Environmental Protection Act 1994

Environmental authority EPML00732613

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

Environmental authority number: EPML00732613

Environmental authority takes effect on 14 June 2024

Environmental authority holder(s)

Name(s)	Registered address
Anglo Coal (German Creek) Pty Ltd	Level 11, 201 Charlotte St BRISBANE QLD 4000
Jena Pty Ltd	Level 11, 201 Charlotte St BRISBANE QLD 4000
Anglo Coal (Roper Creek) Pty Ltd	Level 11, 201 Charlotte Street BRISBANE QLD 4001
Marubeni Resources Development Pty Ltd	Level 7, Comalco Place 12 Creek Street BRISBANE QLD 4000
Mitsui German Creek Investment Pty Ltd	Level 46, Gateway 1 Macquarie Place SYDNEY NSW 2000

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 13: Mining black coal	ML1831 ML1894 ML1998 ML70047 ML70311
Ancillary 08 - Chemical Storage 3: Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c)	
Ancillary 15 - Fuel burning Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour	
Ancillary 16 - Extraction and Screening 3: Screening, in a year, the following quantity of material (c) more than 1,000,000t	
Ancillary 31 - Mineral processing 2: Processing, in a year, the following quantities of mineral products, other than coke (b) more than 100,000t	
Ancillary 33 - Crushing, milling, grinding or screening Crushing, grinding, milling or screening more than 5000t of material in a year	

Environmentally relevant activity/activities	Location(s)
Ancillary 60 - Waste disposal 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a) (d) more than 200,000t	
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 1,500EP if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	
Ancillary 64 - Water treatment 2: Desalinating, in a day, the following quantity of water, allowing the release of waste to waters other than seawater (b) more than 5ML	

Additional information for applicants

Environmentally relevant activities

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

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

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

Contaminated land

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

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

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

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

Take effect

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

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

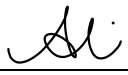
b) if the authority states a day or an event for it to take effect-on the stated day or when the stated event happens; or

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

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

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

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

	14 June 2024
Signature	Date

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

Enquiries:
Business Centre (Coal)
Department of Environment, Science and Innovation
Phone: 07 4987 9320
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Obligations under the *Environmental Protection Act 1994*

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

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

Conditions of environmental authority

Schedule A: General	
Condition number	**Condition**
A1	**Maintenance of measures, plant and equipment** The holder of this environmental authority must: (a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; (b) maintain such measures, plant and equipment in a proper and efficient condition; (c) operate such measures, plant and equipment in a proper and efficient manner; and (d) ensure that all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.
A2	**Monitoring and Records** All monitoring, including associated records, required by this environmental authority must be: (a) undertaken by an appropriately qualified person, (b) submitted to the administering authority upon request, and (c) kept for a period of not less than 5 years.
A3	Notwithstanding any other condition of this environmental authority, all plans, programs, and reports required by this environmental authority must be: (a) prepared by an appropriately qualified person, including any subsequent review, (b) submitted to the administering authority upon request, and (c) kept for a period of not less than 5 years.
A4	**Notification of emergencies, incidents and exceptions** The holder of this environmental authority must notify the administering authority by written notification within **twenty-four (24) hours**, after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority. Note: If notification is given under an alternative notification condition of the environmental authority it is taken to be notification under this condition. If notification is required under sections 320–320G of the EP Act the additional requirements under sections 320–320G apply.
A5	Within **ten (10) business days** following the initial notification of an emergency or incident, 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 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.
A6	**Complaints** The holder of this environmental authority must record all environmental complaints received about the mining activities including: (a) name, address and contact number for of the complainant; (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.
A7	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 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.
A8	**Third-party reporting** The holder of this environmental authority must: (a) prior to **30 January 2019**, 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-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.
A9	**Transitional** Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the holder of this environmental authority must: (a) comply with the amended or changed standard, policy or guideline within two years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation, or where the amendment or change relates specifically to regulated structures referred to in conditions **G34** to **G37**, the time or times specified in those conditions. (b) until compliance with the amended or changed standard, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.
A10	Flammable and combustible liquids must be contained within an on-site containment system and maintained in accordance with the most current version of the Australian Standard – Storage and Handling of Flammable and Combustible Liquids.
A11	A figure depicting the maximum area of disturbance that must not be exceeded in carrying out the mining activity must be provided to the administering authority by **30 June 2024**.
A12	Within **forty (40) business days** of receiving the administering authority's comments on the figure produced for condition **A11**, update the figure to address the comments and resubmit the figure to the administering authority to amend this environmental authority.

Schedule B: Air	
Condition number	**Condition**
B1	**Dust and particulate matter monitoring** The environmental authority holder must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the mining activities do not cause exceedances of the following levels when measured at any sensitive or commercial place: (a) dust deposition of 120 milligrams per square metre per day, averaged over 1 month, when 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.* (b) 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, when monitored in accordance with the most recent version of either: (i) Australian Standard AS3580.9.6 *Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM_{10} high volume sampler with size-selective inlet – Gravimetric method*; or (ii) Australian Standard AS3580.9.9 *Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM_{10} low volume sampler—Gravimetric method*. Note: An investigation of a breach of condition B1b) would include consideration of extraneous events such as bushfires or dust storms. (c) a concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a 1year averaging time, when monitored in accordance with the most recent version of *AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—Total suspended particulate matter (TSP)—High volume sampler gravimetric method.*

Schedule C: Water	
Condition number	**Condition**
C1	**Contaminant release** Contaminants that will, or have the potential to cause environmental harm, must not be released directly or indirectly to any waters except as permitted under the conditions of this environmental authority.
C2	Unless otherwise permitted under the conditions of this environmental authority, the release of mine affected waters to waters must only occur from the release points specified in **Table C1: Mine Affected Water Release Points, Sources and Receiving Waters** and depicted in **Appendix 1 – Release Points (RPs) and Monitoring Points (MPs) for German Creek Mine.**
C3	The release of mine affected water to internal water management infrastructure that is installed and operated in accordance with a water management plan that complies with condition **C32** and **C33** is permitted.

Table C1: Mine Affected Water Release Points, Sources and Receiving Waters

Release Point	Latitude (Decimal degree GDA94)	Longitude (Decimal degree GDA94)	Mine Affected Water Source and Location	Mine Affected Water Quality Monitoring Location	Stream Flow Monitoring Point	Receiving Waters Description and Monitoring Point
RP1a	-22.97335	148.55375	Pit F, Pit Q, German Creek Mining Area	Pit F, Pit Q, Old Tailings Dam, Stacker Dam, Switchyard sample taps	Haul Road Dam Gauging Station (Haul Rd G/S)	German Creek Downstream (German Creek D/S)
RP1b	-22.9327	148.541	Old Tailings Dam, German Creek Mining Area			
RP1c	-22.93417	148.5561	Switchyard Dam, German Creek Mining Area			
RP1d	-22.93794	148.5538	Stacker Dam, German Creek Mining Area			
RP2a	-22.991	148.546	Pit R, German Creek Mining Area	Pit R, Aquila highwall, manifold	Cattle Creek Upstream (Cattle Creek U/S)	Cattle Creek Downstream (Cattle Creek D/S)
RP2b	-22.9926	148.553	Aquila high wall, Aquila			
RP2c	-22.9933	148.555	Underground manifold, Grasstree			
RP3a	-22.92340	148.64388	Pit F, German Creek Mining Area or Pit U, German Creek East	Sample taps on release lines at German Creek East	Parrot Creek Upstream (Parrot Creek U/S)	Roper Creek Downstream (Roper Creek D/S)
RP3b	-22.90845	148.64968	Pit T, German Creek East			
RP3c	-22.918105	148.65398	Pit T, German Creek East			
RP3d	-22.920734	148.65461	Central Storage Dam, Oak Park or Pit U/Pit T, German Creek East			
RP4	-22.98637	148.71249	Central Storage Dam, Oak Park	Sample tap on release lines at Central Storage Dam	Roper Creek Upstream (Roper Creek U/S)	Roper Creek Downstream (Roper Creek D/S)

C4	The release of mine affected water to waters in accordance with condition **C2** must not exceed the release limits stated in **Table C2: Mine Affected Water Release Limits** when measured at the monitoring points specified in **Table C1: Mine Affected Water Release Points, Sources and Receiving Waters** for each quality characteristic.
C5	The release of mine affected water to waters from the release points must be monitored at the locations specified in **Table C1: Mine Affected Water Release Points, Sources and Receiving Waters** for each quality characteristics and at the frequency specified in **Table C2: Mine Affected Water Release Limits** and **Table C3: Release Contaminant Trigger Investigation Levels – Potential Contaminants**. Note: The administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event condition **C5** is contravened due to a temporary lack of safe or practical access. The administering authority expects the environmental authority holder to take all reasonable and practicable measures to maintain safe and practical access to designated monitoring locations.
C6	If quality characteristics of the release exceed any of the trigger levels specified in **Table C3: Release Contaminant Trigger Investigation Levels – Potential Contaminants** during a release event, the environmental authority holder must compare the downstream results in the receiving waters to the trigger values specified in **Table C3: Release Contaminant Trigger Investigation Levels – Potential Contaminants** and: (a) where the trigger values are not exceeded then no action is to be taken; or (b) where the downstream results exceed the trigger values specified **Table C3: Release Contaminant Trigger Investigation Levels – Potential Contaminants** for any quality characteristic, compare the results of the downstream site to the data from background monitoring sites and; (i) if the result is less than the background monitoring site data, then no action is to be taken; or (ii) if the result is greater than the background monitoring site data, complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining: (1) details of the investigations carried out; and (2) actions taken to prevent environmental harm. Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with **C6(b)(ii)** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.
C7	If an exceedance in accordance with condition **C6(b)(ii)** is identified, the holder of the authority must notify the administering authority via WaTERS within **fourteen (14) days** of receiving the result.
C8	**Mine affected water release events** The holder must ensure a stream flow gauging station/s is installed, operated and maintained to determine and record stream flows at the locations and flow recording frequency specified in **Table C4a: Flow Triggers to start Mine Affected Water Release** and **Table C4b: Flow Triggers to cease Mine Affected Water Release.**

Table C2: Mine Affected Water Release Limits

Quality Characteristic	Release Limits	Monitoring frequency	Comment
Electrical conductivity (µS/cm)	<10,000	Daily during release (the first sample must be taken within 2 hours of commencement of release)	
pH (pH Unit)	6.5 (minimum) 9.0 (maximum)	Daily during release (the first sample must be taken within 2 hours of commencement of release)	
Turbidity (NTU)	Turbidity limit for discharge of mine water from all release points is defined as being ≤ the upstream turbidity value for the receiving waters.	Daily during release* (the first sample must be taken within 2 hours of commencement of release)	Turbidity is required to assess ecosystems impacts and can provide instantaneous results.
Sulphate (SO_4^{2-}) (mg/L)	<3,000	Weekly during release (the first sample must be taken within 2 hours of commencement of release)	Drinking water environmental values from NHMRC 2006 guidelines OR ANZECC.

Table C3: Release Contaminant Trigger Investigation Levels – Potential Contaminants

Quality Characteristic	Trigger Levels (µg/L)	Comment on Trigger Level	Monitoring Frequency
Aluminium	55	*For aquatic ecosystem protection, based on SMD guideline*	Commencement of release and thereafter weekly during release
Cadmium	0.2	*For aquatic ecosystem protection, based on SMD guideline*	
Chromium	1	*For aquatic ecosystem protection, based on SMD guideline*	
Copper	2	*For aquatic ecosystem protection, based on LOR for ICPMS*	
Iron	300	*For aquatic ecosystem protection, based on low reliability guideline*	
Nickel	11	*For aquatic ecosystem protection, based on SMD guideline*	
Zinc	8	*For aquatic ecosystem protection, based on SMD guideline*	
Boron	370	*For aquatic ecosystem protection, based on SMD guideline*	
Cobalt	90	*For aquatic ecosystem protection, based on low reliability guideline*	
Manganese	1900	*For aquatic ecosystem protection, based on SMD guideline*	
Molybdenum	34	*For aquatic ecosystem protection, based on low reliability guideline*	
Uranium	1	*For aquatic ecosystem protection, based on LOR for ICPMS*	
Ammonia	900	*For aquatic ecosystem protection, based on SMD guideline*	
Petroleum hydrocarbons (C6-C9)	20		
Petroleum hydrocarbons (C10-C36)	100		

Note:

1. All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.
2. The quality characteristics required to be monitored as per **Table C3: Release Contaminant Trigger Investigation Levels – Potential Contaminants** can be reviewed once the results of two years monitoring data is available and it may be determined that a reduced monitoring frequency is appropriate or that certain quality characteristics can be removed from **Table C3: Release Contaminant Trigger Investigation Levels – Potential Contaminants** by amendment.

Table C4a: Flow Triggers to start Mine Affected Water Release

Receiving waters/ stream	Release Point (RP)	Monitoring Point	Monitoring Point Latitude (decimal degree, GDA94)	Monitoring Point Longitude (decimal degree, GDA94)	Receiving Water Flow Recording Frequency	Receiving Water Flow Criteria for discharge (m^3/s)	Maximum release rate for all combined RP flows (m^3/s)
German Creek	RP1a RP1b RP1c RP1d	Haul Road Dam Gauging Station	-22.96086	148.54393	Continuous (minimum daily)	0.6	2.0
Cattle Creek	RP2a RP2b RP2c	Upstream Cattle Creek (Cattle Creek U/S)	-22.99388	148.51926	Continuous (minimum daily)	0.5	
Parrot Creek	RP3a RP3b RP3c RP3d	Upstream Parrot Creek (Parrot Creek U/S)	-22.89871	148.62601	Continuous (minimum daily)	0.14	
Roper Creek	RP3a RP3b RP3c RP3d RP 4	Upstream Roper Creek (Roper Creek U/S)	-22.876	148.67125	Continuous (minimum daily)	1.0	

Note: Receiving water flow criteria for discharge and maximum discharge rates should be reviewed biennially. The results of the first review must be submitted to the administering authority by **30 June 2018** and each subsequent review report every **two years** from that date.

Table C4b: Flow Triggers to cease Mine Affected Water Release

Receiving waters/ stream	Release Point (RP)	Monitoring Point	Monitoring Point Latitude (decimal degree, GDA94)	Monitoring Point Longitude (decimal degree, GDA94)	Receiving Water Flow Recording Frequency	Receiving Water Flow Criteria for discharge (m^3/s)
German Creek	RP1a RP1b RP1c RP1d	Oaky Creek D/S	-23.051	148.774	Continuous (minimum daily)	0.5
Cattle Creek	RP2a RP2b RP2c	Oaky Creek D/S	-23.051	148.774	Continuous (minimum daily)	0.5
Parrot Creek	RP3a RP3b RP3c RP3d	Roper Creek D/S	-23.016	148.819	Continuous (minimum daily)	0.5
Roper Creek	RP 4	Roper Creek D/S	-23.016	148.819	Continuous (minimum daily)	0.5

C9	Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with condition **C2** must only start when natural flow in the receiving environment meets the trigger values specified in **Table C4a**: **Flow Triggers to start Mine Affected Water Release** for the release points (s) specified in **Table C1: Mine Affected Water Release Points, Sources and Receiving Waters**.
C10	The releases of mine affected water to waters in accordance with condition **C2** must not exceed a maximum release rate of all combined release point flows of $2.0m^3/s$.
C11	During releases into the Roper Creek catchment via RP3 (a, b, c, d) and/or RP4, the electrical conductivity (EC) values recorded at the downstream monitoring point on Roper Creek (Roper Creek D/S) must not exceed 2000µS/cm at any time during the release influence period. During releases into the Oaky Creek catchment via RP1 (a, b, c, d) and/or RP2 (a, b, c), the EC values recorded at the downstream monitoring point on Oaky Creek (Oaky Creek D/S) must not exceed 2000µS/cm at any time during the release influence period.
C12	The EC values recorded at the Barwon Park monitoring station on Roper Creek must not exceed 1500µS/cm at any time during the release influence period.
C13	If EC recorded at Bingegang Weir exceeds 650µS/cm during a release event, the environmental authority holder must immediately notify the administering authority via Pollution Hotline and seek written approval to continue releasing mine affected water.
C14	The daily quantity of mine affected water released from each release point must be measured and recorded at the monitoring points in **Table C1: Mine Affected Water Release Points, Sources and Receiving Waters**.
C15	Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters or cause a material build-up of sediment in such waters.
C16	**Notification of Release Event** The environmental authority holder must notify the administering authority via either the WaTERS online reporting system or via Pollution Hotline as soon as practicable and no later than **twenty-four (24) hours** after commencing to release mine affected water to the receiving environment. Notification must include the submission of written advice to the administering authority of the following information: a) release commencement date/time; b) expected release cessation date/time; c) release point(s); d) release volume (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).

C17	The environmental authority holder must notify the administering authority via either the WaTERS online reporting system or via Pollution Hotline as soon as practicable (nominally within twenty-four (24) hours after cessation of a release event) of the cessation of a release notified under condition **C16** and within **twenty-eight (28) 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 C: Water** of this environmental authority (i.e. contamination limits, natural flow, discharge volume); (e) all in-situ water quality monitoring results; and (f) any other matters pertinent to the water release event. **Note:** Successive or intermittent releases occurring within **twenty-four (24) hours** of the cessation of any individual release can be considered part of a single release event and do not require individual notification for the purpose of compliance with conditions **C16** and **C17**, provided the relevant details of the release are included within the notification provided in accordance with conditions **C16** and **C17**.
C18	**Notification of Release Event Exceedance** If the release limits defined in **Table C2: Mine Affected Water Release Limits** are exceeded, the holder of the environmental authority must notify the administering authority via WaTERS within **twenty-four (24) hours** of receiving the results.
C19	The authority holder must, within **twenty-eight (28) days** of a release that exceeds the conditions of this authority, provide a report to the administering authority via WaTERS detailing: (a) the reason for the release; (b) the location of the release; (c) all water quality monitoring results; (d) any general observations; (e) all calculations; and (f) any other matters pertinent to the water release event.
C20	**Monitoring of Water Storage Quality** Water storages stated in **Table C5: Water Storage Monitoring** must be monitored for the water quality characteristics specified in **Table C6: Onsite Water Storage Contaminant Limits** at the monitoring locations and at the monitoring frequency specified in **Table C5: Water Storage Monitoring**.

Table C5: Water Storage Monitoring

Water Storage Description	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)	Monitoring Location	Frequency of Monitoring
Bruce's Billabong	-22.92611	148.55555	Any safe access	Quarterly
Switch Yard Dam	-22.93417	148.55610		
CPP Turkey's Nest	-22.93196	148.55607		
Lake Lisa	-22.92305	148.56083		
Old Tailings Dam	-22.93331	148.54353		
Foxleigh TLO Dam	-22.926235	148.55388		
Stacker Dam	-22.93794	148.55054		
German Creek Weir	-22.97124	148.57109		
Grasstree Dam 1	-22.99004	148.57669		
Pit U East	-22.94198	148.64885		
Pit P South	-23.00560	148.53088		
Pit Q South	-22.91333	148.53715		
Pit F	-22.96493	148.56035		
Pit D North	-22.88788	148.56673		
Central Storage Dam	-22.9942	148.718		
Pit T	-22.92629	148.65080		

Table C6: Onsite Water Storage Contaminant Limits

Quality Characteristic	Test Value	Contaminant Limit
pH (pH unit)	Range	Greater than 4, less than 9^
EC (µS/cm)	Maximum	5970*
Sulphate (mg/L)	Maximum	1000*
Fluoride (mg/L)	Maximum	2*
Aluminium (mg/L)	Maximum	5*
Arsenic (mg/L)	Maximum	0.5*
Cadmium (mg/L)	Maximum	0.01*
Cobalt (mg/L)	Maximum	1*
Copper (mg/L)	Maximum	1*
Lead (mg/L)	Maximum	0.1*
Nickel (mg/L)	Maximum	1*
Zinc (mg/L)	Maximum	20*

* Contaminant limit based on ANZECC & ARMCANZ (2000) stock water quality guidelines.

^ Page 4. 2-15 of ANZECC & ARMCANZ (2000) “Soil and animal health will not generally be affected by water with pH in the range of 4–9”.

Note: Total measurements (unfiltered) must be taken and analysed.

C21	In the event that any of the water storages defined in **Table C5: Water Storage Monitoring** exceed the contaminant limits defined in **Table C6: Onsite Water Storage Contaminant Limits**, the holder of the environmental authority must implement measures, where practicable, to prevent access to waters by all livestock.
C22	**Receiving Environment Monitoring and Contaminant Trigger Levels** The quality of the receiving waters must be monitored during any release event (controlled or uncontrolled) at the corresponding upstream and downstream locations specified in **Table C8: Receiving Water Upstream Background Sites and Downstream Monitoring Points** for each quality characteristic and at the monitoring frequency stated in **Table C7: Receiving Waters Contaminant Trigger Levels**.

Table C7: Receiving Waters Contaminant Trigger Levels

Quality Characteristic	Trigger Level		Monitoring Frequency
pH	6.5 – 8.0		Daily during the release
Sulphate ($SO4^{2-}$) (mg/L)	250 Protection of drinking water quality		Within 24 hours of the release, then weekly thereafter
Turbidity (NTU)	Mine waters released must not exceed background level when measured at upstream background monitoring points specified in **Table C8 – Receiving Water Upstream Background Sites and Downstream Monitoring Points**.		Daily during the release
Electrical Conductivity	Roper Creek	2000	Daily during the release
	Oaky Creek	2000	
	Barwon Park	1500	

Note – the Electrical conductivity trigger level stated in this table, reflects conditions C11, C12, and C13.

Table C8: Receiving Water Upstream Background Sites and Downstream Monitoring Points

Monitoring Points	Receiving Waters Location Description	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)
Upstream Background Monitoring Points			
Roper Creek U/S	Upstream Roper Creek	-22.876	148.671
Upstream Haul Road Dam	German Creek Upstream of Haul Rd Dam	-22.965	148.534
Cattle Creek U/S	Upstream Cattle Creek	-22.993	148.519
Parrot Creek U/S	Upstream Parrot Creek	-22.898	148.626
Downstream Monitoring Points			
German Creek D/S	Downstream German Creek	-22.984	148.59
Cattle Creek D/S	Downstream Cattle Creek	-23.013	148.576
Oaky Creek D/S	Downstream Oaky Creek	-23.051	148.774
Roper Creek D/S	Downstream Roper Creek	-23.016	148.819
Barwon Park	Roper Creek at Barwon Park	-23.057	148.888

Notes:
a) The data from background monitoring points must not be used where they are affected by releases from other mines.
b) Downstream Cattle Creek and Downstream Roper Creek may not be accessible after prolonged wet weather. The monitoring stations collect samples for **twenty-four (24) days**.

C23	If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in **Table C7: Receiving Waters Contaminant Trigger Levels** during a release event the environmental authority holder must compare the downstream results to the upstream results in the receiving waters and: (a) where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken; or (b) where the downstream results exceed the upstream results complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining: (i) details of the investigations carried out; and (ii) actions taken to prevent environmental harm. **Note:** Where an exceedance of a trigger level has occurred and is being investigated, in accordance with **C23(b)** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.
C24	**Receiving Environment Monitoring Program (REMP)** The environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of German Creek, Parrot Creek, Cattle Creek and Roper Creek and any connected or surrounding waterways within 15km downstream of the release. The REMP should encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly affected by an authorised release of mine affected water.

C25	The REMP must: (a) assess the condition or state of receiving waters, including upstream conditions, spatially within the REMP area, considering background water quality characteristics based on accurate and reliable monitoring data that takes into consideration temporal variation (e.g. seasonality); (b) be designed to facilitate assessment against water quality objectives for the relevant environmental values that need to be protected; (c) include monitoring from background reference sites (e.g. upstream or background) and downstream sites from the release (as a minimum, the locations specified in **Table C8: Receiving Water Upstream Background Sites and Downstream Monitoring Points**); (d) specify the frequency and timing of sampling required in order to reliably assess ambient conditions and to provide sufficient data to derive site specific background reference values in accordance with the most recent version of the *Queensland Water Quality Guidelines 2009*. This should include monitoring during periods of natural flow irrespective of mine or other discharges; (e) include monitoring and assessment of dissolved oxygen saturation, temperature and all water quality parameters listed in **Table C2: Mine Affected Water Release Limits** and **Table C3: Release Contaminant Trigger Investigation Levels – Potential Contaminants**); (f) include, where appropriate, monitoring of metals/metalloids in sediments (in accordance with ANZECC & ARMCANZ 2000, BATLEY and/or the most recent version of *AS5667.1 Guidance on Sampling of Bottom Sediments*); (g) include, where appropriate, monitoring of macroinvertebrates in accordance with the AusRivas methodology; (h) apply procedures and/or guidelines from ANZECC & ARMCANZ 2000 and other relevant guideline documents; (i) describe sampling and analysis methods and quality assurance and control measures; and (j) incorporate stream flow and hydrological information in the interpretations of water quality and biological data.
C26	A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with conditions **C24** and **C25** must be prepared annually and made available on request to the administrating authority. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.
C27	**Water Reuse** Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as farm dams or tanks, or used directly at properties owned by the environmental authority holder or a third party (with the consent of the third party). Mine affected water may be piped or trucked for the purpose of supplying water to the receiving locations identified in **Table C9: Mine Affected Water Receiving Locations** and if so, the volume, pH and the electrical conductivity of water transferred must be monitored and recorded.

Table C9: Mine Affected Water Receiving Locations

Receiving Location	Environmental Authority
Lake Lindsay Coal Mine	EPML00739113
Foxleigh Coal Mine	EPML00744813
Middlemount Coal Mine	EPML00716913

C28	**Water General** All determinations of water quality and biological monitoring must be: (a) performed by a person or body possessing appropriate experience and qualifications to perform the required measurements; (b) made in accordance with methods prescribed in the latest edition of the administering authority's *Monitoring and Sampling Manual*; (c) collected from the monitoring locations identified within this environmental authority, within forty (48) hours of each other where possible; (d) carried out on representative samples; and (e) analysed at a laboratory accredited (e.g. NATA) for the method of analysis being used. **Note:** Condition **C28** requires the Monitoring and Sampling Manual to be followed and where it is not followed because of exceptional circumstances this should be explained and reported with the results.
C29	The release of any contaminants as permitted by this environmental authority, directly or indirectly to waters, other than internal water management infrastructure that is installed and operated in accordance with a water management plan that complies with conditions **C32** to **C37** inclusive: (a) must not produce any visible discolouration of receiving waters; and (b) must not produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.
C30	**Annual Water Monitoring Reporting** 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 with each annual return: (i) the date on which the sample was taken; ii) the time at which the sample was taken; ii) the monitoring point at which the sample was taken; v) the measured or estimated daily quantity of mine affected water released from all release points; v) the release flow rate at the time of sampling for each release point; *v*i) the results of all monitoring and details of any exceedances of the conditions of this environmental authority; and ii) water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.

C31	**Temporary Interference with waterways** Temporarily destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for and associated with mining operations must be undertaken in accordance with the document titled: *Riverine protection permit exemption requirements* (WSS/2013/726).
C32	**Water Management Plan** A Water Management Plan must be developed by an appropriately qualified person and implemented**.**
C33	The Water Management Plan must: (a) provide for effective management of actual and potential environmental impacts resulting from water management associated with the mining activity carried out under this environmental authority; and (b) be developed in accordance with administering authority's Guideline *Preparation of water management plans for mining activities* and include: (i) a study of the source of contaminants; (ii) a water balance model for the site; (iii) a water management system for the site; (iv) measures to manage and prevent saline drainage; (v) measures to manage and prevent acid rock drainage; (vi) contingency procedures for emergencies; and (vii) a program for monitoring and review of the effectiveness of the water management plan.
C34	The Water Management Plan must be reviewed annually and a report prepared by an appropriately qualified person. The report must: (a) assess the plan against the requirements under condition **C33**; (b) include recommended actions to ensure actual and potential environmental impacts are effectively managed for the coming year; and (c) identify any amendments made to the water management plan following the review.
C35	The holder of this environmental authority must attach to the review report required by condition **C34**, a written response to the report and recommended actions, detailing the actions taken or to be taken by the environmental authority holder on stated dates: (a) to ensure compliance with this environmental authority; and (b) to prevent a recurrence of any non-compliance issues identified.
C36	The review report required by condition **C34** and the written response to the review report required by condition **C35** must be submitted to the administering authority upon request.
C37	A copy of the Water Management Plan must be provided to the administering authority on request.
C38	**Saline Drainage** 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 drainage.

C39	**Acid rock drainage** 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 acid rock drainage.
C40	**Stormwater and water sediment controls** An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.
C41	Stormwater, other than mine affected water, is permitted to be released to waters from: (a) erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition **C40**; and (b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with conditions **C32** to **C37** inclusive, for the purpose of ensuring water does not become mine affected water.
C42	The maintenance and cleaning of any vehicles, plant or equipment must not be carried out in areas from which contaminants can be released into any receiving waters.
C43	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.
RR1	Conditions **C24** to **C26** do not apply if the environmental authority holder is a participant of the FRREMP.
RR2	The environmental authority holder must notify the administering authority in a written statement within **twenty (20) business days** of ceasing to be a participant of the FRREMP. The written statement must detail how the environmental authority holder is going to fulfil the requirements of conditions **C24 to C26**.

Schedule D: Land	
Condition number	**Condition**
D1	The holder of the environmental authority must conduct a study by **June 2010** to determine the predicted final void water quality and assess its compatibility with the post mining land use.
D2	Monitoring of rehabilitation must be undertaken for the purpose of: (a) reviewing the rehabilitation processes undertaken with the intent to improve rehabilitation practices; and (b) validating the proposed post mining land uses.
D3	The rehabilitation monitoring must as a minimum include: (a) species diversity; (b) vegetative ground cover; (c) tree density and stem thickness; (d) visible indicators of erosion; and (e) foliage projective cover.
D4	**Oak Park** Conditions **D5** to **D13** inclusive apply to activities and disturbance carried out on ML70311.
D5	Haul Roads and other infrastructure must be located to minimise impacts on regional ecosystems and creeks.
D6	Exploration must be conducted in accordance with the internal document *Environmental Guidelines for Exploration* (EXP-PLN-021).
D7	All areas significantly disturbed by mining activities must be rehabilitated to a stable landform with a self-sustaining vegetation cover in accordance with **Table D1: Final Land Use and Rehabilitation Approval Schedule** and **Table D2: Landform Design**.

Table D1: Final Land Use and Rehabilitation Approval Schedule

Tenure ID: Oak Park	**Disturbance Type**							
	Spoil		**Void Ramp**	**Mine Water Sump**	**Wetland**	**Access**	**Exploration Activities**	**Infrastructure**
	Externally draining	**Internally draining**						
Area (ha)	206	560	80	2	22	32	10	43
Post mine land use	Bush	Bush grazing	Voids	Grazing	Wetland	Grazing	Grazing	Grazing
Post mine land capability	VIII	VI	VIII	VI	VIII	VI	VI	VI
Veg cover %	NA	NA	NA	Ref site[2]	NA	Ref site	Ref site	Ref site
Veg/rock cover %	40 veg[4] 50 rock[3]	40 veg 30 rock	NA	NA	50 rock on walls	NA	NA	NA
Dominant sp	Native	Native	NA	Buffel	NA	Buffel	Buffel	Buffel

Notes:
[2]Reference Site.
[3]50% surface expression of rock.
[4]40% vegetation cover on non-rock surface.

Table D2: Landform Design

Disturbance type	Area (ha)	Design criteria	Qualifications
Externally draining spoil	206	Slope <1V:3H (33.3%) Rock mulch is applied at the following rates: (a) For slopes >1V:4H (>25%), ≥0.5m depth; and (b) For slopes ≤ 1V:4H and ≥1V:6H (≤25% and ≥16.67%), ≥0.2m depth Gypsum is applied at the following rates: (a) For spoil, to a minimum treatment depth of 400mm (±100mm): (i) ≥25 tonnes per hectare (t/ha); or (ii) At a rate sufficient to reduce the ESP/EC ratio below the stability threshold of 14%; and (b) For topsoil, to a minimum treatment depth of 150mm: (i) ≥3t/ha; or (ii) At a rate sufficient to reduce the ESP/EC ratio below the stability threshold of 5%.	Competent rock as assessed by wetting and drying
Internally draining spoil	560	Slope gradient <1V:10H (Top of dump) Slope <1V:6H (16.7%) Covered with ≥0.2m of rock mulch Gypsum is applied at the following rates: (a) For spoil, to a minimum treatment depth of 400mm (±100mm): (i) ≥25 tonnes per hectare (t/ha); or (ii) At a rate sufficient to reduce the ESP/EC ratio below the stability threshold of 14%; and (b) For topsoil, to a minimum treatment depth of 150mm: (i) ≥3t/ha; or (ii) At a rate sufficient to reduce the ESP/EC ratio below the stability threshold of 5%.	Less competent rock as assessed by wetting and drying
Voids and Ramps	80	• Remain as is if geotechnical stability is sound or, • Reshape to obtain stability or to ensure landform integrity of surrounding landforms if failure occurs or,	Regular monitoring of final voids and ramps against geotechnical categories must be undertaken in order to validate the long-term stability.

Disturbance type	Area (ha)	Design criteria	Qualifications
		• Fill with mine waste, cover with inert material and rehabilitate	Assessment intervals <5 years by appropriately qualified geotechnical professional.
Sumps	2	Slope < 1V:25H Gypsum is applied at the following rates: (a) For spoil, to a minimum treatment depth of 400mm (±100mm): (i) ≥25 tonnes per hectare (t/ha); or (ii) At a rate sufficient to reduce the ESP/EC ratio below the stability threshold of 14%; and (b) For topsoil, to a minimum treatment depth of 150mm: (i) ≥3t/ha; or (ii) At a rate sufficient to reduce the ESP/EC ratio below the stability threshold of 5%.	
Wetland	22	Determined by boxcut spoil	Competent rock as assessed by long term submersion to simulate water storage phase of the wetland
Infrastructure	43	Slope <1V:10H	

Table D3: Pit Outline

Point	Longitude (GDA 94)	Latitude (GDA 94)
1	148.668	-22.9766
2	148.666	-22.9712
3	148.669	-22.9658
4	148.681	-22.9713
5	148.691	-22.9723
6	148.708	-22.9794
7	148.718	-22.99
8	148.716	-22.9953
9	148.712	-22.998
10	148.68	-22.9882

D8	The areas of spoil and voids detailed in **Table D1: Final Land Use and Rehabilitation Approval Schedule** must be limited to within the co-ordinates shown in **Table D3: Pit Outline**.
D9	Rehabilitation must commence within **three (3) years** as areas become available within the operational land.
D10	By **14 June 2024**, the holder of this environmental authority must complete an investigation into rehabilitation of disturbed areas and include as part of the transitional Progressive Rehabilitation and Closure Plan, proposing acceptance criteria to meet the rehabilitation outcomes in **Table D1: Final Land Use and Rehabilitation Approval Schedule** and landform design criteria in **Table D2: Landform Design**.
D11	Topsoil and competent rock reserves must be determined and managed in such a manner as to facilitate the rehabilitation outcomes nominated in **Table D1: Final Land Use and Rehabilitation Approval Schedule**.
D12	Residual voids must comply with the following outcomes: (a) residual voids must not cause any serious environmental harm to land, surface waters or any recognised groundwater aquifer, other than the environmental harm constituted by the existence of the residual void itself and subject to any other condition within this environmental authority; and (b) monitoring of residual void slopes is to be undertaken every **four (4) years** to validate the predictive model of the long term geotechnical behaviour of the voids as outlined in *Slope Design for Long Term Geotechnical Stability at German Creek Mine* by Geotech Consulting Services Pty Ltd Report No. 109.
D13	**German Creek Mining Leases** Conditions **D14** to **D28** inclusive apply to activities and disturbance carried out on ML1831, ML1894, ML1998 and ML70047.
D14	All areas disturbed by mining activities must be rehabilitated to the final land use stated in **Table D4: German Creek Final Land Use and Design Criteria (for ML1831, ML1894, and ML70047)** or **Table D5: German Creek East Final Land Use and Design Criteria (for ML1998).**
D15	Areas rehabilitated to their final land use defined in condition **D14** must achieve the design criteria and qualifications detailed in **Table D4: German Creek Final Land Use and Design Criteria (for ML1831, ML1894, and ML70047)** or **Table D5: German Creek East Final Land Use and Design Criteria (for ML1998).**
D16	Rehabilitation must commence within **three years** of mined or disturbed areas being brought to final landform configuration and determined to be excluded from any further mining development. All such areas must be detailed in the Plan of Operations.
D17	A Hostile Spoil Management Plan must be developed and implemented during the continuation of the environmental authority. The hostile spoil management plan must at a minimum include: (a) quantification of hostile spoil present; (b) characterisation programs for acidity, salinity and physical soil properties; (c) a review of impacts of the hostile spoil on the rehabilitation; and (d) management actions for spoil that has been defined as acidic.
D18	A minimum of 150mm of cover material must be respread over the reshaped spoil surface.
D19	Details of sites possibly contaminated must be documented and updated annually.

D20	A detailed location map and inventory of cover material must be updated annually and provided in the Plan of Operations.
D21	Available topsoil, as determined from a topsoil stripping plan must be stripped ahead of any areas where the topsoil resource will be lost or permanently destroyed.
D22	Where practicable topsoil stripped ahead of mining must be directly placed on rehabilitation areas. Where direct placement is not practicable, topsoil must be stored in stockpiles less than four (**4) metre** high and vegetated.
D23	Sufficient cover material will be stockpiled (or alternate cover material sourced from alluvial or basaltic sources) to cover all spoil areas scheduled for rehabilitation to a depth of at least 150mm.
D24	Rejects must be disposed of in-pit or within the spoil matrix.
D25	Tailings must be disposed of in final voids.
D26	All reject and tailings must be placed at a minimum of **one (1) metre** below the final landform surface. The material used to cover all reject and tailings must be inert and must be covered by at least 100mm of cover material.
D27	The footprint of the infrastructure areas must be rehabilitated in accordance with a decommissioning plan.

Table D4: German Creek Final Land Use and Design Criteria (for ML1831, ML1894, ML70047)

Area	Final Land use	Criteria	Qualifications
Final voids and ramps	Bushland above the maximum predicted standing water level. Non-use management area (NUMAs) below the maximum predicted standing water level on an average rainfall year	(a) If geotechnical stability is adequate – leave as is; or (b) If geotechnical stability is not adequate and integrity of surrounding landform is not prejudiced – leave as is and allow to fall; or (c) If geotechnical stability is not adequate and integrity of surrounding landform is prejudiced – reshape to achieve geotechnical stability; or (d) Fill with mine waste, cover with spoil/inerts and rehabilitate.	Regular geotechnical assessment of final voids and ramps must be undertaken in order to validate the long-term stability. This assessment must be undertaken at intervals not exceeding 5 years by an appropriately qualified and experienced person.
Spoil emplacement areas: • Externally draining spoil • Internally draining spoil	Bushland	(a) Less than 1V:5H (<20%) (b) Less than 1V:4H (<25%) (c) Less than 1V:6H (16.7%) (Internally draining spoil) Gypsum is applied at the following rates: (a) For spoil, to a minimum treatment depth of 400mm (±100mm): (i) ≥25 tonnes per hectare (t/ha); or (ii) At a rate sufficient to reduce the ESP/EC ratio below the stability threshold of 14%; and (b) For topsoil, to a minimum treatment depth of 150mm: (i) ≥3t/ha; or At a rate sufficient to reduce the ESP/EC ratio below the stability threshold of 5%.	Erosion controls to be implemented where slope length is >80m and other locations where necessary
Rejects disposal areas	Grazing	Minimum 1m of inert cover material	Externally draining or in pit. Acidic leachate not to impact on receiving environment.
Tailings disposal areas	Grazing	Minimum 1m of inert cover material	Externally draining or in pit. Acidic leachate not to impact on receiving environment.

Evaporation Dams	Grazing	Walls breached and dams drained and either: (a) Salt impacted material stripped and disposed of in tailings or rejects impoundment; or (b) Capped with sufficient inert material to break the capillary rise of salts and prevent lateral migration of solutes.	
All other areas	Grazing		

Table D5: German Creek East Final Land Use and Design Criteria (for ML1998)

Area	Final Land use	Criteria	Qualifications
Final voids and ramps	Bushland above the maximum predicted standing water level. Non-use management area (NUMAs) below the maximum predicted standing water level on an average rainfall year	(a) If geotechnical stability is adequate – leave as is; or (b) If geotechnical stability is not adequate and integrity of surrounding landform is not prejudiced – leave as is and allow to fall; or (c) If geotechnical stability is not adequate and integrity of surrounding landform is prejudiced – reshape to achieve geotechnical stability; or (d) Fill with mine waste, cover with spoil/inerts and rehabilitate.	Regular geotechnical assessment of final voids and ramps must be undertaken in order to validate the long-term stability. This assessment must be undertaken at intervals not exceeding 5 years by an appropriately qualified and experienced person.
Externally draining spoil	Bushland	Slope <1V:3H (33.3%) Rock mulch is applied at the following rates: (a) For slopes >1V:4H (>25%), ≥0.5m depth; and (b) For slopes ≤ 1V:4H and ≥1V:6H (≤25% and ≥16.67%), ≥0.2m depth Gypsum is applied at the following rates: (a) For spoil, to a minimum treatment depth of 400mm (±100mm): (i) ≥25 tonnes per hectare (t/ha); or (ii) At a rate sufficient to reduce the ESP/EC ratio below the stability threshold of 14%; and (b) For topsoil, to a minimum treatment depth of 150mm: (i) ≥3t/ha; or (ii) At a rate sufficient to reduce the ESP/EC ratio below the stability threshold of 5%.	Erosion controls to be implemented where slope length is >80m and other locations where necessary

Internally draining spoil	Bushland	Slope <1V:10H (Top of dump) Slope <1V:6H (16.7%) Covered with ≥0.2m of rock mulch Gypsum is applied at the following rates: (a) For spoil, to a minimum treatment depth of 400mm (±100mm): (i) ≥25 tonnes per hectare (t/ha); or (ii) At a rate sufficient to reduce the ESP/EC ratio below the stability threshold of 14%; and (b) For topsoil, to a minimum treatment depth of 150mm: (i) ≥3t/ha; or (ii) At a rate sufficient to reduce the ESP/EC ratio below the stability threshold of 5%.	
Evaporation Dams	Grazing	Walls breached and dams drained and either: (a) Salt impacted material stripped and disposed of in tailings or rejects impoundment; or (b) Capped with sufficient inert material to break the capillary rise of salts and prevent lateral migration of solutes.	
All other areas	Grazing		

D28	The design for each spoil area, and each void and ramp area will be documented in the Plan of Operations and internal design documents.
D29	**Subsidence – All mining leases impacted by subsidence** Conditions **D30** to **D40** inclusive apply to activities and disturbance carried out on ML1831, ML1894, ML1998 and ML70047 that result in subsidence.
D30	A Subsidence Management Plan must be developed by an appropriately qualified and experienced person(s) and implemented by the holder of this environmental authority.
D31	The Subsidence Management Plan required by condition **D30** must: (a) provide 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; (b) be developed in accordance with the draft Guideline *"Watercourse Subsidence – Central Queensland Mining Industry"* or any subsequent versions; (c) describe the proposed impacts of subsidence on any land, watercourse and floodplain including but not limited to: (i) physical condition of surface drainage: (1) erosion; (2) areas susceptible to higher levels of erosion such as watercourse confluences; (3) incision processes; (4) stream widening; (5) tension cracking; (6) lowering of bed and banks; (7) creation of in stream waterholes; (8) changes to local drainage patterns; (ii) overland flow: (1) capture of overland flow by subsided long-wall panels; (2) increased overbank flows due to lowering of high bank of watercourses; (3) the portion of local and large scale catchment likely to be captured by subsided long-wall panels and the associated impacts on downstream users; (iii) water quality: (1) surface water; (2) groundwater; (iv) land condition: current land condition to be impacted by subsidence; (v) infrastructure: detail of existing infrastructure (pipelines, railway, powerlines and haul roads) should be identified where there is a potential impact from effects of land subsidence; (d) propose options for mitigating any impacts associated with subsidence and how these mitigation methods will be implemented; (e) describe cumulative impacts on watercourses or catchments; (f) describe impacts on groundwater; (g) describe contingency procedures for emergencies; and

	(h) include a program for monitoring and review of the effectiveness of the Subsidence Management Plan.
D32	The Subsidence Management Plan must be reviewed each calendar year and a report prepared by an appropriately qualified and experienced person. The report must: (a) assess the plan against the requirements under condition **D31**; (b) include recommended actions to ensure actual and potential environmental impacts are effectively managed; and (c) identify any amendments made to the Subsidence Management Plan following the review.
D33	The holder of this environmental authority must attach to the review report required by condition **D32**, a written response to the report and recommended actions, detailing the actions taken or to be taken by the holder of this environmental authority on stated dates: (a) to ensure compliance with this environmental authority; and (b) to prevent a recurrence of any non-compliance issues identified.
D34	The review report required by condition **D32** and the written response to the review report required by condition **D33** must be submitted to the administering authority upon request.
D35	The actions determined under condition **D34** must be completed by the stated date unless the administering authority has approved otherwise.
D36	The holder of this environmental authority must arrange for each subsided longwall panel to be inspected annually by an appropriately qualified person, in accordance with conditions **D37** and **D38**.
D37	The annual inspection must be conducted between **1 April** and **1 November** each year.
D38	At each annual inspection, the condition of each subsided longwall panel must be assessed, including the structural, geotechnical and hydraulic adequacy of the subsided longwall panel and the adequacy of the works with respect to the Subsidence Management Plan.
D39	For each inspection, copies of a report certified by the appropriately qualified person, including any recommendations to ensure the integrity of each subsided longwall panel, must be provided to the administering authority upon request.
D40	Progressive rehabilitation of subsidence of each project longwall of the Grasstree Extension Project must commence **within twelve (12) months** of when it is disturbed, unless it is demonstrated that an area is being utilised for operating mining infrastructure.
D41	**Subsidence – Mining Lease 1831 (Surface Area 7)** Conditions **D42** and **D43** also apply to subsidence within Surface Area 7 of Mining Lease 1831.
D42	Clearing of vegetation on land to be subsided by underground mining must be limited to the minimum amount of clearing necessary to ameliorate subsidence cracks.
D43	Prior to disturbance of vegetation, habitat trees are to be identified and measures taken to ensure that habitat trees are protected from damage and clearing where practical.

Schedule E: Noise	
Condition number	**Condition**
E1	**Noise limits** The holder of this environmental authority must ensure that noise generated by the mining activities does not cause the criteria in **Table E1 – Noise limits** to be exceeded at a sensitive place or commercial place.
E2	**Airblast overpressure nuisance** The holder of this environmental authority must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in **Table E2 – Blasting noise limits** to be exceeded at a sensitive place or commercial place.

Table E1 – Noise limits

Sensitive place						
Noise level dB(A) measured as:	**Monday to Saturday**			**Sundays and public holidays**		
	7am to 6pm	**6pm to 10pm**	**10pm to 7am**	**9am to 6pm**	**6pm to 10pm**	**10pm to 9am**
$L_{Aeq, adj, 15 mins}$	CV = 50 AV = 5	CV = 45 AV = 0	CV = 40 AV = 0	CV = 45 AV = 5	CV = 40 AV = 5	CV = 35 AV = 0
$L_{A1, adj, 15 mins}$	CV = 55 AV = 10	CV = 50 AV = 10	CV = 45 AV = 5	CV = 50 AV = 10	CV = 45 AV = 10	CV = 40 AV = 5
Commercial place						
Noise level	**Monday to Saturday**			**Sundays and public holidays**		
dB(A) measured as:	**7am to 6pm**	**6pm to 10pm**	**10pm to 7am**	**7am to 6pm**	**6pm to 10pm**	**10pm to 7am**
$L_{Aeq, adj, 15 mins}$	CV = 55 AV = 10	CV = 50 AV = 10	CV = 45 AV = 5	CV = 50 AV = 10	CV = 45 AV = 10	CV = 40 AV = 5

Table E1 – Noise limits notes:

1. CV = Critical Value
2. AV = Adjustment Value
3. bg = background noise level (LA90, adj, 15 mins) measured over 3-5 days at the nearest sensitive receptor
4. To calculate noise limits in Table E1:

   If bg ≤ (CV – AV): Noise limit = bg + AV

   If (CV – AV) < bg ≤ CV: Noise limit = CV

   If bg > CV: Noise limit = bg + 0
5. In the event that measured bg (LA90, adj, 15 mins) is less than 30 dB(A), then 30 dB(A) can be substituted for the measured background level
6. If the project is unable to meet the noise limits as calculated above alternative limits may be calculated using the processes outlined in the “Planning for Noise Control” guideline.

Table E2 – Blasting noise limits

Blasting noise limits	Sensitive or commercial place limits	
	7am to 6pm	**6pm to 7am**
Airblast overpressure	115 dB (linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120 dB (linear) Peak at any time	No blasting
Ground vibration peak particle velocity	5mm/second peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10mm/second peak particle velocity at any time	No blasting

E3	**Monitoring and reporting** Noise monitoring and recording must include the following descriptor characteristics and matters: (a) LAN,T (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins); (b) background noise LA90; (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; and (g) if the complaint concerns low frequency noise, Max LpLIN,T and one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.
E4	The holder of this environmental authority must develop and implement a blast monitoring program to monitor compliance with **Table E2 – Blasting noise limits** for at least 90% of all blasts undertaken on this site in each year at the nearest sensitive or commercial place.

Schedule F: Waste	
Condition number	**Condition**
F1	The environmental authority holder must not dispose of wastes on-site with the following exceptions: (a) general waste; (b) tailings; (c) drilling waste that is sampled and determined as regulated waste, providing the total volume of this waste is less than 5% of the total volume of all drilling waste disposed of; (d) brine from the Reverse Osmosis (RO) Plant; and (e) inert waste.
F2	**All leases** General waste must only be disposed of in the German Creek landfill (centroid location point (GDA94): latitude: -22.9346291, longitude: 148.5641494).
F3	**Drilling waste** In addition to the mining tenements subject to this environmental authority, the holder may also receive and dispose of drilling waste and general waste carried out on either ML70336, EPC747, EPC726, MDL331 or MDL170.
F4	The receipt and disposal of drilling waste is subject to all the following requirements: (a) No more than 1.4 megalitres (ML) of drilling waste can be disposed each year. (b) All drilling waste must be sampled to determine its chemical characteristics prior to disposal; (c) All drilling waste that is sampled and determined as general waste, must be disposed into the German Creek landfill, as identified by condition **F2**. (d) All drilling waste that is sampled and determined as regulated waste, must be disposed of in accordance with the Waste Management Plan required by condition **F5**.
F5	**Waste Management Plan** A Waste management Plan must: (a) be developed by an appropriately qualified person; (b) implemented for the duration of the mining activities, and (c) include all the following: (i) a description of the activities that generate waste; (ii) a procedure for recording the types and amounts of wastes generated, (iii) a survey record of the size and location (using coordinates) of all described waste disposal areas on site ; (iv) provisions for the management of any leachates; (v) the characteristics of the wastes generated; (vi) how the waste and resource management hierarchy will be implemented for each waste type (i.e. avoidance, reuse, recycling, energy recovery, disposal); (vii) how the waste will be stored, handled and transferred in a proper and effective manner; (viii) procedures for managing accidents, spills, and other incidents associated with the receipt, storage, transport, and disposal of waste; (ix) indicators or other criteria on which the performance of the waste management plan will be assessed; (x) a program of periodic review to ensure the plan meets the requirements of this environmental authority; and (xi) staff training and induction to the waste management program.

F6	**Landfill capping** When the deposition of waste to the landfill ceases, a final capping system for the landfill must be designed by an appropriately qualified person and installed to achieve the following requirements: (a) minimise infiltration of water into the landfill and surface water ponding; (b) minimise the likelihood of any erosion occurring to either the final capping system or the landfilled materials; and (c) ensure the contaminant concentrations within the final capping layer are appropriate for the final land use and in accordance with the 'National Environmental Protection (Assessment of Soil Contamination) Measure 1999'.
F7	Regulated waste must be managed in accordance with the Waste Management Plan required under condition **F5** of this environmental authority, which must include provisions for: (a) containment of regulated waste; (b) the management of seepage and leachates both during operation and the foreseeable future; (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; (e) maintaining records of the relative locations of any other waste stored within the tailings; (f) rehabilitation strategy; and (g) monitoring of rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of tailings, including the prevention and management of acid mine drainage, erosion minimisation and establishment of vegetation cover.
F8	**Acid sulphate soils** Treat and manage acid sulphate soils in accordance with the latest edition of the department's *Queensland Acid Sulfate Soil Technical Manual*.

Schedule G: Regulated Structures	
Condition number	**Condition**
G1	**Assessment of consequence category** The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the latest version of the administering authority's 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.
G2	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.
G3	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)*.
G4	**Design and construction of a regulated structure** Conditions **G5** to **G9** inclusive do not apply to existing structures.
G5	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 (ESR/2016/1933)*.
G6	Construction of a regulated structure is prohibited unless: (a) the holder has submitted a consequence category assessment report and certification to the administering authority; and (b) certification for the design, design plan and the associated operating procedures has been certified by a suitably qualified and experienced person in compliance with the relevant condition of this authority.
G7	Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)* and must be recorded in the Register of Regulated Structures.
G8	Regulated structures must: (a) be designed and constructed in compliance with the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933);* (b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of: (i) floodwaters from entering the regulated dam from any watercourse or drainage line; and (ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line. (c) For regulated structures that have not been certified as low consequence category for 'failure to contain – seepage', the floor and sides of the dam must be 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.
G9	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.
G10	**Notification of affected persons** All affected persons must be provided with a copy of the emergency action plan in place for each regulated structure: (a) for existing structures that are regulated structures, within **ten (10) business days** of this condition taking effect; (b) prior to the operation of the new regulated structure; and (c) if the emergency action plan is amended, within **five (5) business days** of it being amended.
G11	**Operation of a regulated structure** Operation of a regulated structure, except for an existing structure, is prohibited unless the holder has submitted to the administering authority in respect of regulated structure, all of the following: (a) one electronic copy of the design plan and certification of the 'design plan' in accordance with condition **G6**; (b) a set of 'as constructed' drawings and specifications; (c) certification of the 'as constructed drawings and specifications' in accordance with condition **G9**; (d) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan; (e) the requirements of this authority relating to the construction of the regulated structure have been met; (f) the holder has entered the details required under this authority, into a Register of Regulated Structures; and (g) there is a current operational plan for the regulated structure.
G12	For existing structures that are regulated structures: (a) where the existing structure that is a regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, the holder must submit to the administering authority, prior to **30 January 2019**, a copy of the certified system design plan including that structure; and (b) there must be a current operational plan for the existing structures.
G13	Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in compliance with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.
G14	**Mandatory reporting level** Conditions **G15** to **G16** inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
G15	The Mandatory Reporting Level (the MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.
G16	The holder must, as soon as practicable but 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.
G17	The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.
G18	The holder must record any changes to the MRL in the Register of Regulated Structures.

G19	**Design storage allowance** The holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to **1 July** of each year.
G20	By **1 November** of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the dam (or network of linked containment systems).
G21	The holder must, as soon as practicable but within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on **1 November** of any year, notify the administering authority.
G22	The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on **1 November** of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.
G23	**Annual inspection report** Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.
G24	At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include a recommendations section, with any recommended actions to ensure the integrity of the regulated structure or a positive statement that no recommendations are required.
G25	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)*.
G26	The holder must within **twenty (20) business days** of receipt of the annual inspection report, provide to the administering authority: (a) The recommendations section of the annual inspection report; (b) If applicable, any actions being taken in response to those recommendations; and (c) If, following receipt of the recommendations and (if applicable) recommended actions, the administering authority requests a copy of the annual inspection report from the holder, provide this to the administering authority within **ten (10) business days** of receipt of the request.
G27	**Transfer arrangements** The holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.
G28	**Register of Regulated Structures** A Register of Regulated Structures must be established and maintained by the holder for each regulated structure.
G29	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.
G30	The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with condition **G11** and **G12** has been achieved.

G31	The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.
G32	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.
G33	The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the electronic format required by the administering authority.
G34	**Transitional arrangements** All existing structures that have not been assessed in accordance with either the *Manual or the former Manual for Assessing Hazard Categories and Hydraulic Performance of Dams* must be assessed and certified in accordance with the Manual prior to **31 July 2018**.
G35	All existing structures must subsequently comply with the timetable for any further assessments in accordance with the Manual specified in **Table G1: Transitional hydraulic performance requirements for existing structures**, depending on the consequence category for each existing structure assessed in the most recent previous certification for that structure.
G36	**Table G1: Transitional hydraulic performance requirements for existing structures**, ceases to apply for a structure once any of the following events has occurred: (a) it has been brought into compliance with the hydraulic performance criteria applicable to the structure under the Manual; or (b) it has been decommissioned; or (c) it has been certified as no longer being assessed as a regulated structure.
G37	Certification of the transitional assessment required by **G34** and **G35** (as applicable) must be provided to the administering authority within **31 July 2018**.

Table G1: Transitional hydraulic performance requirements for existing structures Transition period required for existing structures to achieve the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams*

Compliance with criteria	**High consequence**	**Significant consequence**	**Low consequence**
>90% and a history of good compliance performance in last 5 years	**No transition** required	**No transition** required	No transitional conditions apply. Review consequence assessment every 7 years.
>70%-≤90%	By **30 January 2025**, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	By **30 January 2028**, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	No transitional conditions apply. Review consequence assessment every 7 years.
>50-≤70%	By **30 January 2023**, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	By **30 January 2025**, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Review consequence assessment every 7 years.
≤50%	By **30 January 2023** or as per compliance requirements (e.g. TEP timing).	By **30 January 2023** or as per compliance requirements (e.g. TEP timing).	Review consequence assessment every 5 years.
Regulated levee designed to prevent the ingress of clean flood water <100% compliant.	By **30 November 2023**, unless otherwise agreed with the administering authority.		

Note: Levees designed for the diversion of contaminated waters or protection of the structural integrity of a dam are not to be considered as part of this provision. These levees are considered a key design element of the relevant dam and transitional periods should as such align to that relevant compliance criteria and consequence category.

Schedule H: Groundwater	
Condition number	**Condition**
H1	Contaminants from the activity must not be released to groundwater.
H2	Prior to **30 September 2022**, conditions **H3** to **H14** (inclusive) only apply to the Grasstree Extension Project.
H3	From **1 October 2022**, conditions **H3** to **H14** (inclusive) will apply to all mining activities under this environmental authority.
H4	**Groundwater monitoring and management program** By **1 April 2024** a groundwater monitoring and management program (GMMP) must be developed by an appropriately qualified person(s) and implemented by the holder of the environmental authority.
H5	The GMMP required by condition **H4** must: (a) Provide a hydrogeological conceptual groundwater model in accordance with the most recent version of the '*Australian Groundwater Modelling Guidelines*' (2012); (b) Include all hydrogeological units potentially impacted by the activities authorised under this environmental authority; (c) Identify all potential sources of contamination to groundwater from the activities; (d) Identify all environmental values that may be impacted; (e) Describe the groundwater monitoring and data analysis that will be undertaken to achieve the following objectives: (i) Detect impacts to groundwater quality and standing water level (SWL) due to the activities authorised under this environmental authority; and (ii) Determine trends in groundwater quality and SWL; and (f) Document groundwater management and monitoring methodologies undertaken for the duration of all the activities authorised under this environmental authority; (g) Provide an appropriate quality assurance and quality control program; and (h) Include a review process to identify improvements to the program that includes addressing any comments provided by the administering authority.
H6	A review report for the GMMP required by **condition H5** must be produced by **31 December 2024** and every **two (2) subsequent years** and include: (a) An analysis of the all the groundwater quality and standing water level (SWL) monitoring data for all groundwater bores listed within **Table H1 – Groundwater monitoring locations and frequencies**; (b) An assessment of groundwater quality and SWL trends for all monitoring data from all groundwater bores listed in **Table H1 – Groundwater monitoring locations and frequencies**; (c) An assessment of the adequacy of the conceptual groundwater model to accurately determine contaminant transport and changes to SWL; (d) An assessment of any impacts on groundwater quality and SWL due to the mining activities;

	(e) An assessment of any interactions with, or impacts to, surface water resulting from changes to groundwater quality and SWL due to the mining activities; (f) An assessment of the adequacy of the groundwater monitoring network to assess contaminant sources and pathways for all stages of mining activities; and (g) Recommendations, if any, for the environmental authority holder to complete to address any inadequacy or impacts identified by (a) through (f) of this condition.
H7	Within **twenty-eight (28)** days of producing or receiving the review report under **condition H6**, the environmental authority holder must provide to the administering authority: (a) The review report; (b) If applicable, any actions being taken by the environmental authority holder to address the recommendations of the review report; and (c) If action is not being taken to address a recommendation, the environmental authority holder must provide justification for not taking action.
H8	By **1 April 2025,** the environmental authority holder must submit a report to the administering authority. The report must: (a) Propose groundwater quality trigger levels to replace all 'TBD's' **Table H2 – Groundwater quality limits** based on a minimum of **twelve (12)** sampling events per bore; and (b) Propose groundwater SWL triggers and other information required to populate **Table H3 – Groundwater standing water level trigger threshold** based on a minimum of **twelve (12)** measurements per bore. Note: The report required by this condition must consider the requirements of the administering authority's, or its successor's, most recent edition of the Guideline: "*Using monitoring data to assess groundwater quality and potential environmental impacts"* (DES, 2021).
H9	**Groundwater monitoring** Groundwater must be monitored at the locations and frequencies defined in **Table H1: Groundwater Monitoring Locations and Frequencies** for groundwater the quality characteristics identified in **Table H2: Groundwater Quality limits** and SWLs stated in **Table H3: Groundwater standing water level monitoring triggers.**
H10	Results of monitoring of groundwater from compliance bores identified in **Table H1 – Groundwater quality monitoring locations and frequencies**, must not exceed any of the limits defined in **Table H2 – Groundwater quality limits** on **three (3)** consecutive occasions.
H11	**Exceedance investigation – groundwater quality** If any limit specified in **Table H2 – Groundwater quality limits** are exceeded at the bores specified in **Table – H1 Groundwater quality monitoring locations and frequencies** on **three (3)** consecutive occasions, the holder of the environmental authority, after receiving results, must: (a) notify the administering authority via WaTERS within **twenty-four (24) hours;** (b) complete an investigation within **fourteen (14) days** to determine if the exceedance is result of mining activities; (c) provide a report of the investigation to the administering authority via WaTERS within **fourteen (14) days** of completion of the investigation; (d) if the investigation determines that the mining activities are a potential cause or contributor to the exceedance, then: (i) determine whether environmental harm has occurred; (ii) Any action required to mitigate the environmental harm; and (iii) Submit the water quality results to the administering authority via WaTERS.

Table H1: Groundwater Monitoring Locations and Frequencies

Monitoring Points	Location		Frequency	Groundwater level (metres below ground level)	Screened Unit
	Longitude (decimal degree, GDA94)	Latitude (decimal degree, (GDA94)			
MB1	148.618778	-22.926836	Quarterly	22.5	Permian Sediments
MB3	148.630206	-22.95625	Quarterly	37.3	Tertiary Sediments
MB4	148.624003	-23.005848	Quarterly	10.9	Permian Sediments
MB5	148.602411	-22.994075	Quarterly	31.5	Permian Sediments

Table H2: Groundwater Quality limits

Quality characteristic[1]	Unit	Contaminant trigger[2]	Source
pH	pH Units	TBD	As per condition H10
Electrical Conductivity	µS/cm	TBD	As per condition H10
Total Dissolved Solids	µg/L	No specified limit	Interpretative purposes only
Aluminium	µg/L	TBD	As per condition H10
Antimony	µg/L	TBD	As per condition H10
Arsenic	µg/L	TBD	As per condition H10
Calcium	µg/L	No specified limit	Interpretative purposes only
Chloride	mg/L	No specified limit	Interpretative purposes only
Carbonate Alkalinity	mg/L	No specified limit	Interpretative purposes only
Bicarbonate Alkalinity	mg/L	No specified limit	Interpretative purposes only
Iron	mg/L	TBD	As per condition H10
Magnesium	µg/L	No specified limit	Interpretative purposes only
Mercury	µg/L	TBD	As per condition H10
Molybdenum	µg/L	TBD	As per condition H10
Potassium	µg/L	No specified limit	Interpretative purposes only
Selenium	µg/L	TBD	As per condition H10
Silver	µg/L	TBD	As per condition H10
Sodium	µg/L	No specified limit	Interpretative purposes only
Sulphate	µg/L	TBD	As per condition H10
Total Recoverable Hydrocarbons (C6-10)	µg/L	20	For aquatic ecosystem protection, based on LOR[3] for GCMS/GCFID[4]
Total Recoverable Hydrocarbons (C10-C40)	µg/L	50	For aquatic ecosystem protection, based on LOR for GCMS/GCFID

1 All quality characteristics must be measured in dissolved and total fractions

2 Limits apply to dissolved (bioavailable) fraction

[3] LOR – typical reporting for method stated. ICPMS/ GCMS – analytical method required to achieve LOR

[4] GCMS - Gas chromatography–mass spectrometry / GCFID – Gas chromatography–flame ionization detection

H12	**Exceedance investigation - SWL** If the level trigger thresholds specified in **Table H3: Groundwater standing water level monitoring triggers** are exceeded at the bores specified, the holder of the environmental authority, after receiving results must: (a) notify the administering authority via WaTERS within **twenty-four (24) hours;** (b) complete an investigation into the cause of the exceedance within ten (10) business days; (c) if the investigation determines that the mining activities are a potential cause or contributor to the exceedance: (i) notify the administering authority via WaTERS within **twenty-four (24) hours** of making the determination; (ii) Identify any impacts to environmental values and/or water users as a result of the exceedance; and (iii) Take immediate actions to mitigate any identified impacts and notify the administering authority of when action has been completed..

Table H3: Groundwater standing water level monitoring triggers:

Monitoring bore	**Surface RL (mAHD)**	**Screened interval**		**Baseline water level (mAHD)**	**Level trigger threshold – end of mining drawdown**
		From	**To**		
MB1					
MB3					
MB4					
MB5					

H13	**Groundwater monitoring** The following information must be recorded in relation to all groundwater water sampling: (a) the date on which the sample was taken; (b) the time at which the sample was taken; (c) the monitoring point at which the sample was taken; (d) the results of all monitoring; (e) groundwater levels; and (f) sampling methodology.
H14	Water sampling undertaken in accordance with the requirements of this environmental authority must comply with the methods set out in the administering authority's *Water Quality Sampling Manual* as amended from time to time and consider the methodology and matters stated in administering authority's guideline: *Using monitoring data to assess groundwater quality and potential environmental impacts* as amended from time to time.
H15	**Bore construction and maintenance and decommissioning** The construction, maintenance, management and decommissioning of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring.

Schedule I: Sewage Treatment	
Condition number	**Condition**
I1	The only contaminant permitted to be released to land is treated sewage effluent in compliance with the release limits stated in **Table I1 - Contaminant Release Limits to Land**.

Table I1 - Contaminant Release Limits to Land

Contaminant	Unit	Release limit	Limit type	Frequency
5 day Biochemical oxygen demand (BOD)1	mg/L	20	Maximum	Monthly
Total suspended solids	mg/L	30	Maximum	Monthly
Nitrogen	mg/L	60	Maximum	Monthly
Phosphorus	mg/L	15	Maximum	Monthly
E-coli	Organisms/100ml	1000	Maximum	Monthly
pH	pH units	6.0 – 9.0	Range	Monthly

I2	Treated sewage effluent must only be released to land within the irrigation areas identified in **Appendix 2A - Effluent Disposal – German Creek STP**, **Appendix 2B - Effluent Disposal – Grasstree West and Aquila STP**, or **Appendix 2C - Effluent Disposal – Grasstree East STP**.
I3	Notwithstanding condition **I2**, treated sewage effluent may be released to land for the purposes of dust suppression and/or firefighting.
I4	For the German Creek STP, a minimum area of **six (6) hectares** of land, excluding any necessary buffer zones, must be utilised for the irrigation of treated sewage effluent at the location identified in **Appendix 2A - Effluent Disposal – German Creek STP.**
I5	For the Grasstree West and Aquila STP, a minimum area of **two (2) hectares** and **(11) hectares** of land respectively, excluding any necessary buffer zones, must be utilised for the irrigation of treated sewage effluent at the locations identified in **Appendix 2B - Effluent Disposal – Grasstree West and Aquila STP.**
I6	For the Grasstree East STP, a minimum area of **six (6) hectares** of land, excluding any necessary buffer zones, must be utilised for the irrigation of treated sewage effluent at the location identified in **Appendix 2C - Effluent Disposal – Grasstree East STP.**
I7	The application of treated effluent to land must be carried out in a manner such that: (a) vegetation is not damaged; (b) there is no surface ponding of effluent; and (c) c) there is no run-off of effluent to waters.
I8	If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present and care should be taken to avoid consuming or otherwise coming into unprotected contact with the effluent.
I9	All sewage effluent released to land must be monitored at the frequency and for the parameters specified in **Table I1 - Contaminant Release Limits to Land,** and samples taken at the point where the treated sewage effluent is released from the sewage treatment plant/s.

I10	The daily volume of effluent released to land must be measured and records kept of the volumes of effluent released.
I11	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.
I12	Treated sewage effluent must only be supplied to another person or organisation that has a written plan detailing how the user of the treated sewage effluent will comply with their general environmental duty under section 319 of the *Environmental Protection Act 1994* whilst using the treated sewage effluent.

Schedule J: Offsets	
Condition number	**Condition**
J1	Conditions **J2** to **J7** apply only to the area of disturbance associated with the Grasstree Extension project as displayed in *Appendix 3: Grasstree Extension Area of Disturbance*.
J2	Significant residual impacts to prescribed environmental matters are not authorised under this environmental authority or the *Environmental Offsets Act 2014* unless the impacts are specified in **Table J1 - Significant residual impacts to prescribed environmental matters** and displayed in *Appendix 3: Grasstree Extension Area of Disturbance*.
J3	Records demonstrating that each impact to a prescribed environmental matter not listed in **Table J1 - 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.
J4	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 authorised in **Table J1 - Significant residual impacts to prescribed environmental matters**, unless a lesser extent of the impact has been approved in accordance with condition **J7**.
J5	**Staged Impacts** The significant residual impacts to a prescribed environmental matter authorised in condition **J6** for which an environmental offset is required by condition **J4** may be carried out in stages. An environmental offset can be delivered for each stage of the impacts to prescribed environmental matters.
J6	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.
J7	The report required by condition **J6** must be approved by the administering authority before a notice of election for the forthcoming stage, if applicable, is given to the administering authority.
J8	A notice of election for the staged environmental offset referred to in condition **J7**, 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.
J9	Within six (6) 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.

Table J1 - Significant residual impacts to prescribed environmental matters

Prescribed environmental matter	Location of impact	Offset Requirement under *Environmental Offsets Act 2014*	Maximum extent of impact (ha)
REGULATED VEGETATION			
Of concern regional ecosystem – RE11.5.18	Grasstree Extension Project area (as shown in Appendix 3)	Yes	12.7
Of concern regional ecosystem – RE11.9.7	Grasstree Extension Project area (as shown in Appendix 3)	Yes	46.6
Regional ecosystems within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map – RE 11.5.3 and BVG 17a.	Grasstree Extension Project area (as shown in Appendix 3)	Yes	4.3
Endangered regional ecosystem – RE 11.4.9	Grasstree Extension Project area (as shown in Appendix 3)	No[1]	2.6
Endangered regional ecosystem – RE 11.9.5	Grasstree Extension Project area (as shown in Appendix 3)	No[1]	5.4
Protected flora species			
Habitat for flora species that is Threatened flora species – *Solanum Ascophyllum*	Grasstree Extension Project area (as shown in Appendix 3)	Yes	0.5
Protected wildlife habitat			
Habitat for an animal that is Vulnerable Wildlife – Koala (*Phascolarctos cinereus*)	Grasstree Extension Project area (as shown in Appendix 3)	No[1]	163.5
Habitat for an animal that is Vulnerable Wildlife – Greater Glider (*Petauroides volans*)	Grasstree Extension Project area (as shown in Appendix 3)	No[1]	2.7
Habitat for an animal that is Vulnerable Wildlife – Squatter Pigeon (Southern) (*Geophaps scripta scripta*)	Grasstree Extension Project area (as shown in Appendix 3)	No[1]	2.0

Note1: This matter is addressed in the Environment Protection and Biodiversity Conservation Act 1999 referral for the Grasstree Extension project (EPBC 2018/8171).

Definitions

Key terms and/or phrases used in this document are defined in this section. Applicants should note that 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.

"acceptance criteria" means the measures by which the actions implemented to rehabilitate the land are deemed to be complete. The acceptance criteria indicate the success of the rehabilitation outcome or remediation of areas which have been significantly disturbed by the mining activities. Acceptance criteria may include information regarding:

a) vegetation establishment, survival and succession;
b) vegetation productivity, sustained growth and structure development;
c) fauna colonisation and habitat development;
d) ecosystem processes such as soil development and nutrient cycling, and the recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;
e) microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;
f) effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;
g) resilience of vegetation to disease, insect attack, drought and fire; and
h) vegetation water use and effects on ground water levels and catchment yields.

"acid rock drainage" means any contaminated discharge 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 mining activities.

"administering authority" is the agency or department that administers the environmental authority provisions under the *Environmental Protection Act 1994*.

"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.

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

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

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

a) against recommendations contained in previous annual inspections reports;

b) against recognised dam safety deficiency indicators;

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

d) for conformance with the conditions of this authority;

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

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

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

"ANZECC" means the *Australian and New Zealand Guidelines for Fresh Marine Water Quality 2000.*

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

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

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

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

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

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

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

a) operations of any kind and all things constructed, erected or installed for that dam; and
b) any land used for those operations.

"authority" means environmental authority or a development approval.

"bed and banks" for a waters, river, creek, stream, lake, lagoon, pond, swamp, wetland or dam means land over which the water of the waters, lake, lagoon, pond, swamp, wetland or dam normally flows or that is normally covered by the water, whether permanently or intermittently; but does not include land adjoining or adjacent to the bed and banks that is from time to time covered by floodwater.

"beneficial use" in respect of dams means that the current or proposed owner of the land on which a dam stands, has found a use for that dam that is:

a) of benefit to that owner in that it adds real value to their business or to the general community;

b) in accordance with relevant provisions of the *Environmental Protection Act 1994*;

c) sustainable by virtue of written undertakings given by that owner to maintain that dam; and

d) the transfer and use have been approved or authorised under any relevant legislation

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

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

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

"certification" means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by this manual, including design plans, 'as constructed' drawings and specifications, construction, operation or an annual report regarding regulated structures, undertaken in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQs (ID: 1.4 (2A)).

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

"chemical" means –

a) an agricultural chemical product or veterinary chemical product within the meaning of the *Agricultural and Veterinary Chemicals Code Act 1994* (Commonwealth); or

b) a dangerous good under the dangerous goods code; or

c) a lead hazardous substance within the meaning of the *Workplace Health and Safety Regulation 2008*; or

d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers' Advisory Council and published by the Commonwealth; or

e) any substance used as, or intended for use as –

    i) a pesticide, insecticide, fungicide, herbicide, rodenticide, nematicide, miticide, fumigant or related product; or

ii) a surface active agent, including, for example, soap or related detergent; or

iii) a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or

iv) a fertiliser for agricultural, horticultural or garden use; or

f) a substance used for, or intended for use for –

i) mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or

ii) manufacture of plastic or synthetic rubber.

"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.

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

"consequence category" means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)*.

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

"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.

"cover material" means any soil or rock suitable as a germination medium or landform armouring.

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

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

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

"design storage allowance" or "DSA" means an available volume, estimated in accordance with the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)* published by the administering authority, must be provided in a 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.

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

"disturbance" of land includes:

a) compacting, removing, covering, exposing or stockpiling of earth;

b) removal or destruction of vegetation or topsoil or both to an extent where the land has been made susceptible to erosion;

c) carrying out mining within a watercourse, waterway, wetland or lake;

d) the submersion of areas by tailings or hazardous contaminant storage and dam/structure walls;

e) temporary infrastructure, including 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 has ceased; or

f) releasing of contaminants into the soil, or underlying geological strata.

However, the following areas are not included when calculating areas of 'disturbance':

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

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

c) by agreement with the administering authority, areas previously 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; and

e) disturbance that pre-existed the grant of the tenure.

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

"drilling waste" means drill muds, cuttings and associated water produced during exploration activities.

"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 discharged from sewage treatment plants (STPs).

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

"existing structure" means a structure that prior to 30 January 2018 meets any or both of the following, a structure:

a) with a design that is in accordance with the administering authority's earlier versions of the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures and that is considerably in progress; or

b) that is under considerable construction or that is constructed.

"floodwater" means water overflowing, or that has overflowed, from waters, river, creek, stream, lake, pond, wetland or dam onto or over riparian land that is not submerged when the watercourse or lake flows between or is contained within its bed and banks.

"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.

"FRREMP" means a Fitzroy Basin Receiving Environment Monitoring Program for the region in which the EA is located, that has been endorsed in writing by the administering authority.

"general waste" means waste other than regulated waste.

"German Creek Mining Leases" means ML 1831, ML1894, ML1998 and ML70047, including the Grasstree Extension Project.

"**Grasstree Extension Project**" underground longwall panels LW911, LW912, LW808, LW809 and LW810 and associated surface infrastructure as shown in Appendix 3: Grasstree Extension Area of Disturbance.

"holder" for a mining tenement, means a holder of the tenement under the *Mineral Resources Act 1989,* and the holder of the associated environmental authority under the *Environmental Protection Act 1994*.

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

"**Inert Cover Material**" means material that is not acid forming.

"Inert waste' means—
a) bricks, pavers, ceramics, concrete, glass or steel; or
b) similar general waste that does not biodegrade or decompose.

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

"lake" includes –

a) lagoon, swamp or other natural collection of water, whether permanent or intermittent; and

b) the bed and banks and any other element confining or containing the water.

"land" in the 'land schedule' of this document means land excluding waters and the atmosphere, that is, the term has a different meaning from the term as defined in the *Environmental Protection Act 1994*. For the purposes of the *Acts Interpretation Act 1954*, it is expressly noted that the term 'land' in this environmental authority relates to physical land and not to interests in land.

"land capability" 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.

"landfill" means land used as a waste disposal site for lawfully putting solid waste on the land.

"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.

"limit of reporting" or "LOR" means typical reporting for method stated. ICPMS/CV FIMS – analytical method required to achieve LOR.

"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.

"mg/L" means milligrams per litre.

"mine affected water":

a) means the following types of water:

i) pit water, tailings dam water, processing plant water;

ii) water contaminated by a mining activity which would have been an environmentally relevant activity under Schedule 2 of the *Environmental Protection Regulation 2008* if it had not formed part of the mining activity ;

iii) rainfall runoff which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated, excluding rainfall runoff discharging through release points associated with erosion and sediment control structures that have been installed in accordance with the standards and requirements of an Erosion and Sediment Control Plan to manage such runoff, provided that this water has not been mixed with pit water, tailings dam water, processing plant water or workshop water;

iv) groundwater which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated;

v) groundwater from the mine's dewatering activities;

vi) a mix of mine affected water (under any of paragraphs i)-v) and other water.

b) does not include surface water runoff which, to the extent that it has been in contact with areas disturbed by mining activities that have not yet been completely rehabilitated, has only been in contact with:

i) land that has been rehabilitated to a stable landform and either capped or revegetated in accordance with the acceptance criteria set out in the environmental authority but only still awaiting maintenance and monitoring of the rehabilitation over a specified period of time to demonstrate rehabilitation success, or

ii) land that has partially been rehabilitated and monitoring demonstrates the relevant part of the landform with which the water has been in contact does not cause environmental harm to waters or groundwater, for example:

a. areas that have been capped and have monitoring data demonstrating hazardous material adequately contained with the site;

b. evidence provided through monitoring that the relevant surface water would have met the water quality parameters for mine affected water release limits in this environmental authority, if those parameters had been applicable to the surface water runoff, or

iii) both

"modification" or **"modifying"** – see definition of 'construction'.

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

"**Oak Park Mining Lease**" means ML70311.

"operational land" means the land associated with the project for which this environmental authority has been issued.

"operational plan" includes:

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

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.

"Participant of the FRREMP" means an environmental authority holder that is identified as a current participant by the organisation carrying out the Regional REMP.

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

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

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

g) The design plan title and reference relevant to the 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 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) 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;
b) a sump or earthen pit used to store residual drilling material and drilling fluid only for the duration of drilling and well completion activities;
c) a flare pit.

"regulated waste" has the same meaning as Environmental Protection Regulation 2019, *section 42*.

"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 influence period" means the period during which the downstream monitoring points are influenced by mine affected water releases and includes both the duration of the release and any lag time between release points and corresponding downstream monitoring points**.**

"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 activities.

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

"residual void" means an open pit 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.

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

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

"sensitive place" means:

a) 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 2004* or a World Heritage Area; or

f) a public park or gardens.

Note: The definition of 'sensitive place' and 'commercial place' is based on Schedule 1 of EPP Noise. That is, a sensitive place is inside or outside of a dwelling, library and educational institution, childcare or kindergarten, school or playground, hospital, surgery or other medical institution, commercial & retail activity, protected area or an area identified under a conservation plan under *Nature Conservation Act 1992* as a critical habitat or an area of major interest, marine park under *Marine Parks Act 2004*, park or garden that is outside of the mining lease and open to the public for the use other than for sport or organised entertainment. A commercial place is inside or outside a commercial or retail activity.
A mining camp (i.e. accommodation and ancillary facilities for mine employees or contractors or both, associated with the mine the subject of the environmental authority) is not a sensitive place for that mine or mining project, whether or not the mining camp is located within a mining tenement that is part of the mining project the subject of the environmental authority. For example, the mining camp might be located on neighbouring land owned or leased by the same company as one of the holders of the environmental authority for the mining project, or a related company.
Accommodation for mine employees or contractors is not a sensitive place if the land is held by a mining company or related company, and if occupation is restricted to the employees, contractors and their families for the particular mine or mines which are held by the same company or a related company. For example, a township (occupied by the mine employees, contractors and their families for multiple mines that are held by different companies) would be a sensitive place, even if part or all of the township is constructed on land owned by one or more of the companies.

"sewage" means the used water of person's to be treated at a sewage treatment plant (STP).

"SMD" means slightly moderately disturbed level of protection, guideline refers ANZECC & ARMCANZ (2000).

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

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

"stormwater" means all surface water runoff from rainfall.

"structure" means dam or levee.

"**suitably qualified and experienced person"** means a person who is a Registered Professional Engineer of Queensland under the provisions of the Professional Engineers Act 2002, who has an appropriate level of expertise in the structures, geomechanics, hydrology, hydraulics and environmental impact of watercourse diversions.
An ***appropriate level of expertise*** includes:

- demonstrable competency, experience and expertise in:

  - investigation, design or construction of watercourses diversions
  - operation and maintenance of watercourse diversions
  - geomechanics with particular emphasis on channel equilibrium, geology and geochemistry
  - hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology
  - hydraulics with particular reference to sediment transport and deposition and erosion control
  - hydrogeology with particular reference to seepage and groundwater
  - solute transport processes and monitoring thereof, or
- sufficient knowledge and experience to certify that where the **suitably qualified and experienced person** has relied on advice and information provided by other **persons with relevant expertise***:
  - they consider it reasonable to rely on that advice and information
  - the expert providing the advice and information has knowledge, competency, suitable experience and demonstrated expertise in the matters related to watercourse diversions.

Persons with relevant expertise include:

- Geomorphologist: person who has demonstrated competency and relevant experience in stream geomorphology and watercourse diversions.
- Geotechnical Expert: person who has demonstrated competency and relevant experience in geotechnical assessment of soil characteristics suitable for watercourse diversions.
- Vegetation Expert: person who has demonstrated competency and relevant experience in the identification, role and function of vegetation with watercourses and adjoining floodplains, and has demonstrated competency and relevant experience in revegetation of watercourse diversions and adjoining floodplains.
- Groundwater Expert: person who has demonstrated competency and relevant experience in groundwater systems.
- Surface Water Expert: person who has demonstrated competency and relevant experience in hydrology.
- Engineer: person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the Professional Persons Act 2002 or has similar qualifications under a respected professional registration association, and has demonstrated competency and relevant experience in design and construction of watercourse diversions.
- Soils Expert: person who has demonstrated competency and relevant experience in soil classification including the physical, chemical and hydrologic analysis of soil.

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

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

"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

"μg/L" means micrograms per litre

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

"waste" has the same meaning as the Waste Reduction and Recycling Act 2011, section 8AA.

"water" is defined under Schedule 4 of the *Water Act 2000*.

"waste water" means used water from the activity, process water or contaminated storm water.

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

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

1) A river creek or stream in which water flows permanently or intermittently-
   a) In a natural channel, whether artificially improved or not; or
   b) In an artificial channel that has changed the course of the watercourse.
2) Watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.

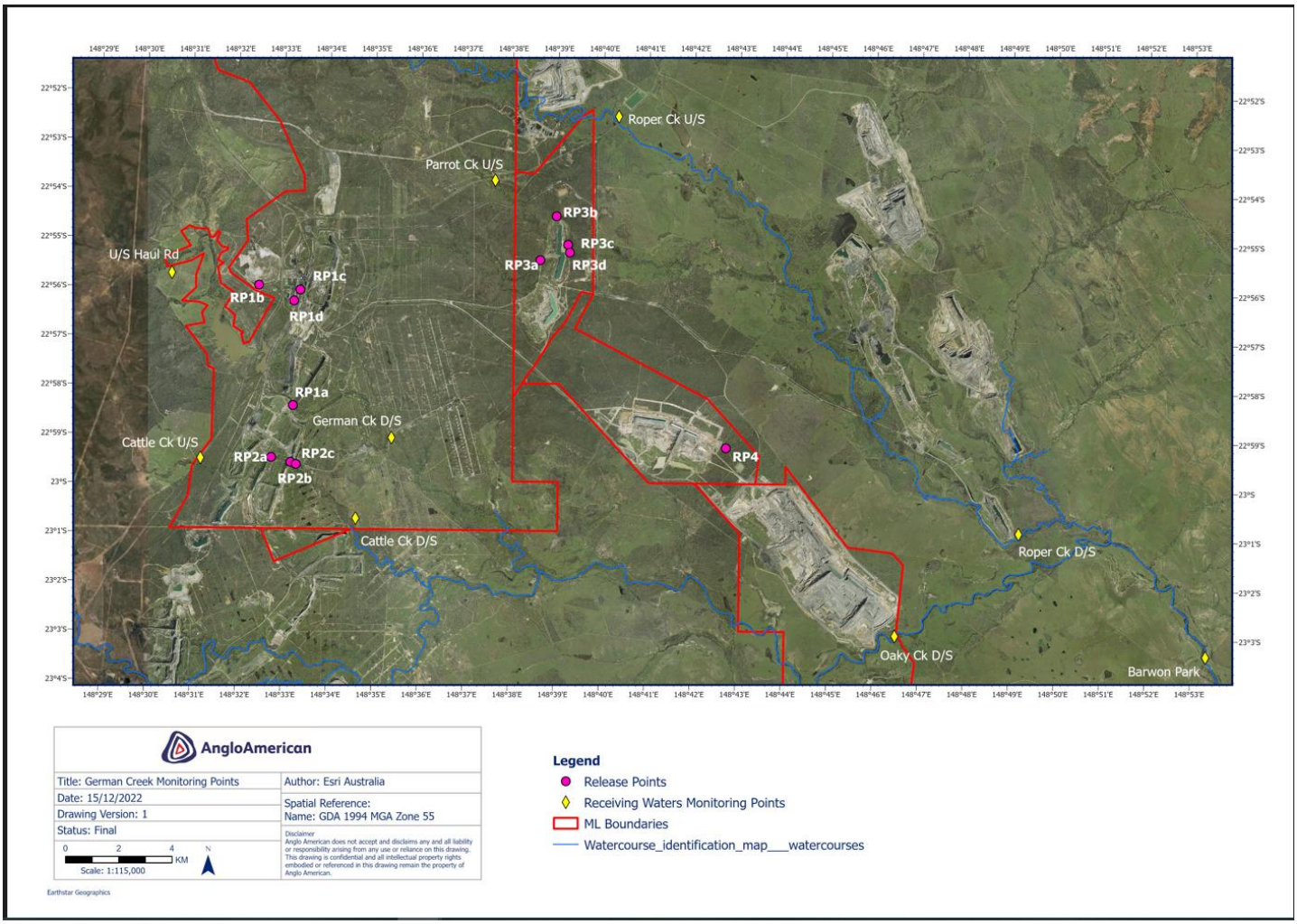
"waters" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), storm water channel, storm water drain and groundwater and any part thereof.

"**WaTERS**" means the Queensland Governments WaTERs database system.

"**year**" has the same meaning as s18 of the *Environmental Protection Regulation 2019.*

END OF DEFINITIONS

Appendix 1 – Release Points (RPs) and Monitoring Points (MPs) for German Creek Mine

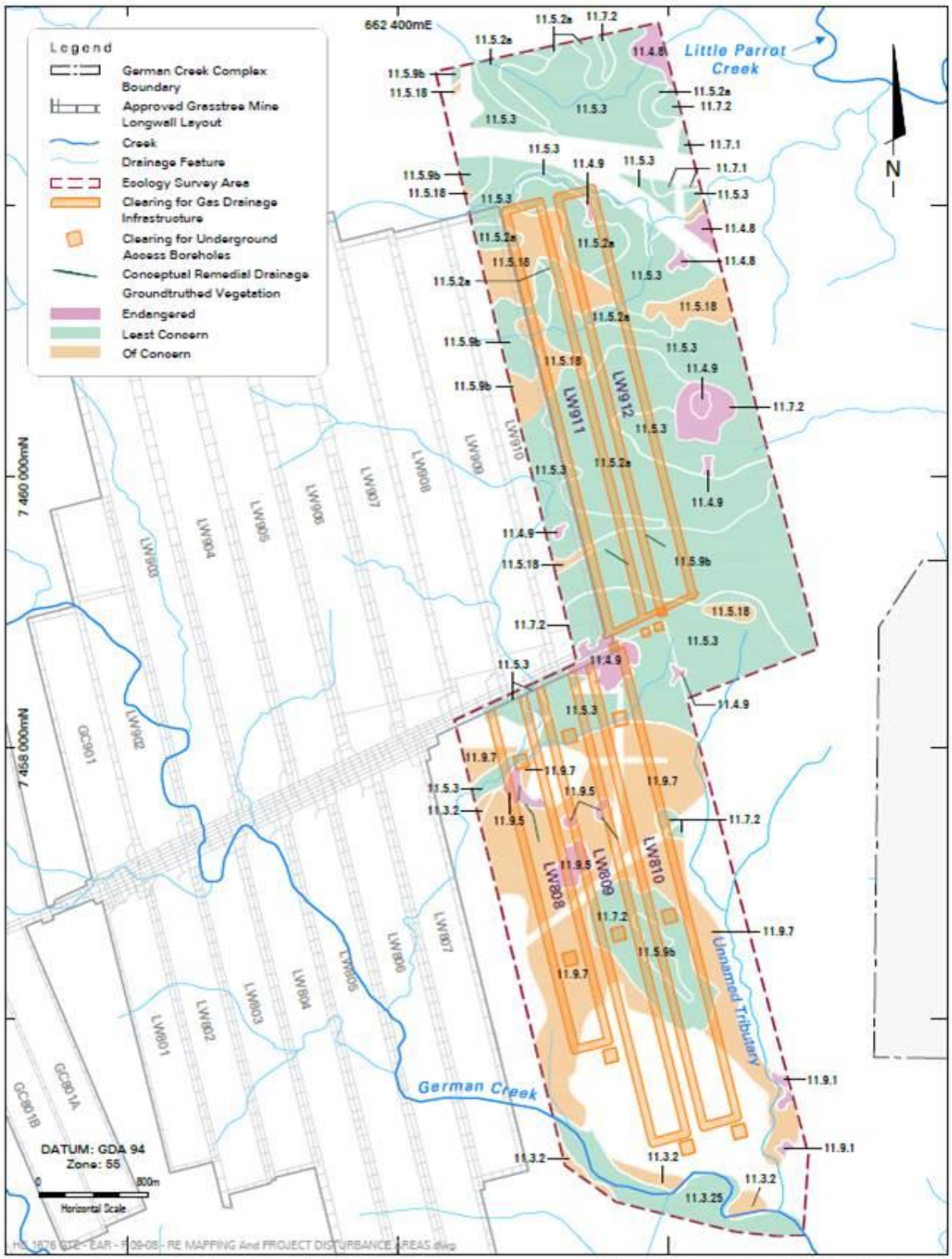


Appendix 2A - Effluent Disposal – German Creek STP

Appendix 2B - Effluent Disposal – Grasstree West and Aquila STP

Appendix 2C - Effluent Disposal – Grasstree East STP

Appendix 3: Grasstree Extension Area of Disturbance



GRASSTREE EXTENSION PROJECT

Regional Ecosystem Mapping (Ground Truthed) and the Project Disturbance Areas

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