Permit

Environmental Protection Act 1994

Environmental authority EA0002912

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

Environmental authority number: EA0002912

Environmental authority takes effect on 8 November 2023.

The anniversary date of this environmental authority is 29 June each year.

An annual return will be due each year on 01 April.

Environmental authority holder(s)

Name(s)	Registered address
QUEENSLAND COKING COAL PTY LTD	Level 6, Suite 2, 12 Creek Street, Brisbane QLD 4000
QLD COAL AUST NO.1 PTY LTD	

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Resource Activity, Schedule 3, 13: Mining Black Coal	ML700060
Ancillary Activity 16(2): Extracting, other than by dredging, in a year, the following quantity of material, (b) more than 100,000t but not more than 1,000,000t.	
Ancillary Activity 16(3): Screening, in a year, the following quantity of material, (b) more than 100,000t but not more than 1,000,000t.	
Ancillary Activity 31(2): Mineral Processing, in a year, the following quantities of mineral products, other than coke – (b) more than 100,000t.	
Ancillary Activity 33: Crushing, grinding, milling or screening more than 5,000t of material in a year.	

Queensland Government

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).

Mobile and temporary activities

If you operate a mobile and temporary environmentally relevant activity (ERA), other than regulated waste transport, you are required to maintain a work diary. You must:

- use the approved form for a work diary (ESR/2015/1696);
- keep the work diary records for 2 years after the last entry;
- inform the administering authority within 7 days of the work diary being lost or stolen;
- record the information required in the work diary for each location within 1 day of leaving the location.

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.

The anniversary day of this environmental authority is the same day each year as the effective date. The payment of the annual fee will be due each year on this day. An annual return will be due each year on 01 April.

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

	8 November 2023
Signature	Date

Ben Byrd
Department of Environment and Science
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Business Centre Coal
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Phone: (07) 4987 9320
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Obligations under the *Environmental Protection Act 1994*

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

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

Other permits required

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

Conditions of environmental authority

Schedule A: General	
Condition number	**Condition**
A1	This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.
A2	In carrying out activities authorised by this environmental authority, the environmental authority holder must comply with **Appendix 1. Site Layout – Authorised Disturbance Areas.**
A3	**Coal Extraction** The environmental authority holder is approved to extract up to **1.95 million tonnes per annum (Mtpa)** of run-of-mine (ROM) coal within ML700060 in accordance with this environmental authority.
A4	In accordance with Condition **A3**, within **twenty (20) business days** of 30 June each year the environmental authority holder must report to the administering authority the tonnes of ROM coal produced in the previous calendar year.
A5	The environmental authority holder must: (a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; (b) maintain such measures, plant and equipment in a proper and efficient condition; (c) operate such measures, plant and equipment in a proper and efficient manner; and (d) ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.
A6	**Monitoring and records** All monitoring records, registers, plans, programs, and reports required by this environmental authority must be kept until the surrender of this environmental authority.
A7	Monitoring, or determinations, or both, required under any condition of this environmental authority must be conducted by an appropriately qualified person(s).
A8	Upon request from the administering authority, copies of monitoring records, registers, plans, programs, and reports required by the conditions of this environmental authority must be made available and provided to the administering authority within: (a) **ten (10) business days**; or (b) an alternative timeframe agreed between the administering authority and the environmental authority holder.

A9	Within **twenty (20) business days**; or an alternative timeframe agreed between the administering authority and the environmental authority holder, of receiving comments from the administering authority on any document, the document must: (a) be updated by an appropriately qualified person having regard to the comments; and (b) re-submitted to the administering authority.
A10	All plans and programs required by this environmental authority are to be published on the environmental authority holder's website within **one (1) month** of completion.
A11	**Chemicals and flammable or combustible liquids** The environmental authority holder must: (a) Store and handle flammable and combustible liquids in accordance with the latest edition of *AS1940—The storage and handling of flammable and combustible liquids*; (b) Store materials with an effective on-site containment system; and (c) Minimise the potential for contamination of land and waters by diverting stormwater around contaminated areas and facilities used for the storage of chemicals and flammable or combustible liquids.
A12	**Notification of emergencies, incidents, and exceptions** The environmental authority holder must notify the administering authority by written notification within **twenty-four (24) hours** of becoming aware of any emergency or incident or action which: (a) results in the release of contaminants not in accordance; or (b) is reasonably expected to be not in accordance with the conditions of this environmental authority.
A13	The notification provided to the administering authority as required by condition **A12** must include but not be limited to the following information: (a) the holder of the environmental authority; (b) the location of the emergency or incident; (c) the number of the environmental authority; (d) the name and telephone number of the designated contact person; (e) the time of the release; (f) the time the holder of the environmental authority became aware of the release; (g) the suspected cause of the release; (h) the environmental harm caused, threatened, or suspected to be caused by the release; and (i) actions taken to prevent any further release and mitigate any environmental harm caused by the release.

A14	Within **ten (10) business days** following the initial notification of an emergency or incident under condition **A12**, or receipt of monitoring results, whichever is the later, written advice must be provided to the administering authority, including the following: (a) results and interpretation of any samples taken and analysed; (b) outcomes of actions taken at the time to prevent or minimise environmental harm; and (c) proposed actions to prevent a recurrence of the emergency or incident.
A15	All reasonable actions are to be taken to minimise environmental harm, or potential environmental harm, resulting from any emergency, incident or circumstances not in accordance with the conditions of this environmental authority.
A16	**Complaints** An investigation must be undertaken into all environmental complaints received that are deemed to be neither frivolous nor vexatious and the administering authority must be notified within **twenty-four (24) hours** upon the commencement of investigation. The investigation must determine: (a) the potential circumstances and actions on site that may have contributed to the complaint; and (b) reasonable measures, where warranted, that will be implemented to address the complaint.
A17	Measures identified under condition **A16** must be implemented within: (a) **twenty (20) business days** of the investigation required by condition **A16** being finalised; or (b) a longer period agreed to in writing by the administering authority.
A18	The following details must be recorded for all environmental complaints received: (a) date and time the complaint was received; (b) if authorised by the person making the complaint, their name and contact details; (c) nature and details of the complaint including date and time the complaint was received; (d) investigations carried out in response to the complaint as required by condition **A16**; (e) the results of investigations; and (f) measures taken under condition **A17**.
A19	The results of the investigation required under condition **A16** must: (a) include an analysis and interpretation of the monitoring results and abatement measures, where implemented; and (a) be provided to the administering authority within **ten (10) business days** of completion of the investigation, or no later than **ten (10) business days** after the end of the timeframe nominated by the administering authority to undertake the investigation.

A20	**Third-party reporting** The environmental authority holder must: (a) obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority before or on **1 October 2022**; (b) obtain further such reports at regular intervals, not exceeding **two (2) years** from the completion of the report; and (c) provide each report to the administering authority within **thirty (30) days** of its completion.
A21	Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the environmental authority holder must, where required under relevant legislation: (a) comply with the amended or changed standard, policy or guideline within **two (2) years** of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation, in the time specified in that condition; and (b) until compliance with the amended or changed standard, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.
A22	**Risk management** The environmental authority holder must develop and implement, for the duration of activities, a risk management system for activities which mirrors the content requirements of the Standard for Risk Management (ISO31000:2018), or the latest edition of an Australian Standard for risk management, to the extent relevant to environmental management.

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	**Dust and particulate matter monitoring** The environmental authority holder must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that dust deposition, or particulate matter emissions, or both, generated by the activities do not cause exceedances of the air quality limits stated in **Table B1 – Air Quality limits** when measured at any sensitive or commercial place.

Table B1 – Air Quality Limits

Quality Characteristic	Air Quality Limit	Averaging Period	Monitoring Standard
Particulate Matter less than 10µm in aerodynamic diameter (PM_{10})	50 µg/m^3	24-hour	1. Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air — Determination of suspended particulate matter—PM_{10} high volume sampler with size selective inlet – Gravimetric method; 2. Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air — Determination of suspended particulate matter—PM_{10} low volume sampler — Gravimetric method; or 3. Australian Standard AS3580.9.11 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM_{10} beta attenuation monitors
Dust deposition	120 mg/m^2/day	Monthly	Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter — Deposited matter – Gravimetric method

B3	When requested by the administering authority, dust and particulate monitoring must be undertaken at sensitive receptors and within a timeframe nominated by the administering authority.
B4	Monitoring in accordance with condition **B3** must occur over a **one (1) month** period and results must be submitted within **ten (10) business days** to the administering authority following completion of monitoring.

B5	In accordance with condition **B4**, If the monitoring indicates an exceedance of the relevant limits in **Table B1 – Air Quality Limits**, then the environmental authority holder must investigate whether the exceedance is due to emissions from the activity. If the mining activity is found to be the cause of the exceedance, then the environmental authority holder must immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.
B6	**Dust management – coal transport** The environmental authority holder must take reasonable and practicable measures necessary to prevent release of windblown dust associated with transporting coal extracted from site. Reasonable and practicable measures may include, but are not limited to: (a) wetting down the load prior to transport; (b) having the entire load covered with a tarpaulin or similar material for the duration of transport; and (c) clearing of spillages from side rails, tail gates and draw bars of vehicles prior to and after delivery.
B7	**Dust control - trafficable and rail areas** Trafficable and rail areas (including entry and exit points from Saraji Road, the rail loop and the train load out facility) must be maintained using reasonable and practicable measures necessary to minimise the release of windblown or traffic generated dust to the atmosphere. Reasonable and practicable measures may include, but are not limited to: (a) keeping surfaces clean; (b) sealing with bitumen or other suitable material; (c) using water sprays; (d) installing an effective truck body and wheel wash facility; and (e) using dust suppressants and wind breaks.
B8	**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 place or commercial place, or both.

Schedule C: Waste	
Condition number	**Condition**
C1	The environmental authority holder must plan and conduct activities on site to prevent any potential or actual release of a hazardous contaminant.
C2	The environmental authority holder must not directly or indirectly release waste from the site to any watercourse, waterway, groundwater, wetland or lake.
C3	Only coal mined from ML700060 can be washed on site.
C4	**Storage and Disposal of Tyres** Tyres must be stored and disposed of in accordance with the Operational policy - Disposal and storage of scrap tyres at mine sites ESR/2016/2380 Version 2.02, or the most recent revision available.
C5	**Burning of waste** Unless otherwise permitted by the conditions of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.
C6	**General Waste** A **Waste Management Plan** must be developed and implemented for the duration of activities.
C7	In accordance with condition **C6**, the Waste Management Plan must at a minimum include the following: (a) a description of the activities that may generate waste; (b) waste management control strategies, including: (i) the types and amounts of wastes generated by the activities; (ii) segregation of the wastes; (iii) storage of the wastes, transport of the wastes; and (iv) monitoring and reporting matters concerning the wastes; (c) how the waste will be dealt with in accordance with the waste management hierarchy (that is, avoid, reuse, recycling, energy recovery, disposal); (d) the hazardous characteristics of the wastes generated including disposal procedures for hazardous wastes; and (e) procedures for dealing with accidents, spills and other incidents; the indicators or other criteria on which the performance of the waste management program will be assessed; and staff training.

C8	**Waste Rock Disposal Plan** A **Waste Rock Disposal Plan** must be developed prior to the commencement of activities and must be revised and implemented for all stages of activities**.**
C9	The **Waste Rock Disposal Plan** required under condition **C8** must at a minimum include: (a) the process to incorporate the handling and placement of tailings and coarse rejects within the waste rock disposal areas, as per the Tailings and Coarse Rejects Disposal Plan; (b) effective characterisation of the waste rock and spoil to predict, under the proposed placement and disposal strategy, the quality of runoff and seepage generated concerning potentially environmentally significant effects including salinity, acidity, alkalinity and dissolved metals, metalloids and non-metallic inorganic substances; (c) a program of progressive sampling and characterisation to identify dispersive and non-dispersive waste rock and the salinity, acid and alkali producing potential, metal and acid concentrations of waste rock; (d) a material balance and disposal plan demonstrating how potentially acid forming waste rock will be selectivity placed and/or encapsulated to minimise potential generation of acid mine drainage, where relevant; (e) re-testing of waste rock geochemistry and water quality limits of parameters; (f) where relevant, a sampling program to verify encapsulation and/or placement of potentially acid forming waste rock; (g) data for run-off water quality; (h) how often the performance of the plan will be assessed; and (i) the indicators or other criteria on which the performance of the plan will be assessed.
C10	**Reuse of waste rock** The environmental authority holder is authorised to carry out environmentally relevant activity 16 extractive and screening activities only in accordance with conditions **C11** and **C12** of this environmental authority.
C11	The environmental authority holder is authorised to give or transfer not more than a total of **400,000 tonnes** of waste rock from ML700060 to the out-of-pit tailings dam on ML70142 located generally at the coordinates Latitude -22.2633469 and Longitude 148.172531.
C12	A register of all given or transferred volumes of waste rock, as stated in condition **C11**, must be established and maintained to ensure that the information contained in the register is current and complete on any given day.
C13	**Tailings and Coarse Rejects Disposal Plan** A **Tailings and Coarse Rejects Disposal Plan** must be developed prior to the commissioning of the coal handling and processing plant (CHPP) and must be revised and implemented for all stages of activities**.**

C14	The **Tailings and Coarse Rejects Disposal Plan** required under condition **C13** must at a minimum include: (a) effective characterisation of the CHPP tailings and coarse rejects to predict, under the proposed placement and disposal strategy, the quality of runoff and seepage generated concerning potentially environmentally significant effects including salinity, acidity, alkalinity and dissolved metals, metalloids and non-metallic inorganic substances; (b) a program of progressive sampling and analysis to characterise the CHPP tailings and rejects and identify dispersive and non-dispersive materials and the salinity, acid and alkali producing potential, metal and acid concentrations of tailings and rejects; (c) a material balance and disposal plan demonstrating how potentially acid forming tailings and coarse rejects will be selectivity placed and/or encapsulated to minimise potential generation of acid mine drainage, where relevant; (d) re-testing of tailings and coarse rejects geochemistry and water quality limits of parameters; (e) where relevant, a sampling program to verify encapsulation and/or placement of potentially acid forming waste rock; (f) data for run-off water quality; (g) how often the suitability of the plan will be assessed and triggers for plan revisions; and (h) the indicators or other criteria on which the suitability of the plan will be assessed.
C15	**CHPP water reuse** Water used at the CHPP must be separated from the tailings and coarse rejects to produce as much as practicable: (a) dry tailings and coarse rejects; and (b) water for reuse in the CHPP.
C16	Waste rock identified as being Potentially Acid Forming (PAF) material and dry tailings and rejects must be disposed of in accordance with the plans required by conditions **C8** and **C13** and must not be disposed to the out-of-pit waste rock dump.

Schedule D: Noise and Vibration	
Condition number	**Condition**
D1	**Noise limits** The environmental authority holder must ensure that noise generated by activities do not exceed the criteria in **Table D1 – Noise limits** at a sensitive place or commercial place, or both.

Table D1 – Noise limits

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

NOTE:

CV = Critical Value

AV = Adjustment Value

bg = background noise level (L_{A90}, adj, 15 mins) measured over 3-5 days at the nearest sensitive receptor

To calculate noise limits in Table – D1:

If bg ≤ (CV – AV):

Noise limit = bg + AV

If (CV – AV) < bg ≤ CV:

Noise limit = CV

If bg > CV:

Noise limit = bg + 0

In the event that measured bg (L_{A90}, adj, 15 mins) is less than 30 dB(A), then 30 dB(A) can be substituted for the measured background level.

If the project is unable to meet the noise limits as calculated above alternative limits may be calculated using the processes outlined in the "Planning for Noise Control" guideline.

D2	Noise monitoring and recording must include the following descriptor characteristics and matters: (a) $L_{AN,T}$ (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins); (b) background noise L_{A90}; (c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels; (d) atmospheric conditions including temperature, relative humidity and wind speed and directions; (e) effects due to any extraneous factors such as traffic noise; (f) location, date and time of monitoring; and (g) if the complaint concerns low frequency noise, Max LpLIN,T and one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.
D3	When requested by the administering authority, noise and/or vibration monitoring must be undertaken at sensitive receptors and within a timeframe nominated by the administering authority.
D4	**Airblast overpressure nuisance** The environmental authority holder must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in **Table D2 – Blasting Noise Limits** to be exceeded at a sensitive place, or commercial place, or both.
D5	**Blast monitoring program** The environmental authority holder must develop and implement a blast monitoring program to monitor compliance with **Table D2 – Blasting Noise Limits** for all blasts conducted during any time period specified by the administering authority at the nearest and most affected sensitive place(s) or commercial place(s) or another such place to investigate an allegation of environmental nuisance caused by blasting.
D6	Blast 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, wind speed and wind direction; and (c) location, date and time of recording.

Table D2 – Blasting Noise Limits

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

D7	If monitoring indicates exceedance of the limits in **Table D2 – Blasting Noise Limits**, then the environmental authority holder must immediately implement airblast overpressure abatement measures so that airblast overpressure from the activity does not result in further environmental nuisance.

Schedule E: Groundwater	
Condition number	**Condition**
E1	All groundwater monitoring data, plans, programs, and reports are to be submitted to the administering authority on request. All groundwater monitoring data must be submitted to the administering authority via WaTERS.
E2	The environmental authority holder must not release contaminants, directly or indirectly, to groundwater.
E3	**Groundwater Quality Limits** Groundwater contaminant limits as per **Table E2 – Groundwater Quality Limits** must be reviewed to: (a) evaluate whether the groundwater monitoring network is fit for purpose including frequency of monitoring; (b) evaluate whether the contaminant limits specified in **Table E2 – Groundwater Quality Limits** are appropriate for all parameters; (c) identify and interpret any trends in the groundwater network monitoring data; and (d) detail findings in a report submitted to the administering authority by **1 April 2023**.
E4	**Groundwater Monitoring** Groundwater quality and levels must be monitored for the duration of activities: (a) at the locations specified in **Table E1 – Groundwater Monitoring Locations and Frequency,** as illustrated in **Appendix 2. Location of groundwater monitoring bores;** (b) at the frequencies specified in **Table E1 – Groundwater Monitoring Locations and Frequency;** and (c) for the quality characteristics identified in **Table E2 – Groundwater Quality Limits**.

Table E1 – Groundwater Monitoring Locations and Frequency

Bore	**MB05**	**MB13**	**MB14**	**MB15**	**MB16**	**MB17**
Latitude (GDA2020)	-22.28720	-22.29847	-22.27568	-22.28478	-22.27518	-22.28083
Longitude (GDA2020)	148.18390	148.19340	148.18520	148.18310	148.17720	148.17418
Aquifer	Back Creek Group	Back Creek Group	Moranbah CM	Moranbah CM	Moranbah CM	Back Creek Group
Monitored unit	MAT coal seam**	MAT coal seam**	DLL coal seam*	Permian interburden	Permian interburden	MAT coal seam**
Surface RL (mAHD)	252.70	223.13	242.38	251.55	248.36	269.40
Depth (mbgl)	40.9	35	29.5	10	10	Until groundwater is intersected in the coal seam ~30m
Monitoring Frequency	Quarterly			Monthly		

NOTE:

**DLL = Dysart Lower Lower coal seam*

***MAT = Matilda coal seam*

mbgl = meters below ground level

mAHD = metres above the Australian Height Datum

Surface RL = Reduced Standing Water Level

^Monthly monitoring frequency to be reviewed as part of condition E16 submission.

Table E2 – Groundwater Quality Limits

Parameter	Bores	Limit	Comments
pH (field) (pH units)	All bores	5.5 - 8.0	Broad range to encompass all bores, adapted from data and ANZG (2018)
Electrical Conductivity (field) (µS/cm)	MB05	2,818	Site specific 95th percentile
	MB13	4,373	Site specific 95th percentile
	MB14	12,849	Site specific 95th percentile
	MB15	21,313	Site specific 95th percentile
	MB16	5,866	Site specific 95th percentile. Refer to condition **E16**
	MB17	TBD	Refer to condition **E17**
Sulfate (mg/L)	MB05	284	Site specific 95th percentile
	MB13	577	Deep WQO
	MB14	176	Site specific 95th percentile
	MB15	3,614	Site specific 95th percentile
	MB16	687	Site specific 95th percentile. Refer to condition **E16**
	MB17	TBD	Refer to condition **E17**
Metals and Metalloids			
Aluminium (dissolved) (mg/L)	MB05	6.2	Site specific 95th percentile
	MB13	6	Site specific 95th percentile
	MB14	4.8	Site specific 95th percentile
	MB15	0.008	Site specific 95th percentile
	MB16	0.060	Site specific 95th percentile. Refer to condition **E16**
	MB17	TBD	Refer to condition **E17**
Arsenic (dissolved) (mg/L)	All bores	0.013	ANZG (2018)
Iron (dissolved) (mg/L)	MB05	2.9	Site specific 95th percentile
	MB13	2.8	Site specific 95th percentile
	MB14	288	Site specific 95th percentile
	MB15	6.6	Site specific 95th percentile. Refer to condition **E16**
	MB16	0.8	Site specific 95th percentile. Refer to condition **E16**
	MB17	TBD	Refer to condition **E17**
Lead (dissolved) (mg/L)	All bores	0.0034	ANZG (2018)
Mercury (dissolved) (mg/L)	All bores	0.0006	ANZG (2018)
Molybdenum (dissolved) (mg/L)	MB05, MB14, MB15, MB16, MB17	0.034	ANZG (2018)
	MB13	0.06	Site specific 95th percentile
Selenium (dissolved) (mg/L)	All bores	0.005	ANZG (2018) 99th percentile

**TRH C6-C9 (µg/L)	All bores	< 20	LOR
**TRH C10-C36 (µg/L)	All bores	< 50	LOR
Major Ions (mg/L)			
Bicarbonate	All bores	For interpretation purposes only	
Calcium		For interpretation purposes only	
Carbonate		For interpretation purposes only	
Chloride		For interpretation purposes only	
Magnesium		For interpretation purposes only	
Potassium		For interpretation purposes only	
Sodium		For interpretation purposes only	

NOTE:

** *Total Recoverable Hydrocarbons (TRH)*

Table E3 – Groundwater level monitoring

Monitoring Location	Monitored unit	Pre-mining baseline level (mAHD)	Level Threshold[1] (mAHD)
MB05	MAT coal seam	237.13	234.86
MB13	MAT coal seam	202.71	200.44
MB14	DLL coal seam	233.50	232.07
MB15	Permian interburden	246.40	247.08
MB16	Permian interburden	243.97	244.43
MB17	MAT coal seam	TBD	TBD

NOTE:

[1]90th percentile predicted maximum cumulative drawdown over the life of the Project beyond any background non-mining related influence, except where specifically identified

E5	**Assessment Criteria for Bores – Quality Characteristics** The mining activity must not cause groundwater measured from any bore specified in **Table E1 – Groundwater Monitoring Locations and Frequency** to exceed the corresponding limits specified in **Table E2 – Groundwater quality limits** on any **three (3)** consecutive sampling occasions.

E6	If the groundwater from any bore identified in **Table E1 – Groundwater Monitoring Locations and Frequency** exceeds the contaminant limits specified in **Table E2 – Groundwater quality limits** on **three (3)** consecutive occasions, the environmental authority holder must: (a) notify the administering authority via WaTERS within **twenty-four (24) hours** of receiving the results; and (b) complete a **Trigger Investigation** in accordance with condition **E9**
E7	**Assessment Criteria for Bores – Level Trigger** The mining activity must not cause groundwater measured from any bore specified in **Table E1 – Groundwater Monitoring Locations and Frequency** to exceed the corresponding Level trigger thresholds specified in **Table E3 – Groundwater level monitoring.**
E8	If the Level Trigger Thresholds of groundwater measured at any compliance bore specified in **Table E1 – Groundwater monitoring locations and frequency** exceeds any of the corresponding trigger levels specified in **Table E3 – Groundwater level monitoring**, the holder of the environmental authority must: (a) notify the administering authority via WaTERS within **twenty-four (24) hours** of receiving the results; and (b) conduct a **Trigger Investigation** in accordance with condition **E9.**
E9	**Trigger Investigation** The trigger investigation required by condition **E6** and **E8** must be completed within **fourteen (14) days** of receiving results to determine if the exceedance is a result of: (a) activities authorised under this environmental authority; (b) natural variation; or (c) neighbouring land use resulting in groundwater impacts.
E10	The holder of this environmental authority must provide a report of the **Trigger Investigation** to the administering authority within **fourteen (14) days** of completing the investigation under condition **E9**.
E11	If the **Trigger Investigation** under condition **E9** determines the exceedance was the result of activities authorised under this environmental authority, then a follow up investigation must be completed within **twenty-eight (28) days** of submission of the **Trigger Investigation** and must: (a) determine the source, cause and extent of contamination; (b) implement immediate measures to reduce the potential for environmental harm; (c) develop and detail long-term mitigation measures to address any existing groundwater contamination and prevent recurrence of groundwater contamination; and (d) be submitted to the administering authority within **fourteen (14) days** of completing the investigation.

E12	**Groundwater Management and Monitoring Program** The environmental authority holder must: (a) implement the Groundwater Management and Monitoring Program for the entire operational and closure phase of mining; (b) submit a Groundwater Management and Monitoring Program to the administering authority via WaTERS before or on **1 October 2022**; (c) update the program every **two (2) years** if required**;** and (d) 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.
E13	The **Groundwater Management and Monitoring Program Report** required by condition **E12** must include: (a) the standing water level of all groundwater bores within **Table E1 – Groundwater Monitoring Locations***;* (b) an assessment of long-term water quality and water level trends at all groundwater bores in **Table E1 – Groundwater Monitoring Locations**; (c) maps showing the actual water level drawdown contours caused by the take of associated water for each groundwater aquifer in accordance with **Table E3 – Groundwater level monitoring**; (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; (g) identify potential sources of contamination from the mining activity; (h) identify the environmental values that need to be protected; (i) ensure that all potential underground water impacts due to the activity are identified, mitigated and monitored; (j) document sampling and monitoring methodology; (k) include a conceptual groundwater model; (l) ensure that monitoring bores are representative of the target aquifer and chemically comparable; (m) include an appropriate quality assurance and quality control program; and (n) include a review process to identify required improvements to the program and address any comments provided by the administering authority.
E14	Monitoring and sampling of groundwater must comply with the latest edition of the administering authority's Groundwater Monitoring and Sampling Manual.

E15	**Bore construction and maintenance and decommissioning** The construction, maintenance, management, and decommissioning of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring.
E16	**Monitoring bores MB15 and MB16** By **1 September 2024**, the environmental authority holder must submit a report to the administering authority reviewing Sulfate, Electrical Conductivity and Iron limits for MB16 and Iron limits for MB15 in **Table E2 – Groundwater Quality Limits** for sufficiency and to identify potential sources of contamination from the mining activity.
E17	**Monitoring Bore MB17** By **1 March 2025**, the environmental authority holder must submit a report to the administering authority to replace TBD values for MB17 in **Table E2 – Groundwater Quality Limits** based on at least eight (8) samples collected over a 12-month period and with considerations of the methods and matters stated in the guideline "Using monitoring data to assess groundwater quality and potential environmental impacts", February 2021 as amended from time to time.

Schedule F: Surface Water	
Condition number	**Condition**
F1	All surface monitoring data, plans, programs, and reports is to be submitted to the administering authority via WaTERS.
F2	**Release to receiving waters** Contaminants that will/or have the potential to cause environmental harm must not be released directly or indirectly to any waters as a result of the authorised activity, except as permitted under the conditions of this environmental authority.
F3	The environmental authority holder is not authorised to release mine affected water into receiving waters under a controlled release (pumped release).
F4	Releases to receiving waters must not cause erosion of the bed and banks of the receiving environment or cause a material build-up of sediment in such waters.
F5	The release of water from sediment dams must be monitored at the release locations detailed in **Table F1 – Water Release Locations from Sediment Dams** and downstream monitoring point locations specified in **Table F3 – Receiving Waters Quality Monitoring Locations**, as illustrated in **Appendix 3. Surface Water Monitoring Locations**, for each quality characteristic and at the frequencies specified in **Table F2 – Contaminant trigger investigation levels.**

Table F1 – Water Release Locations from Sediment Dams

Release location	Release location Latitude	Release location Longitude	Sediment Dam Water Source location	Downstream Monitoring Point	Receiving waters description
SD1	-22.29314	148.18773	Out of pit spoil dump	VSW2	Drainage line 2 via the existing drainage diversion
SD2	-22.28712	148.18329	Out of pit spoil dump	VSW2	
SD3	-22.27813	148.17893	Northern mine access road	VSW8	Drainage line 1
SD4	-22.29449	148.18781	Topsoil stockpile south of the out of pit spoil dump	VSW2	Drainage line 2 via the existing drainage diversion
SD5	-22.29649	148.19342	In pit spoil dump	VSW2	Drainage line 2
SD6*	-22.28510	148.18586	In pit spoil dump	VSW8	Drainage line 2 via the existing drainage diversion
SD7	-22.29307	148.18911	In pit spoil dump and topsoil stockpile	VSW2	
SD8	-22.29540	148.18936	In pit spoil dump and topsoil stockpile	VSW2	
SD9	-22.28650	148.19337	In pit spoil dump	VSW8	Drainage line 1
SD10	-22.27927	148.18825	In pit spoil dump	VSW8	
SD11*	-22.27912	148.18291	In pit spoil dump, topsoil stockpiles and mine access road	VSW8	Drainage line 1 via the final landform drain
SD12*	-22.27726	148.18213	In pit spoil dump	VSW8	
SD13	-22.28588	148.17730	Matilda Pit, in-pit waste rock dump and mine access road	VSW2	Drainage line 2 via the existing diversion drain
SD14	-22.28038	148.17740	Matilda Pit, in-pit waste rock dump and mine access road	VSW2	
SD15	-22.28428	148.17980	Matilda Pit, in-pit waste rock dump and mine access road	VSW2	
SD16	-22.28598	148.18001	Matilda Pit, in-pit waste rock dump	VSW2	

NOTE:

**SD6, SD11 and SD12 are release points after closure and not during operations. During operations, SD6 releases report to the mining pit and will not require monitoring. SD11, SD12 and SD16 will not be constructed until the final landform is established.*

F6	The environmental authority holder must complete an investigation if water quality sampling as specified in condition **F5** identifies **three (3)** consecutive exceedances of: (a) interim sediment dam release trigger values detailed in **Table F2 – Contaminant trigger investigation levels;** and (b) interim downstream monitoring point trigger values detailed in **Table F2 – Contaminant trigger investigation levels.**

Table F2 – Contaminant trigger investigation levels

Parameter	Dam release point trigger value	Downstream monitoring point trigger value	Source	Frequency
pH (pH units)	6.5 –- 8.5	6.5 – 8.5	WQO (aquatic ecosystem)	Upon commencement (the first sample must be taken within 2 hours of commencement of release), daily during release, and within two (2) hours after cessation of release.
Electrical Conductivity (µS/cm)	873	727	Locally derived	
Total suspended solids (mg/L) [1]	102	85	Locally derived	
Turbidity (NTU)[1]	352.3	293.6	Locally derived	
Dissolved oxygen	64% –- 132% saturation	80% – 110% saturation	WQO (aquatic ecosystem)	
Sulfate mg/L	139.2	116	Locally derived	
Filtered Metals and Metalloids				
Filtered Lead µg/L	4.8	4	MMC (aquatic ecosystem)	Upon commencement (the first sample must be taken within 2 hours of commencement of release), daily during release, and within two (2) hours after cessation of release.
Filtered Mercury µg/L	0.72	0.6	WQO (aquatic ecosystem)	
Filtered Arsenic µg/L	28.8	24	WQO (aquatic ecosystem)	
Filtered Aluminium µg/L	76.8	64	Locally derived	
Filtered Molybdenum µg/L	40.8	34	WQO (aquatic ecosystem)	
Filtered Selenium µg/L	13.2	11	WQO (aquatic ecosystem)	

NOTE:

*[1] = Dam release point trigger values for Total Suspended Solids and Turbidity can be exceeded for water discharged from the sediment dam during uncontrolled releases during a heavy rainfall event over and above the sediment dam's design storage capacity specified in condition **F19**.*

F7	The environmental authority holder must ensure stream flow gauging station/s are installed, operated and maintained to determine and record stream flows at the downstream locations specified in **Table F3 – Receiving Waters Quality Monitoring Locations.**
F8	**Trigger Investigation** In accordance with condition **F6,** where the quality characteristics of the release exceed any of the trigger values specified in **Table F2 – Contaminant trigger investigation levels** on **three (3)** consecutive occasions, the environmental authority holder must compare the downstream results to the upstream results and: (a) where the downstream result is the same or a lower value than the upstream value for the quality characteristic and the trigger values are not exceeded, then no action is to be taken; or (b) where the downstream result exceeds the values specified in **Table F2 – Contaminant trigger investigation levels:** 1. if the result is less than the upstream monitoring site data, then no action is to be taken, or 2. if the result is greater than the upstream monitoring site data, complete an investigation and provide a written report to the administering authority within **ninety (90) days** of receiving the result, outlining: i. details of the investigations carried out; ii. determine if the exceedance is a result of: a. activities authorised under this environmental authority; b. natural variation; or c. neighbouring land uses; 3. if exceedances are a result of activities authorised under this environmental authority, detail: i. level of environmental harm; 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 **F8 a) and b)1.** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.*

F9	If an investigation occurs in accordance with condition **F8(b)3,** the holder must determine whether environmental harm has or may occur, and detail: (a) strategies to implement immediate measures to reduce the potential for environmental harm; and (b) develop long-term mitigation measures to address any surface water contamination and prevent recurrence of surface water contamination. The environmental authority holder must provide details of the measures implemented or to be implemented to reduce the potential for environmental harm as well as the long-term mitigation measures to the administering authority within **twenty-eight (28) days** after completing the investigation.

Table F3 – Receiving Waters Quality Monitoring Locations

Description	Latitude (GDA2020)	Longitude (GDA2020)	Description
Receiving Waters			
Monitoring – Upstream sites			
VSW1	-22.27659	148.17451	Diversion bund approximately 3.1km upstream of Drainage line 2. Used as an upstream monitoring site for all site dams.
VSW11	-22.29794	148.18932	Minor drainage line, upstream of confluence of Drainage line 2.
VSW12	-22.275014	148.178265	Minor drainage line, upstream of Drainage line 1.
Monitoring – Downstream sites			
VSW2	-22.30104	148.19523	Drainage Line 2 upstream of the railway. Used as a downstream monitoring site for MWD2, SD1, SD2, SD4, SD5, SD7, SD8, SD13, SD14, SD15 and SD16.
VSW8	-22.27859	148.18782	Drainage Line 1 upstream of the railway. Used as a downstream site for DD1, MWD1, MWD3, MWD4, MWD5, and MWD6 as well as SD3, SD6, SD9, SD10, SD11 and SD12.

F10	**Mine affected water dams** Any mine affected water dam operated within the operational land must be designed and maintained to contain a 10% Annual Exceedance Probability (AEP) 72-hour design rainfall runoff event between the dam operating level and the full storage level.

F11	In the event of an uncontrolled release from a mine affected water dam(s) as a result of a rainfall event that exceeds design specifications, the environmental authority holder must: (a) notify the administering authority via WaTERS within **twenty-four (24) hours** of the commencement of the release; (b) notify the administering authority via WaTERS within **twenty-four (24) hours** of the cessation of the release; and (c) conduct an investigation within **twenty (20) business days** of cessation of the release**.**
F12	The investigation required under condition **F11(c)** must determine: (a) whether environmental harm has or may occur; (b) cause of the uncontrolled release; (c) where relevant, measures to address environmental harm; and (d) where relevant, measures to prevent recurrence of uncontrolled release(s). The environmental authority holder must submit the results of the investigation to the administering authority within **twenty-eight (28) days** after completing the investigation required under condition **F11(c)**.
F13	**Receiving Environment Monitoring Program (REMP)** The environmental authority holder must develop, maintain and implement a Receiving Environment Monitoring Program (REMP) for the duration of activities.
F14	For the purposes of the REMP, the only receiving environment is the waters detailed in **Table F3 – Receiving Waters Quality Monitoring Locations**. The REMP must encompass any sensitive receiving waters or environmental values within the area of the site that will potentially be directly affected by releases of sediment water.

F15	The REMP, required by condition **F13** must: (a) assess the condition or state of receiving waters, including upstream conditions, spatially within the area of the site, 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 sites) and downstream sites from the release (as a minimum, the locations specified in **Table F3 – Receiving Waters Quality Monitoring Locations**; (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 F2 – Contaminant trigger investigation levels**; (f) apply procedures and/or guidelines from Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018) and other relevant guideline documents; (g) describe sampling process; (h) analysis methods and detail quality assurance and control; and (i) incorporate stream flow and hydrological information in the interpretations of water quality and biological data.
F16	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 of the suitability of current release limits to protect downstream environmental values.
F17	**Water Management Plan** A Water Management Plan must be developed by an appropriately qualified person and implemented for all stages of activities on the site. The Water Management Plan must be submitted to the administering authority for review and comment by **30 November 2021** and **within 20 business days following any version updates.**

F18	The **Water Management Plan** required by condition **F17** must: (a) detail the movement of mine affected water between all mine water dams, including the capture of mine affected water runoff; (b) provide for effective water management of actual and potential environmental impacts resulting from water management associated with the activities carried out under this environmental authority; (c) be developed in accordance with the administering authority's most recent version of the guideline for "Preparation of water management plans for activities" or any updates that become available from time to time; and (d) must include at least the following components: (i) a study of the source on contaminants; (ii) a water balance model for the site; (iii) a map showing the water management system for the site; (iv) measures to manage and prevent saline drainage; (v) measures to manage and prevent acid rock drainage; and (vi) contingency procedures for incidents and emergencies.
F19	**Sediment Dams** Any sediment dam operated within the operational land must be designed and maintained to contain an eightieth (80^{th}) percentile 5-day rainfall event plus fifty (50) percent for sediment storage.
F20	**Erosion and Sediment Control Plan** An Erosion and Sediment Control Plan must be developed and implemented for the duration of activities to minimise erosion and the release of sediment to receiving waters.
F21	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.
F22	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.
F23	**Saline drainage** The environmental authority holder must ensure proper and effective measures are taken to avoid, or otherwise minimise, the generation and/or release of saline drainage.
F24	**Acid mine drainage and leachate management** All reasonable and practicable measures must be implemented to prevent hazardous leachate being directly or indirectly released, or likely to be released as a result of the activity to the environment.

F25	**Pipeline Design** The pipeline depicted in **Appendix 1. Site Layout – Authorised Disturbance Areas** must be designed by and constructed under the supervision of a suitably qualified and experienced person.
F26	**Hydrostatic Testing of the Pipeline** Hydrostatic Testing of the pipeline after construction must not be completed using mine affected water.
F27	**Pipeline Inspection** During pumping activities, the environmental authority holder must inspect the pipeline daily for leaks and hazards with the potential to cause leaks.

Schedule G: Land	
Condition number	**Condition**
G1	**Topsoil** The environmental authority holder must ensure that: (a) topsoil is removed and stockpiled prior to carrying out any activity; (b) measures are implemented to ensure that the mixing and erosion of topsoil and overburden stockpiles is prevented; and (c) A topsoil inventory is maintained and provide to the administering authority on request. **NOTE:** *To separate topsoil and overburden and to prevent or minimise the erosion of these stockpiles the following measures or similar measures can be used:* • *identify topsoil and overburden layers before stripping topsoil;* • *store topsoil and overburden in separate stockpiles;* • *install silt fences or bunding around the stockpiles;* • *where practicable reuse topsoil stockpiles within 12 months;* • *establish and maintain a temporary cover crop on stockpiles; and* • *limit the height of topsoil stockpiles to 2 metres.*
G2	**Weed Management** (a) A weed management plan must be developed and implemented for this site outlining: (b) areas of control priority and the methods used to determine such areas; (c) strategies to promote dense pasture cover (to decrease weeds establishment) through reduced disturbance; (d) monitoring methodologies that document the spread of weeds and any new outbreaks; (e) methods for the control of weeds. These methods should include best practice management; (f) stringent wash-down and inspection procedures for both machinery involved in clearing/construction activities and those operating outside of designated roads during mine operation; (g) truck wash procedure to reduce weed infestations; and (h) promotion of the awareness of weed management issues at the site.

G3	Rehabilitation of all land disturbed by activities on ML700060 at the time of grant of ML700060 remains the responsibility of the environmental authority holder, excluding the pre-existing flood diversion levee. **NOTE:** *The pre-exiting flood diversion levee is the levee constructed by the landowner prior to commencement of activities, as depicted by* ***Figure 2 – Rehabilitation Areas*** *of the* PRCP schedule PRCP_EA0002912*, and which will be left by agreement with the landowner as retained infrastructure.*

Schedule H: Structures – Dams and Levees	
Condition number	**Condition**
H1	**Assessment of consequence category** The **consequence category** of any structure must be **assessed** by a **suitably qualified and experienced person** in accordance with the latest version of the *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. **NOTE:** *The publication number of the manual can be used as a search term to find the latest version of the publication at www.des.qld.gov.au.*
H2	A **consequence assessment** report and **certification** must be prepared for each **structure assessed** and the report may include a consequence assessment for more than one structure.
H3	Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the latest version of the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933).
H4	**Design and construction of a regulated structure** Conditions **H5** to **H9** inclusive do not apply to existing structures. **NOTE:** *Construction of a dam includes modification of an existing dam—refer to the definitions.*
H5	All **regulated structures** must be designed by, and **constructed** under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the latest version of the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933). **NOTE:** *Certification of design and construction may be undertaken by different persons.*

H6	Construction of a regulated structure is prohibited unless: (a) the environmental authority holder has submitted a **consequence category assessment** report and certification to the administering authority; and (b) certification for the **design**, **design plan** and the associated operating procedures has been **certified** by a suitably qualified and experienced person in compliance with the relevant condition of this environmental authority.
H7	Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the latest version of the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933), and must be recorded in the Register of Regulated Structures.
H8	**Regulated structures** must: (a) be designed and constructed in compliance with the latest version of the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933); (b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of: i) floodwaters from entering the **regulated dam** from any **watercourse** or drainage line; and ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line. (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.
H9	Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that: (a) the 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure; and (b) construction of the regulated structure is in accordance with the design plan.
H10	**Notification of affected persons** All affected persons must be provided with a copy of the emergency action plan in place for each regulated structure (a) for existing structures that are regulated structures, within 10 business days of this condition taking effect; (b) prior to the operation of the new regulated structure; and (c) if the emergency action plan is amended, within 5 business days of it being amended.

H11	**Operation of a regulated structure** Operation of a regulated structure, except for an existing structure, is prohibited unless the holder has submitted to the administering authority in respect of regulated structure, all of the following: (a) one paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition **H6**; (b) a set of 'as constructed' drawings and specifications; (c) certification of the 'as constructed drawings and specifications' in accordance with condition **H9**; (d) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the **Design Storage Allowance** (**DSA**) volume across the system, a copy of the certified system design plan; (e) the requirements of this environmental authority relating to the **construction** of the regulated structure have been met; (f) the holder has entered the details required under this environmental authority, into a Register of Regulated Structures; and (g) there is a current operational plan for the regulated structure.
H12	For existing structures that are regulated structures: (a) where the existing structure that is a regulated structure is to be managed as part of an **integrated containment system** for the purpose of sharing the DSA volume across the system, the holder must submit to the administering authority within 12 months of the commencement of this condition a copy of the certified **system design plan** including that structure; and (b) there must be a current operational plan for the existing structures.
H13	Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in compliance with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.
H14	**Mandatory reporting level** Conditions **H15** to **H18** inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
H15	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.
H16	The holder must, as soon as practicable but within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.

H17	The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.
H18	The holder must record any changes to the MRL in the Register of Regulated Structures.
H19	**Design storage allowance** The holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to 1 July of each year.
H20	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 DSA volume for the dam (or network of linked containment systems).
H21	The holder must, as soon as practicable but within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.
H22	The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.
H23	**Annual inspection report** Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.
H24	At each annual inspection, the condition and adequacy of all components of the **regulated structure** must be assessed and a suitably qualified and experienced person must prepare an **annual inspection report** containing details of the assessment and include a recommendations section, with any recommended actions to ensure the integrity of the regulated structure or a positive statement that no recommendations are required.
H25	The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the latest version of the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933).

H26	The holder must within 20 business days of receipt of the annual inspection report, provide to the administering authority: (a) The recommendations section of the annual inspection report; and (b) If applicable, any actions being taken in response to those recommendations; and (c) If, following receipt of the recommendations and (if applicable) recommended actions, the administering authority requests a copy of the annual inspection report from the holder, provide this to the administering authority within 10 business days of receipt of the request.
H27	**Transfer arrangements** The holder must provide a copy of any reports, documentation and certifications prepared under this environmental authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this environmental authority.
H28	**Register of Regulated Structures** A Register of Regulated Structures must be established and maintained by the holder for each regulated structure.
H29	The holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated dam is submitted to the administering authority.
H30	The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with condition (**H11**) and (**H12**) has been achieved.
H31	The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.
H32	All entries in the Register of Regulated Structures must be approved by the chief executive officer for the holder of this environmental authority, or their delegate, as being accurate and correct.
H33	The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the electronic format required by the administering authority.
H34	**Transitional arrangements** All existing structures that have not been assessed in accordance with either the Manual or the former Manual for Assessing Hazard Categories and Hydraulic Performance of Dams must be assessed and certified in accordance with the Manual by **24 January 2024**.

H35	All existing structures must subsequently comply with the timetable for any further assessments in accordance with the Manual specified in **Table H1 - Transitional hydraulic performance requirements for existing structures**, depending on the consequence category for each existing structure assessed in the most recent previous certification for that structure.
H36	**Table H1 - Transitional hydraulic performance requirements for existing structures** ceases to apply for a structure once any of the following events has occurred: (a) it has been brought into compliance with the hydraulic performance criteria applicable to the structure under the Manual; or (b) it has been decommissioned; or (c) it has been certified as no longer being assessed as a regulated structure.
H37	Certification of the transitional assessment required by H34 and H35 (as applicable) must be provided to the administering authority by **24 April 2024**.

Table H1 – Transitional hydraulic performance requirements for existing structures

Transition period required for existing structures to achieve the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams*			
Compliance with criteria	**High consequence**	**Significant consequence**	**Low consequence**
>90% and a history of good compliance performance in last 5 years	No transition required	No transition required	No transitional conditions apply. Review consequence assessment no later than **24 July** every 7 years.
>70%-≤90%	By **24 July 2030**, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	By **24 July 2033**, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	No transitional conditions apply. Review consequence assessment no later than **24 July** every 7 years.
>50-≤70%	By **24 July 2028**, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	By **24 July 2030**, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Review consequence assessment no later than **24 July** every 7 years.
≤50%	By **24 July 2028**, or as per compliance requirements (e.g. TEP timing).	By **24 July 2028**, or as per compliance requirements (e.g. TEP timing).	Review consequence assessment no later than **24 July** every 5 years.
Regulated levee designed to prevent the ingress of clean flood water <100% compliant	By **24 July 2028**, unless otherwise agreed with the administering authority.		

NOTE:

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

END OF CONDITIONS

Definitions

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

Activity(ies) means

(a) all mining activities authorised as per the definition in section 110 of the *Environmental Protection Act 1994;* and

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

To avoid doubt, includes care and maintenance and rehabilitation.

Administering authority is the agency that administers the environmental authority provisions under the Environmental Protection Act 1994.

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

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

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

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

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

(b) against recognised dam safety deficiency indicators;

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

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

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

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

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

ANZG (2018) refers to the Australian and New Zealand Guidelines for Fresh and Marine Water Quality.

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

Assessed or **assessment** by a suitably qualified and experienced person in relation to a consequence assessment of a dam, means that a statutory declaration has been made by that person and, when taken

together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit of the assessment:

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

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

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

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

Associated works in relation to a dam, means:

(a) operations of any kind and all things constructed, erected or installed for that dam; and

(b) any land used for those operations.

BD means business days

Blasting means the use of explosive materials to fracture:

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

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

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

Certifying, certify or certified have a corresponding meaning as 'certification'.

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 purpose of preparing a design plan.

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

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

Contaminant is defined in section 11 of the *Environmental Protection Act 1994* as:

(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;

(e) a combination of contaminants.

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

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

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

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

Design storage allowance or DSA means an available volume, estimated in accordance with the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933) published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an **annual exceedance probability (AEP)** specified in that Manual.

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

Disturbed includes areas:

(a) that are susceptible to erosion;

(b) that are contaminated by the activity; and/or

(c) upon which stockpiles of soil or other materials are located.

Disturbance of land includes:

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

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

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

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

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

(f) releasing of contaminants into the soil or underlying geological strata. However, the following areas are not included when calculating areas of 'disturbance':

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

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

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

(d) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc.) which is to be left by agreement with the landowner

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

Emergency action plan means documentation forming part of the operational plan held by the holder or a nominated responsible officer, that identifies emergency conditions that sets out procedures and actions that will

be followed and taken by the dam owner and operating personnel in the event of an emergency. The actions are to minimise the risk and consequences of failure, and ensure timely warning to affected persons and the implementation of protection measures. The plan must require dam owners to annually review and update contact information where required.

Environmental has the meaning in section 7 of the Environmental Offsets Act 2014.

Environmental authority means a licence or approval issued by the administrating authority under the *Environmental Protection Act 1994*.

Environmental authority 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.

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

Existing structure means a structure that prior to **24 July 2023** meets any or both of the following, a structure:

(a) with a design that is in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* and that is considerably in progress;

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

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

Flowable substance means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.

General waste is defined in schedule 12 of the Environmental Protection Regulation 2019 and defines general waste as "waste other than regulated waste". Waste rock, overburden and the contents of tailings dams are not included in the definition of general waste for the purposes of these conditions.

Groundwater level drawdown threshold means the authorised maximum drawdown of groundwater at the nominated location at any time during the life of activities.

Hazardous contaminant is defined in schedule 4 of the Environmental Protection Act 1994, and defines a hazardous contaminant as "a contaminant that, if improperly treated, stored, disposed of or otherwise managed, is likely to cause serious or material environmental harm because of:

(a) its quantity, concentration, acute or chronic toxic effects, carcinogenicity, teratogenicity, mutagenicity, corrosiveness, explosiveness, radioactivity, flammability; or

(b) its physical, chemical or infectious characteristics (e.g.: spills of mercury, cyanide, petrol, diesel or oil)".

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

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

Incident means a set of circumstances arising as a result of activities carried out under an environmental authority which cause or threaten to cause environmental harm.

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

LA 1, adj, 15 mins means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any **15-minute** measurement period, using Fast response.

LAeq, adj,15 mins means an A-weighted sound pressure level of a continuous steady sound, adjusted for tonal character, that within a **15-minute** period has the same mean square sound pressure of a sound that varies with time.

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

Landowner is defined in schedule 4 of the Environmental Protection Act 1994, and defines the owner of the land as -

(a) The "owner" of land is-

(i) for freehold land-the person recorded in the freehold land register as the person entitled to the fee simple interest in the land; or

(ii) for land held under a lease, licence or permit under an Act-the person who holds the lease, licence or permit; or

(iii) for trust land under the Land Act 1994-the trustees of the land; or

(iv) iv. for Aboriginal land under the Aboriginal Land Act 1991-the persons to whom the land has been transferred or granted; or

(v) for Torres Strait Islander land under the Torres Strait Islander Land Act 1991-the persons to whom the land has been transferred or granted; or

(vi) for land for which there is a native title holder under the Native Title Act 1993 (Cwlth) -each registered native title party in relation to the land.

(b) Also, a mortgagee of land is the owner of the land if –

(i) the mortgagee is acting as a mortgagee in possession of the land and has the exclusive management and control of the land; or

(ii) the mortgagee, or a person appointed by the mortgagee, is in possession of the land and has the exclusive management and control of the land.

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

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.

LOR means limit of reporting.

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

m means metres.

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

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

Material environmental harm is defined in section 16 of the Environmental Protection Act 1994, and defines material environmental harm as:

(a) material environmental harm is environmental harm (other than environmental nuisance)-

(i) that is not trivial or negligible in nature, extent or context; or

(ii) that causes actual or potential loss or damage to property of an amount of, or amounts totalling, more than the threshold amount but less than the maximum amount; or

(iii) that results in costs of more than the threshold amount but less than the maximum amount being incurred in taking appropriate action to –

1. prevent or minimise the harm; and

2. rehabilitate or restore the environment to its condition before the harm.

In this section -

"maximum amount" means the threshold amount for serious environmental harm.

"threshold amount" means $5 000 or, if a greater amount is prescribed by regulation, the greater amount.

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

Mine affected water

(a) means the following types of water:

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

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

(iii) rainfall runoff which has been in contact with haul roads that have been constructed using coal and/or coal reject material

(iv) rainfall runoff which has been in contact with any areas disturbed by 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

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

(vi) groundwater from the mine's dewatering activities

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

(b) does not include surface water runoff which, to the extent that it has been in contact with areas disturbed by 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 adequately contained with the 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

(iii) both.

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

MMC refers to the Model Mining Conditions for coal mines in the Fitzroy basin Guideline (ESR/2015/1562).

Modification or modifying (see definition of ‘construction’)

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

Operational plan includes:

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

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

Overburden refers to material overlying a mineral ore deposit, up to but not including the topsoil.

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

Receiving waters means the waters into which this environmental authority authorises releases of surface runoff water.

Register of Regulated Structures includes:

(a) Date of entry in the register;

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

(c) The consequence category of the dam as assessed using the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933);

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

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

(f) For the regulated dam, other than in relation to any levees –

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

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

(iii) Dam crest volume (megalitres);

(iv) Spillway crest level (metres AHD);

(v) Maximum operating level (metres AHD);

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

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

(viii) Mandatory reporting level (metres AHD);

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

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

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

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

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

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

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

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

Regulated structure means any structure in the significant or high consequence category as assessed using the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933) published by the administering authority. A regulated structure does not include:

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

Regulated waste is defined in schedule 19 of the Environmental Protection Regulation 2019 and defines regulated waste as “waste that is a commercial waste or industrial waste; and is a type, or contains a

constituent of a type, mentioned in schedule 9, part 1, column 1 of the Environmental Protection Regulation 2019."

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

Release event means water runoff from sediment dams.

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

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

Sediment trap means a device used to filter waterborne sediment running off disturbed areas. May include silt fences, hay bales or grassed strips.

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

Sensitive place means:

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

(b) a motel, hotel or hostel, or

(c) an educational institution, or

(d) a medical centre or hospital, or

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

(f) a public park or gardens.

NOTE:

The definition of 'sensitive place' and 'commercial place' is based on Environmental Protection Policy (Noise). That is, a sensitive place is inside or outside on a dwelling, library and educational institution, childcare or kindergarten, school or playground, hospital, surgery or other medical institution, commercial & retail activity, protected area or an area identified under a conservation plan under Nature Conservation Act 1992 as a critical habitat or an area of major interest, marine park under Marine Parks Act 2004, park or garden that is outside of the mining lease and open to the public for the use other than for sport or organised entertainment. A commercial place is inside or outside a commercial or retail activity.

A mining camp (i.e., accommodation and ancillary facilities for mine employees or contractors or both, associated with the mine the subject of the environmental authority) is not a sensitive place for that mine or mining project, whether or not the mining camp is located within a mining tenement that is part of the mining project the subject of the environmental authority. For example, the mining camp might be located on neighbouring land owned or leased by the same company as one of the holders of the environmental authority for the mining project, or a related company.

Accommodation for mine employees or contractors is a sensitive place if the land is held by a mining company or related company, and if occupation is restricted to the employees, contractors and their families for the particular mine or mines which are held by the same company or a related company. For example, a township (occupied by the mine employees, contractors and their families for multiple mines that are held by different companies) would be a sensitive place, even if part or all of the township is constructed on land owned by one or more of the companies.

Seepage means the process by which water leaks through the base or sides of a water storage but does not mean the movement of water as the result of opening a gate or valve or turning on a pump.

Significantly disturbed land means land that:

(a) is contaminated land; or

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

Significantly disturbed land includes:

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

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

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

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

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

(f) areas under temporary infrastructure. Temporary 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 has ceased; or

(g) areas where land has been contaminated.

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 objectives due to circumstances beyond the control of the mine operator (such as climatic conditions);

(d) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, 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 the Landowner Agreement and lodged with the administering authority;

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

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

Structure means dam or levee.

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

An appropriate level of expertise includes:

(a) demonstrable competency, experience and expertise in:

  (i) investigation, design or construction of watercourses diversions

  (ii) operation and maintenance of watercourse diversions

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

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

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

(vi) hydrogeology with particular reference to seepage and groundwater

(vii) solute transport processes and monitoring thereof, or

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

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

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

*Persons with relevant expertise include:

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

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

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

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

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

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

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

Surface runoff water is water from areas that are disturbed by mining operations (including out-of-pit dumps and rehabilitated areas). This runoff may contain high sediment loads but would not contain contaminated material or high total dissolved solids (TDS).

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.

Tailings means fines from mineral processing that have not been dewatered.

The Act means the Environmental Protection Act 1994.

The site refers to the area of land on which the project footprint is located as illustrated in **Appendix 1: Figure 1 Project Infrastructure Layout – Mine Area.**

Topsoil refers to the surface layer of a soil profile, which is usually more fertile, darker in colour, better structured and supports greater biological activity than underlying layers. The surface layer may vary in depth

depending on soil forming factors, including parent material, location and slope, but generally is not greater than about 300mm in depth from natural surface.

Trafficable areas mean roads with bitumen or major haul roads transporting coal within the site.

'µS/cm' means micro siemens per centimetre.

Void means any constructed, open excavation in the ground.

Waste is defined under Section 13 of the Environmental Protection Act 1994.

Waste rock means material other than a mineral ore deposit that is extracted as part of the mining activity carried out on the land the subject of this environmental authority.

Water is defined under Schedule 4 of the Water Act 2000.

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

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

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

WaTERS means Water Tracking and Electronic Reporting System or subsequent updated system, used to submit monitoring data and notify the Queensland Government.

Waterway means a naturally occurring feature where surface water runoff normally collects, such as a clearly defined swale or gully, but only flows in response to a local rainfall event.

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

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

Wetland refers to an area of permanent or periodic/intermittent inundation, whether natural or artificial, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6m. Wetlands typically include areas such as lakes, swamps, marshes, estuaries or mudflats.

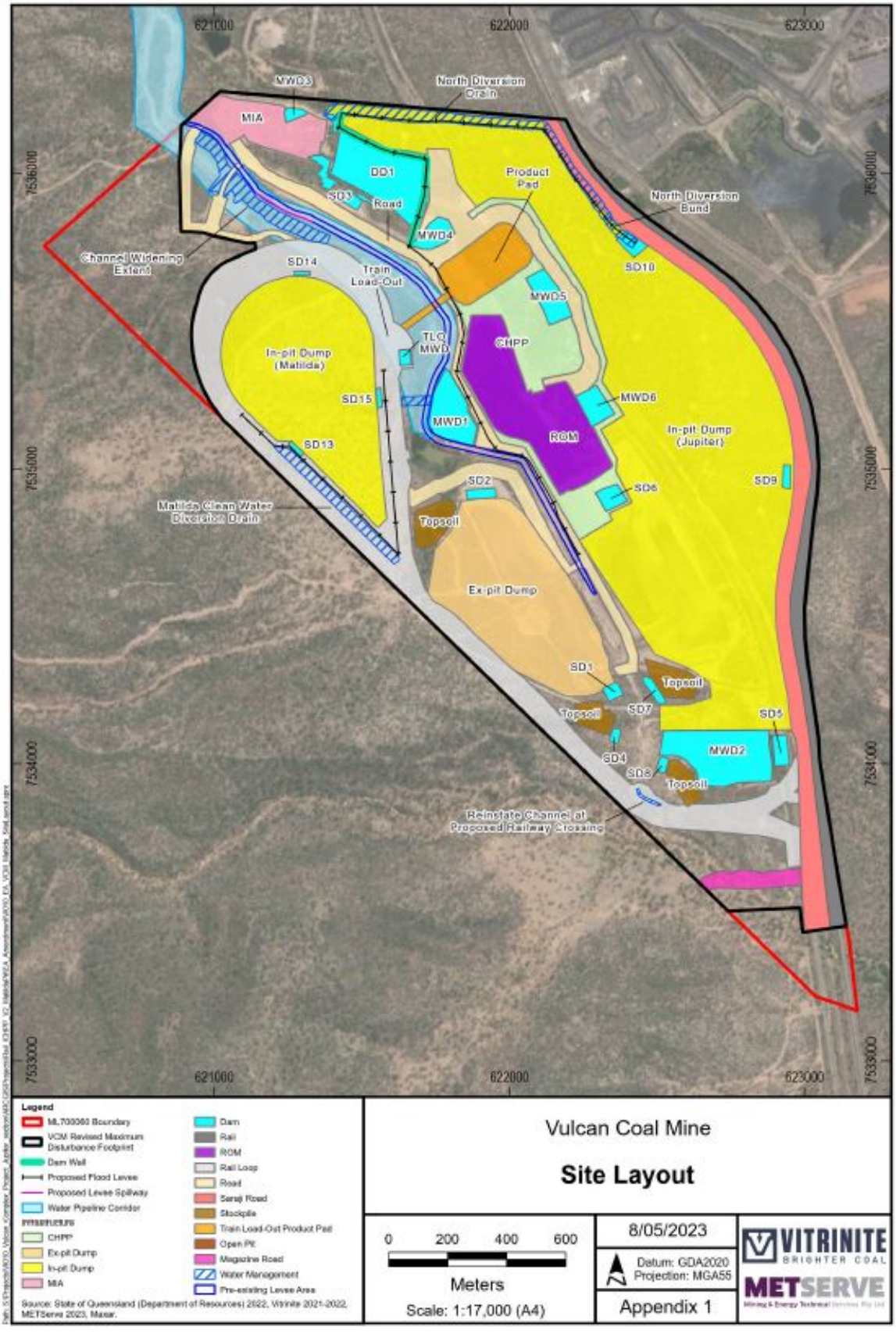
Wet Season means the time of year, covering one or more months, when most of the average annual rainfall in a region occurs. For the purposes of DSA determination this time of year is deemed to extend from 1 November in one year to 31 May in the following year inclusive.

WQO refers to Water Quality Objectives as defined under the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019.*

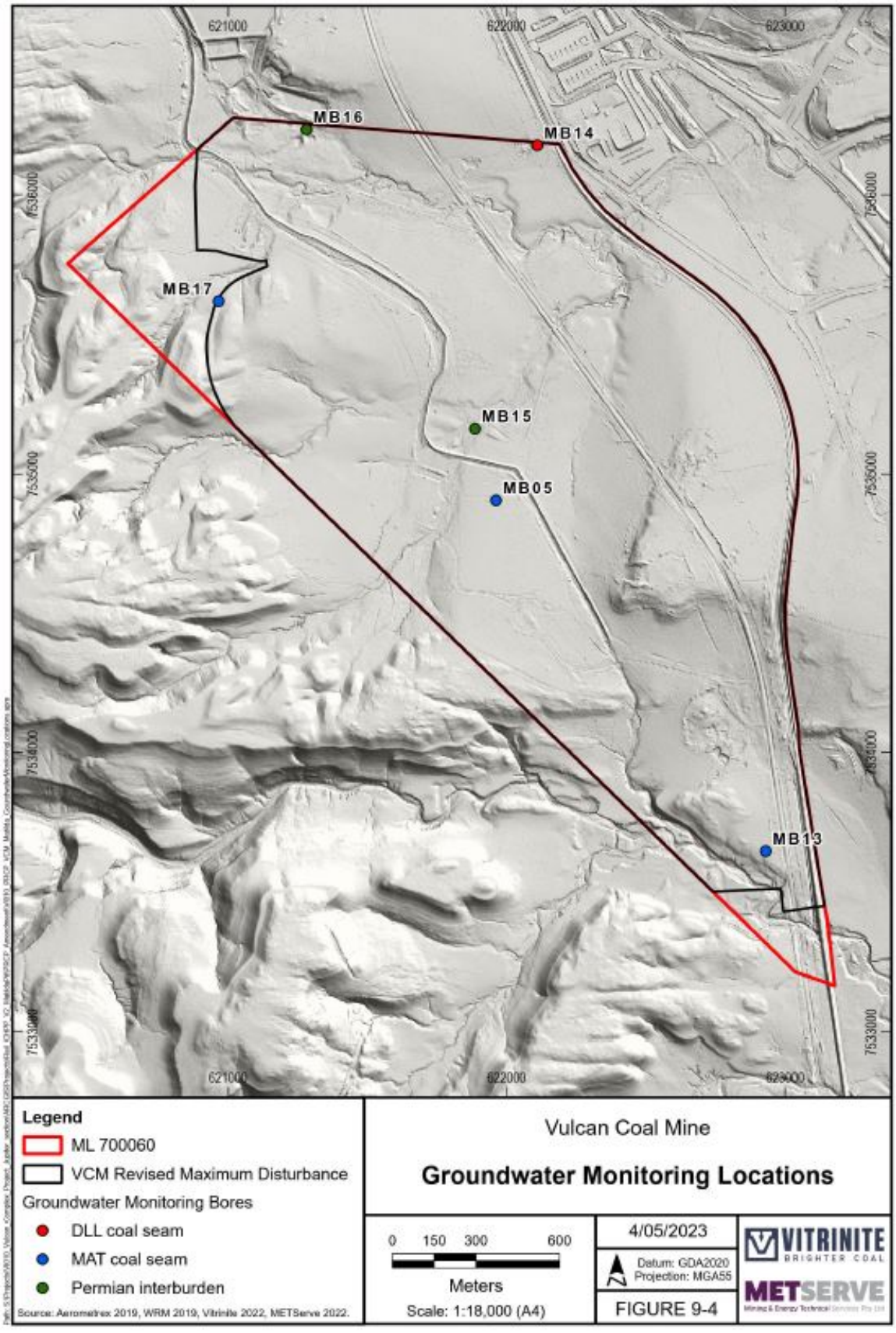
END OF DEFINITIONS

Appendices

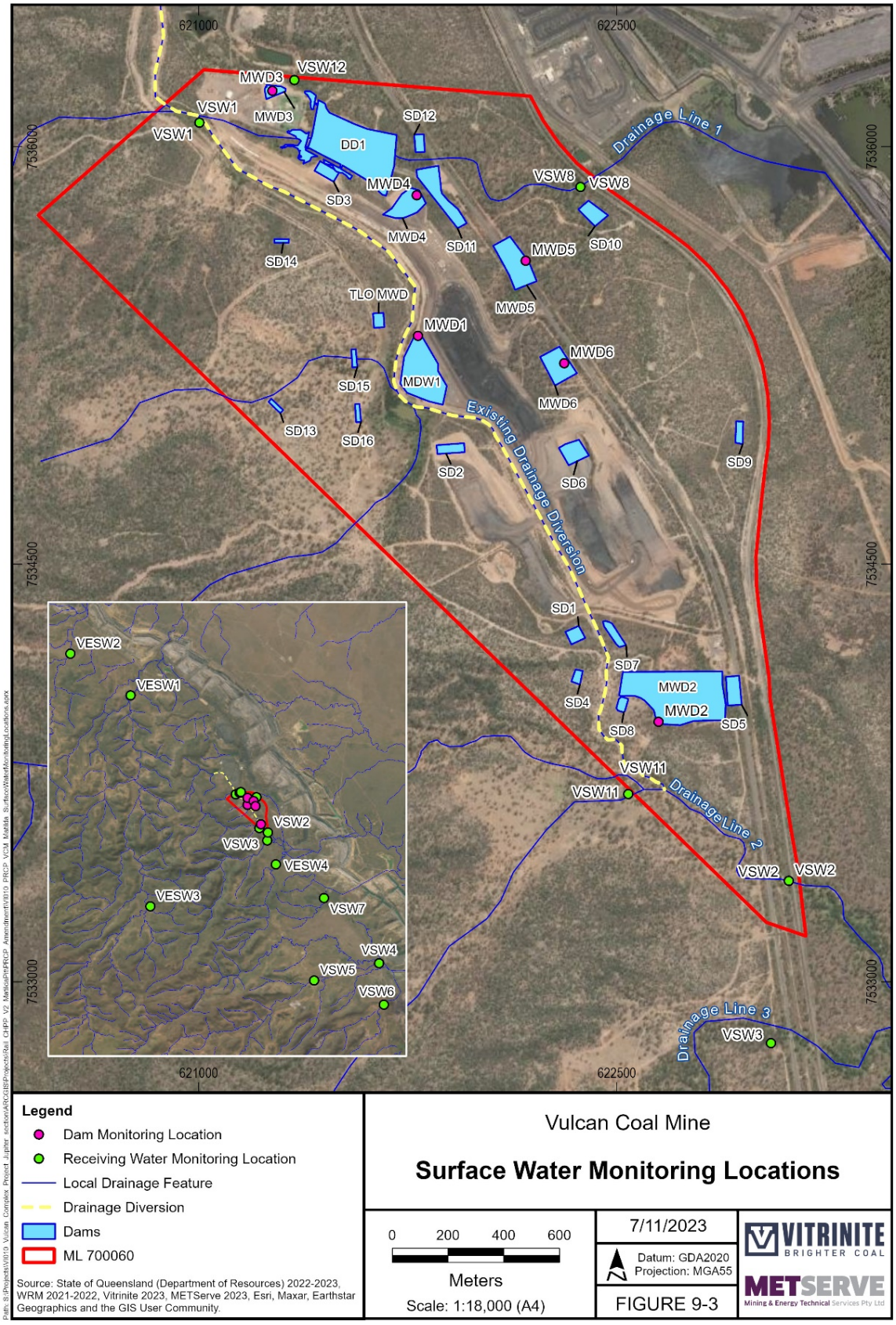
Appendix 1. Site Layout – Authorised Disturbance Areas



Appendix 2. Location of groundwater monitoring bores



Appendix 3 – Surface water monitoring locations



END OF ENVIRONMENTAL AUTHORITY