table 5 - Contaminant limits (air) notes:

1. Within 3 months of commencing operation of the generators listed in Schedule B – Table 4 - Release points (air), the environmental authority holder must conduct air emission monitoring to demonstrate compliance with air emission limits listed in Schedule B Table 5 – Contaminant limits (air).
2. Based on best practice standards, US and EU emission standards for non-road diesel engines, and emissions standards specific to generator sets where they exist and recommended by the National Clean Air Agreement.

(B25) An appropriately qualified person(s) must conduct and keep records of a monitoring program of contaminant releases to the atmosphere at the release points, frequency and for the contaminants specified in Schedule B Table 5 - Contaminant limits (air) and which complies with the most recent edition of *AS4323.1 Stationary source emissions method 1: Selection of sampling positions*, and the most recent edition of the administering authority's air quality sampling manual.

END OF CONDITIONS FOR SCHEDULE B

SCHEDULE C – LAND AND REHABILITATION

General

(C1) Unless authorised by this Environmental Authority, contaminants that will or may cause environmental harm must not be directly or indirectly released to land.

(C2) Any spillage of wastes, contaminants or other materials must be cleaned up promptly. Such spillages must be cleaned up using methods that minimise the impact of the release of wastes, contaminants or materials to land, except where the relevant Material Safety Data Sheets (MSDS) specify otherwise.

Rehabilitation Objectives

(C3) Land disturbed by the mining activity must be rehabilitated in accordance with Schedule C – Table 1 (Rehabilitation Requirements).

Schedule C – Table 1 (Rehabilitation Requirements)

Mine Domain	Mine Feature	Rehabilitation Goal	Rehabilitation Objectives
Void	Little Eva Pit	Residual void with no post mining use	
	Turkey Creek Pit	Native vegetation and habitat	Safe, stable, non-polluting and self-sustaining.
	Bedford North Pit	Residual void with no post mining use	
	Bedford South Pit	Residual void with no post mining use	
	Lady Clayre Pit	Residual void with no post mining use	
	Blackard Pit	Residual void with no post mining use	
	Scanlan North Pit	Native vegetation and habitat	Safe, stable, non-polluting and self-sustaining
	Scanlan South Pit	Native vegetation and habitat	Safe, stable, non-polluting and self-sustaining
Waste Rock Dump	Little Eva WRD	Native vegetation and habitat	Safe, stable, non-polluting and self-sustaining
	Bedford North WRD		Safe, stable, non-polluting and self-sustaining
	Bedford South WRD		Safe, stable, non-polluting and self-sustaining
	Lady Clayre		Safe, stable, non-polluting and self-sustaining
	Blackard West WRD		Safe, stable, non-polluting and self-sustaining
	Blackard South East WRD		Safe, stable, non-polluting and self-sustaining
	Blackard South WRD		Safe, stable, non-polluting and self-sustaining

Mine Domain	Mine Feature	Rehabilitation Goal	Rehabilitation Objectives
	Scanlan East WRD		Safe, stable, non-polluting and self-sustaining
	Scanlan West WRD		Safe, stable, non-polluting and self-sustaining
Processing area	Process Plant infrastructure area	Low intensity grazing	Safe, stable, non-polluting and self-sustaining
	Mine infrastructure area		
	Power plant infrastructure area		
Run of Mine	ROM	Low intensity grazing	Safe, stable, non-polluting and self-sustaining
Dam	Tailing Storage Facility (TSF)	Native vegetation and habitat	Safe, stable, non-polluting and self-sustaining
	Process Water Pond	Low intensity grazing	Safe, stable, non-polluting and self-sustaining
	Raw Water Pond		Safe, stable, non-polluting and self-sustaining
	Site Runoff Pond		Safe, stable, non-polluting and self-sustaining
	Little Eva SRB (EVA-SRB-1)		Safe, stable, non-polluting and self-sustaining
	Little Eva SRB (EVA-SRB-2)		Safe, stable, non-polluting and self-sustaining
	Little Eva SRB (EVA-SRB-3)		
	Little Eva SRB (EVA-SRB-4)		
	Little Eva SRB (EVA-SRB-5)		
	Bedford SRB (BD-SRB-1)		
	Bedford SRB (BD-SRB-2)		Safe, stable, non-polluting and self-sustaining
	Bedford SRB (BD-SRB-3)		
	Bedford SRB (BD-SRB-4)		
	Bedford SRB (BD-SRB-5)		
	Blackard SRB (BL-SRB-1)		
	Blackard SRB (BL-SRB-2)		Safe, stable, non-polluting and self-sustaining
	Blackard SRB (BL-SRB-3)		
	Blackard SRB (BL-SRB-4)		
	Blackard SRB (BL-SRB-5)		
	Blackard SRB (BL-SRB-6)		
	Blackard SRB (BL-SRB-7)		
	Blackard SRB (BL-SRB-8)		
	Blackard SRB (BL-SRB-9)		
	Blackard SRB (BL-SRB-10)		
	Scanlan SRB (SC-SRB-1)		
	Scanlan SRB (SC-SRB-2)		Safe, stable, non-polluting and self-sustaining
	Scanlan SRB (SC-SRB-3)		
	Scanlan SRB (SC-SRB-4)		
	Lady Clayre SRB (LC-SRB-1)		
	Lady Clayre SRB (LC-SRB-2)		

Mine Domain	Mine Feature	Rehabilitation Goal	Rehabilitation Objectives
	Lady Clayre SRB (LC-SRB-3)		Safe, stable, non-polluting and self-sustaining
	Lady Clayre SRB (LC-SRB-4)		
	South-east basin		
	North-east basin		Safe, stable, non-polluting and self-sustaining
	Solar farm		
Ancillary Infrastructure	Solar farm access and powerline easement	Low intensity grazing	Safe, stable, non-polluting and self-sustaining
	Roads		Safe, stable, non-polluting and self-sustaining
	Magazine		Safe, stable, non-polluting and self-sustaining
	Blackard laydown		Safe, stable, non-polluting and self-sustaining
	Scanlan laydown		Safe, stable, non-polluting and self-sustaining
	Bedford laydown		Safe, stable, non-polluting and self-sustaining
	Lady Clayre laydown		Safe, stable, non-polluting and self-sustaining
	Accommodation Village		Safe, stable, non-polluting and self-sustaining
	Northern Borefield		Safe, stable, non-polluting and self-sustaining
	Powerlines		Safe, stable, non-polluting and self-sustaining
	Rubbish Disposal		Safe, stable, non-polluting and self-sustaining
	Sewage Treatment Plant		Safe, stable, non-polluting and self-sustaining
	STP disposal area 1		Safe, stable, non-polluting and self-sustaining
	STP disposal area 2	Low intensity grazing	Safe, stable, non-polluting and self-sustaining
	Concrete aggregate borrow pit area		
	Construction material borrow pit area		
	Cabbage Tree Creek, Blackard Creek and unnamed tributary of Blackard Creek Diversions		

Mine Domain	Mine Feature	Rehabilitation Goal	Rehabilitation Objectives
Surface Water Diversion	Little Eva Pit Levee	Native vegetation and habitat	Safe, stable, non-polluting and self-sustaining
	TSF Drainage		Safe, stable, non-polluting and self-sustaining
	Scanlan North Diversion		Safe, stable, non-polluting and self-sustaining
	Scanlan North Bund		Safe, stable, non-polluting and self-sustaining
	Scanlan Bund		Safe, stable, non-polluting and self-sustaining
	Scanlan Diversion		Safe, stable, non-polluting and self-sustaining
	Blackard Diversion		Safe, stable, non-polluting and self-sustaining
	Blackard Bund 1		Safe, stable, non-polluting and self-sustaining
	Blackard Bund 2		Safe, stable, non-polluting and self-sustaining
	Turkey Creek Diversion		Safe, stable, non-polluting and self-sustaining
	Bedford Bund		Safe, stable, non-polluting and self-sustaining
	Bedford Diversion		Safe, stable, non-polluting and self-sustaining
	Topsoil Stockpiles		Safe, stable, non-polluting and self-sustaining
Topsoil Stockpiles	Exploration	Low intensity grazing	Safe, stable, non-polluting and self-sustaining
Exploration		Low intensity grazing	Safe, stable, non-polluting and self-sustaining

(C4) Rehabilitation must commence progressively as areas become available.

(C5) Within four years after the commencement of mining activities, the holder of this Environmental Authority must commence trials to establish suitable capping systems for infrastructure on the licensed place including but not limited to the tailings storage facility and all waste rock dumps.

(C6) Within six years after the commencement of mining activities, and once every two (2) years thereafter the Environmental Authority holder must submit a report to the administering authority detailing the success and findings from the capping system trials.

(C7) Within seven years after the commencement of mining activities, the Environmental Authority holder must submit to the administering authority a report nominating the most appropriate capping system based on results from trials required in condition (C5).

Topsoil

(C8) Topsoil and subsoils must be stripped and stockpiled ahead of the areas proposed to be disturbed for the mining activity to a depth determined from soil surveys to ensure that useable soil resources are preserved for rehabilitation.

(C9) Topsoil and subsoil stockpiles must be managed to ensure stability and minimise the release of contaminants. Measures must include:

(a) vegetating stockpiles;

(b) stockpiles will not exceed 2 m in height,

(c) stockpiles will not be located within 40 m of any watercourse to minimise the risks from erosion and sedimentation, and;

(d) stockpiles will be re-used as soon as possible.

(C10) A topsoil inventory which identifies the topsoil requirements for the mining activity and availability of suitable topsoil on the licensed place must be kept and made available to the administering authority on request.

Rehabilitation Monitoring Program

(C11) A rehabilitation monitoring program must be implemented by an appropriately qualified person upon commencement of rehabilitation identified in Schedule C – Table 1 (Rehabilitation Requirements).

(C12) The holder of this Environmental Authority must conduct rehabilitation monitoring in accordance with the program developed in condition (C11) at least once a year including sufficient spatial and temporal replication to enable scientifically justifiable conclusions to be made, as established in the rehabilitation monitoring program.

(C13) Verification of rehabilitation success is to be carried out for each domain. Monitoring must be carried out for each domain at a minimum sampling intensity of 1:15,000 and must include sufficient replication to enable statistical analysis of results at an acceptable power as established in the rehabilitation monitoring program.

Infrastructure

(C14) All buildings, structures, mining equipment and plant erected and/or used for the mining activity must be removed from the licensed place prior to surrender, except where agreed to in writing by the administering authority and the landowner.

Chemicals and Flammable or Combustible Liquids

(C15) All explosives, hazardous chemicals, corrosive substances, toxic substances, gases, flammable or combustible liquids and dangerous goods must be stored and handled in accordance with the current, relevant Australian Standard where such is applicable.

(C16) Notwithstanding the requirements of any applicable Australian Standard, any liquids stored on the licensed place that have the potential to cause environmental harm must be stored in and serviced by an effective containment system that is impervious to the materials stored and managed to prevent the release of liquids to waters or land.

(C17) Where no relevant Australian Standard is available, the following must be applied:

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

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

(C18) All containment systems must be designed to minimise rainfall collection within the system.

Contaminated Land

(C19) Prior to making an application for surrender or approval for progressive rehabilitation the holder of this Environmental Authority must undertake a contaminated land assessment/investigation of the relevant areas of the licensed place in accordance with the administering authority's *Guideline for the Assessment and Management of Contaminated Land in Queensland.*

Disturbance to Land

(C20) The holder of this Environmental Authority must conduct a field assessment of flora and fauna prior to the commencement of vegetation clearing.

(C21) When carrying out the mining activity the holder of this Environmental Authority must:

(a) avoid, minimise or mitigate (in order of preference) any impacts on areas of sensitive vegetation or other areas of ecological value;

(b) minimise the risk of injury, harm, or entrapment to wildlife and stock;

(c) minimise disturbance to land that may otherwise result in land degradation;

(d) prior to carrying out any disturbance activities, make all relevant staff, contractors or agents carrying out those activities, aware of the location of any Category A, B or C Environmentally Sensitive Area (ESA) and the relevant requirements of this Environmental Authority;

(e) if significant disturbance to land is unavoidable, the holder of this Environmental Authority must clear native vegetation in a way which minimises fragmentation; and

(f) manage cleared native vegetation so that it is stockpiled in a manner that facilitates salvage, and respreading does not impede vehicle, stock or wildlife movements.

(C22) A qualified spotter/catcher is to be engaged to work ahead of site clearing works at the commencement of vegetation clearing to ensure the protection of species that may be of conservation significance.

Note: This Environmental Authority does not authorise the taking of protected animals or the tampering with an animal breeding place that is being used by a protected animal to incubate or rear the animal's offspring.

(C23) In the event of identification of rare or threatened species on the licensed place, a diagrammatic representation of the species occurrence relative to the mining activity together with a management and monitoring strategy for species conservation must be prepared to the satisfaction of the administering authority and submitted once every five (5) years.

Residual Void Outcome

(C24) Residual voids must not cause any environmental harm to land, surface waters or 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.

Purple-necked Rock-wallaby Monitoring Program *(Petrogale purpureicollis)*

(C25) Prior to the commencement of mining activities, a purple-necked rock-wallaby monitoring program must be developed and implemented. The monitoring program must:

(a) monitor and record the effects of the mining activity on the purple-necked rock wallaby population; and

(b) be conducted at a frequency determined by an appropriately qualified person at intervals of not more than twelve (12) months.

(C26) In the event that the monitoring program required by condition (C25) shows a significant decline in the purple-necked rock-wallaby population, the holder of this environmental authority must:

(a) complete an investigation into the potential cause of the decline; and

(b) provide an investigation report to the administering authority within two (2) months of becoming aware of the decline.

(C27) A summary report detailing the results of the purple-necked rock-wallaby monitoring program carried out in accordance with condition (C25) must be provided to the administering authority at intervals of not more than three (3) years.

Impacts to Prescribed Environmental Matters

(C28) Significant residual impacts to prescribed environmental matters, are not authorised under this environmental authority or the *Environmental Offsets Act 2014* unless the impact(s) is specified in Schedule C – Table 2 (Significant residual impacts to prescribed environmental matters) and all information required for Schedule C - Table 2 (Significant residual impacts to prescribed environmental matters) has been provided to the administering authority.

Schedule C – Table 2 (Significant residual impacts to prescribed environmental matters)

Prescribed environmental matter	Regional Ecosystem (RE) identified	Location of impact Coordinates (GDA94 MGA zone 54)		Maximum extent of Impact (hectares)
		Easting	Northing	
Regional ecosystems (not within an urban area) within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map: To be advised at least four (4) months prior to commencement of impacts to prescribed environmental matters (RE ID and Broad Vegetation Group)	**Stage 1 (Early Works) – RE:** 1.3.7 (*Eucalyptus camaldulensis* woodland on channels and levees)	414568	7769896	0.63
	Stage 2 (Cabbage Tree Creek, Blackard Creek and unnamed tributary of Blackard Creek Diversions plus Little Eva Pit Levee incl. buffer lands) – RE: 1.3.7 (*Eucalyptus camaldulensis* woodland on channels and levees) 1.3.13 (*Eucalyptus leucophylla* woodland on	409909	7771851	49.70

	levees and minor drainage lines) 1.5.4 (*Eucalyptus leucophylla* and/or *Corymbia terminalis* low open woodland on red earths).			
	Stage 3 (Solar farm and access and powerline easement) – RE: 1.3.7 (*Eucalyptus camaldulensis* woodland on channels and levees)	410230	7774515	0.59
		411130	7774344	
		412112	7773911	
		413135	7772749	
	Stage 4 To be advised at least four (4) months prior to commencement of impacts to prescribed environmental matters (E.g.: maps figures coordinates, lot/plan, resource authorities or project areas)	To be advised at least four (4) months prior to commencement of impacts to prescribed environmental matters (E.g.: maps figures coordinates, lot/plan, resource authorities or project areas)	To be advised at least four (4) months prior to commencement of impacts to prescribed environmental matters (E.g.: maps figures coordinates, lot/plan, resource authorities or project areas)	To be advised at least four (4) months prior to commencement of impacts to prescribed environmental matters
	More stages to be included if required.			
Habitat for animal that are vulnerable wildlife – Purple-necked Rock-wallaby (*Petrogale purpureicollis*)	**Stage 1 (Early Works)**	415735	7771186	4.34
	Stage 2 (Cabbage Tree Creek, Blackard Creek and unnamed tributary of Blackard Creek Diversions plus Little Eva Pit Levee incl. buffer lands)	No impacts	No impacts	0.0
	Stage 3 (Solar farm and access and powerline easement)	413266	7772186	0.55
		413357	7771551	
		413389	7771330	
		413418	7771249	
	Stage 4 To be advised at least four (4) months prior to commencement of impacts to prescribed environmental matters	To be advised at least four (4) months prior to commencement of impacts to prescribed environmental matters	To be advised at least four (4) months prior to commencement of impacts to prescribed environmental matters	To be advised at least four (4) months prior to commencement of impacts to prescribed environmental matters
	More stages to be included if required.			

(C29) Records demonstrating that each impact to a prescribed environmental matter not listed in Schedule C – Table 2 (Significant residual impacts to prescribed environmental matters) did not, or is not likely to, result in a significant residual impact to that matter must be:

(a) completed by an appropriately qualified person; and

(b) kept for the life of the environmental authority.

(C30) An environmental offset made in accordance with the *Environmental Offsets Act 2014* and *Queensland Environmental Offsets Policy*, as amended from time to time, must be undertaken for the maximum extent of impact to each prescribed environmental matter (as per staging requirements) authorised in Schedule C – Table 2 (Significant residual impacts to prescribed environmental matters), unless a lesser extent of the impact has been approved in accordance with condition C34.

(C31) The significant residual impacts to a prescribed environmental matter authorised in condition C28 for which an environmental offset is required by condition C30 may be carried out in stages. An environmental offset can be delivered for each stage of the impacts to prescribed environmental matters.

(C32) Prior to the commencement of each stage, a report completed by an appropriately qualified person, that includes an analysis of the following must be provided to the administering authority:

(a) for the forthcoming stage—the estimated significant residual impacts to each prescribed environmental matter; and

(b) for the previous stage, if applicable—the actual significant residual impacts to each prescribed environmental matter, to date.

(C33) Within six months from the completion of the final stage of the project, a report completed by an appropriately qualified person, that includes the following matters must be provided to the administering authority:

(a) an analysis of the actual impacts on prescribed environmental matters resulting from the final stage; and

(b) if applicable, a notice of election to address any outstanding offset debits for the authorised impacts.

(C34) The report required by condition C32 must be approved by the administering authority before the notice of election for the forthcoming stage, if applicable, is given to the administering authority.

(C35) The notice of election for the staged environmental offset referred to in condition C34, if applicable, must be provided to the administering authority no less than three months before the proposed commencement of that stage, unless a lesser timeframe has been agreed to by the administering authority.

END OF CONDITIONS FOR SCHEDULE C

SCHEDULE D – STRUCTURES

Assessment of Consequence Category

(D1) 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.

(D2) 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.

(D3) 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 of a Regulated Structure

(D4) 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 (ERS/2016/1933)*.

Note: Certification of design and construction may be undertaken by different persons. Construction of a structure includes modification of an existing structure.

(D5) Construction of a regulated structure is prohibited unless the holder of this Environmental Authority has:

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

(b) received the certification from a suitably qualified and experienced person for the design plan and the associated operating procedures in compliance with the relevant conditions of this Environmental Authority.

(D6) Certification for the design plan 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)*.

(D7) 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)*; and

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

(i) floodwaters 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) 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.

(D8) The design plan for a regulated structure must include, but is not limited to:

(a) certification that the design plan:

(i) is in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*, including subsidiary certifications if necessary; and

(ii) addresses the requirements in condition (D8) (b) to (h).

(b) a design report which provides:

(i) a description of all the documents which constitute the design plan;

(ii) a statement of:

i the applicable standards including engineering criteria, industry guidelines, relevant legislation and regulatory documents, relied upon in preparing the design plan;

ii all relevant facts and data used in preparing the design plan, including any efforts made to obtain necessary facts and data, and any limitations or assumptions to facts and data used in preparing the design plan;

iii the consequence category of the regulated structure; and

iv setting out the reasoning of the suitably qualified and experienced person who has certified the design plan, as to how the design plan provides the necessary required performance.

(iii) documentation of hydrological analyses and estimates required to determine all elements of the design including volumes and flow capacities;

(iv) detailed criteria for the design, operation, maintenance and decommissioning of the regulated structure, including any assumptions; and

(v) design, specification and operational rules for any related structures and systems used to prevent failure scenarios;

(c) drawings showing the lines and dimensions, and locations of built structures and land forms associated with the regulated structure;

(d) consideration of the interaction of the pit design with the levee or regulated structure design;

(e) an operational plan that includes:

(i) normal operating procedures and rules (including clear documentation and definition of process inputs in the Design Storage Allowance (DSA); and

(ii) 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.

(f) a plan for the decommissioning and rehabilitation of the regulated structure at the end of its operational life;

(g) details of reports on investigations and studies done in support of the design plan; and

(h) any other matter required by the suitably qualified and experienced person.

(D9) 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; and

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

(D10) The Tailings Storage Facility design and construction must include a base layer with a low permeability liner that is equal to or less than 1×10^{-9} m/s.

Notification of affected persons

(D11) All affected persons must be provided with a copy of the emergency action plan in place for each regulated structure:

(a) prior to the operation of the new regulated structure;

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

Operation of a Regulated Structure

(D12) Operation of a regulated structure is prohibited unless:

(a) the holder of this Environmental Authority has submitted to the administering authority:

(i) one paper copy and one electronic copy of the design plan and certification of the design plan in accordance with condition (D7);

(ii) a set of 'as constructed' drawings and specifications; and

(iii) certification of those 'as constructed drawings and specifications' in accordance with condition (D8).

(b) the requirements of this Environmental Authority relating to the construction of the regulated structure have been met; and

(c) relevant details for the regulated structures have been included in Schedule D – Table 1 (Hydraulic Performance of Regulated Structures) or Schedule D – Table 2 (Hydraulic Performance of Regulated Levees), and into the Register of Regulated Structures required by condition (D30); and

(d) there is a current operational plan for the regulated structure.

(D13) Each regulated structure must be maintained and operated in a manner that is consistent with the current design plan, the current operational plan, and the associated certified 'as constructed' drawings for the duration of its operational life until decommissioned and rehabilitated.

(D14) The holder of this Environmental Authority must take reasonable and practicable measures to prevent harm to persons, livestock or wildlife through the construction and operation of a regulated structure. Reasonable and practicable measures may include, but are not limited to:

(a) the secure use of fencing, bunding or screening; and

(b) escape arrangements for trapped livestock and fauna.

Mandatory Reporting Level

(D15) The mandatory reporting level (MRL) must be marked on a regulated dam in such a way that during routine inspections of that structure, it is clearly observable.

(D16) The holder of this Environmental Authority 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.

(D17) The holder of this Environmental Authority must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.

(D18) The Environmental Authority holder must record any changes to the MRL in the Register of Regulated Structures.

Design Storage Allowance

(D19) The Environmental Authority 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 each year.

(D20) On 1 November of each year, storage capacity must be available in each regulated dam, to meet the DSA volume for the dam.

(D21) The holder of this Environmental Authority must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated structure will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.

(D22) The holder of this Environmental Authority must, immediately on becoming aware that a regulated dam 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 structure or linked containment systems.

Annual Inspection Report

(D23) Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

(D24) 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 recommendations, if applicable, to ensure the integrity of the regulated structures.

(a) against recommendations contained in previous annual inspection 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 Environmental Authority;
(e) for conformance with the 'as constructed' drawings;
(f) for the adequacy of the available storage in each regulated structure, 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 regulated structure (or network of linked containment systems); and
(g) for evidence of conformance with the current operational plan.

(D25) 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)*.

(D26) The holder of this Environmental Authority must within 20 business days of the 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.

(D27) A copy of the annual inspection report must be provided to the administering authority upon request within ten (10) business days of receipt of the request.

Transfer Arrangements

(D28) The holder of this Environmental Authority must provide a copy of any reports, documentation and certifications prepared under this Environmental Authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder of this Environmental Authority.

Decommissioning and Rehabilitation

(D29) Regulated structures must not be abandoned. They must be either:

- (a) decommissioned and rehabilitated to achieve compliance with condition (D30); or
- (b) be left in situ for use by the landholder 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 use(s); and
- (c) the Environmental Authority holder 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, and from an agreed date.

(D30) Before surrendering this environmental authority, each regulated structure must be decommissioned and rehabilitated to achieve a safe, stable, non-polluting landform.

Register of Regulated Structures

(D31) A Register of Regulated Structures must be established and maintained by the holder for each regulated structure.

Note: Schedule I – Definitions defines a Register of Regulated Structures and specifies information that must be included.

(D32) The holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated dam is submitted to the administering authority.

(D33) The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with condition (D12) and (D13) has been achieved.

(D34) The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.

(D35) 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.

(D36) 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.

Hydraulic performance of regulated structures

(D37) A certified assessment report must be undertaken in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance Criteria for Structures (ESR/2016/1933)* for all structures including those specified in Schedule D – Table 1 (Hydraulic Performance of Regulated Structures) and Schedule D – Table 2 (Hydraulic Performance of Regulated Levees). The report must be submitted to the department at least two (2) months prior to the construction of those structures.

(D38) Each regulated structure specified in Schedule D – Table 1 (Hydraulic Performance of Regulated Structures) must meet the hydraulic performance criteria listed in Schedule D – Table 1 (Hydraulic Performance of Regulated Structures) for that structure.

Schedule D – Table 1 (Hydraulic Performance of Regulated Structures)

Name of Regulated Structure	Consequence Category	Spillway Capacity	Design Storage Allowance	Mandatory Reporting Level	Purpose of structure
		Design Criteria	Design Criteria	Design Criteria	
Tailings Storage Facility	High	1:1 000 AEP To 1:100 000 AEP	1:100 AEP	1-in-200 year ARI 72 hours rainfall duration	Storage of tailings
Process Water Pond	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	Storage of process water
Site Runoff Pond	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	Catch runoff from a portion of the process plant infrastructure area.

(D39) Each levee specified in Schedule D – Table 2 (Hydraulic Performance of Regulated Levees) must have its consequence category assessed in accordance condition D1 and meet the hydraulic performance criteria listed in Schedule D – Table 2 (Hydraulic Performance of Regulated Levees) for that levee.

Schedule D — Table 2 (Hydraulic Performance of Regulated Levees)

Name of Regulated Levee	Consequence Category	Design Criteria for Flood Level for embankment crest level (mAHD)	Design Flood Level (mAHD)	Minimum Levee Level (mAHD)	Use of Levee
Little Eva Pit Levee	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	Flood protection for Little Eva Pit
Levees associated with the TSF Drainage	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	Flood protection for TSF and process plant area.

Name of Regulated Levee	Consequence Category	Design Criteria for Flood Level for embankment crest level (mAHD)	Design Flood Level (mAHD)	Minimum Levee Level (mAHD)	Use of Levee
Levees associated with the Scanlan North Diversion	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	Flood protection for Scanlan North Pit.
Levees associated with the Scanlan Bund	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	Flood protection for Scanlan South Pit.
Levees associated with the Scanlan Diversion	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	Flood protection for Scanlan South Pit.
Levees associated with the Blackard Diversion	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	Flood protection for Blackard Pit.
Levees associated with the Blackard Bund 1	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	Flood protection for Blackard Pit.
Levees associated with the Blackard Bund 2	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	Flood protection for Blackard Pit.
Levees associated with the Turkey Creek Diversion	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	Flood protection for Turkey Creek Pit.
Levees associated with the Bedford Bund	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	Flood protection for Bedford South Pit
Levees associated with the Bedford Diversion	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	To be provided to the administering authority two (2) months prior to the commencement of construction of the structure	Flood protection for Bedford South Pit

Permanent watercourse diversions

(D40) Permanent watercourse diversions, or the re-establishment of a pre-existing watercourse where a temporary watercourse diversion is being replaced, must be designed and constructed to:

(a) incorporate natural features (including geomorphic and vegetation) present at the location of the diversion;

(b) maintain the pre-existing hydrologic characteristics of surface water and groundwater systems for the area in which the watercourse diversion is located;

(c) maintain the hydraulic characteristics of the permanent watercourse diversion that are equivalent to other local watercourses and are suitable for the area in which the diversion is located without using artificial structures that require on-going maintenance;

(d) maintain sediment transport and water quality regimes that allow the diversion to be self-sustaining, while minimising any impacts to upstream and downstream water quality, geomorphology or vegetation; and

(e) maintain equilibrium and functionality in all substrate conditions at the location of the diversion.

Design plan

(D41) A certified Design Plan that achieves condition (D40) for permanent watercourse diversions must be submitted to the administering authority at least ten (10) business days before commencing construction of the diversion.

(D42) The certified design plan for any permanent watercourse diversion must be consistent with the functional design/s that formed a part of the application documents for this authority.

Construction and operation

(D43) A certified set of ‘as constructed’ drawings and specifications must be submitted to the administering authority within ninety (90) business days from the completion of construction of the permanent watercourse diversion, or re-establishment of the pre-existing watercourse. These drawings and specifications must state:

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

(b) construction of the watercourse diversion is in accordance with the design plan.

Register

(D44) The details of watercourse diversions planned and constructed under an environmental authority must be accurately recorded on the Register of Watercourse Diversions kept by the holder of the authority. An electronic copy must be provided to the administering authority on request.

END OF CONDITIONS FOR SCHEDULE D

SCHEDULE E – WASTE

Non-Mineral Waste Management Program

(E1) A waste management program must be developed, implemented and maintained for the mining activity at the licensed place. The waste management program must be regularly reviewed and updated at intervals of no greater than five years. The program must include:

- (a) a description of the mining activity that may generate waste;
- (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.
- (c) the hazard characteristics of the wastes generated including disposal procedures for regulated wastes;
- (d) a program for reusing, recycling or disposing of all wastes;
- (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);
- (f) 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;
- (g) procedures for dealing with accidents, spills, and other incidents that may impact on waste management;
- (h) details of any accredited management system employed, or planned to be employed, to deal with the waste;
- (i) how often the performance of the waste management practices will be assessed;
- (j) the indicators or other criteria on which the performance of the waste management practices will be assessed; and
- (k) staff training and induction to the waste management program.

Waste Disposal

(E2) All general and regulated waste (other than authorised under condition (E3)) must be removed from the licensed place to a facility that is lawfully able to accept the waste.

(E3) The only waste that can be disposed is waste generated at the licensed place and is limited to:

- (a) waste rock;
- (b) tailings;
- (c) tyres; and
- (d) general waste including construction and demolition waste, green waste, putrescibles waste and commercial waste.

(E4) General waste deposited in the active waste disposal trench must be compacted and covered with a layer of inert material following placement of the waste into the trench.

(E5) Litter control methods must be effectively implemented at the active waste disposal trench.

(E6) The active waste disposal trench must be constructed, designed, engineered and operated to minimise the generation of leachate including a system of diversion drains or embankments to divert surface waters away from any area where contact with wastes or sources of contamination may occur.

(E7) Completed waste disposal trenches must be capped with a low permeability material and compacted and contoured to effectively minimise water infiltration.

(E8) A record of the location of trenches used for waste disposal must be maintained in accordance with the waste disposal area identified in Schedule J – Plan 1 – Project Layout. Notwithstanding any other condition of this Environmental Authority, such records must be maintained until the administering authority approves the surrender of this Environmental Authority.

(E9) Unless otherwise permitted by the conditions of this Environmental Authority, waste must not be burnt or taken off the licensed place and burnt.

Regulated Waste

(E10) Regulated waste, other than that authorised to be disposed of at the licensed place under this Environmental Authority, must only be removed and transported from the licensed place by a person who holds a current authority to transport such wastes to a facility that is lawfully able to accept the waste.

(E11) Regulated waste generated by the mining activity can be temporarily stored at the licensed place prior to removal provided it is for a period no longer than six (6) months and it is stored in a manner to minimise the risk of fire or contamination of land or waters.

(E12) Each container of regulated waste stored awaiting movement from the licensed place must be clearly marked to identify the contents.

Tyre Storage and Disposal

(E13) Tyres stored awaiting disposal or transport for take-back and recycling or waste-to-energy options must be stockpiled in volumes less than 3m in height and 200m^2 in area and at least 10m from any other tyre storage area.

(E14) Fire prevention measures must be implemented including the removal of all combustible materials, including grass and vegetation, within a 10m radius of any tyre storage area.

(E15) Subject to demonstrating to the administering authority that no other use higher in the waste and resource management hierarchy can be practicably implemented, waste tyres generated from the mining activity may be disposed of at the licensed place in non acid forming waste rock dumps.

Mineral Waste Tailing Disposal

(E16) Tailings must be managed in accordance with procedures contained within a Mineral Waste Tailing Disposal Plan. The Mineral Waste Tailing Disposal Plan must be regularly reviewed and updated at intervals of no greater than five years. These procedures must include provisions for:

- (a) containment of tailings in accordance with the approved design plan(s);
- (b) the management of seepage and leachates both during operation and post closure;
- (c) the control of fugitive emissions to air;
- (d) a program of progressive sampling and characterisation to identify acid producing potential and metal concentrations of tailings that must include:
  - (i) progressive characterisation of all tailings material during disposal for net acid producing potential (NAPP) and the following contaminants: arsenic, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, uranium, zinc and fluoride;
  - (ii) Tailings characterisation must be undertaken at a minimum rate of eight (8) regularly spaced samples per 100,000 tonnes of tailings material discharged. This frequency must be reviewed after a period of one (1) year; and

(iii) geochemical kinetic testing where the acid producing potential of tailings material has not been conclusively determined to indicate oxidation rates, potential reaction products and effectiveness of control strategies.

(e) management of tailings in order to minimise the potential for environmental harm.

Waste Rock Disposal

(E17) The holder of this Environmental Authority must develop and implement a waste rock management plan prior to the commencement of mining activities and regularly review and update the plan at intervals of no greater than five years.

(E18) Waste rock disposal must not occur on the licensed place unless the holder of this Environmental Authority has developed a waste rock management plan. The waste rock management plan must be certified by an appropriately qualified person, to ensure the plan has addressed the requirements of this Environmental Authority in accordance with best practice environmental management.

(E19) The waste rock management plan must be independently certified by an appropriately qualified person with a minimum of ten (10) years of demonstrated expertise and experience in the design and rehabilitation of waste rock dumps.

(E20) The waste rock management plan must include:

(a) a detailed design of the waste rock dumps;

(b) characterisation of the waste rock to predict the quality of runoff and seepage generated, including salinity, acidity, alkalinity, dissolved metals, metalloids and non-metallic inorganic substances;

(c) a program of progressive sampling to validate pre-mine waste rock characterisation. The waste rock sampling program must include validation of salinity, acid and alkali producing potential and metal concentrations including arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, uranium and zinc;

(d) where the acid rock drainage potential/neutral mine drainage potential of waste rock material has not been conclusively determined, geochemical kinetic testing must be conducted to indicate oxidation rates, potential reaction products and effectiveness of control strategies;

(e) records must be maintained of all waste rock characterisation and disposal including contingency planning for the management of acid rock/neutral mine drainage;

(f) a materials balance and disposal plan demonstrating how potentially acid forming and acid forming waste rock will be selectively placed and/or encapsulated to minimise the generation of acid and metalliferous drainage;

(g) a materials balance and disposal plan demonstrating how waste rock that has a potential to generate neutral and/or saline mine drainage will be selectively placed and managed to minimise the generation of neutral and/or saline mine drainage;

(h) a sampling program to verify encapsulation and/or placement of potentially acid forming and acid forming waste rock and waste rock that has a potential to generate neutral mine drainage;

(i) how often the performance of the plan will be assessed;

(j) a rehabilitation strategy which meets the rehabilitation objectives specified in Schedule C of this Environmental Authority; and

(k) monitoring of rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of the placed materials, including the prevention and management of acid and metalliferous drainage, erosion minimisation and establishment of vegetation cover.

(E21) The waste rock dump must be designed, constructed and maintained to prevent any water other than incidental rainfall from entering the waste rock dump.

(E22) Any seepage from the waste rock dump must be captured and directed to an appropriately engineered and maintained storage authorised to receive seepage in accordance with Schedule D – Structures of this Environmental Authority.

(E23) Five years after the commencement of mining activities, the holder of this Environmental Authority must develop and implement a waste rock dump rehabilitation trial program, which:

- (a) is developed and certified by an appropriately qualified person;
- (b) considers the closure and rehabilitation requirements detailed in Schedule C of this Environmental Authority;
- (c) trials a variety of different cover systems and rehabilitation techniques in accordance with condition (C5) of this Environmental Authority; and
- (d) includes, at a minimum, monitoring of:
  - (i) water retention and infiltration rates;
  - (ii) water quality of leachate;
  - (iii) vegetation health, density, type and cover; and
  - (iv) rainfall, evaporation, climatic data and evapo-transpiration rates.

(E24) The waste rock dump rehabilitation trial program must be reviewed on an annual basis for appropriateness, with summary reports to be provided to the administering authority on request.

(E25) All waste rock characterised as having acid forming potential must be returned to an open pit at end of mine life or be encapsulated in a suitably designed waste rock dump approved by the administering authority.

(E26) Non acid forming waste rock may be used in rehabilitation or the construction of temporary or permanent structures within the operational areas if it is characterised as un-reactive (including material that does not cause acid, neutral or saline mine drainage).

Contaminated Drainage Management

(E27) All reasonable and practicable measures must be implemented to prevent contaminated water being directly or indirectly released or likely to be released as a result of the mining activity to any waters.

END OF CONDITIONS FOR SCHEDULE E

SCHEDULE F – NOISE AND VIBRATION

General

(F1) Noise and vibration from the mining activity must not cause environmental harm at any sensitive place or commercial place.

(F2) In the event of a complaint made to the administering authority (considered in the opinion of an authorised officer to be neither frivolous or vexatious) about noise or vibration generated in carrying out the mining activity and the noise or vibration is considered by the administering authority to be unreasonable, the holder of this Environmental Authority must take action to ensure that it is no longer an unreasonable noise or vibration.

Noise and Vibration Monitoring

(F3) The holder of this Environmental Authority must ensure that noise and vibration generated by the mining activity does not cause the criteria in Schedule F – Table 1 (Noise Limits) or Schedule F – Table 2 (Blasting Noise Limits) to be exceeded at any sensitive place or commercial place.

(F4) When requested by the administering authority, noise and/or vibration monitoring and recording must be undertaken within a timeframe nominated by the administering authority at any sensitive place or commercial place and the results must be provided to the administering authority within ten (10) business days following completion of monitoring.

Schedule F – Table 1 (Noise Limits)

Noise Level dB(A) Measured as:	7 Days per Week		
	7am to 6pm	6pm to 10pm	10pm to 7am
$LAeq_{,adj,1hour}$	35	35	30

(F5) Prior to the commencement of mining activities, the holder of this Environmental Authority must develop and implement a noise monitoring program to demonstrate compliance with the noise limits identified in Schedule F – Table 1 (Noise Limits).

(F6) A copy of the noise monitoring program required by condition (F5) must be provided to the administering authority on request.

(F7) Noise monitoring and recording must include the following descriptor characteristics and matters:

(a) $L_{AN,T}$ (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins);

(b) background noise L_{A90};

(c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels;

(d) atmospheric conditions including temperature, relative humidity and wind speed and directions;

(e) effects due to any extraneous factors such as traffic noise;

(f) location, date and time of monitoring;

(g) if the complaint concerns low frequency noise, Max $Lp_{LIN,T}$; and

(h) if the complaint concerns low frequency noise, one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.

(F8) The method of measurement and reporting of noise levels must comply with the most recent edition of the administering authority's Noise Measurement Manual or the most recent version of AS1055 *Acoustics – Description and measurement of environmental noise.*

Air Blast and Ground Vibration

(F9) The holder of this Environmental Authority must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in Schedule F – Table 2 (Blasting Noise Limits) to be exceeded at any sensitive place or commercial place.

Schedule F – Table 2 (Blasting Noise Limits)

Blasting Noise Limits	Sensitive or Commercial Place Limits	
	7am to 6pm	6pm to 7am
Air blast overpressure	115 dB (Linear) peak for four (4) out of five (5) consecutive blasts initiated and not greater than 120 dB (Linear) peak at any time.	No Blasting
Ground vibration peak particle velocity	5mm/second peak particle velocity for four (4) out of five (5) consecutive blasts and not greater than 10 mm/second peak particle velocity at any time.	No Blasting

(F10) The holder of this Environmental Authority must develop and implement a blast monitoring program to monitor compliance with Schedule F – Table 2 (Blast Noise Limits) for:

(a) at least 50% of all blasts undertaken on the licensed place each year at the nearest sensitive place or commercial place; and

(b) all blasts conducted during any time period specified by the administering authority at any sensitive place or commercial place.

(F11) Where blast monitoring detects non-compliance with Schedule F – Table 2 (Blasting Noise Limits) the holder of this Environmental Authority must:

(a) take steps to ensure compliance is achieved by subsequent blasts; and

(b) continue to monitor all consecutive blasts until at least three (3) successive blasts comply with Schedule F – Table 2 (Blasting Noise Limits).

(F12) The method of measurement and reporting of vibration levels must comply with the most recent edition of the administering authority's guideline *Noise and vibration from blasting.*

(F13) The method of measurement and reporting of air blast overpressure levels must comply with the most recent Australian standard *Explosives – Storage and use* guidelines.

END OF CONDITIONS FOR SCHEDULE F

SCHEDULE G – WATER

General

(G1) Contaminants that will, or have the potential to cause environmental harm, must not be released directly or indirectly to any waters.

(G2) Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable to minimise the release of wastes, contaminants or materials to any stormwater drainage system or receiving waters.

(G3) The following information must be recorded in relation to all water monitoring required under the conditions of this Environmental Authority and submitted to the administering authority in the specified format when requested:

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

(b) the monitoring point where the sample was taken;

(c) the results of all monitoring and details of any exceedances with the conditions of this Environmental Authority; and

(d) all water quality monitoring data.

Stream Flow Monitoring

(G4) The holder of this Environmental Authority must install, operate and maintain a stream flow gauging station to determine and record stream flows at the locations upstream of each constructed water storage as specified in Schedule G – Table 4 (Onsite Water Storage Monitoring Locations) and shown in Schedule J – Plan 1 – Project Layout.

Notification of Release Event

(G5) The holder of this Environmental Authority must notify the administering authority of a release event (no later than twenty four (24) hours after having commenced releasing contaminated water to the receiving environment). Notification must include the submission of written verification to the administering authority of the following information:

(a) release commencement date/time;

(b) expected release cessation date/time;

(c) release location(s);

(d) release rate and contaminant load (estimated);

(e) receiving water(s) including the natural flow rate; and

(f) any details (including available data) regarding likely impacts on the receiving water(s).

(G6) The holder of this Environmental Authority must notify the administering authority within twenty-four (24) hours after cessation of a release as notified under condition (G7) and within twenty (20) business days provide the following information in writing:

(a) release cessation date/time;

(b) natural flow volume in receiving water;

(c) volume of water released;

(d) details regarding the compliance of the release with the conditions of Schedule G in this Environmental Authority (i.e. contaminant limits, natural flow, discharge volume);

(e) all in-situ water quality monitoring results; and

(f) any other matters pertinent to the release.

Onsite Water Storages

(G7) Water storages stated in Schedule G – Table 4 (Onsite Water Storage Monitoring Locations) must be monitored for the water quality characteristics specified in Schedule G -Table 5 (Onsite Water Storage Contaminant Limits) at the monitoring locations and at the monitoring frequency specified in Schedule G – Table 4 (Onsite Water Storage Monitoring Locations).

Schedule G – Table 4 (Onsite Water Storage Monitoring Locations)

Water Storage Description	Coordinates (GDA94 MGA zone 54)		Frequency of Monitoring
	Easting	Northing	
Tailings Storage Facility	410407	7766428	Quarterly
Process Water Pond	411366	7770861	
Raw Water Pond	411310	7770961	
Site Runoff Pond	411662	7770871	
Little Eva SRB (EVA-SRB-1)	411371	7773483	
Little Eva SRB (EVA-SRB-2)	412158	7772675	
Little Eva SRB (EVA-SRB-3)	412744	7771807	
Little Eva SRB (EVA-SRB-4)	411579	7771643	
Little Eva SRB (EVA-SRB-5)	411088	7770695	
Bedford SRB (BD-SRB-1)	415305	7767014	
Bedford SRB (BD-SRB-2)	415782	7767331	
Bedford SRB (BD-SRB-3)	415639	7766872	
Bedford SRB (BD-SRB-4)	415329	7766509	
Bedford SRB (BD-SRB-5)	415519	7766290	
Blackard SRB (BL-SRB-1)	411638	7767160	
Blackard SRB (BL-SRB-2)	411557	7766139	
Blackard SRB (BL-SRB-3)	411832	7765584	
Blackard SRB (BL-SRB-4)	413096	7764539	
Blackard SRB (BL-SRB-5)	412379	7764517	
Blackard SRB (BL-SRB-6)	413262	7764234	
Blackard SRB (BL-SRB-7)	413061	7763676	
Blackard SRB (BL-SRB-8)	413294	7764660	
Blackard SRB (BL-SRB-9)	413302	7764544	
Blackard SRB (BL-SRB-10)	413444	7764266	
Scanlan SRB (SC-SRB-1)	412251	7755048	
Scanlan SRB (SC-SRB-2)	411705	7754265	
Scanlan SRB (SC-SRB-3)	412768	7754905	
Scanlan SRB (SC-SRB-4)	412899	7754411	
Lady Clayre SRB (LC-SRB-1)	410667	7752700	
Lady Clayre SRB (LC-SRB-2)	410211	7752869	
Lady Clayre SRB (LC-SRB-3)	410463	7752158	
Lady Clayre SRB (LC-SRB-4)	409877	7752002	

(G8) In the event that any water storages exceed the contaminant limits defined in Table 3 of the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams,* the holder of this Environmental Authority must comply with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*.

(G9) In the event that waters storages defined in Schedule G – Table 4 (Onsite Water Storage Monitoring Locations) exceed the contaminant limits defined in Schedule G –Table 5 (Onsite Water Storage Contaminant Limits) the holder of this Environmental Authority must implement measures to prevent access to waters by all livestock and minimise access by native fauna.

Schedule G – Table 5 (Onsite Water Storage Contaminant Limits)

Quality Characteristic[3]	Test Value	Contaminant Limit
pH (pH unit)	Minimum	4.0[2]
	Maximum	9.0[2]
EC (µS/cm)	Maximum	5970[1]
Sulphate (mg/L)	Maximum	1000[1]
Fluoride (mg/L)	Maximum	2[1]
Aluminium (mg/L)	Maximum	5[1]
Arsenic (mg/L)	Maximum	0.5[1]
Cadmium (mg/L)	Maximum	0.01[1]
Chromium (mg/L)	Maximum	1[1]
Cobalt (mg/L)	Maximum	1[1]
Copper (mg/L)	Maximum	1[1]
Lead (mg/L)	Maximum	0.1[1]
Mercury (mg/L)	Maximum	0.002[1]
Molybdenum (mg/L)	Maximum	0.15[1]
Nickel (mg/L)	Maximum	1[1]
Selenium (mg/L)	Maximum	0.02[1]
Uranium (mg/L)	Maximum	0.2[1]
Zinc (mg/L)	Maximum	20[1]

1. Contaminant limit based on ANZECC (2000) stock water quality guidelines.
2. Page 4.2-15 of ANZECC (2000) "Soil and animal health will not generally be affected by water with pH in the range of 4–9".
3. All metals and metalloids must be measured as total (unfiltered).

Receiving Waters Monitoring

(G10) Reference sites and receiving waters must be monitored at the locations specified in Schedule G – Table 6 (Receiving Water Reference Sites and Downstream Monitoring Points) and identified on Schedule J – Plan 3 – Surface Water and Sediment Monitoring Locations for each quality characteristic and at the frequency stated in Schedule G – Table 7 (Receiving Waters Contaminant Trigger Levels).

Schedule G – Table 6 (Receiving Water Reference Sites and Downstream Monitoring Points)

Monitoring Points	Receiving Waters Location Description	Coordinates (GDA94 MGA zone 54)	
		Easting	Northing
Little Eva Mine Reference[1,2]			
RSS8[2,3]	Cabbage Tree Creek	406490	7766462
RSS5	Pinnacle Creek	406325	7774636
SW7	Little Eva South East	414549	7770439
RSS4	Lake Julius Pipeline/TSF	411321	7768509
SW2	Relates to TSF	410134	7768760
Little Eva Mine Downstream Monitoring Points			
SW1	Relates to Pit and WRD. Downstream of junction of Cabbage tree Creek and unnamed creek junction	410953	7773679
SW8	Relates to WRD	411358	7773362
RSS6	Relates to Pit and WRD	410910	7773262
SW17	Related to Pit and WRD	411193	7773746
Bedford Mine Reference[1,2]			
Cockatoo Waterhole	Dugald River Tributary	415954	7767295
RSS9	Dugald River Tributary	416139	7767010
SW16	Dugald River Tributary	414507	7767810
Bedford Mine Downstream Monitoring Points			
RSS2	Dugald River	419550	7766214
RSS10	Dugald River	417133	7766254
Dan Lynch Bridge Waterhole	Dugald River	420380	7766060
Lady Clayre Mine Reference[1,2]			
SW14	Dugald River Tributary	409464	7751900
SW15	Dugald River Tributary	409427	7753033
Lady Clayre Mine Downstream Monitoring Points			
SW3	Dugald River	413345	7754587

Monitoring Points	Receiving Waters Location Description	Coordinates (GDA94 MGA zone 54)	
		Easting	Northing
SW4	Dugald River	412466	7753519
SW9	Dugald River	413600	7754949
Scanlan Mine Reference[1,2]			
SW10	Scanlan South West	409532	7752208
SW4	Dugald River	412466	7753519
Scanlan Mine Downstream Monitoring Points			
SW5	Relates to SW4/SW10	412621	7755423
Longamundi Waterhole	Longamundi Waterhole – Dugald River	414322	7760173
SW3	Dugald River	413345	7754587
SW9	Dugald River	413600	7754949
Blackard Mine Reference[1,2]			
SW13	Upstream of WRD	411920	7762941
Blackard Mine Downstream Monitoring Points			
SW6	Blackard Creek	412260	7767267

1. Reference sites must:
   (a) be from the same bio-geographic and climatic region;
   (b) have similar geology, soil types and topography;
   (c) contain a range of habitats similar to those at the test sites;
   (d) have a similar flow regime; and
   (e) not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.
2. Data from reference monitoring points must not be used where they are affected by releases from other mines.
3. Impacted by MMG Dugald River Project.

Schedule G – Table 7 (Receiving Waters Contaminant Trigger Levels)

Quality Characteristic[1]	Contaminant Trigger Levels	Monitoring Frequency
pH (pH units)	6.0[2] (minimum) 7.5[2] (maximum)	Monthly
EC (µS/cm)	435[3]	
Sulphate (mg/L)	250[4]	
Fluoride (mg/L)	2[5]	
Total Nitrogen (mg/L)	150[2]	
Total Phosphorus (mg/L)	10[2]	
Faecal Coliforms (CFU/100mL)	600[8]	
Free Residual Chlorine (µg/L)	3[2]	
Aluminium (µg/L)	55[2]	
Arsenic[9] (µg/L)	13[2]	
Cadmium (µg/L)	0.2[2]	
Chromium[10] (µg/L)	1[2]	
Cobalt (µg/L)	1.4[6]	
Copper (µg/L)	5[11]	
Iron (µg/L)	200[7]	
Lead (µg/L)	3.4[2]	
Manganese (µg/L)	1900[2]	
Mercury (inorganic)	0.6[2]	
Molybdenum (µg/L)	34[2]	
Nickel (µg/L)	11[2]	
Selenium (µg/L)	11[2]	
Silver (µg/L)	0.05[2]	
Uranium (µg/L)	10[7]	
Zinc (µg/L)	8[2]	
Total Suspended Solids (mg/L)	For interpretation purposes only.	
Turbidity (NTU)		
Hardness		
Major Cations and Anions		

1 All metals and metalloids must be measured as dissolved (filtered) concentrations.

2 Default trigger values – from ANZECC/ARMCANZ (2000) trigger values for aquatic ecosystems indicative of slightly-to-moderately disturbed tropical Australian upland river ecosystems Tables 3.3.4 and Table 3.4.1 (*high reliability* trigger values) and *moderate* or *low* reliability trigger values (Section 8.3) if no value available in Table 3.4.1.
3 For aquatic ecosystem protection, Table G.4, Gulf zone of the Queensland Water Quality Guidelines, 2009.
4 Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy (2011) version 3.6. Measured as 'total'.
5 Based on ANZECC/ARMCANZ (2000) Table 4.3.2 for livestock drinking water.
6 ANZG (2018) trigger levels for 95% aquatic ecosystem protection for slightly to moderately disturbed ecosystems. Measured as 'dissolved'.
7 ANZECC (2000) volume 3, chapter 9 Water quality for irrigation and general use long term trigger. Measured as 'dissolved'.
8 Based on ANZECC/ARMCANZ (2000) section 5.2.3.1 Microbiological characteristics for primary contact
9 Speciated arsenic concentrations for As (III) and As (V) only required if 13 µg/L is exceeded - note that the sample bottle requirements for As (total species) and As (speciated) may differ.
10 Speciated chromium concentrations for Cr (III) and Cr (VI) only required if 1.0 µg/L is exceeded – note that the sample bottle requirements for Cr (total species) and Cr (speciated) may differ
11 Site-specific value based on the 80th percentile of data from 2015 – 2021, based on a combined data set.

NOTES

(a) All dissolved (filtered) samples must be obtained from field filtered grab samples.

(G11) If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Schedule G – Table 7 (Receiving Waters Contaminant Trigger Levels), the holder of this Environmental Authority must compare the results of the downstream site to the data from reference monitoring sites and:

(a) if the level of contaminants at the downstream site does not exceed the reference monitoring site data, then no action is to be taken; or

(b) if the level of contaminants at the downstream site is greater than the reference monitoring site data, complete an investigation in accordance with the ANZECC and ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority within three (3) months, outlining:

(i) details of the investigations carried out;

(ii) details of the environmental impacts observed; and

(iii) actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with clause (b) of this condition, then no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.

Receiving Environment Monitoring Program

(G12) A Receiving Environment Monitoring Program (REMP) must be updated and implemented at least 6 months prior to the commencement of mining activities.

(G13) The REMP must monitor and record the effects of the release of contaminants on the receiving environment periodically and whilst contaminants are being released from the licensed place. The aim of the REMP is to identify and describe the extent of any adverse impacts on local environmental values and to monitor any changes in the receiving water (including groundwater). A copy of the REMP and any update or variation of the REMP must be provided to the administering authority prior to its implementation.

Note: For the purposes of the REMP, the receiving environment is the waters and connected waterways (including groundwater) within 5km downstream of any water storage identified in Schedule G – Table 4 (Onsite Water Storage Monitoring Locations).

(G14) The REMP must address (but not necessarily be limited to) the following:

(a) description of potentially affected receiving groundwaters and surface waters including key communities and reference water quality and sediment characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality);

(b) description of applicable environmental values and water quality objectives to be achieved (i.e. as scheduled pursuant to the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019*;

(c) any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment to which the REMP applies;

(d) water and sediment quality targets within the receiving environment to be achieved, and clarification of contaminant concentrations or level indicating adverse environmental impacts during the REMP;

(e) monitoring for any potential adverse environmental impacts caused by a release;

(f) monitoring of stream flow and hydrology;

(g) monitoring of toxicants that must consider the quality characteristics specified in Schedule G – Table 7 (Receiving Waters Contaminant Trigger Levels) to assess the extent of the compliance of concentrations with water quality objectives and/or the ANZECC and ARMCANZ (2000) Guidelines for slightly to moderately disturbed ecosystems;

(h) monitoring of physical and chemical parameters including as a minimum those specified in Schedule G – Table 7 (Receiving Waters Contaminant Trigger Levels) (in addition to dissolved oxygen saturation and temperature);

(i) monitoring biological indicators (for macroinvertebrates in accordance with the administering authority's monitoring and sampling manual (AusRivas Methodology) and metals/metalloids in sediments (in accordance with ANZECC and ARMCANZ (2000), BATLEY and/or the most recent version of AS5667.*1 Guidance on Sampling of Bottom Sediments*) for permanent, semi-permanent water holes and water storages;

(j) the locations of monitoring points (including the locations of reference/upstream and downstream potentially impacted sites for each release point). Reference sites must comply with the following criteria:

  (i) be from the same bio-geographic and climatic region;

  (ii) have similar geology, soil types and topography;

  (iii) contain a range of habitats similar to those at the potentially impacted sites;

  (iv) have a similar flow regime; and

  (v) not be so close to the potentially impacted sites that any disturbance at the potentially impacted sites also results in a change at the reference site.

(k) the frequency or scheduling of sampling and analysis that is sufficient to determine water quality objectives and to derive site specific reference values within two (2) years (depending on wet season flows) in accordance with the *Queensland Water Quality Guidelines*. For ephemeral streams, this should include periods of flow irrespective of mine or other release;

(l) specify sampling and analysis methods and quality assurance and control;

(m) any historical datasets to be relied upon;

(n) description of the statistical basis on which conclusions are drawn; and

(o) any spatial and temporal controls to exclude potential confounding factors.

(G15) A report outlining the findings of the REMP including all monitoring results and interpretations in accordance with condition (G16) must be prepared and submitted in writing to the administering authority every twelve (12) months. The report must include an assessment of reference water quality, any assimilative capacity for those contaminants monitored and the suitability of current release limits to protect downstream environmental values.

Stream Sediment Monitoring

(G16) Sediment quality of receiving waters and reference waters must be monitored twice a year (once at the end of the wet season and once at the end of the dry season) at the monitoring locations defined in Schedule G – Table 6 (Receiving Water Reference Sites and Downstream Monitoring Points) and identified on Schedule J – Plan 3 – Surface Water and Sediment Monitoring Locations and for the parameters defined in Schedule G – Table 8 (Stream Sediment Trigger Levels and Contaminant Limits).

(G17) If the quality characteristics of sediments exceed any of the trigger levels specified in Schedule G –Table 8 (Stream Sediment Trigger Levels and Contaminant Limits), the holder of this Environmental Authority must compare the results of the downstream site to the data from reference monitoring sites and:

(a) if the level of contaminants at the downstream site does not exceed the reference monitoring site data, then no action is to be taken; or

(b) if the level of contaminants at the downstream site is greater than the reference monitoring site data, complete an investigation in accordance with the ANZECC and ARMCANZ (2000) methodology, into the potential for environmental harm and provide a written report to the administering authority within three (3) months, outlining:

(i) details of the investigations carried out;

(ii) details of the environmental impacts observed; and

(iii) actions taken to prevent environmental harm.

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with part (b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.

(G18) All stream sediment sampling must be undertaken in accordance with the most recent version of Australian Standard AS 5667.12 *Guidance on Sampling of Bottom Sediments.*

(G19) The release of contaminants must not result in an exceedance of the sediment contaminant limits stated in Schedule G – Table 9 (Stream Sediment Trigger Levels and Contaminant Limits).

Schedule G – Table 8 (Stream Sediment Trigger Levels and Contaminant Limits)

Parameter[1]	Unit	Trigger Level	Contaminant Limit
Arsenic[5]	mg/kg	For SW10 and SW15: 32[7] For all other locations: 20[2]	70[4]
Cadmium	mg/kg	1.5[2]	10[4]
Chromium[6]	mg/kg	80[2]	370[4]
Cobalt	mg/kg	For SW7, SW10, SW14, SW15 and SW16: 31[11] For all other locations: 9.3[8]	For SW7, SW10, SW14, SW15 and SW16: 32[9] For all other locations: 12.6[9]
Copper	mg/kg	For RSS4, SW6, SW7, SW10, SW15 and SW16: 140[8] For all other locations: 65[2]	270[4]
Fluoride	mg/kg	0.7[8]	1[9]
Lead	mg/kg	For SW14: 146[10] For all other locations: 50[2]	220[4]
Manganese	mg/kg	For SW10, SW14 and SW15: 4,000[8] For all other locations: 600[8]	For SW10, SW14 and SW15: 6,000[9] For all other locations: 960[9]
Mercury	mg/kg	0.15[2]	1[4]
Nickel	mg/kg	For SW10, SW14, SW15 and SW16: 31[8] For all other locations: 21[2]	52[4]
Selenium	mg/kg	-	2.5[9]
Silver	mg/kg	1[2]	3.7[4]
Sulphate	mg/kg	Reference value[3]	3 times the reference value[3]
Uranium	mg/kg	0.8[8]	1.4[9]
Zinc	mg/kg	200[2]	410[4]
Particle Size distribution		For interpretation purposes	

1 All samples must be sieved to the sand fraction (63 – 2000µm) prior to analysis.
2 ANZECC (2000) Interim Sediment Quality Guidelines – low values based on total sediments.
3 Reference sites are defined in Schedule G – Table 6 (Receiving Water Reference Sites and Downstream Monitoring Points).
4 ANZECC (2000) Interim Sediment Quality Guidelines – high values based on total sediments.
5 Speciated arsenic concentrations for As (III) and As (V) only required if 20mg/L is exceeded - note that the sample bottle requirements for As (total species) and As (speciated) may differ.
6 Speciated chromium concentrations for Cr (III) and Cr (VI) only required if 80mg/L is exceeded – note that the sample bottle requirements for Cr (total species) and Cr (speciated) may differ.

7 Interim value: 80th percentile of total arsenic from 2015 – 2021, based on a combined data set of 12 samples.
8 80th percentile of data from 2015 – 2021, based on a combined data set.
9 95th percentile of data from 2015 – 2021, based on a combined data set.
10 Interim value: 80th percentile of total lead from 2017 – 2021, based on 9 samples.

Water Management Plan

(G20) A water management plan must be developed and implemented prior to the commencement of mining activities, which provides for the proper and effective management of the actual and potential environmental impacts resulting from the mining activity and to ensure compliance with the conditions of this Environmental Authority.

(G21) The water management plan must be developed in accordance with the most recent edition of the administering authority's guideline *Preparation of Water Management Plans for Mining Activities* and must include at least the following components:

(a) contaminant source study;
(b) site water balance and model;
(c) water management system;
(d) saline drainage prevention and management measures;
(e) acid rock drainage prevention and management measures;
(f) emergency and contingency planning; and
(g) monitoring and review.

(G22) The holder of this Environmental Authority must undertake a review of the water management plan before 1 November each year to ensure that proper and effective measures, practices or procedures are in place so that the mine is operated in accordance with the conditions of this Environmental Authority and that environmental harm is prevented or minimised.

Site Water Balance

(G23) The holder of this Environmental Authority must develop a site specific operational site water balance model.

(G24) The water balance model must be run for a simulation period for the following:

(a) weekly during the period November to March;
(b) monthly during other periods;
(c) promptly after each rainfall event greater than fifty (50) millimetres within a twenty four (24) hour period within the relevant surface water containment area;
(d) with documentation of inputs and outputs from each run being stored and retrievable for a minimum period of one (1) year;
(e) performance in response to rainfall must be undertaken by an appropriately qualified person.
(f) assessments using the operational simulation water balance model must use a minimum of 100 years of historical rainfall data

Erosion and Sediment Control

(G25) Prior to the commencement of mining activities, an erosion and sediment control plan must be developed by an appropriately qualified person and implemented for all stages of the mining activity on the licensed place to prevent or minimise erosion and the release of sediment to receiving waters and the contamination of stormwater.

(G26) The erosion and sediment control plan must provide for at least the following functions:

(a) prevent or minimise the contamination of receiving waters and stormwater;

(b) diverting uncontaminated stormwater run-off around areas disturbed by the mining activity or where contaminants or wastes are stored or handled;

(c) contaminated stormwater runoff, incident rainfall and leachate is collected; and treated, reused, or released in accordance with the conditions of this Environmental Authority;

(d) roofing or minimising the size of areas where contaminants or wastes are stored or handled;

(e) erosion and sediment control structures are placed to minimise erosion of disturbed areas and prevent the contamination of any waters;

(f) 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

(g) training of staff that will be responsible for maintenance and operations of sediment and erosion control structures.

(G27) Erosion protection measures and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment and contamination of storm water.

Groundwater Monitoring Program

(G28) Prior to the commencement of mining activities, the holder of this Environmental Authority must develop and implement a groundwater monitoring program that must include:

(a) groundwater monitoring bore locations;

(b) justification for the location of the proposed groundwater monitoring locations, including, but not limited to;

(i) sufficient background/reference monitoring sites, that are unaffected by the mining activity authorised under this Environmental Authority to allow scientifically justifiable conclusions on the level of impact from the mining activity;

(ii) base flow assessment of all watercourses affected by mining activity; and

(iii) sufficient number of monitoring bores to enable early detection of any groundwater contamination.

(c) monitoring of both shallow and deep groundwater and includes an adequate number of monitoring bores which provides sufficient spatial coverage to enable scientifically justifiable conclusions in relation to potential environmental impacts from the mining activity;

(d) provision for development of baseline groundwater quality, groundwater flow direction and rate and hydraulic conductivity. In addition, consideration must be given to how these parameters may change during the life of the mining project.

(e) characterisation of the potential impacts to the local groundwater system arising from the mining activity;

(f) representative groundwater samples for the aquifers being sampled;

(g) bore construction details; and

(h) findings from any resistivity studies undertaken at the licensed place.

(G29) The groundwater monitoring program specified in condition (G28) must be independently certified by an appropriately qualified person.

(G30) The Groundwater Monitoring Program must be reviewed on a regular basis to ensure that proper and effective measures, practices or procedures are in place so that the mine is operated in accordance with the conditions of this Environmental Authority and that environmental harm is prevented or minimised.

Monitoring Bore Construction, Maintenance and Decommissioning

(G31) Groundwater monitoring bores must be constructed, maintained and decommissioned 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.*

(G32) Oil-based drilling fluids, oil-based additives, synthetic based drilling fluids or synthetic based additives must not be used in the construction of groundwater monitoring bores.

(G33) Current Material Safety Data Sheets for all substances used for the drilling of groundwater monitoring bores must be made available to the administering authority promptly upon request.

(G34) Remedial measures must be taken immediately if the holder of this Environmental Authority becomes aware that either monitoring bore construction, maintenance or decommissioning have resulted in a change in groundwater quality, groundwater levels or have caused the interconnection of aquifers.

Groundwater Monitoring

(G35) The holder of this environmental authority must not release contaminants to groundwater.

(G36) Groundwater quality and standing water level must be monitored:

(a) at the locations and frequencies defined in Schedule G – Table 9 (Groundwater Monitoring Locations and Frequency) and the plan provided in Schedule J – Plan 4 – Groundwater Monitoring Locations:

(b) for quality characteristics identified in Schedule G – Table 10 (Groundwater Quality Limits).

(G37) Monitoring of bores listed as Compliance Bores in Schedule G – Table 9 must begin six (6) months prior to the commencement of mining activities.

Schedule G – Table 9 (Groundwater Monitoring Locations and Frequency)

Monitoring Point	Hydrogeological Unit	Coordinates (GDA94 MGA zone 54)		Surface RL (m)[1]	Screened Interval RL (m) [1]	Monitoring Frequency
		Easting	Northing			
Interpretation Bores						
Little Eva						
LEPB001	Fractured Proterozoic	410709	7772567	162.53	137.53 to 17.53	Quarterly
LEPB002	Fractured Proterozoic	410603	7772195	161.62	143.62 to 12.38	
LER213	Fractured Proterozoic	410733	7772021	166.45	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
LER337	Cambrian Sedimentary	409727	7772366	164.35	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
LER1016	Fractured Proterozoic	410332	7772394	163.78	132.78 to 114.62	
LER1018	Fractured Proterozoic	410990	7771972	168.11	60.17 to 50.33	
LER1019	Fractured Proterozoic	410727	7771221	168.70	59.59 to 46.74	

Monitoring Point	Hydrogeological Unit	Coordinates (GDA94 MGA zone 54)		Surface RL (m)[1]	Screened Interval RL (m) [1]	Monitoring Frequency
		Easting	Northing			
To be provided to the administering authority six (6) months prior to the commencement of mining activities	Alluvium/ Colluvium	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
To be provided to the administering authority six (6) months prior to the commencement of mining activities	Alluvium/ Colluvium	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
Turkey Creek						
TCKR058	Fractured Proterozoic	412191	7771503	178.63	109.33 to 98.86	Quarterly
TCKR059	Fractured Proterozoic	412667	7771637	182.39	118.77 to 103.60	
Bedford						
BED01	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	Quarterly
BED02	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
BED03	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
BED04	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
Lady Clayre						
LC048	Fractured Proterozoic	409702	7752082	204	To be provided to the administering authority six (6) months prior to the commencement of mining activities	Quarterly

Monitoring Point	Hydrogeological Unit	Coordinates (GDA94 MGA zone 54)		Surface RL (m)[1]	Screened Interval RL (m) [1]	Monitoring Frequency
		Easting	Northing			
To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
TSF/Plant						
TSFB1	Fractured Proterozoic	411280	7770698	172.74	144.74 to 132.74	Quarterly
PSB1	Fractured Proterozoic	411576	7770868	174.54	145.10 to 134.12	
Blackard						
BC277	Fractured Proterozoic	412738	7764647	190	To be provided to the administering authority six (6) months prior to the commencement of mining activities	Quarterly
BC363	Fractured Proterozoic	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
BC378	Fractured Proterozoic	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
BCR474	Fractured Proterozoic	412173	7766694	184	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
BCR773	Fractured Proterozoic	413006	7765000	187	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
BPB001	Fractured Proterozoic	412540	7765222	191	149 to -25	
Scanlan						
SC030	Fractured Proterozoic	412394	7754048	194	To be provided to the administering authority six (6) months prior to the commencement of mining activities	Quarterly
SC040	Fractured Proterozoic	412216	7754108	194	To be provided to the administering authority six (6) months prior to the commencement of mining activities	

Monitoring Point	Hydrogeological Unit	Coordinates (GDA94 MGA zone 54)		Surface RL (m)[1]	Screened Interval RL (m) [1]	Monitoring Frequency
		Easting	Northing			
SCR140	Fractured Proterozoic	412144	7754360	198	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
SCR148	Fractured Proterozoic	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
SCR149	Fractured Proterozoic	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
Northern Borefield						
NBMB008	Alluvium/Colluvium	410443	7775036	159 mAHD	150 mAHD – 144 mAHD	Standing water level: Monthly Water quality: N/A
NBMB009	Alluvium/Colluvium	410132	7775721	161 mAHD	149 mAHD – 134 mAHD	
Compliance Bores						
Little Eva						
LEC1	Fractured Proterozoic	410617	7773037	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	Quarterly
LEC2	Cambrian Sedimentary	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
Turkey Creek						
TCKRC01	Fractured Proterozoic	411647	7772444	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	Quarterly
TCKRC02	Fractured Proterozoic	411996	7772167	To be provided to the administering authority six (6) months prior to the	To be provided to the administering authority six (6) months prior to the commencement of mining activities	

Monitoring Point	Hydrogeological Unit	Coordinates (GDA94 MGA zone 54)		Surface RL (m)[1]	Screened Interval RL (m) [1]	Monitoring Frequency
		Easting	Northing			
				commencement of mining activities		
Bedford						
BEDC01	To be provided to the administering authority six (6) months prior to the commencement of mining activities	414864	7766042	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	Quarterly
BEDC02	To be provided to the administering authority six (6) months prior to the commencement of mining activities	414740	7766519	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
BEDC03	To be provided to the administering authority six (6) months prior to the commencement of mining activities	415150	7766612	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
BEDC04	To be provided to the administering authority six (6) months prior to the commencement of mining activities	414856	7767457	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
BEDC05	To be provided to the administering authority six (6) months prior to the commencement of mining activities	414847	7767997	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
BEDC06	To be provided to the administering authority six (6) months prior to the commencement of mining activities	415110	7768031	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
Lady Clayre						
LCC01	To be provided to the administering authority six (6) months prior to the commencement of mining activities	410548	7753153	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	Quarterly

Monitoring Point	Hydrogeological Unit	Coordinates (GDA94 MGA zone 54)		Surface RL (m)[1]	Screened Interval RL (m) [1]	Monitoring Frequency
		Easting	Northing			
LCC02	To be provided to the administering authority six (6) months prior to the commencement of mining activities	409939	7752964	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
LCC03	To be provided to the administering authority six (6) months prior to the commencement of mining activities	410257	7752894	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
LCC04	To be provided to the administering authority six (6) months prior to the commencement of mining activities	410789	7752719	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
LCC05	To be provided to the administering authority six (6) months prior to the commencement of mining activities	410207	7751980	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
TSF/Plant						
TSFC01	Fractured Proterozoic	412570	7770938	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	Quarterly
TSFC02	Fractured Proterozoic	411371	7770087	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
Blackard						
BCRC01	Fractured Proterozoic	411700	7767170	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	Quarterly

Monitoring Point	Hydrogeological Unit	Coordinates (GDA94 MGA zone 54)		Surface RL (m)[1]	Screened Interval RL (m) [1]	Monitoring Frequency
		Easting	Northing			
BCRC02	Fractured Proterozoic	412496	7766241	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
BCRC03	Fractured Proterozoic	412093	7765682	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
BCRC04	Fractured Proterozoic	412730	7765736	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
BCRC05	Fractured Proterozoic	413205	7765036	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
BCRC06	Fractured Proterozoic	412699	7764535	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
Scanlan						
SCC01	Fractured Proterozoic	412692	7755378	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	Quarterly
SCC02	Fractured Proterozoic	411670	7755027	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	

Monitoring Point	Hydrogeological Unit	Coordinates (GDA94 MGA zone 54)		Surface RL (m)[1]	Screened Interval RL (m) [1]	Monitoring Frequency
		Easting	Northing			
SCC03	Fractured Proterozoic	412871	7754876	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
SCC04	Fractured Proterozoic	412874	7754236	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
SCC05	Fractured Proterozoic	412448	7753714	To be provided to the administering authority six (6) months prior to the commencement of mining activities	To be provided to the administering authority six (6) months prior to the commencement of mining activities	
Northern Borefield						
NBC01	Alluvium/Colluvium	410500	7776030	159 mAHD	149 mAHD – 146 mAHD	Standing water level: Monthly Water quality: N/A
NBC02	Alluvium/Colluvium	410310	7775491	159 mAHD	151 mAHD – 148 mAHD	

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

Schedule G – Table 10 (Groundwater Quality Limits)

Quality Characteristic[1]	Unit	Limit type	Bores	Contaminant Limit
pH	pH units	Range	All bores	6.0[4] (minimum) 8.5[4] (maximum)
EC	µS/cm	Maximum	Little Eva Fractured Proterozoic	2880[6]
			Little Eva Cambrian Sedimentary	1300[6]
			Turkey Creek	2415[6]
			TSF/ Plant	1100[6]
			Bedford	435[3]
			Blackard - BCRC03	1015[6]
			Blackard – all other bores	2460[6]
			Scanlan	1470[6]
			Lady Clayre	570[6]
Sulphate	mg/L	Maximum	Little Eva Fractured Proterozoic	85[6]
			Little Eva Cambrian Sedimentary	25[6]
			Turkey Creek	26[6]
			TSF/ Plant	17[6]
			Bedford	250[5]
			Blackard - BCRC01, BCRC02, BCRC04 and BCRC05	200[6]
			Blackard - BCRC03 and BCRC06	45[6]
			Scanlan	155[6]
			Lady Clayre	60[6]
Total Nitrogen	mg/L	Maximum	All bores	150[2]
Total Phosphorus	mg/L	Maximum	All bores	10[2]
Aluminium	µg/L	Maximum	All bores	55[2]
Arsenic[8]	µg/L	Maximum	All bores	13[2]
Cadmium	µg/L	Maximum	All bores	0.2[2]
Chromium[9]	µg/L	Maximum	All bores	1[2]
Cobalt	µg/L	Maximum	All bores	1.4
Copper	µg/L	Maximum	Little Eva Cambrian Sedimentary; Turkey Creek; TSFC02; Bedford and Lady Clayre	1.4[2]
			Little Eva Fractured Proterozoic	9[6]
			TSFC01	7[6]
			Blackard	41[6]
			Scanlan	22[6]
Iron	µg/L	Maximum	All bores	300[4]
Fluoride	mg/L	Maximum	All bores	2.4[4]
Lead	µg/L	Maximum	All bores	3.4[2]
Manganese	µg/L	Maximum	All bores	1900[2]
Mercury (inorganic)	µg/L	Maximum	All bores	0.6[2]
Molybdenum	µg/L	Maximum	All bores	34[2]
Nickel	µg/L	Maximum	All bores	11[2]
Selenium	µg/L	Maximum	All bores	11[2]
Silver	µg/L	Maximum	All bores	0.05[2]
Uranium	µg/L	Maximum	All bores	0.5[4]
Zinc	µg/L	Maximum	Little Eva Cambrian Sedimentary; Turkey Creek; TSFC02 and Bedford	8[2]
			Little Eva Fractured Proterozoic	28[6]
			TSFC01	90[6]
			Blackard	16[6]
			Scanlan	25[6]
			Lady Clayre	17[6]
Hardness	mg/L	For interpretation purposes only.		
Standing Water Level[10]	m			
Major Cations and Anions	mg/L			

1. All metals and metalloids must be measured as dissolved (filtered) concentrations.
2. Default trigger values – from ANZECC/ARMCANZ (2000) trigger values for aquatic ecosystems indicative of slightly-to-moderately disturbed tropical Australian upland river ecosystems Tables 3.3.4 and Table 3.4.1 (*high reliability* trigger values) and *moderate* or *low* reliability trigger values (Section 8.3) if no value available in Table 3.4.1.
3. For aquatic ecosystem protection, Table G.4, Gulf zone of the Queensland Water Quality Guidelines, 2009.
4. ANZG (2018), 95% aquatic species protection level for slightly to moderately disturbed ecosystem
5. Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy (2011) version 3.6. Measured as 'total'
6. 95th percentile of data collected between 2015 – 2021.
7. Interim value: 95th percentile of data collected between 2015 – 2021, based on 9 or less samples

8. Speciated arsenic concentrations for As (III) and As (V) only required if 13 µg/L is exceeded - note that the sample bottle requirements for As (total species) and As (speciated) may differ.
9. Speciated chromium concentrations for Cr (III) and Cr (VI) only required if 1.0 µg/L is exceeded – note that the sample bottle requirements for Cr (total species) and Cr (speciated) may differ.
10. RL must be measured to the nearest 5cm from the top of the bore casing.

(G38) Groundwater samples obtained from compliance bores specified in Schedule G – Table 9 (Groundwater Monitoring Locations and Frequency) must not exceed the contaminant limit specified in Schedule G – Table 10 (Groundwater Quality Limits) on any three (3) consecutive sampling occasions.

(G39) If groundwater samples from any compliance bore specified in Schedule G – Table 9 (Groundwater Monitoring Locations and Frequency) exceeds a contaminant limit specified in in Schedule G – Table 10 (Groundwater Quality Limits) on any one sampling occasion the holder of this environmental authority must resample the groundwater within the monitoring bore for all exceeding parameters within ten business days of receipt of results.

Groundwater Dependent Ecosystems

(G40) When drawdown within the Northern Borefield compliance bores reaches 1m below the surface RL stated in Schedule G – Table 9 (Groundwater Monitoring Locations and Frequency), the holder of this Environmental Authority must:

(a) reduce pumping rates, and

(b) investigate the cause of drawdown and potential environmental harm to groundwater dependent ecosystems, and

(c) provide the outcomes of the investigation to the administering authority within 48 hours of completing the investigation report.

(G41) When drawdown within the Northern Borefield compliance bores reaches 2m below the surface RL stated in Schedule G – Table 9 (Groundwater Monitoring Locations and Frequency) the holder of this Environmental Authority must:

(a) stop pumping water until the standing water levels returns to the original level; and

(b) notify the administering authority with 48 hours of becoming aware of the extent of drawdown.

Annual Groundwater Monitoring Report

(G42) The holder of this Environmental Authority must complete an annual groundwater monitoring report by 1 June each year and submit this report to the administering authority on request. The report must be prepared by an appropriately qualified person and must address the following requirements as a minimum:

(a) analyses of groundwater chemistry and hydrogeological data for all groundwater monitoring bores required in condition (G38);

(b) identify exceedance of any contaminant limits listed in Schedule G – Table 10 (Groundwater Quality Levels);

(c) discuss effectiveness of the current groundwater monitoring regime and any improvements that could be made to ensure early detection of impacts to groundwater;

(d) detail proposed actions and timeframes to undertake further investigation of potential environmental impacts for any exceedance identified;

(e) detail proposed mitigation measures for any detected impact to groundwater resulting from the mining activity;

(f) changes in groundwater levels plotted as a function of time to identify seasonal patterns and possible draw-down effects;

(g) groundwater elevation contours and flow direction; and

(h) interpretation and discussion of exceedance of any contaminant limits listed in Schedule G – Table 11 10 (Groundwater Quality Levels) and the implications for compliance with this Environmental Authority.

(G43) The method of sampling of groundwater must comply with that set out in the latest edition of the Administering Authority's Water Quality Sampling Manual.

Saline, Acid and Metalliferous Drainage

(G44) The holder of this Environmental Authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of saline, acid and/or metalliferous mine drainage as a result of the mining activity.

END OF CONDITIONS FOR SCHEDULE G

SCHEDULE H – SEWAGE TREATMENT

Sewage Treatment – for Irrigation

(H1) Treated sewage effluent may only be released to land within the nominated irrigation area identified in Schedule H – Table 1 (Sewage Treatment Plant and Effluent Disposal) and in accordance with the contaminant release limits stated in Schedule H – Table 2 (Sewage Effluent Contaminant Release Limits) and the conditions of this Environmental Authority.

Schedule H – Table 1 (Sewage Treatment Plant and Effluent Disposal)

Description	Coordinates (GDA94 MGA zone 54)		Location
	Easting	Northing	
STP release point 1	416969	7769227	ML90166
STP release point 2	417101	7769687	ML90166

(H2) All sewage effluent released to land must be monitored at the frequency and for the parameters specified in Schedule H – Table 2 (Sewage Effluent Contaminant Release Limits).

Schedule H – Table 2 (Sewage Effluent Contaminant Release Limits)

Contaminant	Release limit	Limit type	Frequency
5 day Biochemical oxygen demand (BOD) (mg/L)	20	Maximum	Weekly
Total Suspended Solids (mg/L)	30	Maximum	
Nitrogen (mg/L)	30 10 5	Maximum 50th percentile short term 50th percentile long term	
Phosphorus	15 8 5	Maximum 50th percentile short term 50th percentile long term	
pH	6.0 - 8.5	Range	
E coli (Organisms / 100ml)	200	Maximum	Fortnightly
Faecal Coliforms[1] (CFU / 100ml)	1000	Maximum	

(H3) Treated sewage effluent must only be dispersed in accordance with the following outcomes:

(a) efficient application of effluent utilising best practice methods;

(b) control of sodicity in the soil;

(c) minimal degradation of soil structure;

(d) control of the build-up of nutrients and heavy metals in the soil and subsoil from effluent and other sources;

(e) prevention of:

(i) subterranean flows of effluent to waters;

(ii) impacts on the groundwater resource through infiltration;

(i) run-off of effluent or seepage from disposal areas by limitation of application rates and the use of structures such as bunds and catch dams;

(iii) surface ponding;

(iv) spray drift or overspray from effluent disposal areas;

(v) and damage to native vegetation;

(f) provide prominent signage, in areas irrigated with effluent and which are accessible to the employees and general public, advising that effluent should not be consumed or used;

(g) maximise health and safety protection in relation to effluent handling and irrigation; and

(h) irrigation areas are adequately identified.

Note: The rate of effluent irrigation will be dependent on the soil water / nutrient capacity and net available annual average solar evaporation and evapotranspiration rates for the region.

(H4) Sewage effluent released to land must not cause spray drift or over spray to any sensitive place or commercial place.

(H5) When circumstances prevent the irrigation or beneficial reuse of treated sewage effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measures must be taken to store or lawfully dispose of effluent.

(H6) The daily volume of effluent release to land must be measured and records kept of the volumes of effluent released.

(H7) The release of contaminants must not exceed the release limits stated in Schedule H – Table 2 (Sewage Effluent Contaminant Release Limits) for each quality characteristic.

Sewage Treatment Management Plan

(H8) A Sewage Treatment Management Plan that provides for the proper and effective management of actual and potential environmental impacts resulting from the operation of sewage treatment plants must be developed prior to commencement of mining activities to ensure compliance with the conditions of the Environmental Authority.

(H9) The Sewage Treatment Management Plan must include but not be limited to:

(a) a topographical map of suitable scale clearly showing the licensed place and surrounding land likely to be affected by the sewage treatment plants along with the location of any sensitive receptors;

(b) a site plan including the Q100 flood level in conjunction with the licensed place boundaries and infrastructure, buffer zones and irrigation areas;

(c) detail on any potential impact on groundwater and surface water from the discharge of effluent;

(d) strategies for managing and minimising the impact on surface water and groundwater;

(e) modelling to determine the irrigation frequency, application rate and minimum irrigation area to minimise environmental harm; and

(f) proposed surface and groundwater monitoring to identify any impacts from the irrigation of treated effluent.

Alarms

(H10) Sewage treatment infrastructure must be fitted with stand-by pumps and pump-failure alarms as well as high level alarms to warn of imminent overflow.

END OF CONDITIONS FOR SCHEDULE H

SCHEDULE I - DEFINITIONS

Key terms and/or phrases used in this document are defined in this section. Where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used. If a word remains undefined it has its ordinary meaning.

"50th percentile long term" means that not more than twenty-six (26) of the measured values of the quality characteristic are to exceed the stated release limit for any fifty-two (52) consecutive samples where:

(a) the consecutive samples are taken over a one (1) year period;

(b) the consecutive samples are taken at approximately equal periods; and

(c) the time interval between the taking of each consecutive sample is not less than three (3) days or greater than eleven (11) days.

"**50th percentile short term"** means not more than five (5) of the measured values of the quality characteristic are to exceed the stated release limit for any ten (10) consecutive samples for a release/monitoring point at any time during operation.

"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:

(a) stability of final land forms in terms of settlement, erosion, weathering, pondage and drainage;

(b) control of geochemical and contaminant transport processes;

(c) quality of runoff waters and potential impact on receiving environment;

(d) vegetation establishment, survival and succession;

(e) vegetation productivity, sustained growth and structure development;

(f) fauna colonisation and habitat development;

(g) ecosystem processes such as soil development and nutrient cycling, and the re-colonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;

(h) microbiological studies including re-colonisation by mycorrhizal fungi, microbial biomass and respiration;

(i) effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;

(j) resilience of vegetation to disease, insect attack, drought and fire;

(k) vegetation water use and effects on ground water levels and catchment yields.

"acid and metalliferous mine drainage (AMD)" means any contaminated release emanating from a mining operation formed through a series of chemical and biological reaction, when geological strata is disturbed and exposed to oxygen and moisture as a result of the mining activity.

"acid rock drainage (ARD)" means any contaminated release emanating from a mining activity formed through a series of chemical and biological reactions, when geological strata is disturbed and exposed to oxygen and moisture as a result of the mining activity.

"administering authority" means the Department of Environment and Heritage Protection (formally Department of Environment and Resource Management) or its successor.

"affected land" means land on which an event has caused or threatens serious or material environmental harm.

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

“air blast 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 air blast overpressure measured in decibels linear (dBL).

“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.

“ANZECC 2000” means Australian and New Zealand Environment Conservation Council Marine and Freshwater Quality Guidelines.

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

“assessed" and **“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.

“Environmental Authority” means Environmental Authority (mining activities) under the *Environmental Protection Act 1994*.

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

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

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

“bunded” means within bunding consistent with Australian Standard 1940.

"certified", with respect to watercourse diversions, means assessed and approved by a suitably qualified and experienced person. In relation to 'as constructed' drawings and specifications, the certification must be by the suitably qualified person who supervised the construction of the watercourse diversion, or re-establishment of the watercourse.

"certification", "certifying" or **"certified"** 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 annual report regarding regulated structures undertaken in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQ's (ID: 1.4(2A))

"CFU" means colony forming units.

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

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

"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)*.

"contaminated" means the substance has come into contact with a contaminant.

"contaminant" A contaminant can be:

(a) a gas, liquid or solid; or
(b) an odour; or
(c) an organism (whether alive or dead), including a virus; or
(d) energy, including noise, heat, radioactivity and electromagnetic radiation; or
(e) a combination of contaminants.

"control measure" means any action or activity that can be used to prevent or eliminate a hazard or reduce it to an acceptable level.

"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 (e.g. via spillway).

'design plan' with respect to a creek diversion is a document that contains the design, operation, monitoring and revegetation criteria of a watercourse diversion that addresses the outcomes stated in conditions on the environmental authority relating to the diversion. The document should include, but not be limited to:

(a) required information under a functional design

(b) the location, function and description of geomorphic and riparian vegetation features within the proposed watercourse diversion

(c) results from hydrologic, hydraulic and sediment transportation modelling used in the design of the diversion

(d) a revegetation and vegetation management plan (a revegetation plan) for the diversion

(e) engineering drawings depicting the physical attributes and dimensions of the diversion

(f) (if relevant) the staged development of a permanent watercourse diversion including the proposed use of temporary watercourse diversions with identified lifespans

(g) all investigation and other reports relied on by the design

(h) plans and specifications sufficient to complete construction and revegetation in accordance with the design.

"design plan" with respect to a regulated structure is a document setting out how all consequence scenarios are addressed in the planned design and operation of a regulated structure. 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 consequence assessment for the structure. Documentation must be such that a 'suitable qualified and experienced 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 Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority, that must be provided in a 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 structure, means the certifier of the design plan for the regulated structure.

"domestic waste" means waste, other than domestic clean-up waste, green waste, recyclable waste, interceptor waste or waste released to a sewer, produced as a result of the ordinary use or occupation of domestic premises.

"dwelling" means any of the following structures or vehicles that is principally used as a residence:

(a) a house, unit, motel, nursing home or other building or part of a building; or

(b) a caravan, mobile home or other vehicle or structure on land; or

(c) a water craft in a marina.

"EC" means electrical conductivity.

"effluent" treated waste water released from sewage treatment plants.

"emergency action plan" means documentation forming part of the operational plan held by the holder of this Environmental Authority 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 details that are part of the plan, and to comprehensively review the plan at least every five years.

"environmentally relevant activity" means an environmentally relevant activity as defined under Section 18 of the *Environmental Protection Act 1994* and listed under Schedule 2 of the *Environmental Protection Regulation 2019.*

"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.

"functional design" is a document that contains 'conceptual' information about the design, operation and revegetation criteria of a watercourse diversion that addresses the outcomes stated in the conditions on the environmental authority relating to the diversion. The document should include, but not be limited to:

(a) geomorphic and vegetation assessment of the existing watercourse
(b) hydrologic conditions of the existing watercourse
(c) the proposed watercourse diversion route
(d) results from hydrologic, hydraulic and sediment transportation modelling used in the design of the diversion.

"general waste" means waste other than regulated waste.

"hazardous waste" means a substance, whether liquid, solid or gaseous that, if improperly treated, stored, disposed of or otherwise managed, is likely to cause environmental harm.

"holder of this Environmental Authority" means any person who is the holder of, or is acting under, that Environmental Authority.

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

"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 land.

"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.

"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.

"licensed place" means the mining tenements detailed on page 1 of this Environmental Authority.

"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.

"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.

"measures" includes any measures to prevent or minimise environmental impacts of the mining activity such as bunds, silt fences, diversion drains, capping, and containment systems.

"metalliferous mine drainage" means any waters, contaminated with metals / metalloids or other contaminants as a result of the mining activity.

"mg/L" means milligrams per litre.

"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 there from;
(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.

"modification" or **"modifying"** (see definition of "construction")

"natural flow" means the flow of water through waters caused by nature.

"non-polluting" means having no adverse impacts upon the receiving environment.

"noxious" means harmful or injurious to health or physical wellbeing.

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

"operational plan" for a structure means a document that includes:

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

(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 (mm/s).

"permanent watercourse diversion" is a man-made structure that incorporates the geomorphologic, hydraulic, hydrologic and ecological components of a local watercourse and is designed, constructed, operated and maintained according to an engineering standard that ultimately achieves a self-sustaining watercourse able to function without features or characteristics that rely on ongoing maintenance or that impose a financial or other burden on the proponent, government or the community.

"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.

"process water" means water used or produced during the mineral development activities.

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

"receiving environment" means all groundwater, surface water, land, and sediments that are not disturbed areas authorised by this Environmental Authority.

"receiving waters" means all groundwater and surface water that are not disturbed areas authorised by this Environmental Authority.

"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.

"Register of Regulated Structures" includes**:**

(a) date of entry in the register;

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

(c) the consequence category of the dam 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 dam;

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

(f) for the regulated dam or 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 (mega litres);
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 (mega litres) and associated level of the dam (metres AHD);
viii. mandatory reporting level (metres AHD);

(g) the design plan title and reference relevant to the dam;

(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 dam was compliant with the design plan;

(j) details of the composition and construction of any liner;

(k) the system for the detection of any leakage through the floor and sides of the dam;

(l) dates when the regulated dam 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 hazard category as assessed using the *"Manual for Assessing Hazard Categories and Hydraulic Performance of Dams"* published by the administering authority.

"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.

"regulated waste" means non-domestic waste mentioned in schedule 7 of the *Environmental Protection Regulation 2019* (whether or not it has been treated or immobilised), and includes:

a) for an element – any chemical compound containing the element; and

b) anything that has contained the waste.

"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 event" means a surface water discharge from water storages or contaminated areas on the licensed place.

"representative" means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activity.

"residual void" means an open pit 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.

"RL" means reduced level, relative to mean sea level as distinct from depths to water.

"saline mine drainage" The movement of waters, contaminated with salt(s), as a result of the mining activity.

"sensitive place" includes:

(a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or

(b) a motel, hotel or hostel; or

(c) an educational institution; or

(d) a medical centre or hospital; or

(e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or

(f) a public park or gardens.

"significant disturbance" – includes land;

(a) if it is contaminated land; or

(b) it has been disturbed and human intervention is needed to rehabilitate it;

  (i) to a state required under the relevant Environmental Authority; or

  (ii) if the Environmental Authority does not require the land to be rehabilitated to a particular state – to its state immediately before the disturbance.

Some examples of disturbed land include:

(a) areas where soil has been compacted, removed, covered, exposed or stockpiled;

(b) areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation and topsoil)

(c) areas where land use suitability or capability has been diminished;

(d) areas within a watercourse, waterway, wetland or lake where the mining activity occur;

(e) areas submerged by tailings or hazardous contaminant storage and dam/structure walls in all cases;

(f) areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc.) which is to be removed after the mining activity have ceased; or

(g) areas where land has been contaminated and a suitability statement has not been issued.

However, the following areas are not included:

(a) areas off lease (e.g. roads or tracks which provide access to the mining lease);

(b) areas previously significantly disturbed which have achieved the rehabilitation outcomes;

(c) by agreement with the administering authority, areas previously significantly disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);

(d) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc.) which is to be left by agreement with the landowner. The agreement to leave permanent infrastructure must be recorded in the Landowner Agreement and lodged with the administering authority;

(e) disturbances that pre-existed the grant of the tenure unless those areas are disturbed during the term of

the tenure.

“significant residual impact” has the meaning in section 8 *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.

“spotter/catcher” services are a common requirement for most infrastructure and development projects across Queensland, where native vegetation is proposed to be cleared. The objective is to provide wildlife preservation efforts for significant species and general biodiversity during the disturbance of habitats associated with vegetation clearing. In order to achieve this it is imperative that Spotter Catchers are proficient in the handling of all wildlife species, understand the ecology of resident fauna and introduce a methodology that significantly limits interruption to machinery operators and fauna during the vegetation clearing process.

"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.

“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 structures that are dams, an PREQ who is a civil engineer with the required qualifications in dam safety and dam design;
- for regulated structures that are 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.

“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.

“µS/cm” means micro siemens per centimetre.

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

“waste management hierarchy” has the meaning given by the *Environmental Protection (Waste Management) Policy 2000*.

“waste water” means used water from the mining activity, process water or contaminated storm water.

“water quality” means the chemical, physical and biological condition of water.

“watercourse” has the same meaning given in the *Water Act 2000*.

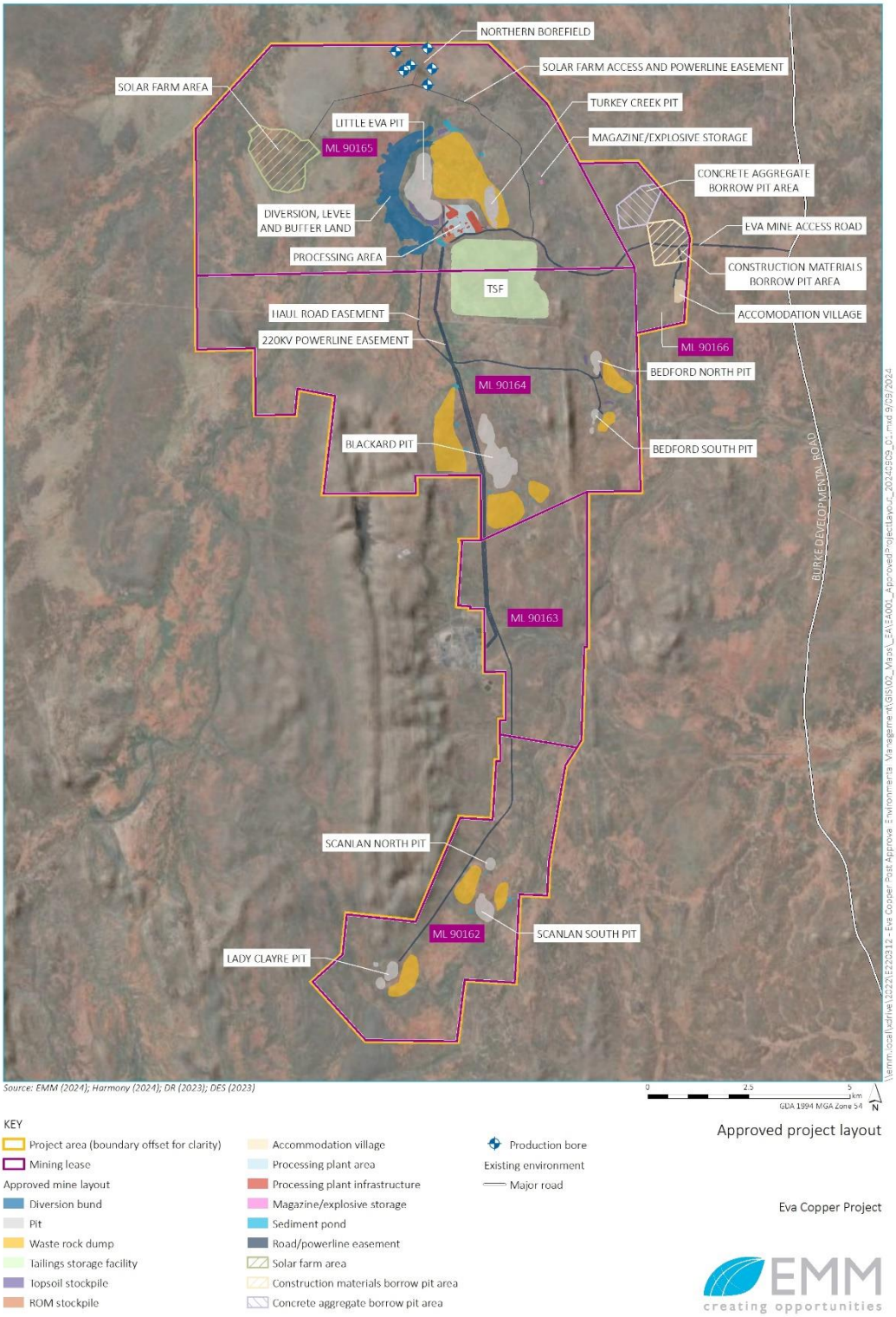
"waters" – includes all or any part of a river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed and banks of a watercourse, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside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

"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.

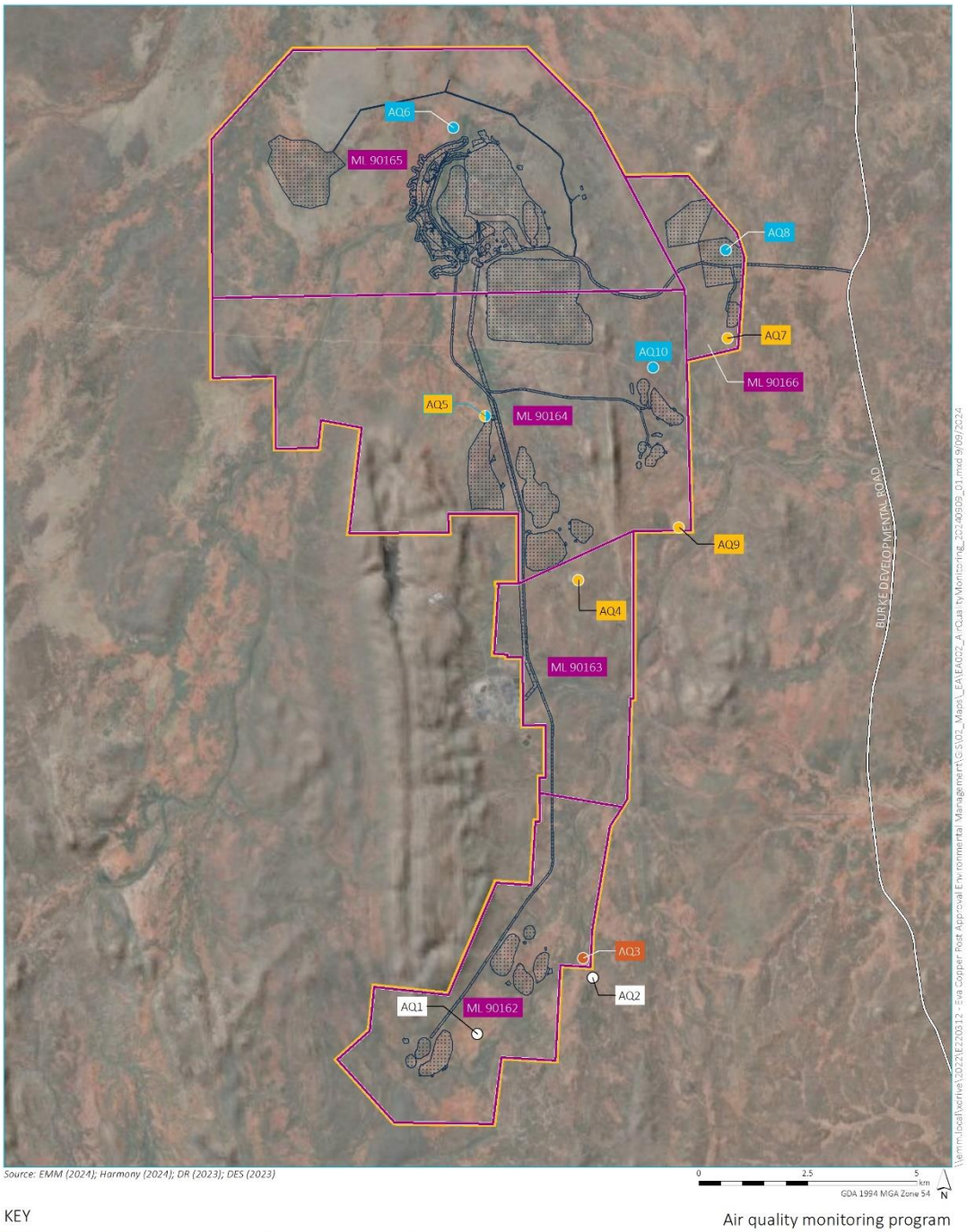
END OF DEFINITIONS FOR SCHEDULE I

SCHEDULE J – PLANS

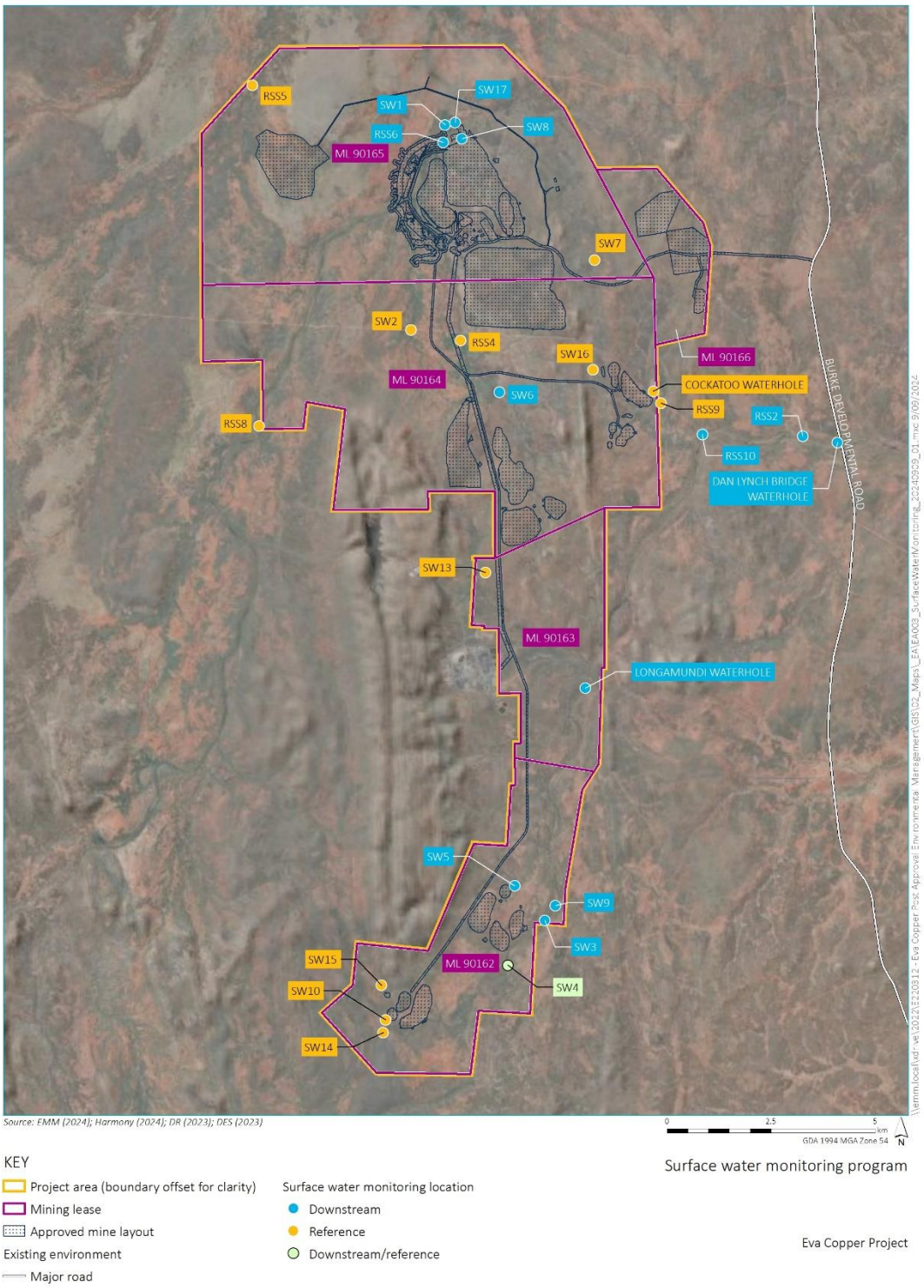
Plan 1 – Project Layout



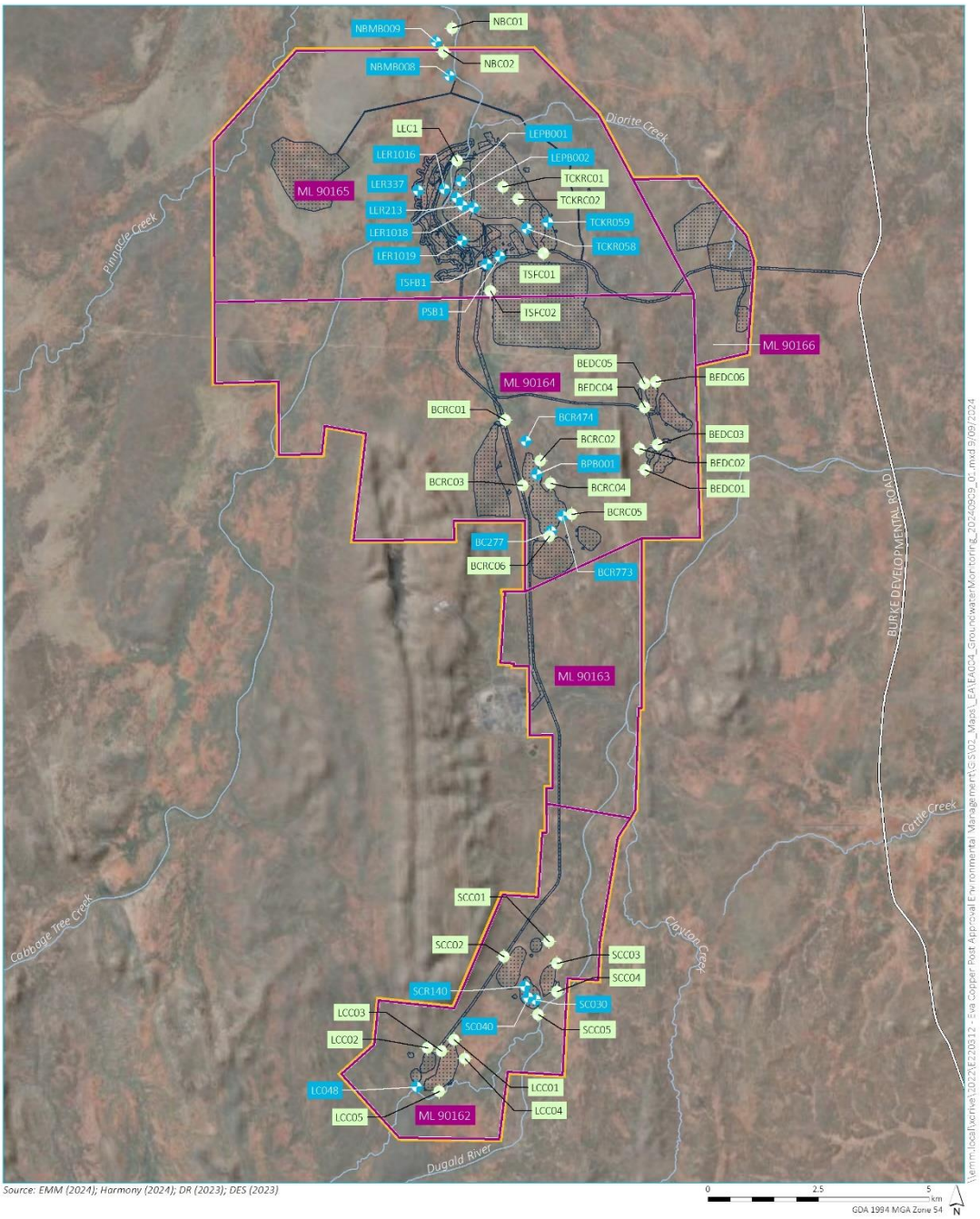
Plan 2 – Air Quality Monitoring Locations



Plan 3 – Surface Water and Sediment Monitoring Locations



Plan 4 – Groundwater Monitoring Locations



END OF SCHEDULE J

END OF ENVIRONMENTAL AUTHORITY