Permit

Environmental Protection Act 1994

Environmental authority EPML00732813

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

Environmental authority number: EPML00732813

Environmental authority takes effect on 18 February 2022

Environmental authority holder(s)

Name(s)	Registered address
IDEMITSU AUSTRALIA RESOURCES PTY LTD ACN 010 236 272	Level 9, 175 Eagle Street, BRISBANE CITY QLD 4000 Australia
BOWEN INVESTMENT (AUSTRALIA) PTY LTD ACN 002 806 831	Suite 903 275 Alfred St N NORTH SYDNEY NSW 2060 Australia
BLIGH COAL LIMITED ACN 010 186 393	Level 9, 175 Eagle Street, BRISBANE CITY QLD 4000

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Environmental Protection Regulation 2019 Schedule 3, ERA 13: Mining black coal	ML7459 ML7460 ML70049 ML70326 ML70365 ML70366 ML70367
Environmental Protection Regulation 2019 Schedule 2, 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)	ML7459 ML7460 ML70049 ML70326 ML70365 ML70366 ML70367

ABN 46 640 294 485

Queensland Government

Environmentally relevant activity/activities	Location(s)
Schedule 2, Ancillary 16 - Extraction and Screening 2: Extracting, other than by dredging, in a year, the following quantity of material (a) 5,000t to 100,000t	ML7459 ML7460 ML70049 ML70326 ML70365 ML70366 ML70367
Schedule 2, Ancillary 56 - Regulated Waste Storage Receiving and storing regulated waste	ML7459 ML7460 ML70049 ML70326 ML70365 ML70366 ML70367
Schedule 2, Ancillary 60 - Waste disposal 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a) (d) more than 200,000t	ML7459 ML7460 ML70049 ML70326 ML70365 ML70366 ML70367
Schedule 2, 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	ML7459 ML7460 ML70049 ML70326 ML70365 ML70366 ML70367

Additional information for applicants

Environmentally relevant activities

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

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

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

Contaminated land

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

- the happening of an event involving a hazardous contaminant on the contaminated land (notice must be given within 24 hours); or
- a change in the condition of the contaminated land (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the contaminated land (notice must be given within 20 business days);
- that is causing, or is reasonably likely to cause, serious or material environmental harm.

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

Take effect

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

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

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

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

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the *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.

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

Date issued: 18 February 2022

Enquiries:
Coal & Gemstone Mining
Department of Environment and Science

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)

Legislative requirements and conditions of environmental authority

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.

Conditions of environmental authority

The environmentally relevant activity(ies) conducted at the locations as described above must be conducted in accordance with the following site-specific conditions of approval. This environmental authority consists of the following Schedules and Appendices:

Schedule A	General
Schedule B	Air
Schedule C	Water
Schedule D	Dams and Levees
Schedule E	Noise
Schedule F	Waste
Schedule G	Land
Schedule H	Rehabilitation
Appendix 1	Environmental Authority Water Monitoring Points
Appendix 2	Groundwater Monitoring Network
Appendix 3	Rehabilitation Success Criteria
Appendix 4	Overall Site Layout Indicative Domain Plan
Appendix 5	2km Floodplain Widening

Schedule A: General	
Condition number	**Condition**
A1	This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.
A2	Conditions of this environmental authority continue to apply in the event that this environmental authority is suspended.
A3	Unless otherwise authorised by this environmental authority, contaminants must not be released to the receiving environment.
A4	**Prevent and /or minimise likelihood of environmental harm** In carrying out the environmentally relevant activities, you must take all reasonable and practicable measures to prevent and/or minimise the likelihood of environmental harm being caused.
A5	**Scope of activity** This environmental authority authorises the mining of **twelve (12) million tonnes** of run of mine (ROM) coal per annum.
A6	**Maintenance of measures, plant and equipment** The environmental authority holder must: (a) install, maintain and operate, in a proper manner, all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; and (b) ensure all instruments and devices used on site for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.
A7	**Monitoring and records** Except where specified otherwise in another condition of this environmental authority, all monitoring records and reports required by this environmental authority must be kept for a period of not less than **five (5) years**.
A8	Monitoring and determinations required under any condition of this environmental authority must be conducted by an appropriately qualified person(s).

A9	**Management Plans and Reports** Unless otherwise specified in another condition of this environmental authority all management plans, reports, programs and documents required under any condition of this environmental authority must be developed by an appropriately qualified person.
A10	Copies of monitoring results, records, registers, management plans, reports, programs, documents and spatial information required by the conditions of this environmental authority must be made available to the administering authority for inspection, or if requested provided to the administering authority within **fourteen (14) days** or otherwise agreed timeframe.
A11	Within **thirty (30) days** of receiving comments from the administering authority for a management plan, report or document required under any condition of this environmental authority, the environmental authority holder must amend the management plan, report or document to address the comment(s) and any recommendations.
A12	**Notification of emergencies, incidents and exceedances** The environmental authority holder must notify the administering authority in writing within **twenty-four (24) hours** after becoming aware of any emergency or incident that results in the release of contaminants not in accordance, or reasonably expected not to be in accordance with the conditions of this environmental authority.
A13	Within **fourteen (14) days** following a notification in accordance with condition **A12,** 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 any 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.
A14	All monitoring results related to the notified emergency or incident must be provided to the administering authority within **four (4) weeks** after they are received by the environmental authority holder.
A15	**Complaints** The environmental authority holder must record in a register all complaints received about the mining activities.

A16	The register required by condition **A15** must include: (a) complainant details: (i) name; (ii) address; (iii) contact number; and (b) time and date of complaint; (c) the complainant's observations (statement, photo and/ or video); (d) reasons for the complaint; (e) investigations undertaken by the holder; (f) conclusions formed by the holder; (g) actions taken to resolve the complaint by the holder; (h) any abatement measures implemented by the holder; and (i) the person responsible for resolving the complaint.
A17	When requested by the administering authority, the environmental authority holder must investigate any complaint that is neither frivolous nor vexatious in the opinion of the administering authority, of nuisance or environmental harm, by: (a) undertaking monitoring in the timeframes specified by the administering authority; (b) completing an analysis and interpretation of the monitoring results; and (c) identifying any relevant abatement measures.
A18	The results of the investigation undertaken in accordance with condition **A17** must be reported to the administering authority within **thirty (30) days** of completion of the monitoring undertaken under condition **A17(a)**, or an alternative timeframe agreed to by the administering authority.
A19	If the investigation undertaken in accordance with condition **A17** indicates environmental harm has been or is likely to be caused, the environmental authority holder must: (a) address any complaint including the use of dispute resolution if appropriate; and (b) immediately implement abatement measures to prevent environmental harm.
A20	**Definitions** Words and phrases used throughout this environmental authority are defined in the Definitions section of this environmental authority. Where a definition for a term used in this environmental authority is sought and the term is not defined within this environmental authority, the definitions in the *Environmental Protection Act 1994*, its Regulations and Environmental Protection Policies are to be used.

Schedule B: Air	
Condition number	**Condition**
B1	**Dust nuisance** The release of dust or particulate matter or both, as a result of the mining activity must not cause environmental nuisance at any sensitive or commercial place.
B2	When requested by the administering authority or as a result of a complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the administering authority), dust and particulate monitoring must be undertaken by the environmental authority holder, and the results thereof notified to the administering authority within **fourteen (14) days** following the completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place.
B3	Dust and particulate matter must not exceed the following limits when measured by the environmental authority holder at any nuisance sensitive or commercial place: (a) dust deposition of 120 milligrams per square metre per day, when monitored in accordance with Australian Standard AS 3580.10.1 of 2003 (or more recent editions); and (b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time, at a sensitive or commercial place downwind of the site, cannot be exceeded more than five (5) times per year, when monitored in accordance with: (i) Australian Standard AS 3580.9.6 of 2003 (or more recent editions) Ambient air - Particulate matter - Determination of suspended particulate PM10 high-volume sampler with size-selective inlet -Gravimetric method; or (ii) any alternative method of monitoring PM10 which is permitted by the Air Quality Sampling Manual as published by the administering authority. (iii) any alternative method of monitoring PM10 as set out in the relevant Australian Standard including AS/NZ 3580.9.9:2006 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM10 low volume sampler – Gravimetric method; AS/NZS 3580.9.6:2003 Methods for sampling and analysis of ambient air – Determination of particulate matter – PM10 high volume sampler with size-selected inlet – Gravimetric method; AS/NZS 3580.9.7:2009 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – Dichotomous sampler (PM10, coarse PM and PM2.5) – Gravimetric method; AS/NZS 3580.9.8:2008 Methods for sampling and analysis of ambient air – Method 9.8: Determination of suspended particulate matter – PM10 continuous direct mass method using a tapered element oscillating microbalance analyser, AS/NZS 3580.9.11:2008 Methods for sampling and analysis of ambient air – Method 9.11 Determination of suspended particulate matter – PM10 beta attenuation monitors (or more recent editions).

B4	If monitoring indicates exceedance of the limits in condition **B3**, the environmental authority holder must: (a) address the complaint including the use of dispute resolution if appropriate; and (b) immediately implement dust abatement measures to prevent further complaints and environmental harm.
B5	**Odour** The release of noxious or offensive odour(s) or any other noxious or offensive airborne contaminant(s) resulting from the mining activity must not cause an environmental nuisance at any sensitive or commercial place.
B6	When requested by the administering authority, odour monitoring must be undertaken, within the timeframe nominated or agreed to by the administering authority, to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the administering authority) of environmental nuisance at any sensitive or commercial place, and the results must be notified within **fourteen (14) days** to the administering authority following completion of monitoring.
B7	If the monitoring indicates environmental harm, the environmental authority holder must: (a) address the complaint including the use of dispute resolution if appropriate; and (b) immediately implement odour abatement measures to prevent further complaints and environmental harm.

Schedule C: Water	
Condition number	**Condition**
C1	**Contaminant Release** Contaminants that will or have the potential to cause environmental harm must not be released directly or indirectly to any waters as a result of the mining activities, except as permitted under the conditions of this environmental authority.
C2	Unless otherwise permitted under the conditions of this environmental authority, the release of mine affected water to waters must only occur from the release points specified in **Table C1 – Mine affected water release points, sources and receiving waters** and **Appendix 1** attached to this environmental authority.

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

Release Point (RP)	**Easting (GDA94)**	**Northing (GDA94)**	**Mine Affected Water Source and Location**	**Monitoring Point**	**Receiving Waters description**
RP 1	653731	7401335	Ramp 24 Fill Point Dam, Ramp ¾ Drain, A, B, C, D, E, F and Y Pits	End of pipe	Nogoa River
RP3	651680	7400608	Ramp 24 Fill Point Dam, Ramp ¾ Drain, A, B, C, D, E, F and Y Pits	End of pipe	Nogoa River

C3	The release of mine affected water to internal water management infrastructure is permitted so long as the infrastructure is installed and operated in accordance with the water management plan required by condition **C31**.
C4	The release of mine affected water to waters in accordance with condition **C2** must not exceed the release limits for each quality characteristic stated in **Table C2 – Mine Affected Water Release Limits** when measured at the monitoring point specified in **Table C1 – Mine affected water release points, sources and receiving waters**.

Table C2 – Mine Affected Water Release Limits

Quality Characteristic	Release Limits	Monitoring Frequency
Electrical conductivity (µS/cm)	12,500 (end of pipe)	Real time telemetry for EC and pH with grab samples at commencement and weekly thereafter when safe to do so and access permits. Daily grab samples if telemetry not available. The first sample must be taken as soon as practicable and within **two (2) hours** following the commencement of release.
pH (pH Unit)	6.5 (minimum) 9.0 (maximum)	
Sulfate (SO_4^{2-}) (mg/L)	1,000	Commencement of release and thereafter weekly during release. The first sample must be taken as soon as practicable and within **two (2) hours** following the commencement of release.
Turbidity (NTU)	360	Daily during release (the first sample must be taken within **two (2) hours** of commencement of release).

C5	The release of mine affected water to waters from the release points must be monitored at the monitoring points specified in **Table C1 – Mine affected water release points, sources and receiving waters** and **Appendix 1** for each quality characteristic and at the monitoring frequency specified in **Table C2 – Mine Affected Water Release Limits** and **Table C3 – Release contaminant trigger investigation levels**. *NOTE: The administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event condition **C4** is contravened due to a temporary lack of safe or practical access. The administering authority expects the environmental authority holder to take all reasonable and practicable measures to maintain safe and practical access to designated monitoring locations.*

Table C3 – Release contaminant trigger investigation levels

Quality Characteristic	Trigger Levels[1] (µg/L)	Monitoring Frequency
Aluminium	300	The first sample must be taken as soon as practicable and within **two (2) hours** following commencement of release and thereafter weekly during release.
Ammonia	900	
Arsenic	13	
Boron	370	
Cadmium	0.2	
Chromium	1.0	
Cobalt	90	
Copper	10	
Fluoride (total)	2000	
Iron	300	
Lead	4	
Manganese	1900	
Mercury	0.2	
Molybdenum	34	
Nickel	11	
Nitrate	1100	
Selenium	10	
Silver	1	
Sodium	TBA	
Petroleum hydrocarbons (C6-C9)	20	
Petroleum hydrocarbons (C10-C36)	100	
Uranium	20	
Vanadium	20	
Zinc	20	

NOTE:

1. All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.

C6	If any trigger levels specified in **Table C3 – Release contaminant trigger investigation levels** are exceeded for any quality characteristic during a release, the environmental authority holder must compare results of the downstream monitoring points (MP5 **Table C5 – Receiving water upstream background sites and downstream monitoring points**) to the trigger levels specified in **Table C3 – Release contaminant trigger investigation levels** and: (a) where the trigger levels are not exceeded, no further action is to be taken; or (b) where the results of the downstream monitoring points outlined in **Table C5 – Receiving water upstream background sites and downstream monitoring points** exceed the trigger levels specified in **Table C3 – Release contaminant trigger investigation levels for any quality characteristic**, compare the results of the downstream monitoring points (MP5, **Table C5 – Receiving water upstream background sites and downstream monitoring points**) to the background monitoring data and: (i) if the result is less than or equal to the background monitoring site data, then no further action needs to be taken; or (ii) if the result is greater than the background monitoring site (MP2, **Table C5 – Receiving water upstream background sites and downstream monitoring points**) data recorded during the release, complete an investigation into the potential for environmental harm and provide a written report to the administering authority within **ninety (90) days**, outlining: (1) details of the investigation carried out; and (2) actions taken to prevent environmental harm. *NOTE: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with condition **C6 (b) (ii)** of this condition, no further reporting is required for subsequent trigger level exceedances for that release.*
C7	If an exceedance in accordance with condition **C6 (b) (ii)** is identified, the environmental authority holder must notify the administering authority in writing within **twenty-four (24) hours** of receiving the result.
C8	**Mine Affected Water Release Events** The environmental authority holder must ensure a stream flow gauging station/s is installed, operated and maintained that records stream flows at the locations and flow recording frequency specified in **Table C4 – Contaminant Release during Flow Events**.

Table C4 – Contaminant Release during Flow Events

Locations					Receiving water flow recording frequency	Receiving water flow criteria for discharge (m^3/s)	Electrical conductivity and Sulfate release limits (µs/cm)
Receiving waters	**Release point (RP)**	**Gauging Station**	**Gauging Station Easting (GDA94)**	**Gauging Station Northing (GDA94)**			
Nogoa River	RP1 RP3	"GS2" DNRME Gauging Station 130219A Nogoa River at Duck Ponds.	650482	7402403	Continuous real time	>30	**Electrical conductivity (µS/cm):** ≤12,500 **Sulfate (SO_4^{2-}) (mg/L)**: ≤1,000

C9	Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with condition **C2** must only take place during periods of natural flow events, and in accordance with the receiving water flow criteria for discharge specified in **Table C4 – Contaminant Release during Flow Events** for the release point(s) specified in **Table C1 – Mine affected water release points, sources and receiving waters**.
C10	The environmental authority holder is prohibited from releasing mine affected water into releases made from Fairbairn Dam for entitlement holders or environmental flows in accordance with the *Water Act 2000*, *Water Regulation 2002*, *Water Resource (Fitzroy Basin) Plan 2011* or *Fitzroy Basin Resource Operations Plan*.
C11	The daily quantity of mine affected water released from each release point must be measured and recorded at the monitoring point in **Table C1 – Mine affected water release points, sources and receiving waters**.
C12	Releases to waters must not cause erosion of the bed and banks of the receiving waters or cause a material build-up of sediment in such waters.
C13	Electrical conductivity (EC) at MP5 must not exceed **850µS/cm** at any time during the release influence period.
C14	If EC at MP6 exceeds **650µS/cm** during a release event, the environmental authority holder must immediately notify the administering authority and only continue to release mine affected water if the administering authority gives approval.

C15	**Notification of Release Event** The environmental authority holder must notify the administering authority via WaTERS as soon as practicable and no later than **twenty-four (24) hours** after commencing a release of mine affected water to the receiving environment. Notification must include the following information: (a) release commencement date/time; (b) details regarding the compliance of the release with the conditions of Schedule C: Water of this environmental authority (that is, contaminant limits, natural flow, discharge volume etc.); (c) release point/s; (d) release rate; (e) release volume (estimated); (f) release salinity; and (g) details of the receiving water/s including the natural flow rate.
C16	The environmental authority holder must notify the administering authority via WaTERS as soon as practicable and no later than **twenty-four (24) hours** after cessation of a release event notified under condition **C15**. The release cessation notification must include the following information: (a) release cessation date and time; (b) details of the receiving water/s including the natural flow rate; and (c) volume of water released. *NOTE: Successive or intermittent releases occurring within **twenty-four (24) hours** of the cessation of any individual release can be considered part of a single release event and do not require individual notification for the purpose of compliance with conditions **C15**, **C16** and **C17**, provided the relevant details of the release are included within the notification provided in accordance with conditions **C15**, **C16** and **C17**.*

C17	Within **twenty-eight (28) days** of notification under condition **C16**, the environmental authority holder must provide the administrating authority the following information via WaTERS: (a) confirmation of: (i) the release commencement date and time; (ii) the release cessation date and time; (iii) details of the receiving water/s including the natural flow rate; (iv) volume of water released; (b) all in-situ and laboratory water quality monitoring results; (c) details regarding the compliance of the release with the conditions of Schedule C: Water of this environmental authority (i.e. contamination limits, natural flow, discharge volume); (d) whether the release resulted in any impacts to the receiving environment; and (e) any other matter(s) pertinent to the water release event.
C18	**Notification of Release Event Exceedance** If the release limits defined in **Table C2 – Mine Affected Water Release Limits** are exceeded, the environmental authority holder must notify the administering authority via WaTERS within **twenty-four (24) hours** of receiving the results.
C19	The environmental authority holder must, within **twenty-eight (28) days** of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority via WaTERS detailing: (a) the reason for the release; (b) the location of the release; (c) the total volume of the release and which (if any) part of this volume was non-compliant; (d) the total duration of the release and which (if any) part of this period was non-compliant; (e) all water quality monitoring results (including all laboratory analyses); (f) identification of any environmental harm as a result of the non-compliance; (g) all calculations; and (h) any other matters pertinent to the water release event.

C20	**Release notification – potentially affected stakeholder** The environmental authority holder must notify all potentially affected stakeholders within **two (2) hours** of the commencement, or another timeframe as agreed to in writing with the relevant potentially affected stakeholder, of releasing mine affected water to the receiving environment. Notification must be in the form agreed to by the potentially affected stakeholder or at least include the following: (a) release commencement date/time; (b) release location (release point/s); (c) release rate; (d) receiving waters for the release; (e) receiving water flow rate; (f) water quality of the release including salinity and pH; and (g) estimated duration of the release.
C21	**Receiving environment monitoring and contaminant trigger levels** The quality of the receiving waters must be monitored at the monitoring points specified in **Table C5 – Receiving water upstream background sites and downstream monitoring points** for each quality characteristic and at the monitoring frequency stated in **Table C6 – Receiving water contaminant trigger levels**.

Table C5 – Receiving water upstream background sites and downstream monitoring points

Monitoring Points	Receiving Waters Location Description	Easting (GDA94)	Northing (GDA94)
Upstream background monitoring point			
MP2	Nogoa River at Duckponds (130219A)	650482	7402403
Downstream monitoring points			
MP5	Nogoa River at Ensham Lease Boundary	654688	7400679
MP6	Mackenzie River at Riley's Crossing (130113A)	663861	7395396

C22	If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels for pH, suspended solids or Sulfate specified in **Table C6 – Receiving water contaminant trigger levels** during a release event the environmental authority holder must compare the downstream results to the upstream results in the receiving waters and: (a) where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no further action needs to be taken; or (b) where the downstream results exceed the upstream results, complete an investigation into the potential for environmental harm and provide a written report to the administering authority via WaTERS by **1 March** each year, outlining: (i) details of the investigations carried out; and (ii) actions taken to prevent environmental harm. *NOTE: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with condition **C22 (b)** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.*

Table C6 – Receiving water contaminant trigger levels

Quality Characteristic	Contaminant Trigger Levels	Monitoring Frequency	Comments
Electrical conductivity (µS/cm)	Cease Release: >850 (MP5) Approval Trigger 650 (MP6)	Real time telemetry. Daily grab samples if telemetry not available (the first sample must be taken as soon as practicable).	Grab samples shall be taken only when safe to do so and access permits. Refer to condition **C13** and **C14**.
pH (pH Unit)	6.5 (minimum) 9.0 (maximum)		
Suspended solids (mg/L)	1,000	Grab samples at commencement and weekly thereafter.	
Sulfate (SO_4^{2-}) (mg/L)	250		

C23	**Receiving Environment Monitoring Program (REMP)** The environmental authority holder must maintain and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows as a result of the mining activities. The REMP must provide for monitoring of the receiving environment periodically (under natural flow conditions) and while mine affected water is being released.

C24	For the purposes of the REMP, the only receiving environment is the waters of the Nogoa River, downstream of Ensham Coal Mine to Riley's Crossing of the Mackenzie River and downstream of the Comet River junction (the area of the REMP). The REMP must encompass any sensitive receiving waters or environmental values within the area of the REMP that will potentially be directly affected by an authorised release of mine affected water.
C25	The REMP must: (a) assess the condition or state of receiving waters, including upstream conditions, spatially within the REMP area, considering background water quality characteristics based on accurate and reliable monitoring data that takes into consideration temporal variation (e.g. seasonality); (b) be designed to facilitate assessment against water quality objectives for the relevant environmental values that need to be protected; (c) include monitoring from background reference sites (e.g. upstream or background) and downstream sites from the release (as a minimum, the locations specified in **Table C5 – Receiving water upstream background sites and downstream monitoring points**); (d) specify the frequency and timing of sampling required in order to reliably assess ambient conditions and to provide sufficient data to derive site specific background reference values in accordance with the Queensland Water Quality Guidelines 2006. This should include monitoring during periods of natural flow irrespective of mine or other discharges; (e) include monitoring and assessment of dissolved oxygen saturation, temperature and all water quality parameters listed in **Table C2 – Mine Affected Water Release Limits** and **Table C3 – Release contaminant trigger investigation levels**; (f) include, where appropriate, monitoring of metals/metalloids in sediments (in accordance with ANZG 2018, BATLEY and/or the most recent version of AS5667.1 Guidance on Sampling of Bottom Sediments); (g) include, where appropriate, monitoring of macroinvertebrates in accordance with the Australian River Assessment System (AusRivas) methodology; (h) apply procedures and/or guidelines from Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018) and other relevant guideline documents; (i) describe sampling and analysis methods and quality assurance and control; and (j) incorporate stream flow and hydrological information in the interpretations of water quality and biological data.
C26	A report on the REMP must be prepared annually and made available on request to the administering authority. The report must include all monitoring results, an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and analysis on the suitability of current release limits to protect downstream environmental values.

C27	**Water reuse** Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as farm dams or tanks, or used directly at properties owned by the environmental authority holder or a third party for the purpose of: (a) supplying stock water only where there is compliance with the release limits specified in **Table C7 – Stock Water Release Limits**; or (b) supplying irrigation water only where there is compliance with the release limits specified in **Table C8 – Irrigation Release Limits**.

Table C7 – Stock Water Release Limits

Quality Characteristic	Units	Minimum	Maximum
pH	pH units	6.5	8.5
Electrical Conductivity	µS/cm	0	5000

Table C8 – Irrigation Release Limits

Quality Characteristic	Units	Minimum	Maximum
pH	pH units	6.5	8.5
Electrical Conductivity	µS/cm	0	Site specific value determined in accordance with ANZECC & ARMCANZ (2000) Irrigation Guidelines

C28	Mine affected water may be piped, trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as farm dams or tanks, for the purpose of supplying water to any operation licensed for either ERA13 (mining black coal) or ERA31 (mineral processing). The volume, pH and electrical conductivity of water transferred must be monitored and recorded.

C29	If mine affected water is given or transferred to another person in accordance with conditions **C27** or **C28**, the transfer must be in accordance with a written agreement (the third party agreement) that: (a) includes a commitment from the transferee to use it in such a way so as to prevent environmental harm or public health incidents; (b) reflects the General Environmental Duty (GED) under section 319 of the *Environmental Protection Act 1994*, environmental sustainability of the water disposal and protection of environmental values of waters; and (c) is signed by both parties to the agreement.
C30	**Annual water monitoring reporting** The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority via WaTERS in the specified format by **1 March** each year: (a) the date on which the sample was taken; (b) the time at which the sample was taken; (c) the location or monitoring point at which the sample was taken; (d) the measured or estimated daily quantity of the contaminants 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 with the conditions of this environmental authority; and (g) water quality monitoring data where required by the environmental authority (release, receiving environment, REMP, water storages, sewage treatment plants and groundwater) must be provided to the administering authority in the specified electronic format via WaTERS.
C31	**Water Management Plan** A Water Management Plan must be developed by an appropriately qualified person and implemented at all times that mining activities are being carried out.
C32	The release of any contaminants as permitted by this environmental authority, directly or indirectly to waters, other than in accordance with condition **C31** must not result in any: (a) visible discolouration of receiving waters; and (b) slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.

C33	**Saline and acid rock drainage** The environmental authority holder must ensure proper and effective measures are taken to avoid, or otherwise minimise, the generation and/or release of: (a) saline drainage; (b) acid rock drainage.
C34	**Stormwater and water sediment controls** An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.
C35	Stormwater, other than mine affected water, is permitted to be released to waters from: (a) erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition **C34**; and (b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan and that complies with condition **C31**, for the purpose of ensuring water does not become mine affected water.
C36	The maintenance and cleaning of any vehicles, plant or equipment must not be carried out in areas from which contaminants can be released into any receiving waters.
C37	Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable to minimise the release of wastes, contaminants or materials to any stormwater drainage system or receiving waters.
C38	**Sewage effluent** Sewage effluent used for dust suppression or irrigation must not exceed the release limits in **Table C9 – Sewage effluent quality standards**.

Table C9 – Sewage effluent quality standards

Quality	Release limit	Units	Limit type	Monitoring frequency
5 Day BOD	20	mg/L	max	On release
pH	6 - 8		range	On release
Free Chlorine residuals	1.0	mg/L	max	On release
Faecal coliforms (based on the average of a minimum of 5 samples)	1,000	Colonies per 100ml	max	On release

C39	**Groundwater** Mining activities (including rehabilitation activities) must not adversely impact the groundwater receiving environment unless otherwise authorised under this environmental authority.
C40	Groundwater must be monitored quarterly at all monitoring points specified in **Table C10 – Quarterly groundwater monitoring requirements and location**.
C41	Groundwater drawdown fluctuations of greater than 2m from the standing water levels specified in **Table C10 – Quarterly groundwater monitoring requirements and location** not resulting from the pumping of licensed bores, must be notified to the administering authority via WaTERS within **twenty eight (28) days** following detection of drawdown.
C42	The environmental authority holder must notify the administering authority within **five (5) business days** via WaTERS of receiving any monitoring result that shows an exceedance of any limit for any quality characteristic specified in **Table C11 – Groundwater quality limits**. For condition **C42**, an exceedance is when a limit for any quality characteristic specified in **Table C11 – Groundwater quality limits** is exceeded on any **three (3)** consecutive sampling occasions
C43	Within **fourteen (14) days** of the notification given under condition **C41** or **C42**, the environmental authority holder must commence an investigation to determine if the exceedance is a result of: (a) the mining activities including rehabilitation activities; (b) seasonal / natural variation; (c) neighbouring land use resulting in groundwater impacts; (d) any other potential cause of exceedance; or (e) an investigation is only required if the mining affected drawdown fluctuations reported in C41 are outside of modelled values; (f) any combination of (a) to (d) the above.
C44	The investigation required by condition **C43** must be completed and submitted to the administering authority via WaTERS within **three (3) months** of notification under condition **C41** or **C42.**
C45	If the investigation under condition **C43** determines that the exceedance was a result of the mining activities, including rehabilitation, in accordance with condition **C43(a)** or a combination that includes condition **C43(a)** then a further investigation must be undertaken by the environmental authority holder to establish whether environmental harm has occurred, and the extent thereof.

C46	Within **one (1) month** of the investigation under **C45**, the environmental authority holder must have: (a) implemented short-term measures to mitigate the potential for environmental harm; (b) developed long-term mitigation measures to address any existing groundwater contamination; and (c) if environmental harm has occurred as a result of groundwater drawdown exceedances, the environmental authority holder must: (i) determine any actions required to reduce the potential for environmental harm; and (ii) determine any mitigation measures required to limit the drawdown in the affected groundwater resource.

C47	**Groundwater Management and Monitoring Program** A Groundwater Management and Monitoring Program must be developed and implemented at all times mining activities, including rehabilitation, are being carried out to meet the following requirements: (a) identifies all potential sources of contamination to groundwater from mining activities and rehabilitated areas; (b) provides a hydrogeological conceptual groundwater model that details the interactions and direction of flow between the Permian coal measures, the Triassic Rewan Group, the Quaternary alluvial aquifers and the Nogoa River system including its tributaries within a 5km radius of the residual voids; (c) identifies all environmental values (including the Nogoa River) that must be protected; (d) details groundwater levels in all identified aquifers present across and adjacent to the site to confirm existing groundwater flow paths; (e) estimates the groundwater inflow to any rehabilitated landforms and surface water ingress to groundwater from flooding events in the form of a groundwater model; (f) details a water balance model; (g) ensures all potential adverse groundwater impacts due to mining and rehabilitation activities are identified, monitored and mitigated; (h) ensures groundwater monitoring and data analysis is undertaken to: (i) detect any impacts to groundwater levels due to mining and rehabilitation activities; (ii) detect any impacts to groundwater quality due to mining and rehabilitation activities; (iii) determine compliance with condition **C39**; and (iv) determine trends in groundwater quality; (i) provides an appropriate quality assurance and quality control program; (j) documents groundwater management and monitoring methodologies undertaken for the duration of all mining activities and rehabilitation activities; and (k) includes a review process to identify improvements to the program that includes addressing any comments provided by the administering authority.

C48	The Groundwater Management and Monitoring Program required by condition **C47** must be updated by **30 November 2023** to incorporate data collected from the Residual Void monitoring bores as detailed in **Table C10 – Quarterly groundwater monitoring requirements and locations**. The update must: (a) include limits calculated in accordance with the Guideline: Using monitoring data to assess groundwater quality and potential environmental impacts; (b) be based on a statistically robust dataset; and (c) include a minimum of 18 samples taken over a minimum of **twenty-four (24) months**.
C49	The Groundwater Management and Monitoring Program required by condition **C47** must be reviewed at least every **two (2) years** by an appropriately qualified person to determine if it continues to meet the requirements stated in condition **C47.**
C50	The following information must be recorded in relation to all groundwater water sampling: (a) the date on which the sample was taken; (b) the time at which the sample was taken; (c) the monitoring point at which the sample was taken; and (d) the results of all monitoring.

Table C10 – Quarterly groundwater monitoring requirements and locations

Location Description	Monitoring Bore	Monitoring Required	Latitude	Longitude	Aquifer Type	Standing Water Levels (mAHD)
Nogoa River Alluvium	EC01	Water level and quality	-23.47564	148.46894	Alluvium	143.63
	EC03	Water level and quality	-23.48024	148.47213		143.18
	EC07	Water level and quality	-23.48741	148.47842		141.39
	EC09A	Water level and quality	-23.48956	148.48218		140.33
	EC11	Water level and quality	-23.49236	148.4838		139.54
	EC13	Water level and quality	-23.49612	148.48385		138.95
	EC14	Water level and quality	-23.49721	148.48542		138.76
	GW01	Water level and quality	-23.49908	148.50755		139.50
	RB7a	Water level and quality	-23.4371	148.4473		TBD
Residual Void Bores	WSMB2S - Down gradient of Pit A South	Water level and quality	-23.5248	148.4601	Rewan Formation	TBD
	WSMB2D - Down gradient of Pit A South-	Water level and quality	-23.5248	148.4601	Coal Seam	TBD
	WSMB3S - Down gradient of Pit A South	Water level and quality	-23.5359	148.4481	Rewan Formation	TBD
	WSMB3D - Down gradient of Pit A South	Water level and quality	-23.5359	148.4481	Coal Seam	TBD
	Field 5	Water level and quality	-23.5185	148.5053	Alluvium	
	EC24	Water level and quality	-23.4562	148.4656		
	EC25	Water level and quality	-23.487	148.5068		
	RN 13020177	Water level and quality	-23.4791	148.4752		
	EC26	Water level	-23.4975	148.476		

		and quality				
	RB8	Water level and quality	-23.4095	148.499	Coal Seam	
	RB9	Water level and quality	-23.5499	148.4514	Coal Seam	
	RB10	Water level and quality	-23.5027	148.4597	Coal Seam	
Regional Bores (Private Property)	Fairhills (RN89380)	Water level	-23.35005	148.55243	Burngrove Formation	213.75
	Yongala (RN89383)	Water level	-23.36085	148.5417	Burngrove Formation	213.47
	Karanga (Bore A)	Water level	-23.60897	148.46087	Coal Measures	133.15
	Winton Creek (Bore 4)	Water level	-23.49707	148.39822	Rewan Formation	137.76
	Twin Bore (Bore 5)	Water level	-23.4899	148.38392	Alluvium	153.25
	Jamar Bore (Bore 7)	Water level	-23.51226	148.39107	Rewan Formation	115.02
	Railway (RN90140)	Water level	-23.38936	148.60078	Fairhills Formation	162.61
Regional Bores (Ensham Mine)	RB01	Water level and quality	-23.38737	148.46797	Coal seams	146.24
	RB02	Water level and quality	-23.40987	148.44638		135.29
	RB03	Water level and quality	-23.48269	148.42481		136.42
	RB04	Water level and quality	-23.51356	148.39852		136.06
	RB05	Water level and quality	-23.54595	148.43241		137.21
	RB06	Water level and quality	-23.5741	148.45845		139.44

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Table C11 – Groundwater quality limits

Location	Quality Characteristic	pH	Electrical Conductivity	Sulfate	Iron	Arsenic	Aluminium	Molybdenum	Selenium	*TRH C6-C10	*TRH C10-C40	Major ions
	Trigger level type	Range	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Interpretation Only
	Unit	pH units	(µS/cm)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(µg/L)	(µg/L)	N/A
EC01		6.5 – 8.5[A]	20,000[D]	720[F]	0.7[C]	0.013[C]	0.055[C]	0.034 [C]	0.005 [C]	≤20	≤100	Bicarbonate, sodium, carbonate, calcium, chloride, potassium, magnesium.
EC03			20,000[D]	650[D]	1[D]	0.013[C]						
EC07			30,100[D]	826[B]	3.5[D]	0.024[B]						
EC09A			20,000[D]	650[D]	0.7[C]	0.013[C]						
EC11			20,000[D]	650[D]	20.7[B]	0.013[C]						
EC13			20,800[D]	650[D]	3[D]	0.013[C]						
EC14			1,621[B]	27[B]	1.4[B]	0.013[C]						
GW01			6,426[B]	328[B]	0.7[C]	0.013[C]						
RB1			3818[B]	25[A]	0.7[C]	0.013[C]						
RB2			11626[B]	25[A]	0.7[C]	0.013[C]						
RB3			10600[B]	25[A]	0.7[C]	0.013[C]						
RB4			8070[B]	25[A]	0.7[C]	0.013[C]						
RB5			7450[B]	25[A]	0.7[C]	0.013[C]						
RB6			7730[B]	157[B]	1.3[B]	0.013[C]						
WSMB2S			10400[E]	311[E]	1.36 [E]	0.013[C]						
WSMB2D			13800[E]	773[E]	1.86 [E]	0.013[C]						
WSMB3S			7080[E]	81[E]	0.7[C]	0.013[C]						
WSMB3D			6740[E]	27[BE]	0.7[C]	0.013[C]						
Field 5			20200[E]	527 [E]	5.4 [E]	0.013[C]						
EC24			9800[E]	637 [E]	1.45 [E]	0.013[C]						
EC25			12000[E]	684 [E]	1.74 [E]	0.013[C]						
RN 13020177			5540[E]	477 [E]	5.66 [E]	0.013[C]						

EC26		20000[DE]	650 [DE]	1 [DE]	0.013[C]						
RB8		3240[E]	203 [E]	0.7 [C]	0.013[C]						
RB9		7843[E]	478 [E]	0.7 [C]	0.013[C]						
RB10		10600[B]	27 [B,E]	0.7 [C]	0.013[C]						

Notes:
All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Limits for metal/metalloids apply if dissolved results exceed value.
** Total Recoverable Hydrocarbons (TRH)*
A – Lower Nogoa River Water Quality Objectives
B – Site specific 95%ile
C – Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018)
D – Other Trigger Levels
*E – Indicative quality limits, to be updated in accordance with the update of the Groundwater Monitoring and Management Plan required by **30 November 2023** in accordance with condition **C48**.*
F – Site specific 80%ile

C51	The environmental authority holder must provide an equivalent (in quality and quantity), alternative water supply to the owner of the privately owned bore/s in **Table C10 – Groundwater monitoring locations and frequency**, where adverse impacts are caused by the mining activities.
C52	**Groundwater Management and Monitoring Program Report** The environmental authority holder must: (a) complete a Groundwater Management and Monitoring Program Report every two years which outlines how the program meets the requirements specified in condition **C47**; (b) submit the Groundwater Management and Monitoring Program Report to the administering authority via WaTERS by **1 March of 2024**, and subsequently every second year thereafter; and (c) submit all groundwater monitoring data from January to December of the previous calendar year to the administering authority via WaTERS by **1 March** of each calendar year.
C53	The Groundwater Management and Monitoring Program Report required by condition **C52** must include: (a) the standing water level of all groundwater bores within **Table C10 – Quarterly groundwater monitoring requirements and** location; (b) an assessment of long-term water quality and water level trends at all groundwater bores in **Table C11 – Quarterly groundwater monitoring requirements and location**; (c) maps showing the actual water level drawdown contours caused by the take of associated water for each groundwater aquifer; (d) details of any review undertaken of the numerical groundwater model and conceptual model; (e) an assessment of any differences between the groundwater level impact predicted and actual impacts for corresponding periods in the most current numerical groundwater model; (f) details of any bores which are predicted by the most current numerical groundwater model to be located within the depressurisation zone; and (g) an investigation into any interconnection and direction of flow between the alluvial aquifer and the Permian coal measures, including any recharge.
C54	**Residual Voids Groundwater Monitoring Bore Investigation** The environmental authority holder must complete an investigation which: (a) determines any groundwater aquifers which could be impacted by mining activities and the rehabilitation activities specified in **Appendix 3**; (b) proposes a network of groundwater bores to detect changes, impacts and long term threats on groundwater aquifers potentially affected by the mining activities and the rehabilitation activities specified in **Appendix 3**; and (c) at a minimum, includes the residual void bores at the locations in **Table C10 – Quarterly groundwater monitoring requirements and location**.

C55	A report documenting the outcomes of the investigation required by **condition C54** must be provided to the administering authority via WaTERS by **26 February 2021** and must include at a minimum: (a) the location of the proposed groundwater bores to detect potential impacts from the mining and rehabilitation activities; (b) the target groundwater aquifer for each of the proposed groundwater bores; (c) the conceptual model used to determine the location of groundwater bores; (d) the methodology used to determine an appropriate number of groundwater bores to be installed; (e) a schedule for the construction and commissioning of the groundwater bores; (f) how impacts to prescribed environmental matters will be avoided as a result of the disturbance associated with the installation of the proposed bores; and (g) standing water level for each of the groundwater bores.
C56	The following residual voids must act as groundwater sinks to the receiving groundwater environment into perpetuity: (a) A Central pit; (b) A North pit; (c) B pit; (d) C pit; and (e) D pit.
C57	Should any monitoring or modelling required under this environmental authority show that any of the Groundwater Daylighting Water Areas specified in condition **C56** and **Appendix 3** do not act as groundwater sinks, or are likely to not act as groundwater sinks, then the environmental authority holder must: (a) undertake an investigation to determine the necessary actions to ensure that no contamination of groundwater aquifers occurs; (b) provide the investigation report to the administering authority and reach agreement with the administering authority on the corrective actions; and (c) implement the agreed corrective actions.
C58	**Bore construction, maintenance and decommissioning** The construction, maintenance, management and decommissioning of groundwater bores (including groundwater monitoring bores) identified in the Groundwater Management and Monitoring Program Report must be undertaken in a manner that prevents or minimises impacts to the receiving environment and ensures the integrity of the bores to obtain accurate monitoring.

Schedule D: Dams and Levee	
Condition number	**Condition**
D1	**Assessment of consequence category** The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933) at the following times: (a) prior to the design and construction of the structure, if it is not an existing structure; or (b) prior to any change in its purpose or the nature of its stored contents.
D2	A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.
D3	Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933).
D4	Design and construction[1] of a regulated structure (conditions **D5** to **D9** inclusive) do not apply to existing structures. *Note:[1] Construction of a dam includes modification of an existing dam – refer to the definitions.*
D5	All regulated structures must be designed by, and constructed[2] under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933). *Note:[2] Certification of design and construction may be undertaken by different persons.*
D6	Construction of a regulated structure is prohibited unless the holder has submitted a consequence category assessment report and certification to the administering authority which has been certified by a suitably qualified and experienced person for the design and design plan and the associated operating procedures in compliance with the relevant condition of this authority.
D7	Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933), and must be recorded in the Regulated Dams/Levees register.

D8	Regulated structures must: (a) be designed and constructed in accordance with and conform to the requirements of the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933); (b) be designed and constructed to ensure the design is not be compromised by: (i) floodwaters entering the regulated dam from any watercourse or drainage line; and (ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line. (c) have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.
D9	Certification by the suitably qualified and experienced person who supervises the construction of a register must be submitted to the administering authority on the completion of construction of the regulated structure, and certify that: (a) the 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure; (b) construction of the regulated structure is in accordance with the design plan.
D10	**Operation of a regulated structure** Operation of a regulated structure, except for an existing structure, is prohibited unless: (a) the holder has submitted to the administering authority: (i) an electronic copy of the design plan and certification of the 'design plan' in accordance with condition **D6**, and (ii) the 'as constructed' drawings and specifications certified in accordance with condition **D9**, and (iii) 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. (iv) the requirements of this authority relating to the construction of the regulated structure have been met; (v) the environmental authority holder has entered the details required under this authority, into a register of regulated structures; and (vi) there is a current operational plan for the regulated structures.

D11	For existing structures that are regulated structures: (a) where the existing structure that is a regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, the holder must submit to the administering authority within **twelve (12) months** of the commencement of this condition a copy of the certified system design plan including that structure; and (b) there must be a current operational plan in place.
D12	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.
D13	**Mandatory reporting level** Conditions **D14** to **D17** inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
D14	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.
D15	The environmental authority 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.
D16	The environmental authority holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised release from the regulated dam.
D17	The environmental authority holder must record any changes to the MRL in the Register of Regulated Structures.
D18	**Design storage allowance** The environmental authority 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.
D19	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).
D20	The environmental authority holder must, as soon as practicable 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.

D21	The environmental authority 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 release from the regulated dam or linked containment systems.
D22	**Annual inspection report** Each regulated structure must be inspected **each calendar year** by a suitably qualified and experienced person.
D23	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.
D24	The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933).
D25	The environmental authority holder must: (a) within **twenty (20) business days** of receipt of the annual inspection report, provide to the administering authority: (i) the recommendations section of the annual inspection report; and (ii) if applicable, any actions being taken in response to those recommendations; and (b) if, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the environmental authority holder, provide this to the administering authority within **ten (10) business days** of receipt of the request.
D26	**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.
D27	**Register of regulated structures** A Register of Regulated Structures must be established and maintained by the environmental authority holder for each regulated dam.
D28	The environmental authority 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.
D29	The environmental authority holder must enter the required information in the Register of Regulated Structures once compliance with conditions **D10** and **D11** has been achieved.

D30	The environmental authority holder must ensure that the information contained in the Register of Regulated Structures is current and complete.
D31	All entries in the Register of Regulated Structures must be approved by the chief executive officer for the environmental authority holder, or their delegate, as being accurate and correct.
D32	The environmental authority holder must, by **1 March** each year, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the format required by the administering authority.
D33	**Transitional arrangements** All existing structures that have not been assessed in accordance with either the Manual or the former Manual for Assessing Hazard Categories and Hydraulic Performance of Dams must be assessed and certified in accordance with the Manual within **six (6) months** of amendment of the authority adopting this schedule.
D34	All existing structures must subsequently comply with the timetable for any further assessments in accordance with the Manual specified in **Table D34 – Transitional hydraulic performance requirements for existing structures**, depending on the consequence category for each existing structure assessed in the most recent certification for that structure.

Table D34 – 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 20 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.

D35	**Table D34 – Transitional hydraulic performance requirements for existing structures** ceases to apply for a structure once any of the following events has occurred: it has been brought into compliance with the hydraulic performance criteria applicable to the (a) structure under the Manual; or (b) it has been decommissioned; or (c) it has been certified as no longer being assessed as a regulated structure.
D36	Certification of the transitional assessment required by conditions **D33** and **D34** (as applicable) must be provided to the administering authority within **six (6) months** of amendment of the authority adopting this schedule.

D37	**Flood Protection Levees** Design requirements for the levee and adjacent mining excavation must meet the following: (a) the design level of the levee crest must be at least **one (1) metre** above the estimated 1 in 1,000 ARI flood event for the adjacent watercourses; and (b) mining excavation slopes adjacent to the levee must remain stable and are to be designed with a factor of safety of one point five (1.5) (calculated from the levee toe) or above based on an accepted stability analysis.
D38	Design requirements for the levee and adjacent mining excavation must: (a) not result in increased erosion of the bank or bed of the Nogoa River; (b) not significantly impact upon riparian or existing remnant vegetation; and (c) not erode during any flood events up to any 1 in 1,000 ARI event.
D39	As part of the authorised rehabilitation activities required by Schedule H: Rehabilitation and Appendix 3, the flood protection levee must be optimised to widen the floodplain from 1.4km to 2km between the northern section of B Pit and the southern section of C Pit as detailed in **Appendix 4**. The design and construction of the flood protection landform alignment must ensure the requirements of condition **D38** are maintained and are supported by relevant hydrology, geomorphology, landform, geotechnical and risk management assessment studies.

Schedule E: Acoustic	
Condition number	**Condition**
E1	**Noise nuisance** Noise from mining activities must not cause an environmental nuisance at any sensitive receptor or commercial place.
E2	Noise from mining activities must not exceed the levels for the time periods specified in **Table E2 – Noise limits** at any sensitive or commercial place.

Table E2 – Noise limits

Noise Level dB(A)	**7am – 6pm**	**6pm – 10pm**	**10pm – 7am**
	Noise measured at a 'Noise sensitive place'		
$L_{A\ 10,\ adj,\ 10\ mins}$	B/g + 5	B/g + 5	B/g + 3
$L_{A\ 1,\ adj,\ 10\ mins}$	N/A	N/A	B/g + 8
	Noise measured at a 'Commercial place'		
$L_{A\ 10,\ adj,\ 10\ mins}$	B/g + 10	B/g + 10	B/g + 5

Notes:
B/g = background noise level ($L_{A90,\ adj,\ 15\ mins}$) measured over 3-5 days at the nearest sensitive receptor

E3	**Noise monitoring** When requested by the administering authority, noise monitoring must be undertaken to investigate any compliant of noise nuisance, and the results notified within **fourteen (14) days** to the administering authority. Monitoring must include: (a) $L_{A\ 10,\ adj,\ 10\ mins}$ (b) $L_{A\ 1,\ adj,\ 10\ mins}$ (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.
E4	Noise is not considered to be a nuisance under condition **E1** if monitoring shows that noise does not exceed the levels in the time periods specified in **Table E2 – Noise limits**.
E5	The method of measurement and reporting of noise monitoring must comply with the current edition of the administering authority's Noise Measurement Manual (ESR/2016/2195).

E6	If monitoring indicates exceedance of the limits in **Table E2 – Noise limits**, the environmental authority holder must: (a) address the complaint including the use of appropriate dispute resolution if required; and (b) immediately implement noise abatement measures so that emissions of noise from the mining activities does not result in further environmental nuisance.
E7	**Vibration nuisance** Vibration from the licensed activities must not cause an environmental nuisance at any sensitive or commercial place.
E8	When requested by the administering authority, vibration monitoring must be undertaken within the timeframe nominated or agreed to by the administering authority, to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the administering authority) of environmental nuisance at any sensitive or commercial place, and the results must be notified within **fourteen (14) days** to the administering authority following completion of monitoring.
E9	If the environmental authority holder can provide monitoring that the limits in **Table E9 – Vibration limits** are not being exceeded, the environmental authority holder is not in breach of condition **E7**. 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 (c) location, date and time of recording.

Table E9 – Vibration limits

Location	Vibration measured
Sensitive or commercial place	**5 mm/s** peak particle velocity for **nine (9) out of ten (10) consecutive blasts** and not greater than **10 mm/s** peak particle velocity at any time

E10	If monitoring indicates exceedance of the limits in **Table E9 – Vibration limits** then the environmental authority holder must: (a) address the complaint including the use of dispute resolution if appropriate; and (b) immediately implement vibration abatement measures so that vibration from the activity does not result in further environmental nuisance.
E11	**Airblast overpressure nuisance** The airblast overpressure level from blasting operations on the premises must not exceed the limits defined in **Table E11 – Airblast overpressure level** at any sensitive or commercial place.

Table E11 – Airblast overpressure level

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

E12	When requested by the administering authority, airblast overpressure monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the administering authority) of environmental nuisance at any sensitive or commercial place, and the results must be notified within **fourteen (14) days** to the administering authority following completion of monitoring.
E13	Airblast overpressure monitoring must include the following descriptors, characteristics and conditions: (a) location of the blast(s) within the mining area (including which bench level); (b) atmospheric conditions including temperature, relative humidity and wind speed and direction; and (c) location, date and time of recording.
E14	If monitoring indicates exceedance of the limits in **Table E11**, then the environmental authority holder must: (a) address the complaint including the use of dispute resolution if appropriate; and (b) immediately implement airblast overpressure abatement measures so that airblast overpressure from the activity does not result in further environmental nuisance.
E15	The method of measurement and reporting of airblast overpressure levels must comply with the current edition of the administering authority's Noise Measurement Manual (ESR/2016/2195).

Schedule F: Waste	
Condition number	**Condition**
F1	**Storage of tyres** Scrap tyres stored awaiting disposal or transport for take-back and recycling, or waste-to-energy options must be stored in stable stacks and at least **ten (10) metres** from any other scrap tyre storage area, or combustible or flammable material, including vegetation.
F2	All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a **ten (10) metres** radius of the scrap tyre storage area.
F3	Disposing of scrap tyres resulting from the mining activities is not permitted in spoil emplacements unless tyres are placed as deep in the spoil as reasonably practicable.
F4	A record must be kept of the number and location for tyres disposed.
F5	Scrap tyres resulting from the mining activities disposed of within the site must not impede saturated aquifers or compromise the stability of the consolidated landform.

F6	**Waste Management** A Waste Management Plan must be implemented that: (a) describes how the Ensham mine recognises and applies the waste management hierarchy; (b) characterises wastes generated from the project and identifies general volume trends over the past **five (5) years**; (c) contains a program for safe recycling or disposal of all wastes - reusing and recycling where possible; (d) contains waste commitments with auditable targets to reduce, reuse and recycle; (e) has waste management control strategies which addresses: (i) the type of wastes; (ii) segregation of the wastes; (iii) storage of the wastes; (iv) transport of the wastes; (v) monitoring and reporting matters concerning the wastes; (vi) emergency response planning; (vii) disposal, reused and recycling options; (f) identifies the potential adverse and beneficial impacts of the wastes generated; (g) details the hazardous characteristics of the waste generated (if any); (h) contains a disposal procedure for hazardous wastes; (i) outlines the process to be implemented to allow for continuous improvement of the waste management systems; (j) identifies responsible staff (positions) for implementing, managing and reporting the Waste Management Plan; and (k) contains a staff awareness and induction program that encourages re-use and recycling.
F7	Waste must not be burned or allowed to be burned on the licensed site unless by written approval of the administering authority.
F8	A designated area must be set aside for the segregation of economically viable, recyclable solid and liquid waste.

F9	Records must be kept for **five (5) years**, and must include the following information: (a) date of pickup of waste; (b) description of waste; (c) cross reference to relevant waste transport documentation; (d) quantity of waste; (e) origin of the waste; (f) destination of the waste; and (g) intended fate of the waste, for example, type of waste treatment, reprocessing or disposal. *NOTE: Records of documents maintained in compliance with a waste tracking system established under the Environmental Protection Act 1994 or any other law for regulated waste will be deemed to satisfy this condition.*
F10	Records of trade and regulated wastes or material leaving the mining lease for recycling or disposal, including the final destination and method of treatment, must be in accordance with the *Environmental Protection Act 1994.*
F11	The environmental authority holder must ensure that all regulated waste received at and removed from the site must be transported by a person who holds a current authority to transport such waste under the provisions of the *Environmental Protection Act 1994*.
F12	Except as otherwise provided by the conditions of this authority, all waste removed from the site must be taken to a facility that is lawfully allowed to accept such waste under the provisions of the *Environmental Protection Act 1994*.
F13	The environmental authority holder is only authorised to dispose of general waste streams in the onsite landfill unit defined in **Appendix 6 – Authorised landfill unit**.
F14	Waste deposited in the authorised landfill unit must be covered within 5 calendar days.
F15	The environmental authority holder must record the volume, and types of waste deposited in the landfill unit.
F16	Leachate and stormwater runoff which has been in contact with waste materials in the landfill unit, must be captured and: 1. recirculated through waste disposed in the landfill unit; or 2. disposed of at a facility that is approved to receive such waste.

F17	When the deposition of waste to the landfill unit ceases, a final capping system to the landfill unit must be designed by an appropriately qualified person and installed to: 1. minimise infiltration of water into the landfill unit and water ponding on the surface; 2. minimise the likelihood of any erosion occurring to either the final capping system or the landfilled materials; and 3. ensure the contaminant concentrations within the final capping layer are appropriate for the final land use and in accordance with the 'National Environmental Protection (Assessment of Soil Contamination) Measure 1999'. A final capping system is not required where the deposition of waste to a landfill unit ceases temporarily for the purpose of using an alternative working face.

Schedule G: Land	
Condition number	**Condition**
G1	**Preventing contaminant release to land** Contaminants must not be released to land in a manner which constitutes nuisance, material or serious environmental harm.
G2	**Bord and pillar – factors of safety** The environmental authority holder will determine relevant pillar and roadway dimensions to ensure that the following factors of safety are achieved: a) 2.11 for bord and pillar workings beneath the Nogoa River anabranch; b) 2.11 for access roadways beneath the Nogoa River to connect the bord and pillar and longwall mining areas; and c) 1.6 for all other bord and pillar workings beneath the floodplain of the Nogoa River.
G3	Operational management protocols must be implemented to ensure that minimum pillar and roadway dimensions are calculated to achieve condition **G2** during the life of the bord and pillar operation.

G4	**Mine Waste** A Mining Waste Management Plan together with the certification by an appropriately qualified person must be developed and implemented while mining activities are being carried out. The Mining Waste Management Plan must at a minimum include: (a) characterisation programs to ensure that all mining waste is progressively characterised during disposal for net acid producing potential, salinity and the following parameters: pH, Electrical Conductivity (EC), Acid Neutralising Capacity (ANC), Net Acid Generation (NAG) (reporting NAG capacity and NAG pH after oxidation), Total Sulfur (S), Chromium Reducible Sulphur (Scr), Boron (B) Cadmium (Cd), Iron (Fe), Aluminium (Al), Copper (Cu), Magnesium (Mg), Manganese (Mn), Calcium (Ca), Sodium (Na), Zinc (Zn) and Sulfate (SO_4); (b) individual parameters in a) above can be removed following sufficient mine waste characterisation to demonstrate that certain individual parameters are not present in sufficient quantities to warrant further characterisation; (c) characterisation programs to ensure that the physical properties of the mining waste is progressively characterised during disposal; (d) the availability or leachability of metals from the mining waste; (e) quantification of PAF from mining waste present; (f) review impacts of the PAF mining waste on the rehabilitation; (g) management actions for mining waste that has been identified as having a high availability or leachability of metals; (h) management actions for mining waste that has been defined as PAF; (i) identification of environmental impacts and potential environmental impacts; (j) control measures for routine operations to minimise likelihood of environmental harm; (k) contingency plans and emergency procedures for non-routine situations; and (l) periodic review of environmental performance and continual improvement.
G5	**Storage and handling of chemicals and flammable or combustible liquids** All chemicals and flammable or combustible liquids must be stored and handled in accordance with the most recent version of an Australian Standard where such is applicable. Where no relevant Australian Standard exists, storage of such materials must be within an effective on-site containment system.
G6	**Exploration** Disturbance due to exploration activities in areas not authorised to be mined must be rehabilitated in accordance with provisions detailed in the *Eligibility criteria and standard conditions for exploration and mineral development projects* or its successor.

Schedule H: Rehabilitation	
Condition number	**Condition**
H1	**Rehabilitation – Surface** All surface areas significantly disturbed by mining activities must be rehabilitated in accordance with **Schedule H: Rehabilitation** and **Appendix 3** of this environmental authority.
H2	**Residual voids** Residual voids must not cause any serious environmental harm to land, surface waters or any regional groundwater aquifer, other than the environmental harm constituted by the existence of the residual void itself unless otherwise permitted by any other condition within this environmental authority.
H3	**Rehabilitation Management Plan** A Rehabilitation Management Plan must: (a) be developed for all significant disturbance associated with mining activities; (b) implemented for the duration of mining activities; and (c) be implemented by a suitably qualified person.

H4	The Rehabilitation Management Plan required by condition **H3**, must address all relevant requirements within this environmental authority, and at a minimum include: (a) details of how all land significantly disturbed by the mining activities will be rehabilitated to ensure that it is; (i) safe for humans and wildlife; (ii) non-polluting (iii) stable; and (iv) able to sustain an agreed post mining land use, unless specified as having no use in **Appendix 3** (Domain 5: Groundwater Daylighting Water Areas and Domain 6: Highwalls); and (b) details of how all land significantly disturbed by mining activities that will not have a land use will be managed to prevent environmental harm into the foreseeable future; (c) an indicative plan of each domain area identified in Appendix 3. (d) a map of existing areas of rehabilitation including classification of stage (i.e. time since establishment) and quality; (e) a strategy for progressive rehabilitation, including a progressive rehabilitation schedule; (f) details of the design objectives for rehabilitation of each domain to achieve rehabilitation success criteria as specified in **Appendix 3**; (g) specify the spoil characteristics, soil analysis and soil separation for use on rehabilitation; (h) specify the topsoil requirements for the site and how topsoil will be managed for use in rehabilitation; (i) details of any topsoil deficit and how any deficit will be managed for successful rehabilitation; (j) details of a balance material and how any topsoil deficit will be managed for successful rehabilitation; balance includes – rock, topsoil, gypsum, lime and all other ameliorates. (k) details of landform design including end of mine design; (l) details of how landform design will be consistent with surrounding topography; (m) identification of planned native vegetation rehabilitation areas and corridors; (n) a description of rehabilitation indicators and how these will be monitored; (o) a description of management actions to address unsuccessful rehabilitation or redesign; and (p) a description of end of mine landform design planning and post mining land uses across the mine.
H5	Land significantly disturbed by mining activities must be progressively rehabilitated in accordance with the Rehabilitation Management Plan required by condition **H3**.
H6	Rehabilitation activities must comply with the Rehabilitation Management Plan required by condition **H3**.

H7	**Rehabilitation Monitoring** The environmental authority holder must implement an annual rehabilitation monitoring program that details the outcomes of the previous year's rehabilitation activities in an annual rehabilitation report and submit it to the administering authority by **1 March** each year.
H8	Annual rehabilitation reports must: (a) be developed by a suitably qualified person; (b) include the rehabilitation monitoring results; (c) include any actions and recommendation to rectify or improve, areas of rehabilitation that are of concern; and (d) be consistent with the Rehabilitation Management Plan requirements specified by condition **H3**.
H9	**Flood Protection Landform Design** The design of the flood protection landform must be supported by relevant hydrology, geomorphology, landform, geotechnical and risk management assessment studies of the Nogoa River Floodplain, and must: (a) incorporate the pre-mining hydrologic characteristics of surface water and groundwater systems for the area in which the floodplain is located; (b) incorporate the pre-mining hydraulic characteristics of the flood plain for the area for which it is located in without using artificial structures that require on-going maintenance; (c) maintain sediment transport and water quality regimes that allow the floodplain to be self-sustaining, which prevents any impacts to upstream and downstream water quality, geomorphology and vegetation; (d) maintain equilibrium and functionality in all substrate conditions at the location of the floodplain; and (e) allow the free and safe passage of fauna, both aquatic and terrestrial, upstream and downstream. For the purposes of this environmental authority the Flood Protection Landform does not need to be decommissioned or rehabilitated as per condition **D12**.
H10	A certified design plan and any technical reports that consider the requirements of condition **H9**, and that will meet the requirements of **Appendix 3** for the flood protection landforms must be submitted to the administering authority at least **ninety (90) days** before commencing construction of the flood protection landforms.
H11	After **ninety (90) days** following the submission of documents in accordance with condition **H10**, the environmental authority holder may commence construction of the flood protection landforms. Construction may commence prior with the written agreement from the administering authority.

H12	**Retainment of Infrastructure** Infrastructure, constructed by or for the environmental authority holder during the licensed activities including water storage structures, must be removed from the site prior to surrender, except where agreed in writing by the post mining landowner / holder.
H13	Condition **H12** does not apply where the landowner or landholder is also the environmental authority holder.
H14	Where the landowner or landholder is also the environmental authority holder, the administering authority must give its consent to the retainment of infrastructure, constructed by or for the environmental authority holder as a result of the authorised mining activities.
H15	**Post Closure Management Plan** A Post Closure Management Plan for the site must be prepared at least **eighteen (18) months** prior to the final coal processing on site and implemented for a nominal period of: (a) at least **thirty (30) years** following final coal processing on site; or (b) a shorter period if the site is proven to be geotechnically and geochemically stable and it can be demonstrated to the satisfaction of the administering authority that no release of contaminants from the site will result in environmental harm.

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.

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

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

(b) control of geochemical and contaminant transport processes;

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

(d) vegetation establishment, survival and succession;

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

(f) fauna colonisation and habitat development;

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

(h) microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;

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

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

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

"accepted engineering standards" in relation to dams, means those standards of design, construction, operation and maintenance that are broadly accepted within the profession of engineering as being good practice for the purpose and application being considered. In the case of dams, the most relevant documents would be publications of the Australian National Committee on Large Dams (ANCOLD), guidelines published by Queensland government departments, and relevant Australian and New Zealand Standards.

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

"administering authority" means the Department of Environment and Science or its successor.

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

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

"ambient (or total) noise" at a place, means the level of noise at the place from all sources (near and far), measured as the Leq for an appropriate time interval.

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

"annual inspection report" means a **report** prepared by a **suitably qualified and experienced person** that **assessed** the most recent consequence assessment report and design plan (or system design plan):

(a) against recommendations contained in previous annual inspections reports;

(b) against recognised dam safety deficiency indicators;

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

(d) for conformance with the conditions of this authority;

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

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

(g) for conformance with the current operational plan.

"ANZECC irrigation guidelines" means the Australian and New Zealand Guidelines for Fresh and Marine Water Quality published by the Australian and New Zealand Environment and Conservation Council (ANZECC) & Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ)

"ANZG" means the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018*.

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

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

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

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

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

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

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

(a) construction, installation or operations of any kind for that dam; and

(b) any land used for the associated works.

"authority" means environmental authority (mining activities) under the *Environmental Protection Act 1994*.

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

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

(a) has value to the owner's business or to the general community;
(b) is in accordance with relevant provisions of the *Environmental Protection Act 1994;*
(c) is the subject of a written undertaking or agreement given by that owner to maintain that dam; and
(d) the transfer and use have been approved or authorised under any relevant legislation.

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

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

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

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

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

"chemical" means –

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

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

(c) a lead hazardous substance within the meaning of the *Workplace Health and Safety Regulations 1997*; or

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

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

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

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

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

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

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

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

  (ii) manufacture of plastic or synthetic rubber.

"commercial place" means a workplace used as an office or for business or commercial purposes, which is not part of the mining activity or employee accommodation; and excludes public roads.

"competent person" means a person with the demonstrated skill and knowledge required to carry out the relevant task to a standard necessary for the reliance upon collected data or protection of the environment.

"consecutive sampling occasion" means consecutive sequential **sampling occasions** regardless of frequency

"consequence category" means the category of dame, either low, significant or high, following the consequence assessment. 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)*.

"consequence" in relation to a structure 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

"construction" or "constructed" in relation to a dam includes building a new dam and modifying or lifting an existing dam, but does not include investigations and testing necessary for the purposes 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.

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

"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).

"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**.

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

"design storage allowance or DSA" means an available volume, estimated in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an **annual exceedance probability** (AEP) specified in that Manual.

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

"document" has the same meaning in the *Acts Interpretation Act 1954.*

"effluent" treated waste water discharged 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, procedures and actions to be followed 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.

"end of pipe" means the location at which water is released to waters or land.

"environmental authority holder" means the holder of this environmental authority.

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

"environmental harm" has the meaning in section 14 of the *Environmental Protection Act 1994*.

"environmental nuisance" has the meaning in section 15 of the *Environmental Protection Act 1994*.

"environmentally relevant activity" means an environmentally relevant activity as defined under Section 18 of the *Environmental Protection Act 1994* and listed under Schedule 3 of the *Environmental Protection Regulation* 2019.

"existing structure" means a structure that was in existence prior to the adoption of this schedule of conditions under the authority.

"extreme storm storage" means a storm storage allowance determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority.

"flood protection landform" means an area of land that:

(a) when compared to current conditions does not materially increase afflux upstream, or velocity downstream beyond the boundary of Lot 32 Plan RP908643 and Lot 31 Plan CP864573;

(b) is not a regulated structure under the Manual; and

(c) is safe, stable, non-polluting, and is able to sustain an agreed post-mining land use.

"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 liquid, fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.

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

"groundwater receiving environment" means any part of the regional groundwater, including any part of the alluvium aquifer, exclusive of groundwater contained within the residual voids.

"GDA94" means the Geocentric Datum of Australia 1994.

"**hazardous waste"** means any substance, whether liquid, solid or gaseous, derived by or resulting from, the processing of minerals that may endanger health, or impair or destroy life.

"holder" means:

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

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

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

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

"$L_{A\ 1,\ adj,\ 10\ mins}$" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10-minute measurement period, using Fast response.

"$L_{A\ 10,\ adj,\ 10\ mins}$" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10-minute measurement period, using Fast response.

"$L_{A,\ max\ adj,\ T}$" means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.

"lake" includes –

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

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

"Landfill unit" means a discrete area of land or an excavation that receives solid waste.

"land capability" as defined in the *Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland* (DME 1995).

"land suitability" as defined in the *Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland* (DME 1995).

"land use" term to describe the selected post mining use of the land, which is identified 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 site that 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.

"low consequence dam" means any dam that is not a high or significant consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933).*

"mandatory reporting level or MRL" means a warning and reporting level determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority.

"manual" means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority.

"mg/L" means milligrams per litre.

"mine affected water"

(a) means the following types of water:

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

(ii) water contaminated by a mining activity which would have been an environmentally relevant activity under Schedule 2 of the *Environmental Protection Regulation 2019* if it had not formed part of the mining activity;

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

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

(v) groundwater from the mine's dewatering activities;

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

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

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

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

(1) areas that have been capped and have monitoring data demonstrating hazardous material is adequately contained on site;

(2) 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 both.

"mineral" means a substance which normally occurs naturally as part of the earth's crust or is dissolved or suspended in water within or upon the earth's crust and includes a substance which may be extracted from such a substance, and includes—

(a) clay if mined for use for its ceramic properties, kaolin and bentonite;

(b) foundry sand;

(c) hydrocarbons and other substances or matter occurring in association with shale or coal and necessarily mined, extracted, produced or released by or in connection with mining for shale or coal or for the purpose of enhancing the safety of current or future mining operations for coal or the extraction or production of mineral oil there from;

(d) limestone if mined for use for its chemical properties;

(e) marble;

(f) mineral oil or gas extracted or produced from shale or coal by in situ processes;

(g) peat;

(h) salt including brine;

(i) shale from which mineral oil may be extracted or produced;

(j) silica, including silica sand, if mined for use for its chemical properties;

(k) rock mined in block or slab form for building or monumental purposes;

but does not include—

(a) living matter;

(b) petroleum within the meaning of the *Petroleum Act 1923*;

(c) soil, sand, gravel or rock (other than rock mined in block or slab form for building purposes) to be used or to be supplied for use as such, whether intact or in broken form;

(d) water.

"mining activities"

(a) means the activities:

(i) authorised as per the definition in section 110 of the *Environmental Protection Act 1994*; and

(ii) all environmentally relevant activities authorised under this environmental authority.

(b) to avoid doubt, includes care and maintenance and rehabilitation.

"modification or modifying" (see definition of 'construction').

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

"nature" includes:

(a) ecosystems and their constituent parts; and

(b) all natural and physical resources; and

(c) natural dynamic processes.

"noxious" means harmful or injurious to health or physical well-being, other than trivial harm.

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

"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 (mms^{-1}).

"potentially affected stakeholders" includes (but should not be limited to)

(a) the administering authority;

(b) a local landholder whose property is riparian, downstream of the release point specified in Table C1 of the environmental authority and is identified to be potentially impacted by mine affected water releases;

(c) other party nominated by the administering authority;

(d) the relevant local government authority;

(e) a Resource Operations Licence (ROL) holder or other water entitlement holder under the *Water Act 2000* located between the nearest compliance point listed in Table 1 of the operational policy and the release point specified in Table C1 of the environmental authority; and

(f) does not include a landholder or other party who by written agreement with the environment authority holder has declined to be notified for the purpose of this condition.

"progressive rehabilitation" means rehabilitation (defined below) undertaken progressively or a staged approach to rehabilitation.

"protected area" means a protected area under:

(a) the *Nature Conservation Act 1992*; or
(b) a marine park under the *Marine Parks Act 1992*; or

(c) a World Heritage Area.

"receiving environment" means all receiving waters, land, and sediments that are not disturbed areas authorised by this environmental authority.

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

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

"register of regulated structures" includes**:**

(a) date of entry in the register;

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

(c) the consequence category of the structure as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*;

(d) dates, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the structure;

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

(f) for the regulated structure, other than in relation to any levees –

(i) the dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;

(ii) coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area

(iii) dam crest volume (megalitres);

(iv) spillway crest level (metres AHD).

(v) maximum operating level (metres AHD);

(vi) storage rating table of stored volume versus level (metres AHD);

(vii) design storage allowance (megalitres) and associated level of the dam (metres AHD);

(viii) mandatory reporting level (metres AHD);

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

(h) the date construction was certified as compliant with the design plan;

(i) the name and details of the suitably qualified and experienced person who certified that the constructed structure was compliant with the design plan;

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

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

(l) dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;

(m) dates when recommendations and actions arising from the annual inspection were provided to the administering authority;

(n) dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

"regulated dam" means any dam in the significant or high consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority.

"regulated structure" includes dams which are regulated dams, 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.

"regulated waste" means non-domestic waste mentioned in Division 1 of the *Environmental Protection Regulation 2019* (whether or not it has been treated or immobilised), and includes:

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

(b) anything that has contained the waste.

"rehabilitation" is the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the success criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.

"release influence period" is the period during which the downstream monitoring points specified in **Table C5 – Receiving water upstream background sites and downstream monitoring points** are influenced by mine affected water released from Ensham Coal Mine and includes both the duration of release and any lag time between release point/s and downstream monitoring points.

"residual void" means an open pit where coal and/or spoil has been removed, which will remain following the cessation of mining activities and completion of rehabilitation processes.

"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.

"resampling event" means the resampling that is required to take place within 10 business days of receipt of the results.

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

"sampling occasion" means the collection of a sample undertaken in accordance with the sampling frequency specified in a condition of this environmental authority, and where an exceedance is recorded the **sampling occasion** together with the **resampling event.**

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

"sensitive place" means;

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

(b) a motel, hotel or hostel; or

(c) an educational institution; or

(d) a medical centre or hospital; or

(e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World Heritage Area; or

(f) a public park or gardens.

"sewage" means the used water of persons to be treated at a sewage treatment plant.

"significant disturbance" – includes land

(a) if it is contaminated land; or

(b) land that has been disturbed by mining activities and human intervention is needed to rehabilitate it:

(i) to a state required under the relevant environmental authority; or

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

Some examples of disturbed land include:

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

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

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

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

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

(f) where temporary mining infrastructure is or has been located. Temporary mining infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc.) which is to be removed after mining activities have ceased; or

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

However, the following areas are not included:

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

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

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

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

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

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

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

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

"structure" means dam or levee.

"suitably qualified and experienced person" in relation to regulated structures means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the *Professional Engineers Act 2002*, and for:

(a) regulated dams, an RPEQ with experience and qualifications in dam safety and dam design;

(b) regulated levees, an RPEQ with experience and qualifications in the design of flood protection embankments;

(c) for geotechnical stability, an RPEQ with experience and qualifications in the assessment of stability of slopes and factors of safety.

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

"suitably qualified person" in relation to rehabilitation means a person who holds relevant professional qualifications to the satisfaction of the administering authority; and:

(a) has demonstrated knowledge, experience and expertise in relevant fields as set out below:

(b) rehabilitation practices for resource activities; and

(c) a minimum of five years of suitable experience and demonstrated expertise in the following categories:

(i) coal mine site rehabilitation;

(ii) development of rehabilitation management plans and monitoring programs; and

(iii) assessment of rehabilitation performance indicators in the resources industry.

"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.

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

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

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

"waste" as defined in section 13 of the *Environmental Protection Act 1994*.

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

"water" means –

(a) water in waters or spring;

(b) underground water;

(c) overland flow water; or

(d) water that has been collected in a dam.

"watercourse" has the meaning in Schedule 4 of the *Environmental Protection Act 1994* and means a river, creek or stream in which water flows permanently or intermittently—

(a) in a natural channel, whether artificially improved or not; or

(b) in an artificial channel that has changed the course of the watercourse.

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

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

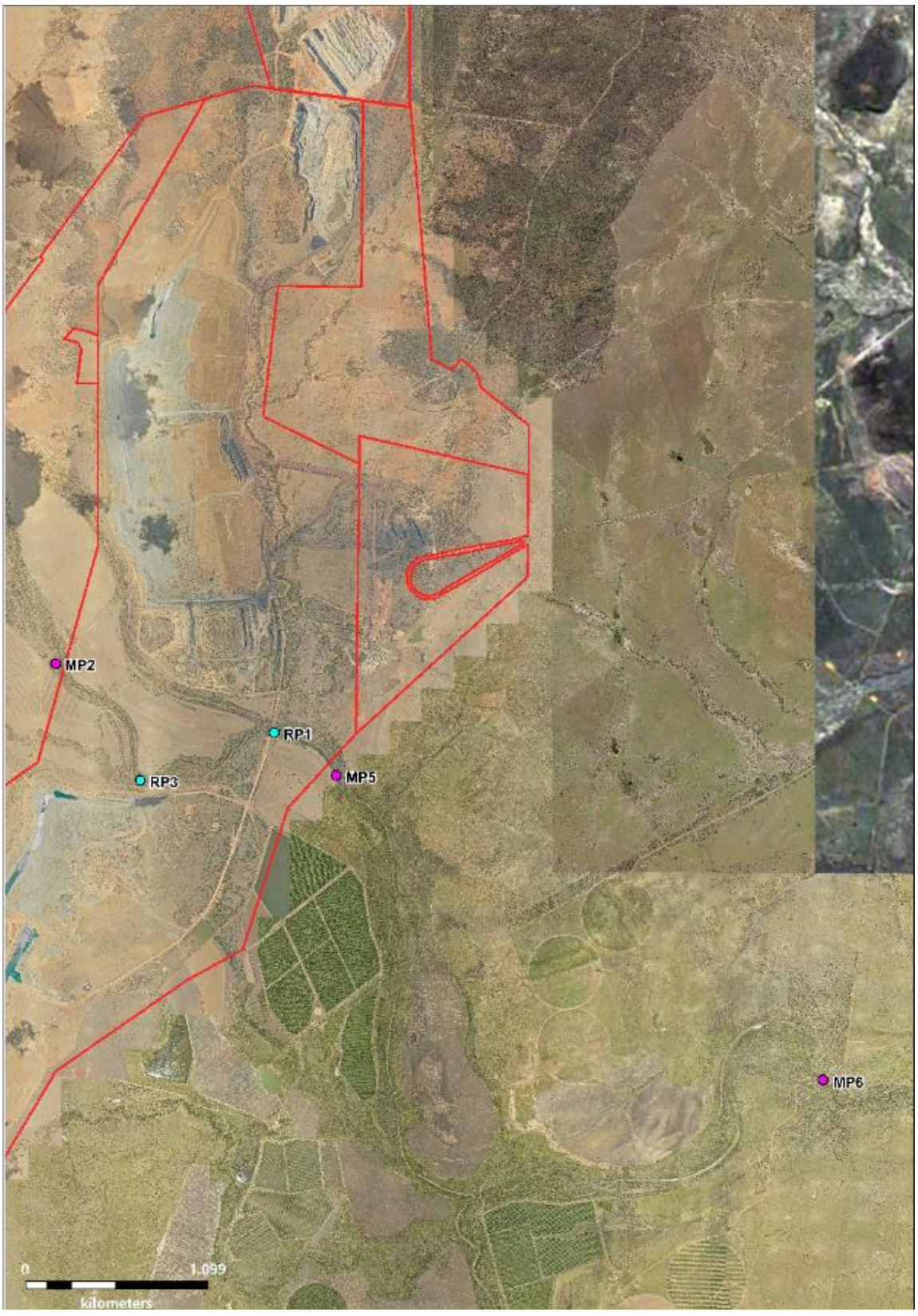
"WaTERS" means the Water Tracking and Electronic Reporting System, used to submit monitoring data and notify the Queensland Government. [https://waters.ehp.qld.gov.au/] or contact psd.help@qld.gov.au.

"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.

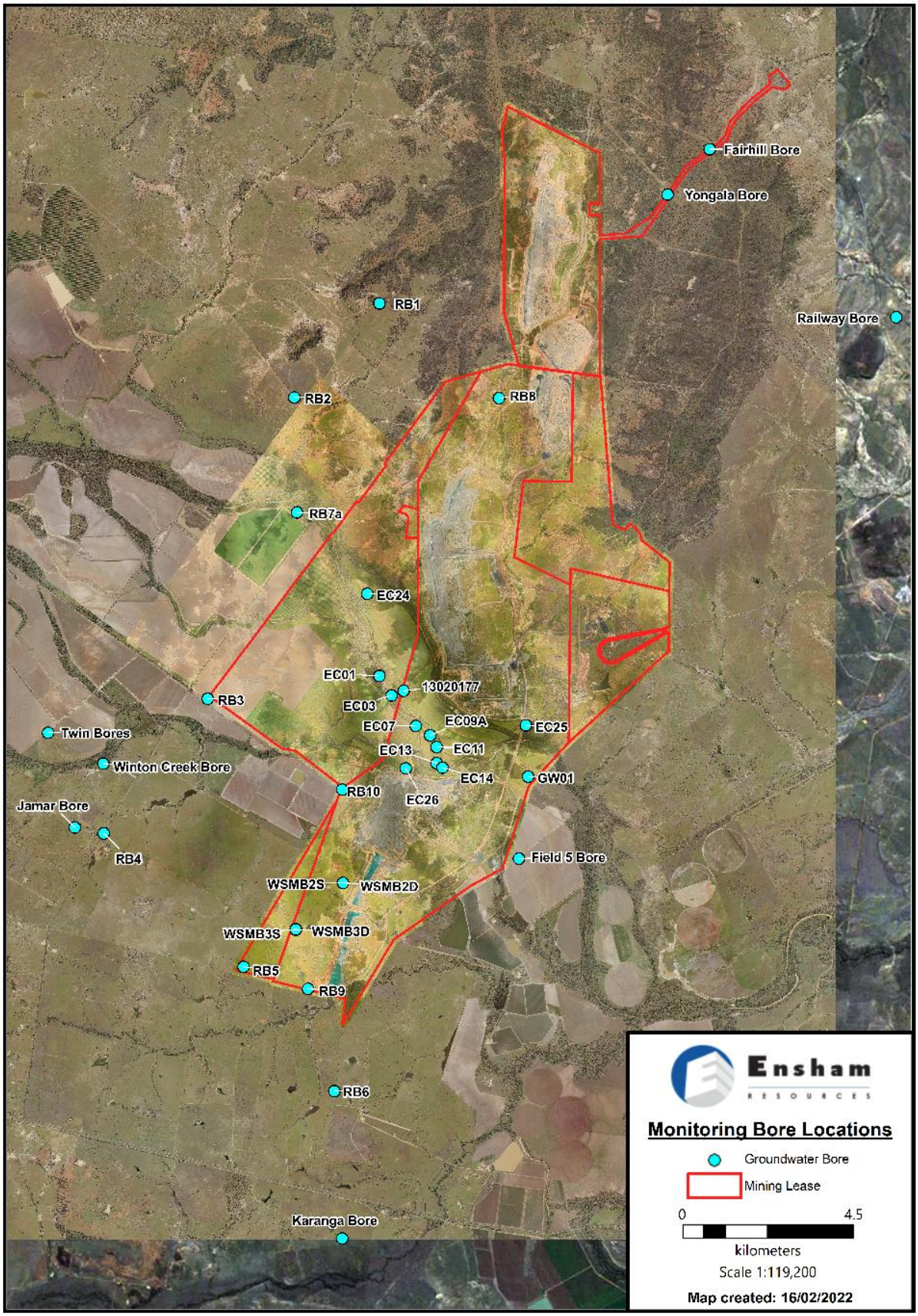
"year" has the meaning in the *Acts Interpretation Act 1954*.

"µg/L" means micrograms per litre.

Appendix 1 – Environmental Authority Water Monitoring Points



Appendix 2 – Groundwater Monitoring Network Review



Appendix 3: Rehabilitation Success Criteria

Mine Domain	Rehabilitation Feature Name	Goals	Objective	Indicators	Completion Criteria
1	Overburden / infrastructure, including: - Overburden emplacement areas; - Low walls; - Mine infrastructure areas; and - Surface disturbance associated with underground mining Indicative location generally in accordance with Appendix 4.	Safe	Safety hazards in rehabilitation are similar to surrounding unmined landscapes	Hazard assessment by a suitably qualified and experienced person	0 (zero) significant difference as defined in *AS/NZS ISO 31000:2009 Risk Management*
		Non-polluting	Surface runoff leaving rehabilitation is non-polluting to receiving waters	pH	7.1 – 8.2
				EC (salinity)	<403 µs/cm
				Total Suspended Solids (TSS) (sediment loss)	<405 mg/L
				Arsenic	≤13 µg/L
				Molybdenum	≤34 µg/L
				Selenium	≤5 µg/L
				Sulfate (SO_4^{2+})	<16.34 mg/L
		Stable	Landforms are both geotechnically and erosionally stable	Factor of safety	≥ 1.5
				Slope gradient	All outward facing overburden slopes to achieve 0-10% slopes for Tertiary materials and 0-15% slopes for Permian materials. 90% of the inward facing slopes within Domain 1 achieving 0-10% slopes for Tertiary materials and 0-15% slopes for Permian materials. Up to 10% of the inward facing slopes within Domain 1 may include slopes between 15% to 25%, subject to these areas being fully contained within areas of 0-15% slopes.
				Groundcover	≥ 50% established and persistent vegetative groundcover for all slopes from 0-15%. ≥ 80% established and persistent vegetative cover for slopes from 15% to 25%.
		Land use	Rehabilitation is suitable for sustainable cattle grazing	Land suitability assessment by a suitably qualified person	Class 2 to 4 as defined in the *Guidelines for Agricultural Land Evaluation in Queensland (State Department of Queensland 2013).*

2	Landholder retained infrastructure on mining infrastructure areas. Located generally in accordance with Appendix 4.	Safe	Safety hazards in rehabilitation are similar to surrounding unmined landscapes	Hazard assessment by a suitably qualified and experienced person	0 (zero) significant difference as defined in *AS/NZS ISO 31000:2009 Risk Management*
		Non-polluting	Surface runoff leaving domain is non-polluting to receiving waters	pH	7.1 – 8.2
				EC (salinity)	<403 µs/cm
				TSS (sediment loss)	<405mg/L
				Arsenic	≤13µg/L
				Molybdenum	≤34µg/L
				Selenium	≤5µg/L
				Sulfate (SO_4^{2+})	16.34mg/L
		Stable	Landholder accepts the condition of infrastructure, including its structural integrity	Legally binding agreement	Executed by each party
		Land use	Landholder formally accepts infrastructure for his/her ongoing beneficial use	Legally binding agreement or by consent with the administering authority where the landholder is also the environmental authority holder.	Executed by each party
3	Watercourse bed, banks and riparian vegetation of the Boggy Creek diversion. Located generally in accordance with Appendix 4.	Safe	Safety hazards in rehabilitation are similar to surrounding unmined landscapes	Hazard assessment by a suitably qualified and experienced person	0 (zero) significant difference as defined in *AS/NZS ISO 31000:2009 Risk Management*
		Non-polluting	Surface runoff leaving domain is non-polluting to receiving waters	pH	7.1 – 8.2
				EC (salinity)	<403 µs/cm
				TSS (sediment loss)	<405mg/L
				Arsenic	≤13µg/L
				Molybdenum	≤34µg/L
				Selenium	≤5µg/L
				Sulfate (SO_4^{2+})	16.34mg/L
		Stable		Factor of safety	≥ 1.5

			Landforms are both geotechnically and erosionally stable	Index of diversion condition assessed by a suitably qualified geomorphologist	> 10 as defined in *Criteria for functioning river landscape units in mining and post-mining landscapes* (ACARP Project number C20017).
		Land use	Riparian vegetation is suitable for conservation of rehabilitated creek diversion areas	Index of diversion condition assessed by a suitably qualified geomorphologist	> 10 as defined in *Criteria for functioning river landscape units in mining and post-mining landscapes* (ACARP Project number C20017).
4	Native Bushland Corridor Indicative location generally in accordance with Appendix 4.	Safe	Safety hazards in rehabilitation are similar to surrounding unmined landscapes	Hazard assessment by a suitably qualified and experienced person	0 (zero) significant difference as defined in *AS/NZS ISO 31000:2009 Risk Management*
		Non-polluting	Surface runoff leaving domain is non-polluting to receiving waters	pH	7.1 – 8.2
				EC (Salinity)	<403 µs/cm
				TSS (sediment loss)	<405mg/L
				Arsenic	≤13µg/L
				Molybdenum	≤34µg/L
				Selenium	≤5µg/L
				Sulfate (SO_4^{2+})	<16.34mg/L
		Stable	Landforms are both geotechnically and erosionally stable	Factor of safety	≥ 1.5
				Slope gradient	Maximum 25% slope. Areas >15% to be certified by a suitably qualified person as being stable long term, with rock mulch applied as required.
				Groundcover	≥ 50% established and persistent vegetative groundcover for all slopes from 0-20%. ≥ 80% established and persistent cover (vegetative and/or rock mulch) for slopes from 20% to 25%.
		Land use	Rehabilitation to have some native species and some native bush land characteristics	Native species richness	≥ 2 tree species at relevant benchmark density ≥ 3 shrub species at relevant benchmark density ≥ 5 groundcover species at relevant benchmark density (as per relevant Regional Ecosystem BioCondition Benchmark = 11.10.1 and/or 11.10.3)

5	Groundwater daylighting water areas The only areas authorised to have groundwater daylighting are located generally in accordance with Appendix 4. and includes: A Pit Central A Pit North B Pit C Pit D Pit	Safe	Safety hazards in rehabilitation are similar to surrounding unmined landscapes	Hazard assessment by a suitably qualified and experienced person	Fenced and signed from humans and stock.
		Non-polluting	Environmental harm	Deep drainage from the domain is non-polluting to regional groundwater resources and any potential regional groundwater dependent ecosystems. Ensure groundwater daylighting in this domain remain sinks into perpetuity. For the avoidance of doubt accumulation of contaminants in this domain is authorised.	Regional groundwater aquifers maintain their current water quality and groundwater monitoring bores do not exceed the water quality limits detailed in **Table C11 – Groundwater quality limits** as a result of mining activities.
		Stable	Existing	Water height, volume and area until surrender / relinquishment.	Maximum dimensions: A Central – Surface Water Level -133mAHD, Water storage Volume - 0.5GL, and Water Area – 3ha A North – Surface Water Level – 133mAHD, Water storage volume – 1.2GL, and Water Area – 16ha B – Surface Water Level – 123mAHD, Water Storage Volume – 3.1GL and Water Area – 33ha C and D – Surface Water Level – 125mAHD, Water Storage Volume – 22.1GL and Water Areas – 65ha for C and 75ha for D
		Land use	Existing	No land use beyond containment of water Note for the avoidance of doubt, regrading, top soiling and seeding is not required.	
6	Highwalls	Safe	Safety hazards in rehabilitation are similar to	Hazard assessment by a suitably qualified and experienced person	Bunded, fenced and signed to exclude humans and stock.

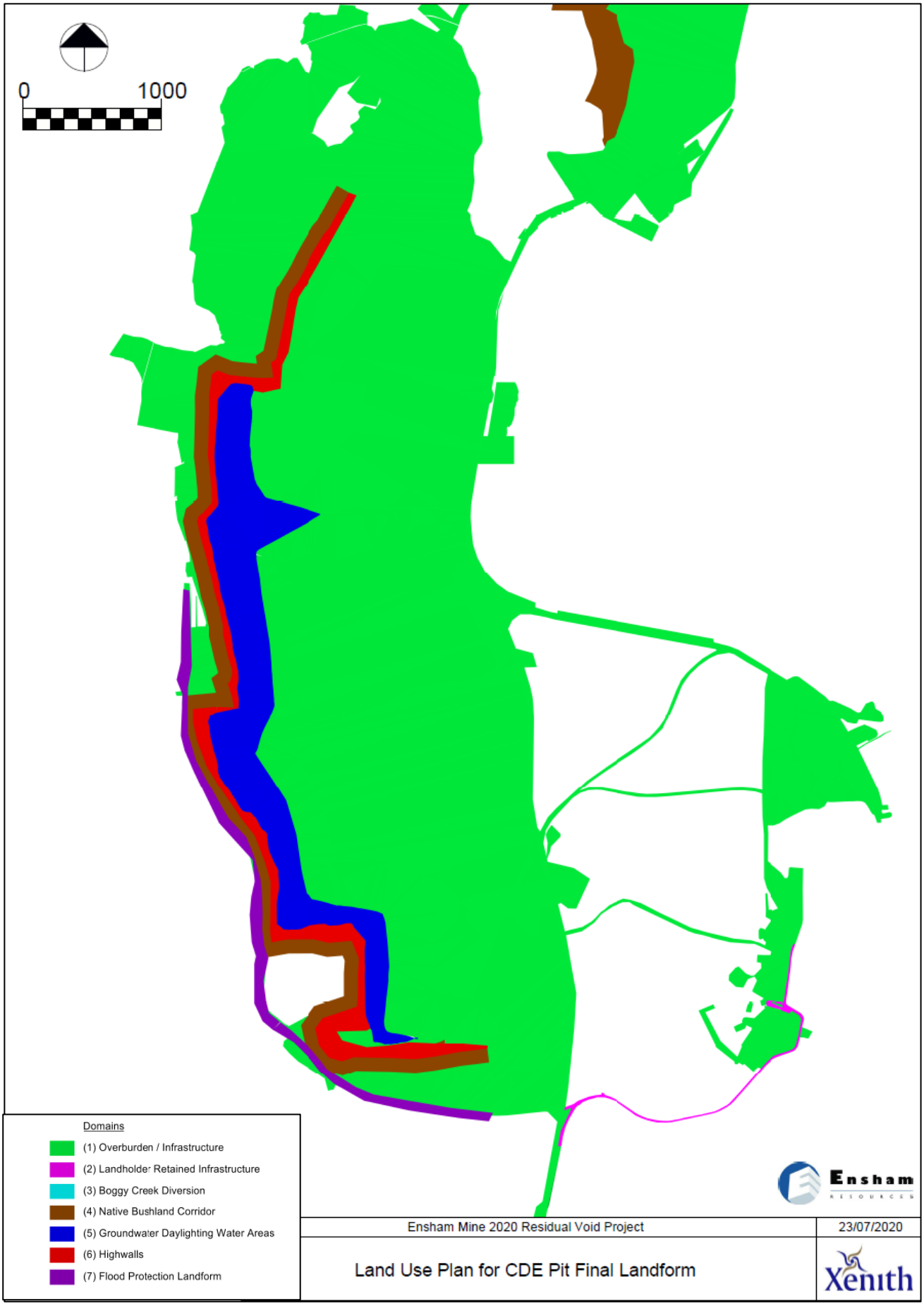
	The only areas authorised to have highwalls remaining are located generally in accordance with Appendix 4 and include: A Pit Central A Pit North B Pit C Pit D Pit E Pit		surrounding unmined landscapes		All areas to be certified by suitably qualified person as being safe long-term.
		Non-polluting	High walls do not cause environmental harm	Does not cause environmental harm to the regional groundwater environment Note for the avoidance of doubt, the existence of the highwalls themselves does not constitute environmental harm	Regional groundwater aquifers maintain their current water quality and groundwater monitoring bores do not exceed the water quality limits detailed in **Table C11 – Groundwater quality limits** as a result of mining activities.
		Stable	Highwalls are both geotechnically and erosionally stable	Factor of safety	≥ 1.5
				Slope gradient	Maximum of 275% slopes for competent high walls. Maximum of 50% slopes for incompetent material A south pit, F Pits and Y Pits highwall must be reshaped to a maximum of 25% slopes. Northern Endwall of B Pit maximum 15% slope
				Erosion control	Water run-off from above the highwall is channelled to the groundwater daylighting water areas of Domain 5 through design pathways.
		Land use	No use	No use	No use
7	Flood protection landform Located generally in accordance with Appendix 4.	Safe	Safety hazards in rehabilitation are similar to surrounding unmined landscapes	Hazard assessment by a suitably qualified and experienced person	0 (zero) significant difference as defined in *AS/NZS ISO 31000:2009 Risk Management*
			Maintenance requirements are similar to surrounding unmined landscapes	Maintenance assessment by a suitably qualified and experienced person	Maintenance carried out as required and specified by annual inspection by SQEP.
		Non-polluting	Flood protection landform does not cause environmental harm	No ingress of floodwaters to residual voids	Permanent flood structure in place.
			Floodplain reinstated between flood protection landforms	Minimum 2km width between the northern section of B Pit and the southern section of C Pit	Floodplain width re-instated.

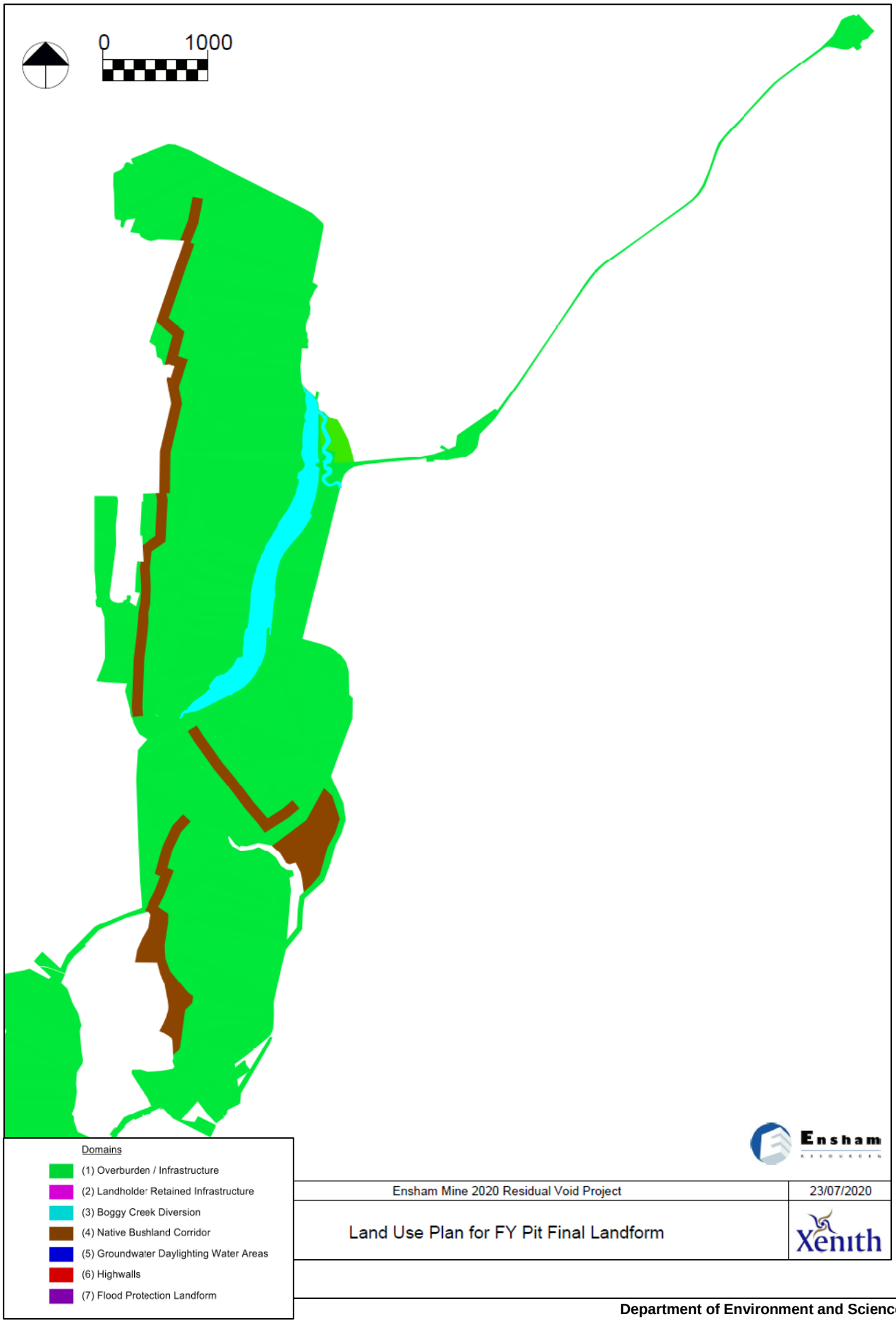
				as located generally in accordance in Appendix 5	
			Surface water runoff does not cause environmental harm	pH	7.1 – 8.2
				EC (salinity)	<403 µs/cm
				TSS (sediment loss)	<405mg/L
				Arsenic	≤13µg/L
				Molybdenum	≤34µg/L
				Selenium	≤5µg/L
				Sulfate (SO_4^{2+})	<16.34mg/L
		Stable	Flood protection levee is both geotechnically and erosionally stable	Factor of safety	≥ 1.5
				Able to function as a flood protection structure in the long-term	Watercourse facing slopes ≤15% Void facing slopes ≤15%, except where constrained by proximity to void regrade, batters can be reduced to ≤25% Bench of 10m to separate inward toe embankment from adjacent edge of void stabilisation regrade Landform – 0.1%AEP +0.5m freeboard Line the river facing embankments at sharp changes in alignment where turbulence could occur with hard, durable rock rip rap.
			Exclusion of stock	Must be fenced to exclude stock	Permanent fencing in place post construction and maintained.
		Land use	Protection of residual voids from floodwaters	The design level of the landform crest must be at least one (1) metre above the estimated 1 in 1,000 year ARI event for the adjacent watercourses	Constructed as per certified designs provided under condition **H11**, and certified by a suitably qualified and experienced person

Appendix 4: Overall Site Layout Indicative Domain Plan

Approximate area (ha) involved in the Domain 6 Highwalls = 200 ha

Approximate area (ha) involved in the Domain 5 Groundwater Daylighting Water Areas = 200 ha


0
1000
Domains
(1) Overburden / Infrastructure
(2) Landholder Retained Infrastructure
(3) Boggy Creek Diversion
(4) Native Bushland Corridor
(5) Groundwater Daylighting Water Areas
(6) Highwalls
(7) Flood Protection Landform
Ensham
RESOURCES
Ensham Mine 2020 Residual Void Project
23/07/2020
Land Use Plan for CDE Pit Final Landform
Xenith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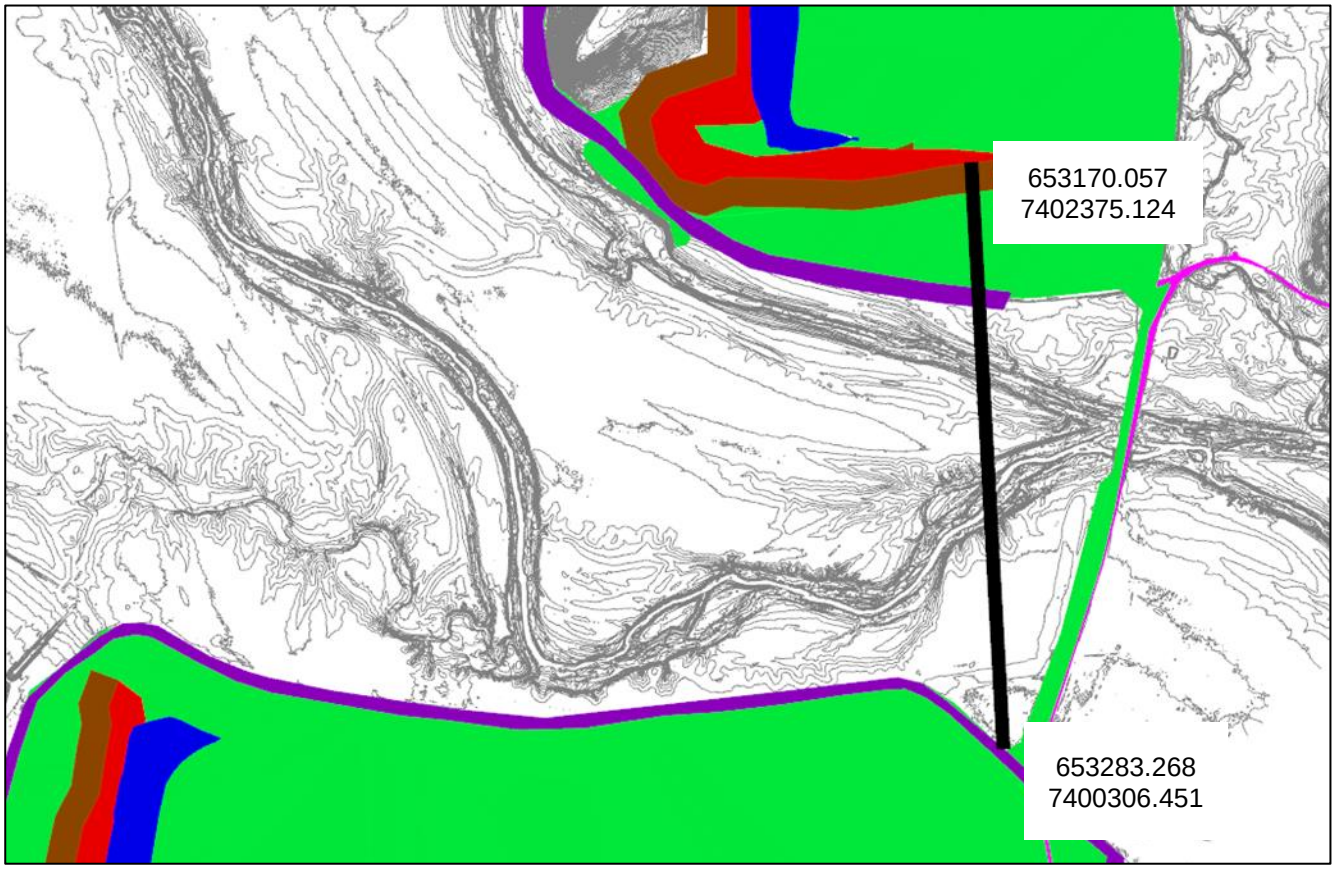
Domains
(1) Overburden / Infrastructure
(2) Landholder Retained Infrastructure
(3) Boggy Creek Diversion
(4) Native Bushland Corridor
(5) Groundwater Daylighting Water Areas
(6) Highwalls
(7) Flood Protection Landform
Ensham
RESOURCES
Ensham Mine 2020 Residual Void Project
23/07/2020
Land Use Plan for FY Pit Final Landform
Xenith

Appendix 5: 2km Floodplain Widening



Appendix 6 – Authorised landfill unit

END OF ENVIRONMENTAL AUTHORITY