Environmental authority EPML00340213 – Broadlea North Coal Project

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

Environmental authority number: EPML00340213

Environmental authority takes effect on 8 August 2019

Environmental authority holder(s)

Name(s)	Registered address
Fitzroy (CQ) Pty Ltd	Comalco Place Level 14, 12 Creek St BRISBANE CITY QLD 4000 Australia
Nebo Central Coal Pty Ltd	Level 11, 100 Creek Street BRISBANE CITY QLD 4000

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Environmental Protection Regulation 2008, Schedule 2A: ERA 13 Mining black coal **Environmental Protection Regulation 2008, Schedule 2:** ERA 8 Chemical Storage, 1: Storing a total of 50t or more of chemicals of dangerous goods class 1 or class 2, division 2.3 under subsection (1)(a). ERA 60 Waste disposal, 2: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(b), (a) 50t to 2000t.	ML70345 ML70338

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.

	8 August 2019
Signature	Date

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

Enquiries:
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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	This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.
A2	**Estimated Rehabilitation Cost (ERC)** The holder must not carry out, or allow the carrying out of the activity under this authority unless – a) an ERC decision is in effect for the activity when the activity is carried out; and b) the holder has paid a contribution to the scheme fund or given a surety for the authority under the *Mineral and Energy Resources (Financial Provisioning) Act 2018*; and c) the holder has complied with the requirements under the *Mineral and Energy Resources (Financial Provisioning) Act 2018* for paying a contribution to the scheme fund, or giving a surety for the authority, as required from time to time.
A3	**New ERC decision before expiry** When an ERC decision is in force for this environment authority, the environmental authority holder must apply, under section 298 of the *Environmental Protection Act 1994*, for a new ERC decision, at least **three (3) months** before the ERC period to which the decision relates ends.
A4	**When holder must re-apply for ERC decision** When an ERC decision is in force for this environmental authority, the environmental authority holder must re-apply within **ten (10) business days** under section 298 of the *Environmental Protection Act 1994* for an ERC decision when: a) there is an increase in the likely maximum amount of disturbance to the environment as a result of the holder carrying out the resource activity; or b) there is a change relating to the carrying out of the resource activity that may result in an increase in the ERC for the resource activity.
A5	**Coal extraction** The environmental authority holder is approved for a coal extraction rate of up to **1.9 million tonnes per annum (Mtpa)** of run-of-mine (ROM) ore in accordance with this environmental authority.
A6	**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; d) ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

A7	**Monitoring and records** Except where specified otherwise in another condition of this environmental authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than **five (5) years**.
A8	Upon request from the administering authority, copies of monitoring records and reports must be made available and/or provided to the administering authority's nominated office within **10 business days** or by an alternative timeframe agreed between the administering authority and the holder.
A9	**Notification of emergencies, incidents and exceptions** The holder of this environmental authority must notify the administering authority by written notification within **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.
A10	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; c) proposed actions to prevent a recurrence of the emergency or incident.
A11	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 (2) 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 **Condition G37**, the time specified in that condition; and 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.
A12	**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.

Schedule B – Air	
Condition number	**Condition**
B1	**Dust nuisance** The release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nuisance, at any sensitive or commercial place.
B2	When requested by the administering authority or as a result of a complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer), dust and particulate monitoring must be undertaken, and the results thereof notified to the administering authority within **fourteen (14) days** following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place. Dust and particulate matter must not exceed the following levels when measured at any nuisance sensitive or commercial place: a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with *AS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method of 1991* (or most recent editions); and b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM10) suspended in the atmosphere of 150 micrograms per cubic metre over a 24 hour averaging time, at a sensitive or commercial place downwind of the operational land, when monitored in accordance with: i. particulate matter - Determination of suspended particulate PM10 high-volume sampler with size-selective inlet - Gravimetric method, when monitored in accordance with AS 3580.9.6 *Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM (sub) 10 high volume sampler with size-selective inlet - Gravimetric method of 1990*; and any alternative method of sampling PM10, which may be permitted by the current edition of '*Air Quality Sampling Manual'* as published by the administering authority.

B3	If monitoring indicates exceedance of the relevant limits in **Condition B2**, then the environmental authority holder must investigate whether the exceedance is due to emissions of dust from the activity. If the mining activity is found to be the cause of the exceedance then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.
B4	**Odour nuisance** The release of noxious or offensive odour(s) or any other noxious or offensive airborne contaminant(s) resulting from the mining activity must not cause an environmental nuisance at any nuisance sensitive or commercial place**.**
B5	When requested by the administering authority, odour monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within **fourteen (14) days** to the administering authority following completion of monitoring.
B6	If the administering authority determines the odour released to constitute an environmental nuisance, then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement odour abatement measures so that emissions of odour from the activity do not result in further environmental nuisance

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 as a result of the authorised mining activities, 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 water 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: Figure 1 – Release Points (RP) and Monitoring Points (MP) for Broadlea North Coal Project** attached to this environmental authority.
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 **Conditions C32** to **C37** inclusive is permitted.

Table C1: Mine affected water release points, sources and receiving waters

Release Point (RP)	Easting (GDA94)	Northing (GDA94)	Contaminant Source and Location	Monitoring Point	Receiving waters description
RP 1	622465	7576532	Broadlea Truck Fill Dam or V1 Pit	Broadlea Truck Fill Dam or V1 Pipeline Sample Point	Smokey Creek

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.

Table C2: Mine affected water release limits

Quality Characteristic	Release Limits	Monitoring frequency	Comment
Electrical conductivity (uS/cm)	Release limits specified in Table 4 for variable flow criteria.	Daily during release (the first sample must be taken within 2 hours of commencement of release)	
pH (pH Unit)	6.0 (minimum) 9.0 (maximum)	Daily during release (the first sample must be taken within 2 hours of commencement of release)	
Suspended Solids (mg/L)	550mg/L	Daily during release* (first sample must be taken within 2 hours of commencement of release)	Suspended solids are required to measure the performance of sediment and erosion control measures.
Sulphate (SO_4^{2-}) (mg/L)	Release limits specified in Table 4 for variable flow criteria.	Daily during release* (first sample must be taken within 2 hours of commencement of release)	Drinking water environmental values from NHMRC 2006 guidelines OR ANZECC.

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.*

Table C3: Release contaminant trigger investigation levels (Potential Contaminants)

Quality Characteristic	Trigger Levels (µg/L)	Monitoring Frequency
Aluminium	100	Commencement of release and thereafter weekly during release
Arsenic	13	
Cadmium	0.2	
Chromium	1	
Copper	2	
Iron	300	
Lead	10	
Mercury	0.2	
Nickel	11	
Zinc	8	
Boron	370	
Cobalt	90	
Manganese	1900	
Molybdenum	34	
Selenium	10	
Silver	1	
Uranium	1	
Vanadium	10	
Ammonia	900	
Nitrate	1100	
Petroleum hydrocarbons (C6-C9)	20	
Petroleum hydrocarbons (C10-C36)	100	
Fluoride (total)	2000	

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** can be reviewed once the results of two years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk, and it may be determined that a reduced monitoring frequency is appropriate or that certain quality characteristics can be removed from **Table C3** by amendment.*

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

4. LOR – typical reporting for method stated. ICPMS/CV FIMS – analytical method required to achieve LOR.

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: 1. where the trigger values are not exceeded then no action is to be taken; or 2. where the downstream results exceed the trigger values specified in **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; a) if the result is less than the background monitoring site data, then no action is to be taken; or b) 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: 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* ***C6 2(b)*** *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 2(b)** is identified, the holder of the authority must notify the administering authority 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 C4: Mine affected water release during flow events**.
C9	Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with **Condition C2** must only take place during periods of natural flow events in accordance with the receiving water flow criteria for discharge specified in **Table C4: Mine affected water release during flow events** for the release point(s) specified in **Table C1: Mine affected water release points, sources and receiving waters.**
C10	The release of mine affected water to waters in accordance with **Condition C2** must not exceed the Electrical Conductivity and Sulphate release limits or the Maximum Release Rate (for all combined release point flows) for each receiving water flow criteria for discharge specified in **Table C4: Mine affected water release during flow events** when measured at the monitoring points specified in **Table C1: Mine affected water release points, sources and receiving waters**.

Table C4: Mine affected water release during flow events

Receiving waters/ stream	Release Point (RP)	Gauging station	Gauging Station Easting (GDA94)	Gauging Station Northing (GDA94)	Receiving Water Flow Recording Frequency	Receiving Water Flow Criteria for discharge (m^3/s)	Maximum release rate (for all combined RP flows)	Electrical Conductivity and Sulphate Release Limits
Smokey Creek	RP71	GS1	0622969	7577360	Continuous (minimum daily)	**Low Flow** **<**0.2 m^3/s and for a period of 28 days after natural flow events that exceed 0.2 m^3/s	0.2 m^3/s	EC (uS/cm): 750 (SO_4^{2-}):700 mg/L
						Medium Flow 0.2 m^3/s	0.3 m^3/s	EC (uS/cm) : 1500 (SO_4^{2-}):700 mg/L
						Medium Flow **0.35** m^3/s	0.13 m^3/s	EC (uS/cm) : 3000 (SO_4^{2-}):700 mg/L
						Medium Flow **0.5** m^3/s	0.75 m^3/s	EC (uS/cm) : 1500 (SO_4^{2-}):700 mg/L
						Medium Flow **0.5** m^3/s	0.15 m^3/s	EC (uS/cm) : 3500 (SO_4^{2-}):700 mg/L
						Medium Flow **0.75** m^3/s	1.13 m^3/s	EC (uS/cm) : 1500 (SO_4^{2-}):700 mg/L
						Medium Flow **0.75** m^3/s	0.23 m^3/s	EC (uS/cm) : 3500 (SO_4^{2-}):700 mg/L
						Medium Flow **1.0** m^3/s	1.5 m^3/s	EC (uS/cm) : 1500 (SO_4^{2-}):700 mg/L
						Medium Flow **1.0** m^3/s	0.3 m^3/s	EC (uS/cm) : 3500 (SO_4^{2-}):700 mg/L
						Medium Flow **1.0** m^3/s	0.19 m^3/s	EC (uS/cm) : 5000 (SO_4^{2-}):700 mg/L
						Medium Flow **1.25** m^3/s	1.88 m^3/s	EC (uS/cm) : 1500 (SO_4^{2-}):700 mg/L
						Medium Flow **1.25** m^3/s	0.38 m^3/s	EC (uS/cm) : 3500 (SO_4^{2-}):700 mg/L
						Medium Flow **1.25** m^3/s	0.23 m^3/s	EC (uS/cm) : 5000 (SO_4^{2-}):700 mg/L
						Medium Flow **1.5** m^3/s	2.25 m^3/s	EC (uS/cm) : 1500 (SO_4^{2-}):700 mg/L
						Medium Flow **1.5** m^3/s	0.45 m^3/s	EC (uS/cm) : 3500 (SO_4^{2-}):700 mg/L
						Medium Flow **1.5** m^3/s	0.28 m^3/s	EC (uS/cm) : 5000 (SO_4^{2-}):700 mg/L
						High Flow 2.0 m^3/s	0.75 m^3/s	EC (uS/cm) : 3000 (SO_4^{2-}):700 mg/L
						High Flow 2.0 m^3/s	0.375 m^3/s	EC (uS/cm) : 5000 (SO_4^{2-}):700 mg/L
						High Flow 2.0 m^3/s	0.25 m^3/s	EC (uS/cm) : 7000 (SO_4^{2-}):700 mg/L

						High Flow 2.0 m^3/s	0.17 m^3/s	EC (uS/cm) : 10000 (SO_4^{2-}):700 mg/L
						High Flow **3.0** m^3/s	0.56 m^3/s	EC (uS/cm) : 5000 (SO_4^{2-}):700 mg/L
						High Flow **3.0** m^3/s	0.37 m^3/s	EC (uS/cm) : 7000 (SO_4^{2-}):700 mg/L
						High Flow **3.0** m^3/s	0.25 m^3/s	EC (uS/cm) : 10000 (SO_4^{2-}):700 mg/L

C11	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.**
C12	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.
C13	**Notification of release event** The environmental authority holder must notify the administering authority via WaTERS 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).
C14	The environmental authority holder must notify the administering authority 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 C14** 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 Agency Interest: 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 C14*** *and* ***C15****, provided the relevant details of the release are included within the notification provided in accordance with* ***Conditions C14*** *and* ***C15****.*
C15	**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 within **twenty-four (24) hours** of receiving the results.

C16	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 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.
C17	**Monitoring of Water Storage Quality** Water storages stated in **Table C5: Water storage monitoring** which are associated with the release points 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	Easting (GDA94)	Northing (GDA94)	Monitoring Location	Frequency of Monitoring
V1 Pit	0619741	7578162	Ramp	Quarterly
Broadlea Truck Fill Dam	0621700	7577253	Truck Fill Intake	

C18	In the event that waters 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.

Table C6: Onsite water storage contaminant limits

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

Notes: *[1] Contaminant limit based on ANZECC & ARMCANZ (2000) stock water quality guidelines.*

[2] Page 4.2-4.15 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

C19	**Receiving environment monitoring and contaminant trigger levels** The quality of the receiving waters must be monitored at the 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 – 8.5	Daily during the release
Electrical Conductivity (μS/cm)	1000	
Suspended solids (mg/L)	550	
Sulphate (SO_4^{2-}) (mg/L)	700	

Table C8: Receiving water upstream background sites and downstream monitoring points

Monitoring Points	Receiving Waters Location Description	Easting (GDA94)	Northing (GDA94)
Upstream Background Monitoring Points			
RE-MP1	Smokey Creek above Sediment Dam 3 confluence	0622969	7577360
Downstream Monitoring Points			
RE-MP2	Smokey Creek upstream of Goonyella Branch Railway	0620177	7573355

Notes*: The data from background monitoring points must not be used where they are affected by releases from other mines.*

C20	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* ***Condition C21(2)*** *of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.*
C21	**Receiving Environment Monitoring Program** 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 the Smokey Creek and connected or surrounding waterways from the N4 Quarry Dam to the overpass of the Goonyella Branch Railway. 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.

C22	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); and b) be designed to facilitate assessment against water quality objectives for the relevant environmental values that need to be protected; and 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**); and 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 Queensland Water Quality Guidelines 2006. This should include monitoring during periods of natural flow irrespective of mine or other discharges; and 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)**; and 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); and g) include, where appropriate, monitoring of macroinvertebrates in accordance with the AusRivAS methodology, and h) apply procedures and/or guidelines from ANZECC & ARMCANZ 2000 and other relevant guideline documents; and i) describe sampling and analysis methods and quality assurance and control; and j) incorporate stream flow and hydrological information in the interpretations of water quality and biological data.
C23	A REMP Design Document that addresses each criterion presented in **Conditions C22** and **C23** must be prepared and submitted to the administering authority. Due consideration must be given to any comments made by the administering authority on the REMP Design Document and subsequent implementation of the program.
C24	A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with **Conditions C22** and **C23** 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.

C25	**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 for the purpose of: a) supplying stock water subject to compliance with the quality release limits specified in **Table C9: Stock water release limits**; or b) supplying irrigation water subject to compliance with quality release limits in **Table C10: Irrigation water release limits**; or c) supplying water for construction and/or road maintenance in accordance with the conditions of this environmental authority.

Table C9: Stock water release limits

Quality characteristic	Units	Minimum	Maximum
pH	pH units	6.5	8.5
Electrical Conductivity	µS/cm	N/A	5000

Table C10: Irrigation water release limits

Quality characteristic	Units	Minimum	Maximum
pH	pH units	6.5	8.5
Electrical Conductivity	µS/cm	N/A	Site specific value to be determined in accordance with ANZECC & ARMCANZ (2000) Irrigation Guidelines

C26	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 dams or tanks, for the purpose of supplying water to another mining operation. The volume, pH and electrical conductivity of water transferred another mining operation must be monitored and recorded.
C27	If the responsibility for mine affected water is given or transferred to another person in accordance with **Conditions C26** or **C27:** a) the responsibility for the mine affected water must only be given or transferred in accordance with a written agreement (the third party agreement); and b) the third party agreement must include a commitment from the person utilising the mine affected water to use it in such a way as to prevent environmental harm or public health incidents and specifically make the persons aware of the General Environmental Duty (GED) under section 319 of the *Environmental Protection Act 1994,* environmental sustainability of the water disposal and protection of environmental values of waters; and c) the third party agreement must be signed by both parties to the agreement.
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 authorities Monitoring and Sampling Manual; c) collected from the monitoring locations identified within this environmental authority, within **ten (10) 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 C33** to **C38** 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: 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 measured or estimated daily quantity of mine affected water released from all release points; e) the release flow rate at the time of sampling for each release point; f) the results of all monitoring and details of any exceedances of the conditions of this environmental authority; and g) 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 administering authority's *Guideline - Activities in a Watercourse, Lake or Spring associated with Mining Activities.*
C32	**Water Management Plan** The 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 EHP'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 each calendar year 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: d) to ensure compliance with this environmental authority; and e) 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 with the subsequent annual return under the signature of the appointed signatory for the annual return.
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.
C44	**Groundwater** The holder of the environmental authority must review and update the groundwater monitoring program, by an appropriately qualified person, with a copy provided to the administering authority by **17 January 2014**. The program must be able to detect a significant change to ground water quality values (consistent with the current suitability of the groundwater for domestic and agricultural use) due to activities that are part of this mining project.
C45	The holder of the environmental authority must report the results and analysis of groundwater monitoring to the administering authority on request.
C46	Subject to **Condition C44** groundwater levels must be monitored and groundwater draw down fluctuations in excess **of two (2) metres per year**, not resulting from the pumping of licensed bores, must be notified as per **Conditions A10** to **A12**.
C47	The method of water sampling required by the environmental authority must comply with that set out in the current edition of the administering authority's *Water Quality Sampling Manual*.
C48	Groundwater affected by the mining activities must be monitored at the locations and frequencies defined in the Groundwater Monitoring Program required by Condition **C44.**
C49	If the groundwater contaminant trigger levels defined in **Table C11: Groundwater contaminant trigger levels** are exceeded then the environmental authority holder must complete an investigation into the potential for environmental harm and notify the administering authority within **twenty-eight (28) days** of receiving the analysis results.
C50	**Background groundwater monitoring program** A background groundwater monitoring program must be developed to include bore(s) that are located an appropriate distance from potential sources of impact from mining activities to provide the following: i) representative groundwater samples from the aquifers potentially affected by mining activities; ii) at least **twelve (12) sampling events** (quarterly sampling) to determine background groundwater quality as far as practicable; iii) background groundwater quality in hydraulically isolated background bore(s) that have not been affected by any mining activities; and iv) final groundwater contaminant trigger levels and limits required in **Condition C52**.

C51	The groundwater monitoring data must be reviewed on an annual basis. The review must include the assessment of groundwater levels and data quality, and the suitability of the monitoring network. The assessment must be submitted to the administering authority within **twenty-eight (28) days** of receiving the report.
C52	Groundwater contaminant trigger levels as per **Table C11**: **Groundwater contaminant trigger levels** must be finalised based on the background groundwater monitoring program defined in **Condition C51** and submitted to the administering authority upon request.

Table C11: Groundwater contaminant trigger levels

Parameter	Unit	Trigger Levels	Limit Type
Aluminium	µg/L	To be provided as per condition C45	To be provided as per condition C45
Antimony	µg/L	To be provided as per condition C45	To be provided as per condition C45
Arsenic	µg/L	To be provided as per condition C45	To be provided as per condition C45
Bicarbonate (HCO3)	µg/L	To be provided as per condition W45	To be provided as per condition C45
Calcium	µg/L	To be provided as per condition C45	To be provided as per condition C45
Carbon Trioxide (CO3)	µg/L	To be provided as per condition C45	To be provided as per condition C45
Chloride	µg/L	To be provided as per condition C45	To be provided as per condition C45
Electrical Conductivity	µS/cm	To be provided as per condition C45	To be provided as per condition C45
Iron	µg/L	To be provided as per condition C45	To be provided as per condition C45
Magnesium	µg/L	To be provided as per condition C45	To be provided as per condition C45
Mercury	µg/L	To be provided as per condition C45	To be provided as per condition C45
Molybdenum	µg/L	To be provided as per condition C45	To be provided as per condition C45
pH	pH Units	To be provided as per condition C45	To be provided as per condition C45
Potassium	µg/L	To be provided as per condition C45	To be provided as per condition C45
Selenium	µg/L	To be provided as per condition C45	To be provided as per condition C45
Silver	µg/L	To be provided as per condition C45	To be provided as per condition C45
Sodium	µg/L	To be provided as per condition C45	To be provided as per condition C45
Sulphate (SO4)	µg/L	To be provided as per condition C45	To be provided as per condition C45
Total Dissolved Solids	µg/L	To be provided as per condition C45	To be provided as per condition C45
Total Petroleum Hydrocarbons	µg/L	To be provided as per condition C45	To be provided as per condition C45
Total Suspended Solids	mg/L	To be provided as per condition C45	To be provided as per condition C45

Schedule D - Noise	
Condition number	**Condition**
D1	Noise from activities must not cause an environmental nuisance at any noise sensitive or commercial place.
D2	All noise from activities must not exceed the levels specified in **Table D1: Noise limits** at any noise affected place.
D3	When requested by the administering authority, noise monitoring must be undertaken to investigate any complaint of noise nuisance, and the results notified within **fourteen (14) days** to the administering authority. Monitoring must include: 1. $L_{A\ 10,\ adj,\ 10\ mins}$; 2. $L_{A\ 1,\ adj,\ 10\ mins}$; 3. the level and frequency of occurrence of impulsive or tonal noise; 4. atmospheric conditions including wind speed and direction; 5. effects due to extraneous factors such as traffic noise; and 6. location date and time of recording.
D4	Noise is not considered to be a nuisance under **Condition D1** if monitoring shows that noise does not exceed the following levels in the time periods specified in **Table D1: Noise limits**.
D5	The method of measurement and reporting of noise monitoring must comply with the latest edition of the administering authority's *Noise Measurement Manual*.
D6	If monitoring indicated exceedance of the limits in **Table D1: Noise limits** then the environmental holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement noise abatement measures so that emissions of noise from the activity do not result in further environmental nuisance

Table D1: Noise limits

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

***Note**: 'B/g' refers to Background.*

D7	**Vibration nuisance** Vibration from the licensed activities must not cause an environmental nuisance, at any sensitive or commercial place.
D8	When requested by the administering authority, vibration monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within **fourteen (14) days** to the administering authority following completion of monitoring.
D9	Vibration monitoring must include the following descriptors, characteristics and conditions: a) location of the blast(s) within the mining area (including which bench level); b) atmospheric conditions including temperature, relative humidity and wind speed and direction; and c) location, date and time of recording.
D10	If monitoring indicates exceedance of the relevant limits in **Table D2: Vibration limits – 'Sensitive Place'**, then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement vibration abatement measures so that vibration from the activity does not result in further environmental nuisance.

Table D2: Vibration limits – 'Sensitive Place'

Vibration Parameter	Vibration measured at a sensitive place	
	Monday to Sunday 9am – 5pm	Other times and public holidays
Peak particle velocity (mm/s)	10 mm/s	10 mm/s

D11	**Airblast overpressure nuisance** The airblast overpressure level from blasting operations on the premises must not exceed the limits at any nuisance sensitive or commercial place, as defined in **Table D3: Airblast overpressure level**.

Table D3: Airblast overpressure level

Location	Airblast Overpressure Measured
Sensitive or commercial place	Air blast overpressure level of 115 db (Linear peak) for nine (9) out of ten (10) consecutive blasts initiated and not greater than 120 db (Linear peak) at any time.

D12	When requested by the administering authority, airblast overpressure monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within **fourteen (14) days** to the administering authority following completion of monitoring.
D13	Airblast overpressure monitoring must include the following descriptors, characteristics and conditions: a) location of the blast(s) within the mining area (including which bench level); b) atmospheric conditions including temperature, relative humidity and wind speed and direction; and c) location, date and time of recording.
D14	If monitoring indicates exceedance of the relevant limits in **Table D3: Airblast overpressure level**, then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement airblast overpressure abatement measures so that airblast overpressure from the activity does not result in further environmental nuisance.
D15	The method of measurement and reporting of airblast overpressure levels must comply with the latest edition of the administering authority's *Noise Measurement Manual*.

Schedule E - Waste	
Condition number	**Condition**
E1	**Storage of Tyres** Scrap tyres stored awaiting disposal or transport for take-back and recycling, or waste-to-energy options must be stored in stable stacks and at least **ten (10) metres** from any other scrap tyre storage area, or combustible or flammable material, including vegetation.
E2	All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a **ten (10) metre** radius of the scrap tyre storage area.
E3	Disposing of scrap tyres resulting from the authorised activities in spoil emplacements is acceptable, provided tyres are placed as deep in the spoil as reasonably practicable.
E4	Scrap tyres resulting from the mining activities disposed within the operational land must not impede saturated aquifers or compromise the stability of the consolidated landform.

E5	**Waste Management** A Waste Management Plan, in accordance with the *Waste Reduction and Recycling Act 2011,* must be implemented and must cover: a) describe how Broadlea North Coal Project recognise and apply the waste and resource management hierarchy; b) identify characterisations of wastes generated from the project and general volume trends over the past **five (5) years**; c) a program for safe recycling or disposal of all wastes- reusing and recycling where possible; d) waste commitments with auditable targets to reduce, reuse and recycle; e) the waste management control strategies must consider: • the type of wastes; • segregation of the wastes; • storage of the wastes; • transport of the wastes; • monitoring and reporting matters concerning the waste; • emergency response planning; • disposal, reused and recycling options; f) identify the potential adverse and beneficial impacts of the wastes generated; g) detail the hazardous characteristics of the waste generated (if any); h) cover a disposal procedure for hazardous wastes; i) outline the process to be implemented to allow for continuous improvement of the waste management systems; j) identify responsible staff (positions) for implementing, managing and reporting the Waste Management Plan; and k) cover a staff awareness and induction program that encourages re-use and recycling.
E6	Waste must not be burned or allowed to be burned on the licensed site unless by approval of the administering authority.
E7	A designated area must be set aside for the segregation of economically viable, recyclable solid and liquid waste.

E8	Records must be kept for **five (5) years**, and must include the following information: a) date of pickup of waste; b) description of waste; c) cross reference to relevant waste transport documentation; d) quantity of waste; e) origin of the waste; f) destination of the waste; and g) intended fate of the waste, for example, type of waste treatment, reprocessing or disposal. **Note**: *Records of documents maintained in compliance with a waste tracking system established under the* Environmental Protection Act 1994 *or any other law for regulated waste will be deemed to satisfy this condition.*
E9	Records of trade and regulated wastes or material leaving the mining lease for recycling or disposal, including the final destination and method of treatment, must be in accordance with the Waste Reduction and Recycling Act 2011
E10	All regulated waste received at and removed from the site must be transported by a person who holds a current authority to transport such waste under the provisions of the *Environmental Protection Act 1994*.
E11	Except as otherwise provided by the conditions of this authority, all waste removed from the site must be taken to a facility that is lawfully allowed to accept such waste under the provisions of the *Environmental Protection Act 1994*.

Schedule F – Land	
Condition number	**Condition**
F1	**Topsoil** Topsoil must be strategically stripped ahead of mining in accordance with a topsoil management plan. A copy of the topsoil management plan must be provided to the administering authority upon request.
F2	A topsoil inventory which identifies the topsoil requirements for the Broadlea North Coal Project and availability of suitable topsoil on site must be detailed in the topsoil management plan.
F3	**Rehabilitation landform criteria** All areas significantly disturbed by mining activities must be rehabilitated to a stable landform with a self-sustaining vegetation cover in accordance with **Table F1: Final land use and rehabilitation approval schedule**, **Table F2: Landform design,** and **Appendix 2: Final Rehabilitation Completion Criteria.**

Table F1: Final land use and rehabilitation approval schedule

	Disturbance type						
	Residual Voids	**Spoil Dump(s)**	**Sediment / Supply Dams**	**Infrastructure**	**ROM Area**	**Quarry Processing Area**	**Haul Road(s) and Tracks**
Tenure ID	Lot 4 CP903281	Lot 4 CP903281	Lot 4 CP903281	Lot 4 CP903281	Lot 4 CP903281	Lot 4 CP903281	Lot 4 CP903281 Lot 18 GV181
Projective surface area (ha)	137.5	248.9	32	7	22.1	10	84
Pre-mine land use	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing	Grazing
Post-mine land use	Water Storage	Grazing on Native & Improved Pastures	Water Storage	Grazing on Native & Improved Pastures	Grazing on Native & Improved Pastures	Grazing on Native & Improved Pastures	Grazing on Native & Improved Pastures
Post-mine land capability classification	Class 5	Class 3	Class 4	Class 3	Class 3	Class 3	Class 3
Projective cover range (%)	N/A	70%	N/A	70%	70%	70%	70%

Table F2: Landform design

Disturbance Type	Maximum Slope Range %	Projective Surface Area (ha)
Spoil Dump	10-15	248.9
Residual Voids	20-200	137.5
ROM Areas	10-15	22.1

F4	Progressive rehabilitation must commence within **two (2) years** when areas become available within the operational land.
F5	Complete an investigation into rehabilitation of disturbed areas and submit a report to the administering authority proposing acceptance criteria by **30 June 2010**. The rehabilitation management plan must, at a minimum: a) map existing areas of rehabilitation; b) develop rehabilitation objectives; c) develop design criteria for rehabilitation of disturbed areas; d) detail rehabilitation methods applied to areas; e) identify success factors for areas; f) detail future rehabilitation actions to be completed on areas; g) identify three (3) reference and three (3) rehabilitation sites to be used to develop rehabilitation success criteria; h) description of monitoring of reference sites and rehabilitated areas inclusive of statistical design; i) contain landform design criteria including end of mine design; j) detail how landform design will be consistent with the surrounding topography; k) provide schematic representation of final landform inclusive of: i. drainage design and features; ii. slope designs; iii. cover design; iv. erosion controls proposed on reformed land; l) specify future planned rehabilitation methods for disturbed areas; m) explain planned native vegetation rehabilitation areas and corridors; n) describe rehabilitation monitoring and maintenance requirements to be applied to all areas of disturbance; o) itemise revegetation criteria; p) describe end of mine landform design plan and post mining land uses across the mine; q) specify spoil characteristics, soil analysis, soil separation for use on rehabilitation; r) include a cost benefit analysis / triple bottom line assessment (or an alternative assessment method) of the proposed final landform design criteria and alternatives; and s) identify potential problems and how they will be addressed.
F6	**Residual void outcome** 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.

F7	Complete an investigation into residual voids and submit a report to the administering authority proposing acceptance criteria to meet the outcomes in **Condition F6** and **Table F3: Residual void design** by **30 June 2010**. The investigation must at a minimum include the following: a) a study of options available for minimising final void area and volume; b) a void hydrology study, addressing the long-term water balance in the voids, connections to groundwater resources and water quality parameters in the long term; c) a pit wall stability study, considering the effects of long-term erosion and weathering of the pit wall and the effects of significant hydrological events; d) a study of void capability to support native flora and fauna; and e) a proposal/s for end of mine void rehabilitation success criteria and final void areas and volumes. These studies will be undertaken during the life of the mine, and will include detailed research and modelling.

Table F3: Residual void design

Void identification	Void wall –competent rock slope (%)	Void low wall – incompetent rock slope (%)	Void maximum surface area (ha)
N1 Pit Void	200%	65%	33
N2 Pit Void	200%	65%	38
N3 Pit Void	200%	65%	8
N4 Pit Void	200%	65%	18
N5 Pit Void	200%	65%	18
V1 pit Void	200%	65%	22

F8	**Preventing contaminant release to land** Contaminants must not be released to land.
F9	**Chemicals and flammable or combustible liquids** All flammable and combustible liquids must be contained within an on-site containment system and controlled in a manner that prevents environmental harm and maintained in accordance with the current version of *AS 1940 – Storage and Handling of Flammable and Combustible Liquids* (or a more recent edition).
F10	Spillage of all flammable and combustible liquids must be controlled in a manner that prevents environmental harm.
F11	All chemicals must be contained within an on-site containment system and controlled in a manner that prevents environmental harm and maintained in accordance with the current version of the relevant Australian Standard.
F12	Spillage of all chemicals must be controlled in a manner that prevents environmental harm.
F13	All explosives, corrosive substances, toxic substances, gases and dangerous goods must be stored and handled in accordance with the relevant Australian Standard.
F14	All chemicals and flammable or combustible liquids stored on site that have the potential to cause environmental harm must be stored in or serviced by an effective containment system that is impervious to the materials stored and managed to prevent the release of liquids to waters or land. Where no relevant Australian Standard is available, the following must be applied: a) storage tanks must be bunded so that the capacity and construction of the bund is sufficient to contain at least 110% of a single storage tank or 100% of the largest storage tank plus 10% of the second largest storage tank in multiple storage areas; and b) drum storages must be bunded so that the capacity and construction of the bund is sufficient to contain at least 25% of the maximum design storage volume within the bund.
F15	**Spill Kit** An appropriate spill kit, personal protective equipment and relevant operator instructions/emergency procedure guides for the management of wastes, chemicals and flammable and combustible liquids associated with the activity must be kept at the site.
F16	Anyone operating with wastes, chemicals or flammable and combustible liquids under this authority must be trained in the use of the spill kit.
F17	**Infrastructure** All infrastructure, constructed by or for the environmental authority holder during the licensed activities including water storage structures, must be removed from the site prior to surrender, except where agreed in writing by the post mining land owner / holder. **Note**: *This is not applicable where the landowner / holder is also the environmental authority holder.*

F18	**Weed Management** A weed management plan must be developed and implemented for this site outlining: a) areas of control priority and the methods used to determine such areas: b) strategies to promote dense grass growth (which out-competes weeds) through reduced disturbance; c) monitoring methodologies that document the spread of weeds and any new outbreaks; d) methods for the control of weeds. These methods should include best practice management; e) stringent wash-down and inspection procedures for both machinery involved in clearing/construction activities and those operating outside of designated roads during mine operation; and f) promotion of the awareness of weed management issues at the site.
F19	**Prescibed Environmental Matters** Disturbance to prescribed environmental matters, as a result of the construction of the light vehicle road, other than those identified in **Table F4: Broadlea Light Vehicle Road- Disturbance to Prescribed Environmental Matters**, are not authorised under this environmental authority or the *Environmental Offsets Act 2014.*

Table F4: Broadlea Light Vehicle Road- Disturbance to Prescribed Environmental Matters

Prescribed environmental matter	Location of impact	Maximum extent of impact	Significant residual impact
REGULATED VEGETATION			
Endangered regional ecosystem –RE 11.3.1/11.9.5 - Brigalow woodland-	As per Appendix 3: Map of Broadlea Light Vehicle Road- Disturbance to Prescribed Environmental Matters	0.01ha	N/A
Of concern regional ecosystem (not within an urban area) – RE 11.8.11 - Natural grassland	As per Appendix 3: Map of Broadlea Light Vehicle Road- Disturbance to Prescribed Environmental Matters	0.8 ha	N/A
Regional ecosystems (not within an urban area) within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map – Brigalow woodland- RE 11.3.1/11.9.5	As per Appendix 3: Map of Broadlea Light Vehicle Road- Disturbance to Prescribed Environmental Matters	0.01 ha	N/A
Regional ecosystems (not within an urban area) within the defined distance from the defining banks of a relevant watercourse on the vegetation management	As per Appendix 3: Map of Broadlea Light Vehicle Road- Disturbance to Prescribed Environmental Matters	0.6 ha	N/A

watercourse map – Woodland fringing- RE 11.3.25			
Regional ecosystems (not within an urban area) within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map – Open woodland- RE 11.8.5	As per Appendix 3: Map of Broadlea Light Vehicle Road-Disturbance to Prescribed Environmental Matters	0.2 ha	N/A
Connectivity Areas			
Connectivity area that is a regional ecosystem (not in urban area)	As per Appendix 3: Map of Broadlea Light Vehicle Road-Disturbance to Prescribed Environmental Matters	6.3 ha	N/A
Protected wildlife habitat			
Habitat for an animal that is vulnerable wildlife –Squatter Pigeon (*Geophaps scripta scripta*)	As per Appendix 3: Map of Broadlea Light Vehicle Road-Disturbance to Prescribed Environmental Matters	6.1 ha	N/A
Habitat for an animal that is vulnerable wildlife –- Koala (*Phascolarctos cinereus*)	As per Appendix 3: Map of Broadlea Light Vehicle Road-Disturbance to Prescribed Environmental Matters	4.6 ha	N/A
Habitat for an animal that is vulnerable wildlife –- Greater Glider (*Petauroides volans*)	As per Appendix 3: Map of Broadlea Light Vehicle Road-Disturbance to Prescribed Environmental Matters	0.9 ha	N/A
Habitat for an animal that is vulnerable wildlife –- Ornamental Snake (*Denisonia maculata*)	As per Appendix 3: Map of Broadlea Light Vehicle Road-Disturbance to Prescribed Environmental Matters	0.9 ha	N/A
Habitat for an animal that is special least concern wildlife – RE Short-beaked Echidna (*Tachyglossus aculeatus*)	As per Appendix 3: Map of Broadlea Light Vehicle Road-Disturbance to Prescribed Environmental Matters	6.1 ha	N/A

Agency interest: 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 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 accordance with and conform to the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (*ESR/2016/1933*);* b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of: i) floodwaters from entering the regulated dam from any watercourse or drainage line; and ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line.
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; b) construction of the regulated structure is in accordance with the design plan.
G10	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 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 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 paper copy and 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 within 12 months of the commencement of this condition a copy of the certified **system design plan** including that structure; and b) There must be a current operational plan for the existing structures.
G13	Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in a manner that is consistent with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.
G14	**Mandatory reporting level** Conditions G15 to G17 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 practical and within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.
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 possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.
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 recommended actions to ensure the integrity of the regulated structure**.**
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 20 business days of receipt of the annual inspection report, provide to the administering authority: a) The recommendations section of the annual inspection report; and b) If applicable, any actions being taken in response to those recommendations; and c) If, following receipt of the recommendations and (if applicable) recommended actions, the administering authority requests a copy of the annual inspection report from the holder, provide this to the administering authority within 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	**Decommissioning and rehabilitation** Regulated structures must not be abandoned but be either: a) decommissioned and rehabilitated to achieve compliance with **Condition G29**; or b) be left in-situ for a use by the landholder provided that: i) it no longer contains contaminants that will migrate into the environment; and ii) it contains water of a quality that is demonstrated to be suitable for its intended use(s); and c) the holder of the environmental authority and the landholder agree in writing that the; i) dam will be used by the landholder following the cessation of the environmentally relevant activity(ies); and ii) landholder is responsible for the dam, on and from an agreed date.
G29	Before surrendering this environmental authority the site must be rehabilitated to achieve a safe, stable, non-polluting landform in accordance with the rehabilitation objectives listed in Appendix 2 Final Rehabilitation Completion Criteria

G30	**Register of Regulated Structures** A **Register of Regulated Structures** must be established and maintained by the **holder** for each **regulated structure**:
G31	The holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated structure is submitted to the administering authority.
G32	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.
G33	The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.
G34	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.
G35	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.
G36	**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 within **6 months** of amendment of the authority adopting this schedule.
G37	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.
G38	Table G1 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.
G39	Certification of the transitional assessment required by **Condition G36** and **G37** (as applicable) must be provided to the administering authority within 6 months of amendment of the authority adopting this schedule.

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**	**Significant**	**Low**
>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%	Within 7 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 10 years, 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%	Within 5 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 7 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Review consequence assessment every 7 years.
≤50%	Within 5 years or as per compliance requirements (e.g. TEP timing)	Within 5 years 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[1]	Within 5 years unless otherwise agreed with the administering authority.		

[1] 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: Community	
Condition number	**Condition**
H1	All complaints received must be recorded including investigations undertaken, conclusions formed and action taken. This information must be made available to the administering authority on request.
H2	The holder of this environmental authority must record the following details for all complaints received and provide this information to the administering authority on request: a) name, address and contact number for complainant (if not available record – not identified); b) time and date of complaint; c) investigations undertaken; d) conclusions formed; e) actions taken to resolve complaint; f) any abatement measures implemented; and g) person responsible for resolving the complaint.
H3	In consultation with the administering authority, cooperate with and participate in any community environmental liaison committee established in respect of either the licensed place specifically or the industrial estate where the licensed place is located.

END OF CONDITIONS

Definitions

Words and phrases used throughout this environmental authority are defined below. Where a definition for a term used in this environmental authority is not provided within this environmental authority, but is provided in the EP Act 1994 or subordinate legislation, the definition in the EP Act or subordinate legislation must be used.

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.

Administering Authority is the agency 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 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.

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 an environmental authority or a development approval.

Background, with reference to the water schedule means the average of samples taken prior to the commencement of mining from the same waterway that the current sample has been taken.

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 Australian Code for the Transport of Dangerous Goods by Road and Rail approved by the Australian Transport Council, or

c) a lead hazardous substance within the meaning of the Workplace Health and Safety Regulation 1997, 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, nematocide, 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

(v) a substance used for, or intended for use for mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater, or

(vi) manufacture of plastic or synthetic rubber.

Commercial place means a workplace 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 modifying or lifting an existing regulated structure, but does not include investigations and testing necessary for the purpose of preparing a design plan.

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.

Designer for the purposes of a regulated dam, means the certifier of the design plan for the regulated dam.

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

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

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

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

EC means electrical conductivity.

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.

Equilibrium: A state where 'balance' is achieved despite changing variables.

ERC decision means a decision of the administering authority under section 300 of the *Environmental Protection Act 1994* about the estimated rehabilitation cost for a resource activity.

ERC Period for the estimated rehabilitation cost for a resource activity, means—

(a) if a PRCP schedule applies for the activity—the period of between 1 and 5 years stated in the application for an ERC decision under section 298(2)(b); or

(b) if the activity is a petroleum activity that is an ineligible ERA, other than a petroleum activity to which a plan of operations applies, or the activity relates to a 1923 Act petroleum tenure granted under the Petroleum Act 1923—the period of between 1 and 5 years stated in the ERC decision about the estimated rehabilitation cost; or

(c) if a plan of operations applies for the activities—the plan period for the plan of operations; or

(d) otherwise—the total period during which the resource activity is likely to be carried out under the environmental authority for the activity.

Existing structure means a structure that prior to 17 May 2016 meets any or both of the following, a structure:
(a) with a design that is in accordance with the ESR/2016/1933 Manual for Assessing Consequence Categories and Hydraulic Performance of Structures and that is considerably in progress;

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

Extreme Storm Storage – means a storm storage allowance determined in accordance with the criteria in the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)* published by the administering authority.

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

a) geomorphic and vegetation assessment of the existing watercourse

b) hydrologic conditions of the existing watercourse

c) the proposed watercourse diversion route

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

Flare pit means containment area where any hydrocarbon that is discovered in an over-pressured reservoir during a drilling operation is diverted to, and combusted. The flare pit is only used during the drilling and work over process on a petroleum well.

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.

Functionality: the purpose that something is designed or expected to fulfil.

Hazard category means a category, either low significant or high, into which a dam is assessed as a result of the application of tables and other criteria in 'Manual for Assessing Hazard Categories and Hydraulic Performance of Dams'.

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

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

Hydraulic 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)*.

Infrastructure means water storage dams, levees,, roads and tracks, buildings and other structures built for the purpose of the mining activity.

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 use –means the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

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

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

Licensed place means the mining activities carried out at the mining tenements detailed in Table # (page #) of this environmental authority.

Low consequence dam means any dam that is not a high or significant consequence category as assessed using the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)*.

'm' means metres.

Mandatory reporting level or MRL means a warning and reporting level determined in accordance with the criteria in the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)* published by the administering authority.

Manual means the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)* published by the administering authority, as amended from time to time.

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

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 are 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.

Minimise is to reduce to the smallest possible amount or degree.

Modification or modifying (see definition of 'construction')

NATA means National Association of Testing Authorities, Australia.

Natural flow means the flow of water through waters caused by nature.

Non polluting means having no adverse impacts upon the receiving environment.

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.

Peak particle velocity (ppv) means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mm/s).

Protected area means – a protected area under the *Nature Conservation Act 1992*, or

a) a marine park under the *Marine Parks Act 1992*, or

b) a World Heritage Area.

Receiving environment in relation to an activity that causes or may cause environmental harm, means the part of the environment to which the harm is, or may be, caused. The receiving environment includes (but is not limited to):

a) a watercourse

b) groundwater

Receiving waters means the waters into which this environmental authority authorises releases of mine affected water.

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

Rehabilitation the process of reshaping and revegetating land to restore it to a stable landform.

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

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

Resource activity is an activity that involves—

(a) a geothermal activity; or

(b) a GHG storage activity; or

(c) a mining activity; or

(d) a petroleum activity.

Revegetation is the re-establishment of vegetation[1] of a species and density of cover similar to surrounding undisturbed areas or the landform that existed before mining activities on soil surfaces associated with the construction or rehabilitation of a watercourse diversion.

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

Saline drainage is the movement of waters, contaminated with salts, as a result of the mining activity.

Scheme fund means the scheme fund established under the *Mineral and Energy Resources (Financial Provisioning) Act 2018*, section 24.

Self-sustaining means not requiring on-going intervention and maintenance to maintain functional riverine processes and characteristics

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 1992* 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 on 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 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.

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

Structure means dam or levee.

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

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

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

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.

The Act means the *Environmental Protection Act 1994*.

µS/cm means micro siemens per centimetre.

Void means any constructed, open excavation in the ground.

Waste and resource management hierarchy – has the meaning provided in section 9 of the Waste Reduction and Recycling Act 2011 and is the following precepts, listed in the preferred order in which waste and resource management options should be considered—
(a) AVOID unnecessary resource consumption
(b) REDUCE waste generation and disposal
(c) RE-USE waste resources without further manufacturing
(d) RECYCLE waste resources to make the same or different products
(e) RECOVER waste resources, including the recovery of energy
(f) TREAT waste before disposal, including reducing the hazardous nature of waste
(g) DISPOSE of waste only if there is no viable alternative.

Watercourse has the meaning in Schedule 4 of the *Environmental Protection Act 1994* and means:
1) a river, creek or stream in which water flows permanently or intermittently—
(a) in a natural channel, whether artificially improved or not; or
(b) in an artificial channel that has changed the course of the watercourse.

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

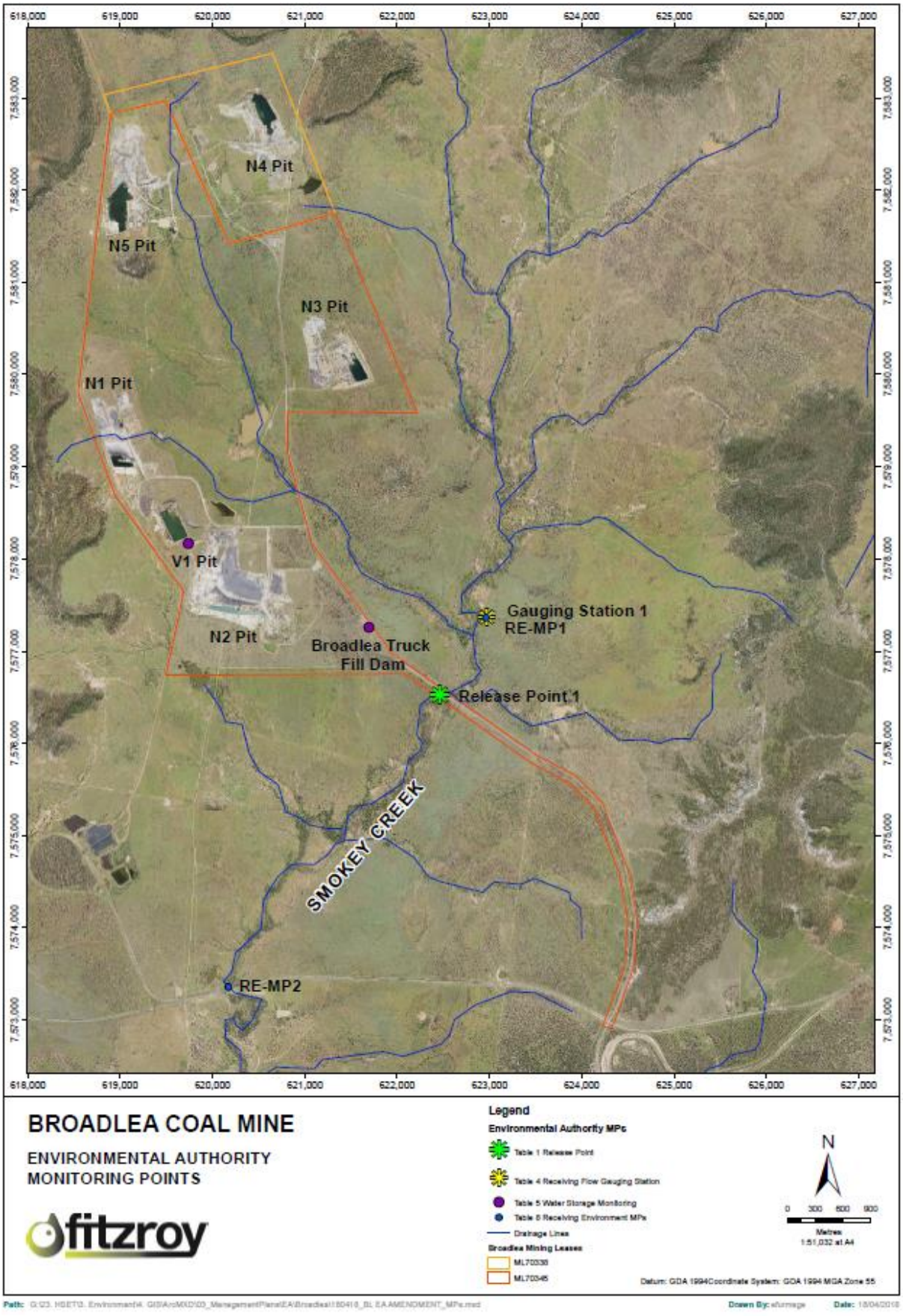
Waters includes all or any part of a river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed and banks of a watercourse, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside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

Water year means the 12-month period from 1 July to 30 June.

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

END OF DEFINITIONS

Appendix 1: Release Points (RP) and Monitoring Points (MP) for Broadlea North Coal Project



Appendix 2: Final Rehabilitation Completion Criteria

Domain	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria	Evidence to be supplied of compliance with Completion Criteria
In-Pit Reject Emplacement	**Long-term Safety**	Final landform remains safe for humans and animals now and in the future	Stability	Geotechnical testing and analysis has confirmed that the reject emplacement area is capable of supporting human and/or animal traffic.	Sample results, analyses and interpretation by a suitably qualified geotechnical engineer, evidenced in the Final Rehabilitation Report.
				Geotechnical testing and analysis has confirmed that capping material will continue to function as designed.	
			Exposure to and availability of heavy metals and other toxic materials	Certification in the Final Rehabilitation Report that specified cover thickness (and/or other specific criteria) is in place.	Provide justification regarding cover thickness suitability to cap rejects areas.
	Non-Polluting	Surface waterways and surrounding landscapes are not adversely affected	Water Quality & Flow	Demonstrated that runoff waters from the rehabilitated landform are compatible with ANZECC 95% Species Protection Levels for Aquatic Ecosystems; or receiving water baseline conditions.	Soil / water quality analyses and interpretation evidenced in the Final Rehabilitation Report.
				All waters run-off the residual landform and no ponding (especially on the top of the landform) occurs.	Results of inspections during / immediately after the wet season and/or survey data; evidenced in the Final Rehabilitation Report.
		Surrounding areas are not contaminated	Contaminated land assessment	Lands surrounding the reject emplacement areas, especially areas receiving runoff, comply with the Draft Guidelines for the Assessment and Management of Contaminated Lands in Queensland or any future revisions.	Soil assessment undertaken and results outlined in the Final Rehabilitation Report.
			Soil quality for vegetation growth	Soil quality in areas surrounding the area, especially areas receiving runoff, generally has the following qualities: • pH between 5.5 and 9 • Root zone salinity <0.6dS/m • Cation exchange capacity >10meq/100g	
	Stable	Rates of soil loss from the reject capping are suitable	Batter Stability	Batter slopes are $\leq$ 15% gradient.	On-ground inspection or topographic data (LIDAR/Photogrammetry/Survey), evidenced in the Final Rehabilitation Report.

Domain	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria	Evidence to be supplied of compliance with Completion Criteria
		to support the post-mining land use of grazing & native ecosystems.		Rates of sediment loss from the batter slopes is similar to (within 30%) of the surrounding land use as verified by measurement or calibrated modelling.	Evidence is provided in the Final Rehabilitation Report that sediment loss from the batter slopes is similar to soil loss rates from surrounding grazing lands.
				Runoff is only permitted to concentrate in appropriately designed sediment / runoff control structures (i.e. rock lined drains, contour drains) and has been certified as fit for purpose into the foreseeable future.	Inspection by appropriately qualified person at closure / certification reporting stage that runoff and control structures are appropriately designed and any maintenance regimes are suitable for the foreseeable future.
	Sustainable Land Use	Capping design & implementation is capable of supporting the post-mining land use	Soil Quality & Growth Medium	The thickness of material able to support vegetation cover is >0.8m (allowing for 1m thickness of capping material and limited compaction / settling / erosion since installation).	On-ground inspection and / or certification at design stage.
				Topsoil pH is between 5.5 and 9.0 Root-zone salinity is <0.6dS/m Cation Exchange Capacity >10meq/100g Evidence of nutrient and organic matter cycling is occurring.	Soil quality inspection undertaken and evidenced in the Final / Progressive Final Rehabilitation Report.
				Erosion ratings are less than or equal to 2 as per Table 14 of BL Rehab Management Plan	
			Vegetation Cover & Diversity	Stem density of 10 trees per hectare or at a comparable density to nominated reference sites.	Vegetation inspection undertaken and evidenced in the Final / Progressive Final Rehabilitation Report
				Groundcover >70%	
				Tree and groundcover has demonstrated an ability to recover from disturbance (e.g. slashing, grazing, fire) without substantial cover losses 1 year after disturbance.	
Spoil Dumps	**Long-term Safety**	Spoil Dump remains safe for humans and animals now and in the future.	Slopes are suitable for human and/or animal trafficking.	Certification in Final Rehabilitation Report that slopes are safe and risk of future failure is determined to be acceptable.	Geotechnical assessment to determine slip hazard.

Domain	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria	Evidence to be supplied of compliance with Completion Criteria
			Erosion ratings are suitable for long-term safety.	Erosion ratings (as adopted by the erosion rating system) are less than or equal to 2 (as defined in BL Rehab Management Plan.	Evidenced in inspections of rehabilitation.
			No significant cracking (>1m depth) occurring in the spoil dumps from subsidence or erosion.	Certification in Final Rehabilitation Report that there are no surface cracks or erosion rills greater than 1m depth.	
	Non-Polluting	No toxic materials are available to be exposed to human or animal contact.	Leaching of toxic material into waterways or surface pools does not occur.	Any significant pools or seepage zones on top of or at the base of spoil dumps are sampled and analysed. Analysis results must comply with the long-term baseline of the receiving water, be within the water quality range of long-term predictions for water quality in any residual void within the catchment, or ANZECC 95% Species Protection Level / Queensland Water Quality / NEPC Contaminated Lands guidelines.	Testing of any seepage zones or significant pools at the top of spoil dumps and results outlined in the Final Rehabilitation Report or Rehabilitation Inspections.
			All toxic and harmful material has been either capped or buried at a depth suitable to not be exposed to humans or wildlife.	Leaching tests of exposed material meet specified guideline values (using standard protocols such as US EPA Toxic Characteristic Leaching Procedure).	Rehabilitation Inspection / Final Rehabilitation Report outlining the location of exposed overburden or waste, appropriate leaching tests, and comparison to relevant guidelines.
				Written evidence is provided that hazardous material has been buried within spoil dumps at a depth that will not be exposed to humans or wildlife.	Testing from any seepage from capping or spoil dumps and results outlined in the Final Rehabilitation Report or Rehabilitation Inspection.
		Polluted water contained on site or treated.	Downstream surface / groundwater monitoring.	Certification that monitoring data meet specified design criteria relevant to potential contaminants.	Downstream baseline data does not exceed receiving water baseline or ANZECC Guidelines, as evidenced in the Rehabilitation Inspection or Final Rehabilitation Report.
	Stable	Loss of material from spoil dumps is suitable for the surrounding landscape	Erosion Rates	Erosion rates, measured or modelled (using a suitable modelling methodology such as RUSLE, CAESAR, SIBERIA, MINErosion etc.) are no higher than 50% above the erosion rate of the surrounding landscape OR generally less than 13t/ha/yr.	Certification report comparing erosion losses (measured or modelled) from spoil dumps to surrounding grazing lands.

Domain	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria	Evidence to be supplied of compliance with Completion Criteria
				Erosion ratings for inspection transects (minimum 50m each transect) are less than or equal to 2 as outlined in of the BL Rehab Management Plan.	Rehabilitation Inspection or Final Rehabilitation Report outlines erosion ratings for various areas.
			Erosion indicators such as slumping, washouts, rills etc. are minimal	Areas where washouts occur do not exceed 5% of the total rehabilitation area for the site	Analyses from aerial photographs or on-ground inspection, outlined in the Final Rehabilitation Report.
				Each individual washout does not exceed 100m^2	
				Minimal slumping or slips occur	
		Topsoil is fastened to the underlying spoil to minimise the chances of mass movements and slumping	Methodology of Rehabilitation	Topsoil has integrated into the spoil below; or tree, grass &/or shrub species are present in sufficient densities to hold the topsoil to the underlying spoil material	
		Functional erosion structures	Erosion structures are fit for purpose	Inspection and certification of erosion and water control structures (such as contour banks, drop structures, armoured areas etc.)	Certification Report undertaken by an appropriately qualified person showing structures are fit for purpose after mine closure / certification, evidenced in the Final Rehabilitation Report.
		Vegetation cover	Vegetation cover percentage and type	Groundcover ≥ 70%	On-ground Rehabilitation Inspection, outlined in the Final/Progressive Final Rehabilitation Report.
	Sustainable Land Use	Soil Properties that support and will continue to support the desired final land use	Chemical properties of topsoil and soil profiles that are within range of roots of proposed vegetation	$pH_{(1:5)}$ range of soil is between 5.5 – 9.0 to at least 0.45m.	On-ground Rehabilitation Inspection, outlined in the Final Rehabilitation Report.
				Cation Exchange Capacity greater than 10meq/100g	
				Root zone salinity is less than 0.6dS/m (in a 1:5 soil water mixture)	
				Evidence of nutrient and organic matter cycling is occurring	Soil quality analyses as outlined in Section of the BL Rehab Management Plan, evidenced in the Final Rehabilitation Report.
				Topsoil is >150mm thick across all vegetated areas; OR chemical analyses indicate spoil is	On-ground Rehabilitation Inspection, outlined in the Final Rehabilitation Report.

Domain	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria	Evidence to be supplied of compliance with Completion Criteria
			Physical parameters of the soil	suitable to support long-term vegetation cover and meet the required land suitability classification	
				Slope is ≤ 15%	
				Erosion ratings are less than or equal to 2 as outlined in of the BL Rehab Management Plan.	
		Vegetation is suitable for the post-mining land use	Vegetation diversity	For grazing land uses, a suitable grass species has established and is self-sustaining as evidenced by secondary establishment of grass species.	On-ground Rehabilitation Inspection, outlined in the Final Rehabilitation Report.
				Evidence (certified by an appropriately qualified person) that the vegetation in rehabilitated areas includes the presence of species suitable and complimentary to the post-mining land use, and are at a density and composition comparable to reference sites.	On-ground Rehabilitation Inspection, outlined in the Final Rehabilitation Report.
Residual Void	**Long-term Safety**	Residual Void remains safe for humans and animals in the future	Access to the void crest is prevented	Safety barriers are installed in accordance with Technical Guidelines for Environmental Management of Exploration and Mining in Queensland, 1995 and certified by an RPEQ.	An audit against relevant standards outlines safety barriers are installed appropriately. Evidenced in the Final Rehabilitation Report.
			Ramp is suitably designed	Ramp remains traversable by animals / livestock.	Audit identifies as traversable by animals / livestock if access is going to be permitted to the void or suitable means of escape by wildlife provided.
			Probability of rock fall, slip or slumping is low	Geotechnical inspection and certification that the residual void is stable and has a low probability of rock fall, land slip, or slumping	Geotechnical certification.
			Signage	Signage is erected advising of steep slopes, potential for geotechnical failure or slumping, and uneven ground at the perimeter of the void safety area.	Evidenced in an audit of the residual void prior to completion.
			Underground drifts and accesses are	Sealing of drifts and other access to the underground mine occurs in accordance with the Technical Guidelines for Environmental	An audit against relevant standards outlines safety barriers are installed appropriately. Evidenced in the Final Rehabilitation Report.

Domain	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria	Evidence to be supplied of compliance with Completion Criteria
			appropriately sealed	Management of Exploration and Mining in Queensland, 1995 or any subsequent guideline.	
	Non-Polluting	No toxic materials are available to be exposed to human or animal contact	Long-term predictions of residual void waters	Water balance modelling shows that there is a negligible risk of spill of the residual void to the surrounding environment	Certification / modelling report is undertaken
				Geochemical modelling or leachate testing is undertaken and analysed to determine the potential long-term water quality evolution of the residual void.	
				Hydrogeological evaluation indicates contaminants (if detected) will not migrate from the void and pollute surrounding groundwater or surface water supplies	Certification / groundwater investigation that no aquifer resource or surface water supplies are at risk.
			Hazardous substances removed from site	Records are available for any hazardous material buried within the Residual Void.	Audit of records of burial of hazardous substances, and overburden / capping, in the residual void.
			Access prevented	If geochemical modelling or leachate testing shows potential for harm to livestock, access is prevented by a fence on top of the safety bund.	Inspection of bunds and certification / audit that livestock access is prevented under conditions at time of inspection.
	Stable	Ensure long-term stability of void structures in terms of safety and consequences of further erosion	Wall Stability	Highwall and low walls of any residual void are made stable and certified by a geotechnical engineer.	Certification report.
				The zone of Highwall / low wall instability, within the period identified by the regulator, calculated by a suitably qualified Geotechnical Engineer.	
				Safety bunds are installed to prevent access to the residual void in accordance with the Technical Guidelines for Environmental Management of Exploration and Mining in Queensland, 1995 or any subsequent guideline.	Final Rehabilitation Report
			Water Control	Waters diverted into the void or entering over the void crest are controlled and erosion via this	Certification report.

Domain	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria	Evidence to be supplied of compliance with Completion Criteria
				mechanism is taken into consideration for the long-term stability of the void.	
				Should the erodibility of exposed strata in the void be too high, overland flows and drainage lines must be prevented from entering the void.	
				Appropriately designed drains must be installed in areas where the erosive power of runoff will be concentrated within the void and its catchment.	
	Sustainable Land Use	The residual void is suitable for the post-mining land use.	Geological and mineralogical waste material placement	No bulk waste, contaminated or highly saline material is threatened to be exposed by long-term (i.e. 50 years) erosion.	Certification report outlining potential erosion in 50 years and probability of exposing waste material.
Infrastructure	**Long-term Safety**	Infrastructure has been retained in a safe and operable manner; or is decommissioned and removed.	Certification that residual infrastructure is safe and fit for purpose	Infrastructure Areas: Final inspection by suitably qualified person that residual infrastructure is fit for purpose and suitable for adoption by the post-mine landholder.	Evidence that any infrastructure left on-site is safe to use and operable, as evidenced by maintenance logs or inspections.
	Non-polluting	Any fuel storage areas to remain after mine closure have been certified as fit for purpose.	Inspection report.	Infrastructure Areas Inspection and audit undertaken in accordance with AS1940:2004 and certified as meeting these standards.	Audit showing that any areas subject to AS1940:2004 or any later standard, that are left for the landholder after mining, are in compliance with the standard.
		Contaminated materials have been neutralized or removed	Levels of contaminants	Contamination land assessment (in accordance with the Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland) shows that contaminated material has been removed, neutralised or chemically and hydrologically isolated.	Contaminated land assessment, evidenced in the Final Rehabilitation Report.

Domain	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria	Evidence to be supplied of compliance with Completion Criteria
				Leaching tests of exposed material meet specified guideline values (using standard protocols such as US EPA Toxic Characteristic Leaching Procedure)	
			Water Quality	Water quality generated from the area is within the baseline for the receiving environment (i.e. North Creek or Billy's Gully) or ANZECC 95% Species Protection Levels for Aquatic Ecosystem Protection.	Evidence in the Final Rehabilitation Report that water quality generated from infrastructure areas meets relevant guidelines.
			Soil Salinity	Soils of the area are not highly saline (i.e. less than 0.6dS/m).	Evidence that soil inspections (undertaken for Contaminated land assessments and other completion criteria) show that soil is not highly saline. Evidence supplied in the Final Rehabilitation Reports.
	Stable	Rehabilitated areas are stable	Erosion	Rehabilitated areas are generally ≤5% gradient	Survey, topographic data, or cross sections as evidenced in the Final / Progressive Final Rehabilitation Reports.
				Erosion rates are compatible with the surrounding land use	Evidence is provided in the Final Rehabilitation Report that sediment loss from the batter slopes is similar to soil loss rates from surrounding grazing lands.
			Hydrology	Elevated road embankments do not overly impede the flow of water across the floodplain or terrace during a Q50 event (i.e. breaches in the elevated roadway are provided to allow water flow).	Inspection of rehabilitated roads and certification that the road embankment will not overly impede flows for discharges up to the Q50 event. Evidenced in the Final Rehabilitation Report.
	Sustainable Land Use	The land is able to function to a grazing land use.	Vegetation and Grazing Function	Groundcover ≥70%	Rehabilitation inspection outlining vegetation cover, as evidenced in the Final / Progressive Rehabilitation Inspection.
				The area has demonstrated an ability to recover from significant disturbance (e.g. slashing, grazing, fire) by quickly re-establishing target covers and without substantial weed infestation	Rehabilitation inspections for species diversity, ground cover, health and erosion undertaken prior to, and after grazing. These results should be outlined in the Final Rehabilitation Report.
				At least 10 trees / shrubs per hectare	On-ground inspections or aerial photography, as evidenced in the Final Rehabilitation Report.

Domain	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria	Evidence to be supplied of compliance with Completion Criteria
			Topsoil Quality	Topsoil pH is greater than 5.5 but less than 9.0 to at least 45cm depth	Results of soil quality inspections undertaken in accordance with Section 8.2.2 of BL Rehabilitation Management Plan, evidenced in the Final Rehabilitation Report.
				Root zone salinity is <0.6dS/m to at least 45cm depth	
				Cation Exchange Capacity >10meq/100g to at least 45cm depth	
				Evidence of nutrient and organic matter cycling is occurring	Soil quality analyses as outlined in Section 8.2.2 of BL Rehabilitation Management Plan, evidenced in the Final Rehabilitation Report.
Exploration Areas	**Long Term Safety**	Drill holes have been appropriately sealed	Drill hole rehabilitation outcomes	A plug or concrete has been used to seal drill holes below ground level, and the hole is backfilled with benign material to ground level.	Written evidence of drill hole sealing, as undertaken during the life of the mine, or an inspection undertaken as part of Rehabilitation Inspections. Evidenced in the Final Rehabilitation Report.
				If relevant, the casing has been cut off below ground level, the hole capped or plugged, and the hole backfilled with benign material to ground level	
			Drill sumps	All sumps required for drilling purposes have been battered back so that the gradient does not exceed 30%; or appropriately backfilled with benign material suitable as a growth medium	Rehabilitation Inspection and evidenced in the Final Rehabilitation Report.
	Non Polluting	Contaminated materials are removed from the site	Soil quality	Soil quality must comply with the levels as indicated in the Draft Guidelines for the Assessment and Management of Contaminated Sites in Queensland 1998 or any future revisions	Soil quality analyses compared against contaminated land guidelines.
	Stable	Areas disturbed by drill pads do not increase receiving water sediment loads	Capping / topsoil material.	Erosive or dispersive material must not be used to cap drill pads.	Soil quality analyses / Rehabilitation Inspection.
	Sustainable Land Use	Areas disturbed by drill pads are able to be used for grazing	Soil Quality	Sealed surfaces (such as sheeted drill pads) have been removed.	Soil quality analyses / Rehabilitation Inspection.
				Soil pH is greater than 5.5, but less than 9.0	
				Root zone salinity <0.6dS/m	

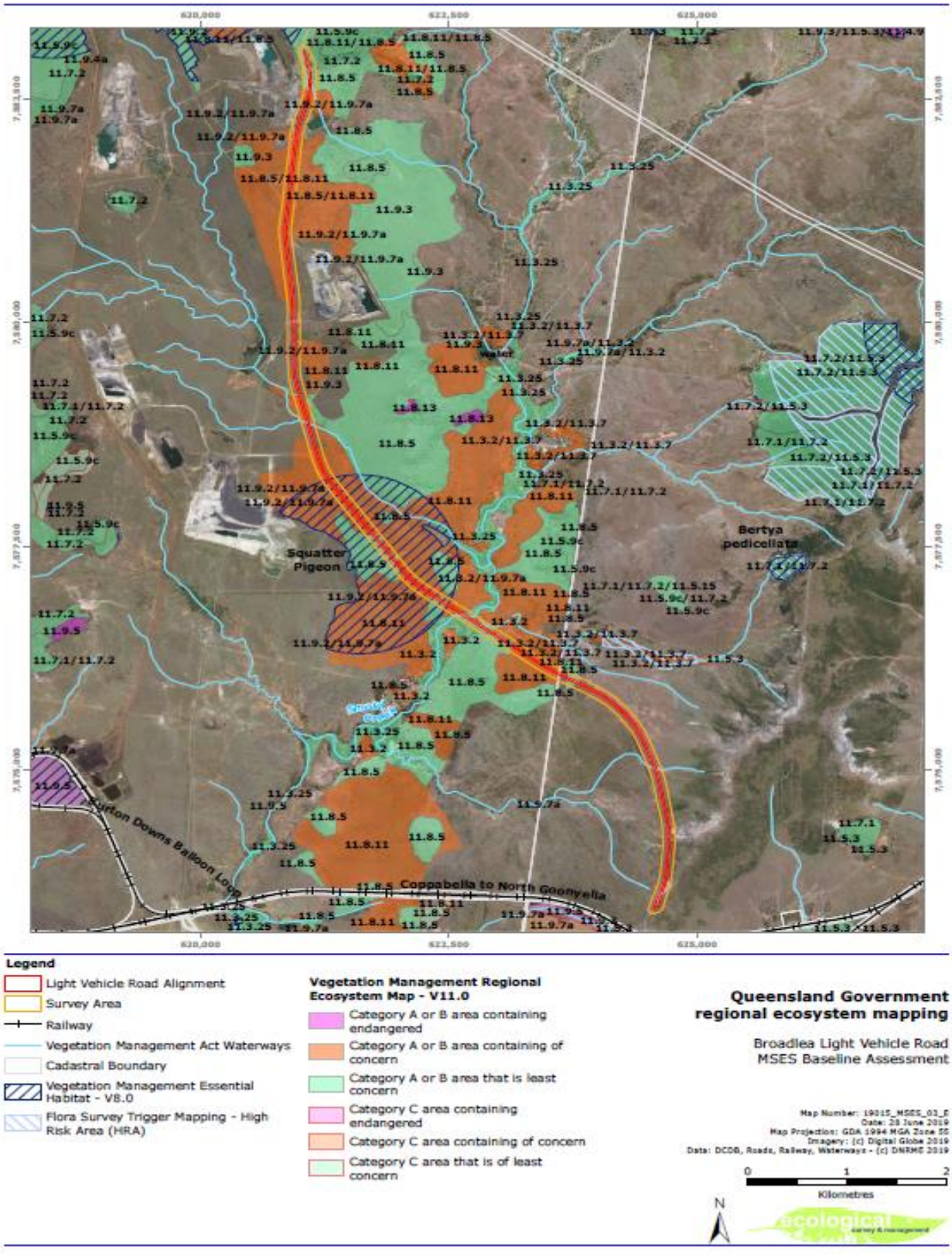
Domain	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria	Evidence to be supplied of compliance with Completion Criteria
				Cation Exchange Capacity >10meq/100g	Soil quality inspection evidenced in Rehabilitation Inspections or the Final Rehabilitation Report
				Evidence of nutrient and organic matter cycling is occurring	
			Vegetation Cover	Ground cover ≥70%	Vegetation inspection undertaken and evidenced in the Final Rehabilitation Report.
				Ground cover has demonstrated an ability to recover from disturbance (e.g. slashing, grazing, fire).	Rehabilitation inspections for species diversity, ground cover, health and erosion undertaken prior to, and after grazing. These results should be outlined in the Final Rehabilitation Report.
Dams (remain for clean water use)	**Long Term Safety**	Dam walls are fit for purpose and do not show signs of probable failure	Erosion	Dam walls are fit-for purpose and have been inspected by a suitably qualified person	Dam inspection as outlined by the latest copy of the Queensland Dams manual
	Non Polluting	Water quality in the dam is suitable for the landholder's uses	Water quality	Water quality complies with ANZECC 95% species protection level guidelines for Aquatic Ecosystems; ANZECC Guidelines for Primary Industries; OR the receiving water baseline.	Long-term water quality monitoring record and interpretation, as evidenced in the Final Rehabilitation Report
			Sediment Quality	Any saline or contaminated material has been removed from the base of the dam. Sediment at the base of the dam complies with the levels outlined in the Draft Guidelines for the Assessment and Remediation of Contaminated Sites in Queensland or any later guideline.	Sediment analyses from the base of the dam showing compliance with relevant guidelines, evidenced in the Final Rehabilitation Report.
	Stable	The spillway of any dam is fit for purpose and not subject to large-scale erosion	Erosion indicators	The spillway of all dams to be left for the landholder must be inspected and certified by a suitably qualified person.	Dam inspection as outlined by the latest copy of the Queensland Dams manual
				Discharge of water from the dam does not cause significant erosion to the bed and banks of the receiving environment.	Assessment / demonstration of erosion potential of discharges from the dam's spillway.

Domain	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria	Evidence to be supplied of compliance with Completion Criteria
	Sustainable Land Use	Water quality in the dam is suitable for the landholder's uses	Water quality	Water quality complies with ANZECC 95% species protection level guidelines for Aquatic Ecosystems; ANZECC Guidelines for Primary Industries; OR the receiving water baseline	Long-term water quality monitoring record and interpretation, as evidenced in the Final Rehabilitation Report
			Sediment Quality	Any saline or contaminated material has been removed from the base of the dam. Sediment at the base of the dam complies with the levels outlined in the Draft Guidelines for the Assessment and Remediation of Contaminated Sites in Queensland or any later guideline.	Sediment analyses from the base of the dam showing compliance with relevant guidelines, evidenced in the Final / Progressive Final Rehabilitation Report.
Dams (to be decommissioned)	**Long term Safety**	Residual embankment walls (if any) do not pose a safety hazard to humans or wildlife	Stability	Any dam walls or embankments that are not removed are not prone to instability or slumping as certified by a suitably qualified person.	Dam inspection as outlined by the latest copy of the Queensland Dams manual
	Non Polluting	Water quality in the dam is suitable for the landholder's uses	Water quality	Water quality complies with ANZECC 95% species protection level guidelines for Aquatic Ecosystems; ANZECC Guidelines for Primary Industries; OR the receiving water baseline.	Long-term water quality monitoring record and interpretation, as evidenced in the Final Rehabilitation Report
			Sediment Quality	Saline and contaminated material has been removed from the base of the dam. Sediment at the base of the dam complies with the levels outlined in the Draft Guidelines for the Assessment and Remediation of Contaminated Sites in Queensland or any later guideline.	Sediment analyses from the base of the dam showing compliance with relevant guidelines, evidenced in the Final Rehabilitation Report.
	Stable	Erosion is not enhanced by the residual landform.	Residual Landform	The residual landform is safe, not conducive to erosion and will support the post-mining land use.	Dam inspection as outlined by the latest copy of the Queensland Dams manual
				Adequate mitigation measures have been provided to reduce the level of erosion of any spillways or breaches in dam walls or embankments.	Assessment / demonstration of erosion potential of discharges from the dam's spillway.
	Sustainable Land Use	The residual landform is suitable	Soil quality	Soil $pH_{1:5}$ is greater than 5.5 and less than 9	Soils inspection evidenced in Final Rehabilitation Report.
				Root zone salinity is less than 0.6dS/m	

Domain	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria	Evidence to be supplied of compliance with Completion Criteria
		for the surrounding environment		Soil Cation Exchange Capacity is greater than 10meq/100g.	
				Nutrient cycling / microbial processes are occurring in the soil profile	
			Vegetation Parameters	Groundcover ≥70% in areas not subject to periodic inundation	Vegetation Survey evidenced in Final Rehabilitation Report.
				Groundcover has demonstrate an ability to recover from disturbance (e.g. slashing, grazing, fire	
Quarries and Borrow Pits	**Long Term Safety**	The area is safe for human, vehicle and wildlife traffic	Gradient	Generally gradients away from the cutting face are ≤15%	Topographic data, cross section or survey, evidenced in the Final Rehabilitation Report.
				The cutting face is certified as stable with a minimal risk of rock-fall or slipping	Geotechnical certification, evidenced in the Final Rehabilitation Report
			Signage	Where steep slopes occur (>30%) the upper edge of the face is fenced, bunded and signage is erected notifying persons of steep slopes	Inspection against success criteria, as evidenced in the Final Rehabilitation Report
	Non Polluting	Exposed rock does not mobilise contaminants to receiving waters	Leachate quality; OR	Leaching tests of exposed material meet specified guideline values	Rehabilitation Inspection / Final Rehabilitation Report outlining the location of exposed overburden or waste, appropriate leaching tests, and comparison to relevant guidelines.
			Capping	Material with the potential to contaminate runoff is capped with benign overburden and topsoil.	Geotechnical design of capping. Inspection of capping material as evidenced in the Final Rehabilitation Report.
	Stable	The area is safe for human, vehicle and wildlife traffic	Gradient	Generally gradients away from the cutting face are ≤15%	Topographic data, cross section or survey, evidenced in the Final Rehabilitation Report.
				The cutting face is certified as stable with a minimal risk of rock-fall or slipping	Geotechnical certification, evidenced in the Final Rehabilitation Report
			Signage	Where steep slopes occur (>30%) the upper edge of the face is fenced, bunded and signage is erected notifying persons of steep slopes	Inspection against success criteria, as evidenced in the Final Rehabilitation Report

Domain	Rehabilitation Goal	Rehabilitation Objective	Indicators	Completion Criteria	Evidence to be supplied of compliance with Completion Criteria
	Sustainable Land Use	The rehabilitated land is capable of supporting the final land use.	Water quality	Waters accumulating in any residual depression comply with ANZECC 95% species protection levels for Aquatic Ecosystems, or the receiving water baseline.	Water quality analyses and interpretation, evidenced in the Final Rehabilitation Report
			Capping / Topsoil Quality	Topsoil pH is between 5.5 and 9.0	Soil inspections as outlined in Section, evidenced in the Final Rehabilitation Report
				Root zone salinity <0.6dS/m	
				Cation Exchange Capacity >10meq/100g	
				Evidence of nutrient and organic matter cycling is occurring	Soil quality analyses as outlined in Section, evidenced in the Final Rehabilitation Report.
			Vegetation	Stem density of 10 trees per hectare occurs to meet the Native Ecosystem Land Use	Vegetation surveys as outlined in Section, evidenced in the Final Rehabilitation Report
				Groundcover ≥ 70%	
				Tree and groundcover has demonstrated an ability to recover from disturbance (e.g. slashing, grazing, fire)	

Appendix 3: Map of Broadlea Light Vehicle Road - Disturbance to Prescribed Environmental Matters



END OF PERMIT