Central Queensland Coal Project

Chapter 23 – Draft EA Conditions

Supplementary Environmental Impact Statement

CDM Smith

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Central Queensland Coal Project

Chapter 23 – Draft Environmental Authority Conditions

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23 Proposed Draft Environmental Authority Conditions

Central Queensland Coal Pty Ltd (Central Queensland Coal) and Fairway Coal Proprietary Limited (Fairway Coal) (the joint Proponents), propose to develop the Central Queensland Coal Mine Project (the Project). As Central Queensland Coal is the senior proponent, Central Queensland Coal is referred to throughout this document. The Project comprises the Central Queensland Coal mine where coal mining and processing activities will occur along with a train loadout facility (TLF). It is intended that all aspects of the Project will occur as a single resource activity, authorised by mining leases and a site-specific Environmental Authority (EA).

This chapter sets out the substantive obligations which Central Queensland Coal envisages may be contained within the Project's draft EA. The presentation of the following EA conditions is intended to assist with the process of developing appropriate EA conditions for the Project in consultation with the Department of Environment and Science (DES). This chapter does not attempt to replace or replicate the Notice of Decision stage of the EA application process under Chapter 5, Division 3, subdivision 2 of the *Environmental Protection Act 1994* (EP Act).

DES determines an application for a mining project EA in accordance with the requirements of the EP Act with consideration to its Regulatory Strategy and model mining conditions (ESR/2016/1936) respectively.

The Regulatory Strategy provides for DES' operational delivery. This established the onus of environmental management and compliance on mining EA permit holders, with DES focussing largely on compliance monitoring backed up by appropriate enforcement or stopping activities where compliance is not met.

The Model Mining Conditions (MMC) and Model Conditions for Structures provide a basis for proposing environmental protection commitments in EA application documents. The MMCs guideline acknowledges that assessment and conditioning must be based on the specific circumstances for each project. The guideline allows for modification of the MMC to tailor for site-specific conditions and project circumstances.

The proposed conditions presented within this chapter have been derived to address the anticipated impacts of the Project and are developed to be measurable and auditable. Where alterations or alternative conditioning, from the MMCs has been proposed to account for Project specific circumstances, an explanatory box has been provided beneath the condition. The box explains the change and provides reasoning for the alteration. For ease of application and review the proposed EA conditions have been structured as per the ESR/2016/1936 and ESR/2016/1934 guidelines.

23.1 Proposed Conditions

23.1.1 Environmental Authority Holders

Permit Holder	Name	Registered Address
Central Queensland Coal Pty Ltd	Nui Harris	Level 17, 240 Queen Street, Brisbane, Qld 4000
Fairway Coal Pty Ltd	Nui Harris	Level 17, 240 Queen Street, Brisbane, Qld 4000

23.1.2 Environmentally Relevant Activity and Location Details

ERA number	Relevant activity	Location and activity summary
ERA 13	Mining Black Coal.	Central Queensland Coal Area – ML 80187 and ML 700022.
ERA 8 (1)(a)	Chemical Storage – more than 500 m3 of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3; or (EP Regulation – Sch 2, Part 2).	Central Queensland Coal Area – ML 80187 and ML 700022.
ERA 31 (2b)	Mineral Processing – processing in a year >1,000,000 tonnes or more of mineral products (EP Regulation – Sch 2, Part 7).	Central Queensland Coal Area – ML 80187 and ML 700022.

23.1.3 Schedule A – General Conditions

Condition number	Condition
General	
A1	This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition, or this authority is silent on the matter, the lack of a condition or silence does not authorise environmental harm.
A2	Scope of Activity The Environmental Authority holder is approved for a coal extraction rate of up to 10 million tonnes per annum (Mtpa) Run of Mine (ROM) coal.
A3	In carrying out the mining activity, the holder of this environmental authority must not exceed the maximum disturbance area for each domain, as detailed in **Table 23-1 Authorised disturbance extent** and **Figure 23-1 Project infrastructure layout** in this environmental authority.
A4	The holder of this environmental authority must: a) Install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority b) Maintain such measures, plant and equipment in proper and efficient condition c) Operate such measures, plant and equipment in proper and efficient condition 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.
Monitoring	
A5	Except where specified otherwise in another condition of this environmental authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than five years and made available to the administering authority upon request.

Table 23-1 Authorised disturbance extent

Project Component	Approximate area (ha)
Mining and Infrastructure Area	**1,090.8**
Open Cut 1	247.7
Open Cut 2	500
Waste Rock Stockpile 1a	35.6
Waste Rock Stockpile 1b	83.2
Waste Rock Stockpile 2	124.5
Environmental Dams	24.6
Dam 1	13.7
Dam 2	11.0
Dam 3	3.1
CHPP 1 and 2	27.8
Dam access road	4.6
Mine access and internal roads – Open Cut 1	3.6
Mine access and internal roads – Open Cut 2	4.2
Power supply	1.4
Conveyor	5.8
Haul Road to TLF, Dam 4 and TLF	**26**
Rail loop and spur line	**8**
TOTAL	**1,124.8**

Condition number	Condition
Financial assurance	
A6	The activity must not be carried out until the environmental authority holder has given financial assurance to the administering authority as security for compliance with this environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the Act.
A7	The amount of financial assurance must be reviewed by the holder of this environmental authority when a plan of operations is amended or replaced, or the authority is amended.
Risk management	
A8	The holder of this environmental authority must develop and implement a risk management system for mining activities which mirrors the content requirement of the Standard for Risk Management (ISO31000:2009), or the latest edition of an Australian Standard for risk management, to the extent relevant to environmental management, prior to the commencement of the project.
Notification of emergencies, incidents and exceptions	
A9	The holder of this environmental authority must notify the administering authority by written notification within 24 hours after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.

Condition number	Condition
A10	Within 10 business days following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following: a) Results and interpretation of any samples taken and analysed b) Outcomes of actions taken at the time to prevent or minimise unlawful environmental harm c) Proposed actions to prevent a recurrence of the emergency or incident.
Complaints	
A11	The holder of this environmental authority must record all environmental complaints received about the mining activities including: a) Name, address and contact number for the complainant b) Time and date of complaint c) Reasons for the complaint d) Investigations undertaken e) Conclusions formed f) Actions taken to resolve the complaint g) Any abatement measures implemented h) Person responsible for resolving the complaint
A12	The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within 10 business days of completion of the investigation, or no later than 10 business days after the end of the timeframe nominated by the administering authority to undertake the investigation.
Third-party reporting	
A13	The holder of this environmental authority must: a) within one year of the commencement of this environmental authority, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority b) obtain further such reports at regular intervals, not exceeding three-yearly intervals, from the completion of the report referred to above c) provide each report to the administering authority within 90 days of its completion.
A14	Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the holder of this environmental authority must: a) comply with the amended or changed standard, policy or guideline within two years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation where reasonable and practical and required to minimise environmental impacts, or where the amendment or change relates specifically to regulated structures referred to within Schedule J, the time specified in that condition. 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.
Chemicals and flammable or combustible liquids	
A15	All explosives, hazardous chemicals, corrosive substances, toxic substances, gases and dangerous goods must be stored and handled in accordance with the current Australian standard where such is applicable.
A16	Flammable and combustible liquids, including petroleum products, must be stored and handled in accordance with the latest edition of AS1940 – The storage and handling of flammable and combustible liquids.

Condition number	Condition
A17	The holder of this environmental authority must 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.
Monitoring	
A18	Upon request from the administering authority, copies of monitoring records and/or reports should be made available and provided to the administering authority within five business days, or an alternative timeframe agreed between the administering authority and the holder.
Meteorological monitoring	
A19	The holder of this environmental authority must establish and maintain an automatic weather station to measure and record wind speed, wind direction, temperature and rainfall intensity to aid in the compliance with this environmental authority.

23.1.4 Schedule B – Air

Condition number	Condition
B1	An Air Quality Management Plan (AQMP) must be developed by a suitably qualified and experienced person and submitted to the administering authority for approval at least three months prior to the commencement of mining activities. Once approved by administering authority, the AQMP must be implemented.
B2	The AQMP required by condition B1 must, at a minimum: a) Provide for the effective management of actual and potential environmental impacts to air resulting from the mining activity b) Be developed by an appropriately qualified and experienced person c) Identify all major sources of air emissions (including dust) that may occur as a result of the mining activity d) Identify all potential sensitive and commercial locations that may be affected by air quality impacts from the mining activity e) Detail a full GHG management program and reporting f) Detail the collection of air quality and meteorological data in accordance with the administering authority's Air Quality Sampling Manual g) Identify the adverse meteorological conditions likely to produce elevated levels of PM10 at a sensitive or commercial place due to mining activities h) Detail the protocols for regular maintenance of plant and equipment to minimise the potential for fugitive dust emissions i) Describe the procedures to be undertaken if any non-compliance is detected j) Detail the period of regular review to determine the effectiveness of the plan k) Describe the procedures that will be used to manage the dust emissions. Procedures must include the following measures committed to in the EIS, or equivalent measures that achieve the same level of dust and particulate matter deposition I. Dust enclosure of transfer points and sizing stations II. Belt washing and scrapers for returning conveyors III. Eliminate side casting IV. Enclosure of raw coal surge bins.
B3	The holder of this environmental authority must develop and implement coal spontaneous combustion management strategies and blasting management plans and submit to the administering authority for approval three months prior to the commencement of the project.

Condition number	Condition
B4	The holder of this environmental authority shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the mining activities do not cause exceedances of the following levels when measured at any sensitive or commercial place: a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter – Gravimetric method. b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM_{10}) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, for no more than five exceedances recorded each year, when monitored in accordance with the most recent version of either: i. Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM_{10} high volume sampler with size-selective inlet – Gravimetric method, or ii. Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM_{10} low volume sampler—Gravimetric method. c) A concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a 1 year averaging time, when monitored in accordance with the most recent version of AS/NZS3580.90.3:2003 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method.

23.1.5 Schedule C – Waste Management

Condition number	Condition
General	
C1	A Waste Management Plan must be developed and implemented prior to the commencement of mining activities.
C2	Only inert and green/timber construction and operational waste can be disposed onsite into the mine pit voids on within the mining lease
C3	Unless other 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.
C4	The holder of this environmental authority may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental harm at any sensitive place or commercial place.
Mineral Waste Management Plan	
C5	A Mineral Waste Management Plan (MWMP) must be developed prior to the commencement of the Project and implemented. The MWMP must, at minimum, include the following items: a) A program of progressive sampling and effective characterisation of all mining waste/s to predict, under the proposed placement and disposal strategy, the quality of run-off and seepage generated including salinity, acidity, alkalinity, and dissolved metals, metalloids and non-metallic inorganic substances; b) Mineral waste field and laboratory testing procedure for validation of the acid-forming potential and potential erodibility characteristics of each phase; c) Classifying waste rock zones (on the basis of acid forming potential, salinity and sodicity), placement and use of waste rock materials and appropriate disposal of PAF waste or waste designated as not suitable for use on final surfaces; d) Ex-situ spoil dump design criteria, including preferred selective placement of each waste domain, dump heights, dump profiles, conceptual final landform design; e) Monitoring and management of erosion, groundwater and surface water (including run-off and seepage) at ex-situ waste landforms; f) Progressive rehabilitation strategies; and g) A program of continual review to determine the effectiveness of the MWMP.

23.1.6 Schedule D – Noise

Condition number	Condition
D1	Noise generated by the activities must not cause the criteria in **Table 23-2 Noise limits** to be exceeded at a sensitive place or commercial place.
D2	Blasting must not cause the limits for peak particle velocity and air blast overpressure in **Table 23-3 Blasting noise limits** to be exceeded at a sensitive place or commercial place

Table 23-2 Noise limits

Sensitive or Commercial place	Noise Level dB(A) measured as:	7am – 6pm	6pm – 10pm	10pm - 7am
Sensitive place	$L_{Aeq,Adj,15\ min}$	37	37	30
Sensitive place	$L_{A1,Adj,15\ min}$	42	42	35
Commercial place	$L_{Aeq,Adj,15\ min}$	42	42	35

Table 23-3 Blasting noise limits

Blasting noise limits	Sensitive or commercial blasting noise limits place limits	
	6am - 6pm	6pm - 6am
Airblast over pressure	115 dB (Linear) Peak for 4 out of 5 consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time	No blasting unless blast specific management plan approved by the relevant authority
Ground vibration peak particle velocity	10 mm/second for ground vibration of no more than 35 Hz and 25 mm /second for ground vibration of more than 35 Hz	No blasting unless blast specific management plan approved by the relevant authority

Condition number	Condition
Monitoring and reporting	
D3	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 LA90; c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels; d) atmospheric conditions including temperature, relative humidity and wind speed and directions; e) effects due to any extraneous factors such as traffic noise; f) location, date and time of monitoring; and g) if required by administering authority, low frequency noise, Max LpLIN,T and one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.
D4	The holder of this environmental authority must develop and implement a blast monitoring program to monitor compliance with Table 23-3 for: a) 100% of all blasts undertaken on this site in each month at the nearest sensitive place or commercial place; and b) All blasts conducted during any time period specified by the administering authority at the nearest sensitive place or commercial place.
D5	Blasting is authorised to be undertaken between 6am to 6pm Monday to Sunday. Blasting is authorised outside of these hours and on public holidays with a specific blast management plan approved by the relevant authority.

Condition number	Condition
D6	Notwithstanding condition D1, emission of any low frequency noise must not exceed either D6 a) or D6 b) or D6 c) and D6 d) in the event of a valid complaint about low frequency noise being made to the administering authority: a) 60 dB(C) measured outside the sensitive receptor; and b) The difference between the external A-weighted and C-weighted noise levels is not greater than 20 dB; or c) 50 dB(Z) measured inside the sensitive receptor; and d) The difference between the internal A-weighted and Z-weighted ($Max_{LpZ, 15\ min}$) noise level is no greater than 15dB.

23.1.7 Schedule E - Groundwater

Condition number	Condition
E1	The holder of this environmental authority must not release contaminants to groundwater.
Monitoring and reporting	
E2	All determinations of groundwater quality and biological monitoring must be performed by an appropriately qualified person.
E3	Groundwater quality and levels must be monitored at the locations and frequencies defined in **Table 23-4 Groundwater quality monitoring locations and frequency** and shown in **Figure 23-2 Indicative groundwater monitoring bore locations** for quality characteristics identified in **Table 23-5 Groundwater quality triggers .**

Table 23-4 Groundwater quality monitoring locations and frequency

Monitoring bore	Baseline monitoring ID	Status	Location				Screened depth (mbgl)	GCZ	Aquifer	Receptor monitoring	Purpose	Monitoring frequency
			Latitude (DD)	Longitude (DD)	Easting MGA55	Northing MGA55						
Reference bores												
RMB01	WMP13	Existing	-22.621682	149.652024	772604	7495931	14.1-21.1	Styx	Alluvium and Styx Coal Measures (overburden)	Type 2 and 3 GDEs - Styx River	Monitor the extent of drawdown and groundwater quality	Bi-annual
RMB02	WMP11	Existing	-22.642371	149.667884	774194	7493610	18-24	Bison	Styx Coal Measures (overburden)	Type 2 and 3GDEs- Deep Creek/Styx River		
RMB03	WMP11D	Existing	-22.642252	149.667950	774201	7493623	30-36	Bison	Styx Coal Measures (overburden)			
RMB04	WMP17	Existing	-22.735128	149.682050	775465	7483308	9-12	Uplands	Alluvium	Background		
RMB05	WMP17D	Existing	-22.735326	149.682103	775470	7483286	21-24	Uplands	Styx Coal Measures (overburden)			
RMB06	WMP08	Existing	-22.754042	149.669504	774138	7481236	10.4-16.4	Uplands	Alluvium	Type 2 and 3GDEs- Deep Creek		
RMB07	WMP08D	Existing	-22.754079	149.669466	774134	7481232	24-36	Uplands	Styx Coal Measures (underburden)			
RMB08	WMP19	Existing	-22.714833	149.616881	768808	7485676	13.1-16.1	Styx	Weathered Basement	Type 2 and 3 GDEs- Tooloombah Creek		
RMB09	WMP19D	Existing	-22.714690	149.616810	768801	7485692	24.9-27.9	Styx	Weathered Basement			
RMB10	WMP16	Existing	-22.636361	149.606853	767930	7494387	25.5-31.5	Styx	Styx Coal Measures (overburden)	Type 3 GDEs		
RMB11	WMP16D	Existing	-22.636426	149.606786	767923	7494380	35.7-41.7	Styx	Styx Coal Measures (coal seams and interburden)			
RMB12	WMP20	Existing	-22.675143	149.610708	768251	7490084	14.5-20.5	Styx	Styx Coal Measures (overburden)			
RMB13	WMP20D	Existing	-22.675161	149.610660	768246	7490082	24-30	Styx	Styx Coal Measures (overburden)			
RMB14	WMP29A	Existing	-22.608771	149.639079	771298	7497385	6.5-12.5	Styx	Alluvium	Type 2 and 3GDEs - Styx River/estuary	Monitor seawater interface	
RMB15	WMP29B	Existing	-22.608770	149.639108	771301	7497385	16-20	Styx	Alluvium			
RMB16	WMP29C	Existing	-22.608686	149.639271	771318	7497394	52-58	Styx	Styx Coal Measures (overburden)			
RMB17	WMP29D	Existing	-22.608750	149.639263	771317	7497387	115-121	Styx	Styx Coal Measures (coal seams and interburden)			

Monitoring bore	Baseline monitoring ID	Status	Location				Screened depth (mbgl)	GCZ	Aquifer	Receptor monitoring	Purpose	Monitoring frequency
			Latitude (DD)	Longitude (DD)	Easting MGA55	Northing MGA55						
RMB18	WMP29E	Existing	-22.608660	149.639213	771312	7497397	222.5-228.5	Styx	Styx Coal Measures (underburden)			
Compliance bores												
CMB01	WMP05	Existing	-22.660106	149.671271	774507	7491639	9-12	Bison	Alluvium	Type 2 and 3 GDEs- Deep Creek	Groundwater quality and quantity changes associated with Waste Rock Stockpile	Quarterly for field parameters Bi-annual for complete suite of analytes
CMB02	WMP21	Existing	-22.674281	149.669474	774294	7490072	6.9-9.9	Uplands	Alluvium	Type 2 and Type 3 GDEs- Deep Creek	Groundwater quality and quantity changes associated with dam	
CMB03	WMP21D	Existing	-22.674903	149.668990	774243	7490004	14-20	Uplands	Alluvium and Styx Coal Measures (overburden)			
CMB04	WMP18	Existing	-22.700529	149.680412	775366	7487144	9.2-12.2	Uplands	Alluvium		Groundwater quality and quantity changes associated with Waste Rock Stockpile	
CMB05	WMP18D	Existing	-22.700458	149.680333	775358	7487152	18.5-23.5	Uplands	Styx Coal Measures (overburden)			
CMB06	WMP10	Existing	-22.704560	149.685472	775878	7486688	13.9-19.9	Uplands	Alluvium and Styx Coal Measures (overburden)		Extent of drawdown and groundwater quality	
CMB07	WMP09	Existing	-22.728651	149.662403	773459	7484062	7.1-15.1	Uplands	Alluvium		Groundwater quality and quantity changes associated with Waste Rock Stockpile	
CMB08	WMP07	Existing	-22.737226	149.641208	771264	7483151	53-65	Styx	Styx Coal Measures (underburden)	Type 3 GDEs	Extent of drawdown and groundwater quality	
CMB09	WMP15	Existing	-22.715369	149.645751	771774	7485564	9.3-21.3	Styx	Alluvium and Styx Coal Measures (underburden)		Extent of drawdown and groundwater quality	
CMB10	WMP25	Existing	-22.709541	149.636279	770812	7486227	10.1-13.1	Styx	Alluvium	Type 3 GDEs (wetland 1)	Extent of drawdown and groundwater quality	

Monitoring bore	Baseline monitoring ID	Status	Location				Screened depth (mbgl)	GCZ	Aquifer	Receptor monitoring	Purpose	Monitoring frequency
			Latitude (DD)	Longitude (DD)	Easting MGA55	Northing MGA55						
CMB11	WMP14	Existing	-22.696779	149.632833	770483	7487647	10-19	Styx	Alluvium and Styx Coal Measures (overburden)		Groundwater quality	
CMB12	WMP06	Existing	-22.692585	149.628249	770020	7488120	12-18	Styx	Alluvium and Styx Coal Measures (underburden)	Type 2 and 3 GDEs- Tooloombah Creek	Extent of drawdown and groundwater quality	
CMB13	WMP04	Existing	-22.680956	149.655703	772865	7489358	12.6-18.6	Uplands	Alluvium		Groundwater quality and quantity changes associated with Waste Rock Stockpile	
CMB14	WMP04D	Existing	-22.681020	149.655645	772859	7489351	21.9-39.9	Uplands	Alluvium and Styx Coal Measures (overburden)		Groundwater quality and quantity changes associated with Waste Rock Stockpile	
CMB15	WMP12	Existing	-22.668501	149.659363	773266	7490731	11.9-17.9	Uplands	Alluvium and Styx Coal Measures (overburden)	Type 2 GDEs- Tooloombah Creek	Groundwater quality and quantity changes associated with Waste Rock Stockpile	
CMB16	WMP02	Existing	-22.659413	149.661435	773497	7491734	13.4-19.4	Bison	Alluvium		Extent of drawdown and groundwater quality	
CMB17	WMP22A	Existing	-22.685308	149.647450	772008	7488891	27-30	Uplands	Styx Coal Measures (overburden)	Type 3 GDEs	Extent of drawdown and groundwater quality	
CMB18	WMP22B	Existing	-22.685263	149.647478	772011	7488896	50-56	Uplands	Styx Coal Measures (coal seams and interburden)			
CMB19	WMP22C	Existing	-22.685226	149.647487	772012	7488900	200-206	Uplands	Styx Coal Measures (underburden)			
CMB20	WMP23A	Existing	-22.722853	149.664159	773651	7484701	48.5-54.5	Uplands	Styx Coal Measures (coal seams and interburden)	Type 1 and Type 3 GDEs		
CMB21	WMP23B	Existing	-22.722783	149.664032	773638	7484709	187-193	Uplands	Styx Coal Measures (underburden)			

Monitoring bore	Baseline monitoring ID	Status	Location				Screened depth (mbgl)	GCZ	Aquifer	Receptor monitoring	Purpose	Monitoring frequency
			Latitude (DD)	Longitude (DD)	Easting MGA55	Northing MGA55						
CMB22	WMP24	Existing	-22.683492	149.646996	771965	7489093	23.4-26.4	Uplands	Styx Coal Measures (overburden)	Type 2 and Type 3 GDEs – Tooloombah Creek	and quantity changes associated with dam	
CMB23	WMP26	Existing	-22.680702	149.663383	773655	7489372	11.5-20.5	Uplands	Alluvium	Type 2 and Type 3 GDEs – Deep Creek tributary	Groundwater quality and quantity changes associated with Waste Rock Stockpile	
CMB24	WMP27	Existing	-22.695830	149.634012	770606	7487750	14.5-20.5	Styx	Styx Coal Measures (overburden) and minor Alluvium	Type 3 GDE (Wetland 2)	Extent of drawdown and groundwater quality	
CMB25	WMP28	Existing	-22.683402	149.649203	772192	7489099	8.9-11.9	Uplands	Styx Coal Measures (overburden)	Type 2 and 3 GDEs (SEVT)	Extent of drawdown and groundwater quality	

Table 23-5 Groundwater quality triggers

Parameter	Units	Contaminant triggers[1]
Aluminium (dissolved)	µg/L	20.00
Arsenic (dissolved)	µg/L	5.00
Barium (dissolved)	µg/L	268.60
Cadmium (dissolved)	µg/L	0.10
Chromium (dissolved)	µg/L	1.00
Copper (dissolved)	µg/L	3.00
Iron (dissolved)	µg/L	942.00
Lead (dissolved)	µg/L	2.00
Manganese (dissolved)	µg/L	897.40
Nickel (dissolved)	µg/L	2.00
Zinc (dissolved)	µg/L	29.00
Mercury (dissolved)	µg/L	0.10
Calcium	mg/L	344.20
Magnesium	mg/L	568.20
Sodium	mg/L	4,600.00
Potassium	mg/L	9.00
Chloride	mg/L	8,658.00
Sulphate	mg/L	755.20
Nitrate + Nitrite	µg/L	240.00
Total Kjeldahl Nitrogen as N	µg/L	2,960.00
Total Nitrogen as N	µg/L	4,160.00
Ammonia as N	µg/L	856.00
Carbonate Alkalinity	mg/L	1.00
Bicarbonate Alkalinity	mg/L	679.20
Hydroxide Alkalinity	mg/L	1.00
Total Alkalinity	mg/L	679.20
pH	units	6.6-7.6[2]
Total Petroleum Hydrocarbons (C6-C9)	µg/L	20[3]
Total Petroleum Hydrocarbons (C10-C36)	µg/L	100[3]
Total Dissolved Solids	mg/L	16,700

Note:
1. Contaminant triggers based on the combined 80th percentile of background groundwater data collected between 2017 and 2018.
2. Lower and upper pH range established through 20th and 80th percentile of background data
3. Total petroleum hydrocarbon TV based on Fitzroy basin Model mining conditions. TPH to be analysed on an annual basis. All other analytes to be analysed on a biannual basis.

Condition number	Condition
E4	Contaminant triggers and limits required by Table must be submitted to the administering authority for assessment, three months prior to the commencement of mining.
E5	Groundwater levels when measured at the monitoring locations specified in **Table 23-4 Groundwater quality monitoring locations and frequency** must not exceed the groundwater level trigger change thresholds specified in **Table 23-6 Groundwater level monitoring** below

Table 23-6 Groundwater level monitoring

Monitoring location	Receptor type	Receptor location	Drawdown investigation/mitigation action trigger threshold (m)[1]	Interim maximum drawdown threshold (m)
RMB01	Baseflow	Background- Styx River estuary	0.5	5
	Riparian vegetation		1	5
RMB02	Baseflow	Background- Styx River	0.5	5
	Riparian vegetation		1	5
RMB03	Baseflow	Background- Styx River	0.5	5

Monitoring location	Receptor type	Receptor location	Drawdown investigation/mitigation action trigger threshold (m)[1]	Interim maximum drawdown threshold (m)
	Riparian vegetation		1	5
RMB06	Baseflow	Background- Deep Creek	0.5	5
	Riparian vegetation		1	5
RMB07	Baseflow	Background- Deep Creek	0.5	5
	Riparian vegetation		1	5
RMB14	Baseflow	Background- Styx River	0.5	5
	Riparian vegetation		1	5
RMB15	Baseflow	Background- Styx River	0.5	5
	Riparian vegetation		1	5
RMB16	Baseflow	Background- Styx River	0.5	5
	Riparian vegetation		1	5
RMB17	Baseflow	Background- Styx River	0.5	5
	Riparian vegetation		1	5
RMB18	Baseflow	Background- Styx River	0.5	5
	Riparian vegetation		1	5
CMB01	Baseflow	Deep Creek	0.5	5
	Riparian vegetation		1	5
CMB02	Baseflow	Deep Creek	0.5	5
	Riparian vegetation		1	5
CMB03	Baseflow	Deep Creek	0.5	5
	Riparian vegetation		1	5
CMB04	Terrestrial vegetation	Deep Creek	10	20
CMB05	Terrestrial vegetation		10	20
CMB06	Baseflow	Deep Creek	0.5	5
	Riparian vegetation		1	5
CMB07	Baseflow	Deep Creek	0.5	5
	Riparian vegetation		1	5
CMB08	Terrestrial vegetation	Background	10	20
CMB09	Terrestrial vegetation	Background	10	20
CMB10	Terrestrial vegetation	Wetland 1	10	20
CMB11	Terrestrial vegetation	Wetland 2	10	20
CMB12	Baseflow	Tooloombah Creek	0.5	5
	Riparian vegetation		1	5
CMB13	Baseflow	Tooloombah Creek	0.5	10
	Riparian vegetation		1	10
CMB14	Baseflow	Tooloombah Creek	0.5	10
	Riparian vegetation		1	10
CMB15	Baseflow	Tooloombah Creek	0.5	5
	Riparian vegetation		1	5
CMB16	Baseflow	Tooloombah Creek	0.5	5
	Riparian vegetation		1	5
CMB17	Terrestrial vegetation	Mine area	10	20
CMB18	Terrestrial vegetation	Mine area	10	20

Monitoring location	Receptor type	Receptor location	Drawdown investigation/mitigation action trigger threshold (m)[1]	Interim maximum drawdown threshold (m)
CMB19	Terrestrial vegetation	Mine area	10	20
CMB20	Terrestrial vegetation	Mine area	10	20
CMB21	Terrestrial vegetation	Mine area	10	20
CMB22	Baseflow	Tooloombah Creek	0.5	5
	Riparian vegetation		1	5
CMB23	Riparian vegetation	Mine area	1	5
CMB24	Terrestrial vegetation	Wetland 2	10	20
CMB25	Baseflow	Tooloombah Creek (SEVT)	0.5	5
	Riparian vegetation		1	5

Note:
1. Groundwater level triggers to be determined based on further monitoring of seasonal trends in landholder bores and vibrating wire piezometers as well as monitoring bores constructed in low hydraulic conductivity formations. Groundwater level triggers will depend on the role of each bore in identifying potential impacts on groundwater environmental values and will be linked with other triggers (e.g. bore yield and ecological response).
2. Drawdown to be determined relative to background trends/seasonal variations.
3. Updated maximum drawdown levels to be updated after to years of mining.
3. Monitoring is not required where a bore has been removed as a direct result of the mining activity.
4. Monitoring includes landholder bores that are accessible for collection of representative groundwater levels.
5. Selected monitoring bores will be fitted with automated transducers for continuous water level measurements and vibrating wire piezometers are constructed with logger boxes for continuous measurements.
6. Baseflow receptors include watercourse pools and permanent waterbodies (e.g. Styx River).

Condition number	Condition
Exceedance investigation	
E6	If quality characteristics of groundwater from compliance bores identified in **Table 23-4 Groundwater quality monitoring locations and frequency** exceed any of the trigger levels stated in **Table 23-5 Groundwater quality triggers** or exceed any of the groundwater level trigger threshold stated in **Table 23-6 Groundwater level monitoring**, the holder of this environmental authority must compare the compliance monitoring bore results to the reference bore results and complete an investigation in accordance with the ANZECC and ARMCANZ 2000.
E7	Results of monitoring of groundwater from compliance bores identified in **Table 23-4 Groundwater quality monitoring locations and frequency**, must not exceed any of the limits defined in **Table 23-5 Groundwater quality triggers** .
Bore construction and maintenance and decommissioning	
E8	The construction, maintenance and management 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.
Groundwater Dependent Ecosystems	
E9	The extraction of groundwater as part of the mining activity(ies) from underground aquifers must not directly or indirectly cause environmental harm to any groundwater dependent ecosystem.
E10	Groundwater Dependent Ecosystems management and monitoring strategies must be developed as a component of the Receiving Environment Management Plan, by a suitably qualified person and implemented to detail the management of any potential impact/s to all identified Groundwater Dependent Ecosystems, and to report results and corrective actions for each Groundwater Dependent Ecosystem over the full period of mining activities, and for a period of five years post mining rehabilitation.
E11	Groundwater Dependent Ecosystems management and monitoring strategies, as required by condition E10, must be submitted to the administering authority as part of the Receiving Environment Management Plan for approval three months prior to commencement of the project.

Condition number	Condition
E12	The Groundwater Dependent Ecosystems management and monitoring strategies, as required by condition E10, must at a minimum, include the GDEs identified in **Figure 23-3 Groundwater Dependant Ecosystems.**
E13	A report of the findings of the Groundwater Dependent Ecosystems management and monitoring strategies, including all monitoring results and interpretations, must be prepared annually by a suitable qualified person and made available on request to the administering authority. The report must include at a minimum: a) an assessment of background reference groundwater levels; b) the condition of each GDE compared with previous monitoring results; c) the suitability of current groundwater trigger thresholds; d) detail the effectiveness of avoidance, mitigation and management actions in relation to Groundwater Dependent Ecosystems; e) a description of any adaptive management initiatives implemented; and f) any offsets requirements.
Stygofauna surveys	
E14	A stygofauna survey is to be conducted in accordance with the Department of Science, Information Technology and Innovation's *Guideline for the Environmental Assessment of Subterranean Aquatic Fauna,* every five years during operations of the mine.

23.1.8 Schedule F - Water

Condition number	Condition
Contaminant release	
F1	Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.
F2	Unless otherwise permitted under the conditions of this environmental authority, the release of mine affected water to waters must only occur from the release points specified in **Table 23-7 Mine affected water release points, sources and receiving waters** and depicted in **Figure 23-4 Indicative mine affected water release and monitoring points** attached to this environmental authority.
F3	The release of mine affected water to internal water management infrastructure installed and operated in accordance with a water management plan that complies with condition F29 is permitted.

Table 23-7 Mine affected water release points, sources and receiving waters

Release point	Latitude (Decimal Degrees,)	Longitude (Decimal Degrees,)	Mine affected water source and location	Monitoring point	Receiving water description
Mine water dam release points					
RP 3	-22.693928	149.704268	Dam 4	Sampling tap on outlet pipe	Deep Creek tributary
RP 4	-22.680420	149.669604	Dam 1 release point and spillway overflow	Dam spillway and sampling tap on outlet pipe	Deep Creek
Environmental dam release points					
RP 1	-22.722026	149.665554	Waste Rock Stockpile Environmental Dam 1A riser pipe outlet	Sampling tap on riser pipe outlet	Deep Creek
RP 2	-22.707601	149.684239	Waste Rock Stockpile Environmental Dam 2D riser pipe outlet	Sampling tap on riser pipe outlet	Deep Creek

Release point	Latitude (Decimal Degrees,)	Longitude (Decimal Degrees,)	Mine affected water source and location	Monitoring point	Receiving water description
RP 5	-22.678520	149.656474	Waste Rock Stockpile Environmental Dam 2Aand piped transfer to diversion drain to Tooloombah Creek	Sampling tap on riser pipe outlet	Tooloombah Creek

Condition number	Condition
F4	The release of mine affected water to waters in accordance with condition F2 must not exceed the release limits stated in **Table 23-8 Mine affected water release limits** when measured at the monitoring points specified in **Table 23-7 Mine affected water release points, sources and receiving** waters for each quality characteristic

Table 23-8 Mine affected water release limits

Quality characteristic	Release limits	Monitoring frequency
Electrical conductivity (µS/cm)	Release limits specified in Table F11 for variable flow criteria or condition F1	Daily during release* (first sample within two hours of commencement of release)
pH (pH Unit)	6.5 (minimum) 9.0 (maximum)	
Suspended Solids (mg/L)	61.6[1]	
Sulphate (SO_4^2) (mg/L)	250	

1 Based on the 80th percentile of combined surface water quality database (Styx River, Deep Creek, Tooloombah Creek, Barrack Creek) consisting of 178 datapoints between 2011 and 2018.

Condition number	Condition
F5	The release of mine affected water to waters from the release points must be monitored at the locations specified in **Table 23-7 Mine affected water release points, sources and receiving waters** for each quality characteristic and at the frequency specified in **Table 23-8 Mine affected water release limits** and **Table 23-9 Release contaminant trigger investigation levels, potential contaminants.**

Table 23-9 Release contaminant trigger investigation levels, potential contaminants

Quality Characteristic[3]	Trigger level (µg/L)	Basis	Comment on trigger level
Aluminium	55	Model Conditions[1]	For aquatic ecosystem protection, based on SMD[4] guideline
Arsenic	13	Model Conditions[1]	For aquatic ecosystem protection, based on SMD[4] guideline
Cadmium	0.2	Model Conditions[1]	For aquatic ecosystem protection, based on SMD[4] guideline
Chromium	1	Model Conditions[1]	For aquatic ecosystem protection, based on SMD[4] guideline
Copper	2	Model Conditions[1]	For aquatic ecosystem protection, based on LOR[5] for ICPMS
Iron	300	Model Conditions[1]	For aquatic ecosystem protection, based on low reliability guideline
Lead	4	Model Conditions[1]	For aquatic ecosystem protection, based on SMD[4] guideline
Mercury	0.2	Model Conditions[1]	For aquatic ecosystem protection, based on LOR[5] for CV FIMS
Nickel	11	Model Conditions[1]	For aquatic ecosystem protection, based on SMD[4] guideline

Quality Characteristic[3]	Trigger level (µg/L)	Basis	Comment on trigger level
Zinc	8	Model Conditions[1]	For aquatic ecosystem protection, based on SMD[4] guideline
Boron	370	Model Conditions[1]	For aquatic ecosystem protection, based on SMD[4] guideline
Cobalt	90	Model Conditions[1]	For aquatic ecosystem protection, based on low reliability guideline
Manganese	1,900	Model Conditions[1]	For aquatic ecosystem protection, based on SMD[4] guideline
Molybdenum	34	Model Conditions[1]	For aquatic ecosystem protection, based on low reliability guideline
Selenium	10	Model Conditions[1]	For aquatic ecosystem protection, based on LOR[5] for ICPMS
Silver	1	Model Conditions[1]	For aquatic ecosystem protection, based on LOR[5] for ICPMS
Uranium	1	Model Conditions[1]	For aquatic ecosystem protection, based on LOR[5] for ICPMS
Vanadium	10	Model Conditions[1]	For aquatic ecosystem protection, based on LOR[5] for ICPMS
Ammonia as N	900	Model Conditions[1]	For aquatic ecosystem protection, based on SMD[4] guideline
Nitrate as N	1,100	Model Conditions[1]	For aquatic ecosystem protection, based on ambient Qld WQ Guidelines (EHP 2013) for TN
Petroleum hydrocarbons (C6-C9)	20	Model Conditions[1]	-
Petroleum hydrocarbons (C10-C36)	100	Model Conditions[1]	-
Fluoride (total)	2,000	Model Conditions[1]	Protection of livestock and short-term irrigation guideline
Sodium (mg/L)	180	EPP Water[2]	Fitzroy Basin Association, drinking water guideline adopted

Release triggers apply to the dissolved metal concentrations

1 - Model water conditions for coal mines in the Fitzroy basin (version 3) (EHP 2013).

2 - Environmental Protection (Water) Policy 2009 - Styx River, Shoalwater Creek and Water Park Creek Basins Environmental Values and Water Quality Objectives (2014a).

3 - The suite of quality characteristics will be reviewed once the results of two years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk. It may be determined that a reduced monitoring frequency is appropriate or that certain quality characteristics can be removed from the monitoring program.

4 - SMD is slightly moderately disturbed level of protection, guideline refers ANZECC and ARMCANZ (2000).

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

Condition number	Condition
F6	If quality characteristics of the release exceed any of the trigger levels specified in **Table 23-9 Release contaminant trigger investigation levels, potential contaminants** during a release event, the environmental authority holder must compare the downstream results in the receiving waters to the trigger values specified in **Table 23-9 Release contaminant trigger investigation levels, potential contaminants** and: a) where the trigger values are not exceeded then no action is to be taken, or b) where the downstream results exceed the trigger values specified **Table 23-9 Release contaminant trigger investigation levels, potential contaminants** for any quality characteristic, compare the results of the downstream site to the data from background monitoring sites and: 1. if the result is less than the background monitoring site data, then no action is to be taken; or 2. if the result is greater than the background monitoring site data, complete an investigation into the potential for environmental harm and provide a written report to the administering authority within 90 days of receiving the result, outlining: (i) details of the investigations carried out (ii) actions taken to prevent environmental harm. Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F6 b (2) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.
F7	If an exceedance in accordance with condition F6 b (2) is identified, the holder of the environmental authority must notify the administering authority in writing within 24 hours of receiving the result.
Mine affected water release events	
F8	The holder must ensure a stream flow gauging station/s is installed, operated and maintained to determine and record stream flows at the locations and flow recording frequency specified in **Table 23-9 Release contaminant trigger investigation levels, potential contaminants.**
F9	Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with condition F2 must only take place during periods of natural flow in accordance with the receiving water flow criteria for discharge specified in **Table 23-10 Mine affected water release during flow events** for the release point(s) specified in **Table** 23-7 Mine affected water release points, sources and receiving waters.
F10	The release of mine affected water to waters in accordance with condition F2 must not exceed the Maximum Release Rate (for all combined release point flows) for each receiving water flow criterion for discharge specified in **Table 23-10 Mine affected water release during flow events** when measured at the monitoring points specified in **Table** 23-7 Mine affected water release points, sources and receiving waters

Table 23-10 Mine affected water release during flow events - Tooloombah Creek

Receiving waters / stream	Release point (RP)	Gauging station	Gauging station latitude (decimal degree, GDA94)	Gauging station longitude (decimal degree, GDA94)	Receiving water flow recording frequency	Receiving water flow criteria for discharge (m^3/s)	Maximum release rate (for all combined RP flows)	Electrical conductivity release limits (µS/cm)
Tooloombah Creek	RP 5	Gauging Station 1	-22.689224°	149.629838°	Continuous (minimum daily)	Low Flow <0.17m^3/s for a period of 28 days after natural flow events that exceed 0.17 m^3/s	0.17 m^3/s	1,320
						Medium Flow >0.17 m^3/s	<0.113 m^3/s	1,500
							<0.049m^3/s	3,500
						High Flow >0.3 m^3/s	<0.086m^3/s	3,500
							<0.067m^3/s	4,500
						Very High Flow >0.86 m^3/s	<0.191m^3/s	4,500
							<0.156m^3/s	5,500
						Flood >2.04 m^3/s	<0.371m^3/s	5,500
							<0.314m^3/s	6,500

Table 23-11 Mine affected water release during flow events – Deep Creek

Receiving waters / stream	Release point (RP)	Gauging station	Gauging station latitude (decimal degree, GDA94)	Gauging station longitude (decimal degree, GDA94)	Receiving water flow recording frequency	Receiving water flow criteria for discharge (m^3/s)	Maximum release rate (for all combined RP flows)	Electrical conductivity release limits (µS/cm)
Deep Creek	RP 1 RP 2 RP 3 RP 4	Gauging Station 2	-22.730782°	149.663025°	Continuous (minimum daily)	Low Flow <0.16m^3/s for a period of 28 days after natural flow events that exceed 0.16 m^3/s	0.16 m^3/s	495.5
						Medium Flow >0.16 m^3/s	<0.107 m^3/s	1,500
							<0.046m^3/s	3,500
						High Flow >0.38 m^3/s	<0.109m^3/s	3,500
							<0.084m^3/s	4,500
						Very High Flow >1.26 m^3/s	<0.280m^3/s	4,500
							<0.229m^3/s	5,500
						Flood >3.56 m^3/s	<0.647m^3/s	5,500
							<0.548m^3/s	6,500

Condition number	Condition
F11	The daily quantity of mine affected water released from each release point must be measured and recorded.
F12	Releases to water must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build-up of sediment in such waters.
Notification of release events	
F13	The environmental authority holder must notify the administering authority as soon as practicable and no later than 24 hours after commencing to release mine affected water to the receiving environment. Notification must include the submission of written advice to the administering authority of the following information: a) release commencement date/time; b) details regarding the compliance of the release with the conditions of Department Interest: Water of this environmental authority (that is, contaminant limits, natural flow, discharge volume); c) release point/s; d) release rate; e) release salinity; f) receiving water/s including the natural flow rate; g) expected cessation date; and h) expected volume to be discharged.
F14	The environmental authority holder must notify the administering authority as soon as practicable and nominally no later than 24 hours after cessation of a release event of the cessation of a release notified under Condition F13 and within 28 days provide the following information in writing: a) release cessation date/time; b) natural flow rate in receiving water; c) volume of water released; d) details regarding the compliance of the release with the conditions of Department interest; Water of this environmental authority (i.e. contaminant limits, natural flow, discharge volume); e) all in-situ water quality monitoring results; and f) any other matters pertinent to the water release event. Note: Successive or intermittent releases occurring within 24 hours of the cessation of any individual release can be considered part of a single release event and do not require individual notification for the purpose of compliance with conditions F13 and F14, provided the relevant details of the release are included within the notification provided in accordance with conditions F13 and F14.
Notification of release event exceedance	
F15	If the release limits defined in **Table 23-8 Mine affected water release limits** are exceeded, the holder of the environmental authority must notify the administering authority within 24 hours of receiving the results.
F16	The environmental authority holder must, within 28 days of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority detailing: a) the reason for the release; b) the location of the release; c) the total volume of the release and which (if any) part of this volume was non-compliant; d) the total duration of the release and which (if any) part of this period was non-compliant; e) all water quality monitoring results (including all laboratory analyses); f) identification of any environmental harm as a result of the non-compliance; g) all calculations; and h) any other matters pertinent to the water release event.
Receiving environment monitoring and contaminant trigger levels	
F17	The quality of the receiving waters must be monitored at the locations specified in **Table 23-12 Receiving waters contaminant trigger levels** for each quality characteristic and at the monitoring frequency stated in **Table 23-12 Receiving waters contaminant trigger levels**.

Table 23-12 Receiving waters contaminant trigger levels

Quality Characteristics	Trigger Level	Monitoring frequency
pH (pH units)	6.5 – 9.0	Daily during the release
Electrical Conductivity (µS/cm)	1,000	
Turbidity (NTU)	TBC	
Sulphate (SO_4^{2-}) (mg/L)	250	
Total Suspended Solids (TSS)	TBC	

Table 23-13 Receiving water upstream background sites and downstream monitoring points

Monitoring points	Receiving waters location description	Latitude (Decimal Degrees, GDA94)	Longitude (Decimal Degrees, GDA94)
Upstream background monitoring points			
Monitoring Point 1 (MP1) (and Gauging Station 2)	Deep Creek, located outside the proposed mine lease boundary, upstream of mine releases.	-22.730782°	149.663025°
Monitoring Point 4 (MP4) (and Gauging Station 1)	Tooloombah Creek located outside the proposed mine lease boundary, upstream of mine releases.	-22.689224°	149.629838°
Downstream monitoring points			
Monitoring Point 2 (MP2)	Deep Creek located outside the proposed mine lease boundary downstream of mine releases.	-22.653269°	149.675306°
Monitoring Point 3 (MP3)	Tooloombah Creek located outside the proposed mine lease boundary, downstream of mine releases.	-22.652270°	149.661840°

Condition number	Condition
F18	If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in **Table 23-12 Receiving waters contaminant trigger levels** during a release event the environmental authority holder must compare the downstream results to the upstream results in the receiving waters and: a) where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken; or b) where the downstream results exceed the upstream results complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining: i. details of the investigations carried out ii. actions taken to prevent environmental harm. Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F18 b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.
F19	All determinations of water quality and biological monitoring must be performed by an appropriately qualified person.
Receiving environment monitoring program (REMP)	

Condition number	Condition
F20	The environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of Tooloombah Creek and Deep Creek and Styx River within 5 km downstream of the release. The REMP should encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly affected by an authorised release of mine affected water.
F21	A REMP Design Document that addresses the requirements of the REMP must be prepared and made available to the administering authority upon request.
F22	A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared annually and made available on request to the administrating authority. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.
Water reuse	
F23	Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as farm dams or tanks, or used directly at properties owned by the environmental authority holder or a third party (with the consent of the third party).
Annual water monitoring reporting	
F24	The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format: a) the date on which the sample was taken; b) the time at which the sample was taken; c) the monitoring point at which the sample was taken; d) the measured or estimated daily quantity of mine affected water released from all release points; e) the release flow rate at the time of sampling for each release point; f) the results of all monitoring and details of any exceedances of the conditions of this environmental authority; and g) water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.
Temporary interference with waterways	
F25	Destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for and associated with mining operations must be undertaken in accordance with Department of Natural Resources and Mines (or its successor) *Guideline – Activities in a Watercourse, Lake or Spring associated with Mining Activities*.
Water management plan	
F26	A Water Management Plan must be developed by an appropriately qualified person and implemented. The Water Management Plan must include: a) a study of the source of contaminants; b) a water balance model for the site; c) a water management system for the site; d) measures to manage and prevent saline drainage; e) measures to manage and prevent acid rock drainage; f) contingency procedures for emergencies; g) management measures to maintain, where possible, the natural pattern of environmental flows, permanent and ephemeral pools, and their associated flora and fauna; and h) a program for monitoring and review of the effectiveness of the water management plan. The Water Management Plan must be reviewed annually to assess the adequacy of the plan, ensure actual and potential environmental impacts are managed, and identify any necessary amendments to the plan.
Stormwater and water sediment controls	
F27	An Erosion and Sediment Control Plan must be developed by a suitably qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.

Condition number	Condition
F28	Stormwater, other than mine affected water, is permitted to be released to waters from: a) erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition F26; and b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with condition F26, for the purpose of ensuring water does not become mine affected water.
Culvert design	
F29	The roughening of the culvert base is not required unless the culvert based is buried. The base to be a minimum of 300 mm below bed level and allow natural material to deposit on the culvert base.
F30	Culverts on Major Impact waterways will meet all of the relevant conditions of State Code 18: Constructing or raising waterway barrier works in fish habitats.
F31	Culvert side roughening elements to provide a contiguous lower velocity zone (no greater than 0.3 metres/ second). This lower velocity zone to extend for at least 100 millimetres width from the wall. Lower velocity zone required through the length of the culvert and wingwalls.

23.1.9 Schedule H – Land and Rehabilitation

Condition number	Condition
H1	A Rehabilitation Management Plan must be developed by an appropriately qualified and experienced person(s) and submitted to the administering authority for approval prior to the commencement of mining activities. The Rehabilitation Plan must be implemented.
H2	The Rehabilitation Management Plan required by condition H2, must address all relevant requirements within this environmental authority, and at a minimum include the following items; a) How all land disturbed by the mining activities will be rehabilitated to ensure that it is: ▪ Safe for humans and wildlife; ▪ Non-polluting ▪ Stable; and ▪ Able to sustain an agreed post mining land use; b) Final completion criteria for all disturbance domains; c) Final landform design for all areas impacted by mining activities; d) Detail the progressive rehabilitation strategy to be implemented, which aligns with **Table 23-14 Progressive rehabilitation requirements** and **Figure 23-5 Progressive rehabilitation plan year** to **Figure 23-9 Progressive rehabilitation plan final landform** in this environmental authority; e) Identified analogue sites appropriate to all disturbance domains; f) A process to adequately strip, stockpile, and maintain any topsoil disturbed by the mining activities, to ensure its volume, and physical and chemical characteristics are maintained in a way that will not constrain the achievement of the defined rehabilitation completion criteria; g) A compliance table that directs any reader of the plan to the relevant section/s which address all the relevant rehabilitation requirements of this environmental authority; h) A rehabilitation monitoring program; and i) Management actions to be implemented for when rehabilitation objectives are not progressing towards the completion criteria.
H3	Land disturbed by mining must be rehabilitated in accordance with **Table 23-15 Rehabilitation requirements.**

Table 23-14 Progressive rehabilitation requirements

Domain	Year 1	Year 4	Year 8	Year 12	Year 16	Year 20
	Minimum area (ha)					
Open cut pits	-	TBA	TBA	TBA	TBA	TBA
Ex-pit waste rock stockpiles	-	-	-	TBA	TBA	TBA

Domain	Year 1	Year 4	Year 8	Year 12	Year 16	Year 20
	Minimum area (ha)					
Mine infrastructure area and roads	-	-	-	-	-	TBA
Water infrastructure including dams, drains and sumps	-	-	-	-	-	TBA
Haul roads, road furniture and drains	-	-	-	-	-	TBA
Train loadout facility	-	-	-	-	-	TBA

Table 23-15 Rehabilitation requirements

Domain and Sub-domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
Mine - Open Pits	Safe to humans and wildlife	▪ No retained voids; ▪ Adequacy and predicted long term performance of safety barriers; and ▪ No hazardous materials and structurally sound with limited slopes.	▪ Groundwater level and quality; ▪ Surface water quality; and ▪ Slopes are erosively and geotechnically stable.	▪ Certification by an appropriately qualified person in the Rehabilitation Report that slopes are safe and exhibit characteristics for long term stability; ▪ Downstream surface water quality is not significantly different from baseline prior to mining and no risk of environmental impacts downstream; ▪ Groundwater level and quality is not statistically different from baseline prior to mining; and ▪ No final void.
	Non polluting	▪ Moderate quality but no connectivity; and ▪ Low risk of groundwater contamination or overflow but monitoring and management in place.	▪ Water Quality parameters - Salinity; ▪ Soil chemical analysis; ▪ Dust deposition and particulate matter; and ▪ Groundwater levels and quality.	▪ Results of contaminated land survey indicate no contamination; ▪ No degradation of water quality or significant increase in salinity over the EA required post-mining monitoring period; ▪ Dust and particulate matter indicates compliance with the EA; and ▪ Groundwater levels to remain similar to background variations.
	Stable	▪ Long term geotechnical and erosive stability.	▪ As nominated by geotechnical engineer.	▪ No final void; ▪ Installation of contour or graded drains to manage erosion; ▪ Back-filled pits to be assessed as geotechnically stable by suitable qualified geotechnical engineer; and ▪ Sub-soil placed on overburden.

Domain and Sub-domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
	Able to sustain an agreed post mining land use	▪ Natural vegetation and habitat.	▪ Percentage pasture cover per square meter; ▪ Soil characteristics; ▪ Presence and density of key plants species; ▪ Structure of vegetation; and ▪ Weed and pest species presence, abundance and type; ▪ Ecosystem functioning indicators: water level and quality (dissolved oxygen, pH, temperature, salinity and nutrients (nitrogen and phosphorus); ▪ Biological: fish diversity, benthic algal growth; ▪ Habitat indicators: width, continuity, extent of shading and species composition; ▪ Native species; and ▪ Weed and pest abundance.	▪ Restored landform ripped to nominal depth of 50-100 mm ▪ Topsoil spread at agreed depths parallel to ripped contours; ▪ Topsoil replaced according to pre-mining mapped soil units with selective placement of more erodible soils on flatter areas, as appropriate; ▪ No active areas of rill or gully erosion and drainage follows appropriate drainage paths; ▪ Sown cover crop of perennial native vegetation or pasture mixes including short- and long-lived grasses and legumes; ▪ Certification by a suitably qualified person that the density and presence of key species and vegetation cover is the same as at reference sites; ▪ Area is certified as self-sustaining and has many of the attributes of the final landscape, including maintenance requirements (compared to surrounding analogue site); ▪ Soil characteristics have been determined by a suitably qualified person as having acceptable levels of surface roughness, infiltration capacity, aggregate stability and surface condition as defined in the Australian Soil and Land Survey Handbook; ▪ Battered slopes with at least 70 % vegetative cover; ▪ Native tree and species includes species identified in Table 12-4 of the SEIS; ▪ Native fauna identified in EIS baseline studies and at reference sites prior to mining are present or indicators of these species are recorded; ▪ Certification of no weed and pest species abundance identified in rehabilitation areas are no greater than at reference sites; and ▪ Evidence that weed and pest species management is occurring where appropriate.
Waste rock stockpiles	Safe to humans and wildlife	▪ Structurally safe with no hazardous materials; and ▪ Site is safe now and for foreseeable future.	▪ Safety assessment of landform; and ▪ Appropriate decommissioning.	▪ Certification by an appropriately qualified person in the Rehabilitation Report that slopes are safe and exhibit characteristics for long term stability; and ▪ A risk assessment has been completed and risk mitigation measures have been implemented, as appropriate.

Domain and Sub-domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
	Non polluting	▪ Mine affected water contained on site; and ▪ No mine drainage outside of waste rock stockpiles.	▪ Downstream surface water quality; ▪ Groundwater quality; ▪ Final land form water storages are contained onsite with no over flows to external surface waters; ▪ All diversions to meet approved design criteria; and ▪ All structures not required for post-mining land use decommissioned.	▪ Results of contaminated land survey indicate no contamination; ▪ No degradation of water quality or significant increase in salinity over the EA required post mining monitoring period; ▪ Dust and particulate matter indicates compliance with the EA; and ▪ Groundwater quality to remain similar to background variations.
	Stable	Landform design achieves appropriate erosion rates.	▪ Engineered structures to control water flow and reduce soil loss; ▪ Dimensions and frequency of erosion rills and gullies; and ▪ Vegetation cover sufficient to minimise erosion.	▪ Side slopes are no more than 14 to 16 Degrees; ▪ Crest grades away at no more than 2 %; ▪ Evidence that required contour banks, channel linings, surface armour, drop structures and other measures are in place and functioning; ▪ Certification that erosion activities are not greater than at comparable reference site; ▪ Dimension and occurrence of rills and gullies are no greater than at comparable reference site; and ▪ Evidence that vegetation type and density are of species suitable to the site and for erosion minimisation.

Domain and Sub-domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
	Able to sustain an agreed post-mining land use	▪ Natural vegetation and habitat.	▪ Percentage vegetation cover per square meter; ▪ Soil characteristics; ▪ Presence and density of key plants species; ▪ Structure of vegetation; ▪ Weed and pest species presence, abundance and type; ▪ Ecosystem functioning indicators: water level and quality (dissolved oxygen, pH, temperature, salinity and nutrients (nitrogen and phosphorus); ▪ Biological: fish diversity, benthic algal growth; ▪ Habitat indicators: width, continuity, extent of shading and species composition; ▪ Native species; and ▪ Weed and pest abundance.	▪ Restored landform ripped to nominal depth of 50-100 mm ▪ Topsoil spread at agreed depths parallel to ripped contours; ▪ Topsoil replaced according to pre-mining mapped soil units with selective placement of more erodible soils on flatter areas, as appropriate; ▪ No active areas of rill or gully erosion and drainage follows appropriate drainage paths; ▪ Sown cover crop of perennial native vegetation or pasture mixes including short- and long-lived grasses and legumes. ▪ Area is certified as self-sustaining and has many of the attributes of the final landscape, including maintenance requirements (compared to surrounding analogue site); ▪ Soil characteristics have been determined by a suitably qualified person as having acceptable levels of surface roughness, infiltration capacity, aggregate stability and surface condition as defined in the Australian Soil and Land Survey Handbook; ▪ Battered slopes with at least 70 % vegetative cover; ▪ Established vegetative cover on slopes and outside bund to at least 70 % cover; ▪ Native fauna identified in EIS baseline studies and at reference sites prior to mining are present or indicators of these species are recorded; ▪ Certification of no weed and pest species abundance identified in rehabilitation areas are no greater than at reference sites; and ▪ Evidence that weed and pest species management is occurring where appropriate.
Mine infrastructure	Safe to humans and wildlife	Area safe for human and native species usage.	▪ Presence/absence of infrastructure and wastes.	▪ All infrastructure removed unless agreed in writing with the landholder and submitted to the administering authority; ▪ Bench cuts removed; ▪ Steep grades reduced; and ▪ Similar surrounding landform profile.

Domain and Sub-domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
	Non-polluting	No residual pollutants that could mobilise in environment.	▪ Soil sample result – hydrocarbon and metal levels.	▪ Post contamination assessment complete on areas where notifiable activities occurred, and recommendations of assessment implemented; and ▪ Runoff and seepage will be good quality water that is unlikely to affect known environmental values.
	Stable	No erosion and sediment loss above surrounding area.	▪ Water turbidity in watercourses; ▪ Sediment loss - visual inspection; ▪ Presence of scouring or erosion; and ▪ Percentage vegetative ground cover.	▪ Stable site with adequate cover and permanent drainage with no erosion issues.

Domain and Sub-domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
	Able to sustain an agreed post mining land use	▪ Minimal weed infestation and outbreaks.	▪ Percentage vegetation cover per square meter; ▪ Soil characteristics; ▪ Presence and density of key plants species; ▪ Structure of vegetation; and ▪ Weed and pest species presence, abundance and type; ▪ Ecosystem functioning indicators: water level and quality (dissolved oxygen, pH, temperature, salinity and nutrients (nitrogen and phosphorus); ▪ Biological: fish diversity, benthic algal growth; ▪ Habitat indicators: width, continuity, extent of shading and species composition; ▪ Native species; and ▪ Weed and pest abundance.	▪ Restored landform ripped to nominal depth of 50-100 mm ▪ Topsoil spread at agreed depth parallel to ripped contours; ▪ Topsoil replaced according to pre-mining mapped soil units with selective placement of more erodible soils on flatter areas, as appropriate; ▪ No active areas of rill or gully erosion and drainage follows appropriate drainage paths; ▪ Sown cover crop of perennial native vegetation or pasture mixes including short- and long-lived grasses and legumes. ▪ Certification by a suitably qualified person that the density and presence of key species and vegetation cover is the same as at reference sites; ▪ Area is certified as self-sustaining and has many of the attributes of the final landscape, including maintenance requirements (compared to surrounding analogue site); ▪ Soil characteristics have been determined by a suitably qualified person as having acceptable levels of surface roughness, infiltration capacity, aggregate stability and surface condition as defined in the Australian Soil and Land Survey Handbook; ▪ Battered slopes with at least 70 % vegetative cover; ▪ Established vegetative cover on slopes and outside bund to at least 70 % cover; ▪ Native fauna identified in EIS baseline studies and at reference sites prior to mining are present or indicators of these species are recorded; ▪ Certification of no weed and pest species abundance identified in rehabilitation areas are no greater than at reference sites; and ▪ Evidence that weed and pest species management is occurring where appropriate.

Domain and Sub-domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
Water infrastructure (dams and drains)	Safe to humans and wildlife	Structurally safe with no hazardous materials and safe for the foreseeable future.	▪ Safety assessment of landform; and ▪ Appropriate decommissioning and rehabilitation.	▪ A risk assessment has been completed and risk mitigation measures have been implemented, as appropriate; and ▪ Landform design certified as meeting design requirements of rehabilitation.
	Non polluting	Mine affected water is contained on site or released according to EA conditions.	▪ Downstream surface water quality; ▪ Groundwater quality; ▪ Final land form water storages are contained onsite with no over flows to external surface waters; ▪ All diversions to meet approved design criteria; and ▪ All structures not required for post-mining land use decommissioned.	▪ Results of contaminated land survey indicate no contamination or recommendations of survey report have been implemented successfully; ▪ No degradation of water quality or significant increase in salinity over the EA required post mining monitoring period; ▪ Dust and particulate matter indicates compliance with the EA; and ▪ Groundwater levels to remain similar to background variations
	Stable	Landform design achieves appropriate erosion rates.	▪ Engineered structures to control water flow; ▪ Appropriate rates of soil loss; ▪ Dimensions and frequency of erosion rills and gullies; and ▪ Vegetation cover sufficient to minimise erosion.	▪ Evidence that required contour banks, channel linings, surface armour, drop structures and other measures are in place and functioning; ▪ Certification that erosion activities are not greater than at comparable reference site; ▪ Dimension and occurrence of rills and gullies are no greater than at comparable reference site; and ▪ Evidence that vegetation type and density are of species suitable to the site and for erosion minimisation.

Domain and Sub-domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
	Able to sustain an agreed post mining land use	To rehabilitate and return area to nature conservation usage.	▪ Pasture cover per square meter; ▪ Soil characteristics; ▪ Presence and density of key plants species; ▪ Structure of vegetation; ▪ Weed and pest species presence, abundance and type; ▪ Ecosystem functioning indicators: water level and quality (dissolved oxygen, pH, temperature, salinity and nutrients (nitrogen and phosphorus); ▪ Biological: fish diversity, benthic algal growth; ▪ Habitat indicators: width, continuity, extent of shading and species composition; ▪ Native species; and ▪ Weed and pest abundance.	▪ Restored landform ripped to nominal depth of 50-100 mm ▪ Topsoil spread at agreed depth parallel to ripped contours; ▪ Topsoil replaced according to pre-mining mapped soil units with selective placement of more erodible soils on flatter areas, as appropriate; ▪ No active areas of rill or gully erosion and drainage follows appropriate drainage paths; ▪ Sown cover crop of perennial native vegetation or pasture mixes including short- and long-lived grasses and legumes. ▪ Certification by a suitably qualified person that the density and presence of key species and pasture cover is the same as at reference sites; ▪ Area is certified as self-sustaining and has many of the attributes of the final landscape, including maintenance requirements (compared to surrounding analogue site); ▪ Soil characteristics have been determined by a suitably qualified person as having acceptable levels of surface roughness, infiltration capacity, aggregate stability and surface condition as defined in the Australian Soil and Land Survey Handbook; ▪ Battered slopes with at least 70 % vegetative cover; ▪ Established vegetative cover on slopes and outside bund to at least 70 % cover; ▪ Native fauna identified in EIS baseline studies and at reference sites prior to mining are present or indicators of these species are recorded; ▪ Certification of no weed and pest species abundance identified in rehabilitation areas are no greater than at reference sites; and ▪ Evidence that weed and pest species management is occurring where appropriate.

Domain and Sub-domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
Haul Road Corridor All areas (road furniture, haul road, drainage, cut and fill areas)	Safe to humans and wildlife	No objects remaining which could cause injury.	▪ Presence/absence of infrastructure and wastes.	▪ All road furniture removed unless agreed in writing with the landholder and submitted to the administering authority; ▪ Bench cuts removed; ▪ Steep grades reduced; and ▪ Similar surrounding landform profile.
	Non polluting	No residual pollutants that could mobilise in environment.	▪ Soil sample result – salinity, hydrocarbon and metal levels.	▪ Runoff and seepage will be good quality water that is unlikely to affect known environmental values.
	Stable	No erosion and sediment loss above surrounding area.	▪ Water turbidity in watercourses; ▪ Sediment loss - visual inspection; ▪ Presence of scouring or erosion; and ▪ Percentage vegetative ground cover.	▪ Stable site with adequate cover and permanent drainage with no erosion issues.

Domain and Sub-domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
	Able to sustain an agreed post mining land use	▪ Revegetation and reconnection of wildlife corridor in previously RE areas.	▪ Vegetation percentage cover per square meter; ▪ Soil characteristics; ▪ Presence and density of key plants species; ▪ Structure of vegetation; and ▪ Weed and pest species presence, abundance and type; ▪ Ecosystem functioning indicators: water level and quality (dissolved oxygen, pH, temperature, salinity and nutrients (nitrogen and phosphorus); ▪ Biological: fish diversity, benthic algal growth; ▪ Habitat indicators: width, continuity, extent of shading and species composition; ▪ Native species; and ▪ Weed and pest abundance.	▪ Restored landform ripped to nominal depth of 50-100 mm ▪ Topsoil spread at agreed depths parallel to ripped contours; ▪ Topsoil replaced according to pre-mining mapped soil units with selective placement of more erodible soils on flatter areas, as appropriate; ▪ No active areas of rill or gully erosion and drainage follows appropriate drainage paths; ▪ Sown cover crop of perennial native vegetation or pasture mixes including short- and long-lived grasses and legumes. ▪ Certification by a suitably qualified person that the density and presence of key species and pasture cover is the same as at reference sites; ▪ Area is certified as self-sustaining and has many of the attributes of the final landscape, including maintenance requirements (compared to surrounding analogue site); ▪ Soil characteristics have been determined by a suitably qualified person as having acceptable levels of surface roughness, infiltration capacity, aggregate stability and surface condition as defined in the Australian Soil and Land Survey Handbook; ▪ Battered slopes with at least 70 % vegetative cover; ▪ Established vegetative cover on slopes and outside bund to at least 70 % cover; ▪ Native fauna identified in EIS baseline studies and at reference sites prior to mining are present or indicators of these species are recorded; ▪ Potential fish passage areas are appropriately re-established; ▪ Certification of no weed and pest species abundance identified in rehabilitation areas are no greater than at reference sites; and ▪ Evidence that weed and pest species management is occurring where appropriate.

Domain and Sub-domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
TLF All areas (Environmental dams, rail loop, train loader and conveyer, stockpiles)	Safe to humans and wildlife	Soil sample result – salinity, hydrocarbon and metal levels.	▪ Soil sample result – salinity, hydrocarbon and metal levels.	▪ All infrastructure removed unless agreed in writing with the landholder and submitted to the administering authority; and ▪ Land re-profiled, ripped and pasture cover established.
	Non polluting	No residual pollutants that could mobilise in environment.	▪ Soil sample result – salinity, hydrocarbon and metal levels.	▪ Post contamination assessment complete on areas where notifiable activities occurred; and ▪ Runoff and seepage will be good quality water that is unlikely to affect known environmental values.
	Stable	Removal and rehabilitation of environmental dam and stable ground cover reduce erosion from surface water runoff.	▪ Water turbidity in watercourses; ▪ Sediment loss - visual inspection; ▪ Presence of scouring or erosion; and ▪ Percentage vegetative ground cover.	▪ Stable site with adequate cover and permanent drainage with no erosion issues.

Domain and Sub-domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
	Able to sustain an agreed post mining land use	▪ Natural vegetation and habitat.	▪ Vegetation percentage cover per square meter; ▪ Soil characteristics; ▪ Presence and density of key plants species; ▪ Structure of vegetation; and ▪ Weed and pest species presence, abundance and type; ▪ Ecosystem functioning indicators: water level and quality (dissolved oxygen, pH, temperature, salinity and nutrients (nitrogen and phosphorus); ▪ Biological: fish diversity, benthic algal growth; ▪ Habitat indicators: width, continuity, extent of shading and species composition; ▪ Native species; and ▪ Weed and pest abundance.	▪ Restored landform ripped to nominal depth of 50-100 mm; ▪ Topsoil spread at agreed depths parallel to ripped contours; ▪ Topsoil replaced according to pre-mining mapped soil units with selective placement of more erodible soils on flatter areas, as appropriate; ▪ No active areas of rill or gully erosion and drainage follows appropriate drainage paths; ▪ Sown cover crop of perennial native vegetation or pasture mixes including short- and long-lived grasses and legumes; ▪ Certification by a suitably qualified person that the density and presence of key species and pasture cover is the same as at reference sites; ▪ Area is certified as self-sustaining and has many of the attributes of the final landscape, including maintenance requirements (compared to surrounding analogue site); ▪ Soil characteristics have been determined by a suitably qualified person as having acceptable levels of surface roughness, infiltration capacity, aggregate stability and surface condition as defined in the Australian Soil and Land Survey Handbook; ▪ Battered slopes with at least 70 % vegetative cover; ▪ Established vegetative cover on slopes and outside bund to at least 70 % cover; ▪ Native fauna identified in EIS baseline studies and at reference sites prior to mining are present or indicators of these species are recorded; ▪ Potential fish passage areas are appropriately re-established; ▪ Certification of no weed and pest species abundance identified in rehabilitation areas are no greater than at reference sites; and ▪ Evidence that weed and pest species management is occurring where appropriate.

Condition number	Condition
H4	All land disturbed by the activities carried out under this environmental authority must be progressively rehabilitated in accordance with **Figure 23-5 Progressive rehabilitation plan year** to **Figure 23-9 Progressive rehabilitation plan final landform** and achieve the minimum areas of rehabilitation state in **Table 23-14 Progressive rehabilitation requirements**
H5	A Post Closure Management Plan for the site must be developed and submitted to the administering authority at least 18 months prior to the finalisation of coal mining on site and implemented for a nominal period of: a) At least 30 years following the finalisation of coal mining on site; or b) A shorter period if the site is proven to be geotechnically and geochemically stable and it can be demonstrated to the satisfaction of the administering authority that no release of contaminants from the site will result in environmental harm.
H6	Rehabilitation activities carried out in accordance with **Table 23-14 Progressive rehabilitation requirements** must at a minimum, achieve the interim completion criteria, as stated in **Table 23-16 Interim completion criteria**, unless otherwise agreed to in writing by the administering authority.

Table 23-16 Interim completion criteria

Domain	Interim completion criteria
Open cut pits	▪ Final landform reshaping completed in accordance with the rehabilitation plan (condition H1) and the relevant completion criteria identified in **Table 23-15 Rehabilitation requirements;** ▪ Erosion and sediment controls installed as per the certified erosion and sediment control plan as required by condition F27; ▪ Topsoil placed to a minimum of 200 mm; ▪ Seeding undertaken with species identified within the analogue sites or previous regional ecosystem; and ▪ Monitoring locations established at the rehabilitation area, as identified within the rehabilitation management plan (condition H1).
Overburden stockpiles	▪ Final landform reshaping completed in accordance with the rehabilitation plan (condition H1) and the relevant completion criteria identified in **Table 23-15 Rehabilitation requirements;** ▪ Erosion and sediment controls installed as per the certified erosion and sediment control plan as required by condition F27; ▪ Topsoil placed to a minimum of 200 mm; ▪ Seeding undertaken with species identified within the analogue sites or previous regional ecosystem; and ▪ Monitoring locations established at the rehabilitation area, as identified within the rehabilitation management plan (condition H1).
Mine infrastructure area and roads	▪ All buildings removed; ▪ Final landform reshaping completed in accordance with the rehabilitation plan (condition H1) and the relevant completion criteria identified in **Table 23-15 Rehabilitation requirements;** ▪ Erosion and sediment controls installed as per the certified erosion and sediment control plan, as required by condition F27; ▪ Topsoil placed to a minimum of 200 mm; ▪ Seeding undertaken with species identified within the analogue sites or previous regional ecosystem; and ▪ Monitoring locations established at the rehabilitation area, as identified within the rehabilitation management plan (condition H1).
Water infrastructure including dams, drains and sumps	▪ Final landform reshaping completed in accordance with the rehabilitation plan (condition H1) and the relevant completion criteria identified in **Table 23-15 Rehabilitation requirements;** ▪ Erosion and sediment controls installed as per the certified erosion and sediment control plan as required by condition F27; ▪ Topsoil placed to a minimum of 200 mm; ▪ Seeding undertaken with species identified within the analogue sites or previous regional ecosystem; and ▪ Monitoring locations established at the rehabilitation area, as identified within the rehabilitation management plan (condition H1).

Domain	Interim completion criteria
Haul road, road furniture and drains	▪ Final landform reshaping completed in accordance with the rehabilitation plan (condition H1) and the relevant completion criteria identified in **Table 23-15 Rehabilitation requirements;** ▪ Erosion and sediment controls installed as per the certified erosion and sediment control plan as required by condition F27; ▪ Topsoil placed to a minimum of 200 mm; ▪ Seeding undertaken with species identified within the analogue sites or previous regional ecosystem; and ▪ Monitoring locations established at the rehabilitation area, as identified within the rehabilitation management plan (condition H1).
Train loadout facility	▪ Train load out facility and all associated infrastructure is retained in a safe and sustainable manner; ▪ Final landform reshaping completed in accordance with the rehabilitation plan (condition H1) and the relevant completion criteria identified in **Table 23-15 Rehabilitation requirements;** ▪ Erosion and sediment controls installed as per the certified erosion and sediment control plan as required by condition F27; ▪ Topsoil placed to a minimum of 200 mm; ▪ Seeding undertaken with species identified within the analogue sites or previous regional ecosystem; and ▪ Monitoring locations established at the rehabilitation area, as identified within the rehabilitation management plan (condition H1).

Condition number	Condition
H7	The holder of this environmental authority must ensure the Plan of Operations details how the areas, and interim completion criteria in **Table 23-15 Rehabilitation requirements** and **Table 23-16 Interim completion criteria** have been achieved.
Contaminated land	
H8	Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.
H9	Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use under condition H1.
Impacts to Prescribed Environmental Matter	
H10	Significant residual impacts to prescribed environmental matters are not authorised under this environmental authority or the *Environmental Offsets Act 2014* unless the impact(s) is specified in **Table 23-17 Significant residual impacts to prescribed environmental matters**

Table 23-17 Significant residual impacts to prescribed environmental matters

Matter of concern	Description	Impact area total (ha)
Identified residual impacts		
Habitat for threatened fauna	Ornamental Snake: RE 11.3.25 and 11.4.9	17.08
	Koala (based on all eucalypt habitat present) – 11.3.4, 11.3.25, 11.4.2 and 11.5.8a/11.7.2.	94.53
Regulated vegetation (Of Concern)	RE 11.4.2	80.06
	RE11.3.4	1.57
Regulated vegetation (Endangered)	RE11.4.9	7.88

Matter of concern	Description	Impact area total (ha)
Regulated vegetation (wetland)	Single wetland mapped as RE 11.3.27b under the DNRME VM Act wetland mapping (refer Section 14.11.2).	1.0
Regulated vegetation (watercourse)	Mapped watercourses intersecting remnant vegetation (Least Concern only). Project will impact 1.06 km of 1st or 2nd order streams – distance from defining bank 10 m (i.e. 20 m corridor width). Haul road will also intersect 0.19 km of 3rd and 4th order stream – distance from defining bank 25 m (i.e. 50 m corridor width) Overlaps with habitat for Koala. Mine area RE11.3.25 Haul road RE11.3.25 Total Watercourse vegetation	 2.12 0.38 2.5
	Overall impact area	**102.41 ha**
Potential residual impacts due to potential future groundwater drawdown (considered at extreme of overall modelled impact area 10 years post-mining) – excluding cleared areas		
Habitat for threatened fauna	Koala (based on presence of 'primary foraging habitat') – RE11.3.25.	192.92
	Koala (based on presence of 'primary foraging habitat') – RE11.3.4.	59.44

* these matters will be offset under the *Environment Protection and Biodiversity Conservation Act 1999* – approval conditions (EPBC 2012/6566)

Condition number	Condition
H11	Records demonstrating that each impact to a prescribed environmental matter not listed in **Table 23-17 Significant residual impacts to prescribed environmental matters** did not, or is not likely to, result in a significant residual impact to that matter must be: a) completed by an appropriately qualified person; and b) kept for the life of the environmental authority.
H12	An environmental offset made in accordance with the *Environmental Offsets Act 2014* and Queensland Environmental Offsets Policy, as amended from time to time, must be undertaken for the maximum extent of impact to each prescribed environmental matter authorised in **Table 23-17 Significant residual impacts to prescribed environmental matters**, unless a lesser extent of the impact has been approved in accordance with condition H15 [for staged offsets].
H13	A Project Offsets Delivery Plan will be developed in accordance with the Queensland Offsets Policy, cover the relevant predicted significant residual impacts (identified **in Table 23-17 Significant residual impacts to prescribed environmental matters**) associated with the Project, and will be submitted to DES for approval prior to the commencement of any Project activities (construction or operation).
Staged Impacts	
H14	The significant residual impacts to a prescribed environmental matter authorised in condition H10 for which an environmental offset is required by condition H12 may be carried out in stages. An environmental offset can be delivered for each stage of the impacts to prescribed environmental matters.
H15	Prior to the commencement of each stage, a report completed by an appropriately qualified person, that includes an analysis of the following must be provided to the administering authority: a) for the forthcoming stage—the estimated significant residual impacts to each prescribed environmental matter; and b) for the previous stage, if applicable—the actual significant residual impacts to each prescribed environmental matter, to date.

Condition number	Condition
H16	The report required by condition H15 must be approved by the administering authority before a notice of election for the forthcoming stage, if applicable, is given to the administering authority.
H17	A notice of election for the staged environmental offset referred to in condition H14, if applicable, must be provided to the administering authority no less than three months before the proposed commencement of that stage, unless a lesser timeframe has been agreed to by the administering authority.
H18	Within six months from the completion of the final stage of the project, a report completed by an appropriately qualified person, that includes the following matters must be provided to the administering authority: a) an analysis of the actual impacts on prescribed environmental matters resulting from the final stage; and b) if applicable, a notice of election to address any outstanding offset debits for the authorised impacts.
Biodiversity Management Strategies	
H19	Biodiversity management strategies must be developed as part of a Land Use Management Plan by an appropriately qualified and experienced person(s) and submitted to the administering authority for approval prior to the commencement of the project to monitor, identify and describe any adverse impacts to flora and fauna due to the authorised mining activity. The approved strategies must be implemented.
H20	The LUMP, as required by condition H19, must address all relevant requirements within this environmental authority and commitments made by the applicant in the associated EIS for the project dated ***TBA***, and at a minimum include the following items; a) Vegetation monitoring program to monitor the health of vegetation potentially impacted from the mining activity; b) Fauna management and monitoring programs including Significant Species Management Plans and Species Management Programs; c) Aquatic health monitoring program to include regular biannual monitoring of the aquatic health of waterholes to assess for impacts of groundwater and surface water contamination and groundwater drawdown; d) Biosecurity management strategies; and e) Monitoring programs for flora, fauna, and stream health is to occur bi-annually, including both dry and wet seasons. All monitoring must be carried out by suitably trained ecological professionals.
Exploration	
H21	Exploration activities must be undertaken in accordance with the most recent version of the document *Eligibility criteria and standard conditions for exploration and mineral development projects*.

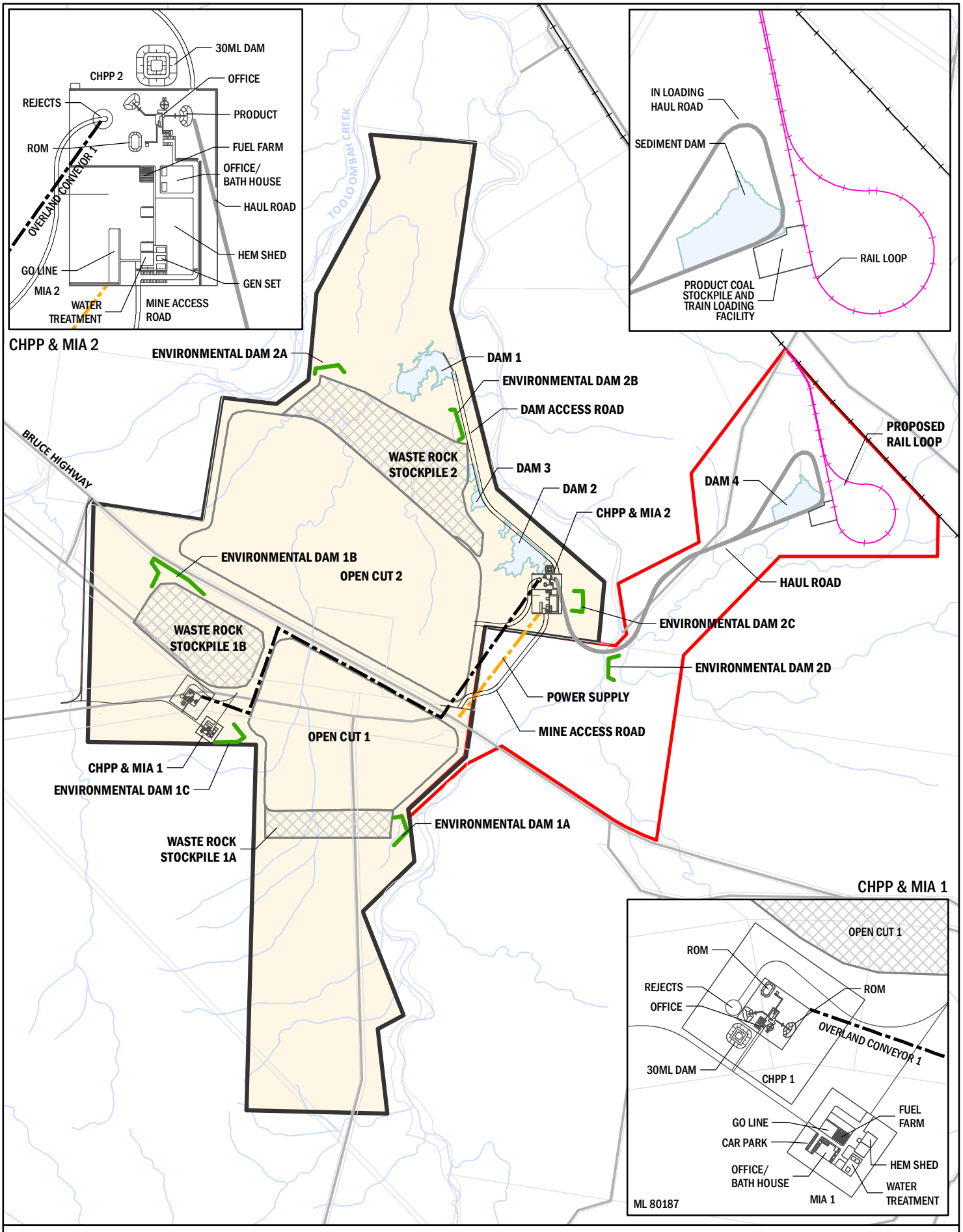
23.1.10 Schedule J – Regulated Dams and Structures

This Schedule has been based on the 'DES Guideline: Structures which are dams or Levees Constructed as part of Environmentally Relevant Activities (ESR/2016/1934)'.

Condition number	Condition
Assessment of consequence category	
J1	The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933) at the following times: a) prior to the design and construction of the structure, if it is not an existing structure; or b) if it is an existing structure, prior to the adoption of this schedule; or b) prior to any change in its purpose or the nature of its stored contents.
J2	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.
J3	Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933).
Design and construction of a regulated structure	

Condition number	Condition
J4	All regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933).
J5	Construction of a regulated structure is prohibited unless: a) the holder has submitted a consequence category assessment report and certification to the administering authority; and b) certification for the design, design plan and the associated operating procedures has been certified by a suitably qualified and experienced person in compliance with the relevant condition of this authority.
J6	Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933) and must be recorded in the Register of Regulated Structures.
J7	Regulated structures must: a) be designed and constructed in accordance with and conform to the requirements of the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933); b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of: i. floodwaters from entering the regulated dam from any watercourse or drainage line; and ii. wall failure due to erosion by floodwaters arising from any watercourse or drainage line. 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.
J8	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.
Notification of affected persons	
J9	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.
Operation of a regulated structure	
J10	Operation of a regulated structure, except for an existing structure, is prohibited unless the holder has submitted to the administering authority: a) one paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition J6; b) set of 'as constructed' drawings and specifications, c) certification of those 'as constructed drawings and specifications' in accordance with condition J9, d) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan; e) the requirements of this authority relating to the construction of the regulated structure have been met; f) the holder has entered the details required under this authority, into a Register of Regulated Dams; and g) there is a current operational plan for the regulated structure.
Mandatory reporting level	
J11	Conditions J12 to J13 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.

Condition number	Condition
J12	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.
J13	The holder must, as soon as practical and within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.
J14	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.
J15	The holder must record any changes to the MRL in the Register of Regulated Structures.
Design storage allowance	
J16	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.
J17	By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the dam (or network of linked containment systems).
J18	The holder must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.
J19	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.
Annual inspection report	
J20	Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.
J21	At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include recommended actions to ensure the integrity of the regulated structure.
J22	The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933).
J23	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) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this to the administering authority within 10 business days of receipt of the request.
Register of regulated structures	
J24	A Register of Regulated Structures must be established and maintained by the holder for each regulated structure.
J25	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.
J26	The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with condition J10 has been achieved.
J27	The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.
J28	All entries in the Register of Regulated Structures must be approved by the chief executive officer for the holder of this authority, or their delegate, as being accurate and correct.
J29	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.



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Scale @ A4 1:50,000
Date: 27/11/18
Drawn: Gayle B.

Legend

- Haul Road
- Mine infrastructure
- Overland Conveyor
- Power
- Rail Balloon Loop
- Mine Access Road
- ML 80187
- ML 700022
- Cadastral boundary
- Open-cut Mine Pit
- Waste Rock Area
- Environmental Dams
- Main Road
- North Coast Rail Line
- Watercourse
- Dam

Figure 23-1
General arrangement

DATA SOURCE
Waratah Coal, 2018
QLD Open Source Data, 2018

CDM Smith

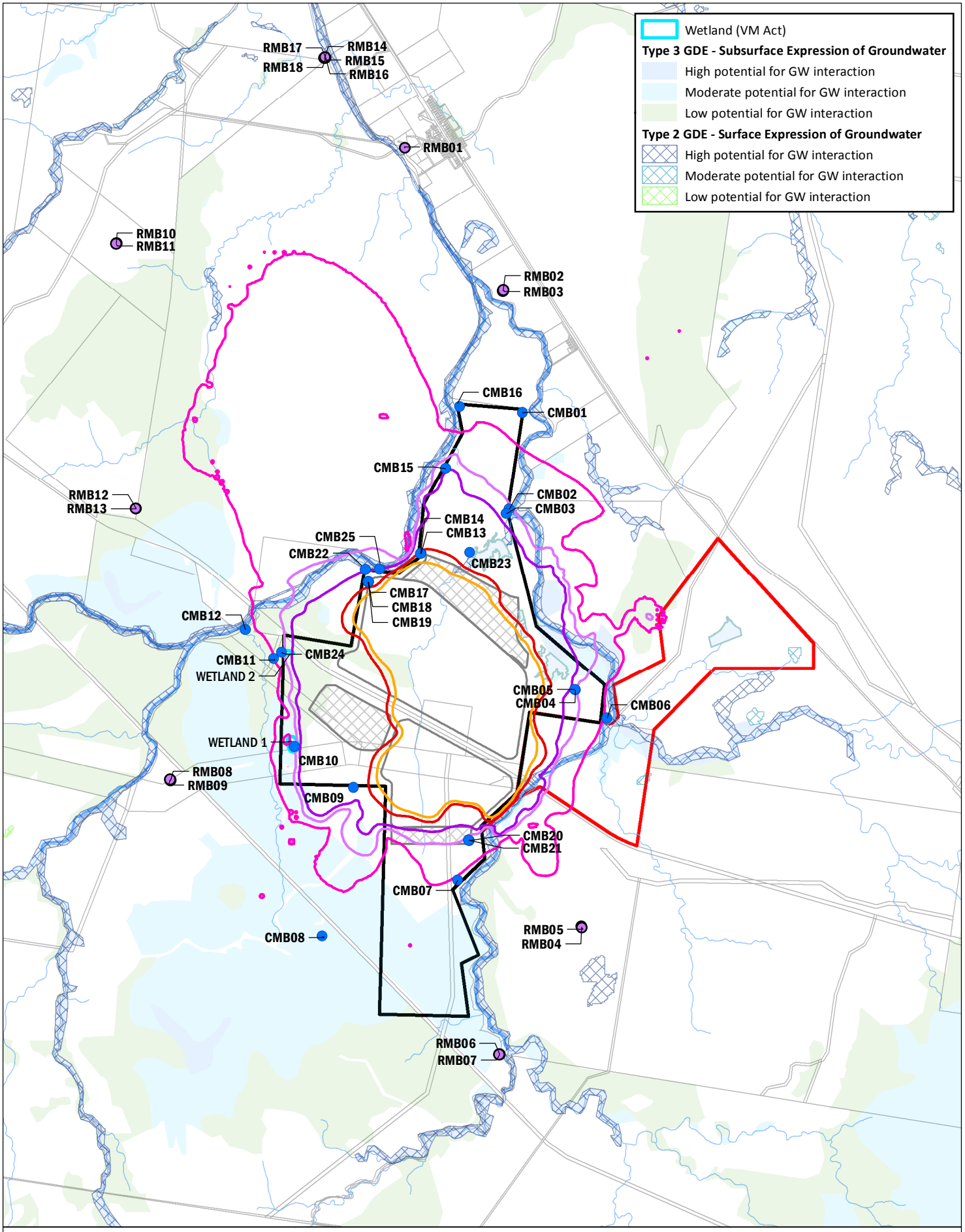


Figure 23-2
Groundwater monitoring bore location plan

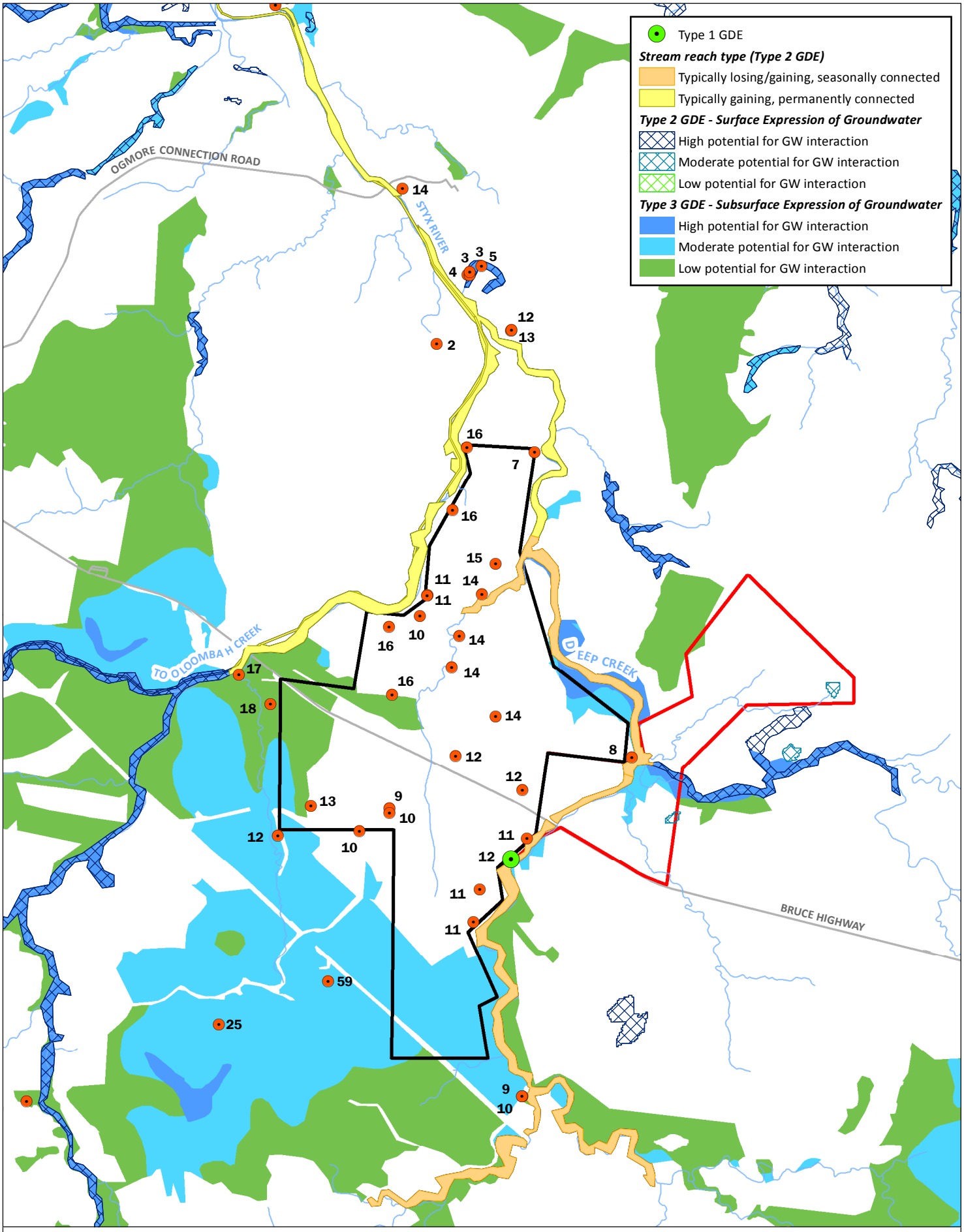
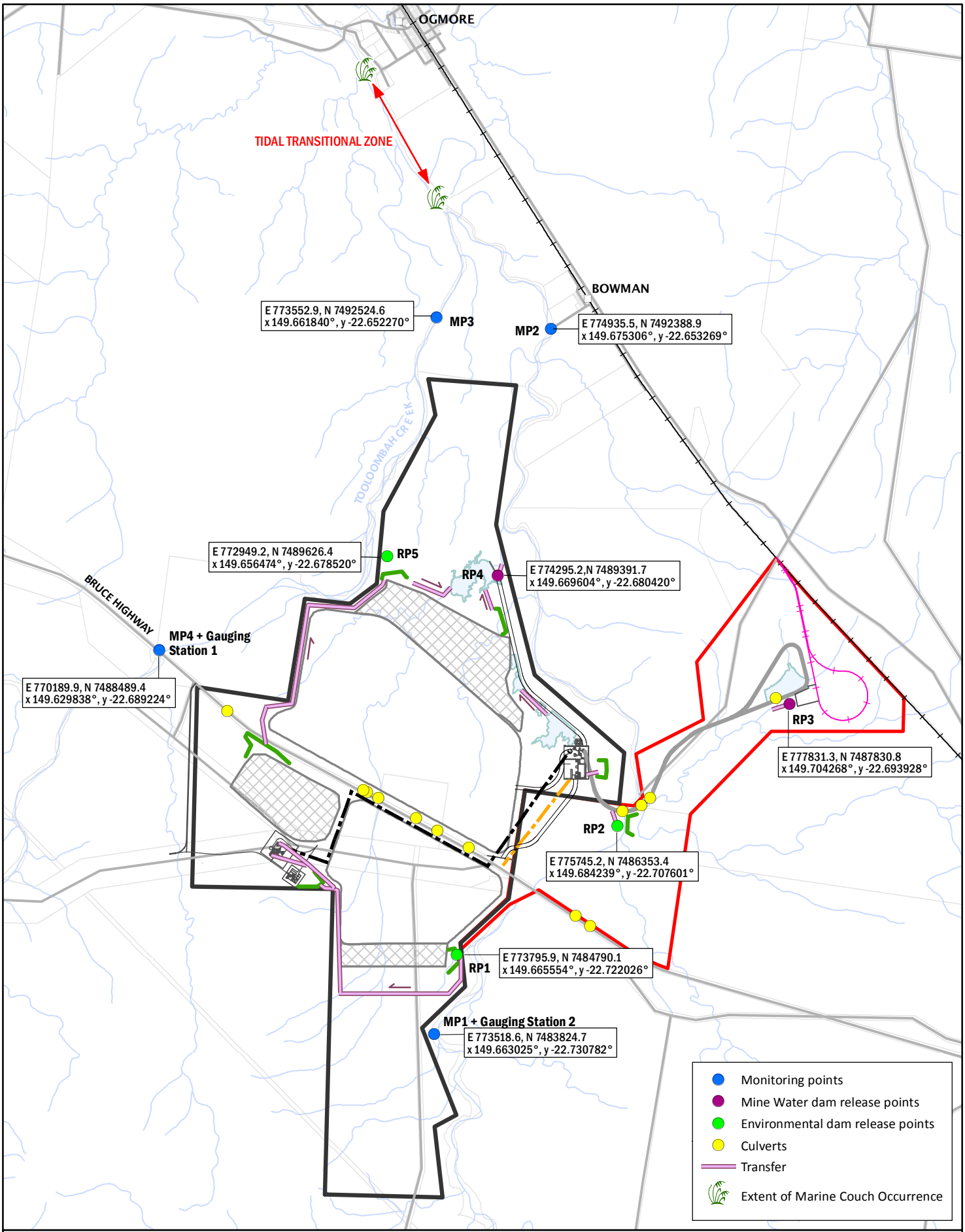


Figure 23-3
Groundwater Dependent Ecosystems

DATA SOURCE
QLD Open Source Data, 2018
Waratah Coal, 2018

CDM Smith



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Date: 27/11/18
Drawn: Gayle B.

Legend

- Haul Road
- Mine infrastructure
- Overland Conveyor
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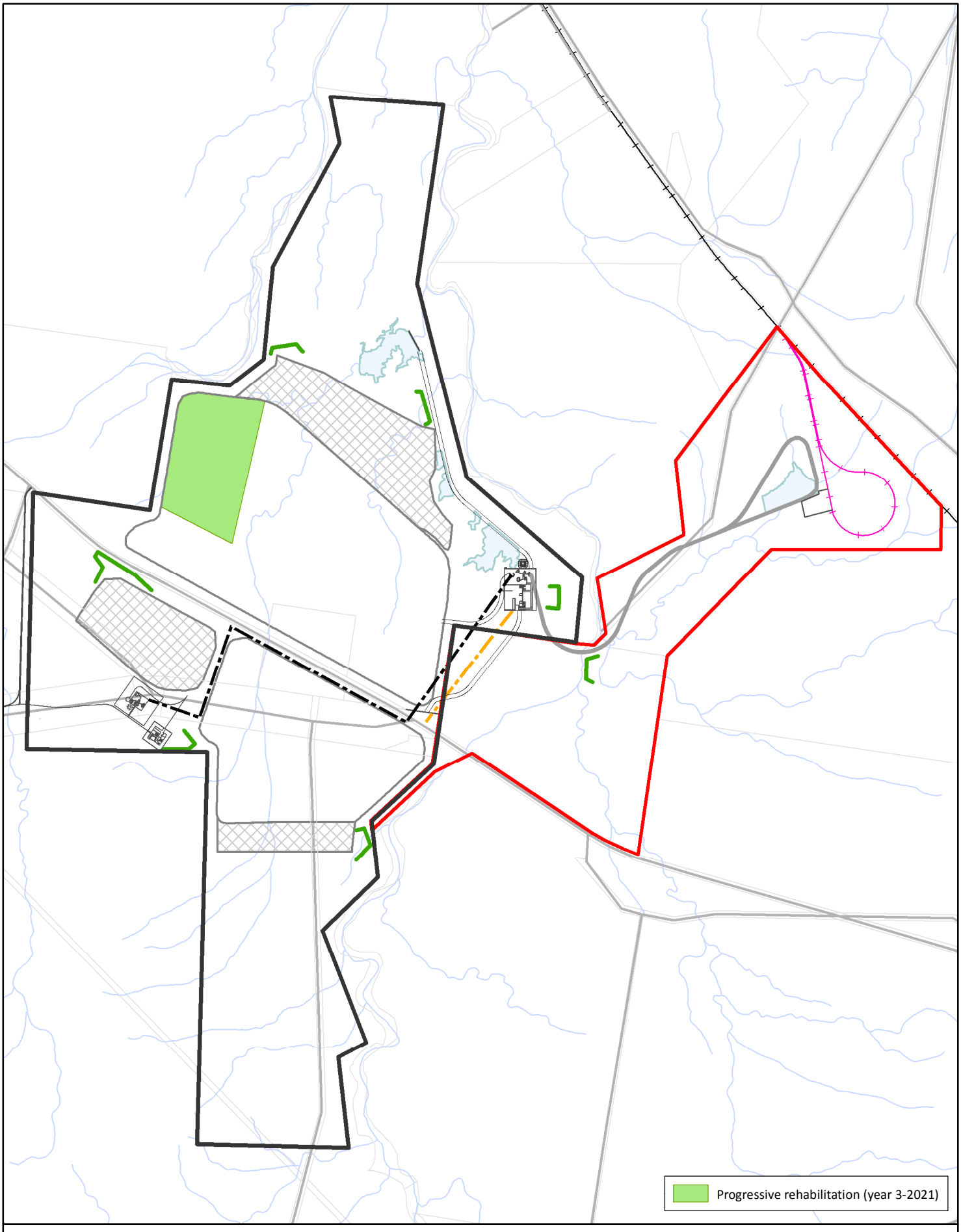
- North Coast Rail Line
- Watercourse
- Dam

DATA SOURCE
Waratah Coal, 2018
QLD Open Source Data, 2018

Figure 23-4
Indicative mine affected water release and monitoring points

CDM Smith



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Scale @ A4 1:46,500
Date: 27/11/18
Drawn: Gayle B.

Legend

- Haul Road
- Mine infrastructure
- Overland Conveyor
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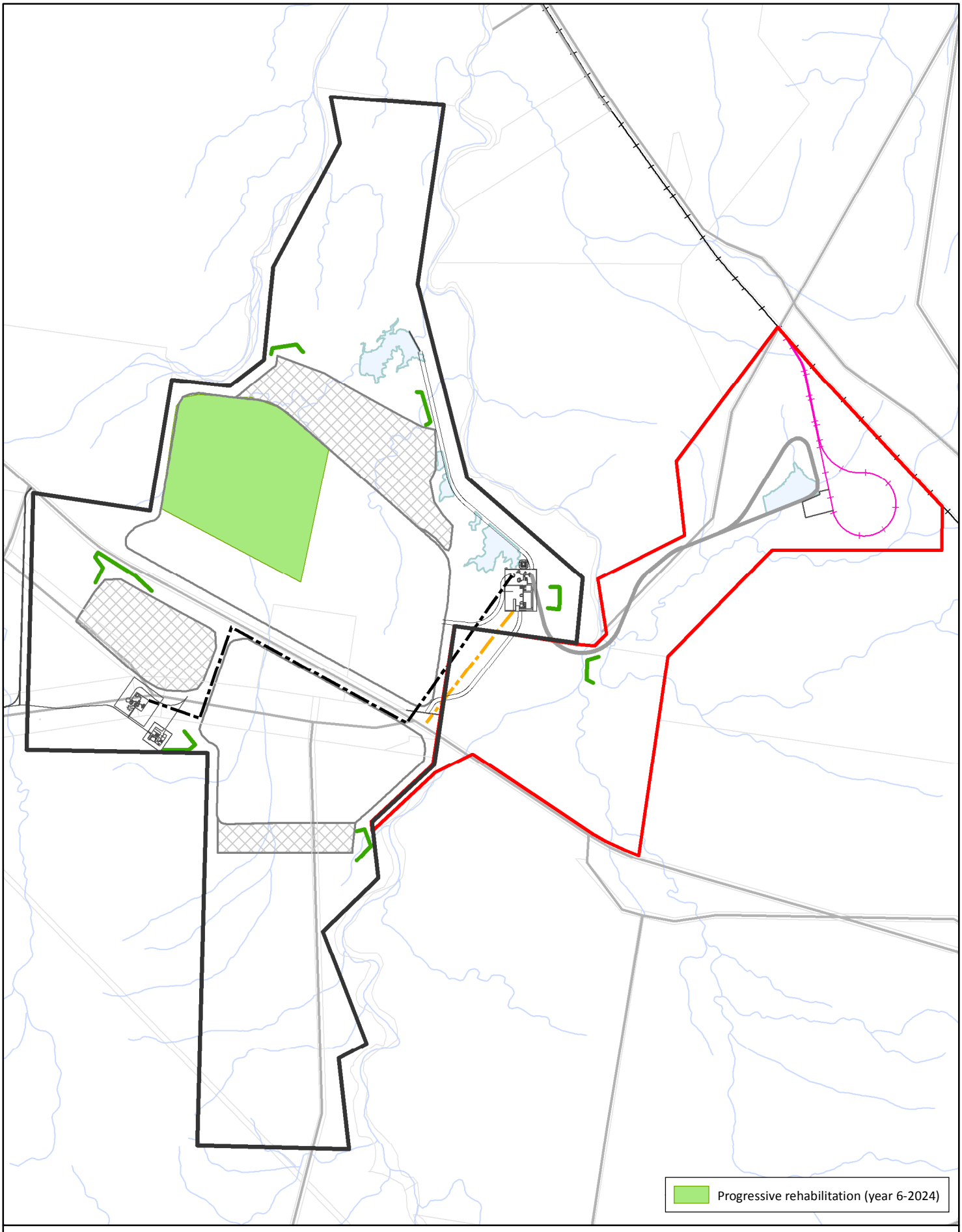
- North Coast Rail Line
- Watercourse
- Dam

DATA SOURCE
Waratah Coal, 2018
QLD Open Source Data, 2018

Figure 23-5
Progressive rehabilitation (year 3–2021)

CDM Smith



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Scale @ A4 1:46,500
Date: 27/11/18
Drawn: Gayle B.

Legend

- Haul Road
- Mine infrastructure
- Overland Conveyor
- Power
- Rail Balloon Loop
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- ML 700022
- Cadastral boundary
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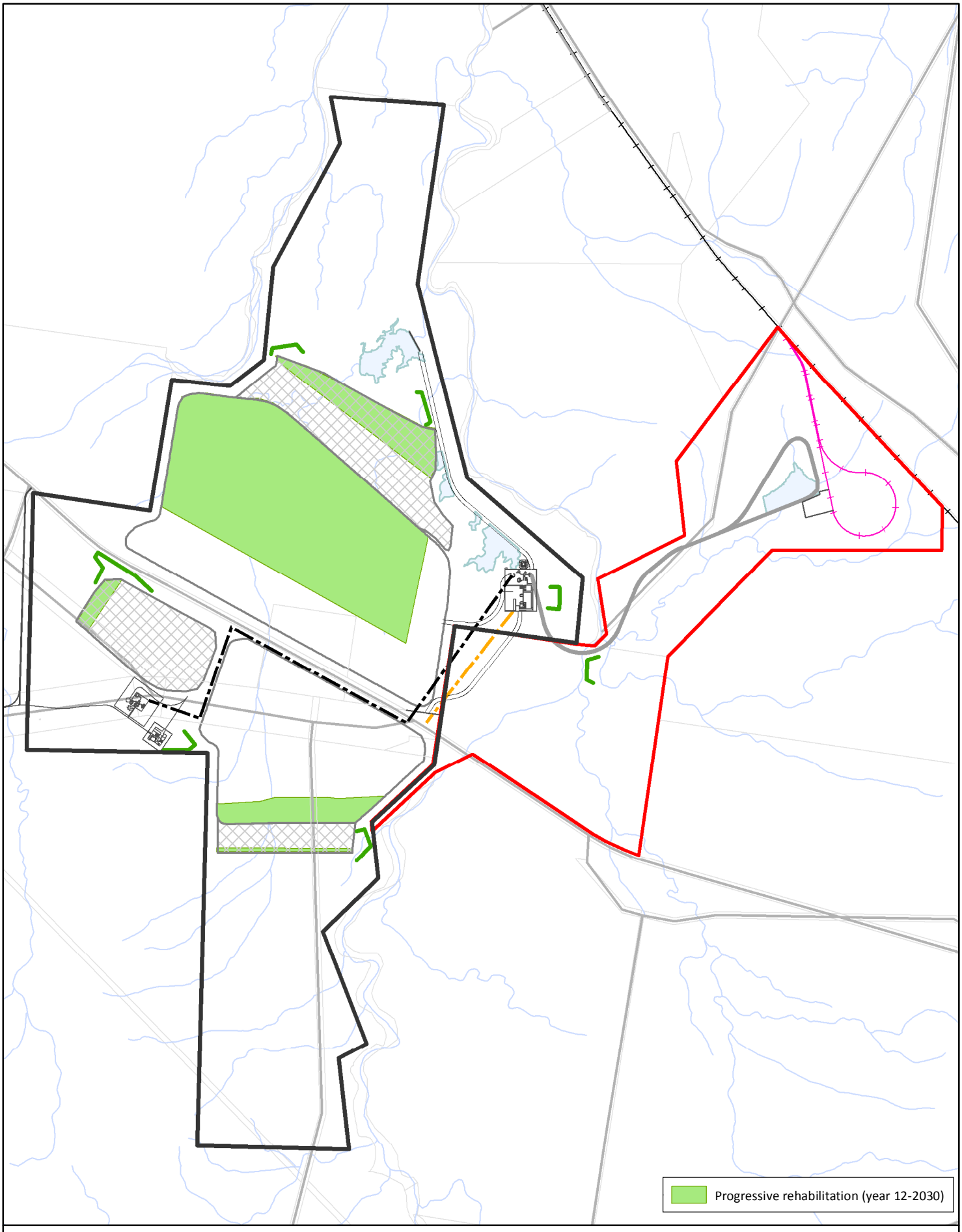
- North Coast Rail Line
- Watercourse
- Dam

DATA SOURCE
Waratah Coal, 2018
QLD Open Source Data, 2018

Figure 23-6
Progressive rehabilitation (year 6–2024)

CDM Smith



Legend

- Haul Road
- Mine infrastructure
- Overland Conveyor
- Power
- Rail Balloon Loop
- Mine Access Road
- ML 80187
- ML 700022
- Cadastral boundary
- Open-cut Mine Pit
- Waste Rock Area
- Environmental Dams
- Main Road
- North Coast Rail Line
- Watercourse
- Dam

N

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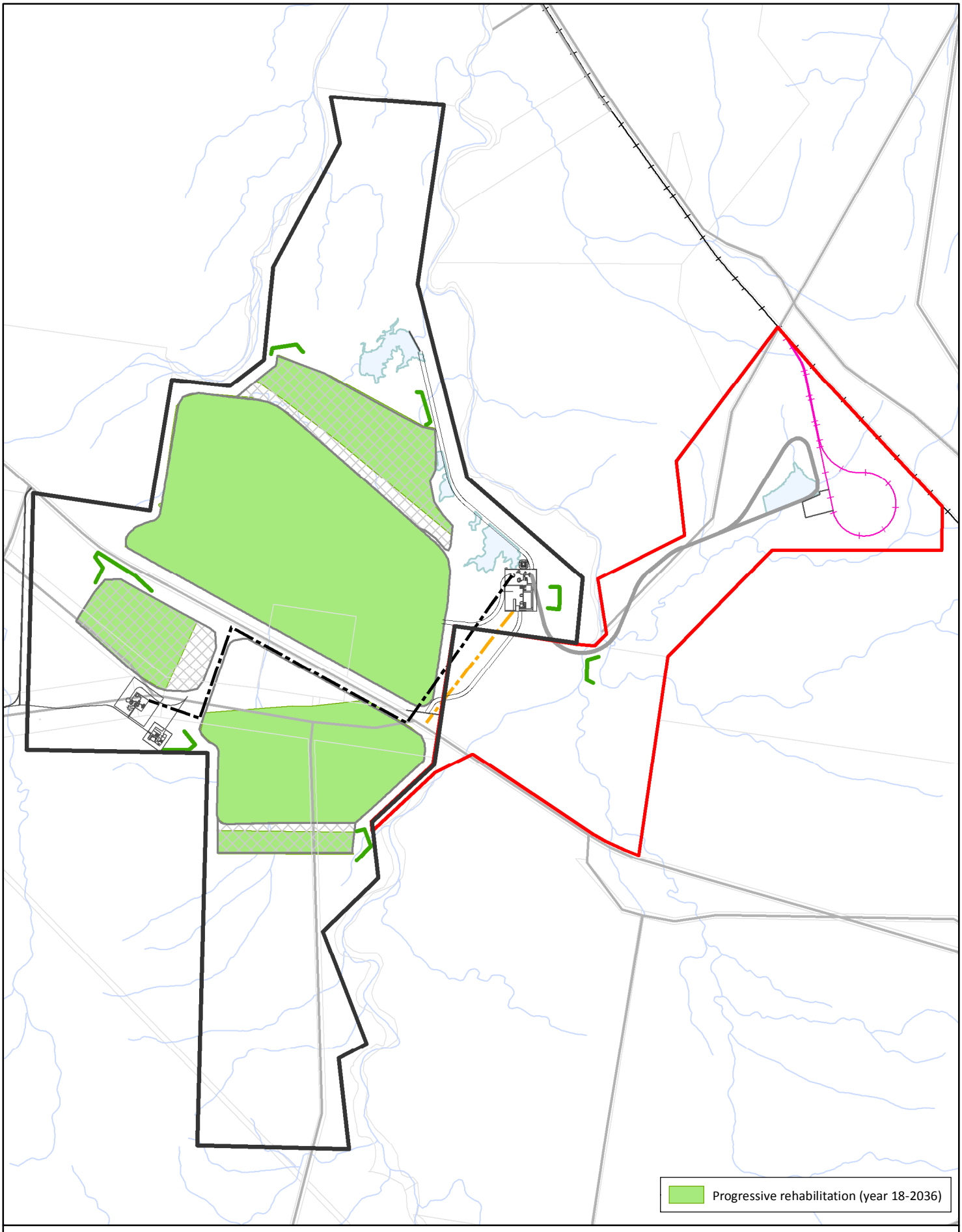
Scale @ A4 1:46,500
Date: 27/11/18
Drawn: Gayle B.

DATA SOURCE
Waratah Coal, 2018
QLD Open Source Data, 2018

Figure 23-7
Progressive rehabilitation (year 12–2030)

CDM Smith



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Scale @ A4 1:46,500
Date: 27/11/18
Drawn: Gayle B.

Legend

- Haul Road
- Mine infrastructure
- Overland Conveyor
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- Rail Balloon Loop
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- Cadastral boundary
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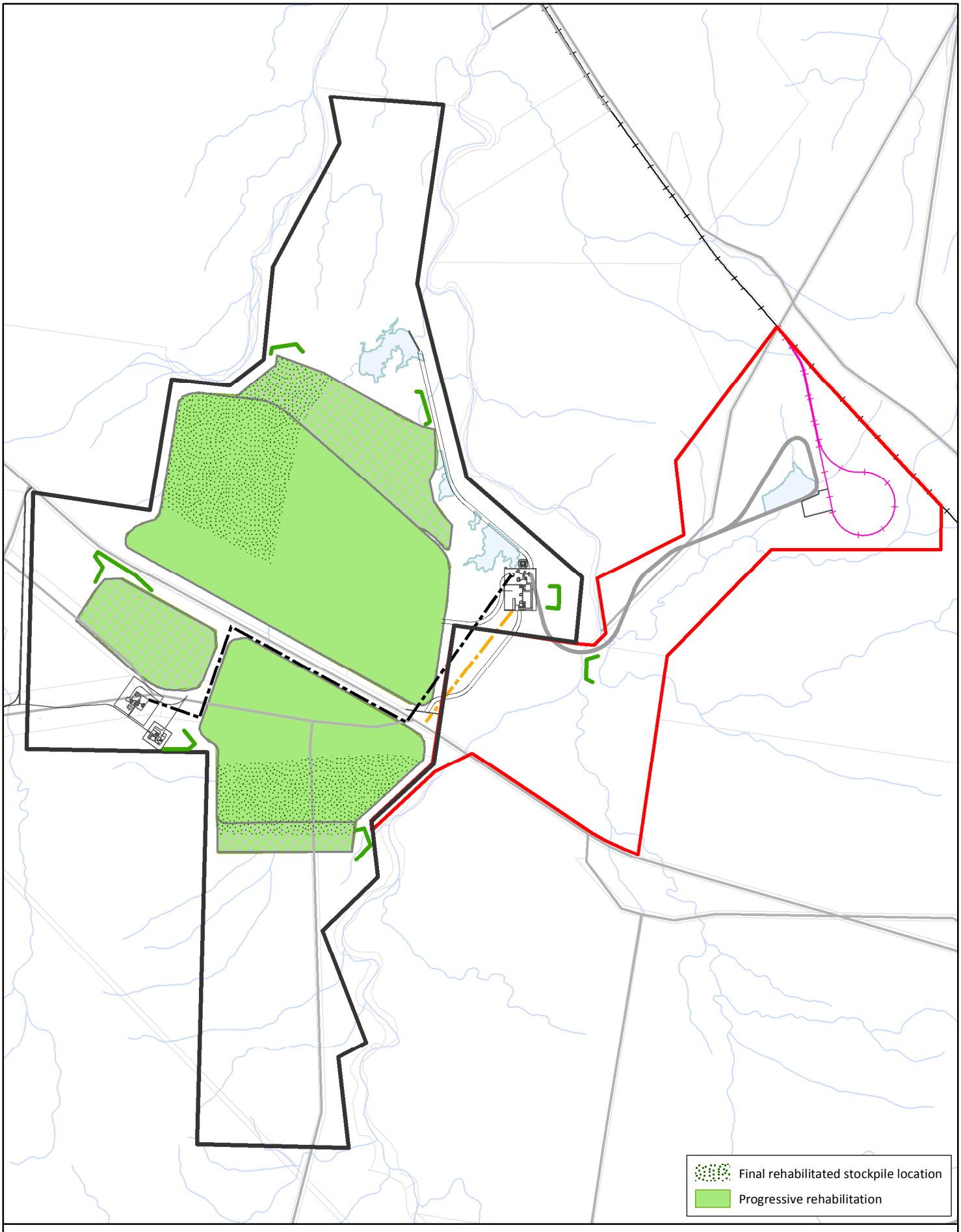
- Watercourse
- Dam

DATA SOURCE
Waratah Coal, 2018
QLD Open Source Data, 2018

Figure 23-8
Progressive rehabilitation (year 18–2036)

CDM Smith



Legend

- Haul Road
- Mine infrastructure
- Overland Conveyor
- Power
- Rail Balloon Loop
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- Cadastral boundary
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N

0 0.5 1 km

Scale @ A4 1:46,500
Date: 27/11/18
Drawn: Gayle B.

DATA SOURCE
Waratah Coal, 2018
QLD Open Source Data, 2018

Figure 23-9
Progressive rehabilitation (final landform)

CDM Smith