Permit

Environmental Protection Act 1994

Environmental authority EPML00709113

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

Environmental authority number: EPML00709113

Environmental authority takes effect on 1 February 2021

Environmental authority holder(s)

Name(s)	Registered address
TEC Coal Pty Ltd	Level 2, 180 Ann Street BRISBANE CITY QLD 4000 Australia

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Ancillary 07 - Chemical Manufacturing 3: Manufacturing, in a year, a total of 200t or more of any of the following (d) explosives	ML6674
Ancillary 08 - Chemical Storage 3: Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c)	ML6674
Ancillary 56 - Regulated Waste Storage Receiving and storing regulated waste	ML6674
Schedule 2A 13: Mining black coal	ML6674
Ancillary 31 - Mineral processing 2: Processing, in a year, the following quantities of mineral products, other than coke (b) more than 100,000t	ML6674
Ancillary 63 - Sewage Treatment 1: Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of (b-i) more than 100 but not more than 1500EP if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	ML6674
Ancillary 60 - Waste disposal 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a) (a) less than 50,000t	ML6674

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

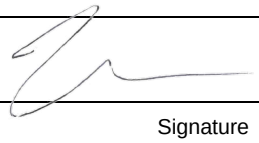
b) if the authority states a day or an event for it to take effect-on the stated day or when the stated event happens; or

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

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the *Planning Act 2016* or an SDA Approval under the *State Development and Public Works Organisation Act 1971*), this EA will not take effect until the additional authorisation has taken effect.

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

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

	1 February 2021
Signature	Date

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

Date Issued*:* 1 February 2021

Enquiries:
Business Centre (Coal)
Department of Environment and Science
PO Box 3028
EMERALD QLD 4720
Phone: (07) 4987 9320
Email: CRMining@des.qld.gov.au

Obligations under the Environmental Protection Act 1994

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

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

Other permits required

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

Conditions of environmental authority

Schedule A: General	
Condition number	**Condition**
A1	**Scope of Approval** 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	In carrying out the mining activity authorised by this environmental authority, the holder of this environmental authority must comply with **Appendix 1 — Authorised disturbance areas** of this environmental authority.
A3	This environmental authority authorises the extraction of no more than **11.0 million tonnes** of run of mine (ROM) coal per annum.
A4	**Risk Management** The holder of this environmental authority must develop and implement a risk management system for mining activities which mirrors the content requirement of the *Standard for Risk Management* (1S031000:2009), or the latest edition of an Australian standard for risk management, to the extent relevant to environmental management.
A5	**Notification of Emergencies, Incidents and Exceptions** The holder of this environmental authority must notify the administering authority by written notification within **twenty-four (24) hours**, after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.
A6	Within **ten (10) business days** following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following: (a) results and interpretation of any samples taken and analysed; (b) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm; and (c) proposed actions to prevent a recurrence of the emergency or incident.
A7	**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) the person responsible for resolving the complaint.
A8	The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within **ten (10) business days** of completion of the investigation, or no later than **ten (10) business days** after the end of the timeframe nominated by the administering authority to undertake the investigation.
A9	**Monitoring** 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**.
A10	**Drilling Outside the Surface Rights Area** The environmental authority holder may drill up to **eight (8)** exploratory bores outside of the surface rights area of ML6674, within Category B Environmentally Sensitive Areas located on the south-western corner of this tenement.
A11	The environmental authority holder is authorised to conduct exploration drilling and geophysical surveys within Yarraman State Forest to the east of the current surface rights of mining ML6674, within the area highlighted as "Approved Exploration Area" in **Appendix 1 — Authorised disturbance areas**, attached to this environmental authority.
A12	Exploration activities authorised by **Conditions A13** and **A14** must be conducted in accordance with all standard environmental conditions contained in the *Code of Environmental Compliance for Exploration and Mineral Development Projects*, with the exception of Condition 13, which is replaced by the following: *The holder of this environmental authority must not carry out activities in a category A Environmentally Sensitive Area. Activities involving machinery must not be carried out within 1 km of a category A Environmentally Sensitive Area.* *Exploration activities may be conducted on pre-existing roads, tracks, or cleared areas within Category B Environmentally Sensitive Areas provided that any associated disturbance (including that caused by*

	access to and preparation of drill sites) is confined to these pre-existing tracks, roads or cleared areas, and that no native vegetation is removed or disturbed by the activities.
A13	The holder of this environmental authority may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental nuisance or harm at any sensitive place or commercial place.
A14	**Waste Management Plan** A Waste Management Plan must be developed, implemented and reviewed, by a suitably qualified person(s), for all stages of mining activities and provided to the administering authority for review and comment by **30 March 2020,** and at intervals not exceeding **three (3) years** thereafter.
A15	Mine waste materials must be managed in accordance with the Waste Management Plan required by **Condition A14**.
A16	The Waste Management Plan required by **Condition A14** must include the following: (a) a description of the mining activities that may generate mine waste materials; (b) mine waste material management and control strategies such as: i. the types and amounts of wastes generated by the mining activities. ii. segregation of the wastes. iii. storage of the wastes. iv. disposal of the wastes. v. transport of the wastes. vi. monitoring and reporting matters concerning the wastes. (c) management of seepage and leachates during all phases of mining and closure; (d) the control of fugitive emissions to air; (e) a program of progressive sampling and characterisation to identify acid producing potential and metal concentrations of mine waste materials; (f) maintaining records of the relative locations of any other matter stored with the mine waste material disposal areas; (g) rehabilitation strategies of mine waste material storage and disposal areas; and (h) monitoring of rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of tailings, including the prevention and management of acid mine drainage, erosion minimisation and establishment of vegetation cover.
A17	Within **twenty (20) business days** of receiving comments from the administering authority as per **Condition A14**, the Waste Management Plan must be updated to address the comments, amended to adopt any recommendations and re-submitted to the administering authority.

A18	**Coal Combustion Products Storage and Management** The holder of this environmental authority may store coal combustion products generated by the burning of coal at the Tarong Power Station and Tarong North Power Station in voids defined in **Table A1 - Authorised coal combustion product storage locations** and **Appendix 2 - Meandu Mine Voids, Drainage System and Monitoring Network**.
A19	Coal combustion products stored in voids defined in **Table A1 - Authorised coal combustion product storage locations** and **Appendix 2 - Meandu Mine Voids, Drainage System and Monitoring Network** must comply with contaminant limits defined in **Table A2 - Maximum Allowable Leaching Contaminant (TCLP) levels**.
A20	In addition to meeting the criteria in **Table A2 - Maximum allowable leaching contaminant (TCLP) levels**, the coal combustion products must not have any properties or contain any other contaminants at concentrations which may cause environmental harm.

Table A1 – Authorised coal combustion product storage locations

Void identification	Location
Central Pit	Refer to **Appendix 2 - Meandu Mine Voids, Drainage System and Monitoring Network**
King 4 South (K4S)	
King 2 West-North (K2W/N)	
King 4 East (K4E)	
King 2 East (K2E)	
Ramp 5	

Table A2 – Maximum allowable leaching contaminant (TCLP) levels

Contaminant	Maximum TCLP Value (mg/L)
Silver	0.5
Arsenic	0.5
Barium	10
Cadmium	0.05
Total Chromium	0.5
Copper	10
Nickel	0.5
Lead	0.5
Antimony	0.5
Thallium	0.1
Zinc	50
Selenium	0.1
Mercury	0.01

A21	Coal combustion products deposited and stored in a void identified in **Table A1 - Authorised coal combustion product storage locations** and **Appendix 2 - Meandu Mine Voids, Drainage System and Monitoring Network**, must be transferred or conveyed from the power station sites via an enclosed pipeline or other enclosed method of conveyance to prevent the release of a contaminant to the environment.

Schedule B: Air	
Condition number	**Condition**
B1	**Dust Nuisance** Subject to **Conditions B2** and **B3** of this environmental authority, the release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nuisance, at any sensitive place.
B2	When requested by the administering authority, dust and particulate 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 place, and the results must be notified within **fourteen (14) days** to the administering authority following completion of monitoring.

B3	If the environmental authority holder can provide evidence through monitoring that the following limits are not being exceeded then the holder is not in breach of **Condition B1**: (a) dust deposition of 120 milligrams per square metre per day (measured as total insoluble solids), averaged over one month, when monitored in accordance with the most recent version of AS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method; and (b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM_{10}) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time (excluding natural events such as bushfires and dust storm), at a sensitive place downwind of the operational land, when monitored in accordance with the most recent version of either, AS/NZS3580.9.3:2003; or AS3580.9.8:2008; or AS3580.9.11:2008.
B4	If monitoring indicates exceedance of the relevant limits in **Condition B3** of this environmental authority, then the environmental authority holder must: (a) Address the complaint including the use of appropriate dispute resolution if required; or (b) Immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.

Schedule C: Water	
Condition number	**Condition**
C1	**Contaminant release** Contaminants 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	**Stormwater Management** With the exception of stormwater collected within voids defined **in Table A1 - Authorised coal combustion product storage locations**, all areas within the approved surface area of the mining lease must be designed so that any stormwater contaminated by mining activities is directed to, and managed in accordance with, the Meandu Mine Drainage System and Monitoring Network, to achieve compliance with **Condition C5**.
C3	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 – Water monitoring locations and frequency (i.e. CP2, CP3 and CP4)**.
C4	**Release to waters**

	The release of mine affected water in accordance with **Condition C3** must not exceed the release limits stated in **Table C2 – Water contaminant limits**, when measured at the release points specified in **Table C1 – Water monitoring locations and frequency** (i.e. CP2, CP3 and CP4).
C5	The release of mine affected water from the release points (i.e. CP2, CP3 and CP4) must be monitored at the locations and frequency specified in **Table C1 – Water monitoring locations and frequency** for each quality characteristic specified in **Table C2 – Water Contaminant Limits**.
C6	In a 100 year ARI event the maximum limit for turbidity in **Table C2 - Water contaminant limits** will be the background level, as determined by the turbidity in Meandu Creek at a point upstream of the mining lease, plus 10% or 1000 NTU, whichever is the greater.
C7	For all discharges from **CP3** and **CP4** with an Electrical Conductivity greater than 2500µS/cm, but less than 2800µS/cm, a daily volume limit of 2.5ML/day applies.
C8	A result in excess of 9.0 for pH at **CP1** is not considered a breach of **Condition C4** of this environmental authority if concurrent monitoring at **CP3** can demonstrate compliance with the maximum pH limit stated in **Table C2 – Water contaminant limits** for **CP1** and the holder of this environmental authority can demonstrate that the pH at **CP1** is not a result of mine activities.
C9	The release of mine affected water from the release point **CP3** must be monitored for each quality characteristic specified in **Table C3 - Release contaminant trigger investigation levels**, on a monthly basis.
C10	If water quality characteristics exceed any of the trigger levels specified in **Table C3 - Release contaminant trigger investigation levels** at the release point **CP3** location listed in **Table C1 – Water monitoring locations and frequency**, the environmental authority holder must compare the downstream results (i.e. W2 & W3 – See Appendix 3) recorded at the monitoring points specified in **Table C1 – Water monitoring locations and frequency** to the trigger values specified in **Table C3 - Release contaminant trigger investigation levels** and: (a) where the trigger values are not exceeded then no action is to be taken, or (b) where the downstream results exceed the trigger values specified in **Table C3 - Release contaminant trigger investigation levels,** for any quality characteristic, compare the results of the downstream site to the data from background monitoring sites and: 1) if the result is less than the background monitoring site data, then no action is to be taken, or 2) 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 within 90 days of receiving the result, outlining: (i) details of the investigations carried out (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 C10b(2)** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.
C11	The following must be determined and submitted to the administering authority via an amendment to the environmental authority by **30 September 2021**: (a) Trigger level for Total Suspended Solids in **Table C3 - Release Contaminant Trigger Investigation Levels;** and (b) Trigger level for Sodium in **Table C3 - Release Contaminant Trigger Investigation Levels.**

Table C1 – Water monitoring locations and frequency

Monitoring / release Point	Location	Latitude (GDA94)	Longitude (GDA94)	Monitoring frequency
CP1*	Interception of Meandu Creek and Meandu Dam	26º 47' 02.76" S	151º 53' 46.62" E	Daily*
CP2^	Overflow from Retention Dam 17B on Black Creek	26º 47' 43.88" S	151º 55' 18.92" E	Daily*
CP3^	Measuring weir on Meandu Creek	26º 47' 26.51" S	151º 53' 32.28" E	Daily*
CP4^	Measuring weir on tributary of Meandu Creek	26º 47' 30.59" S	151º 53' 48.59" E	Daily*
W2#	Downstream of the Meandu Creek Dam on Meandu Creek	26º 46' 23.16" S	151º 53' 45.24" E	To be monitored in accordance with Condition C10 & C17.
W3#	Downstream of the Meandu Creek Dam on Meandu Creek	26º 44' 46.32" S	151º 54' 36.72" E	

* Monitoring location

^ Monitoring and release point

Downstream monitoring location

Table C2 – Water contaminant limits

Parameter	Monitoring / Release Point	Units	Minimum	Maximum
pH	CP1, CP2	pH Units	5.5	9.0
Turbidity	CP1, CP2	NTU	-	1000
Electrical Conductivity	CP3, CP4	µS/cm	-	2800
	CP2	µS/cm	-	1600

Table C3 - Release contaminant trigger investigation levels

Quality characteristic	Trigger levels (µg/L)	Comment on trigger level	Monitoring frequency
Aluminium	150	*For aquatic ecosystem protection, based on HD guideline (80% protection)*	Monthly
Arsenic	140	*For aquatic ecosystem protection, based on HD guideline (80% protection)*	
Cadmium	0.8	*For aquatic ecosystem protection, based on HD guideline (80% protection)*	
Chromium VI	40	*For aquatic ecosystem protection, based on HD guideline (80% protection)*	
Copper[L]	2.5	*For aquatic ecosystem protection, based on HD guideline (80% protection)*	
Iron	300	*For aquatic ecosystem protection, based on low reliability guideline*	
Lead	9.4	*For aquatic ecosystem protection, based on HD guideline (80% protection)*	
Mercury	5.4	*For aquatic ecosystem protection, based on HD guideline (80% protection)*	
Nickel[L]	17	*ANZECC highly disturbed (80% protection) for aquatic ecosystems*	
Zinc[L]	31	*ANZECC highly disturbed (80% protection) for aquatic ecosystems*	
Boron	1300	*For aquatic ecosystem protection, based on HD guideline (80% protection)*	

Cobalt	90	*For aquatic ecosystem protection, based on low reliability guideline*	
Manganese[L]	3600	*ANZECC highly disturbed (80% protection) for aquatic ecosystems*	
Molybdenum	34	*For aquatic ecosystem protection, based on low reliability guideline*	
Selenium	34	*ANZECC highly disturbed (80% protection) for aquatic ecosystems*	
Fluoride (total)	2000	*Protection of livestock and short term irrigation guideline*	
Sodium	TBA		
Suspended Solids	TBA		
Sulphate (SO_4^{2-}) (mg/L)	1000 mg/L	*ANZECC Guideline (1000 mg/L)*	

1. *All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.*
2. *The quality characteristics required to be monitored as per **Table C3 - Release contaminant trigger investigation levels,** 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 - Release contaminant trigger investigation levels,** by amendment.*
3. *HD – highly disturbed level of protection; guideline refers ANZECC & ARMCANZ (2000).*
4. *LOR (limit of reporting) – typical reporting for method stated. ICPMS/CV FIMS – analytical method required to achieve LOR.*
5. *L = Hardness modified calculations can be applied in accordance with DSITI, 2017*

C12	End of pipe release limits for process water and stormwater contaminated by mining activities must be monitored at the locations and frequencies defined in **Table C4 - End of pipe monitoring locations and frequency** and **Appendix 2 - Meandu Mine Voids, Drainage System and Monitoring Network** and comply with contaminant limits defined in **Table C5 - End of pipe release limits**.

Table C4 – End of pipe monitoring locations and frequency

Monitoring Point	Latitude (GDA 94)	Longitude (GDA94)	Monitoring frequency
RD2 – Overflow from Retention Dam 2	26º 47' 29.69" S	151º 53' 35.49" E	Quarterly

Table C5 – End of pipe release limits

Parameter	Units	Minimum	Maximum
Oil and Grease	mg/L	-	10

C13	All erosion and sediment control measures must be designed, implemented and maintained to minimise the release of sediment from the surface area of the mining lease.
C14	Mine water may be piped, trucked, conveyed or transferred by a means that does not contravene the conditions of this environmental authority.
C15	Mine affected water may be deposited into artificial water storage structures. This water may then be used on or at properties owned by the environmental authority holder or a third party with the agreement of the third party.
C16	**Receiving Environment Monitoring Program (REMP)** A Receiving Environment Monitoring Program must be developed, implemented and reviewed, by a suitably qualified person(s) for all stages of the authorised mining activity and provided to the administering authority for review and comment by **30 March 2020**, and every two (2) years thereafter.
C17	The REMP, required by **Condition C16**, must: a) identify and describe any potential adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity; b) described methods utilised to monitor 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; c) describe any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be affected by an authorised release of mine affected water; d) include monitoring of key Acid Mine Drainage (AMD) indicators (Manganese, Nickel and Zinc) at monitoring points CP3, W2 & W3 specified in **Table C1 - Water monitoring locations and frequency;** e) be designed to facilitate assessment of key AMD indicators (Manganese, Nickel and Zinc) at monitoring points CP3, W2 & W3 (against ANZG for highly disturbed (80% protection) aquatic ecosystems); f) describe the background reference water quality; g) describe the condition of downstream water quality compared against water quality objectives; and

	h) describe the suitability of current discharge limits to protect downstream environmental values. For the purposes of the REMP, the receiving environment is the downstream monitoring locations shown in **Table C1 – Water monitoring locations and frequency**.
C18	Within **twenty (20) business days** of receiving comments from the administering authority, as required by **Condition C16**, the REMP must be updated to address the comments and submitted to the administering authority.
C19	A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with **Conditions C16 and C17** must be prepared annually and submitted to the administering authority with each annual return.
C20	**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.

Schedule D: Groundwater	
Condition number	**Condition**
D1	**Contaminant release** The holder of this environmental authority must not release contaminants to groundwater.
D2	**Monitoring and reporting** All determinations of groundwater quality and biological monitoring must be performed by a suitably qualified person.

D3	The holder of the environmental authority must implement a groundwater monitoring program which has been developed by a suitably qualified person. The program must be able to detect a significant change to ground water quality values and standing water levels (consistent with the current suitability of the groundwater for domestic and agricultural use) due to activities that are part of this mining project.
D4	The holder of the environmental authority must report the results and analysis of groundwater monitoring to the administering authority on request.
D5	Groundwater affected by the mining activities must be monitored at compliance bores within the nominated geologies and minimum frequencies defined in **Table D1 – Groundwater monitoring locations and frequency**.

Table D1 – Groundwater monitoring locations and frequency

Geology	Minimum Number of Monitoring Locations	Minimum Monitoring Frequency
Meandu Creek Alluvium	1	Quarterly
Coal Measures – Ace Seam	0	Quarterly
Coal Measures – King Seam	2	Quarterly
Coal Measures – Queen Seam	3	Quarterly
Coal Seams below Queen Seam	2	Quarterly

D6	If the groundwater contaminant trigger levels defined in **Table D2 – 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. An action plan to mitigate potential harm must be developed by a suitably qualified person.

Table D2 – Groundwater contaminant trigger level

Aquifer	Parameter	Unit	Trigger Levels	Limit Type
Meandu Creek alluvium GW39	pH	pH Unit	5.5 – 9.0	Minimum and maximum range
&	EC	µS/cm	3400**/6220***	Maximum
	Sulphate	mg/L	244****	Maximum
Triassic Coal Measures	Fluoride	mg/L	2	Maximum
	Aluminium	mg/L	0.08	Maximum
King Seam	Arsenic	mg/L	0.042	Maximum
GW45_s,	Boron	mg/L	0.68	Maximum
GW46_s	Cobalt	mg/L	0.1	Maximum
	Lead	mg/L	0.154	Maximum
Queen Seam	Manganese	mg/L	2.5	Maximum
GW45_d,	Molybdenum	mg/L	0.05	Maximum
GW46_d,	Nickel	mg/L	0.12	Maximum
GW63_d	Selenium	mg/L	0.018	Maximum
Coal Seams below Queen Seam	Vanadium	mg/L	0.5	Maximum
GW01, GW11	Zinc	mg/L	0.138	Maximum

Note: * All metals/metalloids to be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metals/metalloids apply if dissolved results exceed trigger.

** Proposed EC trigger level for Meandu Creek alluvium at GW39 is 3400 µS/cm.

*** Proposed EC trigger level for coal measures is 6220 µS/cm.

**** Proposed sulphate trigger level is 244 mg/L for coal measures. No trigger level proposed for Meandu Creek alluvium at GW39 due to influence of Meandu Creek Dam on sulphate concentration at this site.

The assessment approach for trigger levels may be based on a two-tiered approach (DSITI, 2017), which includes:
Tier 1 – Assessment of a rolling median of 8 consecutive samples compared to the 80th percentile of the data.
Tier 2 – Three consecutive exceedances above the 95th percentile of the data set.

D7	An annual groundwater report must be submitted to the administering authority with each annual return. The report must include: (a) the results and interpretation of the groundwater monitoring program; (b) a review of the suitability of the groundwater network; and

	(c) recommendations or improvements to the groundwater network, including whether additional monitoring locations are required.
D8	**Bore Construction and Maintenance and Decommissioning** The construction, maintenance and management of groundwater bores (including background and compliance groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring. Construction and decommissioning must be in accordance with the "Minimum Construction Standard for Water Bores in Australia".
D9	Groundwater levels when measured at the monitoring locations specified in **Table D1 - Groundwater monitoring locations and frequency** must not exceed the groundwater level trigger change thresholds specified in **Table D3 - Groundwater level monitoring** below.
D10	**Exceedance Investigation** If quality characteristics of groundwater from compliance bores identified in **Table D1 - Groundwater monitoring locations and frequency** exceed any of the trigger levels stated in **Table D2 - Groundwater contaminant trigger levels** or exceed any of the groundwater level trigger threshold stated in **Table D3 - Groundwater level monitoring**, the holder of this environmental authority must compare the compliance monitoring bore results to the reference bore results and complete an investigation in accordance with the ANZECC and ARMCANZ 2000.

Table D3 – Groundwater level monitoring*

Monitoring Location	Trigger Level Threshold
Shallow Tertiary/Quaternary Units	2m/year
Triassic coal seams (King Seam and Queen Seam, excluding Ace Seam)	5m/year

Note: * Trigger level threshold only applies if changes in water level are assessed to be related to mining activities, but not related to climatic variation and other non-mining related factors.

Schedule E: Acoustic	
Condition number	**Condition**
E1	**Noise Nuisance** Notwithstanding any other conditions of this environmental authority, noise from activities must not cause an environmental nuisance at any noise sensitive place or any commercial place.
E2	**Noise nuisance – mining operations (other than blasting)** When requested by the administering authority in writing, noise monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of an authorised officer) of environmental nuisance at any sensitive place, and the results must be notified within **fourteen (14) days** to the administering authority following completion of monitoring. Noise Monitoring must include: (a) background noise level; (b) LA max, adj, 15 mins or where they can be justified as appropriate, LA 10, adj, 15 mins and LA 1, adj, 15 mins ; (c) the level and frequency of occurrence of impulsive or tonal noise; (d) atmospheric conditions including wind speed and direction; (e) effects due to extraneous factors such as traffic noise; and (f) location, date and time of recording.
E3	**Nuisance from Vibration and Airblast Overpressure** Vibration and/or airblast overpressure from the mining activity must not cause an environmental nuisance, at any sensitive place.
E4	**Airblast Overpressure and Ground-borne Vibration Nuisance** The holder of this environmental authority must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in **Table E1 – Blasting noise limits** to be exceeded at a sensitive place or commercial place.

Table E1 – Blasting noise limits

Blasting Noise Limits	Sensitive or Commercial Blasting Noise Limits Place Limits	
	7am to 6pm	**6pm to 7am**
Ground vibration peak particle velocity	Houses and low rise residential buildings and commercial buildings not included below – 4 out of 5 shots not to exceed 5mm/s and a maximum of 10mm/s for any blast	No blasting to occur
	Commercial and industrial buildings or structures of reinforced concrete or steel construction – 4 out of 5 shots not to exceed 10mm/s and a maximum of 15mm/s for any blast	
Airblast overpressure	115dB (80th percentile)	No blasting to occur
	120dB (maximum)	

E5	When requested by the administering authority, vibration and/or 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 place, and the results must be notified within **fourteen (14) days** to the administering authority following completion of monitoring.
E6	If the environmental authority holder can provide evidence through monitoring that the limits defined in **Table E1— Blasting noise limits** are not being exceeded then the holder is not in breach of **Condition E4**. Monitoring must include: (a) Location of the blast(s) within the mining area (including which bench level); and (b) Atmospheric conditions including temperature, relative humidity and wind speed and direction; and location, date and time of recording.
E7	If monitoring indicates exceedance of the relevant limits in **Table E1 – Blasting noise limits** then the environmental authority holder must: (a) Address the complaint including the use of appropriate dispute resolution if required; or (b) Immediately implement vibration and/or airblast overpressure abatement measures so that vibration and/or airblast overpressure from the activity does not result in further environmental nuisance.

Schedule G: Land	
Condition number	**Condition**
G1	**Progressive rehabilitation** Progressive rehabilitation must commence within 12 months of the disturbance activities ending.
G2	**Rehabilitation Management Plan and Rehabilitation Monitoring Program** The environmental authority holder must prepare and implement a Rehabilitation Management Plan and Rehabilitation Monitoring Program by **30 October 2021**. Copies of the Rehabilitation Management Plan and Rehabilitation Monitoring Program must be provided to the administering authority upon request, which must be within **fourteen (14) days** of the request (or an otherwise agreed timeframe).
G3	All areas disturbed by mining activities must be progressively rehabilitated to achieve: (a) A landform for final land uses that are: (i) safe to humans and wildlife (ii) non-polluting (iii) stable; and (iv) able to sustain the final land use; and (b) The final land use and rehabilitation success criteria are in **Appendix 5 - Final land use and rehabilitation success criteria for landforms** and indicative locations of final land uses are shown in **Appendix 4 – Final land uses and indicative locations**. (c) If the water storage in residual void and Steep Rocky Ecosystem landform shown in **Appendix 4 – Final land uses and indicative locations** that is associated with the future K2E mine extension is not approved by **18 December 2025**, it must be removed from **Appendix 4 – Final land uses and indicative locations.**
G4	The holder of this environmental authority must take all reasonable and practicable measures to minimise the area of land, including spoil areas, with post mined land slopes of greater than 17%.
G5	**Rehabilitation Outcomes** Areas that are to be progressively rehabilitated to a final land use, as required by **Condition G3** of this environmental authority must be rehabilitated using the rehabilitation criteria defined in **Appendix 5 - Final land use and rehabilitation success criteria for landforms.**
G6	**Residual Void and Highwall/Low Wall Outcome** The **two (2)** residual voids including highwall and low wall shown in **Appendix 4 – Final land uses and indicative locations**, must comply with the following outcomes:

	(a) Residual voids including highwall and low wall must not cause any serious environmental harm to land, surface waters or any known groundwater source, other than the environmental harm constituted by the existence of the residual void including highwall and low wall itself, and subject to any other condition within this environmental authority; (b) Residual voids must have a final land uses as steep rocky ecosystem and water storages.
G7	**Twelve (12) months** prior to the establishment of a residual void on the mining lease the holder of this environmental authority must complete an investigation into the residual void and submit a report to the administering authority proposing acceptance criteria, including: (a) Proposed landform design criteria for the competent and incompetent slopes; (b) The proposed surface area of the void; and (c) Proposals to meet the requirements of **Condition G6.**
G8	**Deep drainage (seepage)** Deep drainage (seepage) from the **domain** is non-polluting to recognised groundwater sources as assessed by an appropriately qualified person.
G9	**Tailings Deposition Areas** When the deposition of tailings to an area ceases, the holder of this environmental authority must install a final cover system to the tailings dam which effectively minimises: (a) Infiltration of water into the tailings deposition area; and (b) The likelihood of any erosion occurring to the final cover system.
G10	**Acid Rock Drainage Management** Measures must be implemented to prevent hazardous leachate being directly or indirectly released or likely to be released as a result of the activity to any ground water or water course.
G11	**Final Cover** When deposition of coal combustion products into voids defined in **Table A1 – Authorised coal combustion product storage locations** ceases, unless otherwise agreed to by the relevant landowner, any relevant land manager and the administering authority, the holder of this environmental authority must install a final cover system over the coal combustion products following sufficient time for ash consolidation and desiccation.
G12	The final capping system over coal combustion products in the voids defined in **Table A1 – Authorised coal combustion product storage locations** must be at least 2m deep and must include an upper layer of earthen material that is capable of sustaining plant growth, and must be designed and maintained to minimise erosion occurring to either the final capping system or the coal combustion products in the void.
G13	Materials used in the construction of the capping layer over the coal combustion products in the voids defined in **Table A1 – Authorised coal combustion product storage locations** must

	achieve an in-situ permeability which is sufficiently low and / or be sufficient thickness so as to minimise infiltration of water into the landform.
G14	Reject disposal areas must be covered by a minimum of 6 (six) meters capping designed in accordance with criteria determined by a suitably qualified and experienced person.
G15	Reject disposal areas capped in accordance with **Condition G13** must include an upper layer of earthen material designed and maintained to sustain plant growth.

Schedule H: Regulated Structures	
Condition number	**Condition**
H1	The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* 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.
H2	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.
H3	Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635).*
H4	**Design and Construction of a Regulated Structure** **Conditions H5 to H9** inclusive do not apply to existing structures. **Note:** Construction of a dam includes modification of an existing structure—refer to the definitions.
H5	All regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635).* **Note:** Certification of design and construction may be undertaken by different persons.
H6	Construction of a regulated structure is prohibited unless: (a) the holder has submitted a consequence category assessment report and certification to the administering authority; and (b) the design, 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.

H7	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 (EM635)*, and must be recorded in the Regulated Dams/Levees register.
H8	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 (EM635);* (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; (ii) Wall failure due to erosion by floodwaters arising from any watercourse or drainage line; and (iii) For regulated dams that are dams associated with a failure to contain — seepage: have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.
H9	Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that: (a) The 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure; and (b) Construction of the regulated structure is in accordance with the design plan.
H10	**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: (a) one paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with **Condition H5**; (b) a set of 'as constructed' drawings and specifications; (c) certification of those 'as constructed drawings and specifications' in accordance with **Condition H9**; (d) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan;

	(e) the requirements of this authority relating to the construction of the regulated structure have been met; (f) the holder has entered the details required under this authority, into a Register of Regulated Structures; and (g) there is a current operational plan for the regulated structures.
H11	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 by **2 February 2016** a copy of the certified system design plan including that structure; and (b) There must be a current operational plan for the existing structures.
H12	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.
H13	**Mandatory Reporting Level** **Conditions H14** to **H17** inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain — overtopping'.
H14	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.
H15	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.
H16	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.
H17	The holder must record any changes to the MRL in the Register of Regulated Structures.
H18	**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.
H19	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).

H20	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.
H21	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.
H22	**Annual Inspection Report** Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.
H23	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.
H24	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 (EM635)*.
H25	The holder must within **twenty (20) business days** of receipt of the annual inspection report, provide to the administering authority: (a) the recommendations section of the annual inspection report; and (b) if applicable, any actions being taken in response to those recommendations; and (c) If, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this to the administering authority within **ten (10) business days** of receipt of the request.
H26	**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.
H27	**Decommissioning and Rehabilitation** Dams must not be abandoned but be either: (a) Decommissioned and rehabilitated to achieve compliance with **Condition H28**; or (b) Be left in-situ for a beneficial use(s) provided that: (a) it no longer contains contaminants that will migrate into the environment;

	(b) it contains water of a quality that is demonstrated to be suitable for its intended beneficial use(s); and (c) the administering authority, the holder of the environmental authority and the landholder agree in writing that the dam will be used by the landholder following the cessation of the environmentally relevant activity(ies).
H28	Before surrendering this environmental authority, the site must be rehabilitated to achieve a sustainable, safe, stable, non-polluting landform in accordance with the conditions contained in **Schedule G: Land** of this environmental authority.
H29	**Register of Regulated Structures** A Register of Regulated Structures must be established and maintained by the holder for each regulated structure.
H30	The holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated dam is submitted to the administering authority.
H31	The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with **Conditions H10** and **H11** has been achieved.
H32	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.
H33	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.
H34	**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 by **2 August 2015**.
H35	All existing structures must subsequently comply with the timetable for any further assessments in accordance with the Manual specified in **Table H1 - 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.
H36	**Table H1 - Transitional hydraulic performance requirements for existing structures** ceases to apply for a structure once any of the following events has occurred: (a) It has been brought into compliance with the hydraulic performance criteria applicable to the structure under the Manual; (b) It has been decommissioned; or (c) It has been certified as no longer being assessed as a regulated structure.

H37	Certification of the transitional assessment required by **Conditions H35** and **H36** as applicable must be provided to the administering authority by **2 August 2015**.

Table H1 – 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

Definitions

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

‘accepted engineering standard’ a design completed or certified by a RPEQ or Certified Professional in Erosion and Sediment Control (CPESC).

''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.

'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 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); and

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

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

'asssociated 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.

'**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.

‘**cenospheres**’ means inert, hollow, essentially thin-walled glass spheres of approximately 10-350 microns having a typical density of 0.4-0.8g/cm3, comprised largely of silica and alumina and filled with air and/or gasses which are formed from coal combustion ash when in a molten state.

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

'**certification**' 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.

‘**coal combustion products**’ means fly ash, furnace bottom ash and cenospheres produced from the combustion of coal at the power station sites.

'**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 (EM635).*

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

'**construction**' or '**constructed**', in relation to watercourse diversions, is the process of building, or modifying an existing diversion, but does not include investigations and testing necessary for the purpose of preparing a design plan.

'**contaminant**' — a contaminant can be:

(a) a gas, liquid or solid; or

(b) an odour; or

(c) an organism (whether alive or dead), including a virus; or

(d) energy, including noise, heat, radioactivity and electromagnetic radiation; or

(e) a combination of contaminants.

'**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 (EM635)* 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.

'**disturbance**' of land includes:

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

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

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

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

(e) temporary infrastructure, including any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after the mining activity has ceased; or

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

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

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

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

(v) 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);

(vi) 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; or

(vii) disturbance that pre-existed the grant of the tenure.

'domain' means all listed final land uses noted in Appendix 5.

'**EC**' means electrical conductivity.

'**effluent**' treated wastewater released from sewage treatment plants.

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

'existing structure' means a structure that prior to **2 February 2015** meets any or both of the following, a structure:

a. with a design that is in accordance with the Manual for Assessing Hazard Categories and Hydraulic Performance of Dams and that is considerably in progress; and

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

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

'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.

'**fly ash**' means solid material extracted from the flue gasses of the boilers at the power station sites which are fired with pulverised coal, consisting essentially of the oxides of silicon, aluminium, iron and some calcium of which particle sizes range from less than 1µm (micrometre) to 200µm and are irregular to spherical in shape.

'**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:

(iii) geomorphic and vegetation assessment of the existing watercourse;

(iv) hydrologic conditions of the existing watercourse;

(v) the proposed watercourse diversion route; and

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

'**functionality**': the purpose that something is designed or expected to fulfil.

'**furnace bottom ash**' means the agglomerated particles formed at the bottom of the furnaces at the power station sites. Bottom ash is typically grey to black in colour, is quite angular, and has a porous surface structure.

'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' (EM635)*.

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

'hydraulic performance' means the capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*.

'**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 on page 1 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 (EM635)*.

'**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 (EM635)* published by the administering authority.

'**manual**' means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority.

'**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;

(a) 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;

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

(c) groundwater from the mine's dewatering activities; or

(d) 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

(a) both.

'**mine waste material'** includes, but is not limited to:

(a) Tailings;

(b) Coal Combustion Products;

(c) Coal Rejects; and

(d) Waste Rock.

'**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 allowance);

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

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

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

'**power station sites**' means Tarong Power Station and Tarong North Power Station, Tarong-Maidenwell Road, via Nanango Qld 4615.

'pre-existing watercourse' is the section of watercourse from which the flow of water will be diverted as a result of the construction and operation of a watercourse diversion.

'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; or

(c) an area of land that is not specified as "surface rights areas" in **Appendix 1 Authorised disturbance areas** of this environmental authority.

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

'Register of Regulated Structures' includes:

- date of entry in the register;
- name of the dam, its purpose and intended/actual contents;
- the consequence category of the dam as assessed using the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635);

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

(e) Mandatory reporting level (metres AHD);

- the design plan title and reference relevant to the dam;
- the date construction was certified as compliant with the design plan;
- the name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;
- details of the composition and construction of any liner;
- the system for the detection of any leakage through the floor and sides of the dam;
- 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;
- dates when recommendations and actions arising from the annual inspection were provided to the administering authority;
- dam water quality as obtained from any monitoring required under this authority as at **1 November** of each year.

`regulated dam' means any dam in the significant or high consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority.

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

'**rehabilitation**' the process of reshaping and revegetating land to restore it to a stable landform.

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

‘release of a contaminant’ into the environment, includes-

(a) to deposit, discharge, emit or disturb a contaminant;

(b) to cause or allow the contaminant to be deposited, discharged, emitted or disturbed;

(c) to fail to prevent the contaminant from being deposited, discharged, emitted or disturbed;

(d) to allow the contaminant to escape; and

(e) to fail to prevent the contaminant from escaping.

'**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.

'Resource activity' is an activity that involves—

1. a geothermal activity;
2. a GHG storage activity;
3. a mining activity; or
4. 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.

[1] Not including a species declared under the Land Protection (Pest and Stock Route Management) Regulation 2003 as a category class 1 pest, category class 2 pest or category class 3 pest.

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

'saline drainage' 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;

b) a motel, hotel or hostel;

c) an educational institution;

d) a medical centre or hospital;

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 and 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.

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' means a person who is a Registered Professional Engineer of Queensland under the provisions of the Professional Engineers Act 2002, who has an appropriate level of expertise in the structures, geomechanics, hydrology, hydraulics and environmental impact of watercourse diversions.

*An **appropriate level of expertise** includes:*

(a) demonstrable competency, experience and expertise in:

(i) investigation, design or construction of watercourses diversions;

(ii) operation and maintenance of watercourse diversions;

(iii) geomechanics with particular emphasis on channel equilibrium, geology and geochemistry;

(iv) hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;

(v) hydraulics with particular reference to sediment transport and deposition and erosion control;

(vi) hydrogeology with particular reference to seepage and groundwater; and

(f) solute transport processes and monitoring thereof, or

(b) sufficient knowledge and experience to certify that where the suitably qualified and experienced person has relied on advice and information provided by other persons with relevant expertise:*

(i) they consider it reasonable to rely on that advice and information; and

(ii) the expert providing the advice and information has knowledge, competency, suitable experience and demonstrated expertise in the matters related to watercourse diversions.

Persons with relevant expertise *include:*

(a) Geomorphologist: person who has demonstrated competency and relevant experience in stream geomorphology and watercourse diversions.

(b) Geotechnical Expert: person who has demonstrated competency and relevant experience in geotechnical assessment of soil characteristics suitable for watercourse diversions.

(c) Vegetation Expert: person who has demonstrated competency and relevant experience in the identification, role and function of vegetation with watercourses and adjoining floodplains, and has demonstrated competency and relevant experience in revegetation of watercourse diversions and adjoining floodplains.

(d) Groundwater Expert: person who has demonstrated competency and relevant experience in groundwater systems.

(e) Surface Water Expert: person who has demonstrated competency and relevant experience in hydrology.

(f) Engineer: person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the Professional Persons Act 2002 or has similar qualifications under a respected professional registration association, and has demonstrated competency and relevant experience in design and construction of watercourse diversions.

(g) Soils Expert: person who has demonstrated competency and relevant experience in soil classification including the physical, chemical and hydrologic analysis of soil.

'suitably qualified person' in relation to environmental matters means a person who:

(a) is a member of an organisation listed in Schedule 14 of the EP Regulations 2019; and

(b) holds certification as an environmental practitioner (e.g. Certified Environmental Practitioner, (CEnvP) under the CEnvP Scheme) or,

(c) has professional qualifications, training, skills and 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.

'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.

'TCLP' means Toxicity Characteristic Leaching Procedure and is test described in the most recent version of the United States Environmental Protection Agency's Test Methods for Evaluation Solid Waste, Physical/Chemical Methods.

'temporary watercourse diversion' is a man-made structure that may incorporate geomorphologic, hydraulic, hydrologic and ecological components of a local watercourse and is designed, constructed, operated and maintained to an engineering standard that ensures the diversion does not compromise the equilibrium and performance of the diversion and adjoining watercourses. A temporary diversion is replaced by a permanent diversion, or the re-establishment of the pre-existing watercourse, within the timeframe specified in the design plan.

'the Act' means the *Environmental Protection Act 1994*.

'µS/cm' means micro siemens per centimetre.

'**void**' means any constructed, open excavation in the ground.

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

'water year' means the 12-month period from **1 July to 30 June**.

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

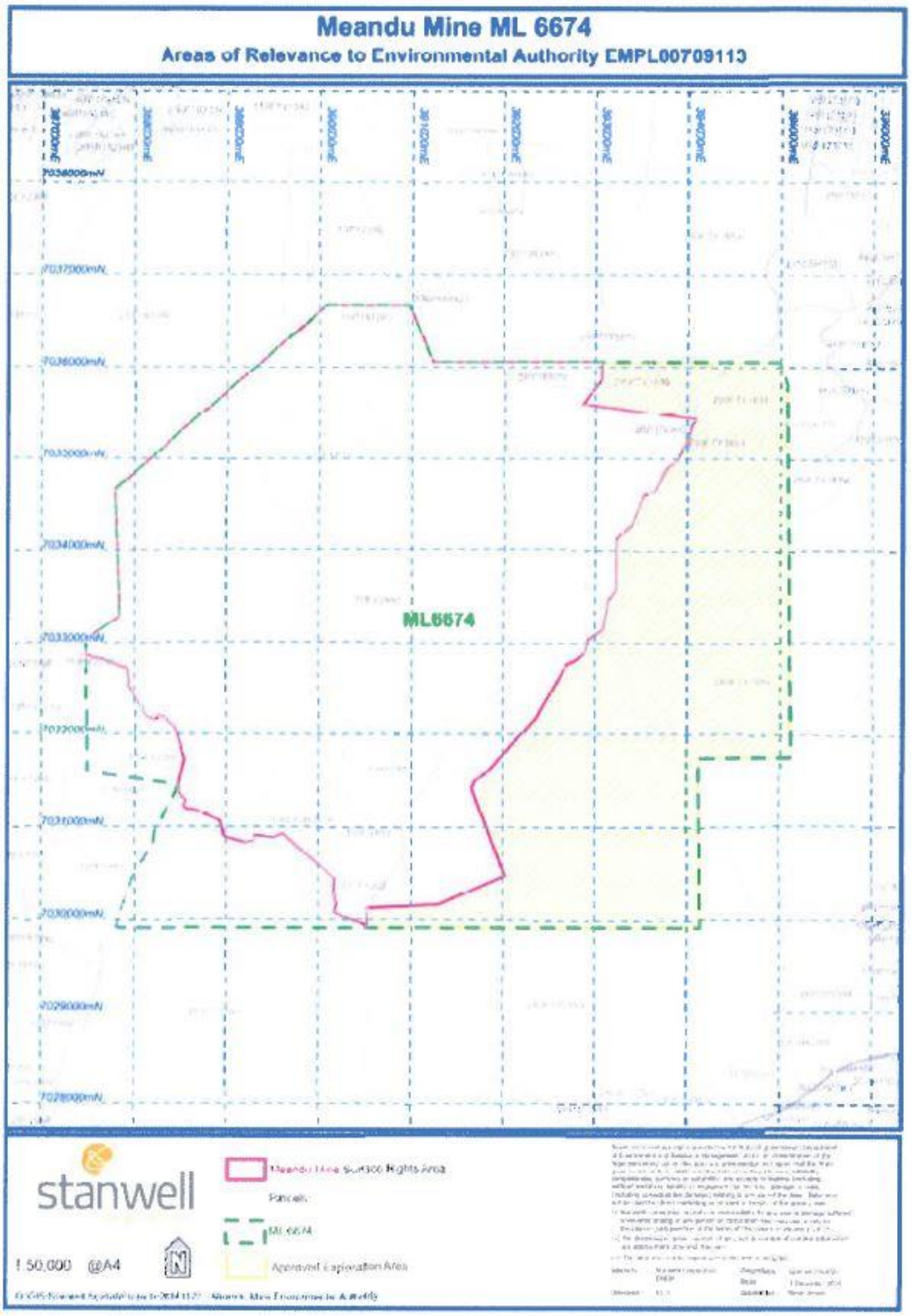
'water quality' means the chemical, physical and biological condition of water.

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

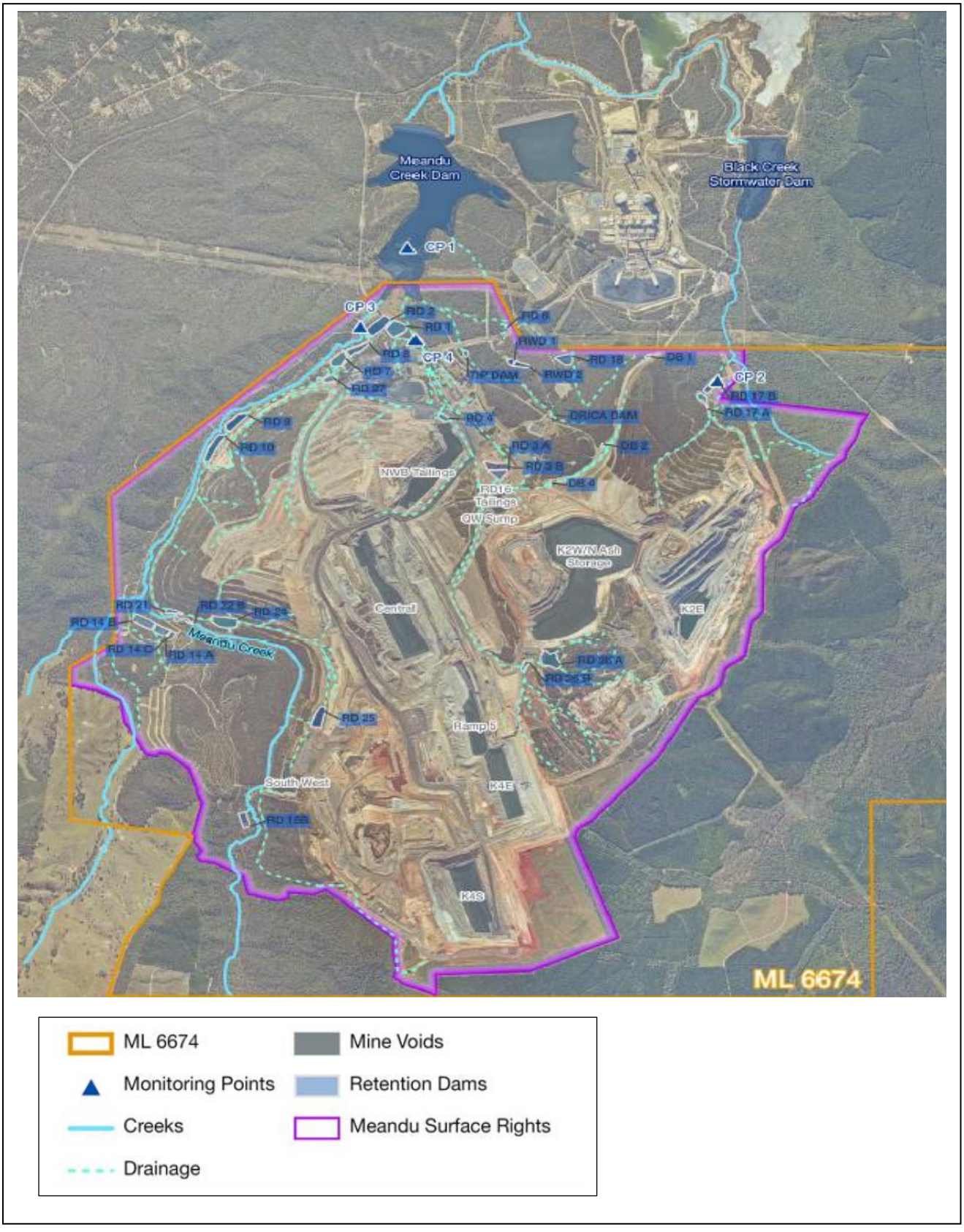
'wet season' means the time of year, covering one or more months, when most of the average annual rainfall in a region occurs. For the purposes of DSA determination this time of year is deemed to extend from **1 November** in one year to **31 May** in the following year inclusive.

Appendices

Appendix 1 – Authorised disturbance areas

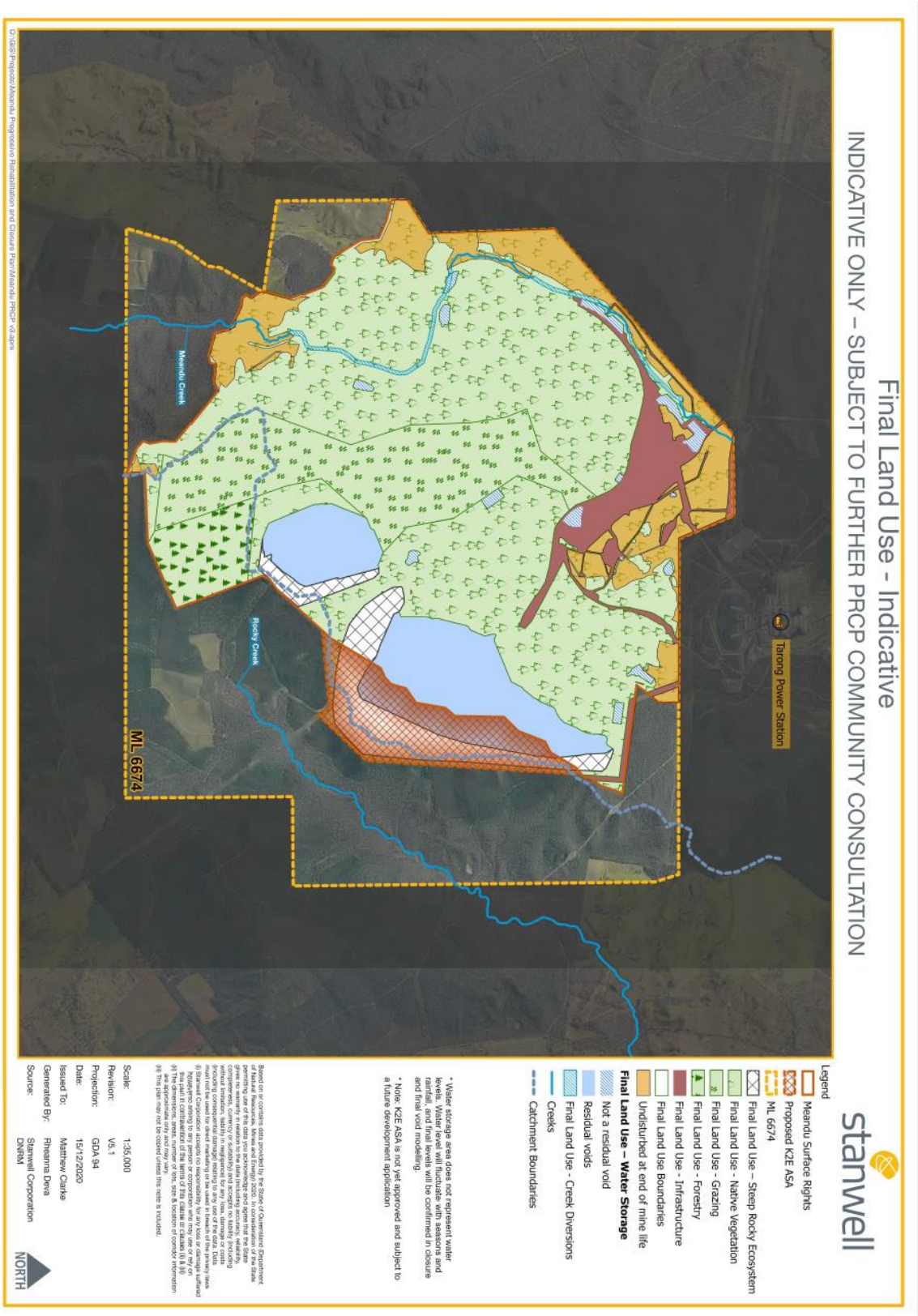


Appendix 2 – Meandu Mine Voids, Drainage System and Monitoring Network



Appendix 3 – Location of downstream water quality monitoring locations (W2 &W3)

Appendix 4 – Final land uses and indicative locations



Appendix 5 - Final land use and rehabilitation success criteria for landforms

FINAL LAND USE	GOAL	OBJECTIVE	INDICATOR	CRITERIA
Native Ecosystem[1]	Safe to humans and wildlife	Safety hazards in rehabilitation are analogous to local regional ecosystems in surrounding unmined landscape.	Hazard assessment by an appropriately qualified and experienced person.	The hazards in the native ecosystem must have no significant difference to hazards in local regional ecosystems in surrounding unmined landscape.
	Stable	Rehabilitation is geotechnically stable in the long term.	Factor of safety	≥1.5
		Rehabilitation ensures soil surface condition is erosionally stable.	Groundcover to be established and persistent.	>50% established and persistent groundcover (such as vegetation, rock, mulch, or other surface protection) for all slopes less than or equal to 20%. >80% established and persistent groundcover (such as vegetation, rock, mulch, or other surface protection) for slopes greater than 20%.
	Non-polluting	Rainfall runoff from rehabilitation protects aquatic environmental values and stock environmental values (as drinking water for native wildlife and livestock).	Indicators for runoff demonstrate suitable water quality for receiving environment (pH and EC).	pH: 5.5-9.0 (median) EC: <2037 µS/cm (median)

[1] Plant species composition of the low wall part of the residual void and the water equilibrium level will be decided by a geotechnical assessment.

	Able to sustain an agreed final land use	Vegetation to comprise a mixture of plant species like local regional ecosystems based on benchmarks for RE 12.9 -10.7; 12.9 -10.18 and 12.11.7[2]	Establishment of native ecosystems to resemble a mixture of benchmarks for RE 12.9 -10.7; 12.9 -10.18 and 12.11.7[2].	A. Native plant species richness: - Trees ≥4 count - Shrubs ≥6 count - Grass ≥4 count B. Cover: - Tree canopy cover is at least 20%
Creek diversion	Safe to humans and wildlife	The diversion has been constructed and is operating safely.	Designed and certified, with monitoring of operation by appropriately qualified and experienced person.	Records retained of as-built drawings and certification that creek diversions are operating in accordance with approved design and associated criteria.
		Safety hazards in rehabilitation are analogous to creeks in surrounding unmined landscape.	Hazard assessment by an appropriately qualified and experienced person.	The hazards in the creek diversions have no significant difference to hazards in creeks in surrounding unmined landscape.
	Stable	Creek diversions are both geotechnically and erosionally stable.	Stability assessed by an appropriately qualified and experienced person.	The assessment shows that the creek diversion is functioning as designed and the integrity of the watercourse diversion and/or adjoining watercourses is not threatened.
	Non-polluting	Diversions do not impact the environmental values of the receiving environment.	Indicators for runoff demonstrate suitable water quality for receiving environment (pH and EC).	pH: 5.5-9.0 (median) EC: <2037 µS/cm (median)

[2] Neldner, V. and Ngugi, M. (2012) *Assessment of BioCondition scores for three to twenty-year-old regeneration at Meandu Mine*, Southeast Queensland. Queensland Herbarium, Department of Science, Information Technology, Innovation and the Arts, Brisbane.

	Able to sustain an agreed final land use	Creek diversions are functioning as intended.	Assessment by an appropriately qualified and experienced person.	The assessment shows that the creek diversion is functioning as designed and the performance of the watercourse diversion and/or adjoining watercourses is not threatened.
Beef Cattle Grazing	Safe to humans and wildlife	Safety hazards in rehabilitation are analogous to grazing land in the surrounding unmined landscape.	Hazard assessment by an appropriately qualified and experienced person.	The hazards in the grazing land to have no significant difference to hazards in grazing land in the surrounding unmined landscape.
	Stable	Rehabilitation is geotechnically stable in the long term.	Factor of safety	≥1.5
			Minimal slope greater than 15%	80% of Slopes ≤ 15%. Minor areas up to a maximum of 25% to achieve tie-in with surrounding areas.
		Rehabilitation ensures soil surface condition is erosionally stable.	Groundcover to be established and persistent.	>50% established and persistent groundcover for all slopes less than or equal to 18%. >80% established and persistent groundcover (such as vegetation, rock, mulch, or other surface protection) for slopes greater than 18%.
	Non-polluting	Rainfall runoff from rehabilitation protects aquatic environmental values and stock environmental values (as drinking water for native wildlife and livestock).	Indicators for runoff demonstrate suitable water quality for receiving environment (pH and EC).	pH: 5.5-9.0 (median) EC: <2037 µS/cm (median)

	Able to sustain an agreed final land use	Rehabilitation is suitable for sustainable beef cattle grazing.	Land suitability assessment by appropriately qualified and experienced person using 'Regional Land Suitability Frameworks for Queensland' (DNRM & DSITIA 2013)[3].	Grazing land to meet Class 1, 2 or 3 land suitability for grazing.
Plantation Forestry	Safe to humans and wildlife	Safety hazards in rehabilitation are analogous to plantations in the surrounding unmined landscape.	Hazard assessment by an appropriately qualified and experienced person.	The hazards in the plantations to have no significant difference to hazards in plantations in the surrounding unmined landscape.
	Stable	Rehabilitation is geotechnically stable in the long term.	Factor of safety	≥1.5
		Rehabilitation ensures soil surface condition is erosionally stable.	Groundcover to be established and persistent.	>50% established and persistent groundcover (such as vegetation, rock, mulch, or other surface protection) for all slopes less than or equal to 20%. >80% established and persistent groundcover (such as vegetation, rock, mulch, or other surface protection) for slopes greater than 20%.

[3] DNRM & DSITIA (2013) *Regional Land Suitability Frameworks for Queensland,* Queensland Government (Department of Science, Information Technology and Innovation and Department of Natural Resources and Mines), Brisbane, Queensland.

	Non-polluting	Rainfall runoff from rehabilitation protects aquatic environmental values and stock environmental values (as drinking water for native wildlife and livestock).	Indicators for runoff demonstrate suitable water quality for receiving environment (pH and EC).	pH: 5.5-9.0 (median) EC: <2037 µS/cm (median)
	Able to sustain an agreed final land use	Rehabilitation is suitable for sustainable plantation forestry.	Land suitability assessment by appropriately qualified and experienced person using 'Regional Land Suitability Frameworks for Queensland' (DNRM & DSITIA 2013)[3].	Plantation land to meet Class 1, 2 or 3 land suitability for plantations. For Hoop Pine Plantations greater than or equal to 150 trees per hectare. For Hardwood Plantation greater than or equal to 100 trees per hectare.
Water Storage	Safe to humans, stock and wildlife	Safety hazards are managed for humans, stock and wildlife.	Hazard assessment by an appropriately qualified and experienced person.	Design requirements are determined to ensure water storage is safe for humans, stock and wildlife.
	Stable	Rehabilitation is geotechnically stable in the long term.	Factor of Safety	>1.5
	Able to sustain an agreed final land use	Able to sustain an agreed final land use.	Water storages contain water of a suitable quality for native wildlife and/or livestock ingestion, measured using the indicators of TDS, Calcium, Magnesium, Nitrate, Sulfate, Cobalt, Nickel, Zinc, Arsenic, Boron, Selenium, Molybdenum and Fluoride.	Total Dissolved Solids: <5,000 mg/L Calcium: ≤1,000 mg/L Magnesium: ≤2,000 mg/L Nitrate: ≤400 mg/L Nitrite: ≤30 mg/L Sulfate: ≤1,000 mg/L Cobalt: ≤1 mg/L

				Nickel: ≤1 mg/L Zinc: ≤20 mg/L Arsenic: ≤0.5 mg/L Boron: ≤5 mg/L Selenium: ≤0.02 mg/L Molybdenum: ≤0.15 mg/L Fluoride: ≤2 mg/L
Landholder Retained Infrastructure	Safe to humans and wildlife	Safety hazards accepted by landholder.	Legally binding agreement	Agreement executed by both parties.
		Safety hazards in rehabilitation are analogous to surrounding unmined landscape with the same infrastructure.	Hazard assessment by an appropriately qualified and experienced person.	The hazards in the landholder retained infrastructure to have no significant difference to hazards in the same infrastructure in surrounding unmined landscape.
	Stable	Landholder accepts condition of infrastructure, including its structural integrity.	Legally binding agreement	Agreement executed by both parties
	Non-polluting	Rainfall runoff from rehabilitation protects aquatic environmental values and stock environmental values (as drinking water for native wildlife and livestock).	Indicators for runoff demonstrate suitable water quality for receiving environment (pH and EC).	pH: 5.5-9.0 (median) EC: <2037 µS/cm (median)

	Able to sustain an agreed final land use	Landholder formally accepts infrastructure for his/her ongoing beneficial use.	Legally binding agreement	Agreement executed by both parties.
Steep Rocky Ecosystem	Safe to humans and wildlife	Safety hazards are managed for humans and wildlife now and in the foreseeable future	Hazard assessment by an appropriately qualified and experienced person.	Acceptable residual hazard ranking achieved.
	Stable	The landforms are geotechnically and erosionally stable.	Factor of Safety	>1.5 assessed at the projected stable crest.
	Non-polluting	Rainfall runoff from rehabilitation protects stock environmental values (as drinking water for native wildlife and livestock).	Indicators for runoff demonstrate suitable water quality for receiving environment (pH and EC).	pH: 5.5-9.0 (median) EC: <2037 µS/cm (median)
	Able to sustain an agreed final land use	Landform that creates native fauna and flora habitat, while still being stable and safe.	Creation of a safe, stable and non-polluting landform that supports flora and fauna habitat.	The landform provides a diversity of slopes including mix of predominately flat benches and batters up to 80 degrees that create a varied environment for the future establishment of niche habitats.
		Vegetation on benches to provide an appropriate environmental outcome and be based on a species composition that ensures geotechnical stability of the benches is not compromised.	A species composition that ensures geotechnical stability of the benches is not compromised.	Native plant species richness per appropriate ecosystem outcome, adjusted to meet geotechnical stability requirements.

END OF ENVIRONMENTAL AUTHORITY